Analyzing and Increasing the Potential of Social Commerce Initiatives

Theoretical Foundations, Empirical Evidence, and Design Recommendations

Thomas Friedrich
University of Bamberg

URN: urn:nbn:de:bvb:473-irb-472698
DOI: https://doi.org/10.20378/irb-47269

Analyzing and Increasing the Potential of Social Commerce Initiatives

Theoretical Foundations, Empirical Evidence, and Design Recommendations

Dissertation

zur Erlangung des akademischen Grades
doctor rerum politicarum (Dr. rer. pol.)
der Fakultät Wirtschaftsinformatik und Angewandte Informatik
der Otto-Friedrich-Universität Bamberg

vorgelegt von
Thomas Friedrich, M.Sc.

Erstgutachter: Prof. Dr. Sven Overhage
Zweitgutachterin: Prof. Dr. Kathrin Figl

Tag der Disputation: 30.01.2020

Table of Contents

Acknowledgements

Writing this dissertation has been an incredibly fascinating and challenging journey that I could not have possibly taken on my own. I would like to express my heartfelt thanks to the many people who supported me along the way.

First, I would like to express my deepest gratitude to my PhD supervisor, Prof. Dr. Sven Overhage, who provided me an excellent work environment and guided me throughout this journey. His constant guidance, feedback, and support in every possible situation gave me the strength and motivation to pursue my research, also in challenging times. His valuable and inspiring inputs not only strengthened my research but also me as a person. Thanks to Sven, I could visit several international conferences, which helped a lot to improve my work and made this journey an unforgettable, rewarding, and joyful experience. I am also very thankful to Prof. Dr. Kathrin Figl (University of Innsbruck), Prof. Dr. Tom Gross, and Prof. Dr. Gerald Lüttgen for joining my PhD committee and for their valuable feedback and support.

Second, I want to specifically thank my colleague Dr. Sebastian Schlauderer, who has been a great mentor, motivator, and supporter along the whole journey. No matter how difficult the situation, Sebastian always helped me finding the right solution. His positive spirit, optimism, and enthusiasm have been an invaluable source of inspiration for me. Not to forget the many fun moments we shared during conference trips and while beating each other at endless rounds of table tennis.

Additionally, I would like to extend my gratitude to my current and former colleagues, Julian Weidinger, Maximilian Raab, Björn Fehrenbach, Martin Robel, Benjamin Leunig, Jochen Frank, as well as our beloved secretary, Hedwig Alt, for their generous and manifold assistance. It has always been a pleasure to work with such an excellent team and I am incredibly thankful for the many good times we had throughout the last years. I would also like to say thanks to the team at the chair of Prof. Dr. Tim Weitzel, especially Jakob Wirth, Dr. Christian Maier, and Dr. Christoph Weinert, for offering me their help and advice whenever I needed it.

Finally, I feel especially indebted to my family for their unconditional support, patience, and empathy throughout the years of my PhD studies. Specifically, I want to thank my parents Carla and Olaf, who gave me the opportunity to receive an excellent education and always believed in me. Without their continuous support, love, and care, I would not have been able to write this dissertation and go through some of the tough moments during this journey. I am blessed for having such wonderful parents, and to them I dedicate this dissertation.

Bamberg, January 2020 Thomas Friedrich

Zusammenfassung (German Summary)

Der elektronische Handel (E-Commerce) weist auch nach über 20 Jahren seiner Entstehung weiterhin großes Wachstumspotenzial auf und gilt als wichtiger Treiber der Digitalisierung (Hagberg et al. 2017; Turban et al. 2015). Das kontinuierlich hohe Wachstum geht jedoch mit steigendem Wettbewerbsdruck einher und stellt Unternehmen vor zahlreiche Herausforderungen. Zu diesen Herausforderungen zählt insbesondere die Gestaltung einer erfolgreichen E-Commerce-Plattform (Cao et al. 2005). Gerade im Business-to-Consumer-Bereich gilt es als erfolgsentscheidend, Konsumenten ein ansprechendes Einkaufserlebnis zu bieten (Chiu et al. 2014). Eine Schwierigkeit hierbei ist, dass der Einkauf auf E-Commerce-Plattformen im Vergleich zum stationären Einkauf von Konsumenten oftmals als eher anonym und unpersönlich wahrgenommen wird (Hassanein und Head 2007). Die Problematik wird zudem verstärkt, da E-Commerce-Plattformen in der Regel hinsichtlich einer effizienten Transaktionsabwicklung gestaltet sind und somit kaum Möglichkeiten zur zwischenmenschlichen Kommunikation und Interaktion bieten (Gefen und Straub 2003). Ohne soziale Interaktionsmöglichkeiten kann es für Unternehmen jedoch schwierig werden, die Aufmerksamkeit der Kunden zu gewinnen und diese langfristig an die Plattform zu binden (Jahng et al. 2007). Beispielsweise zählen Bedürfnisse nach sozialen Erfahrungen zu den zentralen Kaufmotiven von Konsumenten (Tauber 1972). Zudem zeigt die Forschung, dass die durch zwischenmenschliche Kommunikation und Interaktion generierten Informationen Unsicherheiten reduzieren und Konsumenten in ihrer Kaufentscheidung unterstützen können (Chen et al. 2011; Pavlou et al. 2007).

Um die Nachteile der fehlenden sozialen Interaktion zu reduzieren und Kunden ein ansprechenderes Einkaufserlebnis zu bieten, integrieren Unternehmen zunehmend soziale Medien (Social Media) in ihre E-Commerce-Plattformen (Huang und Benyoucef 2015). Durch die Integration von Social Media werden Konsumenten aktiv in den Kaufprozess einbezogen und angeregt, produktbezogene Informationen auf E-Commerce-Plattformen zu erstellen und zu teilen. Dies kann die Kaufentscheidung anderer Konsumenten beeinflussen (Cheung und Thadani 2012). Initiativen, in denen Social Media genutzt wird, um E-Commerce-Transaktionen zu unterstützen, fasst die Literatur unter dem Begriff *Social Commerce* zusammen (Liang und Turban 2011). Um Social-Commerce-Initiativen zu ermöglichen, existieren unterschiedliche Social-Media-Applikationen, sogenannte *Social-Commerce-Features*, welche in E-Commerce-Plattformen direkt integrierbar sind. Beispiele für häufig in der Praxis eingesetzte Social-Commerce-Features sind Tools für Kundenbewertungen und Rezensionen, soziale Wunschlisten, Share-Buttons, Like-Buttons, Community-Feeds sowie Tools für Produktfragen und -antworten (Huang und Benyoucef 2015).

Während Social-Commerce-Initiativen großes Potenzial zugewiesen wird, gibt es auch Belege von ausbleibendem Erfolg (Hajli et al. 2017; Sharma et al. 2017). Aus Unternehmenssicht ist es insofern wichtig zu verstehen, über welche Mechanismen Social-Commerce-Initiativen wirken und wie diese Mechanismen effektiv eingesetzt werden können, um den Erfolg solcher Initiativen sicherzustellen. Die gegenwärtige Social-Commerce-Literatur gibt jedoch nur wenig Aufschluss über die Mechanismen von Social-Commerce-Initiativen und deren erfolgreiche Gestaltung. Vor diesem Hintergrund ist das Ziel dieser kumulativen Dissertation, die Forschung und Praxis zu unterstützen, ein tiefgreifendes Verständnis über das Potenzial von Social-Commerce-Initiativen zu erlangen und zu zeigen, wie dieses Potenzial gesteigert werden kann. Demzufolge lautet die übergeordnete Forschungsfrage dieser Dissertation:

Welches Potenzial haben Social-Commerce-Initiativen und wie lässt sich dieses Potenzial steigern?

Für die Beantwortung dieser Forschungsfrage ist die Dissertation in drei Teile gegliedert.

Der erste Teil konzentriert sich auf die zentralen Wirkungsmechanismen von Social-Commerce-Initiativen. Hierbei wird eine systematische Literaturrecherche zur Identifikation derjenigen Faktoren durchgeführt, die das Konsumentenverhalten im Rahmen solcher Initiativen ausschlaggebend beeinflussen. Die Literaturrecherche liefert einen strukturierten und umfassenden Überblick über die in der Social-Commerce-Literatur untersuchten Faktoren und deren Wirkungsweisen. Durch quantitatives Zusammenfassen der empirischen Ergebnisse gibt die Literaturrecherche zudem einen Querschnitt über die allgemeine Wirkungsrichtung und Effektstärke der Faktoren. Die Ergebnisse der Literaturrecherche zeigen, dass für einige Faktoren, wie beispielsweise Vertrauen, wahrgenommene Nützlichkeit oder sozialer Einfluss, die nachgewiesenen Effekte in eine eindeutige Richtung zeigen. Für andere Faktoren, wie beispielsweise Vergnügen, Risiko oder soziale Präsenz, gehen die Effekte jedoch in keine klare Richtung und erfordern weitere Untersuchungen. Die Ergebnisse der Literaturrecherche bieten der Forschung und Praxis eine fundierte Grundlage, um ein ganzheitliches Verständnis über die zentralen Wirkungsmechanismen von Social-Commerce-Initiativen zu erlangen.

Der zweite Teil fokussiert sich auf die Untersuchung der Effekte und den wirkungsvollen Einsatz von Social-Commerce-Features. Unter Berücksichtigung der Ergebnisse der vorhergehenden Literaturrecherche wird zunächst ein integriertes Forschungsmodell entwickelt, welches als konzeptuelles Rahmenwerk dient, um die Effekte von Social-Commerce-Features systematisch zu analysieren. Aufbauend auf dem Rahmenwerk werden mehrere experimentelle Studien durchgeführt, um Erkenntnisse über den wirkungsvollen Einsatz von Social-Commerce-Features zu erlangen. In diesem Zusammenhang wird sich auf erste Annahmen in der Literatur gestützt, dass der Erfolg von Social-Commerce-Initiativen gesteigert werden kann, wenn diese mehrere Social-Commerce-Features in Kombination verwenden (Huang und Benyoucef 2013). Die Annahmen sind jedoch weder theoretisch fundiert noch empirisch verifiziert. Mit der *Social-Commerce-Feature-Richness* liefert diese Dissertation ein theoretisches Konzept, um die funktionale Reichhaltigkeit, die von mehreren Social-Commerce-Features bereitgestellt wird, zu erfassen. Je reichhaltiger die Funktionalität, desto höher die Social-Commerce-Feature-Richness. Die Ergebnisse der experimentellen Studien zeigen, dass eine höhere Social-Commerce-Feature-Richness mit einer positiven Wahrnehmung von sozialen, kognitiven und affektiven Faktoren einhergeht. Die positive Beeinflussung dieser Faktoren führt wiederum zu einer erhöhten Bereitschaft der Konsumenten, Käufe über die E-Commerce-Plattform zu tätigen sowie länger auf der Plattform zu verweilen. Für die Forschung und Praxis lässt sich festhalten, dass die Social-Commerce-Feature-Richness eine wichtige Rolle spielt, um den Erfolg von Social-Commerce-Initiativen zu steigern.

Der dritte Teil befasst sich mit der Auswahl von Social-Commerce-Features. Unter Berücksichtigung der Ergebnisse der vorangegangenen Teile wird auf Basis eines gestaltungsorientierten Forschungsansatzes eine Methode entwickelt, die Unternehmen dabei unterstützt, systematisch mehrere funktional komplementäre Social-Commerce-Features auszuwählen. Die Methode liefert ein systematisches Vorgehensmodell, welches das Auswahlproblem in mehrere, exakt definierte Schritte unterteilt. Darüber hinaus stellt die Methode einen Katalog zur Bewertung von Social-Commerce-Features als konsolidierte Informationsgrundlage zur Verfügung, um den Auswahlprozess auf effiziente Weise zu erleichtern. Die Evaluierung im Rahmen eines Praxisprojekts zeigt, dass die Methode intuitiv anwendbar ist und zu einer effizienten Auswahl von Social-Commerce-Features beitragen kann. Die Methode verhilft somit der Forschung und Praxis zu einer zielgerichteteren Gestaltung von Social-Commerce-Initiativen.

Hinsichtlich der primären Fragestellung der Dissertation kann abschließend festgehalten werden, dass Social-Commerce-Initiativen über verschiedene Wirkungsmechanismen verfügen, die durch die Kombination von funktional unterschiedlichen Social-Commerce-Features positiv beeinflusst werden können. Diese Erkenntnisse bilden wiederum die Grundlage für eine systematische Auswahl von Social-Commerce-Features. Mit diesen Erkenntnisgewinnen leistet die Dissertation einen wichtigen Beitrag zur Forschung und Praxis der Wirtschaftsinformatik, insbesondere im Bereich des E-Commerce.

Literaturverzeichnis

Cao, M., Zhang, Q., & Seydel, J. (2005). B2C E-Commerce Web Site Quality: An Empirical Examination. *Industrial Management & Data Systems*, 105(5), S. 645-661.

Chen, Y., Wang, Q., & Xie, J. (2011). Online Social Interactions: A Natural Experiment on Word of Mouth Versus Observational Learning. *Journal of Marketing Research*, 48(2), S. 238-254.

Cheung, C. M. K., & Thadani, D. R. (2012). The Impact of Electronic Word-of-Mouth Communication: A Literature Analysis and Integrative Model. *Decision Support Systems*, 54(1), S. 461-470.

Chiu, C.-M., Wang, E. T. G., Fang, Y.-H., & Huang, H.-Y. (2014). Understanding Customers' Repeat Purchase Intentions in B2C E-Commerce: The Roles of Utilitarian Value, Hedonic Value and Perceived Risk. *Information Systems Journal*, 24(1), S. 85-114.

Gefen, D., & Straub, D. (2003). Managing User Trust in B2C e-Services. *e-Service Journal*, 2(2), S. 7-24.

Hagberg, J., Jonsson, A., & Egels-Zandén, N. (2017). Retail Digitalization: Implications for Physical Stores. *Journal of Retailing and Consumer Services*, 39, S. 264-269.

Hajli, N., Sims, J., Zadeh, A. H., & Richard, M.-O. (2017). A Social Commerce Investigation of the Role of Trust in a Social Networking Site on Purchase Intentions. *Journal of Business Research*, 71, S. 133-141.

Hassanein, K., & Head, M. (2007). Manipulating Perceived Social Presence Through the Web Interface and Its Impact on Attitude Towards Online Shopping. *International Journal of Human-Computer Studies*, 65(8), S. 689-708.

Huang, Z., & Benyoucef, M. (2013). From E-Commerce to Social Commerce: A Close Look at Design Features. *Electronic Commerce Research and Applications*, 12(4), S. 246-259.

Huang, Z., & Benyoucef, M. (2015). User Preferences of Social Features on Social Commerce Websites: An Empirical Study. *Technological Forecasting and Social Change*, 95, S. 57-72.

Jahng, J., Jain, H., & Ramamurthy, K. (2007). Effects of Interaction Richness on Consumer Attitudes and Behavioral Intentions in E-Commerce: Some Experimental Results. *European Journal of Information Systems*, 16(3), S. 254-269.

Liang, T.-P., & Turban, E. (2011). Introduction to the Special Issue Social Commerce: A Research Framework for Social Commerce. *International Journal of Electronic Commerce*, 16(2), S. 5-14.

Pavlou, P. A., Liang, H., & Xue, Y. (2007). Understanding and Mitigating Uncertainty in Online Exchange Relationships: A Principal-Agent Perspective. *MIS Quarterly*, 31(1), S. 105-136.

Sharma, S., Menard, P., & Mutchler, L. A. (2017). Who to Trust? Applying Trust to Social Commerce. *Journal of Computer Information Systems*, 59(1), S. 32-42.

Tauber, E. M. (1972). Why Do People Shop? *Journal of Marketing*, 36(4), S. 46-49.

Turban, E., King, D., Lee, J. K., Liang, T.-P., & Turban, D. C. (2015). *Electronic Commerce: A Managerial and Social Networks Perspective*, (8. Auflage). Heidelberg, Germany: Springer.

List of Figures

List of Tables

List of Abbreviations

AHP	Analytic hierarchy process
ANOVA	Analysis of variance
AVE	Average variance extracted
CA	Cronbach's alpha
CB	Covariance-based
CR	Composite reliability
CRM	Customer relationship management
E-Commerce	Electronic commerce
EEG	Electroencephalography
ERP	Enterprise resource planning
IS	Information systems
IT	Information technology
MANCOVA	Multivariate analysis of covariance
MANOVA	Multivariate analysis of variance
MGA	Multi-group analysis
PLS	Partial least squares
RQ	Research question
SEM	Structural equation modeling
S-O-R	Stimulus-Organism-Response
SPF	Summary per factor
SPV	Summary per variable
TAM	Technology Acceptance Model
TPB	Theory of Planned Behavior
TRA	Theory of Reasoned Action
VAF	Variance accounted for
VIF	Variance inflation factor
WSM	Weighted sum model

Introductory Paper

1 Introduction

Electronic commerce (e-commerce), which can briefly be described as the buying and selling of products and services online, is more and more becoming a major driver of the global economy (Turban et al. 2015; Urbaczewski et al. 2002). According to a recent e-commerce report, global e-commerce sales increased 13% in 2017, accounting for an estimated value of USD 29 trillion (UNCTAD 2019). Two-digit growth rates are also projected for the next five years, suggesting that e-commerce is still far away from its full potential (eMarketer 2019). Yet, given the massive growth and adoption, the e-commerce landscape is becoming increasingly competitive (Goyal et al. 2019). This is particularly true regarding business-to-consumer e-commerce markets, in which companies attempt to sell products/services online to individual consumers (Chiu et al. 2014; Hu et al. 2015). For instance, as part of the ongoing digitalization, many traditional offline retailers are establishing their own online distribution channels to stay competitive and avoid losing customers to online competitors (Hagberg et al. 2017; Hernant and Rosengren 2017). However, competing online also creates significant challenges, especially when designing an effective e-commerce platform (Cao et al. 2005; King et al. 2016; Luo et al. 2012).

One of the key reasons that seems to impede the effectiveness of e-commerce platforms is that shopping on such platforms is commonly perceived by consumers to be more anonymous and impersonal than in physical stores (Hassanein and Head 2007; Wang et al. 2007). While the virtual nature of e-commerce generally makes it more complicated to get in contact with each other, e-commerce platforms are also often designed to maximize transactional efficiency, thus lacking capabilities to establish social interactions (Gefen and Straub 2003; Jahng et al. 2007; Wakefield et al. 2010). However, without the benefits of personal contact, it can become more difficult for companies to attract and retain consumers on their e-commerce platforms. Not only represent social interactions one of the central motives why people go shopping (Tauber 1972). The information that is generated from such interactions can also reduce uncertainty and help consumers to make better buying decisions (Chen et al. 2011; Pavlou et al. 2007).

1.1 From E-Commerce to Social Commerce

The emergence and widespread adoption of social media in recent years has created new opportunities for companies to leverage the potential of online social interactions and thereby increase the effectiveness of their e-commerce platforms (Stephen and Toubia 2010; Yadav et al. 2013). As they enable users to create and share content, communicate, and build relationships, social media are specifically designed to promote and facilitate social interactions in online environments (Hennig-Thurau et al. 2010; Kaplan and Haenlein 2010). In the light of this development, many companies have started to integrate social media into their e-commerce platforms (Curty and Zhang 2013; Huang and Benyoucef 2015). Initiatives in which social media are used to support e-commerce transactions are summarized under the term *social commerce* (Liang and Turban 2011; Zhou et al. 2013).

By means of social media, social commerce initiatives enable consumers to actively participate, interact, and communicate in the various stages of the buying process (Huang and Benyoucef 2017; Wang and Zhang 2012). In so doing, consumers can, for instance, be stimulated to create and exchange product-related information on e-commerce platforms, which can influence the buying decisions of other consumers (Cheung and Thadani 2012; King et al. 2014). To facilitate the implementation of social commerce initiatives, companies can select from a wide range of

so-called *social commerce features*, which are readily usable social media applications that can be integrated into e-commerce platforms. The most widely used features include rating and review tools, social wish lists, share buttons, like buttons, community feeds, and question and answer tools (Curty and Zhang 2013; Huang and Benyoucef 2015). It is considered that social commerce initiatives have the potential to transform the formerly product-oriented and impersonal e-commerce into a more lucrative, customer-centric, and relationship-based business (Huang and Benyoucef 2013; Wigand et al. 2008).

While social commerce initiatives may have potential to make e-commerce platforms more effective, there is also evidence that companies have terminated their initiatives as the expected benefits did not materialize (Hajli et al. 2017; Sharma et al. 2017). For companies, it is therefore critical to understand through which mechanisms social commerce initiatives work and how these mechanisms can be effectively used to ensure the success such initiatives (Baethge et al. 2016; Ickler et al. 2009). However, current social commerce literature provides only little guidance on the mechanisms of social commerce initiatives and how such initiatives can be successfully designed. For instance, several factors have been identified to influence consumers to engage in social commerce initiatives (e.g., Chen and Shen 2015; Hsiao et al. 2010; Kim 2015; Kwahk and Ge 2012; Liang et al. 2011; Shen 2012; Shin 2013; Zhang et al. 2014). Yet, it remains unclear on which factors companies should concentrate in a certain scenario, such as when intending to stimulate consumers' buying behavior, and how social commerce initiatives can be designed to enhance the effects of these factors.

Against this background, the overall objective of this cumulative dissertation is to support researchers and practitioners to obtain a profound understanding about the potential of social commerce initiatives and how this potential can be increased. The studies included in this dissertation aim to provide theoretically grounded and empirically verified knowledge as well as practical design recommendations about the characteristic mechanisms of social commerce initiatives and how such initiatives can be made more successful. Accordingly, this dissertation poses the following overarching research question:

What potential do social commerce initiatives have and how can this potential be increased?

In the following section, this overarching research question is further divided into three more detailed research questions by illustrating the specific research gaps that this dissertation intends to address.

1.2 Research Questions

As social commerce initiatives target consumers, it is essential to understand which factors influence consumers to engage in such initiatives (Liang and Turban 2011; Wang and Zhang 2012). While an increasing number of empirical studies has focused on identifying factors that influence consumers to engage in social commerce initiatives, understanding the results of these studies is difficult for several reasons. First, some factors, such as trust, have been conceptualized in different ways. For instance, trust in company (Shi and Chow 2015), trust towards community (Chen and Shen 2015), or trust in website (Hsiao et al. 2010). Second, different outcome variables have been used to measure consumers' social commerce engagement, such as consumers' buying intention (Lu et al. 2016; Pöyry et al. 2013), website use intention (Hajli et al. 2015; Liang et al. 2011), or information sharing intention (Chen and Shen 2015; Liu et al. 2016). Third, different effects have been identified between the same factors and outcome variables,

such as trust may or may not significantly influence consumers' buying intention (Farivar et al. 2016; Hsiao et al. 2010). Consequently, current social commerce literature does not provide a clear understanding about the factors that influence consumers to engage in social commerce initiatives. This poses not only difficulties for researchers as the fragmented and often inconclusive findings in the literature must be synthesized and as existing concepts may be overlooked and reinvented. For practitioners, the lack of a clear understanding makes it difficult to determine which factors may be critical for the success of social commerce initiatives. To derive a clearer and more comprehensive understanding about the factors that influence consumers' social commerce engagement, the first research question is:

Research question 1: Which factors influence consumers to engage in social commerce initiatives?

By enabling companies to promote and support consumers' social interactions on e-commerce platforms, social commerce features are the technical enablers of social commerce initiatives (Curty and Zhang 2013). Evidence is given that the features of an e-commerce platform (e.g., product search engines or product images) can significantly influence consumers' attitudes and behaviors towards the platform, such as their buying behavior (Hausman and Siekpe 2009; Parboteeah et al. 2009). It is hence important to understand how the integration of social commerce features into an e-commerce platform affects the platform's effectiveness and which features deliver the highest benefits in a certain scenario. However, despite existing calls to explore the effects of social commerce features more systematically (Baethge et al. 2016; Turban et al. 2010), scientific findings are still sporadic and often inconclusive. As social commerce features differ with respect to the provided functionality and the stimulated social interactions, initial assumptions exist that social commerce initiatives can be made more successful if multiple features are used in combination (Huang and Benyoucef 2013). However, the assumptions have neither been grounded on a solid theoretical foundation nor empirically verified. So far, only the effects of some individual social commerce features on some individual factors have been investigated, such as how rating and review tools influence the social presence of an e-commerce platform (Kumar and Benbasat 2006) or how like buttons affect consumers' trust in the platform (Brengman and Karimov 2012). From these sporadic findings, it remains difficult to make clear statements about the effects of social commerce features. Moreover, no answer can be given whether and to what extent companies should use social commerce features in combination on their e-commerce platforms. To address this gap, the second research question is:

Research question 2: What effects do social commerce features have and how can they be effectively combined to increase the success of social commerce initiatives?

Given that several functionally different social commerce features exist, the success of social commerce initiatives considerably depends on the ability of companies to efficiently identify and select features that best fit their business strategy (Turban et al. 2010). However, selecting social commerce features is challenging and risky for companies. It is challenging because a wide range of functionally different social commerce features must be evaluated although companies often lack detailed knowledge about the functional characteristics and effects of such features (Huang and Benyoucef 2015). It is risky because selecting the wrong features can easily lead to an unsuccessful social commerce initiative, which fails to stimulate consumers to purchase products from the company's e-commerce platform (Mikalef et al. 2017; Sharma et al. 2017). Consequently, it is critical to understand how social commerce features can be efficiently assessed and selected (Baethge et al. 2016; Turban et al. 2010; Wang and Zhang 2012). However, literature provides only little guidance on the selection of such features. While it is assumed that social commerce initiatives can be made more successful if they use multiple social

commerce features in combination (Huang and Benyoucef 2013), no recommendations are given which features should be selected and combined in a certain scenario. Traditional software selection approaches are also not suitable as they do neither contain social commerce-specific selection criteria nor support the selection of multiple complementary features (Sen et al. 2009). In response to this gap, the third research question is:

Research question 3: How can companies systematically select social commerce features for their social commerce initiatives?

1.3 Structure of Dissertation

To address these research gaps, this dissertation is composed of this introductory paper and seven research papers. The introductory paper motivates the research, describes the research context, and provides a summary of the applied research methods and the main research results of the seven papers. Moreover, it highlights the contributions to theory and practice, shows the limitations, and outlines future research directions. The seven papers are structured into three parts, which correspond to the three research questions that this dissertation addresses.

The first part focuses on the factors that influence consumers to engage in social commerce initiatives. Here, a systematic literature review is conducted to review and synthesize past research to derive a structured and comprehensive overview of the factors influencing consumers' social commerce engagement (Paper I).

The second part then concentrates on investigating the effects of social commerce features and how these features can be effectively combined. The part begins with the development of an integrated research model that serves as a conceptual framework to study the effects of social commerce features in a systematic manner (Paper II). Using this framework as a guideline, three experimental studies are thereafter conducted to obtain knowledge about the effective combination of social commerce features and the resulting effects.

The first experimental study explores how using different numbers of social commerce features on an e-commerce platform affects consumers' buying intention via social factors (Paper III). Social factors are chosen because influencing these factors is considered a core mechanism of social commerce initiatives (Liang et al. 2011). Similarly, buying intention is used as it characterizes a platform's effectiveness (Jarvenpaa et al. 2000). The second experimental study extends the former by introducing the concept of social commerce feature richness and investigating how it affects consumers' buying intention via social factors (Paper IV). With the social commerce feature richness, this study provides a novel instrument that is different from the number of features and that demonstrates how such features can be effectively used in combination. The third experimental study further examines how the social commerce feature richness affects the stickiness of an e-commerce platform (i.e., website stickiness) via cognitive and affective factors (Paper V). Website stickiness as well cognitive and affective factors play a critical role in attracting and retaining consumers on e-commerce platforms and thus are important determinants in the success of social commerce initiatives (Li et al. 2006; Mikalef et al. 2013).

The second part ends with a fourth experimental study that investigates how different social information cues affect consumers' product choice experiences (Paper VI). Social information cues are basic elements of social commerce features representing information generated by other consumers in a condensed form (Cheung et al. 2014; Kim et al. 2019). Investigating the

effects of such cues not only helps to better understand how such cues work. It also targets one of the central arguments of the social commerce feature richness, namely that different kinds of social information can have different effects.

Finally, the third part addresses the selection of social commerce features. Taking the results of the previous parts into consideration, a design science research approach is used to develop a method that supports companies to systematically select multiple, functionally complementary social commerce features (Paper VII). Figure 1.1 illustrates the structure of the dissertation.

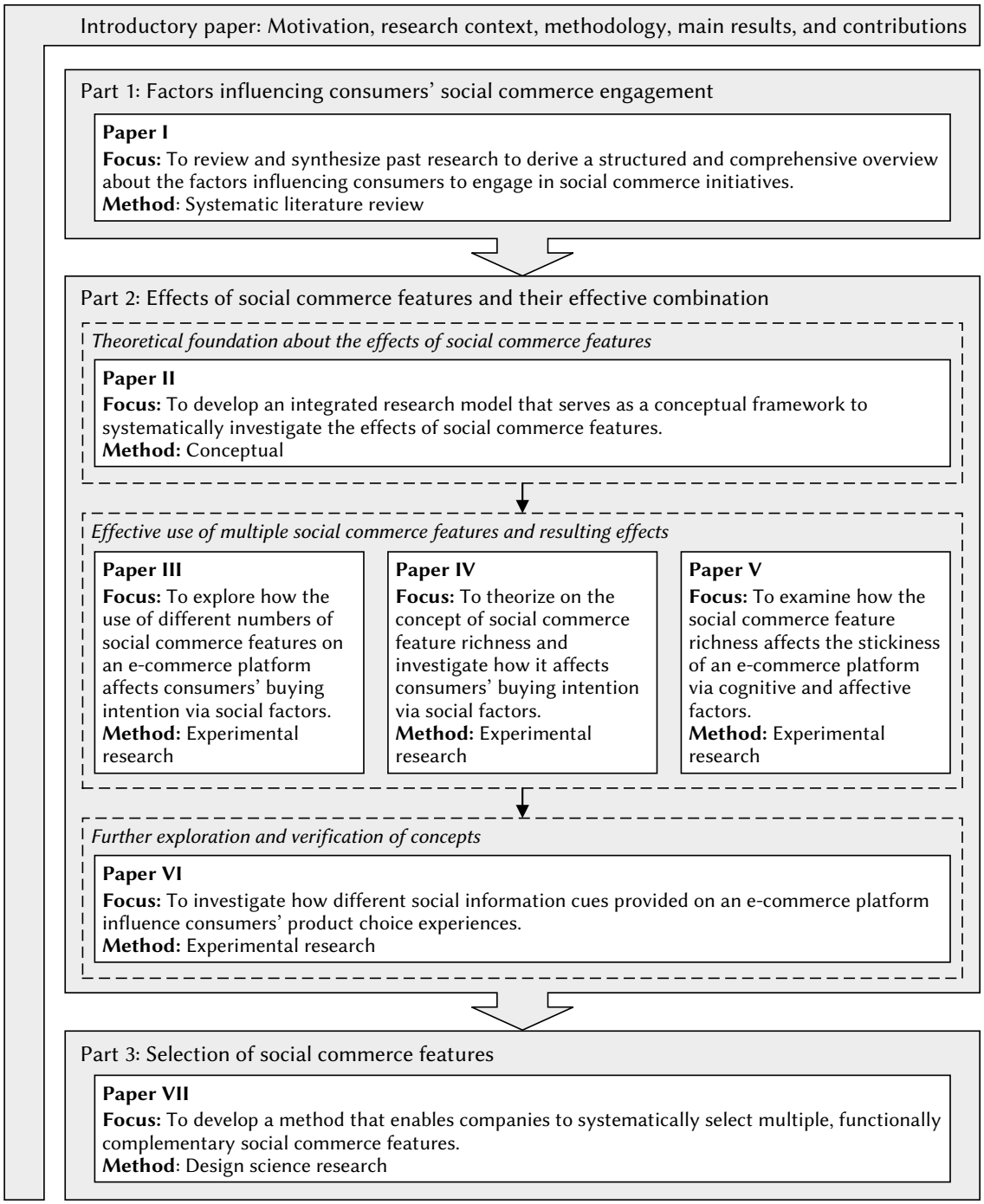


Figure 1.1 Structure of dissertation

Out of the seven papers, three are published or accepted for publication in peer-reviewed journals. The other four papers are published or conditionally accepted for publication in peer-reviewed conference proceedings. Table 1.1 lists the seven papers in line with the structure of this dissertation. None of the papers in this dissertation is modified in terms of its content. However, for the purpose of consistency, all papers are reformatted. This refers to the heading numbers, table and figure references, font types and sizes, as well as citation and references styles. Note that terminology and wording can slightly vary across the papers as they were all developed at different times.

Table 1.1 Overview of papers included in this dissertation

#	*Publication*
I	Friedrich, T. (2016). On the Factors Influencing Consumers' Adoption of Social Commerce – A Review of the Empirical Literature. *Pacific Asia Journal of the Association for Information Systems*, 8(4), pp. 1-32.
II	Friedrich, T., Overhage, S., & Schlauderer, S. (2016). Unveiling the Impacts of Social Commerce Features – An Integrated Research Model. *Proceedings of the 24th European Conference on Information Systems (ECIS)*, Istanbul, Turkey, pp. 1-12.
III	Friedrich, T., Overhage, S., & Schlauderer, S. (2016). The More the Better? Exploring the Relationship Between Social Commerce Feature Intensity, Social Factors, and Consumers' Buying Behavior. *Proceedings of the 37th International Conference on Information Systems (ICIS)*, Dublin, Ireland, pp. 1-21.
IV	Friedrich, T., Schlauderer, S., & Overhage, S.: Some Things Are Just Better Rich: How Social Commerce Feature Richness Affects Consumers' Buying Intention via Social Factors. Accepted for publication in *Electronic Markets*.
V	Friedrich, T., Schlauderer, S., & Overhage, S. (2019). The Impact of Social Commerce Feature Richness on Website Stickiness Through Cognitive and Affective Factors: An Experimental Study. *Electronic Commerce Research and Applications*, 36, pp. 1-19.
VI	Friedrich, T., Overhage, S., & Schlauderer, S.: How Do Social Information Cues Affect Consumers' Product Choice Experiences? Findings from a Controlled Online Experiment. Conditionally accepted for *Internationale Tagung Wirtschaftsinformatik (WI2020)*.
VII	Friedrich, T., Overhage, S., Schlauderer, S., & Eggs, H. (2015). Selecting Technologies for Social Commerce: Towards a Systematic Method. *Proceedings of the 23rd European Conference on Information Systems (ECIS)*, Münster, Germany, pp. 1-17.

The remainder of this introductory paper is structured as follows. In the next section, the research context of this dissertation is presented. As the papers included in this dissertation apply different research methods including systematic literature review, experimental research, and design science research, these are described afterwards. Then, the main results of the seven papers included in this dissertation are presented briefly. Building on these results, the contributions and implications of this dissertation are outlined, followed by a discussion of the limitations and future research directions. The introductory paper ends with a short conclusion.

2 Research Context

This dissertation analyzes the potential social commerce initiatives and how this potential can be increased. The papers included in this cumulative dissertation build on the conceptual foundations of social commerce, the basic theories and mechanisms that explain why consumers engage in social commerce initiatives, and on the features that enable such initiatives.

2.1 Definition and Types of Social Commerce

Since the term was introduced in 2005 by the Internet company Yahoo!, social commerce has received increasing attention from both research and practice (Zhou et al. 2013). Social commerce combines economic, social, technological, and informational aspects (Wang and Zhang 2012). It is an interdisciplinary subject that involves different research disciplines such as information systems, marketing, sociology, and psychology (Huang and Benyoucef 2013). Consequently, various social commerce definitions have been proposed, which makes it difficult to derive a clear understanding of the concept. As pointed out by Liang et al. (2011, p. 6), "there is not standard definition of the term". For instance, Dennison et al. (2009, p. 2) consider social commerce as "the concept of word-of-mouth, applied to e-commerce". Stephen and Toubia (2010, p. 215) see it as a form of "Internet-based social media that allow people to participate actively in the marketing and selling of products and services in online marketplaces and communities". According to Wang and Zhang (2012, p. 106), social commerce represents "a form of commerce that is mediated by social media and is converging both online and offline environments". Since the focus of this dissertation is on e-commerce, it adopts the definition of Liang and Turban (2011) and considers social commerce as "a subset of e-commerce that involves using social media to assist in e-commerce transactions and activities" (Liang and Turban 2011, p. 6). Note that in literature, the concept of social shopping is sometimes used interchangeably with social commerce or considered as a subset that addresses the sharing of shopping experiences between consumers (Stephen and Toubia 2010; Wang and Zhang 2012).

The variety of definitions and conceptualizations has also generated different understandings of what constitutes a social commerce initiative. According to literature, two major types of social commerce initiatives exist (Huang and Benyoucef 2013; Liang and Turban 2011). The first type refers to initiatives in which commercial features are added to social media platforms to facilitate commercial transactions. The integration of "Buy" buttons into social networking sites such as Facebook and Instagram is a recent example of such initiatives (Ko 2018; Sharma et al. 2017). The second type refers to initiatives in which social media-based features are added to e-commerce platforms to promote and facilitate social interactions. Integrating a rating and review tool together with social wish lists into an e-commerce platform would be an example of such an initiative (Huang and Benyoucef 2015). By investigating how companies can use social commerce initiatives to improve the effectiveness of their e-commerce platforms, this dissertation focuses on the latter type of initiatives. Moreover, since social commerce is considered to take place between businesses and consumers, this dissertation concentrates on business-to-consumer scenarios (Wang and Zhang 2012; Yadav et al. 2013). However, note that social commerce is not restricted to such scenarios (Chen et al. 2016; Stephen and Toubia 2010).

2.2 Basic Theories and Mechanisms Behind Social Commerce Initiatives

Social commerce initiatives can involve different consumer activities, such as purchasing products, participating in the community, or sharing information with other consumers (Zhang and Benyoucef 2016). In literature, these different activities are subsumed under *consumers' social commerce engagement*, which is used as a common measure for the success of such initiatives (Liang et al. 2011; Shen et al. 2019). Note that the term *social commerce adoption* is also used to refer to consumers' social commerce engagement (Farivar et al. 2017; Hajli 2013; Shen 2012; Teh and Ahmed 2012). In the e-commerce literature, an individual consumer's adoption of e-commerce is defined as "the consumer's engagement in online exchange relationships with Web vendors" (Pavlou and Fygenson 2006, pp. 115-116). Since social commerce is a subset of e-commerce, basic theories used to explain e-commerce adoption have also been frequently applied in the context of social commerce adoption (Liang et al. 2011; Wang and Zhang 2012; Zhang and Benyoucef 2016). Amongst them, behavioral theories such as the Theory of Reasoned Action (TRA), the Theory of Planned Behavior (TPB), and the Technology Acceptance Model (TAM) have been mostly adopted (Gatautis and Medziausiene 2014; Hajli 2013; Noh et al. 2013; Shen 2012; Shin 2013; Teh and Ahmed 2011; Wang and Yu 2017; Yang et al. 2016). In general, all three theories posit that an individual's behavior can be predicted by his or her intention towards the behavior. However, each of these theories proposes different factors to determine the individual's behavioral intention. In the TRA, the behavioral intention is determined by the individual's attitude and the subjective norms concerning the behavior (Fishbein and Ajzen 1975). As an extension of the TRA, the TPB uses the factor perceived behavioral control besides subjective norms and attitude to determine the behavioral intention (Ajzen 1985). In the TAM, which is based on the TRA, perceived ease of use and perceived usefulness are used to explain a user's attitude and behavioral intention towards using a certain technology (Davis 1989). In line with the TRA, TPB, and TAM, most of the experimental studies included in this dissertation use intentions, such as consumers' buying intention, as a proxy for actual behavior.

The Stimulus-Organism-Response (S-O-R) paradigm is another behavioral theory that has received considerable attention in the social commerce literature (Hu et al. 2016; Kim 2015; Park et al. 2014; Zhang et al. 2014). Originally proposed by Mehrabian and Russell (1974), the S-O-R paradigm suggests that certain signals in the environment (stimuli) affect the internal cognitive and affective states of an individual (organism), which in turn affect the individual's behavior (response). Figure 2.1 illustrates the structure of the S-O-R paradigm.

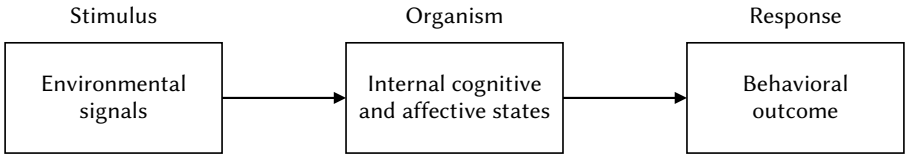


Figure 2.1 S-O-R paradigm (based on Mehrabian and Russell 1974)

By taking the effects of external stimuli into account, the S-O-R paradigm provides a causal framework to explain how certain environmental cues, such as the social commerce features provided on an e-commerce platform, can affect the internal cognitive and affective states of consumers, and how these states influence their behaviors. In comparison, the TAM, which focuses on the adoption of a specific technology, does not cover factors to measure the effects of external stimuli. However, both theories should not be regarded as conflicting alternatives.

The S-O-R paradigm can rather be considered as an overarching theory in which certain parts (i.e., organism or response) are represented by elements of other established theories, such as the TAM (Parboteeah et al. 2009; Zhang et al. 2014). Most experimental studies in this dissertation adopt the S-O-R paradigm as it provides a structured framework to trace the effects caused by social commerce features, and combinations thereof, in a systematic manner.

In the social commerce literature, much effort has been spent to adapt these behavioral theories to the specific characteristics of social commerce. As a result, various research models have been developed and a wide range of factors has been identified that influence consumers to engage in social commerce initiatives. A structured overview about the factors and their effects can be found in Friedrich (2016) and Zhang and Benyoucef (2016). The most frequently examined factors can broadly be categorized into utilitarian, hedonic, relational, and social factors (Friedrich et al. 2016b). Utilitarian factors refer to functional and task-related aspects such as perceived usefulness or perceived ease of use, while hedonic factors address aspects such perceived enjoyment. Relational factors describe relationship aspects, such as trust, commitment, or satisfaction. Social factors characterize aspects related to consumers' social interactions such as social presence, social influence, or social support. Given their effects on consumers' social commerce engagement, these factors represent important mechanisms for the success of social commerce initiatives. Accordingly, this dissertation draws on these factors when investigating how social commerce initiatives can be made more successful.

2.3 Definition and Classification of Social Commerce Features

Social media applications, which can be integrated into e-commerce platforms as features, are the technical enablers of social commerce initiatives (Wang and Zhang 2012; Zhou et al. 2013). The term *social commerce features* is used to refer to them (Curty and Zhang 2013; Huang and Benyoucef 2015). According to Friedrich et al. (2016a, p. 3), a social commerce feature can be considered as a "software artifact that is integrated into a website and provides a specific social media-based functionality to promote and support interactions among consumers". Functionality in this context characterizes the set of functions (or capabilities) that the social commerce feature can perform. For instance, the basic functionality of a rating and review tool is to enable consumers to express and share their opinions about products or services (Amblee and Bui 2011).

Together with the increasing popularity of social commerce initiatives, several social commerce features have become available, which can differ significantly in their functionality. To maintain an overview of the functionality that is provided by social commerce features, several taxonomies have been proposed in literature (Curty and Zhang 2013; Grange and Benbasat 2010; Huang and Benyoucef 2013). Huang and Benyoucef (2013) offer a detailed taxonomy in form of a reference model for the design of social commerce platforms. The reference model consists of four functional layers that refer to the different functionality provided by social commerce features. Each social commerce feature can be assigned to one of the layers according to its basic functionality (Huang and Benyoucef 2013; Huang and Benyoucef 2015). Detailed explanations of the functional characteristics of each layer can be found in Huang and Benyoucef (2013). Figure 2.2 illustrates the reference model together with examples of social commerce features for each layer.

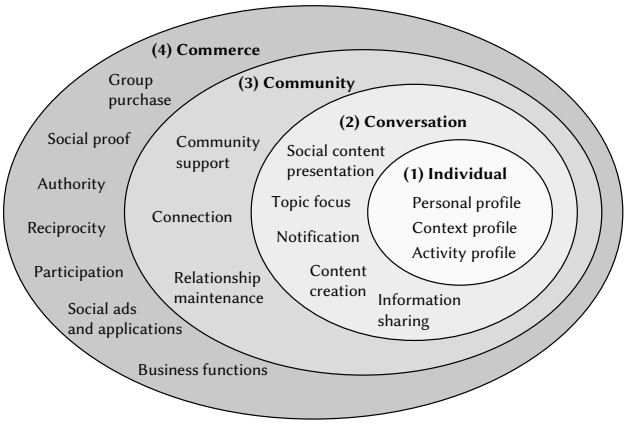
(1) The innermost *individual layer* contains functionality that enables consumers to identify themselves and be recognized by others. Examples of social commerce features that target this layer are social profile pages, which show a consumer's name and picture, or social login buttons, which allow consumers to log in using their social media identity. As the establishing of personal profiles is a core functionality for many other features, the individual layer is also viewed as a facilitator to realize the other layers (Huang and Benyoucef 2013).

(2) The surrounding *conversation layer* represents functionality that enables consumers to create content and to share this content with other consumers. Features such as rating and review tools, which allow consumers to publish product evaluations, like buttons, which enable them to express their appreciation of products, comment buttons, through which they can exchange their opinions, or messaging/chat tools, which allow them to instantly start conversations, address this layer.

(3) The *community layer* comprises functionality to support the building and/or maintaining of interactive relationships between consumers. It is covered by features such as community feeds, which enable consumers to provide and discuss about shopping suggestions, question and answer tools, which enable consumers to answer product-related questions of others, friend lists, through which consumers can connect with others, or follow buttons, which allow consumers to stay informed about the activities of others.

(4) The outermost *commerce layer* consists of functionality to stimulate commercial transactions. Examples of features that address this layer are social wish lists, which encourage others to buy a desired product, share buttons, which allow consumers to recommend shopping-relevant information to others, group buying tools, which allow consumers to collaboratively purchase products, or social product recommendation tools, which propose products based on consumers' social interactions.

Reference model for the design of social commerce platforms



Functional classification of features

Functional layer	*Social commerce feature (examples)*
(1) Individual	Social profile pages Social login buttons
(2) Conversation	Rating and review tools Like buttons Comment buttons Messaging/chat tools
(3) Community	Community feeds Question and answer tools Friend lists Follow buttons
(4) Commerce	Social wish lists Share buttons Group buying tools Social product recommendation tools

Figure 2.2 Classification of social commerce features (based on Huang and Benyoucef 2013)

The presented reference model is used in this dissertation as a guideline to show how social commerce features can be distinguished and combined according to their basic functionality.

3 Research Methodology

This dissertation applies different research methods such as systematic literature review, experimental research, and design science research. By using multiple research methods, it intends to profit from the benefits of each method (e.g., high internal validity of experiments) to derive a profound understanding about the potential of social commerce initiatives and how this potential can be increased. The following sections describe the different research methods used in each paper and explain why the respective method is chosen.

3.1 Systematic Literature Review

Reviewing the past literature is an essential element of any academic research project (Webster and Watson 2002). It helps to synthesize prior knowledge, to identify gaps in the literature, and can facilitate theory development (vom Brocke et al. 2015). While most academic papers present a literature review within the theoretical background section, such reviews must be differentiated from a stand-alone literature review. As defined by Okoli and Schabram (2010, p. 2), a stand-alone literature review is "a journal-length article whose sole purpose is to review the literature in a field, without any primary data (that is, new or original) collected or analyzed". When such a review applies a structured, rigorous method to address a specific research question, it is referred to as a *systematic literature review* (Kitchenham et al. 2009).

In this dissertation, a systematic literature review is conducted (Paper I) to review and synthesize prior empirical findings on the factors that influence consumers to engage in social commerce initiatives. Using a systematic literature review is deemed as appropriate since several empirical studies on this topic exist, but the reported findings are fragmented and often inconclusive across the literature (cf. section 1.2). The systematic literature review aims to contribute to a better understanding by providing a structured and comprehensive overview of the factors that influence consumers to engage in social commerce initiatives.

The systematic literature review of this dissertation follows the two-step approach of Webster and Watson (2002). In the first step, the relevant literature is identified. In the second step, the review is structured. The first step starts with specifying the literature search process (Webster and Watson 2002). In line with related literature review studies (Baethge et al. 2016; Zhou et al. 2013), several databases (i.e., ACM Digital Library, AIS Electronic Library, EBSCOhost, IEEE Xplore, ScienceDirect, SpringerLink, and Web of Science) and social commerce-related search terms (i.e., "social commerce", "social shopping", "collaborative commerce", and "collaborative shopping") are used for the search. Title, abstract, and keywords are used as search fields. The search is specified to range from 2007 (i.e., year in which first academic articles on social commerce appeared) to 2016 (i.e., year in which the review is conducted). In so doing, the search covers a broad range of academic articles, including high-quality information systems journals and conference proceedings. Note that the literature search is deliberately not limited to a specific set of publication outlets to derive a full picture of the social commerce literature. However, to ensure a certain quality level, only peer-reviewed academic articles are considered. After searching in the databases, the identified articles are screened on their relevance. Accordingly, articles in which empirical evidence is provided about one or more factors influencing consumers' social commerce engagement are classified as relevant. Finally, backward and forward searches are performed to identify additional articles and to verify the completeness of the search. Overall, 61 articles are identified as relevant for the review.

In the second step, a concept-centric approach is used to structure the review (Webster and Watson 2002). In the literature review of this dissertation, the concepts are represented by the factors and outcome variables investigated in the relevant articles. For this purpose, each article is carefully read and all examined factors, outcome variables, and the reported effects between factors and outcome variables are recorded. To synthesize the results, conceptually similar factors are grouped together by examining their definitions and measurement items. This procedure results in a structured and comprehensive overview of factors and their potential effects on various outcome variables related to consumers' social commerce engagement.

To further condense the results of the factors examined in more than one article, the vote-counting technique developed by Light and Smith (1971) is used. Generally, *vote counting* is a simple meta-analysis technique in which the number of significant positive, significant negative, and non-significant findings is compared and the category with the largest number is used to determine the direction of a relationship (Cooper 1998). However, vote counting is not without limitations (Hedges and Olkin 1980; King and He 2005). For instance, differences in the sample sizes, effect sizes, or data analysis approaches are not considered. The reported numbers must hence be interpreted with caution. Vote counting is used in the literature review of this dissertation as it enables to provide a quantitative summary of the reported effects and to detect relationships that require further examination. Moreover, vote counting is suitable since not all relevant articles provide information about the sample size, effect size, or data analysis approach.

To overcome some of the shortcomings of vote counting, an additional sign test is conducted as suggested by Cooper (1998). The sign test is used to verify whether the reported effects per factor indicate that one direction occurs more frequently than chance would suggest. It helps to reveal the relative strengths of the effects by comparing the number of positive findings with the overall number of findings. The sign test is performed by calculating a z-score (i.e., standard normal deviate) for each factor using the formula of Cooper (1998, p. 118). Significance levels (i.e., two-tailed p-values) are calculated on the z-scores. Table 3.1 summarizes the procedure of the systematic literature review included in this dissertation.

Table 3.1 Procedure of systematic literature review

Criteria	*Description*
Included in …	Paper I
Objective	To review and synthesize the empirical findings on the factors that influence consumers to engage in social commerce initiatives.
Type of review	Systematic literature review
Review procedure	Two-step approach as suggested by Webster and Watson (2002)
Consulted databases	ACM Digital Library, AIS Electronic Library, EBSCOhost, IEEE Xplore, ScienceDirect, SpringerLink, and Web of Science
Search terms	"social commerce", "social shopping", "collaborative commerce", and "collaborative shopping"
Search period	Between January 2007 and September 2016
Search result	61 as relevant identified academic articles
Review structuring	Concept-centric classification of factors and outcome variables. Vote counting to determine the direction of the relationships. Sign test to assess the relative strengths of the reported effects.

3.2 Experimental Research

A common high-level categorization of research methods in the information systems discipline (and in many other disciplines) is the differentiation between quantitative and qualitative methods (Kaplan and Duchon 1988; Venkatesh et al. 2013). Briefly compared, quantitative methods focus on using quantitative data (e.g., numeric survey data) to understand how certain factors in a studied phenomenon are connected, while qualitative methods focus on using qualitative data (e.g., transcribed interviews) to understand the context-specific situation behind the factors (Chen and Hirschheim 2004). *Experimental research* is a quantitative research method (Dennis and Valacich 2001; Palvia et al. 2003). According to Lederman (2006, pp. 309-310), experimental research can be defined as "a planned intervention and manipulation of variables [...] in an attempt to derive causal relationships". A typical experimental design involves manipulating one or more independent variables (i.e., treatments), randomly assigning participants to different treatment levels, and observing the effects of the treatments on the outcome (i.e., dependent) variables while controlling for potential confounding variables (Recker 2013; Tanner 2018).

In this dissertation, several experimental studies are conducted to investigate the effects social commerce features and how these features can be effectively combined (Papers III, IV, V, and VI). Experimental research is chosen for several reasons. First, as experimental research enables researchers to investigate the effects caused by a specific stimulus (e.g., social commerce features provided on e-commerce platform) in isolation, it affords higher internal validity than other research methods, such as survey research. Second, using experimental research allows a systematic manipulation of the stimulus, such as the social commerce features provided on an e-commerce platform, which is otherwise difficult to achieve in natural e-commerce environments. Third, exogenous variables, such as the design of the e-commerce platform or the provided content, can be controlled to limit the number of potential confounding variables and obtain results that are more accurate. Yet, experimental research also has its drawbacks such as a rather low external validity due to lack of realism and generalizability (Tanner 2018). For this purpose, the experimental studies included in this dissertation implement some measures to enhance the external validity, such as providing participants an authentic shopping experience. In the following sections, the design of the experimental studies and the applied data analysis techniques are briefly illustrated.

3.2.1 Design of Experimental Studies

Paper II aims at developing an integrated research model that serves as a conceptual framework to systematically study the effects of social commerce features. While the paper is conceptual in nature and thus not explicitly considered as an experimental study, it outlines an experimental setting to demonstrate how the developed research model can be operationalized and evaluated. Since most of the experimental studies included in this dissertation (Papers III, IV, and V) build on the outlined experimental setting, it is briefly described here.

The experimental setting outlined in Paper II represents a controlled online experiment. The independent variable, which is intended to be manipulated within the experiment, refers to the social commerce feature or set of features that is provided on an e-commerce platform and for which the effects shall be examined. Each feature or feature set that is supposed to be examined represents a separate treatment level. An additional treatment level is used for the control group to which no social commerce feature is provided. For instance, if the effects of three individual

social commerce features such as a rating and review tool, social wish lists, and like buttons are supposed to be examined, the experimental setting consists of four different treatment levels (i.e., "rating and review tool", "social wish lists", "like buttons", and "no social commerce feature"). For each treatment level, a separate version of an e-commerce platform is created. The versions only differ with respect to the integrated social commerce features. Each version is used by a distinct group of participants (i.e., between-subjects design) to avoid carryover effects.

To realize the outlined setting, Paper II involves the building of a full-featured and realistic e-commerce platform by using a professional web-based platform that supports the integration of social commerce features with an app store. The product portfolio consists of unbranded gift gadgets, which are taken over from real e-commerce platforms after acquiring permission. Unbranded gift gadgets are considered as particularly suitable for investigating the effects of social commerce features because their selection is at least partially based on social and emotional aspects (Brengman and Karimov 2012). Moreover, they are associated with manageable financial risk and potential branding effects are avoided (Lowry et al. 2008). Each social commerce feature is populated with content from real platforms to make its appearance authentic.

To simulate a realistic e-commerce scenario, Paper II suggests using an experimental task that involves browsing an e-commerce platform as well as selecting and buying a product. The experiment is completely conducted online. First, participants are directed to an overview page on which the setting and task are described. Next, they are forwarded randomly to one of the different versions of the e-commerce platform to complete the task. Finally, participants are redirected to an online survey in which they are asked to rate the variables included in the research model. The experiment intends to use students as participants. While substituting everyday users with students is not without critics, students are highly familiar with online shopping and open to test new approaches, which makes them a representative sample for the given scenario (McKnight et al. 2002; Wells et al. 2011).

The first experimental study (Paper III), which builds on the above described experimental setting, aims at exploring how the use of different numbers of social commerce features on an e-commerce platform affects consumers' buying intention via social factors. The experiment uses one independent variable (i.e., social commerce feature intensity) with three different treatment levels (i.e., "zero intensity", "low intensity", and "high intensity"), which refer to different numbers of social commerce features provided on an e-commerce platform. The design of the e-commerce platform and the procedure of the experimental task correspond to the experimental setting as described above. Each of the three treatment levels is represented by a separate version of the e-commerce platform. Within the experimental scenario, each participant is randomly assigned to one of the three different versions of the e-commerce platform. After completing the experimental task (i.e., browsing the platform as well as selecting and buying a product), participants are redirected to an online survey in which they are asked to rate the variables included in the research model. All dependent variables (i.e., social factors, buying intention) are measured on seven-point Likert scales using validated items from literature. The independent variable (i.e., social commerce feature intensity) is measured using a three-level categorical variable to capture the three different treatment levels used in this study.

The second experimental study (Paper IV) aims at theorizing on the concept of social commerce feature richness and investigating how it affects consumers' buying intention via social factors. In line with the first experimental study, this study also builds on the above described experimental setting. However, and in contrast to the first experimental study, the experiment involves manipulating one independent variable (i.e., social commerce feature richness) and an

additional control variable (i.e., feature amount) to test the developed research model. Overall, the experiment consists of six different treatment levels: (1) "zero feature richness", (2) "low feature richness/normal feature amount", (3) "medium feature richness/normal feature amount", (4) "medium feature richness/extended feature amount", (5) "high feature richness/normal feature amount", and (6) "high feature richness/extended feature amount". Accordingly, the experiment involves six different versions of the e-commerce platform. The design of the e-commerce platform and the procedure of the experimental task are in line with the experimental setting as described above. Each participant is randomly assigned to one of the six different versions of the e-commerce platform to perform the shopping task. Afterwards, participants are redirected to an online survey in which they are asked to assess the variables contained in the research model. All dependent variables (i.e., social factors, buying intention) are measured on seven-point Likert scales using validated items from literature. The independent variable (i.e., social commerce feature richness) is measured using a four-level categorical variable to capture the four levels of social commerce feature richness used in this study (i.e., zero, low, medium, high feature richness). In addition, feature amount is included as a binary dummy variable to represent the two levels of manipulation (i.e., normal, extended).

The third experimental study (Paper V) intends to examine how the social commerce feature richness affects the stickiness of an e-commerce platform via cognitive and affective factors. The study also closely follows the above illustrated experimental setting. To evaluate the research model, the experiment uses one independent variable (i.e., social commerce feature richness) with four different treatment levels (i.e., "zero feature richness", "low feature richness", "medium feature richness", and "high feature richness"). Each of the four treatment levels is represented by a separate version of the e-commerce platform. The design of the e-commerce platform and the procedure of the experimental task are taken over from the experimental setting as illustrated above. However, while the first and second experimental study use survey data to measure the outcome variable (i.e., buying intention), the outcome variable in this study (i.e., website stickiness) is measured using clickstream data. Briefly explained, a clickstream refers to a record of a user's actions on a given website such as the sequence of pages visited by the user (Bucklin and Sismeiro 2009). For this purpose, a self-developed session tracking tool is used to track the number of clicks, the pages viewed, and the viewing duration of the pages for each participant throughout the experimental scenario. The other dependent variables (i.e., cognitive and affective factors) are measured on seven-point Likert scales using validated items from literature. The independent variable (i.e., social commerce feature richness) is measured using a four-level categorical variable to capture the four treatment levels used in this study.

The objective of the fourth experimental study (Paper VI) is to investigate how different social information cues influence consumers' product choice experiences. The study also uses a controlled online experiment to evaluate the proposed research model. The experiment involves manipulating one independent variable, which refers to the type of social information cue provided on an e-commerce platform, and four treatment levels (i.e., "no social information cue", "sales numbers", "ratings", and "likes"). Four different versions of an e-commerce platform are used to represent the four different treatment levels. The versions only differ from each other with respect to the provided type of social information cue. The product portfolio consists of a homogenous set of four unbranded water bottles. Functional products, such as the selected water bottles, are considered as particularly useful for investigating the effects of social information cues (Steinhart et al. 2014). To increase the validity of the results, social information cues are randomly assigned to half of the products and products are ordered randomly for each participant. Referring to the experimental task, participants are randomly assigned to one of the

four platform versions, where they are asked to select and purchase one water bottle of their choice. After completing the shopping task, participants are redirected to an online survey in which they are asked to rate the variables included in the research model. All dependent variables (i.e., cognitive and affective factors, choice satisfaction) are measured on seven-point Likert scales using validated items from literature. The independent variable (i.e., social information cue) is operationalized using a four-level categorical variable to capture the four different treatment levels used in this study.

Table 3.2 summarizes the design of the four experimental studies included in this dissertation. In addition, it lists the size of the data sample of each study that is used for the subsequent data analysis.

Table 3.2 Overview of experimental studies

Criteria	*Experimental study*			
	Study I	*Study II*	*Study III*	*Study IV*
Included in …	Paper III	Paper IV	Paper V	Paper VI
Objective	To explore how the use of different numbers of social commerce features affects consumers' buying intention via social factors.	To theorize on the concept of social commerce feature richness and investigate how it affects consumers' buying intention via social factors.	To examine how the social commerce feature richness affects the website stickiness via cognitive and affective factors.	To investigate how different social information cues influence consumers' product choice experiences.
Type of experiment	Controlled online experiment	Controlled online experiment	Controlled online experiment	Controlled online experiment
Manipulated variable(s)	Social commerce feature intensity	Social commerce feature richness, feature amount	Social commerce feature richness	Social information cue
Treatment levels	(1) Zero intensity, (2) low intensity, (3) high intensity	(1) Zero richness, (2) low richness/ normal amount, (3) medium richness /normal amount, (4) medium richness /extended amount, (5) high richness/ normal amount, (6) high richness/ extended amount	(1) Zero richness, (2) low richness, (3) medium richness, (4) high richness	(1) No cue, (2) sales numbers, (3) ratings, (4) likes
Group design	Between-subjects, random assignment	Between-subjects, random assignment	Between-subjects, random assignment	Between-subjects, random assignment
Experimental task	Select and buy product from e-commerce platform.	Select and buy product from e-commerce platform.	Select and buy product from e-commerce platform.	Select and buy product from e-commerce platform.
Subjects	Student participants	Student participants	Student participants	Student participants
Data collection method(s)	Survey data	Survey data	Survey data, clickstream data	Survey data
Sample size	115	237	164	147

3.2.2 Applied Data Analysis Techniques

To analyze the data and test the hypotheses, the experimental studies included in this dissertation use data analysis techniques such as structural equation modeling and group comparison analyses.

3.2.2.1 Structural Equation Modeling

Structural equation modeling (SEM) is considered a second-generation technique for multivariate analysis that is used to test hypotheses empirically (Fornell 1987). When compared to first-generation techniques, such as factor analysis or multiple regression, the major strength of SEM is that it allows researchers to simultaneously estimate models with one or more independent and dependent variables and their interconnections (Gefen et al. 2011). In so doing, complex, multivariate relationships can be addressed in a single, systematic, and comprehensive analysis (Gefen et al. 2000). Another strength of SEM is that it supports the use of latent variables, which are theoretical constructs that cannot be observed and directly measured (Chin 1998). In SEM, latent variables are operationalized by using empirically measurable indicator variables, such as survey items (Fornell and Larcker 1981). Using SEM, researchers can thus analyze the relationships between different theoretical constructs, such as perceptions and intentions (Urbach and Ahlemann 2010). Given its benefits, SEM is widely used in many behavioral science disciplines, including information systems research (Gefen et al. 2000). In this dissertation, SEM is applied in all experimental studies (Papers III, IV, V, and VI) because each research model contains complex, multivariate relationships as well as theoretical constructs that cannot be directly observed, such as perceived social presence, perceived enjoyment, or buying intention.

Two general approaches of SEM exist: *covariance-based* (CB) SEM and *partial least squares* (PLS) SEM (Hair et al. 2014a). Both CB-SEM and PLS-SEM differ significantly in their mode of operation and the underlying statistical assumptions (Gefen et al. 2000). CB-SEM is parameter-oriented and works by minimizing the estimated and sample covariance matrices (Hair et al. 2011). CB-SEM requires a rather less complex model, normal distributed data, and a larger sample size (Urbach and Ahlemann 2010). CB-SEM is primarily used to confirm (or reject) theories and is hence associated with confirmatory research (Hair et al. 2014a). In contrast, PLS-SEM is prediction-oriented and operates by minimizing the variance of all dependent variables (Hair et al. 2011). PLS-SEM has fewer requirements regarding model complexity, data distribution (i.e., can be used with non-normal distributed data), and sample size (Urbach and Ahlemann 2010). However, PLS-SEM also has its drawbacks, such as measurement error variance is not considered and no global fit metrics exist (Henseler et al. 2009). PLS-SEM is primarily applied to develop theories in exploratory research (Hair et al. 2014a). PLS-SEM is considered as particularly useful when the phenomenon of interest is relatively new and only few theoretical models and measures exist (Gefen et al. 2011). Since social commerce is a relatively new phenomenon and theoretical models on the effects of social commerce features are scarce, all experimental studies included in this dissertation (Papers III, IV, V, and VI) concentrate on PLS-SEM. Moreover, given the complexity of the research models, the distribution of the data, and the sizes of the data samples, PLS-SEM is deemed the most suitable approach in each of the experimental studies.

A SEM-PLS model consists of two components: the *measurement model* and the *structural model*. The measurement model specifies how a construct is measured through the observed indicators, whereas the structural model specifies the relationships between the constructs based on the hypothesized causal dependencies (Henseler et al. 2016). Referring to the measurement model,

measures are specified as *reflective* or *formative measures*, depending whether the indicators reflect the construct or form the construct (Bagozzi 2011). In line with the literature, all dependent variables (e.g., perceived social presence, perceived enjoyment, buying intention) examined in the experimental studies of this dissertation are operationalized as reflective measures. With respect to the independent variables (e.g., social commerce feature richness), which are specified as categorical variables, each variable is converted into a formative construct in which each category is represented by a separate dummy indicator variable, as suggested by Henseler et al. (2016). Using categorical variables to represent different experimental treatment conditions and measuring these using dummy variables is also in line with related experimental-based studies (Chen et al. 2009; Cyr et al. 2009; Kamis et al. 2008a).

Each PLS-SEM model included in this dissertation is validated by following the guidelines of Hair et al. (2011). First, the measurement model is validated. Afterwards, the structural model is assessed. With respect to the measurement model, reflective measures are validated by determining the construct reliability, the convergent validity, and the discriminant validity. Regarding the construct reliability, composite reliability and Cronbach's alpha should be higher than 0.7 (Hair et al. 2011). Regarding the convergent validity, standardized item loadings should be higher than 0.7 and the average variance extracted (AVE) from a construct should be higher than 0.5 (Hair et al. 2011). To demonstrate adequate discriminant validity, the square root of the AVE from a construct should be higher than 0.707 and higher than the construct's correlations to the other constructs (Hair et al. 2011). Formative measures are validated by examining the weights and variance inflation factor (VIF) values for the formative items (Cenfetelli and Bassellier 2009). Item weights should be significant, and multicollinearity should not be given. Multicollinearity is assessed via the VIF values, which should be below 5 (Hair et al. 2011).

Since the measures in each experimental study are collected from a single survey, *common method bias* is tested to rule out the "variance that is attributable to the measurement method rather than to the construct of interest" (Podsakoff et al. 2003, p. 879). Following the approach of Podsakoff et al. (2003), a Harman's one-factor test is conducted by running an exploratory factor analysis in which all variables are included and examining the unrotated factor solution. Common method bias is present if the result either yields a single factor of if one factor accounts for the majority of the variance among the variables (Podsakoff et al. 2003).

With respect to the structural model, model validity is assessed by examining the statistical significance of the path coefficients and the R^2 values. As recommended by Hair et al. (2011), bootstrapping with 5.000 subsamples is performed to determine the significance of the path coefficients. While the assessment of the R^2 values generally depends on the research context (Hair et al. 2011), they should be above the rule of thumb of 0.1 (Falk and Miller 1992).

As illustrated in the S-O-R paradigm (cf. section 2.2), the effect of an independent variable (i.e., stimulus) on a dependent variable (i.e., response) can be influenced by other variables (i.e., internal states of organism). The two main variants of such indirect effects are *mediation* and *moderation*. Mediation occurs when a third variable (i.e., mediator variable) intervenes the relationship between two other related variables (Hair et al. 2014b). A mediation can be fully or partially, which can be determined using PLS-SEM (Hair et al. 2014a). In this dissertation, a mediator analysis is conducted in the third and fourth experimental study (Papers V and VI) to examine to what extent the cognitive and affective factors mediate the relationship between the independent variable (i.e., social commerce feature richness/social information cue) and the outcome variable (i.e., website stickiness/choice satisfaction). Moderation occurs when a third variable (i.e., moderator variable) influences the strength or even the direction of a relationship

between two other related variables (Hair et al. 2014b). PLS-SEM allows to test for moderation effects (Hair et al. 2014a). The third experimental study (Paper V) of this dissertation uses a moderation analysis to investigate whether social media usage frequency (i.e., control variable) moderates the relationship between perceived enjoyment and website stickiness.

3.2.2.2 Group Comparison Analyses

Most of the experimental studies included in this dissertation (Papers IV, V, and VI) apply group comparison techniques for verification purposes and to provide additional details about the data set. Since each of the experimental studies involves more than two groups of participants, the applied group comparison techniques are the *analysis of variance* (ANOVA) and the *multivariate analysis of variance* (MANOVA), specifically the *multivariate analysis of covariance* (MANCOVA). Generally, ANOVA examines mean differences of one dependent variable among two or more groups. The typical question that an ANOVA intends to answer is whether there exist statistically significant differences in the dependent variable among various groups. A one-way ANOVA allows to evaluate the mean differences among groups based on one grouping variable (i.e., independent variable), whereas a factorial ANOVA allows to include multiple grouping variables (Mertens et al. 2017). ANOVA is assessed via the *F*-statistic, which is calculated by dividing the between-groups variance by the within-groups variance (Field 2013; Mitchell and Jolley 2012). A significant *F*-statistic indicates that significant differences exist between the groups. ANOVA assumes normal distributed data and homogeneity of variances, which can be assessed with Box's test and Levene's test statistics (Denis 2019). In contrast to ANOVA, MANOVA allows to test mean differences of more than one dependent variable among two or more groups. MANOVA accounts for univariate and multivariate effects and thus incorporates potential correlation between the dependent variables (Mertens et al. 2017). MANOVA includes several test statistics, such as Pillai's Trace, Wilk's Lambda, Hotelling's Trace, and Roy's Largest Root, which should be statistically significant (Denis 2019). As an extension of the MANOVA, MANCOVA allows to additionally include covariates into the analysis to control for confounding factors (Mertens et al. 2017).

Several of the experimental studies included in this dissertation (Papers IV, V, and VI) use ANOVA to verify whether the participants are equally distributed over the respective treatment groups. In addition, MANCOVA is used in the third and fourth experimental study (Papers V and VI) to examine how the different treatment levels differ from each other. In the MANCOVA used in these studies, the independent variable (i.e., social commerce feature richness/social information cue) is included as the grouping variable and the different cognitive and affective factors are included as the dependent variables. Control variables, such as age, gender, or online shopping frequency, are included as covariates. MANCOVA contrasts are used to illustrate where the differences between the groups exist.

3.3 Design Science Research

Research in the information systems discipline is often characterized by two complementary but distinct paradigms: *behavior science* and *design science*. According to Hevner et al. (2004, p. 76), behavior science is understood as a problem understanding paradigm that "seeks to develop and justify theories (i.e., principles and laws) that explain or predict organizational and human phenomena surrounding the analysis, design, implementation, management, and use of information systems". In contrast, design science is understood as a problem-solving paradigm that

"seeks to create innovations that define the ideas, practices, technical capabilities, and products through which the analysis, design, implementation, management, and use of information systems can be effectively and efficiently accomplished" (Hevner et al. 2004, p. 76). Design science involves knowledge about the design of artificial objects and phenomena to achieve certain goals (Simon 1988; Vaishnavi and Kuechler 2004). *Design science research* is research that creates this type of knowledge through the creation of innovative artifacts (Vaishnavi and Kuechler 2004). According to March and Smith (1995), the outputs of design science research can broadly be categorized as *constructs* (e.g., vocabulary and symbols), *models* (e.g., abstractions and representations), *methods* (e.g., algorithms and practices), and *instantiations* (e.g., implemented and prototype systems). Design science research plays a significant role in information systems research because it addresses two key issues of the discipline (March and Storey 2008). First, information technology (IT) is often taken as granted or assumed to be unproblematic when investigating certain IT-related phenomena (Benbasat and Zmud 2003; Orlikowski and Iacono 2001). Second, information systems research is often considered to lack practical relevance (Benbasat and Zmud 1999; Lee 1999).

In this dissertation, design science research is used to develop a method that enables companies to systematically select multiple, functionally complementary social commerce features (Paper VII). Design science research is deemed as appropriate because it provides rigorous, scientific guidelines to support the creation of innovative IT artifacts, such as the proposed method to select social commerce features (Hevner et al. 2004). Moreover, applying design science research helps to ensure that the developed method is not only rigorously and scientifically constructed, but also applicable and useful for practitioners.

The design science research project of this dissertation closely follows the design science guidelines of Hevner et al. (2004). Generally, design science research involves two basic processes: *build* and *evaluate* (March and Smith 1995). The build process encompasses the creation of the artifact, whereas the evaluate process concerns the artifact's evaluation based on criteria such as validity, utility, quality, and efficacy (Gregor and Hevner 2013; March and Smith 1995). To build the method, this dissertation implements two measures. First, a systematic review of prior literature is conducted to gather advice for the construction of the method (Gregor and Hevner 2013). In particular, the literature review aims at deriving knowledge about social commerce features and their potential effects. Moreover, it intends to identify the typical characteristics of software selection approaches from the related enterprise software domain. Second, the design cycle is adopted, which is a systematic procedure model that structures the build process into an iterative series of steps with well-defined in- and outputs (Takeda et al. 1990; Vaishnavi and Kuechler 2004).

The adopted design cycle consists of five steps: (1) In the *problem formulation* step, the concrete problem is identified and specified (i.e., selecting social commerce features is difficult, and guidance is missing). (2) In the *suggestion* step, a solution concept is abductively drawn from the existing knowledge base (i.e., literature review to identify relevant aspects for the selection of social commerce features). (3) In the *development* step, the concept is used as a foundation to create the artifact (i.e., actual method for the selection of social commerce features is developed). (4) In the *evaluation* step, the artifact is evaluated by applying evaluation methods such as case study, simulation, functional testing, or descriptive analysis (i.e., method is applied in a real-world project to evaluate its practical applicability). (5) In the *conclusion* step, it is decided whether the artifact is adopted, and further actions are defined (i.e., method to select social commerce features is adopted in practice). Currently, the design science research project of this

dissertation is at the end of the first iteration of the design cycle, in which the method has been developed and initially evaluated. Based on the findings from the evaluation step, several points of improvement have been identified, which are planned to be addressed in future iterations of the research project.

Referring to the evaluation of the method, this dissertation uses action research. Generally, action research "aims to contribute both to the practical concerns of people in an immediate problematic situation and to the goals of social science by joint collaboration within a mutually acceptable ethical framework" (Rapoport 1970, p. 499). Action research is a recommended evaluation technique in the early stages of design science research to observe an artifact in use and to obtain a proof of concept (Gregor and Hevner 2013; Iivari 2007). For this purpose, an action research project is conducted, in which the method is applied in a complex social commerce project of a world-wide leading German enterprise software company. As the company faces the problem to select adequate social commerce features for its online sales platform, it uses the method to support the selection process. Using action research therefore allows to evaluate the method in a real-world setting and to incorporate any refinements or adaptations that are found necessary to ensure its practical applicability (Iivari 2007). In contrast to other mixed-method approaches, such as action design research (Sein et al. 2011), the design science research approach applied in this dissertation allows to begin the construction of the method independently of any project-specific context, as recommended by Iivari (2007). However, due to the included action research step, it is ensured that the method can be promptly adapted to practical requirements. Table 3.3 outlines the structure of the design science research project of this dissertation.

Table 3.3 Structure of design science research project

Criteria	*Description*
Included in …	Paper VII
Objective	To develop a method that enables companies to systematically select multiple, functionally complementary social commerce features.
Type of artifact	Method
Knowledge base	Social commerce features and their potential effects. Typical characteristics of software selection approaches from the enterprise software domain.
Design procedure	Design cycle based on Takeda et al. (1990)
Evaluation procedure	Action research project in which a world-wide leading German enterprise software company uses the method to select social commerce features for its online sales platform.
Project status	First iteration of design cycle completed (i.e., method is designed and initially evaluated). Further refinements and iterations are planned.

4 Main Research Results

This cumulative dissertation contains seven research papers, which are divided into three parts. Each part responds to one of the three central research questions. The first part presents a systematic literature review (Paper I) about the factors that influence consumers to engage in social commerce initiatives, which addresses the first research question. The second part includes one conceptual (Paper II) and five experimental studies (Papers III, IV, V, and VI) in which the effects of social commerce features and their effective combination are investigated, which targets the second research question. The third part develops a method to systematically select social commerce features (Paper VII), which addresses the third research question. In the following sections, the main research results of each paper included in this dissertation are presented and it is illustrated how the respective paper responds to the central research questions.

4.1 Paper I: Literature Review on Consumers' Social Commerce Engagement[1]

Deriving knowledge about the factors that influence consumers to engage in social commerce initiatives is foundational to understand through which mechanisms such initiatives work (Liang and Turban 2011; Wang and Zhang 2012). However, while several studies have focused on empirically investigating factors that influence consumers to engage in social commerce initiatives, the reported findings are fragmented and often inconclusive across the literature (cf. section 1.2). The objective of Paper I therefore is to systematically review and synthesize the social commerce literature to provide a structured and comprehensive list of factors that influence consumers' social commerce engagement.

The literature review is conducted by following the two-step approach of Webster and Watson (2002) as described previously (cf. section 3.1). The literature review identifies 61 articles in which one or more factors have been empirically investigated with respect to consumers' social commerce engagement. Figure 4.1 illustrates the concept-centric classification of the examined factors and outcome variables, which is used to synthesize the results and structure the review. Note that Figure 4.1 only shows the frequently examined factors (i.e., factors examined in more than one study) as the review aims at aggregating the empirical findings. The full list of all identified factors, including the factors that have only been examined in one study, and their effects is provided in the Appendix of Paper I.

[1] Friedrich, T. (2016). On the Factors Influencing Consumers' Adoption of Social Commerce – A Review of the Empirical Literature. *Pacific Asia Journal of the Association for Information Systems*, 8(4), pp. 1-32.

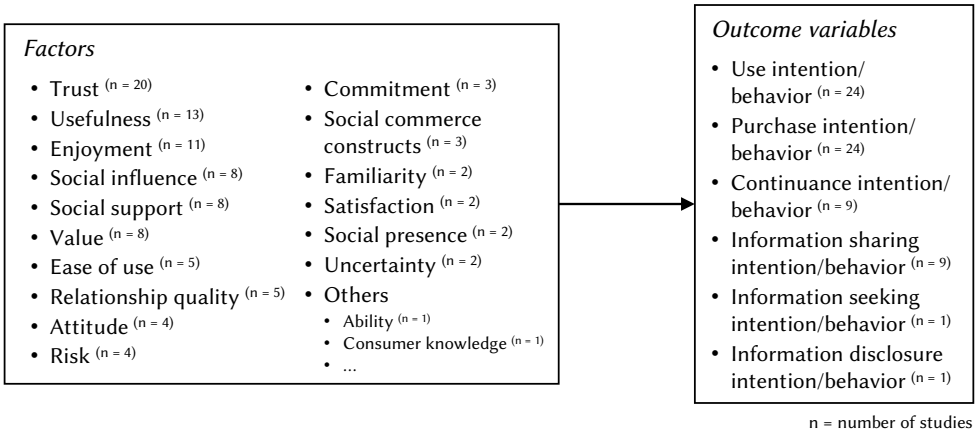


Figure 4.1 Concept-centric classification of factors and outcome variables of Paper I

The concept-centric classification shows that the literature on consumers' social commerce engagement has examined a wide range of factors and outcome variables. With respect to the outcome variables, consumers' use intention/behavior and purchase intention/behavior have received most attention. The former refers to the general use of an e-commerce platforms for social commerce activities, whereas the latter addresses the purchasing of products and/or services on such platforms. Note that the term *intention/behavior* is used to illustrate that the respective outcome variable covers both intention and behavior since not all studies included in the literature review explicitly differentiate between these two aspects. With respect to the factors, trust has received most attention, followed by usefulness, enjoyment, social influence, social support, and value.

To provide an aggregated picture of the reported effects of the frequently examined factors, Paper I applies a vote-counting technique, in which the significant negative effects, non-significant effects, and significant positive effects are counted and grouped together (cf. section 3.1). For each factor, a summary of the effects per outcome variable (SPV, summary per variable) and a summary of the effects per factor (SPF, summary per factor) is given. The former is used to illustrate the percentage of studies that confirm an assumed effect between the factor and outcome variable. The latter is used to illustrate the factor's overall confirmed effects on the outcome variables. In addition, a short definition is provided for each factor and it is shown how the factor has been conceptualized by listing the construct names.

Table 4.1 illustrates the vote-counting results for the factor trust. The results indicate that trust seems to play a critical role in consumers' social commerce engagement as 26 out of 32 examined effects are significantly positive. Specifically, trust has been reported to significantly increase consumers' use (8/10), purchase (10/11), continuance (2/2), information sharing (5/7), and information seeking (1/2) intention/behavior. Note that the number of reported effects is not necessarily identical to the number of studies as some studies investigate the effects of one factor on multiple outcome variables. The vote-counting results for the other factors can be found in Paper I.

Table 4.1 Excerpt of vote-counting results for the factor trust of Paper I

Trust (n = 20)						
Definition	The confidence a person has in his or her favorable expectations of what another party (e.g., person or company) will do, based, in many cases, on previous interactions (Gefen 2000). […]					
Constructs	Trust, perceived trust, perceived trustworthiness of SNSs, trust in social network community, trust towards community, trust towards members, trust in vendor, company trust, trust in sellers, trust towards website, trust in website […]					
Influence on …	*Outcome variable*	*Effect (vote-count)*			*SPV*	*SPF*
		-	*0*	*+*		
	Use intention/behavior		2	8	80% (8/10)	81% (26/32)
	Purchase intention/behavior		1	10	91% (10/11)	
	Continuance intention/behavior			2	100% (2/2)	
	Information sharing intention/behavior		2	5	71% (5/7)	
	Information seeking intention/behavior		1	1	50% (1/2)	

Notes: n = number of studies. - = significant negative effect (p<0.05); 0 = non-significant effect; + = significant positive effect (p<0.05). SPV = summary per variable. SPF = summary per factor.

Paper I also uses a sign test to verify whether the reported effects per factor indicate that one direction occurs more frequently than chance would suggest (cf. section 3.1). Table 4.2 presents an excerpt of the sign test results for some of the most frequently examined factors as identified in the literature review.

Table 4.2 Excerpt of sign test results of Paper I

Factor	*N*		*Sign test*		
	Positive	*Total*	*Z-score*	*Sig. value*	*Sig. level*
Trust	26	32	3.5355	0.0004	***
Usefulness	11	13	2.4962	0.0126	*
Enjoyment	9	12	1.7321	0.0833	n.s.
Social influence	11	12	2.8868	0.0039	**
Social support	9	9	3.0000	0.0027	**
…	…	…	…	…	…

Notes: N = number of reported effects. Sig. = significance. * = p<0.05; ** = p<0.01; *** = p<0.001; n.s. = not significant.

As the results of the sign test demonstrate, the reported effects for the factor trust point in a clear direction as the result is statistically significant. Accordingly, trust can indeed be considered to play a critical role in consumers' social commerce engagement. The factors usefulness, social influence, and social support can also be considered to play a critical role in consumers' social commerce engagement as the direction of the effects is statistically significant. In contrast, the factor enjoyment requires further empirical investigations as the direction of the effects is not significant according to the sign test results. Note that the results of the sign test must be interpreted with caution given the small number of studies behind most of the factors.

In summary, Paper I presents a systematic literature review to identify the factors that influence consumers to engage in social commerce initiatives, which responds to the first research question of this dissertation. The results show that prior literature on consumers' social commerce engagement has examined a wide range of factors and outcome variables. By systematically structuring and synthesizing the reported findings, Paper I reveals that for some factors, such as trust, usefulness, or social influence, the effects point in a clear direction, while for several

other factors, such as enjoyment, risk, or social presence, the effects are yet not clear and require further investigations.

4.2 Paper II: Integrated Research Model to Study the Effects of Social Commerce Features[2]

Using the S-O-R paradigm (cf. section 2.2) as a theoretical lens, the results of the literature review of Paper I show that most empirical studies on consumers' social commerce engagement focused their investigations on factors related to the organism and response but without taking stimuli-related factors, such as the social commerce features provided on an e-commerce platform, into account. Consequently, while various organism-related factors, such as trust, perceived usefulness, perceived enjoyment, social influence, or social support, were identified to be relevant for consumers' social commerce engagement, the effects of social commerce features on these factors have not been investigated systematically yet. Deriving knowledge about the effects of social commerce features is important to understand how such features can be effectively used and selected (Baethge et al. 2016; Turban et al. 2010). The objective of Paper II therefore is to develop a research model that serves as a conceptual framework to study the effects of social commerce features in a systematic, comparable manner.

The research model uses the S-O-R paradigm as an overarching theory to establish a theoretically grounded link between the social commerce features provided on an e-commerce platform and the factors influencing consumers' social commerce engagement. The stimulus is represented by one or more *social commerce features* that are integrated into an e-commerce platform. The research model hence allows to study the effects of individual as well as combinations of social commerce features. The latter is important given the assumptions that social commerce initiatives may be more effective if they use social commerce features in combination (Huang and Benyoucef 2013).

The affective and cognitive states of the organism are represented by a set of factors that have been identified via the literature review of Paper I. These factors are *perceived usefulness*, *perceived ease of use*, *perceived enjoyment*, *trust*, *commitment*, *satisfaction*, *social presence*, *social support*, and *social influence*. The factors are used for three reasons. First, they are justified by well-established theories, which have been identified as relevant in the context of social commerce. Second, all factors have been at least three or more times confirmed to influence consumers' social commerce engagement. Third, literature indicates that social commerce features can have an impact on these factors. The research model groups the factors as utilitarian, hedonic, relational, and social factors to visualize the different perspectives that these factors address.

With respect to the response, the research model uses *social commerce intention* to represent consumers' social commerce engagement. In addition, the research model includes several control variables to control for individual characteristics such as age, gender, nationality, education, social media experience, online shopping frequency, and shopper type. Figure 4.2 depicts the research model developed in Paper II.

[2] Friedrich, T., Overhage, S., & Schlauderer, S. (2016). Unveiling the Impacts of Social Commerce Features – An Integrated Research Model. *Proceedings of the 24th European Conference on Information Systems (ECIS)*, Istanbul, Turkey, pp. 1-12.

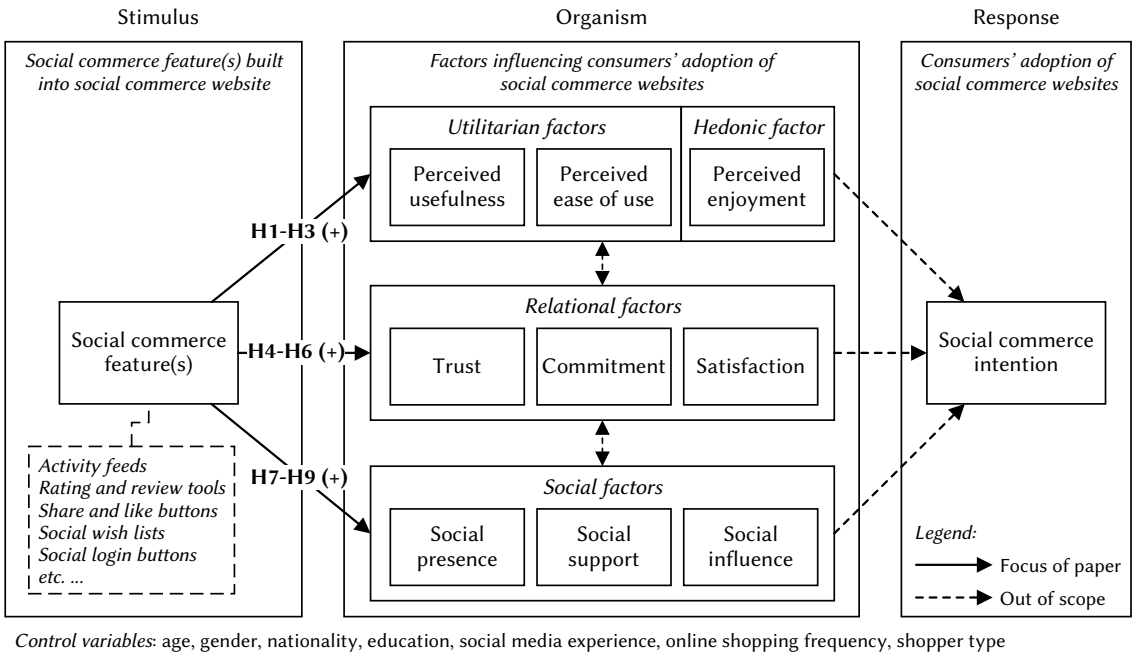


Figure 4.2 Integrated research model to study the effects of social commerce features of Paper II

While Paper II is conceptual in nature, it also outlines an experimental setting to illustrate how the hypotheses of the research model can be evaluated. The outlined experimental setting serves a basis for most of the experimental studies included in this dissertation (cf. section 3.2.1).

Taken together, Paper II presents a research model that serves as a conceptual framework to investigate the effects of social commerce features on consumers' social commerce engagement. By integrating various utilitarian, hedonic, relational, and social factors, the research model provides a holistic perspective through which the effects of social commerce features can be studied systematically. Moreover, it shows how the conceptual framework can be operationalized in an experimental setting. In so doing, Paper II delivers answers to the second research question of this dissertation.

4.3 Paper III: Relationship Between Feature Intensity, Social Factors, and Buying Behavior[3]

Paper III aims to explore how the use of different numbers of social commerce features affects consumers' perception of social factors and subsequently their buying behavior. Investigating the effects of different numbers of social commerce features is critical given that various functionally different social commerce features exist that can be integrated into e-commerce platforms and that can stimulate consumers' social interactions in different ways (Curty and Zhang 2013; Huang and Benyoucef 2015). By increasing the number of social commerce features provided on an e-commerce platform, companies may thus stimulate consumers' social interactions more effectively, which can lead to an increased perception of social factors. Higher perceptions of social factors, in turn, can positively affect consumers' buying behavior (Kwahk and Ge 2012;

[3] Friedrich, T., Overhage, S., & Schlauderer, S. (2016). The More the Better? Exploring the Relationship Between Social Commerce Feature Intensity, Social Factors, and Consumers' Buying Behavior. *Proceedings of the 37th International Conference on Information Systems (ICIS)*, Dublin, Ireland, pp. 1-21.

Lee et al. 2006; Liang et al. 2011; Shen 2012). However, literature also argues that the use of multiple social commerce features could overwhelm consumers with social overload and negatively affect their buying behavior (Baethge et al. 2016; Olbrich and Holsing 2011). It is hence important to better understand how the use of different numbers of social commerce features affects the success of social commerce initiatives (Huang and Benyoucef 2013).

Taking the conceptual framework of Paper II into account, Paper III develops a research model that is grounded on the S-O-R paradigm and that enables to investigate how the use of different numbers of social commerce features affects consumers' perception of social factors and how these factors affect consumers' buying behavior. The stimulus is represented by the *social commerce feature intensity*, which refers to the number of social commerce features provided on an e-commerce platform. As regards the organism, the research model incorporates the three social factors *perceived social presence*, *perceived social support*, and *perceived social influence*, which are also part of the conceptual framework of Paper II. Paper III concentrates on social factors because influencing these factors is considered a core mechanism of social commerce initiatives (Baethge et al. 2016; Wang and Zhang 2012). For all three social factors, evidence has been reported that they can significantly influence consumers' buying behavior (Hajli and Sims 2015; Liang et al. 2011; Shen 2012; Wang and Zhang 2012). Moreover, calls exist in the social commerce literature to study the antecedents and impacts of these factors in more detail (Liang et al. 2011; Zhang and Benyoucef 2016). As social commerce initiatives usually have the goal of increasing sales volumes (Bai et al. 2015; Wang and Yu 2017), *consumers' buying intention* is used as the intended response to the stimuli. Using buying intention as a proxy for buying behavior is common practice in the e-commerce and social commerce literature and is in line with well-established theories such as the TRA, the TPB, or the TAM (Bai et al. 2015; Gefen et al. 2003; Hsiao et al. 2010; Pavlou and Fygenson 2006; Zhang and Benyoucef 2016).

The research model is evaluated in a controlled online experiment, in which 115 participants used variants of an e-commerce platform that differed in the number of integrated social commerce features (see section 3.2.1 for a detailed description of the experimental setting). Figure 4.3 depicts the results of the SEM-PLS analysis, which is used to evaluate the measurement model and test the hypotheses (cf. section 3.2.2).

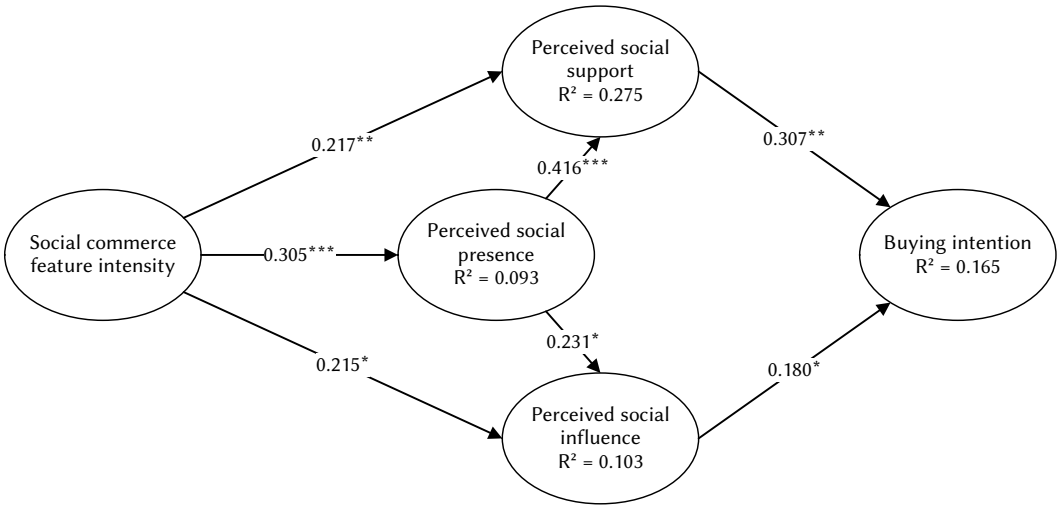


Figure 4.3 Research results of Paper III

The results of Paper III reveal that the social commerce feature intensity has a significant positive impact on perceived social factors. Hence, when integrating multiple social commerce features into an e-commerce platform, it is more likely that the platform stimulates consumers' perception of the three social factors social presence, social support, and social influence. With respect to the effects of the social factors, the results show that social presence has a significant positive effect on social support and social influence. Moreover, the results demonstrate that both social support and social influence have a significantly positive effect on consumers' buying intention. Note that while not explicitly depicted in Figure 4.3, various control variables such as age, gender, social media usage frequency, and online shopping frequency of the participants were included in the analysis to account for individual characteristics of the participants. None of the control variables has a significant effect on the constructs included in the research model.

In conclusion, Paper III investigates how the use of different numbers of social commerce features affects consumers' perception of the three social factors social presence, social support, and social influence, and how these factors affect consumers' buying intention. Thereby, Paper III delivers initial empirical evidence about whether social commerce initiatives can be made more successful when using multiple social commerce features in combination, which responds to the second research question of this dissertation.

4.4 Paper IV: Social Commerce Feature Richness and Its Effects on Buying Intention[4]

While Paper III delivers initial evidence that social commerce initiatives can be made more successful when increasing the number of social commerce features, it does not provide a detailed theoretical explanation about the unique effects that are generated when using multiple features in combination. Moreover, since Paper III only investigates one set of social commerce features, it remains unclear whether using other feature sets generates equivalent results. To address these limitations, Paper IV extends Paper III by proposing a new theoretical construct that helps to better understand the effects of combining multiple social commerce features. In addition, Paper IV takes the effects of different feature sets into account.

Analogous to Paper III, the research model of Paper IV incorporates the three social factors social presence, social support, and social influence, as well as consumers' buying intention. However, instead of social commerce feature intensity, the research model uses the construct *social commerce feature richness* as the independent variable. Paper IV introduces the concept of social commerce feature richness to express the functional diversity of a set of social commerce features that is provided on an e-commerce platform. Building on the media richness theory (Daft and Lengel 1986), the concept of social commerce feature richness suggests that, depending on their functionality, social commerce features can transmit different kinds of social information. Social information refers to information that is generated and shared among consumers (Cheung et al. 2014; Yadav et al. 2013). The greater the functional diversity of a set of social commerce features, the broader the range of social information it conveys.

[4] Friedrich, T., Schlauderer, S., & Overhage, S.: Some Things Are Just Better Rich: How Social Commerce Feature Richness Affects Consumers' Buying Intention via Social Factors. Accepted for publication in *Electronic Markets*.

To determine the functional diversity of a set of social commerce features, Paper IV uses the reference model of Huang and Benyoucef (2013) as a first guideline. The reference model illustrates how social commerce features can be distinguished and combined according to their basic functionality. In particular, the reference model groups social commerce features into four layers according to their basic functionality (cf. section 2.3). Building on the reference model, Paper IV argues that the more layers a set of social commerce features encompasses, the greater its functional diversity and hence the level of social commerce feature richness.

The social commerce feature richness is not necessarily identical to the number of social commerce features provided on an e-commerce platform. Instead, it is defined by the diversity of functionality that is realized, which is represented by the different layers of the reference model. For instance, implementing two functionally homogenous social commerce features to cover the conversation layer of the reference model would not increase the social commerce feature richness, but it would increase the number of features. In contrast, implementing two functional diverse social commerce features to cover the individual and the conversation layer would also increase the social commerce feature richness. The social commerce feature richness hence allows to explain why certain combinations of social commerce features may be more effective than others.

To evaluate the research model, Paper IV uses a controlled online experiment, in which 237 participants used and reported on different versions of an e-commerce platform, which varied only with respect to the level of social commerce feature richness and the level of feature amount (see section 3.2.1 for a description of the experimental setting). The latter is used as a control variable to account for potential effects that may be generated when extending the sheer amount of social commerce features, but without increasing the social commerce feature richness. The research model is analyzed using SEM-PLS. Several control variables (i.e., age, gender, internet usage frequency, online shopping frequency, and social media usage frequency) are included in the analysis to account for individual characteristics of the participants. Figure 4.4 presents the results of the SEM-PLS analysis.

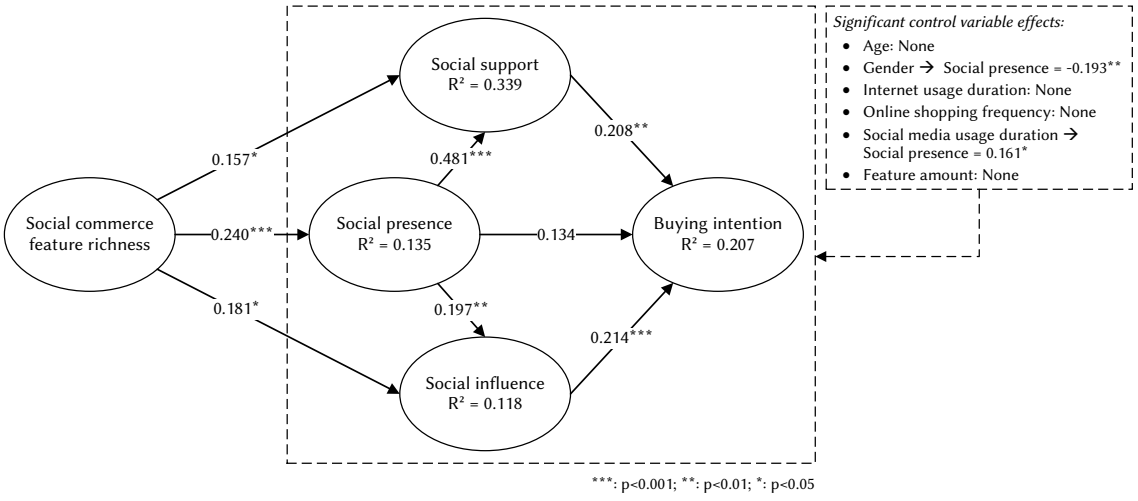


Figure 4.4 Research results of Paper IV

The results of Paper IV show that the social commerce feature richness has a significant positive impact on the three social factors social presence, social support, and social influence. If an e-commerce platform provides a higher level of social commerce feature richness, it is thus likely that the platform stimulates consumers' social interactions more effectively. Regarding the

effects of the social factors, the results demonstrate that social presence has a significant positive effect on social support and social influence. Moreover, both social support and social influence have a significantly positive effect on consumers' buying intention, whereas the effect of social presence on buying intention is not significant. However, considering the positive effects of social presence on social support and social influence, social presence can still be considered a critical factor in consumers' buying intention, which apparently seems to generate its effects through other factors.

Considering the effects of the control variables, the results of Paper IV show that female participants as well as participants who are frequently using social media applications associate the platform with higher levels of social presence. This seems reasonable since women tend to be more attentive to social cues, which may likewise apply to individuals, who are frequently using social media applications (Croson and Gneezy 2009; Cyr et al. 2007). The effects of the control variables also reveal that increasing the number of social commerce features in addition to the feature richness does not generate additional benefits, as the effects of the control variable feature amount are not significant. Accordingly, it is rather the functional diversity of the social commerce features than the number of features through which the effects on social factors are generated. Compared to the number of social features, the concept of social commerce feature richness thus provides a more suitable measure to effectively combine social commerce features.

Taken together, Paper IV introduces social commerce feature richness as a novel instrument to explain the unique effects that are generated when using multiple social commerce features in combination. Moreover, it empirically investigates how the social commerce feature richness affects consumers' buying intention via social factors. By revealing that it is rather the functional diversity of the used social commerce features than the number of features through which the effects are generated, Paper IV provides evidence about how social commerce features can be effectively combined, which responds to the second research question of this dissertation.

4.5 Paper V: Effects of Social Commerce Feature Richness on Website Stickiness[5]

In addition to social factors, social commerce features can also affect various other factors, such as utilitarian, hedonic, and relational factors (see conceptual framework of Paper II). Moreover, besides consumers' buying intention, additional outcome variables exist through which the success of social commerce initiatives can be determined. The objective of Paper V therefore is to further explore the potential effects of the social commerce feature richness. Specifically, it aims to investigate how the social commerce feature richness affects the stickiness of an e-commerce platform (i.e., website stickiness) via cognitive and affective factors. *Website stickiness* is a critical determinant for the success of social commerce initiatives as it refers to how much attention a website receives from its users over time (Davenport 2000; Li et al. 2006; Zott et al. 2000). On sticky websites, consumers typically spend more time and interact more with the website, which can stimulate purchases and nurture customer loyalty (Lin 2007; Lin et al. 2010). It is hence important to understand whether the stickiness of an e-commerce platform can be strengthened when integrating functionally richer sets of social commerce features.

[5] Friedrich, T., Schlauderer, S., & Overhage, S. (2019). The Impact of Social Commerce Feature Richness on Website Stickiness Through Cognitive and Affective Factors: An Experimental Study. *Electronic Commerce Research and Applications*, 36, pp. 1-19.

Building on the S-O-R paradigm, the research model of Paper V uses *social commerce feature richness* as the independent variable. As concerns the cognitive and affective states of the organism, the research model incorporates the three factors *perceived usefulness*, *perceived enjoyment*, and *trust*, which are also part of the conceptual framework of Paper II. The three factors are used because evidence is given that they can significantly influence website stickiness (Benlian 2015; Li et al. 2006; Lin 2007; Polites et al. 2012). Moreover, literature indicates that social commerce features may have an impact on these factors (Brengman and Karimov 2012; Hajli 2013; Kumar and Benbasat 2006; Liu and Park 2015). As regards the outcome variable, the research model uses *website stickiness*, which is conceptualized as the consumers' amount of time spent and interaction while using a website (Olbrich and Holsing 2011; Tangmanee 2017).

The research model is evaluated in a controlled online experiment, in which 164 participants used and reported on several variants of an e-commerce website that differed from each other only with respect to the level of social commerce feature richness. To measure website stickiness, different website metrics (i.e., number of clicks, page views, visit duration) are used, which are collected from the participants' clickstream data during the experiment (see section 3.2.1 for a description of the experimental setting). SEM-PLS is used to assess the measurement model and structural model. Age, gender, internet usage frequency, online shopping frequency, and social media usage frequency are included as control variables to account for individual characteristics of the participants. Figure 4.5 displays the results of the SEM-PLS analysis.

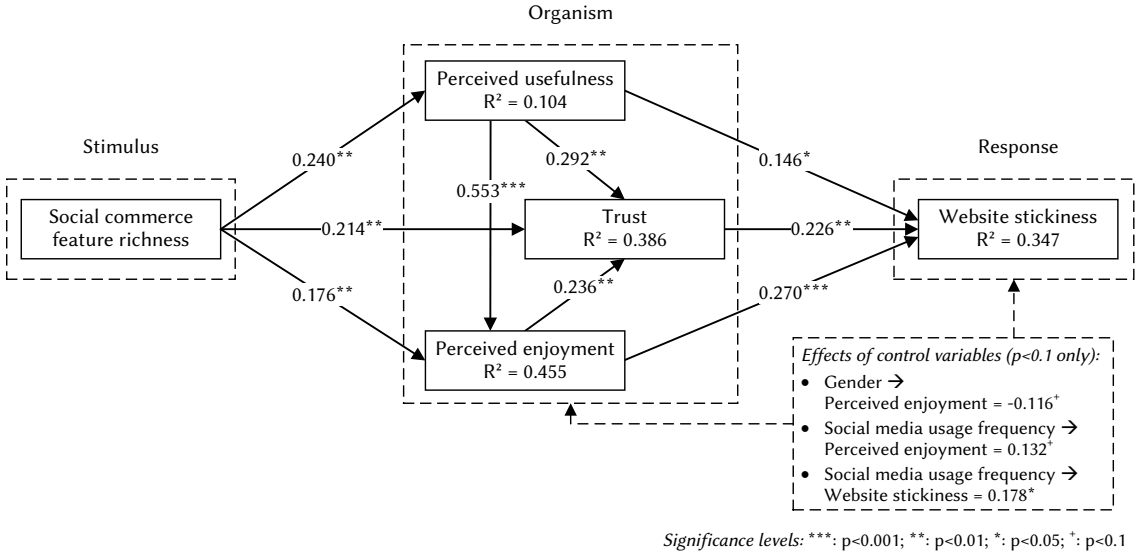


Figure 4.5 Research results of Paper V

The results of Paper V show that the social commerce feature richness has a significant positive effect on the three cognitive and affective factors perceived usefulness, perceived enjoyment, and trust. Moreover, both usefulness and enjoyment have a significant positive effect on trust, whereas usefulness also has a significant positive effect on enjoyment. Finally, usefulness, enjoyment, and trust have a significant positive effect on website stickiness. Consequently, if an e-commerce platform uses a functionally rich set of social commerce features and thereby provides different kinds of social information, it is likely that the platform stimulates consumers' perception of usefulness, enjoyment, trust more effectively, which in turn increases the website stickiness. In addition, the effects of the control variables indicate that female participants tend to perceive the platform as more enjoyable. Similarly, participants who are frequently using

social media applications tend to associate the platform with more enjoyment and tend to stay longer on the platform.

In sum, Paper V examines how the social commerce feature richness affects the stickiness of an e-commerce platform via cognitive and affective factors. In so doing, Paper V provides additional evidence about the unique effects that are generated when using functionally different social commerce features in combination, which responds to the second research question of this dissertation.

4.6 Paper VI: Effects of Social Information Cues on Consumers' Product Choice Experiences[6]

The objective of Paper VI is to investigate how different social information cues provided on an e-commerce platform affect consumers' product choice experiences (Paper VI). Investigating the effects of social information cues not only helps to better understand how they can be effectively used. It also targets one of the central arguments of the social commerce feature richness, namely that different kinds of social information can have different effects (cf. Paper IV).

Social information cues are basic elements of social commerce features, representing information that is generated by the actions and/or opinions of other consumers in a condensed form (Cheung et al. 2014; Kim et al. 2019). Popular types of social information cues include product ratings, likes, or recent consumer activities (Kim et al. 2019; Mou and Shin 2018). Social information cues can provide an additional basis, from which consumers can infer shopping-relevant characteristics such as the product quality or popularity (He and Oppewal 2018). Accordingly, prior research found that social information cues can help to shape consumers' perception of products/services and thereby influence their buying behavior (Huang and Chen 2006; Park et al. 2007). However, since the effects of such cues have mainly been examined from a product-oriented perspective (e.g., product quality, product popularity), it remains unclear how such cues can be used to support consumers in their product choice and whether some cues may be superior to others in a certain scenario.

To trace the effects caused by social information cues systematically, Paper VI adopts the S-O-R paradigm as an overarching theory to structure the research model. The stimulus is represented by the provisioning of a *social information cue* on an e-commerce platform. To represent the cognitive and affective states of the organism, the research model incorporates the factors *perceived choice difficulty* and *perceived enjoyment*. Both factors are considered to play a critical role in shaping consumers' product choice experiences (Isen 2001; Iyengar and Lepper 2000; Spassova and Isen 2013; Valenzuela et al. 2009). With respect to the outcome variable, the research model uses *choice satisfaction*, which is an important determinant to maximize consumer loyalty, website use, and purchases (Heitmann et al. 2007; Kamis et al. 2008b). To account for individual characteristics, the research model includes the control variables age, gender, online shopping frequency, and product familiarity (Heitmann et al. 2007; Kim et al. 2019).

The research model is evaluated in a controlled online experiment, in which 147 participants used and reported on several versions of an e-commerce platform that differed only with respect

[6] Friedrich, T., Overhage, S., & Schlauderer, S.: How Do Social Information Cues Affect Consumers' Product Choice Experiences? Findings from a Controlled Online Experiment. Conditionally accepted for *Internationale Tagung Wirtschaftsinformatik (WI2020)*.

to the provided social information cues (see section 3.2.1 for a description of the experimental setting). The data analysis involves two approaches. First, SEM-PLS is used to assess the measurement model and test the hypotheses contained in the research model. Second, a group comparison analysis (i.e., MANCOVA) is performed to examine whether there exist differences in the effects between the different types of social information cues (cf. section 3.2.2).

The SEM-PLS analysis shows that the provisioning of a social information cue has a significant negative effect on choice difficulty and a significant positive effect on enjoyment (see Figure 4.6). Moreover, enjoyment has a significant negative effect on choice difficulty and a significant positive effect on choice satisfaction, whereas choice difficulty has a significant negative effect on choice difficulty. Referring to the effects of the control variables, male gender has a significant negative effect on enjoyment, while product familiarity has a significant negative effect on choice difficulty. Accordingly, the SEM-PLS results of Paper VI reveal that the provisioning of a social information cue on an e-commerce platform can significantly influence consumers' cognitive/affective choice perceptions, which in turn can affect consumers' choice satisfaction.

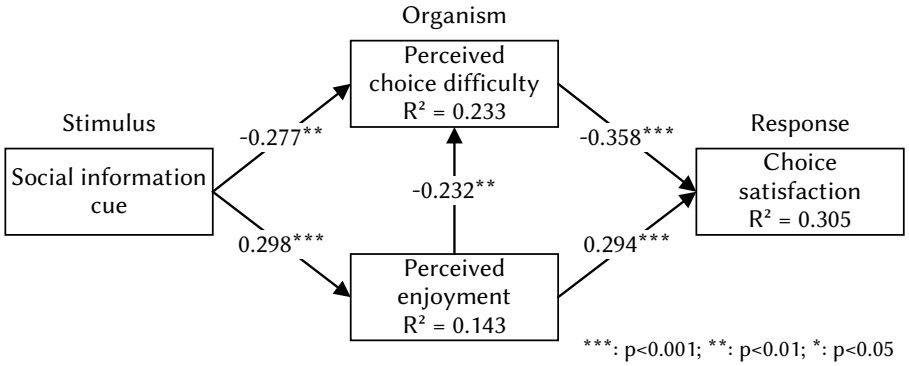


Figure 4.6 Research results of Paper VI

Table 4.3 illustrates the contrast results of the MANCOVA analysis of Paper VI. For all groups in which social information cues are provided, choice difficulty is significantly decreased, and perceived enjoyment is significantly increased when compared to the control group. In addition, the provisioning of sales numbers significantly increases choice difficulty when compared to the provisioning of ratings. Moreover, the provisioning of sales numbers as well as ratings significantly decreases enjoyment when compared to the provisioning of likes. The contrast results hence indicate that the effects on consumers' cognitive/affective choice perceptions can vary considerably depending on the employed type of social information cue.

Table 4.3 MANCOVA contrast results of Paper VI

	Choice difficulty	*Enjoyment*
(2) Sales numbers vs. (1) No cues	-0.753*	0.569*
(3) Ratings vs. (1) No cues	-1.511***	0.799**
(4) Likes vs. (1) No cues	-1.181***	1.427***
(2) Sales numbers vs. (3) Ratings	0.758*	-0.230
(2) Sales numbers vs. (4) Likes	0.429	-0.858**
(3) Ratings vs. (4) Likes	-0.329	-0.628*

***: p<0.001; **: p<0.01; *: p<0.05.

In conclusion, Paper VI investigates how the provisioning of social information cues influences consumers' product choice experiences. The results reveal that social information cues can play a significant role in positively shaping consumers' choice satisfaction by decreasing choice difficulty and increasing enjoyment. Moreover, the results show that the effects can vary considerably depending on the employed type of social information cue. By providing empirical evidence about the effects of social information cues, which are basic elements of social commerce features, Paper VI delivers answers to the second research question of this dissertation.

4.7 Paper VII: Method to Systematically Select Social Commerce Features[7]

As a wide range of functionally different social commerce features exists, it becomes critical for companies to understand how such features can be efficiently assessed and selected (Baethge et al. 2016; Curty and Zhang 2013; Turban et al. 2010). Yet, prior social commerce studies provide only little guidance on the selection of social commerce features. In line with the initial assumptions in literature (Huang and Benyoucef 2013), the results of Papers IV and V demonstrate that social commerce initiatives can be made more successful when using functionally different social commerce features in combination. However, no recommendations are given which concrete features should be selected and combined to achieve certain goals. Software selection approaches from the related enterprise software domain also provide only little support as they do neither contain social commerce-specific selection criteria nor support the selection of feature combinations (Jadhav and Sonar 2009; Sen et al. 2009). The aim of Paper VII therefore is to develop a method that supports companies to systematically select multiple, functionally complementary social commerce features.

The method is developed using a design science research approach, which is described in section 3.3. The method operationalizes the selection of social commerce features as a structured, generally applicable decision-making process. For this purpose, the method provides a *procedure model* in which the selection problem is divided into several well-defined steps. The procedure model is based upon the typical structure of software selection approaches from the related enterprise software domain. It starts with the determination of relevant selection criteria (step 1), followed by the identification of potential feature candidates (step 2), and subsequently the feature evaluation and selection (step 3). While these steps are also suggested by established software selection approaches (Sen et al. 2009), each step is modified to the activities and parameters that are necessary to support the selection of social commerce features. Moreover, the procedure model includes an additional step to verify that the selected features can be effectively combined with each other (step 4). The procedure model is meant to be executed in sequence but does also support reiterations if necessary. Figure 4.7 depicts the procedure model of the method. Note that Paper VII uses the term *social commerce technology* instead of *social commerce feature*, but both terms can be considered as synonyms in the context of this study.

To support the selection of social commerce features, the method also includes a *technology assessment catalog*, which serves as the method's overall input parameter. The catalog provides detailed information about the available social commerce features and describes their support

[7] Friedrich, T., Overhage, S., Schlauderer, S., & Eggs, H. (2015). Selecting Technologies for Social Commerce: Towards a Systematic Method. *Proceedings of the 23rd European Conference on Information Systems (ECIS)*, Münster, Germany, pp. 1-17.

of the suggested selection criteria. For each social commerce feature included in the catalog, a faceted description of its functionality is given, and it is illustrated how the feature contributes to the design of an effective social commerce platform. For this purpose, the catalog uses the reference model of Huang and Benyoucef (2013) as a guideline (cf. section 2.3) and shows which layer of the model the feature covers with its functionality. Moreover, the catalog includes a set of factors for which solid evidence is given that they can significantly influence consumers' buying behavior, which are used as selection criteria. The catalog is defined in a way that it can be easily augmented with additional features and selection criteria.

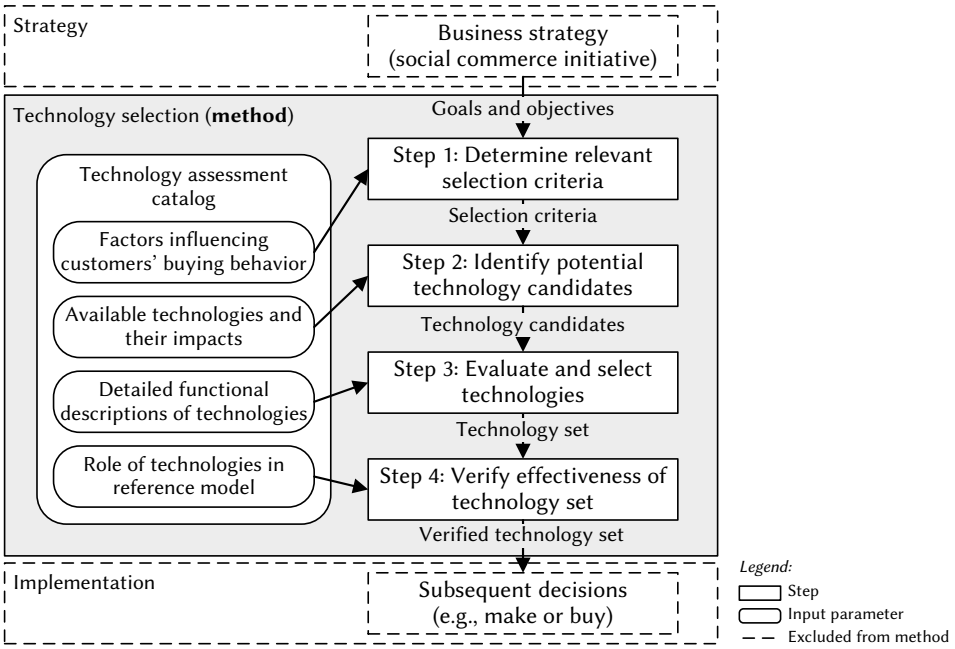


Figure 4.7 Procedure model of method of Paper VII

The method is evaluated in an action research project, in which it is applied in a complex social commerce project of a world-wide leading German enterprise software company (cf. section 3.3). As the company faces the problem to select adequate social commerce features for its online sales platform, it uses the method to support the selection process. The results of the action research project show that the company is satisfied with both the achieved results and the applicability of the method. The method is found to effectively support the selection process and to be easily useable. Especially the information contained in the technology assessment catalog is judged as an important measure to facilitate the decision process. The different steps of the procedure model are moreover found to represent a useful decision guideline. Altogether, the results of the evaluation attest that the method is applicable in practice and that it enables an efficient selection of social commerce features.

In summary, Paper VII develops a method that allows companies to systematically select multiple, functionally complementary social commerce features. The method consists of a procedure model that describes the problem of selecting social commerce features as a tailor-made decision-making process. Moreover, it provides a technology assessment catalog as a consolidated information base to facilitate the decision process in an efficient manner. The results of the practical evaluation show that the method is intuitively applicable and effectively supports the selection process. With the proposed method, Paper VII thus responds to the third research question of this dissertation.

5 Contributions and Implications

The results of the seven papers of this cumulative dissertation provide several theoretical contributions and practical implications, which are summarized in the following sections.

5.1 Contributions to Theory

This dissertation is composed of three parts, each of which addresses one of the three central research questions. The first part focuses on identifying the factors that influence consumers to engage in social commerce initiatives. The second part investigates the effects of social commerce features and how these features can be effectively combined to increase the success of social commerce initiatives. The third part concentrates on the systematic selection of social commerce features. Each part delivers different theoretical contributions.

5.1.1 Factors Influencing Consumers' Social Commerce Engagement

While several studies have already focused on empirically examining factors that influence consumers to engage in social commerce initiatives, the results are fragmented and often inconclusive across the literature (e.g., Chen and Shen 2015; Hsiao et al. 2010; Kim 2015; Kwahk and Ge 2012; Liang et al. 2011; Shen 2012; Shin 2013; Zhang et al. 2014). Consequently, current social commerce literature lacks a clear understanding about the factors influencing consumers' social commerce engagement.

To contribute to the closure of this literature gap, the first part of this dissertation presents a systematic literature review on the factors influencing consumers' social commerce engagement (Paper I). While a few literature reviews on social commerce exist, most of these studies either concentrate on the concept of social commerce or its historical evolution and not on consumers' social commerce engagement (Baethge et al. 2016; Busalim and Hussin 2016; Zhou et al. 2013). By classifying and synthesizing the empirical findings of prior studies, the literature review contributes a structured and comprehensive overview of factors and outcome variables that have been frequently examined in the context of consumers' social commerce engagement. Moreover, the literature review delivers an aggregated view of the examined effects and reveals their overall significance. The review can be used as a theoretical foundation to investigate consumers' social commerce engagement. It helps researchers to derive a clearer understanding about the accumulated knowledge on consumers' social commerce engagement, to identify under-researched areas, and to mitigate the risk that already existing concepts are reinvented.

The literature review presented in Paper I highlights several gaps in the social commerce literature on which future studies can focus. For instance, while the effects of some frequently examined factors, such as trust, usefulness, social influence, or social support, point in a clear direction, the effects of several other frequently examined factors, such as enjoyment, ease of use, risk, or social presence, are yet not clear and require further investigations. Consequently, future studies could investigate these factors in more detail. Moreover, the results of the review reveal that many causal relationships have not yet been examined, such as whether social influence or social support affect consumers' information sharing intention/behavior or whether usefulness or enjoyment affect consumers' continuance intention/behavior. Future studies

could hence concentrate on studying these relationships. Considering that social commerce involves different consumer activities (Liang and Turban 2011), the results of the review also show that there is still much potential for future studies to explore additional outcome variables. For instance, future studies could examine which factors influence consumers to co-create value or to help and support other consumers on social commerce platforms (Saundage and Lee 2011).

Paper I also identifies several issues in the reviewed articles, which make it difficult to interpret and compare the results. For this reason, Paper I provides recommendations on how these issues can be addressed by future studies. For instance, since some of the reviewed articles have conceptualized similar factors (e.g., perceived usefulness, performance expectancy) or outcome variables (e.g., use intention, participation intention) in different ways, Paper I suggests that future research should be more careful when defining own constructs and refer to established conceptualizations if possible. When studying multidimensional constructs, such as trust, Paper I also suggests that future studies should more precisely specify the targeted dimension(s), such as whether trust in the website (Hsiao et al. 2010), trust in the seller (Lu et al. 2016), or trust in the community (Ng 2013) is investigated. Moreover, since some of the reviewed articles group different consumer activities into one outcome variable (e.g., requesting and sharing of shopping information), Paper I suggests that different activities should be represented by separate outcome variables because each activity can be influenced in its own way.

5.1.2 Effects of Social Commerce Features and Their Effective Combination

Investigating the effects of social commerce features is critical to understand how these features can be effectively used and selected to increase the success of social commerce initiatives (Baethge et al. 2016; Turban et al. 2010). However, only little is known about the potential effects of social commerce features since the effects of these features have not been systematically investigated so far (cf. section 1.2). Moreover, while literature provides initial assumptions that social commerce initiatives can be made more successful if multiple features are used in combination, the assumptions have neither been theoretically nor empirically investigated in detail (Huang and Benyoucef 2013).

To contribute to the closure of this research gap, the second part of this dissertation includes one conceptual study (Paper II) and five experimental studies (Papers III, IV, V, and VI) that provide theoretically as well as empirically verified knowledge about the effects of social commerce features and their effective combination. The studies included in the second part of this dissertation make several conceptual as well as empirical contributions.

Referring to the conceptual contributions, Paper II provides a novel research model that can be used as a conceptual framework to study the effects of social commerce features in a systematic, comparable manner. The research model is based on the S-O-R paradigm and integrates several utilitarian, hedonic, relational, and social factors, which are found to be critical for consumers' social commerce engagement, into a holistic perspective. The research model enables researchers to investigate the effects of individual social commerce features as well as feature combinations and to explain through which mechanisms these features affect consumers' social commerce engagement. With the proposed research model, Paper II extends the social commerce literature, from which no answer can be derived about how the provisioning of social commerce features on an e-commerce platform affects consumers' social commerce engagement.

With the social commerce feature richness, Paper IV contributes a new concept that helps to better understand the effects of combining multiple social commerce features. Using multiple social commerce features in combination is considered an important determinant for the success of social commerce initiatives, which has, however, not been studied in detail so far (Huang and Benyoucef 2013). The concept of social commerce feature richness is based on the media richness theory and explains the functional richness of a set of social commerce features in terms of its capabilities to convey different kinds of social information. In contrast to the media richness theory, which describes the overall information transmission capabilities of a communication medium (Lengel and Daft 1988; Rice 1992), such as an e-commerce platform, the social commerce feature richness specifically describes the ability of a set of social commerce features to transmit different kinds social information. In so doing, the social commerce feature richness provides researchers with a new lens through which the effects of social information that is generated and shared by consumers on e-commerce platforms can be specifically analyzed.

To demonstrate how the social commerce feature richness can be systematically increased, Paper IV draws on the functional layers of the reference model proposed by Huang and Benyoucef (2013). Using this reference model as a guideline, Paper IV shows that adding features of different functional layers contributes to increasing the social commerce feature richness, while adding features of the same layers does not. While the concept of social commerce features richness is not restricted to this reference model, the results corroborate and empirically substantiate the relevance of the functional layers of the model.

With respect to the empirical contributions, Papers III and IV show that the provisioning of multiple social commerce features on an e-commerce platform has a significant positive effect on social presence, social support, and social influence. So far, studies investigating the effects of social factors have not taken into account how the use of multiple social commerce features affects these factors (Hajli and Sims 2015; Kumar and Benbasat 2006; Kwahk and Ge 2012; Liang et al. 2011; Zhang et al. 2014). In this regard, Paper III delivers initial empirical evidence that social commerce initiatives can be made more successful when increasing the number of social commerce features on an e-commerce platform. However, by focusing on the number of social commerce features, Paper III does not provide an answer about whether the results will be the same when using different sets of social commerce features that are equal in their numbers.

For this purpose, Paper IV refines Paper III by focusing on the social commerce feature richness and varying the feature amount in addition to the feature richness. In so doing, Paper IV can show that increasing the number of social commerce features without raising the feature richness does neither increase the examined social factors nor consumers' buying intention. Accordingly, Paper IV delivers first empirical evidence that increasing the social commerce feature richness and hence the range of conveyed social information is an effective strategy to increase the success of social commerce initiatives. Moreover, it demonstrates that the social commerce feature richness seems to provide a more suitable measure than the number of features.

Regarding the effects of the social factors, Papers III and IV show that social presence can positively affect consumers' buying intention via social support and social influence. While prior studies found that social presence can influence the buying intention through factors such as perceived usefulness, perceived enjoyment, and trust (Cyr et al. 2007; Gefen and Straub 2003; Hassanein and Head 2005), the effects of social presence on social support and social influence have not been considered so far. Both papers thus also provide novel contributions to the research stream that investigates the effects of social presence (Lu et al. 2016; Shen 2012). By showing that social support and social influence have a significantly positive effect on

consumers' buying intention, both papers furthermore corroborate previous findings in the social commerce literature (Hajli and Sims 2015; Liang et al. 2011; Zhang et al. 2014).

Paper V provides additional empirical evidence about the effects of the social commerce feature richness. Specifically, it shows that the social commerce feature richness significantly increases perceived usefulness, perceived enjoyment, and trust, which in turn positively affect the website stickiness. While a few studies have investigated how specific social commerce features (e.g., rating and review tools or like buttons) can affect factors such as perceived usefulness or trust (Brengman and Karimov 2012; Kumar and Benbasat 2006), it has not been investigated so far how different combinations of social commerce features influence these factors. By showing that the social commerce feature richness not only affects social factors but also various other cognitive and affective factors, Paper V underpins that using functionally richer sets of social commerce features is a critical aspect to improve the success of social commerce initiatives.

Prior studies investigating the effects of cognitive and affective factors on website stickiness have commonly measured website stickiness by asking consumers to what degree they intend to stick to a website (Benlian 2015; Li et al. 2006; Lin 2007; Polites et al. 2012). In contrast to these studies, Paper V uses various website metrics (i.e., number of clicks, page views, visit duration) to measure consumers' actual stickiness behavior instead of their intention. While tracking actual behaviors in general is more difficult, such an approach avoids the limitation that self-reported intentions through survey data can be biased and thus may not accurately reflect actual behavior (Chandon et al. 2005; Huseynov and Yildirim 2015; Morwitz et al. 2007). Paper V therefore also provides a new perspective on how website stickiness as an actual behavioral outcome is affected by cognitive and affective factors.

The social commerce feature richness arguments that different kinds of social information generate different effects. By investigating how different types of social information cues provided on an e-commerce platform affect consumers' product choice experiences, Paper VI provides initial empirical evidence to verify this argument. Specifically, it demonstrates that the effects of social information cues on cognitive (i.e., choice difficulty) and affective (i.e., enjoyment) factors can vary considerably depending on the employed type of cue. As the results show, cues such as ratings, which convey rich information about product characteristics, address the cognitive dimension more effectively. In contrast, cues that incorporate emotional content, such as likes, address the affective dimension more effectively. Paper VI thus contributes to a better understanding about the differential effects of social information cues.

The results of Paper VI also contribute to the research stream on consumers' choice making. So far, previous choice-making studies have mainly focused on how product-related factors, such as differences in assortment sizes or product descriptions, can affect consumers' cognitive/affective choice perceptions (Fassnacht et al. 2015; Heitmann et al. 2007; Mosteller et al. 2014; Spassova and Isen 2013). Accordingly, Paper VI advances the research stream on consumers' choice making by showing that social information cues also represent important determinants in consumers' cognitive/affective choice perceptions in addition to product-related factors.

5.1.3 Selection of Social Commerce Features

A wide range of functionally different social commerce features exists that can be integrated into e-commerce platforms. Consequently, it is critical for companies to understand how they can efficiently assess and select such features (Baethge et al. 2016; Turban et al. 2010). However, current literature on social commerce provides only little guidance on the selection of such

features (cf. section 1.2). Traditional software selection approaches also provide only limited support as they do neither contain social commerce-specific selection criteria nor support the selection of multiple complementary features (Sen et al. 2009).

To contribute to the closure of this research gap, the third part of this dissertation presents a method that enables companies to systematically select multiple, functionally complementary social commerce features (Paper VII). The method delivers novel contributions to the research domain on social commerce and the field of software selection.

With respect to the social commerce research domain, the method developed in Paper VII provides a procedure model that illustrates how the problem of selecting social commerce features can be operationalized and formulated as a systematic decision-making process. So far, prior literature on social commerce has not considered which steps are necessary to efficiently select social commerce features. With the developed technology assessment catalog, the method moreover provides a consolidated information base about the existing social commerce features, their functional characteristics, and their potential effects on consumers' buying behavior. By providing an instrument to support a goal-driven design of social commerce initiatives together with consolidated knowledge about available social commerce features and their potential effects, the proposed method advances the body of knowledge in the social commerce domain.

The method also provides novel contributions to the research stream on software selection. The presented procedure model is distinctly different from existing software selection approaches developed in the enterprise software domain (Jadhav and Sonar 2009; Sen et al. 2009). In contrast to existing enterprise software selection approaches, the method supports the selection of multiple features, which can be effectively combined according to their functionality, and is hence designed to handle a large set of functionally diverse feature candidates as input. Although the method is specifically designed for the social commerce domain, the basic concept is transferable to other domains such as the enterprise architecture domain, where it could support a goal-driven design of application landscapes that consist of multiple applications.

Taken together, each part of this dissertation delivers substantial theoretical contributions that respond to the three central research questions. Table 5.1 provides a summary of the main theoretical contributions of this dissertation.

Table 5.1 Summary of main theoretical contributions of this dissertation

Part	*Theoretical contribution*
Part 1: Factors Influencing Consumers' Social Commerce Engagement	• Systematic literature review on the factors influencing consumers' social commerce engagement. • Structured and comprehensive overview of frequently examined factors and outcome variables. • Aggregated picture of the reported effects and their overall significance. • Identification of research gaps and providing recommendations for future research.
Part 2: Effects of Social Commerce Features and Their Effective Combination	• Integrated research model that can be used as a conceptual framework to study the effects of social commerce features in a systematic, comparable manner. • Social commerce feature richness as a new concept to address the range of social information that is transmitted by the social commerce features provided on an e-commerce platform. • First empirical evidence about the effects generated when using multiple social commerce features in combination. • Increasing the social commerce feature richness positively affects social factors, which in turn increase consumers' buying intention. • Increasing the social commerce feature richness positively affects cognitive and affective factors (i.e., usefulness, enjoyment, trust), which in turn increase the stickiness of an e-commerce platform. • Providing social information cues on an e-commerce platform positively affects consumers' product choice experiences. The effects can vary considerably depending on the type of cue.
Part 3: Selection of Social Commerce Features	• Method that supports the selection of multiple, functionally complementary features. • Procedure model that illustrates how the problem of selecting social commerce features can be operationalized and formulated as a systematic decision-making process. • Technology assessment catalog as a consolidated information base about social commerce features and their potential effects.

5.2 Implications for Practice

In addition to the theoretical contributions, this dissertation also provides several implications for practitioners. Given the overall objective to analyze the potential of social commerce initiatives and how this potential can be increased, the practical implications of this dissertation target the operators of e-commerce platforms and designers of social commerce initiatives. Each part of this dissertation provides different practical implications.

The first part of this dissertation includes a systematic literature review that provides practitioners consolidated knowledge about the factors influencing consumers' social commerce engagement (Paper I). Practitioners can use the results of the literature review as a guideline to determine on which factors to focus to achieve a desired outcome. For instance, if a company intends with its social commerce initiative to stimulate consumers' website use and buying behavior, special attention should be given to factors such as trust, usefulness, enjoyment, social support, or social influence (Chen and Shen 2015; Hsiao et al. 2010; Kwahk and Ge 2012; Liang et al. 2011; Shen 2012). If a company aims to stimulate consumers to continuously use and return to an e-commerce platform, factors such as trust, satisfaction, commitment, and value should be considered (Gamboa and Gonçalves 2014; Hajli et al. 2015; Jang et al. 2013; Liang et al. 2011).

The second part of this dissertation shows practitioners what effects social commerce features can have and how these features can be effectively combined to increase the success of social commerce initiatives (Papers II, III, IV, V, and VI). The integrated research model presented in Paper II gives practitioners a holistic overview about the potential effects of social commerce features. Deriving knowledge about the effects of social commerce features is important to support a goal-oriented selection and integration of such features.

The concept of social commerce feature richness developed in Paper IV shows practitioners how they can effectively combine social commerce features to increase the success of their social commerce initiatives. Understanding if and how social commerce features should be used in combination and what effects such endeavors create is critical for practitioners given that several functionally different social commerce features exist that can be integrated into e-commerce platforms (Curty and Zhang 2013; Huang and Benyoucef 2015). While literature assumes that social commerce initiatives can be made more successful if multiple social commerce features are used in combination (Huang and Benyoucef 2013), the results of Paper IV demonstrate that operators of e-commerce platforms should not simply increase the number of features on their platforms. Instead, they should combine features that differ in their functionality and hence convey different kinds of social information.

For instance, Paper IV shows that adding like buttons to a platform that already contains a rating and review tool does not increase the effects on social factors since both features provide a similar functionality (i.e., both allow consumers to express their opinions about products). However, adding features that differ with respect to their functionality, such as a community feed, increases the effects on social factors. By using the functional layers of reference model of Huang and Benyoucef (2013) or another feature classification as a guideline, platform operators can hence select a minimalistic feature set that maximizes the social commerce feature richness and, accordingly, the success of their social commerce initiatives. Since providing multiple social commerce features may also generate negative side effects, such as social overload (Baethge et al. 2016; Zhang et al. 2016), using a rather minimalistic feature set seems to be the most appropriate way to balance the benefits and risks of such initiatives.

The results of Paper IV demonstrate that social factors (i.e., social presence, social support, and social influence), which are affected by social commerce features, play a critical role in the success of social commerce initiatives as they can positively influence consumers' buying intention. In addition to social factors, Paper V shows that cognitive and affective factors (i.e., trust, usefulness, enjoyment) are also important determinants in the success of social commerce initiatives, given their potential to increase the stickiness of an e-commerce platform (Benlian 2015; Li et al. 2006; Lin 2007; Polites et al. 2012). According to the results of Papers IV and V, operators of e-commerce platforms can strengthen these factors most effectively when integrating functionally richer sets of social commerce features into their platforms. The concept of social commerce feature richness thus supports platform operators to ensure that the integrated set of social commerce features contributes to the success of their social commerce initiatives.

To profit from their social commerce initiatives, it is also important for companies that consumers frequently use social commerce features to interact with each other and to generate socially rich content. Frameworks such as the customer engagement cycle developed by Sashi (2012) may support companies in finding out how they can effectively turn consumers into supportive advocates. Moreover, companies should also have a strategy on how to interact with consumers through these features, especially when considering that the generated content can also be negative (Lee et al. 2008). In this context, Sparks et al. (2016), for instance, demonstrate that if

companies respond to negative social information, it becomes more likely that consumers find the company and its platform trustworthy.

The social information that is generated through social commerce features can also support consumers' choice making. In this context, Paper VI demonstrates the use of social information cues can increase an e-commerce platform's effectiveness by making consumers more satisfied with their product choices. Considering that the effects of different types of social information cues on cognitive and affective factors can vary, recommendations can be formulated about which cues may be more effective in a certain scenario. For instance, if an e-commerce platform offers products that are mainly chosen because of rational considerations, it may be more effective to provide cues that especially support the cognitive dimension (e.g., ratings). If an e-commerce platform offers products that are rather chosen because of their emotional appeal, it may be more effective to provide cues that especially support the affective dimension (e.g., likes). In case both dimensions matter, the effect of social information cues may be strengthened by combining cues that mainly influence cognitive factors with those that primarily influence affective factors. However, further investigations involving different types of products and cue combinations are necessary to verify such effects.

The third part of this dissertation delivers a readily applicable method that enables companies to systematically select multiple, complementary social commerce features (Paper VII). Supporting companies in the selection of social commerce features is important considering that companies can choose from a wide range of social commerce features that differ in their functionality and support different use cases (Curty and Zhang 2013; Huang and Benyoucef 2015). The method provides practitioners a procedure model that can be used as a step-by-step guide to facilitate the selection process. Moreover, the method contributes a technology assessment catalog that provides practitioners consolidated information about relevant selection criteria, available social commerce features, and their fulfillment of the selection criteria. The method is designed to support the persons responsible for the planning and design of social commerce initiatives in companies. Although the method has been evaluated in a complex project with multiple goals and selection criteria, it is also equally suitable for smaller social commerce initiatives. Such initiatives are often led by non-experts, who have limited social commerce expertise and hence may particularly benefit from the step-by-step procedure model and the information contained in the technology assessment catalog. As the results of the initial evaluation show, using the method can contribute to a more efficient and goal-oriented selection of social commerce features and thereby lead to a more effective design of social commerce initiatives.

Taken together, this dissertation provides several practical recommendations that support companies in the effective design of their social commerce initiatives. Table 5.2 summarizes the main practical implications.

Table 5.2 Summary of main practical implications of this dissertation

Part	*Practical implication*
Part 1: Factors Influencing Consumers' Social Commerce Engagement	• Literature review provides consolidated knowledge about critical factors in consumers' social commerce engagement. • Results of literature review can be used as a guideline to determine on which factors to focus to achieve a desired outcome (e.g., stimulating consumers' buying behavior).
Part 2: Effects of Social Commerce Features and Their Effective Combination	• Integrated research model provides a holistic overview about the potential effects of social commerce features. • Concept of social commerce feature richness shows how social commerce features can be effectively combined. • Using functionally richer sets of social commerce features can increase the success of social commerce initiatives. • Combining features that provide a similar functionality does not generate additional benefits. Instead, functionally different features should be combined. • Providing social information cues can support consumers' choice making. Different types of cues can lead to different product choice experiences.
Part 3: Selection of Social Commerce Features	• Method supports the efficient and goal-oriented selection of social commerce features (especially for non-experts). • Procedure model can be used as a step-by-step guide to facilitate the selection process. • Technology assessment catalog can be used to derive knowledge about relevant selection criteria, available social commerce features, and their fulfillment of the selection criteria.

6 Limitations

This cumulative dissertation is not without limitations. While the literature review presented in Paper I follows a rigorous approach, the presented results are limited because of the used search terms, the used search fields, the consulted databases, and the subsequent relevance screening. With respect to the identified factors, the literature review only includes factors that have been assumed in the literature to have a direct effect on the outcome variables. To avoid that the same effects of a factor are counted multiple times, the literature review only considers the direct effects of the factors on the outcome variables and not their indirect effects through other factors. To provide an aggregated picture of the reported effects, the literature review uses vote counting, which is a simple meta-analysis technique. However, vote counting does not consider differences in the sample sizes, effect sizes, data analysis approaches, or contexts. To overcome some of these shortcomings, the literature review combines the vote-counting results with an additional sign test, as suggested by Cooper (1998). Yet, the results of the sign test must be interpreted with caution given the small number of studies behind most of the identified factors. While more advanced meta-analysis techniques exist, these techniques require an even larger set of studies, however (King and He 2005).

The integrated research model presented in Paper II is limited to a set of utilitarian, hedonic, relational, and social factors for which evidence is given in at least three or more studies that they can significantly influence consumers' social commerce engagement. Accordingly, factors investigated in less than three studies have been excluded. Moreover, since only studies from the social commerce domain are consulted, additional factors discussed in the e-commerce literature have not been considered.

Several experimental studies are conducted in this dissertation to investigate how social commerce features can be effectively combined and what effects such endeavors generate (Papers III, IV, and V). In addition, one experimental study investigates the effects of social information cues on consumers' product choice experiences (Paper VI). Each experimental study is conducted in a controlled laboratory setting as such a setting provides results with a high internal validity and allows to manipulate the stimulus in a systematic manner, while controlling all other variables as much as possible. Although each study incorporates various measures to increase the external validity, such as providing participants an authentic shopping experience, they also make some reasonable but strict assumptions. For instance, participants in each study are given a concrete shopping task, which differs from natural e-commerce settings in which consumers may only browse a platform to inform about products or in which consumers may make a purchase impulsively (Parboteeah et al. 2009; Pavlou and Fygenson 2006). Moreover, since the shopping scenario in each study is only simulated and does not require participants to spend real money, it cannot be ruled out that the results may differ in real-world settings.

Each experimental study included in this dissertation solely uses German-speaking students as participants. Consequently, demographic and cultural differences are not considered, which, however, can play a significant role in e-commerce settings (Cyr 2008; Moon et al. 2008; Ng 2013; Pavlou and Chai 2002). Moreover, while student participants are considered an adequate target group as they are highly familiar with online shopping and open to test new approaches (McKnight et al. 2002; Wells et al. 2011), the reported effects cannot be generalized to other types of consumers. Likewise, it cannot be claimed that the reported effects apply for social commerce scenarios in general, since the studies only focus on a fictitious company that sells one type of products. Since the participants had never seen the e-commerce platform before,

they were hence not familiar with it and acted as first-time buyers, which differs from real-world settings in which consumers can be familiar with the platform.

To enhance the validity of the independent variable, participants in Papers III, IV, and V are directly asked if they correctly experienced the treatment manipulation. Participants that did not correctly assess the social commerce features provided by the e-commerce platform are excluded from the data set. Yet, consumers do not necessarily need to consciously perceive website features to react to them (Ahn and Lee 2012; Brengman and Karimov 2012). Accordingly, some participants may have been excluded from the data set although they were affected by the provided features. However, since none of the experimental studies could make use of advanced tracking mechanisms, such as eye tracking or electroencephalography (EEG) monitoring, it could not be objectively determined whether a participant has experienced a social commerce feature. Participants have thus been directly asked if they perceived the treatment condition, as recommended by Straub et al. (2004).

Referring to the implementation of social commerce features in Papers III, IV, and V, each paper only investigates a specific set of social commerce features in a specific implementation order. While the features are carefully selected based on their popularity and functional diversity according to the reference model of Huang and Benyoucef (2013), there exist additional features that have not been taken into account, such as live chat tools or group buying tools (Curty and Zhang 2013). Investigating such features would have required a different and more restrictive experimental setting because participants must be enabled to simultaneously browse the e-commerce platform. The reference model is also used to determine the implementation order of the features. However, it must be noted that the reference model has not been empirically evaluated so far and that it only makes suggestions about the order of abstract functional layers. Accordingly, the model leaves room for variations in the implementation order, which have not been considered in the above-mentioned papers.

As regards the method to select social commerce features (Paper VII), the technology assessment catalog of the method currently only suggests selection criteria that address consumers' buying behavior. However, since social commerce also encompasses various other activities, such as participating in the community, sharing information with other consumers, or seeking for information from other consumers (Liang and Turban 2011; Zhang and Benyoucef 2016), the catalog needs to be extended with additional selection criteria. Moreover, referring to the method's potential to improve the design of social commerce initiatives, the evaluation only concentrates on examining the feasibility of the method. While the evaluation showed that the company is satisfied both with the achieved results and the applicability of the method, empirical data on the method's effectiveness and efficiency has not been gathered so far. Accordingly, it cannot be quantified to what extent the method improves the design of social commerce initiatives.

Taken together, the results of this dissertation are restricted in their generalizability. Future research is thus necessary to confirm the results and enhance their generalizability.

7 Future Research Directions

The contributions and limitations of this dissertation provide several directions for future research. The literature review on consumers' social commerce engagement presented in Paper I solely concentrates on the social commerce literature. It would thus be interesting to compare the results of the literature review with the e-commerce literature to identify similarities and differences. For instance, factors such as trust, usefulness, and enjoyment have also been frequently examined in the e-commerce literature (Gefen et al. 2003; McKnight et al. 2002; Parboteeah et al. 2009; Pavlou and Fygenson 2006). A comparison between the literature from both domains could reveal the unique characteristics of social commerce more clearly, which could then be addressed in more detail by future studies. Moreover, while social commerce initiatives are centered on consumers, businesses play also a major part in such initiatives (Wang and Zhang 2012). In addition to identifying critical factors from the consumers' perspective, future studies could thus focus on investigating which company-specific factors are critical for the success of social commerce initiatives. A first step in this direction is made, for instance, by Schaupp and Bélanger (2016), who empirically examine how several company-specific factors affect small businesses to derive benefits from their social commerce initiatives.

Papers III and IV of this dissertation exclusively focus on social factors as influencing these factors is considered a core mechanism of social commerce initiatives, which can result in an increased buying intention (Baethge et al. 2016; Wang and Zhang 2012). In addition, Paper V focuses on cognitive and affective factors because evidence is given that these factors can significantly influence the stickiness of an e-commerce platform (Benlian 2015; Li et al. 2006; Lin 2007; Polites et al. 2012). However, in addition to social as well as cognitive and affective factors, the social commerce feature richness may also affect other factors that have not been considered, such as risk factors (Farivar et al. 2016; Featherman and Hajli 2015) or product-related factors (Bai et al. 2015; Zhang et al. 2018). Future studies could hence study how the social commerce feature richness affects such factors. An increased social commerce feature richness may also generate negative side effects, such as social overload or fatigue effects, which have not been considered and measured in the above-mentioned papers (Baethge et al. 2016; Park and Lee 2008). Taking such effects into account may help to explain in more detail why increasing the numbers of social commerce features in addition to the social commerce feature richness seems not to generate additional benefits, as found in Paper IV.

To a considerable extent, the impact of different sets of social commerce features also depends on the quality of their implementation. While the social commerce features investigated in Papers III, IV, and V are professionally designed and provided by a leading social commerce software company via an app store, the quality of their implementation is intentionally not varied to isolate the effects that result from the combinatorial use of such features. Future studies could hence investigate what role the implementation quality of social commerce features plays in the effective combination and use of such features. Besides their implementation, it is also important that social commerce features provide the right amount of content that consumers need for making their purchase decisions (Ding et al. 2017; Zhu and Huberman 2014). While each social commerce feature investigated in Papers III, IV, and V is populated with content from real e-commerce platforms, the content provided by a feature is deliberately kept identical across the treatment conditions to avoid potential confounding effects that result from differences in the content. Future studies could therefore explore how different amounts of content provided through social commerce features contribute to their effectiveness.

From a methodological perspective, future research could also advance the results of Papers III, IV and V by making use of advanced tracking mechanisms such as eye-tracking and EEG monitoring. In so doing, it could not only be more objectively determined whether a participant may have perceived a certain social commerce feature but also more precisely investigated how the feature affected the participant's psychological states. Since each of the experimental studies included in this dissertation only uses data from one point in time, future studies could also collect data over a longer time period to investigate longitudinal effects, which can be relevant for the formation of factors such as social support and trust (Kim et al. 2009; Liang et al. 2011).

While research on the intersection between choice making and social commerce is scarce, Paper VI provides first empirical evidence that the provisioning of different types of social information cues on an e-commerce platform can significantly affect consumers' product choice experiences. Yet, since Paper VI solely concentrates on three popular types of social information cues (i.e., ratings, likes, sales numbers) and one type of product (i.e., water bottles), future research could focus on investigating additional social information cues and on exploring their effects in settings with other products or services. Given their effects on consumers' choice making, social information cues can be subsumed under the concept of digital nudging, which refers to "the use of user-interface design elements to guide people's behavior in digital choice environments" (Weinmann et al. 2016, p. 433). Besides social information cues, there also exist other types of digital nudging elements that are commonly used on e-commerce platforms, such as scarcity cues, which represent information about the limited availability of a product (Aggarwal et al. 2011; Gierl and Huettl 2010). Future studies could thus compare the effects of social information cues and scarcity cues (e.g., product ratings vs. messages about the remaining product quantity) to derive knowledge about which type of cue is more effective in a certain scenario.

As most studies in the field of social commerce, the papers included in this cumulative dissertation concentrate on the positive aspects and benefits of social commerce initiatives. However, social commerce initiatives can also have dark sides and problematic areas, such as privacy risks (Featherman and Hajli 2015), information/social overload (Zhang et al. 2016), negative word-of-mouth (Lee et al. 2008), and content manipulation (Luca and Zervas 2016; Zhuang et al. 2018). As online consumers are becoming increasingly aware that the social information provided on e-commerce platforms can be manipulated, they may develop negative attitudes towards social commerce initiatives (Munzel 2016). For companies, it thus becomes critical to understand what measures they can implement to effectively handle the negative sides of their social commerce initiatives. Future research could therefore focus on identifying such measures and how they can be effectively applied.

This dissertation focuses on the type of social commerce initiatives in which social media-based features are added to e-commerce platforms to facilitate social interactions (cf. section 2.1). Yet, social commerce initiatives can also involve adding commercial features to social media platforms to facilitate commercial transactions (Liang and Turban 2011). For instance, popular social networking sites such as Facebook and Instagram have recently started to integrate "Buy" buttons into their platforms, which enable consumers to purchase products directly on social media platforms (Ko 2018; Sharma et al. 2017). It would hence be interesting to explore how consumers react to the integration of commercial features on social media platforms and whether there also exist combinatoric effects for such kind of features.

By investigating how companies can use social commerce initiatives to improve the effectiveness of their e-commerce platforms, this dissertation solely concentrates on online settings. However, and as pointed out by Wang and Zhang (2012), social commerce initiatives can also

be used to support offline settings. In this context, future research could, for instance, explore how companies can effectively use the social information generated on their e-commerce platforms to support offline commercial transactions (e.g., augmenting price tags in offline stores with online consumer ratings). Given the recent advances in artificial intelligence technologies, consumers are nowadays also more and more starting to purchase products through voice assistants (i.e., voice commerce) and chat bots (i.e., conversational commerce) instead of using traditional web interfaces (Mari 2019; McTear 2017). The increasing use of such new digital technologies generates several challenges for the designers of social commerce initiatives, such as: "How to generate and visualize social information through these technologies?" or "How to effectively use these technologies to promote and support consumers' social interactions?". Future studies could hence focus on providing answers to these questions.

8 Conclusion

Social commerce initiatives represent a lucrative instrument for companies to facilitate and promote consumers' social interactions on e-commerce platforms and thereby increase the effectiveness of their platforms. However, little is known through which mechanisms such initiatives work and how they can be made more successful. The overall objective of this cumulative dissertation therefore is to support researchers and practitioners to obtain a profound understanding about the potential of social commerce initiatives and how this potential can be increased.

By systematically reviewing and synthesizing the social commerce literature, this dissertation provides a structured and comprehensive overview about the factors influencing consumers' social commerce engagement. The literature review reveals several factors (e.g., trust, usefulness, social influence, social support) for which the effects point in a clear direction, while for several other factors (e.g., enjoyment, risk, social presence) the effects are yet not clear and require further investigations.

Building upon the results of the literature review, this dissertation presents an integrated research model that can be used as a conceptual framework to study the effects of social commerce features systematically. With the concept of social commerce feature richness, this dissertation moreover provides a novel, theoretically grounded and empirically verified concept that shows how social commerce features can be effectively combined to increase the success of social commerce initiatives. The empirical results of this dissertation demonstrate that providing functionally richer sets of social commerce features on an e-commerce platform is an important aspect in the design of social commerce initiatives as it can positively affect consumers' buying intention and increase the platform's stickiness. In addition, this dissertation provides first empirical evidence about how social information cues as basic elements of social commerce features affect consumers' product choice experiences. By showing that the effects can vary depending on the provided type of social information cue, the results also provide initial evidence for the argument of the social commerce feature richness that different kinds of social information can generate different effects.

To support the goal-driven design of social commerce initiatives, this dissertation furthermore develops a method that enables companies to systematically select multiple, functionally complementary social commerce features. The method presents a systematic procedure model that describes the problem of selecting social commerce features as a tailor-made decision-making process. Moreover, the method provides a technology assessment catalog as a consolidated information base to facilitate the decision process in an efficient manner. As the results of the practical evaluation show, the method is intuitively applicable and can indeed contribute to an efficient selection of social commerce features.

To conclude, this dissertation provides researchers and practitioners theoretically grounded and empirically verified knowledge as well as practical design recommendations about the characteristic mechanisms of social commerce initiatives and how such initiatives can be made more successful. The findings suggest several avenues for future research on the design and effects of social commerce initiatives for which this dissertation intends to provide a starting point.

9 References

Aggarwal, P., Jun, S. Y., & Huh, J. H. (2011). Scarcity Messages. *Journal of Advertising*, 40(3), pp. 19-30.

Ahn, J.-H., & Lee, J. (2012). Attention to Banner Ads and Their Effectiveness: An Eye-Tracking Approach. *International Journal of Electronic Commerce*, 17(1), pp. 119-137.

Ajzen, I. (1985). From Intentions to Actions: A Theory of Planned Behavior. In: *Action Control - From Cognition to Behavior,* J. Kuhl, & J. Beckmann (Eds.). Heidelberg, Germany: Springer, pp. 11-39.

Amblee, N., & Bui, T. (2011). Harnessing the Influence of Social Proof in Online Shopping: The Effect of Electronic Word of Mouth on Sales of Digital Microproducts. *International Journal of Electronic Commerce*, 16(2), pp. 91-113.

Baethge, C., Klier, J., & Klier, M. (2016). Social Commerce – State-of-the-Art and Future Research Directions. *Electronic Markets*, 26(3), pp. 1-22.

Bagozzi, R. P. (2011). Measurement and Meaning in Information Systems and Organizational Research: Methodological and Philosophical Foundations. *MIS Quarterly*, 35(2), pp. 261-292.

Bai, Y., Yao, Z., & Dou, Y.-F. (2015). Effect of Social Commerce Factors on User Purchase Behavior: An Empirical Investigation from renren.com. *International Journal of Information Management*, 35(5), pp. 538-550.

Benbasat, I., & Zmud, R. W. (1999). Empirical Research in Information Systems: The Practice of Relevance. *MIS Quarterly*, 23(1), pp. 3-16.

Benbasat, I., & Zmud, R. W. (2003). The Identity Crisis within the IS Discipline: Defining and Communicating the Discipline's Core Properties. *MIS Quarterly*, 27(2), pp. 183-194.

Benlian, A. (2015). Web Personalization Cues and Their Differential Effects on User Assessments of Website Value. *Journal of Management Information Systems*, 32(1), pp. 225-260.

Brengman, M., & Karimov, F. P. (2012). The Effect of Web Communities on Consumers' Initial Trust in B2C E-Commerce Websites. *Management Research Review*, 35(9), pp. 791-817.

Bucklin, R. E., & Sismeiro, C. (2009). Click Here for Internet Insight: Advances in Clickstream Data Analysis in Marketing. *Journal of Interactive Marketing*, 23(1), pp. 35-48.

Busalim, A. H., & Hussin, A. R. C. (2016). Understanding Social Commerce: A Systematic Literature Review and Directions for Further Research. *International Journal of Information Management*, 36(6), pp. 1075-1088.

Cao, M., Zhang, Q., & Seydel, J. (2005). B2C E-Commerce Web Site Quality: An Empirical Examination. *Industrial Management & Data Systems*, 105(5), pp. 645-661.

Cenfetelli, R. T., & Bassellier, G. (2009). Interpretation of Formative Measurement in Information Systems Research. *MIS Quarterly*, 33(4), pp. 689-707.

Chandon, P., Morwitz, V. G., & Reinartz, W. J. (2005). Do Intentions Really Predict Behavior? Self-Generated Validity Effects in Survey Research. *Journal of Marketing*, 69(2), pp. 1-14.

Chen, J., & Shen, X.-L. (2015). Consumers' Decisions in Social Commerce Context: An Empirical Investigation. *Decision Support Systems*, 79, pp. 55-64.

Chen, J. V., Su, B. C., & Widjaja, A. E. (2016). Facebook C2C Social Commerce: A Study of Online Impulse Buying. *Decision Support Systems*, 83, pp. 57-69.

Chen, W. S., & Hirschheim, R. (2004). A Paradigmatic and Methodological Examination of Information Systems Research from 1991 to 2001. *Information Systems Journal*, 14(3), pp. 197-235.

Chen, Y.-C., Shang, R.-A., & Kao, C.-Y. (2009). The Effects of Information Overload on Consumers' Subjective State Towards Buying Decision in the Internet Shopping Environment. *Electronic Commerce Research and Applications*, 8(1), pp. 48-58.

Chen, Y., Wang, Q., & Xie, J. (2011). Online Social Interactions: A Natural Experiment on Word of Mouth Versus Observational Learning. *Journal of Marketing Research*, 48(2), pp. 238-254.

Cheung, C. M. K., & Thadani, D. R. (2012). The Impact of Electronic Word-of-Mouth Communication: A Literature Analysis and Integrative Model. *Decision Support Systems*, 54(1), pp. 461-470.

Cheung, C. M. K., Xiao, B. S., & Liu, I. L. B. (2014). Do Actions Speak Louder Than Voices? The Signaling Role of Social Information Cues in Influencing Consumer Purchase Decisions. *Decision Support Systems*, 65, pp. 50-58.

Chin, W. W. (1998). Issues and Opinion on Structural Equation Modeling. *MIS Quarterly*, 22(1), pp. VII-XVI.

Chiu, C.-M., Wang, E. T. G., Fang, Y.-H., & Huang, H.-Y. (2014). Understanding Customers' Repeat Purchase Intentions in B2C E-Commerce: The Roles of Utilitarian Value, Hedonic Value and Perceived Risk. *Information Systems Journal*, 24(1), pp. 85-114.

Cooper, H. M. (1998). *Synthesizing Research: A Guide for Literature Reviews*, (3rd ed.). Thousand Oaks, USA: Sage Publications.

Croson, R., & Gneezy, U. (2009). Gender Differences in Preferences. *Journal of Economic Literature*, 47(2), pp. 448-474.

Curty, R., & Zhang, P. (2013). Website Features that Gave Rise to Social Commerce: A Historical Analysis. *Electronic Commerce Research and Applications*, 12(4), pp. 260-279.

Cyr, D. (2008). Modeling Web Site Design Across Cultures: Relationships to Trust, Satisfaction, and E-Loyalty. *Journal of Management Information Systems*, 24(4), pp. 47-72.

Cyr, D., Hassanein, K., Head, M., & Ivanov, A. (2007). The Role of Social Presence in Establishing Loyalty in E-Service Environments. *Interacting with Computers*, 19(1), pp. 43-56.

Cyr, D., Head, M., Larios, H., & Pan, B. (2009). Exploring Human Images in Website Design: A Multi-Method Approach. *MIS Quarterly*, 33(3), pp. 539-566.

Daft, R. L., & Lengel, R. H. (1986). Organizational Information Requirements, Media Richness and Structural Design. *Management Science*, 32(5), pp. 554-571.

Davenport, T. H. (2000). Sticky Business. *CIO Magazine*, 13(8), pp. 58-58.

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3), pp. 319-340.

Denis, D. J. (2019). *SPSS Data Analysis for Univariate, Bivariate, and Multivariate Statistics*. New York, USA: John Wiley & Sons.

Dennis, A. R., & Valacich, J. S. (2001). Conducting Research in Information Systems. *Communications of the Association for Information Systems*, 7(1), pp. 1-41.

Dennison, G., Bourdage-Braun, S., & Chetuparambil, M. (2009) Social Commerce Defined. IBM, pp. 1-12.

Ding, C., Cheng, H. K., Duan, Y., & Jin, Y. (2017). The Power of the "Like" Button: The Impact of Social Media on Box Office. *Decision Support Systems*, 94, pp. 77-84.

eMarketer (2019). Global Ecommerce 2019. https://www.emarketer.com/content/global-ecommerce-2019. Accessed 25 September 2019.

Falk, R. F., & Miller, N. B. (1992). *A Primer for Soft Modeling*. Akron, USA: University of Akron Press.

Farivar, S., Turel, O., & Yuan, Y. (2017). A Trust-Risk Perspective on Social Commerce Use: An Examination of the Biasing Role of Habit. *Internet Research*, 27(3), pp. 586-607.

Farivar, S., Yuan, Y., & Turel, O. (2016). Understanding Social Commerce Acceptance: The Role of Trust, Perceived Risk, and Benefit. *Proceedings of the 22nd Americas Conference on Information Systems (AMCIS)*, San Diego, USA, pp. 1-10.

Fassnacht, M., Schmidt, T., & Pannek, J. (2015). Determinants of Choice Satisfaction in a High-Involvement Product Choice. *Journal of Management and Marketing Research*, 19, p. 1-19.

Featherman, M. S., & Hajli, N. (2015). Self-Service Technologies and e-Services Risks in Social Commerce Era. *Journal of Business Ethics*, 2015, pp. 1-19.

Field, A. (2013). *Discovering Statistics Using IBM SPSS Statistics*, (4th ed.). London, United Kingdom: Sage Publications.

Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*. Reading, USA: Addison-Wesley.

Fornell, C. (1987). A Second Generation of Multivariate Analysis: Classification of Methods and Implications for Marketing Research. In: *Review of Marketing*, M. J. Houston (Ed.). Chicago, USA: American Marketing Asociation, pp. 407-450.

Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18(1), pp. 39-50.

Friedrich, T. (2016). On the Factors Influencing Consumers' Adoption of Social Commerce – A Review of the Empirical Literature. *Pacific Asia Journal of the Association for Information Systems*, 8(4), pp. 1-32.

Friedrich, T., Overhage, S., & Schlauderer, S. (2016a). The More the Better? Exploring the Relationship Between Social Commerce Feature Intensity, Social Factors, and Consumers' Buying Behavior. *Proceedings of the 37th International Conference on Information Systems (ICIS)*, Dublin, Ireland, pp. 1-21.

Friedrich, T., Overhage, S., & Schlauderer, S. (2016b). Unveiling the Impacts of Social Commerce Features – An Integrated Research Model. *Proceedings of the 24th European Conference on Information Systems (ECIS)*, Istanbul, Turkey, pp. 1-12.

Gamboa, A. M., & Gonçalves, H. M. (2014). Customer Loyalty Through Social Networks: Lessons from Zara on Facebook. *Business Horizons*, 57(6), pp. 709-717.

Gatautis, R., & Medziausiene, A. (2014). Factors Affecting Social Commerce Acceptance in Lithuania. *Procedia - Social and Behavioral Sciences*, 110, pp. 1235-1242.

Gefen, D. (2000). E-Commerce: The Role of Familiarity and Trust. *Omega*, 28(6), pp. 725-737.

Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in Online Shopping: An Integrated Model. *MIS Quarterly*, 27(1), pp. 51-90.

Gefen, D., Rigdon, E. E., & Straub, D. (2011). An Update and Extension to SEM Guidelines for Administrative and Social Science Research. *MIS Quarterly*, 35(2), pp. iii-A7.

Gefen, D., & Straub, D. (2003). Managing User Trust in B2C e-Services. *e-Service Journal*, 2(2), pp. 7-24.

Gefen, D., Straub, D., & Boudreau, M.-C. (2000). Structural Equation Modeling and Regression: Guidelines for Research Practice. *Communications of the Association for Information Systems*, 4(1), pp. 1-77.

Gierl, H., & Huettl, V. (2010). Are Scarce Products Always More Attractive? The Interaction of Different Types of Scarcity Signals with Products' Suitability for Conspicuous Consumption. *International Journal of Research in Marketing*, 27(3), pp. 225-235.

Goyal, S., Sergi, B. S., & Esposito, M. (2019). Literature Review of Emerging Trends and Future Directions of E-Commerce in Global Business Landscape. *World Review of Entrepreneurship, Management and Sustainable Development*, 15(1/2), pp. 226-255.

Grange, C., & Benbasat, I. (2010). Online Social Shopping: The Functions and Symbols of Design Artifacts. *Proceedings of the 43rd Hawaii International Conference on System Sciences (HICSS)*, pp. 1-10.

Gregor, S., & Hevner, A. R. (2013). Positioning and Presenting Design Science Research for Maximum Impact. *MIS Quarterly*, 37(2), pp. 337-355.

Hagberg, J., Jonsson, A., & Egels-Zandén, N. (2017). Retail Digitalization: Implications for Physical Stores. *Journal of Retailing and Consumer Services*, 39, pp. 264-269.

Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2014a). *A Primer on Partial Least Squares Structural Equation Modeling*. Thousand Oaks, USA: Sage Publications.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a Silver Bullet. *Journal of Marketing Theory and Practice*, 19(2), pp. 139-152.

Hair, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014b). Partial Least Squares Structural Equation Modeling (PLS-SEM). *European Business Review*, 26(2), pp. 106-121.

Hajli, M. (2013). A Research Framework for Social Commerce Adoption. *Information Management & Computer Security*, 21(3), pp. 144-154.

Hajli, N., Shanmugam, M., Powell, P., & Love, P. E. D. (2015). A Study on the Continuance Participation in On-Line Communities with Social Commerce Perspective. *Technological Forecasting and Social Change*, 96, pp. 232-241.

Hajli, N., & Sims, J. (2015). Social Commerce: The Transfer of Power from Sellers to Buyers. *Technological Forecasting and Social Change*, 94, pp. 350-358.

Hajli, N., Sims, J., Zadeh, A. H., & Richard, M.-O. (2017). A Social Commerce Investigation of the Role of Trust in a Social Networking Site on Purchase Intentions. *Journal of Business Research*, 71, pp. 133-141.

Hassanein, K., & Head, M. (2005). The Impact of Infusing Social Presence in the Web Interface: An Investigation Across Product Types. *International Journal of Electronic Commerce*, 10(2), pp. 31-55.

Hassanein, K., & Head, M. (2007). Manipulating Perceived Social Presence Through the Web Interface and Its Impact on Attitude Towards Online Shopping. *International Journal of Human-Computer Studies*, 65(8), pp. 689-708.

Hausman, A. V., & Siekpe, J. S. (2009). The Effect of Web Interface Features on Consumer Online Purchase Intentions. *Journal of Business Research*, 62(1), pp. 5-13.

He, Y., & Oppewal, H. (2018). See How Much We've Sold Already! Effects of Displaying Sales and Stock Level Information on Consumers' Online Product Choices. *Journal of Retailing*, 94(1), pp. 45-57.

Hedges, L. V., & Olkin, I. (1980). Vote-Counting Methods in Research Synthesis. *Psychological Bulletin*, 88(2), pp. 359-369.

Heitmann, M., Lehmann, D. R., & Herrmann, A. (2007). Choice Goal Attainment and Decision and Consumption Satisfaction. *Journal of Marketing Research*, 44(2), pp. 234-250.

Hennig-Thurau, T., Malthouse, E. C., Friege, C., Gensler, S., Lobschat, L., Rangaswamy, A., & Skiera, B. (2010). The Impact of New Media on Customer Relationships. *Journal of Service Research*, 13(3), pp. 311-330.

Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS Path Modeling in New Technology Research: Updated Guidelines. *Industrial Management & Data Systems*, 116(1), pp. 2-20.

Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The Use of Partial Least Squares Path Modeling in International Marketing. In: *New Challenges to International Marketing (Advances in International Marketing),* R. Sinkovics, & P. Ghauri (Eds.). Bingley, United Kingdom: Emerald Group Publishing Limited, pp. 277-319.

Hernant, M., & Rosengren, S. (2017). Now What? Evaluating the Sales Effects of Introducing an Online Store. *Journal of Retailing and Consumer Services*, 39, pp. 305-313.

Hevner, A. R., March, S. T., Park, J., & Ram, S. (2004). Design Science in Information Systems Research. *MIS Quarterly*, 28(1), pp. 75-105.

Hsiao, K. L., Chuan-Chuan Lin, J., Wang, X. Y., Lu, H. P., & Yu, H. (2010). Antecedents and Consequences of Trust in Online Product Recommendations. *Online Information Review*, 34(6), pp. 935-953.

Hu, M., Rabinovich, E., & Hou, H. (2015). Customers Complaints in Online Shopping: The Role of Signal Credibility. *Journal of Electronic Commerce Research*, 16(2), pp. 95-108.

Hu, X., Huang, Q., Zhong, X., Davison, R. M., & Zhao, D. (2016). The Influence of Peer Characteristics and Technical Features of a Social Shopping Website on a Consumer's Purchase Intention. *International Journal of Information Management*, 36(6), pp. 1218-1230.

Huang, J.-H., & Chen, Y.-F. (2006). Herding in Online Product Choice. *Psychology and Marketing*, 23(5), pp. 413-428.

Huang, Z., & Benyoucef, M. (2013). From E-Commerce to Social Commerce: A Close Look at Design Features. *Electronic Commerce Research and Applications*, 12(4), pp. 246-259.

Huang, Z., & Benyoucef, M. (2015). User Preferences of Social Features on Social Commerce Websites: An Empirical Study. *Technological Forecasting and Social Change*, 95, pp. 57-72.

Huang, Z., & Benyoucef, M. (2017). The Effects of Social Commerce Design on Consumer Purchase Decision-Making: An Empirical Study. *Electronic Commerce Research and Applications*, 25, pp. 40-58.

Huseynov, F., & Yildirim, S. O. (2015). Behavioral Issues in B2C E-Commerce: The-State-of-the-Art. *Information Development*, 32(5), pp. 1343-1358.

Ickler, H., Schülke, S., Wilfling, S., & Baumöl, U. (2009). New Challenges in E-Commerce: How Social Commerce Influences the Customer Process. *Proceedings of the 5th National Conference on Computing and Information Technology (NCCIT)*, pp. 51-57.

Iivari, J. (2007). A Paradigmatic Analysis of Information Systems as a Design Science. *Scandinavian Journal of Information Systems*, 19(2), pp. 39-64.

Isen, A. M. (2001). An Influence of Positive Affect on Decision Making in Complex Situations: Theoretical Issues with Practical Implications. *Journal of Consumer Psychology*, 11(2), pp. 75-85.

Iyengar, S. S., & Lepper, M. R. (2000). When Choice Is Demotivating: Can One Desire Too Much of a Good Thing? *Journal of Personality and Social Psychology*, 79(6), pp. 995-1006.

Jadhav, A. S., & Sonar, R. M. (2009). Evaluating and Selecting Software Packages: A Review. *Information and Software Technology*, 51(3), pp. 555-563.

Jahng, J., Jain, H., & Ramamurthy, K. (2007). Effects of Interaction Richness on Consumer Attitudes and Behavioral Intentions in E-Commerce: Some Experimental Results. *European Journal of Information Systems*, 16(3), pp. 254-269.

Jang, H., Ko, I., & Kim, J. (2013). The Effect of Group-Buy Social Commerce and Coupon on Satisfaction and Continuance Intention - Focusing on the Expectation Confirmation Model (ECM). *Proceedings of the 46th Hawaii International Conference on System Sciences (HICSS)*, pp. 2938-2948.

Jarvenpaa, S. L., Tractinsky, N., & Vitale, M. (2000). Consumer Trust in an Internet Store. *Information Technology and Management*, 1(1-2), pp. 45-71.

Kamis, A., Koufaris, M., & Stern, T. (2008a). Using an Attribute-Based Decision Support System for User-Customized Products Online: An Experimental Investigation. *MIS Quarterly*, 32(1), pp. 159-177.

Kamis, A., Stern, T., & Ladik, D. M. (2008b). A Flow-Based Model of Web Site Intentions When Users Customize Products in Business-to-Consumer Electronic Commerce. *Information Systems Frontiers*, 12(2), pp. 157-168.

Kaplan, A. M., & Haenlein, M. (2010). Users of the World, Unite! The Challenges and Opportunities of Social Media. *Business Horizons*, 53(1), pp. 59-68.

Kaplan, B., & Duchon, D. (1988). Combining Qualitative and Quantitative Methods in Information Systems Research: A Case Study. *MIS Quarterly*, 12(4), pp. 571-586.

Kim, D. J., Ferrin, D. L., & Rao, H. R. (2009). Trust and Satisfaction, Two Stepping Stones for Successful E-Commerce Relationships: A Longitudinal Exploration. *Information Systems Research*, 20(2), pp. 237-257.

Kim, H., Park, K., & Eighmey, J. (2019). The Effects of Social Information Cues Featured in SNS Ads on Unfamiliar Product Adoption. *Journal of Promotion Management*, 25(4), pp. 541-569.

Kim, J. B. (2015). The Mediating Role of Presence on Consumer Intention to Participate in a Social Commerce Site. *Journal of Internet Commerce*, 14(4), pp. 425-454.

King, R. A., Racherla, P., & Bush, V. D. (2014). What We Know and Don't Know About Online Word-of-Mouth: A Review and Synthesis of the Literature. *Journal of Interactive Marketing*, 28(3), pp. 167-183.

King, R. C., Schilhavy, R. A. M., Chowa, C., & Chin, W. W. (2016). Do Customers Identify with Our Website? The Effects of Website Identification on Repeat Purchase Intention. *International Journal of Electronic Commerce*, 20(3), pp. 319-354.

King, W. R., & He, J. (2005). Understanding the Role and Methods of Meta-Analysis in Is Research. *Communications of the Association for Information Systems*, 16(1), pp. 665-686.

Kitchenham, B., Pearl Brereton, O., Budgen, D., Turner, M., Bailey, J., & Linkman, S. (2009). Systematic Literature Reviews in Software Engineering – A Systematic Literature Review. *Information and Software Technology*, 51(1), pp. 7-15.

Ko, H.-C. (2018). Social Desire or Commercial Desire? The Factors Driving Social Sharing and Shopping Intentions on Social Commerce Platforms. *Electronic Commerce Research and Applications*, 28, pp. 1-15.

Kumar, N., & Benbasat, I. (2006). Research Note: The Influence of Recommendations and Consumer Reviews on Evaluations of Websites. *Information Systems Research*, 17(4), pp. 425-439.

Kwahk, K.-Y., & Ge, X. (2012). The Effects of Social Media on E-Commerce: A Perspective of Social Impact Theory. *Proceedings of the 45th Hawaii International Conference on System Sciences (HICSS)*, R. H. Sprague (Ed.), pp. 1814-1823.

Lederman, N. G. (2006). Syntax of Nature of Science Within Inquiry And Science Instruction. In: *Scientific Inquiry and Nature of Science: Implications for Teaching, Learning, and Teacher Education*, L. B. Flick, & N. G. Lederman (Eds.). Dordrecht, Netherlands: Springer Netherlands, pp. 301-317.

Lee, A. S. (1999). Rigor and Relevance in MIS Research: Beyond the Approach of Positivism Alone. *MIS Quarterly*, 23(1), pp. 29-33.

Lee, J., Park, D.-H., & Han, I. (2008). The Effect of Negative Online Consumer Reviews on Product Attitude: An Information Processing View. *Electronic Commerce Research and Applications*, 7(3), pp. 341-352.

Lee, M. K. O., Cheung, C. M. K., Sia, C. L., & Lim, K. H. (2006). How Positive Informational Social Influence Affects Consumers' Decision of Internet Shopping? *Proceedings of the 39th Annual Hawaii International Conference on System Sciences (HICSS)*, pp. 1-10.

Lengel, R. H., & Daft, R. L. (1988). The Selection of Communication Media as an Executive Skill. *The Academy of Management Executive (1987-1989)*, 2(3), pp. 225-232.

Li, D., Browne, G. J., & Wetherbe, J. C. (2006). Why Do Internet Users Stick with a Specific Web Site? A Relationship Perspective. *International Journal of Electronic Commerce*, 10(4), pp. 105-141.

Liang, T.-P., Ho, Y.-T., Li, Y.-W., & Turban, E. (2011). What Drives Social Commerce: The Role of Social Support and Relationship Quality. *International Journal of Electronic Commerce*, 16(2), pp. 69-90.

Liang, T.-P., & Turban, E. (2011). Introduction to the Special Issue Social Commerce: A Research Framework for Social Commerce. *International Journal of Electronic Commerce*, 16(2), pp. 5-14.

Light, R. J., & Smith, P. V. (1971). Accumulating Evidence: Procedures for Resolving Contradictions Among Different Research Studies. *Harvard Educational Review*, 41(4), pp. 429-471.

Lin, J. C.-C. (2007). Online Stickiness: Its Antecedents and Effect on Purchasing Intention. *Behaviour & Information Technology*, 26(6), pp. 507-516.

Lin, L., Hu, P. J.-H., Sheng, O. R. L., & Lee, J. (2010). Is Stickiness Profitable for Electronic Retailers? *Communications of the ACM*, 53(3), pp. 132-136.

Liu, L., Cheung, C. M. K., & Lee, M. K. O. (2016). An Empirical Investigation of Information Sharing Behavior on Social Commerce Sites. *International Journal of Information Management*, 36(5), pp. 686-699.

Liu, Z., & Park, S. (2015). What Makes a Useful Online Review? Implication for Travel Product Websites. *Tourism Management*, 47(0), pp. 140-151.

Lowry, P. B., Vance, A., Moody, G., Beckman, B., & Aaron, R. (2008). Explaining and Predicting the Impact of Branding Alliances and Web Site Quality on Initial Consumer Trust of E-Commerce Web Sites. *Journal of Management Information Systems*, 24(4), pp. 199-224.

Lu, B., Fan, W., & Zhou, M. (2016). Social Presence, Trust, and Social Commerce Purchase Intention: An Empirical Research. *Computers in Human Behavior*, 56, pp. 225-237.

Luca, M., & Zervas, G. (2016). Fake It Till You Make It: Reputation, Competition, and Yelp Review Fraud. *Management Science*, 62(12), pp. 3412-3427.

Luo, J., Ba, S., & Zhang, H. (2012). The Effectiveness of Online Shopping Characteristics and Well-Designed Websites on Satisfaction. *MIS Quarterly*, 36(4), pp. 1131-1144.

March, S. T., & Smith, G. F. (1995). Design and Natural Science Research on Information Technology. *Decision Support Systems*, 15(4), pp. 251-266.

March, S. T., & Storey, V. C. (2008). Design Science in the Information Systems Discipline: An Introduction to the Special Issue on Design Science Research. *MIS Quarterly*, 32(4), pp. 725-730.

Mari, A. (2019). Voice Commerce: Understanding Shopping-Related Voice Assistants and Their Effect on Brands. *IMMAA (International Media Management Academic Association) Annual Conference*, Doha, Qatar, pp. 1-10.

McKnight, D. H., Choudhury, V., & Kacmar, C. (2002). Developing and Validating Trust Measures for E-Commerce: An Integrative Typology. *Information Systems Research*, 13(3), pp. 334-359.

McTear, M. F. (2017). The Rise of the Conversational Interface: A New Kid on the Block? In: *Future and Emerging Trends in Language Technology. Machine Learning and Big Data*. Basel, Switzerland: Springer, pp. 38-49.

Mehrabian, A., & Russell, J. A. (1974). *An Approach to Environmental Psychology*. Cambridge, USA: The MIT Press.

Mertens, W., Pugliese, A., & Recker, J. (2017). *Quantitative Data Analysis: A Companion for Accounting and Information Systems Research*. Basel, Switzerland: Springer International Publishing.

Mikalef, P., Giannakos, M., & Pateli, A. (2013). Shopping and Word-of-Mouth Intentions on Social Media. *Journal of Theoretical and Applied Electronic Commerce Research*, 8(1), pp. 17-34.

Mikalef, P., Giannakos, M. N., & Pappas, I. O. (2017). Designing Social Commerce Platforms Based on Consumers' Intentions. *Behaviour & Information Technology*, 36(12), pp. 1308-1327.

Mitchell, M. L., & Jolley, J. M. (2012). *Research Design Explained*, (8th ed.). Belmont, USA: Cengage Learning.

Moon, J., Chadee, D., & Tikoo, S. (2008). Culture, Product Type, and Price Influences on Consumer Purchase Intention to Buy Personalized Products Online. *Journal of Business Research*, 61(1), pp. 31-39.

Morwitz, V. G., Steckel, J. H., & Gupta, A. (2007). When Do Purchase Intentions Predict Sales? *International Journal of Forecasting*, 23(3), pp. 347-364.

Mosteller, J., Donthu, N., & Eroglu, S. (2014). The Fluent Online Shopping Experience. *Journal of Business Research*, 67(11), pp. 2486-2493.

Mou, J., & Shin, D. (2018). Effects of Social Popularity and Time Scarcity on Online Consumer Behaviour Regarding Smart Healthcare Products: An Eye-Tracking Approach. *Computers in Human Behavior*, 78, pp. 74-89.

Munzel, A. (2016). Assisting Consumers in Detecting Fake Reviews: The Role of Identity Information Disclosure and Consensus. *Journal of Retailing and Consumer Services*, 32, pp. 96-108.

Ng, C. S.-P. (2013). Intention to Purchase on Social Commerce Websites Across Cultures: A Cross-Regional Study. *Information & Management*, 50(8), pp. 609-620.

Noh, M., Lee, K., Kim, S., & Garrison, G. (2013). Effects of Collectivism on Actual S-Commerce Use and the Moderating Effect of Price Consciousness. *Journal of Electronic Commerce Research*, 14(3), pp. 244-260.

Okoli, C., & Schabram, K. (2010). A Guide to Conducting a Systematic Literature Review of Information Systems Research. *Sprouts: Working Papers on Information Systems*, 10(26).

Olbrich, R., & Holsing, C. (2011). Modeling Consumer Purchasing Behavior in Social Shopping Communities with Clickstream Data. *International Journal of Electronic Commerce*, 16(2), pp. 15-40.

Orlikowski, W. J., & Iacono, C. S. (2001). Research Commentary: Desperately Seeking the "IT" in IT Research - A Call to Theorizing the IT Artifact. *Information Systems Research*, 12(2), pp. 121-134.

Palvia, P., Mao, E., Salam, A., & Soliman, K. S. (2003). Management Information Systems Research: What's There in a Methodology? *Communications of the Association for Information Systems*, 11(1), p. 16.

Parboteeah, D. V., Valacich, J. S., & Wells, J. D. (2009). The Influence of Website Characteristics on a Consumer's Urge to Buy Impulsively. *Information Systems Research*, 20(1), pp. 60-78.

Park, D.-H., & Lee, J. (2008). eWOM Overload and Its Effect on Consumer Behavioral Intention Depending on Consumer Involvement. *Electronic Commerce Research and Applications*, 7(4), pp. 386-398.

Park, D.-H., Lee, J., & Han, I. (2007). The Effect of On-Line Consumer Reviews on Consumer Purchasing Intention: The Moderating Role of Involvement. *International Journal of Electronic Commerce*, 11(4), pp. 125-148.

Park, M.-S., Shin, J.-K., & Ju, Y. (2014). The Effect of Online Social Network Characteristics on Consumer Purchasing Intention of Social Deals. *Global Economic Review*, 43(1), pp. 25-41.

Pavlou, P. A., & Chai, L. (2002). What Drives Electronic Commerce Across Cultures? A Cross-Cultural Empirical Investigation of the Theory of Planned Behaviour. *Journal of Electronic Commerce Research*, 3(4), pp. 240-253.

Pavlou, P. A., & Fygenson, M. (2006). Understanding and Predicting Electronic Commerce Adoption: An Extension of the Theory of Planned Behavior. *MIS Quarterly*, 30(1), pp. 115-143.

Pavlou, P. A., Liang, H., & Xue, Y. (2007). Understanding and Mitigating Uncertainty in Online Exchange Relationships: A Principal-Agent Perspective. *MIS Quarterly*, 31(1), pp. 105-136.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *Journal of Applied Psychology*, 88(5), pp. 879-903.

Polites, G. L., Williams, C. K., Karahanna, E., & Seligman, L. (2012). A Theoretical Framework for Consumer E-Satisfaction and Site Stickiness: An Evaluation in the Context of Online Hotel Reservations. *Journal of Organizational Computing and Electronic Commerce*, 22(1), pp. 1-37.

Pöyry, E., Parvinen, P., & Malmivaara, T. (2013). Can We Get from Liking to Buying? Behavioral Differences in Hedonic and Utilitarian Facebook Usage. *Electronic Commerce Research and Applications*, 12(4), pp. 224-235.

Rapoport, R. N. (1970). Three Dilemmas in Action Research:With Special Reference to the Tavistock Experience. *Human Relations*, 23(6), pp. 499-513.

Recker, J. (2013). *Scientific Research in Information Systems*. Heidelberg, Germany: Springer Science & Business Media.

Rice, R. E. (1992). Task Analyzability, Use of New Media, and Effectiveness: A Multi-Site Exploration of Media Richness. *Organization Science*, 3(4), pp. 475-500.

Sashi, C. M. (2012). Customer Engagement, Buyer-Seller Relationships, and Social Media. *Management Decision*, 50(2), pp. 253-272.

Saundage, D., & Lee, C. Y. (2011). Social Commerce Activities – A Taxonomy. *Proceedings of the Australiasian Conference on Information Systems (ACIS),* P. Seltsikas, D. Bunker, L. Dawson, & M. Indulska (Eds.), pp. 1-9.

Schaupp, L. C., & Bélanger, F. (2016). Social Commerce Benefits for Small Businesses. *Journal of Organizational and End User Computing*, 28(3), pp. 49-66.

Sein, M. K., Henfridsson, O., Purao, S., Rossi, M., & Lindgren, R. (2011). Action Design Research. *MIS Quarterly*, 35(1), pp. 37-56.

Sen, C. G., Baracli, H., & Sen, S. (2009). A Literature Review and Classification of Enterprise Software Selection Approaches. *International Journal of Information Technology & Decision Making*, 8(2), pp. 217-238.

Sharma, S., Menard, P., & Mutchler, L. A. (2017). Who to Trust? Applying Trust to Social Commerce. *Journal of Computer Information Systems*, 59(1), pp. 32-42.

Shen, J. (2012). Social Comparison, Social Presence, and Enjoyment in the Acceptance of Social Shopping Websites. *Journal of Electronic Commerce Research*, 13(3), pp. 198-212.

Shen, X.-L., Li, Y.-J., Sun, Y., Chen, Z., & Wang, F. (2019). Understanding the Role of Technology Attractiveness in Promoting Social Commerce Engagement: Moderating Effect of Personal Interest. *Information & Management*, 56(2), pp. 294-305.

Shi, S., & Chow, W. S. (2015). Trust Development and Transfer in Social Commerce: Prior Experience as Moderator. *Industrial Management & Data Systems*, 115(7), pp. 1182-1203.

Shin, D.-H. (2013). User Experience in Social Commerce: In Friends We Trust. *Behaviour & Information Technology*, 32(1), pp. 52-67.

Simon, H. A. (1988). The Science of Design: Creating the Artificial. *Design Issues*, 4(1/2), pp. 67-82.

Sparks, B. A., So, K. K. F., & Bradley, G. L. (2016). Responding to Negative Online Reviews: The Effects of Hotel Responses on Customer Inferences of Trust and Concern. *Tourism Management*, 53, pp. 74-85.

Spassova, G., & Isen, A. M. (2013). Positive Affect Moderates the Impact of Assortment Size on Choice Satisfaction. *Journal of Retailing*, 89(4), pp. 397-408.

Steinhart, Y., Kamins, M., Mazursky, D., & Noy, A. (2014). Effects of Product Type and Contextual Cues on Eliciting Naive Theories of Popularity and Exclusivity. *Journal of Consumer Psychology*, 24(4), pp. 472-483.

Stephen, A. T., & Toubia, O. (2010). Deriving Value from Social Commerce Networks. *Journal of Marketing Research*, 47(2), pp. 215-228.

Straub, D., Boudreau, M.-C., & Gefen, D. (2004). Validation Guidelines for IS Positivist Research. *Communications of the Association for Information Systems*, 13(1), pp. 380-427.

Takeda, H., Veerkamp, P., Tomiyama, T., & Yoshikawa, H. (1990). Modeling Design Processes. *AI Magazine*, 11(4), pp. 37-48.

Tangmanee, C. (2017). Comparisons of Website Visit Behavior Between Purchase Outcomes and Product Categories. *International Journal of Research in Business and Social Science*, 6(4), pp. 1-10.

Tanner, K. (2018). Experimental Research. In: *Research Methods - Information, Systems, and Contexts,* K. Williamson, & G. Johanson (Eds.). Chandos Publishing, pp. 337-356.

Tauber, E. M. (1972). Why Do People Shop? *Journal of Marketing*, 36(4), pp. 46-49.

Teh, P.-L., & Ahmed, P. K. (2011). MOA and TRA in Social Commerce: An Integrated Model. *Proceedings of the IEEE International Conference on Industrial Engineering and Engineering Management (IEEM)*, pp. 1375-1379.

Teh, P.-L., & Ahmed, P. K. (2012). Understanding Social Commerce Adoption: An Extension of the Technology Acceptance Model. *Proceedings of the International Conference on Management of Innovation and Technology (ICMIT)*, pp. 359-364.

Turban, E., Bolloju, N., & Liang, T.-P. (2010). Social Commerce: An E-Commerce Perspective. *Proceedings of the 12th International Conference on Electronic Commerce (ICEC),* T. Bui (Ed.), pp. 33-42.

Turban, E., King, D., Lee, J. K., Liang, T.-P., & Turban, D. C. (2015). *Electronic Commerce: A Managerial and Social Networks Perspective*, (8th ed.). Heidelberg, Germany: Springer.

UNCTAD (2019). Global E-Commerce Sales Surged to $29 Trillion. https://unctad.org/en/pages/PressRelease.aspx?OriginalVersionID=505. Accessed 4 September 2019.

Urbach, N., & Ahlemann, F. (2010). Structural Equation Modeling in Information Systems Research Using Partial Least Squares. *Journal of Information Technology Theory and Application*, 11(2), p. 5.

Urbaczewski, A., Jessup, L. M., & Wheeler, B. (2002). Electronic Commerce Research: A Taxonomy and Synthesis. *Journal of Organizational Computing and Electronic Commerce*, 12(4), pp. 263-305.

Vaishnavi, V., & Kuechler, B. (2004). Design Research in Information Systems. http://desrist.org/desrist/content/design-science-research-in-information-systems.pdf. Accessed 10 October 2019.

Valenzuela, A., Dhar, R., & Zettelmeyer, F. (2009). Contingent Response to Self-Customization Procedures: Implications for Decision Satisfaction and Choice. *Journal of Marketing Research*, 46(6), pp. 754-763.

Venkatesh, V., Brown, S. A., & Bala, H. (2013). Bridging the Qualitative-Quantitative Divide: Guidelines for Conducting Mixed Methods Research in Information Systems. *MIS Quarterly*, 37(1), pp. 21-54.

vom Brocke, J., Simons, A., Riemer, K., Niehaves, B., Plattfaut, R., & Cleven, A. (2015). Standing on the Shoulders of Giants: Challenges and Recommendations of Literature Search in Information Systems Research. *Communications of the Association for Information Systems*, 37(1), p. 9.

Wakefield, R. L., Wakefield, K. L., Baker, J., & Wang, L. C. (2010). How Website Socialness Leads to Website Use. *European Journal of Information Systems*, 20(1), pp. 118-132.

Wang, C., & Zhang, P. (2012). The Evolution of Social Commerce: The People, Management, Technology, and Information Dimensions. *Communications of the Association for Information Systems*, 31(5), pp. 105-127.

Wang, L. C., Baker, J., Wagner, J. A., & Wakefield, K. (2007). Can a Retail Web Site Be Social? *Journal of Marketing*, 71(3), pp. 143-157.

Wang, Y., & Yu, C. (2017). Social Interaction-Based Consumer Decision-Making Model in Social Commerce: The Role of Word of Mouth and Observational Learning. *International Journal of Information Management*, 37(3), pp. 179-189.

Webster, J., & Watson, R. T. (2002). Analyzing the Past to Prepare for the Future: Writing a Literature Review. *MIS Quarterly*, 26(2), pp. xiii-xxiii.

Weinmann, M., Schneider, C., & Brocke, J. v. (2016). Digital Nudging. *Business & Information Systems Engineering*, 58(6), pp. 433-436.

Wells, J. D., Valacich, J. S., & Hess, T. J. (2011). What Signals Are You Sending? How Website Quality Influences Perceptions of Product Quality and Purchase Intentions. *MIS Quarterly*, 35(2), pp. 373-396.

Wigand, R. T., Benjamin, R. I., & Birkland, J. L. H. (2008). Web 2.0 and Beyond: Implications for Electronic Commerce. *Proceedings of the 10th International Conference on Electronic Commerce (ICEC)*, pp. 1-5.

Yadav, M. S., de Valck, K., Hennig-Thurau, T., Hoffman, D. L., & Spann, M. (2013). Social Commerce: A Contingency Framework for Assessing Marketing Potential. *Journal of Interactive Marketing*, 27(4), pp. 311-323.

Yang, J. B., Sia, C. L., Liu, L. B., & Chen, H. P. (2016). Sellers Versus Buyers: Differences in User Information Sharing on Social Commerce Sites. *Information Technology & People*, 29(2), pp. 444-470.

Zhang, H., Lu, Y., Gupta, S., & Zhao, L. (2014). What Motivates Customers to Participate in Social Commerce? The Impact of Technological Environments and Virtual Customer Experiences. *Information & Management*, 51(8), pp. 1017-1030.

Zhang, H., Zhao, L., & Gupta, S. (2018). The Role of Online Product Recommendations on Customer Decision Making and Loyalty in Social Shopping Communities. *International Journal of Information Management*, 38(1), pp. 150-166.

Zhang, K. Z. K., & Benyoucef, M. (2016). Consumer Behavior in Social Commerce: A Literature Review. *Decision Support Systems*, 86, pp. 95-108.

Zhang, S., Zhao, L., Lu, Y., & Yang, J. (2016). Do You Get Tired of Socializing? An Empirical Explanation of Discontinuous Usage Behaviour in Social Network Services. *Information & Management*, 53(7), pp. 904-914.

Zhou, L., Zhang, P., & Zimmermann, H.-D. (2013). Social Commerce Research: An Integrated View. *Electronic Commerce Research and Applications*, 12(2), pp. 61-68.

Zhu, H., & Huberman, B. A. (2014). To Switch or Not To Switch: Understanding Social Influence in Online Choices. *American Behavioral Scientist*, 58(10), pp. 1329-1344.

Zhuang, M., Cui, G., & Peng, L. (2018). Manufactured Opinions: The Effect of Manipulating Online Product Reviews. *Journal of Business Research*, 87, pp. 24-35.

Zott, C., Amit, R., & Donlevy, J. (2000). Strategies for Value Creation in E-Commerce: Best Practice in Europe. *European Management Journal*, 18(5), pp. 463-475.

Part 1

Factors Influencing Consumers' Social Commerce Engagement

10 Paper I: Literature Review on Consumers' Social Commerce Engagement

Table 10.1 Fact sheet Paper I

Fact	*Description*
Title	On the Factors Influencing Consumers' Adoption of Social Commerce – A Review of the Empirical Literature
Authors	Thomas Friedrich[1] thomas.friedrich@uni-bamberg.de [1] University of Bamberg An der Weberei 5 96047 Bamberg, Germany
Publication type	Journal Article
Publication outlet	Pacific Asia Journal of the Association for Information Systems
Status	Published
Full citation	Friedrich, T. (2016). On the Factors Influencing Consumers' Adoption of Social Commerce – A Review of the Empirical Literature. *Pacific Asia Journal of the Association for Information Systems*, 8(4), pp. 1-32.
URL	https://doi.org/10.17705/1pais.08401

On the Factors Influencing Consumers' Adoption of Social Commerce – A Review of the Empirical Literature

Abstract. Social commerce, the combination of e-commerce activities and social media, is a lucrative means for e-commerce companies to increase their sales volumes. As social commerce initiatives considerably depend on the consumers' social interactions, it becomes important for companies to understand how consumers can be stimulated to participate in social commerce. While several empirical studies have already focused on investigating what factors influence consumers to adopt to social commerce, the findings of these studies are scattered across the literature base, sometimes not transparent, and not straightforwardly comparable. To synthesize these findings, we conduct a systematic review of the empirical literature on the consumers' adoption of social commerce. In particular, we identify and classify conceptually similar factors and outcome variables (i.e., behavioral intentions and/or behaviors). Moreover, we apply a vote-counting technique and a sign test to aggregate the reported effects between the factors and outcome variables. After analyzing 61 academic publications, we contribute a structured and comprehensive list of factors and their potential effects on various adoption-related outcome variables. Our results reveal that for some factors, such as trust, usefulness, or social influence, the effects point in a clear direction, while for several other factors, such as enjoyment, risk, or social presence, the effects are yet not clear and require further investigations.

Keywords: Social commerce, adoption, consumer behavior, literature review, vote counting

10.1 Introduction

Social commerce is considered as a form of electronic commerce (e-commerce) that combines commercial activities and social media in order to enable consumers to actively participate, interact, and communicate in the online selling and buying of products and services (Wang and Zhang 2012; Zhou et al. 2013). On social commerce platforms, consumers can not only purchase products but also share their shopping experiences, get advice from trusted peers, or collaborate online to custom-design products or to receive price discounts (Curty and Zhang 2013; Huang and Benyoucef 2013). Promoting the consumers' social interactions and relationships, which are formed through the use of social media, is a key characteristic of social commerce and can significantly influence the consumers' purchase behavior (Liang et al. 2011). Consequently, many e-commerce companies today are highly interested in figuring out how they can effectively deploy social commerce to increase their sales volumes (Stephen and Toubia 2010; Zhou et al. 2013). As social commerce initiatives considerably depend on the consumers' social interactions, it becomes important for companies to understand how consumers can be stimulated to participate in social commerce (Turban et al. 2010; Zhang and Benyoucef 2016).

While research on social commerce is still at an early stage (Baethge et al. 2016; Zhang and Benyoucef 2016), several empirical studies have already explored what factors influence consumers to adopt to social commerce. However, understanding the results of these studies is difficult due to the following reasons. First, some of the examined factors, such as trust, have been conceptualized in different ways. For instance, trust in company (Shi and Chow 2015), trust towards community (Chen and Shen 2015), or trust in website (Hsiao et al. 2010). Second,

different outcome variables (i.e., behavioral intentions and/or behaviors) have been used to measure the consumers' adoption of social commerce, such as consumers' purchase intention/behavior (Lu et al. 2016; Pöyry et al. 2013), continuance intention/behavior (Hajli et al. 2015; Liang et al. 2011), or information sharing intention/behavior (Chen and Shen 2015; Liu et al. 2016b). Third, different effects have been identified between the same factors and outcome variables, such as trust might or might not significantly influence the consumers' purchase intention (Farivar et al. 2016; Hsiao et al. 2010).

As a result, the current social commerce literature does not provide a clear understanding of the factors that influence consumers to adopt to social commerce. Therefore, researchers investigating this topic first have to synthesize the fragmented and often inconclusive findings in the literature. Considering the current number of social commerce publications (cf. section 10.3), this task can easily become cumbersome and time-consuming, however. Moreover, there is a risk that existing concepts are overlooked and reinvented, which would make the understanding of social commerce adoption even more complicated. While there already exist a few literature reviews on social commerce, most of these studies either focus on the concept of social commerce or its historical evolution and not on the consumers' adoption of social commerce (Baethge et al. 2016; Busalim and Hussin 2016; Zhou et al. 2013). So far, only Zhang and Benyoucef (2016) review the literature on the consumer behavior in social commerce and present a framework that integrates various factors and outcome variables. However, the framework does not provide information about the different conceptualizations of the factors and their potential effects on the outcome variables. In the present paper, we consequently aim to synthesize the different conceptions in the social commerce literature and contribute to a better understanding of the factors influencing the consumers' adoption of social commerce. We address the following research questions:

1. *What factors and outcome variables have been investigated in the literature on social commerce adoption?*

2. *What effects exist between the identified factors and outcome variables?*

To answer these questions, we systematically review the literature on social commerce adoption. In so doing, we contribute to the social commerce literature by synthesizing past research to provide a structured and comprehensive list of factors and their potential effects on various adoption-related outcome variables.

The remainder of this paper is organized as follows. First, we briefly explain the concept of social commerce and illustrate the basic theories behind social commerce adoption. Second, we describe our research methodology to systematically review the literature on the consumers' adoption of social commerce. Third, we present the identified factors and their potential effects on various adoption-related outcome variables. In the subsequent section, we discuss the implications and limitations of our work. Finally, we conclude with a brief summary.

10.2 Theoretical Background

In this section, we provide background information on the concept of social commerce and on the basic theories behind social commerce adoption.

10.2.1 Concept of Social Commerce

Historically, the roots of social commerce can be traced back to the late 1990s (Curty and Zhang 2011; Wang and Zhang 2012). At this time, e-commerce pioneers, such as Amazon and eBay, introduced features on their websites that enabled consumers to write product reviews or to rate the performance of sellers (Saundage and Lee 2011). With the emergence of web 2.0 and social media, e-commerce companies started to integrate new technologies into their websites to provide consumers a more social and interactive shopping experience (Curty and Zhang 2013; Ickler et al. 2009). In 2005, Yahoo! first used the term social commerce to describe a new collaborative shopping feature on its shopping platform that allowed consumers to create, share, and comment on product lists (Wang and Zhang 2012). In 2007, first academic publications appeared that explicitly referred to the concept of social commerce (e.g., Leitner and Grechenig 2007a; Leitner and Grechenig 2007b).

With its characteristic combination of economic, social, and technological aspects, social commerce has drawn attention from different research disciplines such as information systems, marketing, or sociology (Wang and Zhang 2012; Zhou et al. 2013). As a result, current literature provides a variety of social commerce definitions, which makes it difficult to derive a clear understanding of the concept. For instance, Dennison et al. (2009, p. 2) describe social commerce as "the concept of word-of-mouth, applied to e-commerce". According to Stephen and Toubia (2010, p. 215), social commerce connects individual consumers as sellers and represents a form of "Internet-based social media that allow people to participate actively in the marketing and selling of products and services in online marketplaces and communities". Liang and Turban (2011, p. 6) define social commerce as "a subset of e-commerce that involves using social media to assist in e-commerce transactions and activities". In a broader sense, Wang and Zhang (2012, p. 106) describe social commerce as "a form of commerce that is mediated by social media and is converging both online and offline environments".

Different understandings also exist of what can be considered as a social commerce website. According to the literature, two major types of social commerce websites can be identified: (1) social networking sites that incorporate commercial features (e.g., product catalogs, shopping carts, or payment services); and (2) traditional e-commerce websites that add social media-based features (e.g., discussion forums, rating and review tools, or share and like buttons) to facilitate consumers' social interactions and exchanges (Curty and Zhang 2011; Liang and Turban 2011).

When comparing social commerce and e-commerce, social commerce is considered as a subset or evolution of e-commerce that enhances the consumers' shopping experience by promoting social interactions and relationships, while traditional e-commerce focuses on maximizing the efficiency of transactional processes (Liang and Turban 2011; Wang and Zhang 2012). Conceptually similar to social commerce are the terms "social shopping", "collaborative shopping", and "collaborative commerce". In literature, all three terms have been used synonymously to refer to the concept of social commerce or have been considered as a subset of social commerce (Olbrich and Holsing 2011; Wang and Zhang 2012; Zhou et al. 2013).

In this study, we adopt the definition of Liang and Turban (2011) and consider social commerce as a form of e-commerce that involves using social media to support e-commerce transactions and activities. In so doing, we intend to obtain a holistic view of the consumers' adoption of social commerce as this definition is not limited to a specific set of consumer activities (e.g., purchasing, marketing, or selling activities) or to a specific type of social commerce websites (e.g., social networking websites, e-commerce websites).

10.2.2 Basic Theories behind Social Commerce Adoption

As social commerce is closely related to e-commerce, basic theories used to explain e-commerce adoption have also been applied in the context of consumers' adoption of social commerce (Liang et al. 2011; Wang and Zhang 2012). Referring to the e-commerce literature, an individual consumer's adoption of e-commerce can be defined as "the consumer's engagement in online exchange relationships with Web vendors" (Pavlou and Fygenson 2006, pp. 115-116). To examine the consumers' adoption of e-commerce, behavioral theories such as the Theory of Reasoned Action (TRA), the Theory of Planned Behavior (TPB), or the Technology Acceptance Model (TAM) have been often used as lenses for analysis (Gefen et al. 2003; Grandón et al. 2011; Koufaris 2002; Pavlou and Fygenson 2006). In general, all three theories posit that an individual's behavior can be predicted by his or her intention towards the behavior. However, different factors are suggested by these theories to determine the individual's behavioral intention. In the TRA, the behavioral intention depends on an individual's attitude and on the subjective norms concerning the behavior (Fishbein and Ajzen 1975). As an extension of the TRA, the TPB uses the factor perceived behavioral control besides subjective norms and attitude to determine the behavioral intention (Ajzen 1985). In the TAM, which is grounded on the TRA, perceived ease of use and perceived usefulness are used to explain a user's attitude and behavioral intention towards using a certain technology (Davis 1989). In the e-commerce literature, much effort has been spent to adapt these theories to the specific characteristics of e-commerce. As a result, various research models have been developed and a wide range of different factors has been identified that influence the consumers' intentions and/or behaviors on e-commerce websites (Cheung et al. 2005).

By drawing on the TRA, TPB, and TAM, we use the term "adoption" in this study to refer to the different behavioral intentions and/or behaviors of consumers on social commerce websites. In line with the literature, we also use the term "outcome variables" in this study to refer to the consumers' behavioral intentions and/or behaviors as theses variables have typically been employed as outcome measures in studies focusing on the consumers' adoption of social commerce (Bai et al. 2015; Liang et al. 2011; Wang and Yu 2017).

10.3 Research Methodology

To analyze the literature on the consumers' adoption of social commerce, we conducted a systematic literature review. Following the guidelines of Webster and Watson (2002), our literature review consisted of two steps: (1) identifying the relevant literature; and (2) structuring the review. In the following subsections, we describe how we performed these steps.

10.3.1 Identifying the Relevant Literature

We started with specifying our literature search process. In general, a literature search comprises the querying of scholarly databases and conducting backward and/or forward searches (Webster and Watson 2002). For the literature search, we adopted the procedure of Zhou et al. (2013), who conducted a bibliometric study on the concept of social commerce. To search for potentially relevant publications, we used the following databases: ACM Digital Library, AIS Electronic Library, EBSCOhost Business Source Complete, IEEE Xplore, ScienceDirect, SpringerLink, and Thomson Reuters Web of Science. In so doing, our literature search covered a broad range of academic publications, including high-quality IS journals and conference proceedings.

We did not limit our search to a specific set of journals because we wanted to obtain a complete and up-to-date picture of the social commerce literature. Following Zhou et al. (2013), we searched these databases using keywords such as "social commerce", "social shopping", "collaborative commerce", and "collaborative shopping". By using these keywords, we concentrated our search on publications that explicitly refer to the concept of social commerce or to conceptually similar forms of social commerce (cf. section 10.2). We did not search for the keyword "adoption" because not all publications focusing on social commerce adoption use this term. As search fields, we used title, abstract, and keywords where applicable. Considering that first research on social commerce emerged in 2007 (Wang and Zhang 2012; Zhou et al. 2013), we searched for literature published between January 2007 and September 2016. To ensure a certain quality level, we only considered peer-reviewed academic publications (including journal articles, conference papers, and book chapters). Reports, whitepapers, and other types of literature were excluded. In addition, we only focused on publications written in English.

By following the above-described procedure, we identified 767 articles referring to the concept of social commerce. After removing duplicate entries, we obtained 491 unique articles. We then screened these articles on their relevance to our research questions. The screening based on examining the title, abstract, and, if necessary, the full text of each article. Consequently, articles that investigate the effects of one or more factors on the consumers' intentions and/or behaviors on social commerce websites were classified as relevant. Furthermore, relevant articles must provide empirical evidence about the effects of the identified factors. Conceptual studies and research-in-progress papers were excluded. Moreover, we excluded duplicate articles of authors who reported similar results by using the same data sets. In this way, we reduced the list of relevant articles to 53. As recommended by Webster and Watson (2002), we performed backward and forward searches on these articles. By doing so, we additionally identified 8 relevant articles. Finally, a total set of 61 relevant articles remained for further analysis and classification. The set consisted of 42 journal articles, 17 conference papers, and 2 book chapters. The articles were published between the years 2010 and 2016.

10.3.2 Structuring the Review

To synthesize our results, we followed the recommendations of Webster and Watson (2002) to use a concept-centric approach. In general, concepts determine the structuring framework of a review (Webster and Watson 2002). In our review, the concepts are represented by the factors and outcome variables that have been investigated in the relevant literature on social commerce adoption. For this purpose, we read each article carefully and compiled a list of all examined factors, outcome variables, and the reported effects between factors and outcome variables (i.e., significant negative, non-significant, and significant positive effects). Note that only factors were added to the list, which have been assumed in the literature to have a direct effect on the outcome variables. For instance, Kim and Park (2013) examine how various seller and website characteristics (e.g., reputation, size, transaction safety, communication, etc.) influence the consumers' trust and how trust influences the consumers' purchase and word-of-mouth intentions. Accordingly, we added the factor "trust" and the two outcome variables (i.e., "purchase intentions", "word-of-mouth intentions") to our list but not the various seller and website characteristics of social commerce. To further synthesize the results, we grouped conceptually similar factors together by examining their definitions and measurement items. For instance, all trust-related factors such as "trust", "trustworthiness", "trust in members", and "trust in company" were grouped under the factor "trust". Conceptually different factors that had only been

examined in one article were grouped under "others". In the same way, we grouped the outcome variables. For instance, "intention to purchase products", "intention to buy", and "purchase behavior" were grouped under the outcome variable "purchase intention/behavior". To highlight the importance of the factors, we sorted the list in descending order beginning with the factor that had been examined in most of the articles. The result of this procedure was a structured and comprehensive list of factors and their potential effects on various adoption-related outcome variables (cf. Table 10.5, Appendix).

To condense the results of the factors that had been examined in more than one article, we counted all similar effects (i.e., significant negative effects, non-significant effects, significant positive effects) between the factors and outcome variables. For instance, Liang et al. (2011) and Hajli et al. (2015) report a significant positive effect of social support on the consumers' continuance intention/behavior. Accordingly, we counted two positive effects of the factor "social support" on the outcome variable "continuance intention/behavior". Studies reporting multiple effects of one factor were counted individually. For instance, Kwahk and Ge (2012) report a significant positive effect of informational social influence and a significant negative effect of normative social influence on the consumers' purchase intention. Consequently, we counted one positive and one negative effect of the factor "social influence" on the outcome variable "purchase intention/behavior". Counting the number of similar effects corresponds to the vote-counting method developed by Light and Smith (1971). In general, vote counting is considered as a simple meta-analysis technique in which the number of significant positive, significant negative and non-significant findings is compared and the category with the largest number is used to determine the direction of a focal relationship (Cooper 1998). However, vote counting has some inherent limitations (Hedges and Olkin 1980; King and He 2005). For instance, it does not take into account differences in the sample sizes, effect sizes, or the applied data analysis approaches. The presented numbers of significant positive, significant negative, and non-significant effects should therefore be interpreted with caution. We applied vote counting in our review because it enabled us to provide a quantitative summary of the reported effects and to detect causal relationships that require further empirical investigations. Moreover, we considered vote counting as appropriate because research on social commerce is still at an early stage and not all of the relevant articles provide information about the sample size, effect size, or the applied data analysis approach. To overcome some of the shortcomings of vote counting, we followed the recommendations of Cooper (1998) and combined the vote-counting results with a sign test.

10.4 Results

Figure 10.1 presents the concept-centric classification of the identified factors and outcome variables. Overall, we identified 16 factors, which were examined in more than one study. These factors are: *trust*, *usefulness*, *enjoyment*, *social influence*, *social support*, *value*, *ease of use*, *relationship quality*, *attitude*, *risk*, *commitment*, *social commerce constructs*, *familiarity*, *satisfaction*, *social presence*, and *uncertainty*. Moreover, we identified 6 outcome variables which have been used in the relevant studies to measure the consumers' adoption of social commerce. These variables are: *use intention/behavior*, *purchase intention/behavior*, *continuance intention/behavior*, *information sharing intention/behavior*, *information seeking intention/behavior*, and *information disclosure intention/behavior*. In the following subsections, we will first provide information on the outcome variables and then describe the frequently examined factors (i.e., factors examined in more than one study) and their effects on the outcome variables. We focus on the frequently

examined factors to find out if these factors have been conceptualized in different ways and if there exist differences in the reported effects of these factors. The full list of all identified factors, including the factors that have only been examined in one study, and their effects can be found in Table 10.5 in the Appendix.

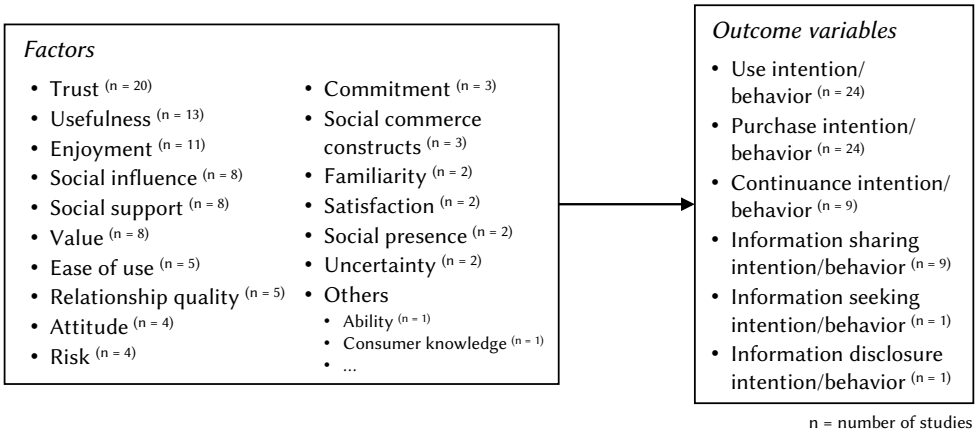


Figure 10.1 Classification of factors and outcome variables

10.4.1 Findings on the Outcome Variables

Table 10.2 describes the identified outcome variables. As illustrated in Figure 10.1, 24 studies focus on the consumers' use intention/behavior, which addresses the general use of a social commerce website. In these studies, the variable use intention/behavior or a conceptually similar variable is used to refer to a combination of social commerce activities that consumers can do on a social commerce website. For instance, Shen (2012a), Shin (2013), and Teh and Ahmed (2011) consider it as using a social commerce website to discover new products, to purchase products, and to recommend products to other consumers. In a similar way, Liang et al. (2011), Hajli and Sims (2015), and Zhang et al. (2014) use the variable social commerce intention/behavior to refer to activities such as purchasing products recommended by other consumers, and considering, receiving, and sharing of shopping information. Farivar et al. (2016), Kang and Johnson (2015), and Zhang et al. (2015) use the variable participation intention/behavior to refer to similar activities.

The variable purchase intention/behavior, which is also investigated in 24 studies, refers to the purchasing of products and/or services on a social commerce website. Examples of studies using this variable are: Anderson et al. (2014), Hajli (2014a), Hsiao et al. (2010), Liu et al. (2016a), and Ng (2013). Moreover, some studies use the variable impulsive buying intention/behavior in this context to focus on the spontaneous and unplanned purchases of consumers on social commerce websites (Huang 2016; Song et al. 2015; Xi et al. 2016; Xiang et al. 2016).

9 studies examine the variable continuance intention/behavior, which addresses the continuous use of a social commerce website, including activities such as revisiting a social commerce website and repurchasing products and/or services from a social commerce website (Hajli et al. 2015; Jang et al. 2013; Kim et al. 2013b; Liang et al. 2011). In a similar way, some researchers use the variable loyalty to measure whether a consumer is interested in continuously using a social commerce website (Anderson et al. 2014; Chen et al. 2014; Gamboa and Gonçalves 2014; Lee et al. 2012; Zhang et al. 2016).

To investigate the consumers' willingness to share shopping information with other consumers on a social commerce website, 9 studies employ the variable information sharing intention/behavior (Chen and Shen 2015; Cheung et al. 2015; Liu et al. 2013; Liu et al. 2016b; Liu et al. 2014). In this context, some studies also conceptualize this variable as electronic word-of-mouth (eWOM) intention/behavior (Chen et al. 2014; Hudson et al. 2015; Kim and Park 2013; Shi and Chow 2015).

Finally, 1 study examines the consumers' intention/behavior to seek shopping information provided by other consumers on a social commerce website (Qin and Kong 2015), and 1 study examines the consumers' intention/behavior to disclosure personal information on a social commerce website (Sharma and Crossler 2014a).

Table 10.2 Definition of outcome variables

Outcome variable	*Definition*
Use intention/behavior	Consumers' intention or behavior to use a social commerce website. Refers to a combination of various social commerce activities, such as purchasing products recommended by other consumers, and considering, receiving, and sharing of shopping information. Also conceptualized as social commerce intention/behavior or participation intention/behavior.
Purchase intention/ behavior	Consumers' intention or behavior to purchase products (planned or impulsively) on a social commerce website.
Continuance intention/ behavior	Consumers' intention or behavior to continuously use a social commerce website (e.g., revisiting the website, repurchasing products, or recommending products to other consumers). Also conceptualized as loyalty.
Information sharing intention/behavior	Consumers' intention or behavior to share shopping information with other consumers on a social commerce website. Also conceptualized as electronic word-of-mouth (eWOM) intention/behavior.
Information seeking intention/behavior	Consumers' intention or behavior to seek shopping information on a social commerce website.
Information disclosure intention/behavior	Consumers' intention or behavior to disclosure information on a social commerce website.

10.4.2 Findings on the Factors and their Effects

Table 10.3 lists the frequently examined factors together with their effects on the outcome variables. The factors are ordered descending by the number of studies (n). The effects are counted by applying the vote-counting technique (cf. section 10.3) and are classified into the groups significant negative effect ($p<0.05$), non-significant effect, and significant positive effect ($p<0.05$). For each factor, we provide a summary of the effects per outcome variable (SPV, summary per outcome variable) and a summary of the effects per factor (SPF, summary per factor). The former is used to illustrate the percentage of studies that confirm an assumed effect between the factor and outcome variable. The latter is used to illustrate the factors overall confirmed effects on the outcome variables. In addition, we provide a short definition for each factor and we illustrate how the factor has been conceptualized by listing the names of its constructs.

According to our results, the factor trust has received the most attention in the literature on social commerce adoption (n = 20). In the relevant studies, various forms of trust have been investigated. For instance, Chen and Shen (2015) and Ng (2013) demonstrate that the consumers' trust in the community of a social commerce website can significantly increase the consumers' use and purchase intention/behavior. Moreover, Farivar et al. (2016) and Qin and Kong (2015)

report that the consumers' trust in the social commerce website can significantly increase the consumers' use, purchase, and information seeking intention/behavior. Other studies present a significant positive effect of the consumers' trust in the seller or the company behind the social commerce website on the consumers' use, purchase, and information sharing intention/behavior (Lu et al. 2016; Ruan et al. 2016; Shi and Chow 2015). Unclear is the importance of the consumers' trust towards the members of a social commerce site. Farivar et al. (2016) report a non-significant effect of this variable on the consumers' use and purchase intention/behavior, while Chen and Shen (2015) report a significant positive effect on the purchase intention/behavior and a non-significant effect on the information sharing intention/behavior. Other studies focus on conceptually similar forms of trust but without redefining the construct (Gamboa and Gonçalves 2014; Hajli 2012; Hajli and Sims 2015; Liu et al. 2013; Shen 2012b; Teh and Ahmed 2012; Zhang et al. 2015). Overall, our findings indicate that the factor trust plays an important role in the consumers' adoption of social commerce (26/32 effects are significantly positive). Trust has been reported to significantly increase the consumers use (8/10), purchase (10/11), continuance (2/2), information sharing (5/7), and information seeking (1/2) intention/behavior.

Derived from the TAM (cf. section 10.2), the factor usefulness is examined in 13 studies. 12 studies (e.g., Featherman and Hajli 2015; Hajli 2012; Kim 2015; Noh et al. 2013; Shen 2012a) define the variable as usefulness or perceived usefulness and 1 study (Gatautis and Medziausiene 2014) uses the conceptually similar variable performance expectancy, which is part of the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al. 2003). In these studies, usefulness has been confirmed to influence the use (7/8), purchase (3/3), and information disclosure (1/1) intention/behavior. Not clear is the effect of usefulness on the information sharing intention/behavior (0/1). Overall, the importance of usefulness is represented by 11/13 studies reporting a significant positive effect on the outcome variables. Besides usefulness, the factor enjoyment has been investigated in 11 studies. In these studies, enjoyment has been measured by employing constructs such as perceived enjoyment or flow, which have been operationalized with similar items (e.g., Liu et al. 2016a; Shen 2012a; Shin 2013; Zhang et al. 2014). In context of information sharing, Liu et al. (2014) and Liu et al. (2016b) investigate the consumers' enjoyment of helping other consumers and report a significant positive and a non-significant effect (1/2). In addition, enjoyment has significant positive effects on the use (5/6), purchase (2/3), and information disclosure (1/1) intention/behavior. Overall, 9/12 of the reported effects confirm a significant positive effect of enjoyment on the outcome variables. The findings on the factors usefulness and enjoyment underpin the argumentation of Wang and Zhang (2012) that social commerce combines utilitarian and hedonic aspects.

Two factors that are related to the consumers' social interactions and relationships are social influence and social support. Both factors have been examined in 8 studies. Different forms of social influence have been investigated such as normative social influence (also conceptualized as subjective norm or normative belief) and informational social influence (e.g., Featherman and Hajli 2015; Gatautis and Medziausiene 2014; Kwahk and Ge 2012; Shin 2013; Xi et al. 2016). Derived from the TRA (cf. section 10.2) and the UTAUT, social influence has been confirmed to have significant positive effects on the use (7/7), purchase (3/4), and continuance intention (1/1). Interestingly, Kwahk and Ge (2012) detect a negative effect of normative social influence on the purchase intention/behavior. Overall, 11/12 of the reported effects confirm a significant positive effect of social influence on the outcome variables. Clear effects have been associated with the factor social support (9/9 significant positive effects). Studies confirm that social support positively influences the consumers use (5/5), purchase (2/2), and continuance (2/2) intention (e.g., Bai et al. 2015; Hajli 2014b; Li et al. 2014; Liang et al. 2011; Shin 2013; Zhang et al. 2014).

Another factor that has been investigated in 8 studies is value, which stems from the marketing literature (Zeithaml 1988). In the social commerce literature, different forms of value have been examined, such as perceived value, utilitarian value, hedonic value, informational value, and social value (e.g., Gamboa and Gonçalves 2014; Hu et al. 2016; Kim et al. 2013a; Ruan et al. 2016; Sun et al. 2016). According to the literature, value has been reported to have positive effects on the use (4/5), purchase (6/7), and continuance (3/4) intention/behavior. Overall, 13/16 effects are significantly positive.

5 studies examine the factor ease of use, which is part of the TAM. To measure ease of use, 4 studies (Featherman and Hajli 2015; Hajli and Lin 2015; Noh et al. 2013; Teh and Ahmed 2012) use the variable perceived usefulness and 1 study (Gatautis and Medziausiene 2014) employs the conceptually similar variable effort expectancy, which is suggested by the UTAUT. According to these studies, ease of use has a significant positive effect on the use (3/4) and the purchase (1/1) intention/behavior. However, Teh and Ahmed (2012) report a non-significant effect of ease of use on the use intention/behavior. Derived from the marketing literature, the factor relationship quality is typically considered as a combination of trust, commitment, and satisfaction (Hennig-Thurau et al. 2002). Referring to our results, 5 studies examine this factor (Hajli 2014b; Hudson et al. 2015; Liang et al. 2011; Wang and Hajli 2014; Zhang et al. 2016). According to these studies, relationship quality positively influences the consumers' use (3/3), continuance (2/2), and information sharing (1/1) intention/behavior. All reported effects of relationship quality on the outcome variables are significantly positive (6/6).

According to the TRA and the TPB (cf. section 10.2), attitude is an important factor that influences an individual's behavioral intention. In the context of social commerce adoption, 4 studies demonstrate that the consumers' attitude towards social commerce has significant positive effects on the use (2/3) and continuance (1/1) intention/behavior. However, Teh and Ahmed (2011) examine a non-significant effect of attitude on the purchase intention/behavior. Given the distant and impersonal nature of the online environment, risk is considered as an inevitable element of e-commerce (Pavlou 2003). Referring to the social commerce literature, risk has been examined in 4 studies. In these studies, various forms of risk have been investigated such as perceived risk (Ruan et al. 2016), perceived privacy risk (Sharma and Crossler 2014a), assessed usage risk (Featherman and Hajli 2015), perceived participation risk (Farivar et al. 2016), and perceived commerce risk (Farivar et al. 2016). Ruan et al. (2016) report a non-significant effect of risk on the use intention/behavior, while Featherman and Hajli (2015) and Farivar et al. (2016) detect significant negative effects (2/3). In addition, Farivar et al. (2016) report a significant negative effect of risk on the purchase (1/1) intention/behavior and Sharma and Crossler (2014a) report a significant negative effect of risk on the information disclosure (1/1) intention/behavior. Overall, 4/5 effects are significantly negative.

Rooted in relationship marketing, commitment is considered as a crucial factor that drives the persistence of social relationships (Morgan and Shelby 1994). According to our results, 3 studies report significant positive effects of commitment on the use (2/2) and the continuance (2/2) intention/behavior (Chen and Shen 2015; Gamboa and Gonçalves 2014; Zhang et al. 2015). Some attention has also been given to the social features and/or social platforms that enable social commerce, such as, ratings and reviews, recommendations and referrals, or forums and communities. Conceptualized as social commerce constructs, 3 studies report significant positive effects of this variable on the use (2/2) and the purchase (1/1) intention/behavior (Hajli 2015; Hajli and Sims 2015; Wang and Hajli 2014).

Factors that have been examined in 2 studies are familiarity, satisfaction, social presence, and uncertainty. Referring to familiarity, 1 study (Sharma and Crossler 2014b) provides evidence that familiarity positively influences the consumers' use intention/behavior (1/1), and 1 study (Ng 2013) reports a non-significant effect of familiarity on the purchase intention/behavior (0/1). Also derived from marketing literature, the factor satisfaction has been confirmed to positively affect the consumers' continuance (4/4) intention/behavior (Gamboa and Gonçalves 2014; Jang et al. 2013). In these studies, different forms of satisfaction have been investigated such as customer satisfaction (Gamboa and Gonçalves 2014) or site/coupon satisfaction (Jang et al. 2013). To facilitate consumers' social interactions, social commerce platforms provide features that enable consumers to create their own identities and to present themselves (Huang and Benyoucef 2013). In this context, 2 studies have assumed that the factor social presence positively influences the consumers' use intention (Sharma and Crossler 2014b; Zhang et al. 2014). However, Zhang et al. (2014), who investigated two different social commerce websites, reported a significantly positive effect and a non-significant effect of social presence on the use intention/behavior. In addition, Sharma and Crossler (2014b) also report a non-significant effect of social presence on the use intention/behavior. According to these findings, it seems not clear if social presence has a significant impact on the consumers' adoption of social commerce (1/3 of the effects are significant positive). However, findings in the literature indicate that social presence can influence the consumers' intentions/behaviors on social commerce websites through other factors, such as trust, enjoyment, or perceived usefulness (Hwang et al. 2014; Kim 2015; Shen 2012a; Zhang et al. 2014). Similar to risk, the factor uncertainty negatively affects the outcome variables. Bai et al. (2015) and Hwang et al. (2014) report 3/3 significant negative effects of uncertainty on the purchase intention/behavior.

Finally, Table 10.4 presents the results of the sign test. We use the sign test to verify whether the reported effects per factor indicate that one direction occurs more frequently than chance would suggest. It helps us to reveal the relative strengths of the effects by comparing the number of positive findings and the overall number of findings. We performed the sign test as recommended by Cooper (1998). For each factor, a z-score (i.e., standard normal deviate) is calculated by using the formula of Cooper (1998, p. 118). The formula is illustrated in Figure 10.2 in the Appendix. Significance levels (i.e., two-tailed p-values) are calculated on the z-scores. As the results of the sign test demonstrate, the factor trust can clearly be considered as an important factor in the consumers' adoption of social commerce as the direction of the reported effects is highly significant ($p<0.001$). Both social influence and social support can also be considered to play a significant role in the consumers' adoption of social commerce (direction of effects is significant at $p<0.01$). Other factors for which the direction of effects is confirmed as statistically significant are usefulness, value, relationship quality, commitment, and satisfaction ($p<0.05$). Factors for which the direction of the effects are not confirmed to be statistically significant are enjoyment, ease of use, attitude, risk, social commerce constructs, familiarity, social presence, and uncertainty. Note that the results of the sign test should be interpreted with caution due to the low number of studies behind most of the factors. This means that the results can change when a new study confirms or disconfirms one or more effects.

Table 10.3 Frequently examined factors and their effects

Trust (n = 20)						
Definition	The confidence a person has in his or her favorable expectations of what another party (e.g., person or company) will do, based, in many cases, on previous interactions (Gefen 2000). Willingness to be vulnerable to another party based on beliefs in ability, benevolence, and integrity (Gefen et al. 2003; McKnight et al. 2002; Pavlou 2003).					
Constructs	Trust, perceived trust, perceived trustworthiness of SNSs, trust in social network community, trust towards community, trust towards members, trust in vendor, company trust, trust in sellers, trust towards website, trust in website, trust in product recommendation, information-based trust, identification-based trust					
Influence on …	*Outcome variable*	*Effect (vote-count)*			*SPV*	*SPF*
		-	*0*	*+*		
	Use intention/behavior		2	8	80% (8/10)	81% (26/32)
	Purchase intention/behavior		1	10	91% (10/11)	
	Continuance intention/behavior			2	100% (2/2)	
	Information sharing intention/behavior		2	5	71% (5/7)	
	Information seeking intention/behavior		1	1	50% (1/2)	
Usefulness (n = 13)						
Definition	The degree to which a person believes that using a particular system (e.g., commercial website) enhances his or her performance (Davis 1989).					
Constructs	Usefulness, perceived usefulness, performance expectancy					
Influence on …	*Outcome variable*	*Effect (vote-count)*			*SPV*	*SPF*
		-	*0*	*+*		
	Use intention/behavior		1	7	88% (7/8)	85% (11/13)
	Purchase intention/behavior			3	100% (3/3)	
	Information sharing intention/behavior		1		0% (0/1)	
	Information disclosure intention/behavior			1	100% (1/1)	
Enjoyment (n = 11)						
Definition	The extent to which the activity of using a particular system (e.g., commercial website) is perceived to be enjoyable (Davis et al. 1992). Conceptually similar to flow (Koufaris 2002), which refers to the holistic sensation that people feel when they act with total involvement (Csikszentmihalyi and Csikszentmihalyi 1988).					
Constructs	Enjoyment, perceived enjoyment, enjoyment of helping, enjoyment in helping others, flow, flow experience					
Influence on …	*Outcome variable*	*Effect (vote-count)*			*SPV*	*SPF*
		-	*0*	*+*		
	Use intention/behavior		1	5	83% (5/6)	75% (9/12)
	Purchase intention/behavior		1	2	67% (2/3)	
	Information sharing intention/behavior		1	1	50% (1/2)	
	Information disclosure intention/behavior			1	100% (1/1)	
Social influence (n = 8)						
Definition	The pressure that an individual perceives from significant others to perform, or not to perform, a certain behavior (Deutsch and Gerard 1955; Rivis and Sheeran 2003).					
Constructs	Social influence, normative social influence, informational social influence, subjective norm, normative belief					
Influence on …	*Outcome variable*	*Effect (vote-count)*			*SPV*	*SPF*
		-	*0*	*+*		
	Use intention/behavior			7	100% (7/7)	92% (11/12)
	Purchase intention/behavior	1		3	75% (3/4)	
	Continuance intention/behavior			1	100% (1/1)	

Table 10.3 Frequently examined factors and their effects (continued)

Social support (n = 8)						
Definition	The degree to which an individual perceives that he or she is of being cared for, being responded to, and being helped by people in that individual's social network (Cobb 1976; Lakey and Cohen 2000).					
Constructs	Social support					
Influence on …	*Outcome variable*	*Effect (vote-count)*			*SPV*	*SPF*
		-	*0*	*+*		
	Use intention/behavior			5	100% (5/5)	100% (9/9)
	Purchase intention/behavior			2	100% (2/2)	
	Continuance intention/behavior			2	100% (2/2)	
Value (n = 8)						
Definition	The consumer's overall assessment of the utility of a product (or service), based on perceptions of what is received and what is given (Zeithaml 1988).					
Constructs	Perceived value, utilitarian value, perceived utilitarian value, product utilitarian value, social value, perceived social value, hedonic value, shopping hedonic value, self-discovery value, informational value					
Influence on …	*Outcome variable*	*Effect (vote-count)*			*SPV*	*SPF*
		-	*0*	*+*		
	Use intention/behavior		1	4	80% (4/5)	81% (13/16)
	Purchase intention/behavior		1	6	86% (6/7)	
	Continuance intention/behavior		1	3	75% (3/4)	
Ease of use (n = 5)						
Definition	The degree to which a person believes that using a particular system (e.g., commercial website) would be free of effort (Davis 1989).					
Constructs	Perceived ease of use, effort expectancy					
Influence on …	*Outcome variable*	*Effect (vote-count)*			*SPV*	*SPF*
		-	*0*	*+*		
	Use intention/behavior		1	3	75% (3/4)	80% (4/5)
	Purchase intention/behavior			1	100% (1/1)	
Relationship quality (n = 5)						
Definition	The overall strength of the relationship between a consumer and a product/service provider (Crosby et al. 1990). Typically considered as a higher-order construct that is composed of trust, commitment, and satisfaction (Hennig-Thurau et al. 2002).					
Constructs	Relationship quality, brand relationship quality					
Influence on …	*Outcome variable*	*Effect (vote-count)*			*SPV*	*SPF*
		-	*0*	*+*		
	Use intention/behavior			3	100% (3/3)	100% (6/6)
	Continuance intention/behavior			2	100% (2/2)	
	Information sharing intention/behavior			1	100% (1/1)	
Attitude (n = 4)						
Definition	The degree to which a person has a favorable or unfavorable evaluation of the behavior in question (Ajzen 1985; Fishbein and Ajzen 1975).					
Constructs	Attitude, attitude towards s-commerce					
Influence on …	*Outcome variable*	*Effect (vote-count)*			*SPV*	*SPF*
		-	*0*	*+*		
	Use intention/behavior		1	2	67% (2/3)	75% (3/4)
	Continuance intention/behavior			1	100% (1/1)	

Table 10.3 Frequently examined factors and their effects (continued)

Risk (n = 4)						
Definition	The consumers' subjective assessment of possible negative consequences that a certain behavior (e.g., a purchase) might produce (Bettman 1973; Cox and Rich 1964).					
Constructs	Perceived risk, perceived privacy risk, perceived commerce risk, assessed usage risk, perceived participation risk					
Influence on …	*Outcome variable*	*Effect (vote-count)*			*SPV*	*SPF*
		-	*0*	*+*		
	Use intention/behavior	2	1		67% (2/3)	80% (4/5)
	Purchase intention/behavior	1			100% (1/1)	
	Information disclosure intention/behavior	1			100% (1/1)	
Commitment (n = 3)						
Definition	The consumer's desire to maintain a valued relationship (Morgan and Shelby 1994).					
Constructs	Commitment, community commitment					
Influence on …	*Outcome variable*	*Effect (vote-count)*			*SPV*	*SPF*
		-	*0*	*+*		
	Use intention/behavior			2	100% (2/2)	100% (4/4)
	Continuance intention/behavior			2	100% (2/2)	
Social commerce constructs (n = 3)						
Definition	Refers to the social features and/or social platforms that enable social commerce (Hajli 2015). Typically conceptualized as a higher-order construct that is composed of the factors ratings and reviews, recommendations and referrals, and forums and communities (Hajli 2012; Hajli 2015; Hajli and Sims 2015).					
Constructs	Social commerce constructs					
Influence on …	*Outcome variable*	*Effect (vote-count)*			*SPV*	*SPF*
		-	*0*	*+*		
	Use intention/behavior			2	100% (2/2)	100% (3/3)
	Purchase intention/behavior			1	100% (1/1)	
Familiarity (n = 2)						
Definition	The knowledge that people have of a product or service on the basis of their experiences and previous contacts (Luhmann 1979). Also considered as the consumer's understanding of a shopping website (Gefen 2000).					
Constructs	Familiarity					
Influence on …	*Outcome variable*	*Effect (vote-count)*			*SPV*	*SPF*
		-	*0*	*+*		
	Use intention/behavior			1	100% (1/1)	50% (1/2)
	Purchase intention/behavior		1		0% (0/1)	
Satisfaction (n = 2)						
Definition	The consumer's overall emotional evaluation of the experiences with a certain product/service provider (Gustafsson et al. 2005).					
Constructs	Customer satisfaction, coupon satisfaction, site satisfaction					
Influence on …	*Outcome variable*	*Effect (vote-count)*			*SPV*	*SPF*
		-	*0*	*+*		
	Continuance intention/behavior			4	100% (4/4)	100% (4/4)

Table 10.3 Frequently examined factors and their effects (continued)

Social presence (n = 2)						
Definition	The degree to which a medium permits users to experience others as psychologically present (Fulk et al. 1987; Short et al. 1976).					
Constructs	Social presence					
Influence on …	*Outcome variable*	*Effect (vote-count)*			*SPV*	*SPF*
		-	*0*	*+*		
	Use intention/behavior		2	1	33% (1/3)	33% (1/3)
Uncertainty (n = 2)						
Definition	The degree to which the future states of the environment (e.g., the outcome of a transaction) cannot be accurately anticipated or predicted by an individual due to imperfect information (Pavlou et al. 2007).					
Constructs	Uncertainty, product uncertainty, seller uncertainty					
Influence on …	*Outcome variable*	*Effect (vote-count)*			*SPV*	*SPF*
		-	*0*	*+*		
	Purchase intention/behavior	3			100% (3/3)	100% (3/3)

Notes: n = number of studies. - = significant negative effect ($p<0.05$); 0 = non-significant effect; + = significant positive effect ($p<0.05$). SPV = summary per variable. SPF = summary per factor.

Table 10.4 Results of sign test

Factor	*N*		*Sign test*		
	Positive	*Total*	*Z-score*	*Sig. value*	*Sig. level*
Trust	26	32	3.5355	0.0004	***
Usefulness	11	13	2.4962	0.0126	*
Enjoyment	9	12	1.7321	0.0833	n.s.
Social influence	11	12	2.8868	0.0039	**
Social support	9	9	3.0000	0.0027	**
Value	13	16	2.5000	0.0124	*
Ease of use	4	5	1.3416	0.1797	n.s.
Relationship quality	6	6	2.4495	0.0143	*
Attitude	3	4	1.0000	0.3173	n.s.
Risk	4	5	1.3416	0.1797	n.s.
Commitment	4	4	2.0000	0.0455	*
Social commerce constructs	3	3	1.7321	0.0833	n.s.
Familiarity	1	2	0.0000	1.0000	n.s.
Satisfaction	4	4	2.0000	0.0455	*
Social presence	1	3	-0.5774	0.5639	n.s.
Uncertainty	3	3	1.7321	0.0833	n.s.

Notes: N = number of reported effects. Sig. = significance. * = $p<0.05$; ** = $p<0.01$; *** = $p<0.001$; n.s. = not significant.

10.5 Discussion

In this section, we discuss the implications and limitations of our study.

10.5.1 Theoretical and Practical Implications

Our results demonstrate that research on the consumers' adoption of social commerce so far has examined a wide range of factors and outcome variables. With respect to the identified outcome variables, different behavioral intentions and/or behaviors have been used in the literature to measure the consumers' adoption of social commerce. However, when examining the consumers' activities in social commerce (Liang and Turban 2011), there is still room for research to explore additional intentions and/or behaviors. For instance, researchers could examine the consumers' intention/behavior to collaborate on social commerce websites or to help and support other consumers (Ickler et al. 2009; Rad and Benyoucef 2010; Saundage and Lee 2011). Furthermore, we did not identify any outcome variables that address the consumers' intention/behavior to sell products on social commerce websites, which is considered as a part of social commerce (Stephen and Toubia 2010; Wang and Zhang 2012). Researchers should be careful when adopting and redefining outcome variables. As our results reveal, several studies define the outcome variables in a different way (e.g., use, participation, or social commerce intention/behavior) but measure these variables with identical items. Researchers should also be careful when grouping different social commerce activities (e.g., requesting and sharing of shopping information) into one variable as these activities might be affected in different ways. Instead, we suggest to separately measure the different consumer intentions/behaviors, such as demonstrated by Farivar et al. (2016), Hsiao et al. (2010), or Horng et al. (2016). In this way, researchers can not only more precisely examine the different consumer intentions/behaviors but also explore the causal relationships between these intentions/behaviors in order to develop a more complete understanding of the consumers' adoption of social commerce.

Referring to the identified factors and their effects, our results show that the effects of some frequently examined factors, such as trust, usefulness, social influence, or social support, point in a clear direction, while the effects of several other frequently examined factors, such as enjoyment, ease of use, risk, or social presence, are yet not clear and require further investigations. Moreover, many factors have only been examined in one study (see Table 10.5, Appendix), which makes it difficult to assess their importance. Consequently, further investigations on these factors are necessary. Besides, researchers should be careful when defining their own factors. In order to facilitate the comparison of the reported results, researchers should refer to established conceptualizations or clearly explain why factors have been conceptualized in different ways. When examining multidimensional constructs, such as trust, researchers should also precisely explain on what dimension(s) they focus, such as trust in the website (Hsiao et al. 2010), trust in the seller (Lu et al. 2016), or trust in the community (Ng 2013). When looking at the frequently examined factors, many effects have not yet been explored, such as the effects of social influence or social support on the information sharing intention/behavior, the effects of usefulness or enjoyment on the continuance intention/behavior, or the effects trust on the information disclosure intention/behavior. Little is also known about the potential effects of the social features that enable social commerce. While the factor social commerce constructs, as suggested by Hajli (2015), is a first step in this direction, it is still not clear how individual social commerce features influence the consumers' intentions/behaviors. Deriving knowledge about

the impacts of these features could support companies to identify and select features that might deliver the highest benefits in a particular scenario (Friedrich et al. 2015).

To better understand the consumers' adoption of social commerce, future research could also compare our results with the e-commerce literature and highlight the differences. For instance, factors such as trust, usefulness, ease of use, or risk have also been frequently examined in the e-commerce literature (Gefen et al. 2003; McKnight et al. 2002; Pavlou 2003; Pavlou and Fygenson 2006). Therefore, it is important for research to explore the specific characteristics of social commerce.

For practice, our results illustrate that a variety of factors influence consumers to participate in social commerce. Practitioners can use our results as a guideline to determine which factors might drive the success of their social commerce initiatives. For instance, if a company wants to stimulate consumers to return to their social commerce website (i.e., continuance intention/behavior), special attention should be given to factors such as social support, value, or relationship quality (Hajli et al. 2015; Liang et al. 2011).

10.5.2 Limitations

This study is subject to several limitations. Referring to our literature search, we only concentrated on academic publications that explicitly mentioned the term social commerce or conceptually similar terms such as social shopping, collaborative shopping, or collaborative commerce. Although we conducted backward and forward searches, the use of additional search terms (e.g., "social media" and "buying" or "social media" and "consumer behavior") might have uncovered additional relevant articles. Moreover, we only focused on academic publications written in English. When identifying the relevant literature, we excluded all studies that did not provide empirical evidence about the effects of the factors.

With respect to the identified factors, we only investigated factors that have been assumed in the literature to have a direct effect on the outcome variables. Antecedents of these factors were excluded, such as the various seller and website characteristics (e.g., reputation, size, transaction safety, communication, etc.) investigated by Kim and Park (2013). Furthermore, we only focused on the effects between the factors and the outcome variables and not on the effects between the factors or between the outcome variables. For instance, our results suggest that social presence might not play an important role in the consumers' adoption of social commerce because 2 of 3 studies reported a non-significant effect. However, when looking at the effects reported in the social commerce literature, evidence is given that social presence can influence the consumers' intentions/behaviors through various other factors, such as trust, enjoyment, or perceived usefulness (Hwang et al. 2014; Kim 2015; Shen 2012a; Zhang et al. 2014). To derive a complete picture of the consumers' adoption of social commerce, it is thus necessary to also investigate the causal relationships between the factors and between the outcome variables.

To synthesize our results, we grouped conceptually similar factors and outcome variables together by carefully examining their definitions and measurement items. However, there might be other ways to classify these variables. The vote-counting technique, which we used to count the effects between the factors and the outcome variables, does not consider differences in the sample sizes, effect sizes, data analysis approaches, or contexts. To overcome some of these shortcomings, we combined the vote-counting results with a sign test. However, more sophisticated meta-analysis techniques could be applied, especially when a larger set of studies is investigated (King and He 2005). Another limitation of this study is that it solely focuses on

consumers. Considering that businesses are a major part of social commerce (Wang and Zhang 2012; Zhou et al. 2013), it would also be interesting to find out what factors influence companies to adopt to social commerce.

10.6 Conclusion

In this study, we examined the factors that influence the consumers' adoption of social commerce. By conducting a systematic literature review, we summarized and synthesized the results of 61 academic publications on social commerce adoption. In particular, we identified and classified conceptually similar factors and outcome variables (i.e., behavioral intentions and/or behaviors). Moreover, we applied a vote-counting technique and a sign test to aggregate the reported effects between the factors and outcome variables. In so doing, we contributed a structured and comprehensive list of factors and their potential effects on various adoption-related outcome variables. Several implications for research and practice were discussed. Main implications for research are: use our list to (1) examine the importance of the factors that have only been examined in one study; (2) verify the consolidated effects of the frequently examined factors and explore new causal relationships; (3) combine the identified factors and outcome variables to develop a more complete understanding of the consumers' adoption of social commerce. By pointing out the limitations of our work, we also highlighted room for future improvements.

The results of our literature review demonstrate that research on social commerce adoption is still at an early stage. To support companies in their social commerce initiatives, it is necessary for research to further explore the factors that drive consumers to participate in social commerce.

10.7 References

Ajzen, I. (1985). From Intentions to Actions: A Theory of Planned Behavior. In: *Action Control - From Cognition to Behavior,* J. Kuhl, & J. Beckmann (Eds.). Heidelberg, Germany: Springer, pp. 11-39.

Anderson, K. C., Knight, D. K., Pookulangara, S., & Josiam, B. (2014). Influence of Hedonic and Utilitarian Motivations on Retailer Loyalty and Purchase Intention: A Facebook Perspective. *Journal of Retailing and Consumer Services*, 21(5), pp. 773-779.

Baethge, C., Klier, J., & Klier, M. (2016). Social Commerce – State-of-the-Art and Future Research Directions. *Electronic Markets*, 26(3), pp. 1-22.

Bai, Y., Yao, Z., & Dou, Y.-F. (2015). Effect of Social Commerce Factors on User Purchase Behavior: An Empirical Investigation from renren.com. *International Journal of Information Management*, 35(5), pp. 538-550.

Bettman, J. R. (1973). Perceived Risk and Its Components: A Model and Empirical Test. *Journal of Marketing Research*, 10(2), pp. 184-190.

Busalim, A. H., & Hussin, A. R. C. (2016). Understanding Social Commerce: A Systematic Literature Review and Directions for Further Research. *International Journal of Information Management*, 36(6), pp. 1075-1088.

Chen, H., Papazafeiropoulou, A., Chen, T.-K., Duan, Y., & Liu, H.-W. (2014). Exploring the Commercial Value of Social Networks. *Journal of Enterprise Information Management*, 27(5), pp. 576-598.

Chen, J., & Shen, X.-L. (2015). Consumers' Decisions in Social Commerce Context: An Empirical Investigation. *Decision Support Systems*, 79, pp. 55-64.

Cheung, C. M., Chan, G. W., & Limayem, M. (2005). A Critical Review of Online Consumer Behavior: Empirical Research. *Journal of Electronic Commerce in Organizations*, 3(4), pp. 1-19.

Cheung, C. M. K., Liu, I. L. B., & Lee, M. K. O. (2015). How Online Social Interactions Influence Customer Information Contribution Behavior in Online Social Shopping Communities: A Social Learning Theory Perspective. *Journal of the Association for Information Science & Technology*, 66(12), pp. 2511-2521.

Cho, Y.-S., Heo, J.-Y., & Youn, M.-K. (2012). Korean Customer Attitudes Towards SNS Shopping. *Journal of Distribution Science*, 10(8), pp. 7-14.

Cobb, S. (1976). Social Support as a Moderator of Life Stress. *Psychosomatic Medicine*, 38(5), pp. 300-314.

Cooper, H. M. (1998). *Synthesizing Research: A Guide for Literature Reviews*, (3rd ed.). Thousand Oaks, USA: Sage Publications.

Cox, D. F., & Rich, S. U. (1964). Perceived Risk and Consumer Decision-Making: The Case of Telephone Shopping. *Journal of Marketing Research*, 1(4), pp. 32-39.

Crosby, L. A., Evans, K. R., & Cowles, D. (1990). Relationship Quality in Services Selling: An Interpersonal Influence Perspective. *The Journal of Marketing*, 54(3), pp. 68-81.

Csikszentmihalyi, M., & Csikszentmihalyi, I. S. (1988). *Optimal Experience: Psychological Studies of Flow in Consciousness*. Cambridge, United Kingdom: Cambridge University Press.

Curty, R., & Zhang, P. (2011). Social Commerce: Looking Back and Forward. *Proceedings of the American Society for Information Science and Technology*, pp. 1-10.

Curty, R., & Zhang, P. (2013). Website Features that Gave Rise to Social Commerce: A Historical Analysis. *Electronic Commerce Research and Applications*, 12(4), pp. 260-279.

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3), pp. 319-340.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Extrinsic and Intrinsic Motivation to Use Computers in the Workplace. *Journal of Applied Social Psychology*, 22(14), pp. 1111-1132.

Dennison, G., Bourdage-Braun, S., & Chetuparambil, M. (2009) Social Commerce Defined. IBM, pp. 1-12.

Deutsch, M., & Gerard, H. B. (1955). A Study of Normative and Informational Social Influences Upon Individual Judgment. *The Journal of Abnormal and Social Psychology*, 51(3), pp. 629-636.

Farivar, S., Yuan, Y., & Turel, O. (2016). Understanding Social Commerce Acceptance: The Role of Trust, Perceived Risk, and Benefit. *Proceedings of the 22nd Americas Conference on Information Systems (AMCIS)*, San Diego, USA, pp. 1-10.

Featherman, M. S., & Hajli, N. (2015). Self-Service Technologies and e-Services Risks in Social Commerce Era. *Journal of Business Ethics*, 2015, pp. 1-19.

Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*. Reading, USA: Addison-Wesley.

Friedrich, T., Overhage, S., Schlauderer, S., & Eggs, H. (2015). Selecting Technologies for Social Commerce: Towards a Systematic Method. *Proceedings of the 23rd European Conference on Information Systems (ECIS)*, Münster, Germany, pp. 1-17.

Fulk, J., Steinfield, C. W., Schmitz, J., & Power, J. G. (1987). A Social Information Processing Model of Media Use in Organizations. *Communication Research*, 14(5), pp. 529-552.

Gamboa, A. M., & Gonçalves, H. M. (2014). Customer Loyalty Through Social Networks: Lessons from Zara on Facebook. *Business Horizons*, 57(6), pp. 709-717.

Gatautis, R., & Medziausiene, A. (2014). Factors Affecting Social Commerce Acceptance in Lithuania. *Procedia - Social and Behavioral Sciences*, 110, pp. 1235-1242.

Gefen, D. (2000). E-Commerce: The Role of Familiarity and Trust. *Omega*, 28(6), pp. 725-737.

Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in Online Shopping: An Integrated Model. *MIS Quarterly*, 27(1), pp. 51-90.

Grandón, E. E., Nasco, S. A., & Mykytyn, P. P. (2011). Comparing Theories to Explain E-Commerce Adoption. *Journal of Business Research*, 64(3), pp. 292-298.

Gustafsson, A., Johnson, M. D., & Roos, I. (2005). The Effects of Customer Satisfaction, Relationship Commitment Dimensions, and Triggers on Customer Retention. *Journal of Marketing*, 69(4), pp. 210-218.

Hajli, M. (2012). Social Commerce: The Role of Trust. *Proceedings of the 18th Americas Conference on Information Systems (AMCIS)*, pp. 1-11.

Hajli, M. (2014a). A Study of the Impact of Social Media on Consumers. *International Journal of Market Research*, 56(3), pp. 387-404.

Hajli, M. N. (2014b). The Role of Social Support on Relationship Quality and Social Commerce. *Technological Forecasting and Social Change*, 87, pp. 17-27.

Hajli, N. (2015). Social Commerce Constructs and Consumer's Intention to Buy. *International Journal of Information Management*, 35(2), pp. 183-191.

Hajli, N., & Lin, X. (2015). Consumer Adoption of Social Commerce. *Proceedings of the 2nd International Conference on HCI in Business (HCIB)*, pp. 279-287.

Hajli, N., Shanmugam, M., Powell, P., & Love, P. E. D. (2015). A Study on the Continuance Participation in On-Line Communities with Social Commerce Perspective. *Technological Forecasting and Social Change*, 96, pp. 232-241.

Hajli, N., & Sims, J. (2015). Social Commerce: The Transfer of Power from Sellers to Buyers. *Technological Forecasting and Social Change*, 94, pp. 350-358.

Hedges, L. V., & Olkin, I. (1980). Vote-Counting Methods in Research Synthesis. *Psychological Bulletin*, 88(2), pp. 359-369.

Hennig-Thurau, T., Gwinner, K. P., & Gremler, D. D. (2002). Understanding Relationship Marketing Outcomes an Integration of Relational Benefits and Relationship Quality. *Journal of Service Research*, 4(3), pp. 230-247.

Horng, S.-M., Wu, C.-L., & Liang, T.-P. (2016). How Behaviors on Social Network Sites and Online Social Capital Influence Social Commerce: The Case of Facebook. *Proceedings of the 20th Pacific Asia Conference on Information Systems (PACIS)*, pp. 1-17.

Hsiao, K. L., Chuan-Chuan Lin, J., Wang, X. Y., Lu, H. P., & Yu, H. (2010). Antecedents and Consequences of Trust in Online Product Recommendations. *Online Information Review*, 34(6), pp. 935-953.

Hu, X., Huang, Q., Zhong, X., Davison, R. M., & Zhao, D. (2016). The Influence of Peer Characteristics and Technical Features of a Social Shopping Website on a Consumer's Purchase Intention. *International Journal of Information Management*, 36(6), pp. 1218-1230.

Huang, L.-T. (2016). Flow and Social Capital Theory in Online Impulse Buying. *Journal of Business Research*, 69(6), pp. 2277-2283.

Huang, Z., & Benyoucef, M. (2013). From E-Commerce to Social Commerce: A Close Look at Design Features. *Electronic Commerce Research and Applications*, 12(4), pp. 246-259.

Hudson, S., Roth, M. S., Madden, T. J., & Hudson, R. (2015). The Effects of Social Media on Emotions, Brand Relationship Quality, and Word of Mouth: An Empirical Study of Music Festival Attendees. *Tourism Management*, 47, pp. 68-76.

Hwang, I. J., Lee, B. G., & Kim, K. Y. (2014). Information Asymmetry, Social Networking Site Word of Mouth, and Mobility Effects on Social Commerce in Korea. *Cyberpsychology Behavior and Social Networking*, 17(2), pp. 117-124.

Ickler, H., Schülke, S., Wilfling, S., & Baumöl, U. (2009). New Challenges in E-Commerce: How Social Commerce Influences the Customer Process. *Proceedings of the 5th National Conference on Computing and Information Technology (NCCIT)*, pp. 51-57.

Jang, H., Ko, I., & Kim, J. (2013). The Effect of Group-Buy Social Commerce and Coupon on Satisfaction and Continuance Intention - Focusing on the Expectation Confirmation Model (ECM). *Proceedings of the 46th Hawaii International Conference on System Sciences (HICSS)*, pp. 2938-2948.

Kang, J.-Y. M., & Johnson, K. K. P. (2013). How Does Social Commerce Work for Apparel Shopping? Apparel Social E-Shopping with Social Network Storefronts. *Journal of Customer Behaviour*, 12(1), pp. 53-72.

Kang, J.-Y. M., & Johnson, K. K. P. (2015). F-Commerce Platform for Apparel Online Social Shopping: Testing a Mowen's 3M Model. *International Journal of Information Management*, 35(6), pp. 691-701.

Kim, J. B. (2015). The Mediating Role of Presence on Consumer Intention to Participate in a Social Commerce Site. *Journal of Internet Commerce*, 14(4), pp. 425-454.

Kim, S.-B., Sun, K.-A., & Kim, D.-Y. (2013a). The Influence of Consumer Value-Based Factors on Attitude-Behavioral Intention in Social Commerce: The Differences Between High- and Low-Technology Experience Groups. *Journal of Travel & Tourism Marketing*, 30(1/2), pp. 108-125.

Kim, S., & Park, H. (2013). Effects of Various Characteristics of Social Commerce (S-Commerce) on Consumers' Trust and Trust Performance. *International Journal of Information Management*, 33(2), pp. 318-332.

Kim, Y., Lim, K., & Jung, N. (2013b). A Social Commerce Customers' Price Fairness Perception Affects Their Repurchase Intention. *Proceedings of the 15th International Conference on Advanced Communication Technology (ICACT)*, pp. 1042-1048.

King, W. R., & He, J. (2005). Understanding the Role and Methods of Meta-Analysis in Is Research. *Communications of the Association for Information Systems*, 16(1), pp. 665-686.

Koufaris, M. (2002). Applying the Technology Acceptance Model and Flow Theory to Online Consumer Behavior. *Information Systems Research*, 13(2), pp. 205-223.

Kwahk, K.-Y., & Ge, X. (2012). The Effects of Social Media on E-Commerce: A Perspective of Social Impact Theory. *Proceedings of the 45th Hawaii International Conference on System Sciences (HICSS),* R. H. Sprague (Ed.), pp. 1814-1823.

Lakey, B., & Cohen, S. (2000). Social Support Theory and Measurement. In: *Measuring and Intervening in Social Support,* S. Cohen, L. G. Underwood, & B. H. Gottlieb (Eds.). New York, USA: Oxford University Press, pp. 29-52.

Lee, J., Cha, M. S., & Cho, C. (2012). Online Service Quality in Social Commerce Websites. In: *Contemporary Research on E-Business Technology and Strategy,* V. Khachidze, T. Wang, S. Siddiqui, V. Liu, S. Cappuccio, & A. Lim (Eds.). Heidelberg, Germany: Springer, pp. 335-351.

Leitner, P., & Grechenig, T. (2007a). Community Driven Commerce: Design of an Integrated Framework for Social Shopping. *Proceedings of the International Conference E-Commerce (IADIS)*, pp. 353-356.

Leitner, P., & Grechenig, T. (2007b). Next Generation Shopping: Case Study Research on Future E-Commerce Models. *Proceedings of the International Conference E-Commerce (IADIS)*, pp. 312-316.

Li, H., Yao, Z., & Bai, Y. (2014). Social Commerce User Purchase Intention Study: What Factors Are Taking Effect? *Proceedings of the 18th Pacific Asia Conference on Information Systems (PACIS)*, pp. 1-13.

Liang, T.-P., Ho, Y.-T., Li, Y.-W., & Turban, E. (2011). What Drives Social Commerce: The Role of Social Support and Relationship Quality. *International Journal of Electronic Commerce*, 16(2), pp. 69-90.

Liang, T.-P., & Turban, E. (2011). Introduction to the Special Issue Social Commerce: A Research Framework for Social Commerce. *International Journal of Electronic Commerce*, 16(2), pp. 5-14.

Light, R. J., & Smith, P. V. (1971). Accumulating Evidence: Procedures for Resolving Contradictions Among Different Research Studies. *Harvard Educational Review*, 41(4), pp. 429-471.

Liu, H., Chu, H., Huang, Q., & Chen, X. (2016a). Enhancing the Flow Experience of Consumers in China Through Interpersonal Interaction in Social Commerce. *Computers in Human Behavior*, 58, pp. 306-314.

Liu, I. L. B., Cheung, C. M. K., & Lee, M. K. O. (2013). Customer Information Sharing Behavior in Social Shopping Communities: A Social Capital Perspective. *Proceedings of the 17th Pacific Asia Conference on Information Systems (PACIS)*, pp. 1-13.

Liu, L., Cheung, C. M. K., & Lee, M. K. O. (2016b). An Empirical Investigation of Information Sharing Behavior on Social Commerce Sites. *International Journal of Information Management*, 36(5), pp. 686-699.

Liu, L., Yin, C., & Yang, J. (2014). Understanding User Intention to Share Information in Online Social Shopping Communities: The Moderating Effect of Community Equity. *Proceedings of the 18th Pacific Asia Conference on Information Systems (PACIS)*, pp. 1-15.

Lu, B., Fan, W., & Zhou, M. (2016). Social Presence, Trust, and Social Commerce Purchase Intention: An Empirical Research. *Computers in Human Behavior*, 56, pp. 225-237.

Luhmann, N. (1979). *Trust and Power*. Chichester, United Kingdom: Wiley.

McKnight, D. H., Choudhury, V., & Kacmar, C. (2002). Developing and Validating Trust Measures for E-Commerce: An Integrative Typology. *Information Systems Research*, 13(3), pp. 334-359.

Morgan, R. M., & Shelby, D. H. (1994). The Commitment-Trust Theory of Relationship Marketing. *Journal of Marketing*, 58(3), pp. 20-38.

Ng, C. S.-P. (2013). Intention to Purchase on Social Commerce Websites Across Cultures: A Cross-Regional Study. *Information & Management*, 50(8), pp. 609-620.

Noh, M., Lee, K., Kim, S., & Garrison, G. (2013). Effects of Collectivism on Actual S-Commerce Use and the Moderating Effect of Price Consciousness. *Journal of Electronic Commerce Research*, 14(3), pp. 244-260.

Olbrich, R., & Holsing, C. (2011). Modeling Consumer Purchasing Behavior in Social Shopping Communities with Clickstream Data. *International Journal of Electronic Commerce*, 16(2), pp. 15-40.

Park, M.-S., Shin, J.-K., & Ju, Y. (2014). The Effect of Online Social Network Characteristics on Consumer Purchasing Intention of Social Deals. *Global Economic Review*, 43(1), pp. 25-41.

Pavlou, P. A. (2003). Consumer Acceptance of Electronic Commerce: Integrating Trust and Risk with the Technology Acceptance Model. *International Journal of Electronic Commerce*, 7(3), pp. 101-134.

Pavlou, P. A., & Fygenson, M. (2006). Understanding and Predicting Electronic Commerce Adoption: An Extension of the Theory of Planned Behavior. *MIS Quarterly*, 30(1), pp. 115-143.

Pavlou, P. A., Liang, H., & Xue, Y. (2007). Understanding and Mitigating Uncertainty in Online Exchange Relationships: A Principal-Agent Perspective. *MIS Quarterly*, 31(1), pp. 105-136.

Pöyry, E., Parvinen, P., & Malmivaara, T. (2013). Can We Get from Liking to Buying? Behavioral Differences in Hedonic and Utilitarian Facebook Usage. *Electronic Commerce Research and Applications*, 12(4), pp. 224-235.

Qin, L., & Kong, S. (2015). Perceived Helpfulness, Perceived Trustworthiness, and Their Impact upon Social Commerce Users' Intention to Seek Shopping Recommendations. *Journal of Internet Commerce*, 14(4), pp. 492-508.

Rad, A. A., & Benyoucef, M. (2010). A Model for Understanding Social Commerce. *Proceedings of the 3rd Annual Conference on Information Systems Applied Research*, pp. 1-11.

Rivis, A., & Sheeran, P. (2003). Social Influences and the Theory of Planned Behaviour: Evidence for a Direct Relationship Between Prototypes and Young People's Exercise Behaviour. *Psychology & Health*, 18(5), pp. 567-583.

Ruan, Y., Li, Q., & Xu, X. (2016). What Makes Social Shopping?: Re-Examining the Effects of Multi-Attributes Utility, Trust and Relationship on Social Shopping Intention. *Proceedings of the 18th Annual International Conference on Electronic Commerce*, pp. 1-8.

Saundage, D., & Lee, C. Y. (2011). Social Commerce Activities – A Taxonomy. *Proceedings of the Australiasian Conference on Information Systems (ACIS),* P. Seltsikas, D. Bunker, L. Dawson, & M. Indulska (Eds.), pp. 1-9.

Sharma, S., & Crossler, R. E. (2014a). Disclosing Too Much? Situational Factors Affecting Information Disclosure in Social Commerce Environment. *Electronic Commerce Research and Applications*, 13(5), pp. 305-319.

Sharma, S., & Crossler, R. E. (2014b). Intention to Engage in Social Commerce: Uses and Gratifications Approach. *Proceedings of the 20th Americas Conference on Information Systems (AMCIS)*, pp. 1-12.

Shen, J. (2012a). Social Comparison, Social Presence, and Enjoyment in the Acceptance of Social Shopping Websites. *Journal of Electronic Commerce Research*, 13(3), pp. 198-212.

Shen, J. (2012b). Understanding User's Acceptance of Social Shopping Websites: Effects of Social Comparison and Trust. In: *Enterprise Information Systems,* R. Zhang, J. Zhang, Z. Zhang, J. Filipe, & J. Cordeiro (Eds.). Heidelberg, Germany: Springer, pp. 365-373.

Shi, S., & Chow, W. S. (2015). Trust Development and Transfer in Social Commerce: Prior Experience as Moderator. *Industrial Management & Data Systems*, 115(7), pp. 1182-1203.

Shin, D.-H. (2013). User Experience in Social Commerce: In Friends We Trust. *Behaviour & Information Technology*, 32(1), pp. 52-67.

Short, J., Williams, E., & Christie, B. (1976). *The Social Psychology of Telecommunications*. London, United Kingdom: Wiley.

Song, H. G., Chung, N., & Koo, C. (2015). Impulsive Buying Behavior of Restaurant Products in Social Commerce: A Role of Serendipity and Scarcity Message. *Proceedings of the 19th Pacific Asia Conference on Information Systems (PACIS)*, pp. 1-14.

Stephen, A. T., & Toubia, O. (2010). Deriving Value from Social Commerce Networks. *Journal of Marketing Research*, 47(2), pp. 215-228.

Sun, Y., Wei, K. K., Fan, C. B., Lu, Y. B., & Gupta, S. (2016). Does Social Climate Matter? On Friendship Groups in Social Commerce. *Electronic Commerce Research and Applications*, 18, pp. 37-47.

Teh, P.-L., & Ahmed, P. K. (2011). MOA and TRA in Social Commerce: An Integrated Model. *Proceedings of the IEEE International Conference on Industrial Engineering and Engineering Management (IEEM)*, pp. 1375-1379.

Teh, P.-L., & Ahmed, P. K. (2012). Understanding Social Commerce Adoption: An Extension of the Technology Acceptance Model. *Proceedings of the International Conference on Management of Innovation and Technology (ICMIT)*, pp. 359-364.

Turban, E., Bolloju, N., & Liang, T.-P. (2010). Social Commerce: An E-Commerce Perspective. *Proceedings of the 12th International Conference on Electronic Commerce (ICEC),* T. Bui (Ed.), pp. 33-42.

Venkatesh, V., Morris, M. G., Gordon, B. D., & Davis, F. D. (2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, 27(3), pp. 425-478.

Wang, C., & Zhang, P. (2012). The Evolution of Social Commerce: The People, Management, Technology, and Information Dimensions. *Communications of the Association for Information Systems*, 31(5), pp. 105-127.

Wang, Y., & Hajli, M. (2014). Co-Creation in Branding Through Social Commerce: The Role of Social Support, Relationship Quality and Privacy Concerns. *Proceedings of the 20th Americas Conference on Information Systems (AMCIS)*, pp. 1-16.

Wang, Y., & Yu, C. (2017). Social Interaction-Based Consumer Decision-Making Model in Social Commerce: The Role of Word of Mouth and Observational Learning. *International Journal of Information Management*, 37(3), pp. 179-189.

Webster, J., & Watson, R. T. (2002). Analyzing the Past to Prepare for the Future: Writing a Literature Review. *MIS Quarterly*, 26(2), pp. xiii-xxiii.

Xi, H., Hong, Z., Jianshan, S., Li, X., Jiuchang, W., & Davison, R. (2016). Impulsive Purchase Behaviour in Social Commerce: The Role of Social Influence. *Proceedings of the 20th Pacific Asia Conference on Information Systems (PACIS)*, pp. 1-18.

Xiang, L., Zheng, X. B., Lee, M. K. O., & Zhao, D. T. (2016). Exploring Consumers' Impulse Buying Behavior on Social Commerce Platform: The Role of Parasocial Interaction. *International Journal of Information Management*, 36(3), pp. 333-347.

Zeithaml, V. A. (1988). Consumer Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence. *Journal of Marketing*, 52(3), pp. 2-22.

Zhang, H., Lu, Y., Gupta, S., & Zhao, L. (2014). What Motivates Customers to Participate in Social Commerce? The Impact of Technological Environments and Virtual Customer Experiences. *Information & Management*, 51(8), pp. 1017-1030.

Zhang, K. Z. K., & Benyoucef, M. (2016). Consumer Behavior in Social Commerce: A Literature Review. *Decision Support Systems*, 86, pp. 95-108.

Zhang, K. Z. K., Benyoucef, M., & Zhao, S. J. (2015). Consumer Participation and Gender Differences on Companies' Microblogs: A Brand Attachment Process Perspective. *Computers in Human Behavior*, 44, pp. 357-368.

Zhang, K. Z. K., Benyoucef, M., & Zhao, S. J. (2016). Building Brand Loyalty in Social Commerce: The Case of Brand Microblogs. *Electronic Commerce Research and Applications*, 15, pp. 14-25.

Zhou, L., Zhang, P., & Zimmermann, H.-D. (2013). Social Commerce Research: An Integrated View. *Electronic Commerce Research and Applications*, 12(2), pp. 61-68.

10.8 Appendix

Table 10.5 Detailed results of literature review

Constructs	*Impact*			*Study*
	-	*0*	*+*	
Trust (n = 20)				
Outcome variable: Use intention/behavior				
Trust		n.s.		(Shen 2012b)
Trust			+***	(Teh and Ahmed 2012)
Trust			+***	(Zhang et al. 2015)
Perceived trust			+**	(Shin 2013)
Trust towards community			+***	(Chen and Shen 2015)
Trust towards members			+***	(Chen and Shen 2015)
Perceived trustworthiness of SNSs			+***	(Kang and Johnson 2013)
Trust in vendor			+*	(Ruan et al. 2016)
Trust towards website			+*	(Farivar et al. 2016)
Trust towards members		n.s.		(Farivar et al. 2016)
Outcome variable: Purchase intention/behavior				
Trust			+*	(Hajli 2012)
Trust			+*	(Hajli 2014a)
Trust			+***	(Hajli 2015)
Trust			+*	(Hajli and Lin 2015)
Trust			+**	(Kim and Park 2013)
Trust towards members		n.s.		(Farivar et al. 2016)
Trust towards website			+**	(Farivar et al. 2016)
Trust in website			+**	(Hsiao et al. 2010)
Trust in product recommendation			+***	(Hsiao et al. 2010)
Trust in sellers			+**	(Lu et al. 2016)
Trust in social network community			+***	(Ng 2013)
Outcome variable: Continuance intention/behavior				
Trust			+*	(Gamboa and Gonçalves 2014)
Trust			+*	(Gamboa and Gonçalves 2014)
Outcome variable: Information sharing intention/behavior				
Trust			+**	(Kim and Park 2013)
Trust			+***	(Liu et al. 2013)
Trust towards community			+***	(Chen and Shen 2015)
Trust towards members		n.s.		(Chen and Shen 2015)
Company trust			+**	(Shi and Chow 2015)
Information-based trust		n.s.		(Shi and Chow 2015)
Identification-based trust			+**	(Shi and Chow 2015)
Outcome variable: Information seeking intention/behavior				
Perceived trustworthiness of social commerce site			+**	(Qin and Kong 2015)
Perceived trustworthiness of other users' competence		n.s.		(Qin and Kong 2015)
Usefulness (n = 13)				
Outcome variable: Use intention/behavior				
Usefulness			+**	(Kim 2015)
Perceived usefulness			+***	(Featherman and Hajli 2015)

Table 10.5 Detailed results of literature review (continued)

Constructs	*Impact*			*Study*
	-	*0*	*+*	
Perceived usefulness			+**	(Noh et al. 2013)
Perceived usefulness			+***	(Shen 2012a)
Perceived usefulness			+***	(Shen 2012b)
Perceived usefulness			+**	(Shin 2013)
Perceived usefulness		n.s.		(Teh and Ahmed 2012)
Performance expectancy			+*	(Gatautis and Medziausiene 2014)
Outcome variable: Purchase intention/behavior				
Perceived usefulness			+*	(Hajli 2012)
Perceived usefulness			+**	(Hajli 2014a)
Perceived usefulness			+*	(Hajli and Lin 2015)
Outcome variable: Information sharing intention/behavior				
Perceived usefulness		n.s.		(Chen et al. 2014)
Outcome variable: Information disclosure intention/behavior				
Perceived usefulness			+***	(Sharma and Crossler 2014a)
Enjoyment (n = 11)				
Outcome variable: Use intention/behavior				
Enjoyment			+**	(Kim 2015)
Perceived enjoyment		n.s.		(Sharma and Crossler 2014b)
Perceived enjoyment			+**	(Shen 2012a)
Perceived enjoyment			+*	(Shin 2013)
Flow			+*	(Zhang et al. 2014)
Flow			+*	(Zhang et al. 2014)
Outcome variable: Purchase intention/behavior				
Perceived enjoyment		n.s.		(Song et al. 2015)
Perceived enjoyment			+*	(Xiang et al. 2016)
Flow experience			+***	(Liu et al. 2016a)
Outcome variable: Information sharing intention/behavior				
Enjoyment of helping		n.s.		(Liu et al. 2016b)
Enjoyment in helping others			+***	(Liu et al. 2014)
Outcome variable: Information disclosure intention/behavior				
Perceived enjoyment			+**	(Sharma and Crossler 2014a)
Social influence (n = 8)				
Outcome variable: Use intention/behavior				
Social influence			+**	(Gatautis and Medziausiene 2014)
Subjective norm			+***	(Featherman and Hajli 2015)
Subjective norm			+***	(Sharma and Crossler 2014b)
Subjective norm			+**	(Shin 2013)
Normative social influence			+**	(Kwahk and Ge 2012)
Informational social influence			+**	(Kwahk and Ge 2012)
Normative belief			+***	(Teh and Ahmed 2011)
Outcome variable: Purchase intention/behavior				
Normative social influence	-**			(Kwahk and Ge 2012)
Informational social influence			+**	(Kwahk and Ge 2012)
Normative social influence			+**	(Xi et al. 2016)
Informational social influence			+*	(Xi et al. 2016)
Outcome variable: Continuance intention/behavior				
Subjective norms			+***	(Hajli et al. 2015)

Table 10.5 Detailed results of literature review (continued)

Constructs	*Impact*			*Study*
	-	*0*	*+*	
Social support (n = 8)				
Outcome variable: Use intention/behavior				
Social support			+**	(Hajli 2014b)
Social support			+*	(Hajli and Sims 2015)
Social support			+***	(Liang et al. 2011)
Social support			+***	(Zhang et al. 2014)
Social support			+***	(Zhang et al. 2014)
Perceived social support			+**	(Shin 2013)
Outcome variable: Purchase intention/behavior				
Social support			+***	(Bai et al. 2015)
Social support			+*	(Li et al. 2014)
Outcome variable: Continuance intention/behavior				
Social support			+**	(Hajli et al. 2015)
Social support			+**	(Liang et al. 2011)
Value (n = 8)				
Outcome variable: Use intention/behavior				
Hedonic value			+*	(Kim et al. 2013a)
Social value			+*	(Kim et al. 2013a)
Utilitarian value		n.s.		(Kim et al. 2013a)
Product utilitarian value			+***	(Ruan et al. 2016)
Shopping hedonic value			+**	(Ruan et al. 2016)
Outcome variable: Purchase intention/behavior				
Perceived value			+***	(Cho et al. 2012)
Perceived utilitarian value			+**	(Hu et al. 2016)
Perceived social value			+**	(Hu et al. 2016)
Hedonic value			+*	(Sun et al. 2016)
Social value			+**	(Sun et al. 2016)
Self-discovery value			+***	(Sun et al. 2016)
Informational value		n.s.		(Sun et al. 2016)
Outcome variable: Continuance intention/behavior				
Perceived value			+***	(Hajli et al. 2015)
Perceived value			+***	(Lee et al. 2012)
Perceived value			+*	(Gamboa and Gonçalves 2014)
Perceived value		n.s.		(Gamboa and Gonçalves 2014)
Ease of use (n = 5)				
Outcome variable: Use intention/behavior				
Perceived ease of use			+***	(Featherman and Hajli 2015)
Perceived ease of use			+**	(Noh et al. 2013)
Perceived ease of use		n.s.		(Teh and Ahmed 2012)
Effort expectancy			+**	(Gatautis and Medziausiene 2014)
Outcome variable: Purchase intention/behavior				
Perceived ease of use			+*	(Hajli and Lin 2015)
Relationship quality (n = 5)				
Outcome variable: Use intention/behavior				
Relationship quality			+**	(Hajli 2014b)
Relationship quality			+*	(Liang et al. 2011)
Relationship quality			+***	(Wang and Hajli 2014)

Table 10.5 Detailed results of literature review (continued)

Constructs	*Impact*			*Study*
	-	*0*	*+*	
Outcome variable: Continuance intention/behavior				
Relationship quality			+***	(Liang et al. 2011)
Relationship quality			+***	(Zhang et al. 2016)
Outcome variable: Information sharing intention/behavior				
Brand relationship quality			+***	(Hudson et al. 2015)
Attitude (n = 4)				
Outcome variable: Use intention/behavior				
Attitude			+***	(Kim et al. 2013a)
Attitude			+**	(Shin 2013)
Attitude towards s-commerce		n.s.		(Teh and Ahmed 2011)
Outcome variable: Continuance intention/behavior				
Attitude			+***	(Hajli et al. 2015)
Risk (n = 4)				
Outcome variable: Use intention/behavior				
Assessed usage risk	-**			(Featherman and Hajli 2015)
Perceived risk		n.s.		(Ruan et al. 2016)
Perceived participation risk	-***			(Farivar et al. 2016)
Outcome variable: Purchase intention/behavior				
Perceived commerce risk	-***			(Farivar et al. 2016)
Outcome variable: Information disclosure intention/behavior				
Perceived privacy risk	-***			(Sharma and Crossler 2014a)
Commitment (n = 3)				
Outcome variable: Use intention/behavior				
Commitment			+***	(Zhang et al. 2015)
Community commitment			+*	(Chen and Shen 2015)
Outcome variable: Continuance intention/behavior				
Commitment			+*	(Gamboa and Gonçalves 2014)
Commitment			+*	(Gamboa and Gonçalves 2014)
Social commerce constructs (n = 3)				
Outcome variable: Use intention/behavior				
Social commerce constructs			+***	(Hajli and Sims 2015)
Social commerce constructs			+**	(Wang and Hajli 2014)
Outcome variable: Purchase intention/behavior				
Social commerce constructs			+***	(Hajli 2015)
Familiarity (n = 2)				
Outcome variable: Use intention/behavior				
Familiarity			+***	(Sharma and Crossler 2014b)
Outcome variable: Purchase intention/behavior				
Familiarity		n.s.		(Ng 2013)
Satisfaction (n = 2)				
Outcome variable: Continuance intention/behavior				
Customer satisfaction			+*	(Gamboa and Gonçalves 2014)
Customer satisfaction			+*	(Gamboa and Gonçalves 2014)
Site satisfaction			+**	(Jang et al. 2013)
Coupon satisfaction			+**	(Jang et al. 2013)

Table 10.5 Detailed results of literature review (continued)

Constructs	*Impact*			*Study*
	-	*0*	*+*	
Social presence (n = 2)				
Outcome variable: Use intention/behavior				
Social presence		n.s.		(Sharma and Crossler 2014b)
Social presence		n.s.		(Zhang et al. 2014)
Social presence			+**	(Zhang et al. 2014)
Uncertainty (n = 2)				
Outcome variable: Purchase intention/behavior				
Uncertainty	-***			(Hwang et al. 2014)
Product uncertainty	-*			(Bai et al. 2015)
Seller uncertainty	-**			(Bai et al. 2015)
Others (n = 1)				
Outcome variable: Use intention/behavior				
Ability			+*	(Teh and Ahmed 2011)
Conformity motivation			+***	(Kang and Johnson 2013)
Consumer self-confidence		n.s.		(Kang and Johnson 2013)
Cool & new trend			+***	(Sharma and Crossler 2014b)
Facilitating conditions			+*	(Gatautis and Medziausiene 2014)
Information quality			+***	(Sharma and Crossler 2014b)
Information-seeking gratification			+***	(Kang and Johnson 2015)
Market mavenism			+***	(Kang and Johnson 2015)
Motivation			+**	(Teh and Ahmed 2011)
Online bonding social capital			+***	(Horng et al. 2016)
Online bridging social capital			+***	(Horng et al. 2016)
Opinion seeking in SNSs			+***	(Kang and Johnson 2013)
Opportunity		n.s.		(Teh and Ahmed 2011)
Perceived participation benefit			+***	(Farivar et al. 2016)
Reciprocal altruism			+**	(Ruan et al. 2016)
Search costs	-*			(Ruan et al. 2016)
Service quality			+**	(Ruan et al. 2016)
Sociability		n.s.		(Kang and Johnson 2013)
Social browsing			+*	(Kang and Johnson 2015)
Socializing gratification			+***	(Kang and Johnson 2015)
Value consciousness			+***	(Kang and Johnson 2015)
Website quality			+***	(Liang et al. 2011)
Outcome variable: Purchase intention/behavior				
Affective involvement			+**	(Park et al. 2014)
Bargain percept		n.s.		(Anderson et al. 2014)
Browsing activities			+*	(Huang 2016)
Closeness		n.s.		(Ng 2013)
Cognitive involvement			+*	(Park et al. 2014)
Consumer knowledge	-*			(Li et al. 2014)
Discounted price		n.s.		(Song et al. 2015)
Experiential shopping		n.s.		(Anderson et al. 2014)
Information access		n.s.		(Anderson et al. 2014)
Learning and training			+*	(Hajli and Lin 2015)
Negative valence WOM	-***			(Wang and Yu 2017)
Observe consumer purchase			+*	(Wang and Yu 2017)

Table 10.5 Detailed results of literature review (continued)

Constructs	*Impact*			*Study*
	-	*0*	*+*	
Parasocial interaction			+***	(Xiang et al. 2016)
Peer communication			+*	(Huang 2016)
Positive valence WOM			+**	(Wang and Yu 2017)
Scarcity			+**	(Song et al. 2015)
Serendipitous information			+*	(Song et al. 2015)
Social commerce cognition			+*	(Li et al. 2014)
Time savings			+*	(Anderson et al. 2014)
WOM content			+***	(Wang and Yu 2017)
Outcome variable: Continuance intention/behavior				
Bargain percept		n.s.		(Anderson et al. 2014)
Brand experience			+***	(Chen et al. 2014)
Contact		n.s.		(Lee et al. 2012)
Efficiency			+**	(Lee et al. 2012)
Experiential shopping			+*	(Anderson et al. 2014)
Fulfillment			+***	(Lee et al. 2012)
Information access			+*	(Anderson et al. 2014)
Perceived behavioral control			+*	(Hajli et al. 2015)
Price fairness perception			+*	(Kim et al. 2013b)
Privacy			+***	(Lee et al. 2012)
Responsiveness			+***	(Lee et al. 2012)
Time savings		n.s.		(Anderson et al. 2014)
Website quality			+*	(Liang et al. 2011)
Outcome variable: Information sharing intention/behavior				
Anticipated extrinsic rewards			+***	(Liu et al. 2014)
Anticipated reciprocal relationships			+**	(Liu et al. 2014)
Customer expertise			+***	(Liu et al. 2016b)
Emotional attachment			+***	(Hudson et al. 2015)
Identification		n.s.		(Liu et al. 2013)
Indegree centrality			+*	(Liu et al. 2013)
In-degree's feedback			+***	(Liu et al. 2016b)
Knowledge self-efficacy			+***	(Liu et al. 2014)
Outdegree centrality			+*	Liu et al. 2013)
Out-degrees' post			+***	(Liu et al. 2016b)
Peer members' postings			+***	(Cheung et al. 2015)
Peer members' recommendations			+***	(Cheung et al. 2015)
Reciprocity			+***	(Liu et al. 2016b)
Reputation			+*	(Liu et al. 2016b)
Shared language			+***	(Liu et al. 2013)
Shared vision			+*	(Liu et al. 2013)
Outcome variable: Information seeking intention/behavior				
Perceived helpfulness			+**	(Qin and Kong 2015)
Outcome variable: Information disclosure intention/behavior				
Perceived ownership		n.s.		(Sharma and Crossler 2014a)
Privacy apathy			+***	(Sharma and Crossler 2014a)

Notes: n = number of studies. - = significant negative effect; 0 = non-significant effect / n.s. = not significant; + = significant positive effect. Significance levels: * = $p<0.05$; ** = $p<0.01$; *** = $p<0.001$.

$$Z_{VC} = \frac{(N_P) - (\frac{1}{2}N)}{\frac{1}{2}\sqrt{N}}$$

Z_{VC} = z-score (i.e., standard normal deviate)

N_P = number of positive findings (i.e., findings that are assumed and confirmed to be statistically significant)

N = total number of findings (i.e., total number of significant and non-significant findings)

Figure 10.2 Formula of sign test (Cooper 1998, p. 118)

Part 2

Effects of Social Commerce Features and Their Effective Combination

11 Paper II: Integrated Research Model to Study the Effects of Social Commerce Features

Table 11.1 Fact sheet Paper II

Fact	*Description*
Title	Unveiling the Impacts of Social Commerce Features – An Integrated Research Model
Authors	Thomas Friedrich[1] thomas.friedrich@uni-bamberg.de Sven Overhage[1] sven.overhage@uni-bamberg.de Sebastian Schlauderer[1] sebastian.schlauderer@uni-bamberg.de [1] University of Bamberg An der Weberei 5 96047 Bamberg, Germany
Publication type	Conference Proceedings
Publication outlet	European Conference on Information Systems (ECIS)
Status	Published
Full citation	Friedrich, T., Overhage, S., & Schlauderer, S. (2016). Unveiling the Impacts of Social Commerce Features – An Integrated Research Model. *Proceedings of the 24th European Conference on Information Systems (ECIS)*, Istanbul, Turkey, pp. 1-12.
URL	https://aisel.aisnet.org/ecis2016_rip/65/

Unveiling the Impacts of Social Commerce Features – An Integrated Research Model

Abstract. Social commerce, the application of social media to support e-commerce transactions, is becoming a lucrative means for e-commerce companies to increase their sales volumes. To achieve this goal, companies today can extend their e-commerce websites with a wide range of diverse social commerce features. Hence, knowledge is required how the integration of certain social commerce features stimulates consumers to adopt social commerce websites and which features might deliver the highest benefits in a particular scenario. However, current literature provides little insight about how concrete social commerce features influence the consumers' willingness to adopt social commerce websites. To contribute to the closure of this research gap, we propose a research model that allows evaluating the impacts of social commerce features on the consumers' adoption of social commerce websites in a systematic, comparable manner. Therefore, the research model integrates several adoption factors, taking into account utilitarian, hedonic, relational, and social determinants. We also describe how the hypotheses contained in our research model can be evaluated in an experimental setting. In so doing, we expect our research to contribute to achieving a better understanding of how certain social commerce features can improve the design of social commerce websites.

Keywords: Social Commerce, social media, website features, consumer adoption behavior

11.1 Introduction

Social commerce initiatives are becoming an increasingly lucrative means for e-commerce companies to increase their sales volumes by delivering customers a more interactive shopping experience (Zhou et al. 2013). Through the integration of social media into e-commerce platforms, social commerce enables consumers to actively participate, interact, and communicate during the online buying process (Wang and Zhang 2012). Actively involving consumers into the buying process can deliver various benefits (Turban et al. 2010). To increase the confidence in the offered products and/or their sellers, consumers can, for instance, be stimulated to exchange product-related information or to get advice from trusted peers (Curty and Zhang 2011). Depending on the aspired benefits, there exists a wide range of social commerce features – i.e. social media applications – that can be integrated into an e-commerce website, among them rating and review tools, share and like buttons, social wish lists, social login buttons, activity feeds, and many others (Curty and Zhang 2013; Huang et al. 2012). Scientific findings indicate that the features of a website in general can have a significant effect on the consumers' perception of factors such as usefulness, enjoyment, social presence, or trust (Hassanein and Head 2007; Karimov et al. 2011; Parboteeah et al. 2009). It is hence important to understand how the integration of social commerce features into an e-commerce website influences the consumers' adoption behavior and which features deliver the highest benefits in a particular scenario (Huang and Benyoucef 2013a).

Despite existing calls to explore the impacts of social commerce features more systematically (Huang et al. 2012; Turban et al. 2010), scientific findings are still sporadic and often inconclusive. Research on social commerce rather appears to be focused on the theoretical foundations and its historical evolution (Wang and Zhang 2012; Zhou et al. 2013). In addition, several studies have investigated which factors might affect the consumers' adoption of social commerce

websites (Chen et al. 2014; Hsiao et al. 2010; Kwahk and Ge 2012; Liang et al. 2011; Shen 2012). While various factors, such as perceived usefulness, perceived ease of use, perceived enjoyment, trust, commitment, satisfaction, social presence, social support, or social influence, were identified to be potentially relevant, the relationship between the social commerce features integrated into a website and the perception of these factors has not been investigated systematically yet. Hence, it remains unclear to what extent the presence of social commerce features might affect the consumers' perception of such factors. To address this research gap, we develop a research model that allows evaluating how specific social commerce features influence the consumers' adoption of social commerce websites. In particular, we study the following research questions: *How do social commerce features affect the perception of factors that influence the consumers' adoption of social commerce websites? How can the impacts of social commerce features systematically be evaluated?* To achieve this goal, the developed research model takes into account and integrates several adoption factors that we systematically derived from literature. The research model serves as a conceptual framework to study the impacts of certain social commerce features on the consumers' adoption of social commerce websites in a systematic, i.e. differentiated and comparable manner.

The remainder of the paper is organized as follows: in section 11.2, we define basic terms and discuss related approaches. In section 11.3, we develop our research model and hypotheses. In section 11.4, we propose an approach to evaluate the impacts of social commerce features based on the presented research model. In section 11.5, we discuss the limitations and expected implications of our work.

11.2 Theoretical Background

11.2.1 Social Commerce and Social Commerce Features

With its characteristic combination of economic, social, and technological aspects, social commerce has drawn attention from different research disciplines such as information systems, marketing, or sociology (Zhou et al. 2013). As a consequence, current literature provides a variety of social commerce definitions (a collection of definitions can be found in Wang and Zhang 2012). In this study, we follow the definition of Liang and Turban (2011, p. 6) who define social commerce as a "subset of e-commerce that involves using social media to assist in e-commerce transactions and activities".

Commonly, technical website features are considered as a key enabler and driver of social commerce (Curty and Zhang 2011; Curty and Zhang 2013; Huang and Benyoucef 2013b; Huang et al. 2012). In line with the literature, we refer to these features using the term *social commerce features*. A social commerce feature is a software artifact that is integrated into a website and provides a specific social media functionality to promote interactions and exchanges among consumers (Curty and Zhang 2013). On the basis of an extensive analysis of social commerce websites, Curty and Zhang (2013) differentiate between four types of social commerce features: (1) Features that attract other consumers and promote branding (e.g., activity feeds, ask friends buttons, share and like buttons); (2) features that allow consumers to create an identity and establish communities (e.g., blog pages, discussion forums, social login buttons, social user profiles); (3) features that promote the creation of user-generated content (e.g., rating and review tools, social product recommendation tools, social wish lists); (4) features, that promote collective actions and group participation (e.g., co-browsing/co-shopping tools, live chats, group

buying tools). With our research, we aim to explore the potential impacts of these different features on the adoption of social commerce websites.

11.2.2 Consumers' Adoption of Social Commerce Websites

In the e-commerce and social commerce literature, the consumers' adoption behavior is a common measure for the effectiveness of commercial websites (Gefen and Straub 2000; Liang and Turban 2011; Pavlou and Fygenson 2006). To examine the consumers' adoption behavior, theories such as the Theory of Reasoned Action (TRA), the Theory of Planned Behavior (TPB), or the Technology Acceptance Model (TAM) are often used as lenses for analysis. In the social commerce literature, much effort is spent to adapt these theories to take into consideration the specific characteristics of social commerce. In so doing, a wide range of different factors has been identified that influence the consumers' willingness to adopt social commerce websites. On the basis of a structured literature review (Friedrich 2015), we compiled a list of factors which have been frequently (at least three times) examined and which have been confirmed to have a significant influence on the consumers' adoption of social commerce websites. These factors are *perceived usefulness*, *perceived ease of use*, *perceived enjoyment*, *trust*, *commitment*, *satisfaction*, *social presence*, *social support*, and *social influence*. For each factor, there moreover exist indications that it can be impacted by the use of social commerce features. For instance, we found evidence that rating and review tools can have a positive influence on the perceived usefulness and the social presence of a commercial website (Kumar and Benbasat 2006). We also found indications that like buttons and blog pages can increase the consumers' trust in a commercial website (Brengman and Karimov 2012). Yet, it remains unclear how these features might influence other factors such as enjoyment, commitment, social support, or social influence. Results from a few studies indicate that, in general, social commerce features can also positively influence such factors (Hajli 2012; Hajli et al. 2014; Ickler et al. 2009; Kim and Srivastava 2007; Rad and Benyoucef 2010; Wang and Hajli 2014; Zhang et al. 2014). However, since these studies either do not provide empirical evidence or combine several features into one abstract construct, it is unclear which features have an influence on certain factors. As a result, it is neither possible to compare the specific effects of social commerce features nor to give advice, which features should be integrated into a website to increase the perception of a certain factor.

11.2.3 Stimulus-Organism-Response Paradigm

To conceptualize the impacts of social commerce features, we use the stimulus-organism-response (S-O-R) paradigm. Originating from environmental psychology, the S-O-R paradigm suggests that certain signals in the environment, so-called stimuli, affect the internal (affective and cognitive) states of an individual, which in turn influence the individual's responses (Mehrabian and Russell 1974). In the e-commerce domain, several studies have adopted the S-O-R paradigm to examine how features of commercial websites (e.g., product descriptions, pictures, navigation aids) influence the consumers' adoption behavior (Chang and Chen 2008; Eroglu et al. 2001; Eroglu et al. 2003; Floh and Madlberger 2013; Parboteeah et al. 2009). In these studies, various factors have been suggested to measure the affective and cognitive states, such as perceived usefulness, perceived enjoyment, trust, or risk. In the social commerce domain, Brengman and Karimov (2012) have used the S-O-R paradigm to examine how like buttons and blog pages can increase the consumers' trust in a commercial website, which increases the consumers' buying intention. Zhang et al. (2014) have used the S-O-R paradigm to examine how feature characteristics (e.g., perceived interactivity, perceived personalization, perceived

sociability) influence the consumers' social commerce intention through the factors social support, social presence, and flow.

As the findings of the above-mentioned studies demonstrate, the S-O-R paradigm is a well-suited framework for explaining how certain stimuli – in our context the social commerce features of a website – affect the factors that influence the consumers' adoption of social commerce websites. By establishing a causal relationship between signals, states, and responses, the S-O-R paradigm provides a structured manner to examine the effects of social commerce features in a systematic way. In comparison, the TAM, which focuses on the adoption of a specific technology, does not cover factors to measure the effects of external stimuli. However, both theories should not be regarded as conflicting alternatives. Rather, the S-O-R paradigm can be considered as an overarching theory in which certain aspects (i.e., the organism and/or the response) can be represented by elements of other established theories, such as the TAM (Parboteeah et al. 2009; Zhang et al. 2014). Against this background, we use the S-O-R paradigm to establish a theoretically grounded link between the social commerce features of a website and the factors that influence the consumers' adoption of social commerce websites.

11.3 Research Model Development

Based on the S-O-R paradigm, we propose a research model that integrates several potential adoption factors into a coherent framework. It allows examining the effects of social commerce features on the adoption of social commerce websites. In our research model, the stimulus is represented by one or more social commerce features of a website. It is hence possible to study the stimulus of individual social commerce features as well as social commerce feature combinations. The latter might be relevant to test indications that social commerce features might be more effective if they are used in combination (Huang and Benyoucef 2013a). The affective and cognitive states are represented by a set of factors that we identified during a survey of the social commerce literature (cf. section 11.2). We use these factors for the following reasons: first, they are justified by well-established theories, which have been identified as relevant in the context of social commerce. Second, all factors have been frequently (i.e., at least three or more times) confirmed to influence the consumers' adoption of social commerce websites. Third, literature provides indications that social commerce features can have an impact on these factors.

As shown in Figure 11.1, our research model integrates several perspectives on social commerce. To visualize these perspectives, we thematically grouped the factors as utilitarian, hedonic, relational, and social factors. We derived the categories from literature, which argues that most factors concerning an individual's adoption of IT artifacts (in our case, a social commerce website) can be grouped along these categories (Al-Natour and Benbasat 2009; Al-Natour et al. 2011). However, other categories (e.g., affective and cognitive factors) could be used as well. To represent the consumers' adoption of social commerce websites, we use the construct *social commerce intention* as outcome variable, i.e. the individual's response (Liang et al. 2011). Besides, we integrated several variables to control individual characteristics of the consumers such as age, gender, nationality, education, social media experience, online shopping frequency, or shopper type.

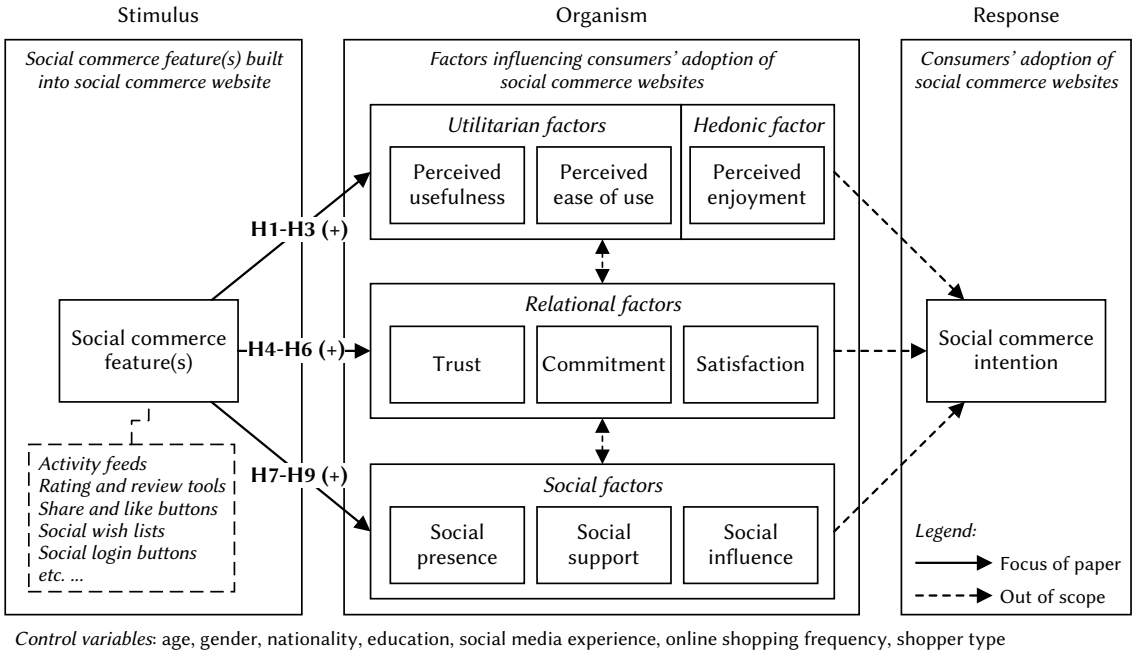


Figure 11.1 Research model to investigate the impacts of social commerce features

In the following, we explain the different perspectives of our research model in detail and develop abstract hypotheses to support the evaluation of social commerce features in a comparable manner. As our research model provides a generally applicable conceptual framework that is not tailored to specific social commerce features, the provided hypotheses will have to be concretized for each feature that is under evaluation. Note that our framework moreover focuses on the potential impacts of social commerce features on the depicted utilitarian, hedonic, relational, and social factors. Information on the relationships between the factors (and the outcome variable) can be found in literature (Friedrich 2015).

11.3.1 Impacts on Utilitarian and Hedonic Factors

Social commerce combines utilitarian with hedonic aspects (Wang and Zhang 2012). From the utilitarian perspective, social commerce is supposed to be goal-oriented, rational, effective, and efficient. From the hedonic perspective, social commerce is considered to imply fun, play, enjoyment, and experience. We consider the utilitarian perspective by means of the factors *perceived usefulness* and *perceived ease of use*, which stem from the TAM (Davis 1989). Several studies indicate that both factors also have a positive influence on the consumers' adoption of social commerce websites (Hajli 2012; Li et al. 2014; Noh et al. 2013; Shen 2012). While the effect of individual social commerce features has not been treated in these studies, additional research suggests that social commerce features can indeed determine the usefulness and ease of use of a social commercial website. Rating and review tools, for instance, allow consumers to evaluate products more effectively (Kumar and Benbasat 2006). In a similar way, social product recommendation tools can guide consumers to products that best suit their needs (Kumar and Benbasat 2006). Social login buttons, which enable consumers to log in with their social network account, can ease the registration process (Gafni and Nissim 2014). Generally, we hence propose:

H1: Social commerce features increase the perceived usefulness of a social commerce website.

H2: Social commerce features increase the perceived ease of use of a social commerce website.

The hedonic perspective is represented by means of the factor *perceived enjoyment*. Generally, enjoyment is an intrinsic motivator that stimulates people to do something (Deci and Ryan 1985; Ryan and Deci 2000). In the literature on technology adoption, perceived enjoyment is described as the extent to which the activity of using a system is perceived to be enjoyable (Davis et al. 1992). Perceived enjoyment also has been identified as an important factor to influence the consumers' adoption of social commerce websites (Sharma and Crossler 2014; Shen 2012; Shin 2013). While research on the effects of certain social commerce features on perceived enjoyment is missing, Grange and Benbasat (2010) show that social commerce features can have utilitarian as well as hedonic characteristics. Examples for hedonic characteristics are finding ideas for shopping, exploring favorite products of friends, communicating with others, or finding out bargains. Since social commerce features like rating and review tools, share and like buttons, or social wish lists are designed to support such characteristics, we hypothesize:

H3: Social commerce features increase the perceived enjoyment of a social commerce website.

11.3.2 Impacts on Relational Factors

To generate a business value from the consumers' social interactions, social commerce depends on the development and maintenance of social relationships (Liang et al. 2011). We investigate this relational perspective of social commerce by using the factors *trust*, *commitment*, and *satisfaction* in our model which are considered as important variables in relationship marketing (Hennig-Thurau et al. 2002). According to the findings of our literature review, trust can have a significant positive influence on the consumers' adoption of social commerce websites (Chen et al. 2014; Chow and Shi 2014; Hajli 2012; Hajli 2014; Teh and Ahmed 2012). However, providing a clear definition of trust is difficult as different conceptualizations exist (Gefen et al. 2003; Pavlou 2003). A general interpretation of trust refers to Mayer et al. (1995), who define trust as willingness to be vulnerable to others based on beliefs in ability, benevolence, and integrity. While trust according to this definition exists between two parties, research has confirmed that consumers can also establish trust in a commercial website (Hsiao et al. 2010; McKnight et al. 2002; van der Heijden et al. 2003; Wakefield et al. 2004). We use the latter interpretation of trust as we focus on the adoption of websites. So far, few studies have explored the influence of social commerce features on trust. Brengman and Karimov (2012) found that like buttons and blog pages can increase the consumers' trust in a commercial website. Hajli et al. (2014) demonstrate that social word-of-mouth, which can be generated by features such as social product recommendation tools, discussion forums, or rating and review tools, can increase trust, too. In general, we hence propose:

H4: Social commerce features increase the consumers' trust in a social commerce website.

Like trust, commitment is considered as a crucial factor that drives the persistence of social relationships (Li et al. 2006). Rooted in relationship marketing, commitment reflects "an enduring desire to maintain a valued relationship" (Morgan and Shelby 1994, p. 316). Prior research on social commerce also has emphasized the role of commitment for the consumers' adoption of social commerce websites (Chen et al. 2014; Liang et al. 2011; Wang and Hajli 2014). According to Kim et al. (2008), companies who are using online communities for value creation can increase the commitment of the community by providing means to communicate and collaborate. Since social commerce features such as discussion forums, or social product recommendation tools support similar goals, we basically assume:

H5: Social commerce features increase the consumers' commitment to a social commerce website.

The third factor that we use to determine the strength of a relationship is satisfaction. In the marketing literature, satisfaction has been described as a customer's overall emotional evaluation of the experiences with a certain product/service provider (Gustafsson et al. 2005). Several studies have confirmed that satisfaction also has a strong positive influence on consumers' adoption of social commerce websites (Jang et al. 2013; Yen 2013). While empirical investigations of the impacts of concrete social commerce features on satisfaction are missing, researchers argue that improvements in the quality of a commercial website will increase consumers' satisfaction (DeLone and McLean 2003; DeLone and McLean 2004; Liang et al. 2011). Since social commerce features are designed to deliver a higher quality by means of a more interactive shopping experience (Curty and Zhang 2013), we suppose:

H6: Social commerce features increase the consumers' satisfaction with a social commerce website.

11.3.3 Impacts on Social Factors

To establish social connections, social commerce is touching on various social aspects (Zhou et al. 2013) that we decided to represent by the factors *social presence*, *social support*, and *social influence*. Derived from social psychology (Short et al. 1976), the concept of social presence has been used in the e-commerce literature to explore the human warmth and sociability of a commercial website. In general, social presence can be defined as the degree to which a medium permits users to experience others as psychologically present (Fulk et al. 1987). Research on social commerce has demonstrated that higher levels of social presence have a positive influence on the consumers' social commerce intention (Lu and Fan 2014; Shen 2012). Moreover, initial evidence is available that social commerce features such as rating and review tools, which help establishing social connections between consumers, can indeed influence social presence (Kumar and Benbasat 2006). We take over this argumentation and propose:

H7: Social commerce features increase the social presence of a social commerce website.

Another value that consumers can gain from social commerce is social support (Liang et al. 2011). Social support is considered as an individual's perceptions of being cared for, being responded to, and being helped by people in the individual's network (Cobb 1976; Lakey and Cohen 2000). Researchers have found that social support can have a significant positive influence on consumers' social commerce intention (Li et al. 2014; Liang et al. 2011; Shin 2013). Moreover, Wang and Hajli (2014) as well as Hajli and Sims (2015) provide initial evidence that social commerce features such as rating and review tools, discussion forums, and social product recommendation tools, can positively influence the social support provided by a social commerce website. Building on these indications, we hypothesize:

H8: Social commerce features increase the social support provided through a social commerce website.

"One of the most pervasive determinants of an individual's behavior is the influence of those around him" (Burnkrant and Cousineau 1975, p. 206). Accordingly, we included social influence as a factor in our research model. In the literature, social influence has been found to have a positive influence on consumers' social commerce intention (Kwahk and Ge 2012; Sharma and Crossler 2014). While empirical studies on the impacts of certain social commerce features on social influence are missing, Kim and Srivastava (2007) argue how social commerce features might increase the social influence of a social commerce website. For instance, product reviews

provided by customers can be considered as a social influence that can affect others to purchase a certain product. We take over these findings to propose:

H9: Social commerce features increase the social influence of a social commerce website.

11.4 Proposed Research Methodology

We will begin evaluating our research model with five social commerce features: *rating and review tools, share and like buttons, social wish lists, activity feeds, and social login buttons*. We decided to start with this sample for two reasons: First, all these features have been associated with social commerce (Curty and Zhang 2013; Huang et al. 2012). Second, for each of the features, various software products are available, which can easily be integrated into a commercial website. In future, we plan to examine several additional features (and combinations). To investigate the impacts of the selected features, we will follow Brengman and Karimov (2012) who used an experiment-based online survey to explore the impact of like buttons and blog pages on consumers' trust into the website. We will conduct a similar experiment that involves buying a product on a commercial website. Afterwards, we will ask for the perception of the various factors using an online survey. The experiment will be based on a between-subjects full-factorial design including one independent variable ("social commerce feature") with six different levels ("rating and review tools", "share and like buttons", "social wish lists", "activity feeds", "social login buttons", "no social commerce features"). The sixth level contains a control group that will use a version without social commerce features. A distinct group of subjects will represent each level.

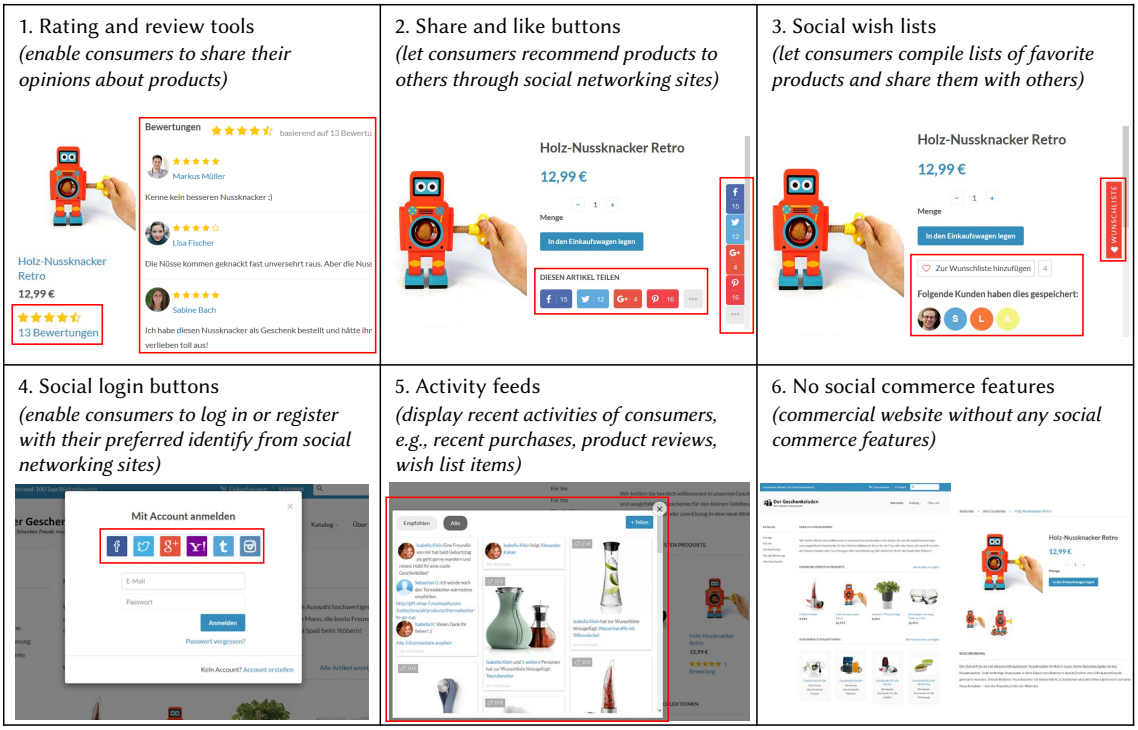


Figure 11.2 Social commerce features of the commercial website versions used in the experiment

Each group will be given access to a customized version of a website of a fictitious company that sells unbranded gift gadgets. Figure 11.2 shows prototypes of these versions that have been created in German language for pre-tests. Unbranded gift gadgets are used for two reasons: first,

they involve social and emotional aspects and are associated with little monetary risk. Second, potential branding effects are avoided (Lowry et al. 2008). The website has been built on a modern e-commerce platform that supports the integration of social commerce features with an app store. Rating and review tools, share and like buttons, social wish lists, and activity feeds have been populated with content to make their appearance realistic. In this way, we deliver the participants a controlled but authentic online shopping experience.

To collect data, we will send e-mail invitations to students from different universities. Moreover, we will post invitations on social networking sites and other online communities. As shopping task, participants will be asked to buy a gift for a friend. All participants will be given an identical amount of virtual money, which they can use to buy a gift of their choice. The experiment will be conducted online. It starts with an overview page, on which the setting and task are described. Next, the participants will be forwarded randomly to one of the six website versions to complete the shopping task. Finally, the participants will be asked to fulfill an online questionnaire that measures the constructs contained in our research model. All questionnaire items relating to dependent variables will be measured on seven-point Likert scales. The scale items will be adopted from literature. For instance, items to measure perceived ease of use and usefulness will be adopted from Pavlou (2003), trust items from Gefen et al. (2003), and social support items from Liang et al. (2011). To verify the manipulation of the independent variable, we use five yes/no questions in the form "Did you notice <social commerce feature> on this website?". The data will be analyzed using techniques such as t-tests, variance and regression analyses. Consistency of the questionnaire items will be ensured by conducting reliability measures such as Cronbach's alpha.

11.5 Expected Contributions and Conclusion

Although social commerce is driven by the use of social commerce features (Curty and Zhang 2013), little research has investigated how such features influence the consumers' willingness to adopt social commerce websites. In this paper, we have presented a research model that describes the impacts of social commerce features on the consumers' adoption of social commerce websites and thereby takes into account several different perspectives. The proposed research model is based on the S-O-R paradigm and can be used as a conceptual framework to study the impact of individual social commerce features and combinations thereof. To our best knowledge, it is the first research model dedicated to systematically investigate the impacts of social commerce features.

The results of our research have implications for academia and practice. For academia, we provide an innovative research model concerning the impacts of social commerce features that integrates several potential adoption factors into a holistic perspective. With the research model, we provide a novel instrument to systematically investigate the impacts of social commerce features and to understand how certain features affect utilitarian, hedonic, relational, and social aspects of social commerce websites. Accordingly, we extend the current body of knowledge in the social commerce research domain, which is not yet able to explain the impacts of certain social commerce features. For practice, it is essential to know how the use of certain social commerce features can stimulate consumers to participate in social commerce initiatives. In this regard, we expect the results of our experiment to provide important information to support a goal-oriented selection and integration of such features and, accordingly, a more effective design of social commerce websites. As our research is still in an early stage, it is subject

to several limitations. First, we deliberately chose to focus on adoption factors mentioned in the social commerce literature, as we want to investigate the impacts of features with respect to this domain. There may hence be additional factors discussed in the e-commerce literature that we did not take into account. We also did not discuss any inhibiting or risk factors yet. We plan to consider such factors after we have further consolidated and evaluated our research model. In future, we will also examine the effects of social commerce feature combinations, which might differ from the effects of their individual constituents. With the proposed research model, we hope to provide a starting point for such endeavors.

11.6 References

Al-Natour, S., & Benbasat, I. (2009). The Adoption and Use of IT Artifacts: A New Interaction-Centric Model for the Study of User-Artifact Relationships. *Journal of the Association for Information Systems*, 10(9), pp. 661-685.

Al-Natour, S., Benbasat, I., & Cenfetelli, R. (2011). The Adoption of Online Shopping Assistants: Perceived Similarity as an Antecedent to Evaluative Beliefs. *Journal of the Association for Information Systems*, 12(5), pp. 347-374.

Brengman, M., & Karimov, F. P. (2012). The Effect of Web Communities on Consumers' Initial Trust in B2C E-Commerce Websites. *Management Research Review*, 35(9), pp. 791-817.

Burnkrant, R. E., & Cousineau, A. (1975). Informational and Normative Social Influence in Buyer Behavior. *Journal of Consumer Research*, 2(3), pp. 206-215.

Chang, H. H., & Chen, S. W. (2008). The Impact of Online Store Environment Cues on Purchase Intention. *Online Information Review*, 32(6), pp. 818-841.

Chen, J., Shen, X.-L., & Chen, Z.-J. (2014). Understanding Social Commerce Intention: A Relational View. *Proceedings of the 47th Hawaii International Conference on System Sciences (HICSS)*, pp. 1793-1802.

Chow, W. S., & Shi, S. (2014). Understanding Consumer Trust in Social Commerce Websites. *Proceedings of the 18th Pacific Asia Conference on Information Systems (PACIS)*, pp. 1-20.

Cobb, S. (1976). Social Support as a Moderator of Life Stress. *Psychosomatic Medicine*, 38(5), pp. 300-314.

Curty, R., & Zhang, P. (2011). Social Commerce: Looking Back and Forward. *Proceedings of the American Society for Information Science and Technology*, pp. 1-10.

Curty, R., & Zhang, P. (2013). Website Features that Gave Rise to Social Commerce: A Historical Analysis. *Electronic Commerce Research and Applications*, 12(4), pp. 260-279.

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3), pp. 319-340.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Extrinsic and Intrinsic Motivation to Use Computers in the Workplace. *Journal of Applied Social Psychology*, 22(14), pp. 1111-1132.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic Motivation and Self-Determination in Human Behavior*. New York, USA: Plenum.

DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean Model of Information Systems Success: A Ten-Year Update. *Journal of Management Information Systems*, 19(4), pp. 9-30.

DeLone, W. H., & McLean, E. R. (2004). Measuring e-Commerce Success: Applying the DeLone & McLean Information Systems Success Model. *International Journal of Electronic Commerce*, 9(1), pp. 31-47.

Eroglu, S. A., Machleit, K. A., & Davis, L. M. (2001). Atmospheric Qualities of Online Retailing: A Conceptual Model and Implications. *Journal of Business Research*, 54(2), pp. 177-184.

Eroglu, S. A., Machleit, K. A., & Davis, L. M. (2003). Empirical Testing of a Model of Online Store Atmospherics and Shopper Responses. *Psychology & Marketing*, 20(2), pp. 139-150.

Floh, A., & Madlberger, M. (2013). The Role of Atmospheric Cues in Online Impulse-Buying Behavior. *Electronic Commerce Research and Applications*, 12(6), pp. 425-439.

Friedrich, T. (2015). Analyzing the Factors that Influence Consumers' Adoption of Social Commerce – A Literature Review. *Proceedings of the 21st Americas Conference on Information Systems (AMCIS)*, Puerto Rico, USA, pp. 1-16.

Fulk, J., Steinfield, C. W., Schmitz, J., & Power, J. G. (1987). A Social Information Processing Model of Media Use in Organizations. *Communication Research*, 14(5), pp. 529-552.

Gafni, R., & Nissim, D. (2014). To Social Login or not Login? Exploring Factors Affecting the Decision. *Issues in Informing Science and Information Technology*, 11, pp. 57-72.

Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in Online Shopping: An Integrated Model. *MIS Quarterly*, 27(1), pp. 51-90.

Gefen, D., & Straub, D. W. (2000). The Relative Importance of Perceived Ease of Use in IS Adoption: A Study of E-Commerce Adoption. *Journal of the Association for Information Systems*, 1(1), pp. 1-28.

Grange, C., & Benbasat, I. (2010). Online Social Shopping: The Functions and Symbols of Design Artifacts. *Proceedings of the 43rd Hawaii International Conference on System Sciences (HICSS)*, pp. 1-10.

Gustafsson, A., Johnson, M. D., & Roos, I. (2005). The Effects of Customer Satisfaction, Relationship Commitment Dimensions, and Triggers on Customer Retention. *Journal of Marketing*, 69(4), pp. 210-218.

Hajli, M. (2012). An Integrated Model for E-Commerce Adoption at the Customer Level with the Impact of Social Commerce. *International Journal of Information Science and Management*(Special Issue), pp. 77-97.

Hajli, M. (2014). A Study of the Impact of Social Media on Consumers. *International Journal of Market Research*, 56(3), pp. 387-404.

Hajli, N., Lin, X., Featherman, M. S., & Wang, Y. (2014). Social Word of Mouth: How Trust Develops in the Market. *International Journal of Market Research*, 56(5), pp. 673-689.

Hajli, N., & Sims, J. (2015). Social Commerce: The Transfer of Power from Sellers to Buyers. *Technological Forecasting and Social Change*, 94, pp. 350-358.

Hassanein, K., & Head, M. (2007). Manipulating Perceived Social Presence Through the Web Interface and Its Impact on Attitude Towards Online Shopping. *International Journal of Human-Computer Studies*, 65(8), pp. 689-708.

Hennig-Thurau, T., Gwinner, K. P., & Gremler, D. D. (2002). Understanding Relationship Marketing Outcomes an Integration of Relational Benefits and Relationship Quality. *Journal of Service Research*, 4(3), pp. 230-247.

Hsiao, K. L., Chuan-Chuan Lin, J., Wang, X. Y., Lu, H. P., & Yu, H. (2010). Antecedents and Consequences of Trust in Online Product Recommendations. *Online Information Review*, 34(6), pp. 935-953.

Huang, Z., & Benyoucef, M. (2013a). From E-Commerce to Social Commerce: A Close Look at Design Features. *Electronic Commerce Research and Applications*, 12(4), pp. 246-259.

Huang, Z., & Benyoucef, M. (2013b). User-Centered Investigation of Social Commerce Design. *Proceedings of the 5th International Conference on Online Communities and Social Computing*, A. A. Ozok, & P. Zaphiris (Eds.), pp. 287-295.

Huang, Z., Yoon, S. Y., & Benyoucef, M. (2012). Adding Social Features to E-Commerce. *Proceedings of the Conference on Information Systems Applied Research*, pp. 1-11.

Ickler, H., Schülke, S., Wilfling, S., & Baumöl, U. (2009). New Challenges in E-Commerce: How Social Commerce Influences the Customer Process. *Proceedings of the 5th National Conference on Computing and Information Technology (NCCIT)*, pp. 51-57.

Jang, H., Ko, I., & Kim, J. (2013). The Effect of Group-Buy Social Commerce and Coupon on Satisfaction and Continuance Intention - Focusing on the Expectation Confirmation Model (ECM). *Proceedings of the 46th Hawaii International Conference on System Sciences (HICSS)*, pp. 2938-2948.

Karimov, F. P., Brengman, M., Van Hove, L., & Van, L. (2011). The Effect of Website Design Dimensions on Initial Trust: A Synthesis of the Empirical Literature. *Journal of Electronic Commerce Research*, 12(4), pp. 272-301.

Kim, J. W., Choi, J., Qualls, W., & Han, K. (2008). It Takes a Marketplace Community to Raise Brand Commitment: The Role of Online Communities. *Journal of Marketing Management*, 24(3-4), pp. 409-431.

Kim, Y. A., & Srivastava, J. (2007). Impact of Social Influence in E-Commerce Decision Making. *Proceedings of the 9th International Conference on Electronic Commerce (ICEC)*, D. Sarppo (Ed.), pp. 293-301.

Kumar, N., & Benbasat, I. (2006). Research Note: The Influence of Recommendations and Consumer Reviews on Evaluations of Websites. *Information Systems Research*, 17(4), pp. 425-439.

Kwahk, K.-Y., & Ge, X. (2012). The Effects of Social Media on E-Commerce: A Perspective of Social Impact Theory. *Proceedings of the 45th Hawaii International Conference on System Sciences (HICSS),* R. H. Sprague (Ed.), pp. 1814-1823.

Lakey, B., & Cohen, S. (2000). Social Support Theory and Measurement. In: *Measuring and Intervening in Social Support,* S. Cohen, L. G. Underwood, & B. H. Gottlieb (Eds.). New York, USA: Oxford University Press, pp. 29-52.

Li, D., Browne, G. J., & Wetherbe, J. C. (2006). Why Do Internet Users Stick with a Specific Web Site? A Relationship Perspective. *International Journal of Electronic Commerce*, 10(4), pp. 105-141.

Li, H., Yao, Z., & Bai, Y. (2014). Social Commerce User Purchase Intention Study: What Factors Are Taking Effect? *Proceedings of the 18th Pacific Asia Conference on Information Systems (PACIS)*, pp. 1-13.

Liang, T.-P., Ho, Y.-T., Li, Y.-W., & Turban, E. (2011). What Drives Social Commerce: The Role of Social Support and Relationship Quality. *International Journal of Electronic Commerce*, 16(2), pp. 69-90.

Liang, T.-P., & Turban, E. (2011). Introduction to the Special Issue Social Commerce: A Research Framework for Social Commerce. *International Journal of Electronic Commerce*, 16(2), pp. 5-14.

Lowry, P. B., Vance, A., Moody, G., Beckman, B., & Aaron, R. (2008). Explaining and Predicting the Impact of Branding Alliances and Web Site Quality on Initial Consumer Trust of E-Commerce Web Sites. *Journal of Management Information Systems*, 24(4), pp. 199-224.

Lu, B., & Fan, W. (2014). Social Presence, Trust, and Social Commerce Purchase Intention: An Empirical Research. *Proceedings of the 18th Pacific Asia Conference on Information Systems (PACIS)*, pp. 1-17.

Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An Integrative Model of Organizational Trust. *The Academy of Management Review*, 20(3), pp. 709-734.

McKnight, D. H., Choudhury, V., & Kacmar, C. (2002). The Impact of Initial Consumer Trust on Intentions to Transact with a Web Site: A Trust Building Model. *The Journal of Strategic Information Systems*, 11(3–4), pp. 297-323.

Mehrabian, A., & Russell, J. A. (1974). *An Approach to Environmental Psychology*. Cambridge, USA: The MIT Press.

Morgan, R. M., & Shelby, D. H. (1994). The Commitment-Trust Theory of Relationship Marketing. *Journal of Marketing*, 58(3), pp. 20-38.

Noh, M., Lee, K., Kim, S., & Garrison, G. (2013). Effects of Collectivism on Actual S-Commerce Use and the Moderating Effect of Price Consciousness. *Journal of Electronic Commerce Research*, 14(3), pp. 244-260.

Parboteeah, D. V., Valacich, J. S., & Wells, J. D. (2009). The Influence of Website Characteristics on a Consumer's Urge to Buy Impulsively. *Information Systems Research*, 20(1), pp. 60-78.

Pavlou, P. A. (2003). Consumer Acceptance of Electronic Commerce: Integrating Trust and Risk with the Technology Acceptance Model. *International Journal of Electronic Commerce*, 7(3), pp. 101-134.

Pavlou, P. A., & Fygenson, M. (2006). Understanding and Predicting Electronic Commerce Adoption: An Extension of the Theory of Planned Behavior. *MIS Quarterly*, 30(1), pp. 115-143.

Rad, A. A., & Benyoucef, M. (2010). A Model for Understanding Social Commerce. *Proceedings of the 3rd Annual Conference on Information Systems Applied Research*, pp. 1-11.

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions. *Contemporary Educational Psychology*, 25(1), pp. 54-67.

Sharma, S., & Crossler, R. E. (2014). Intention to Engage in Social Commerce: Uses and Gratifications Approach. *Proceedings of the 20th Americas Conference on Information Systems (AMCIS)*, pp. 1-12.

Shen, J. (2012). Social Comparison, Social Presence, and Enjoyment in the Acceptance of Social Shopping Websites. *Journal of Electronic Commerce Research*, 13(3), pp. 198-212.

Shin, D.-H. (2013). User Experience in Social Commerce: In Friends We Trust. *Behaviour & Information Technology*, 32(1), pp. 52-67.

Short, J., Williams, E., & Christie, B. (1976). *The Social Psychology of Telecommunications*. London, United Kingdom: Wiley.

Teh, P.-L., & Ahmed, P. K. (2012). Understanding Social Commerce Adoption: An Extension of the Technology Acceptance Model. *Proceedings of the International Conference on Management of Innovation and Technology (ICMIT)*, pp. 359-364.

Turban, E., Bolloju, N., & Liang, T.-P. (2010). Social Commerce: An E-Commerce Perspective. *Proceedings of the 12th International Conference on Electronic Commerce (ICEC),* T. Bui (Ed.), pp. 33-42.

van der Heijden, H., Verhagen, T., & Creemers, M. (2003). Understanding Online Purchase Intentions: Contributions from Technology and Trust Perspectives. *European Journal of Information Systems*, 12(1), pp. 41-48.

Wakefield, R. J., Stocks, M. H., & Wilder, W. M. (2004). The Role of Web Site Characteristics in Initial Trust Formation. *Journal of Computer Information Systems*, 45(1), pp. 94-103.

Wang, C., & Zhang, P. (2012). The Evolution of Social Commerce: The People, Management, Technology, and Information Dimensions. *Communications of the Association for Information Systems*, 31(5), pp. 105-127.

Wang, Y., & Hajli, M. (2014). Co-Creation in Branding Through Social Commerce: The Role of Social Support, Relationship Quality and Privacy Concerns. *Proceedings of the 20th Americas Conference on Information Systems (AMCIS)*, pp. 1-16.

Yen, Y.-S. (2013). Exploring Perceived Value in Social Networking Sites: The Mediation of Customer Satisfaction. *International Journal of Computer and Information Technology*, 2(3), pp. 386-391.

Zhang, H., Lu, Y., Gupta, S., & Zhao, L. (2014). What Motivates Customers to Participate in Social Commerce? The Impact of Technological Environments and Virtual Customer Experiences. *Information & Management*, 51(8), pp. 1017-1030.

Zhou, L., Zhang, P., & Zimmermann, H.-D. (2013). Social Commerce Research: An Integrated View. *Electronic Commerce Research and Applications*, 12(2), pp. 61-68.

12 Paper III: Relationship Between Feature Intensity, Social Factors, and Buying Behavior

Table 12.1 Fact sheet Paper III

Fact	*Description*
Title	The More the Better? Exploring the Relationship Between Social Commerce Feature Intensity, Social Factors, and Consumers' Buying Behavior
Authors	Thomas Friedrich[1] thomas.friedrich@uni-bamberg.de Sven Overhage[1] sven.overhage@uni-bamberg.de Sebastian Schlauderer[1] sebastian.schlauderer@uni-bamberg.de [1] University of Bamberg An der Weberei 5 96047 Bamberg, Germany
Publication type	Conference Proceedings
Publication outlet	International Conference on Information Systems (ICIS)
Status	Published
Full citation	Friedrich, T., Overhage, S., & Schlauderer, S. (2016). The More the Better? Exploring the Relationship Between Social Commerce Feature Intensity, Social Factors, and Consumers' Buying Behavior. *Proceedings of the 37th International Conference on Information Systems (ICIS)*, Dublin, Ireland, pp. 1-21.
URL	https://aisel.aisnet.org/icis2016/EBusiness/Presentations/27/

The More the Better? Exploring the Relationship Between Social Commerce Feature Intensity, Social Factors, and Consumers' Buying Behavior

Abstract. Today, several social commerce features exist, which can be integrated into e-commerce websites. Integrating such features facilitates interactions among consumers and shall positively affect the perception of social factors and the buying behavior. As social commerce features differ regarding the stimulated interactions, it is recommended to increase their effectiveness by using multiple features. However, there also exist warnings that introducing multiple features might overwhelm consumers. To study the effects of the intensity of social commerce features on the perception of social factors and the buying behavior, we present the results of a controlled experiment, in which 115 participants used variants of an e-commerce platform with differing sets of features. The findings indicate that the intensity of features might positively influence the perception of social factors and the buying behavior. The provided research model moreover allows examining the causal relations between social commerce features, social factors, and the buying behavior systematically.

Keywords: Social commerce, website features, social factors, consumer behavior

12.1 Introduction

Attracted by the widespread success of social media platforms, e-commerce companies today are highly interested in finding out how to effectively use social media to increase sales volumes (Yadav et al. 2013). In literature, the term social commerce has been coined to summarize initiatives in which social media are used to facilitate e-commerce transactions (Liang and Turban 2011; Zhou et al. 2013). Through the integration of social media into e-commerce platforms, social commerce enables consumers to actively participate, interact, and communicate in the various stages of the buying process (Wang and Zhang 2012). In so doing, consumers can, for instance, be stimulated to create and exchange product-related information, which can positively influence other consumers' buying behavior (Chevalier and Mayzlin 2006; Turban et al. 2010). Meanwhile, a wide range of social commerce features – i.e. readily usable social media applications – exists that can be integrated into an e-commerce website, among them being, for instance, rating and review tools, share and like buttons, social wish lists, social login buttons, and activity feeds (Curty and Zhang 2013; Huang et al. 2012). As social commerce features differ with respect to the provided functionality and the stimulated social interactions among the consumers, it is sometimes assumed in literature that social commerce initiatives can be made more effective if multiple features are used in combination (Curty and Zhang 2013; Huang and Benyoucef 2013a).

Findings from studies conducted in the e-commerce domain indicate that, in general, the features contained in e-commerce platforms can have a significant impact on the consumers' buying behavior (Bilgihan and Bujisic 2015; Parboteeah et al. 2009; Song and Zahedi 2005). It is hence essential to understand how the integration of novel social commerce features into an e-commerce platform might affect the consumers' buying behavior. Referring to the above-mentioned argument, it particularly ought to be investigated if the effect of social commerce initiatives can indeed be strengthened by increasing the number of social commerce features in an e-

commerce platform. Yet, studies that examine the impacts of social commerce features systematically are still scarce and inconclusive (Baethge et al. 2016; Zhang and Benyoucef 2016). This observation is particularly true regarding the impact of social commerce features on social factors, which are manipulated by the interactions of the consumers and might have an influence on their buying behavior (Hajli and Sims 2015; Liang et al. 2011; Zhang et al. 2014). As social commerce considerably builds upon the consumers' social interactions and relationships, it is assumed that such social factors and their perception play a key role for the success of social commerce initiatives (Liang et al. 2011; Wang and Zhang 2012). Accordingly, several calls exist in the social commerce literature to study both the antecedents and impacts of social factors in more detail (Liang et al. 2011; Zhang and Benyoucef 2016).

However, the majority of efforts in this direction concentrates on the impacts, i.e. on investigating how the perception of social factors on e-commerce websites affects the consumers' buying behavior (Kwahk and Ge 2012; Lee et al. 2006; Liang et al. 2011; Shen 2012). The causal relationship between the social commerce features of a website and the consumers' perception of social factors has not been investigated to a comparable level of detail yet. Instead, there rather exists sporadic evidence from studies, in which one or more social commerce features and the interplay with certain social factors were investigated on specific e-commerce platforms (Kumar and Benbasat 2006; Zhang et al. 2014; Zhu et al. 2010). From such studies, however, no conclusion can be drawn if the perception of desirable social factors can be manipulated more successfully when increasing the number of social commerce features on a platform. On the one hand, it seems plausible that an increased number of social commerce features might strengthen the consumers' perception of social factors and, consequently, affect the consumers' buying behavior positively (Curty and Zhang 2013; Huang and Benyoucef 2013a). On the other hand, some authors argue that the use of multiple social commerce features might rather overwhelm consumers ("social overload") and negatively affect their buying behavior (Baethge et al. 2016; Olbrich and Holsing 2011). It is hence important to better understand how different numbers of social commerce features affect the success of social commerce initiatives.

To contribute to the closure of this research gap, we investigate the relationship between the intensity of social commerce features, the perception of social factors, and their impact on the consumers' buying behavior. In particular, we pursue two research questions. As no clear statement can be derived from literature whether the consumers' perception of social factors can be strengthened by combining and overlapping the stimuli of multiple social commerce features (Baethge et al. 2016; Huang and Benyoucef 2013a; Kumar and Benbasat 2006), we examine the following research question: *(RQ1) how does the intensity of the social commerce features present on an e-commerce website impact the consumers' buying behavior?* To examine this question, we develop a theoretical model that links social commerce features with social factors and the consumers' buying behavior. More specifically, we leverage the existing body of knowledge on social and e-commerce to develop a research model that connects the use of social commerce features to the consumers' buying behavior through their effect on the perception of several social factors. In so doing, we investigate our second research question: *(RQ2) how do social commerce features affect the perceptions of social factors and how do these perceptions influence the consumers' buying behavior?*

We evaluate the developed research model using the results of a controlled empirical study, in which 115 participants used and reported on several versions of an e-commerce platform, which differ from each other only regarding the number of implemented social commerce features. The results of our research contribute to the social commerce literature by 1) providing evidence

how the use of different numbers of social commerce features impacts the consumers' perception of social factors; 2) examining the effects between social factors and their impacts on the consumers' buying intention; 3) developing a theoretical lens that can be used to explain characteristic impacts of social commerce features.

The remainder of the paper is structured as follows: in section 12.2, we discuss the theoretical background and related work. In section 12.3, we develop the research model to examine our research questions. In section 12.4, we describe the research methodology. The results of the empirical study are presented in section 12.5. In section 12.6, we discuss the implications for research and practice as well as the limitations that apply to our findings. In section 12.7, we conclude by summarizing the results and by discussing future research directions.

12.2 Theoretical Background and Related Work

In this section, we provide background information on the concept of social commerce and on social commerce features. Moreover, we describe the consumers' buying behavior and the social factors in the context of social commerce and explain the theoretical framework on which we build our research model.

12.2.1 Social Commerce and Social Commerce Features

With its characteristic combination of economic, social, and technological aspects, social commerce has drawn attention from different research disciplines such as information systems, marketing, or sociology (Zhou et al. 2013). As a consequence, current literature provides a variety of social commerce definitions, which makes it difficult to derive a clear understanding of the concept (a collection of definitions can be found in Wang and Zhang 2012). In this study, we follow the definition of Liang and Turban (2011, p. 6) who define *social commerce* as *"a subset of e-commerce that involves using social media to assist in e-commerce transactions and activities"*. Different understandings also exist of what can be considered as a social commerce website. According to the literature, two major types of social commerce websites can be identified: (1) social networking sites that incorporate commercial features; and (2) traditional e-commerce websites that add social media-based features to facilitate social interactions and exchanges (Curty and Zhang 2011; Liang and Turban 2011). In this study, we focus on the latter type of websites since we are interested in figuring out how the intensity of the social commerce features present on an e-commerce website impacts the consumers' buying behavior.

Research agrees on the fact that technical website features are a key enabler and driver of social commerce (Wang and Zhang 2012; Zhou et al. 2013). Accordingly, an entire research stream exists that investigates which features can be used for social commerce initiatives (Curty and Zhang 2011; Curty and Zhang 2013; Huang and Benyoucef 2013b; Huang et al. 2012). In line with the literature, we use the term *social commerce features* to refer to these features. *A social commerce feature is a software artifact that is integrated into a website and provides a specific social media functionality to promote interactions and exchanges among consumers* (Curty and Zhang 2013). On the basis of an extensive analysis of several popular e-commerce websites, Curty and Zhang (2013) identified four types of social commerce features: (1) Features that attract other consumers and promote branding (e.g., activity feeds, ask friends buttons, share and like buttons); (2) features that allow consumers to create an identity and to establish communities (e.g., blog pages, discussion forums, social login buttons, social user profiles); (3) features

that promote the creation of user-generated content (e.g., rating and review tools, social product recommendation tools, social wish lists); (4) features, that promote collective actions and group participation (e.g., co-browsing/co-shopping tools, live chat tools, group buying tools). Note that the illustrated types of social commerce features are not always mutually exclusive as some features can be assigned to more than one type. We use this categorization only as an example to provide a consolidated picture of the different types of social commerce features. Moreover, note that some social commerce features are also used on other types of websites, such as traditional e-commerce websites or social networking websites. In line with the literature, we use the term social commerce feature to refer to the types of social features that enable social commerce. However, this does not imply that these types of social features are only used in social commerce.

To support the design of social commerce platforms, Huang and Benyoucef (2013a) developed a basic reference model of a social commerce platform in which social commerce features are grouped into four different design layers. By applying the model on two successful commercial websites (i.e., Amazon and Starbucks Facebook), Huang and Benyoucef (2013a) demonstrate that both websites cover all four layers of the reference model with different social commerce features. According to their findings, Huang and Benyoucef (2013a) conclude that social commerce initiatives can be more effective if they use multiple social commerce features. Similar assumptions can also be found in other studies (Curty and Zhang 2013; Huang and Benyoucef 2013b; Zhang et al. 2014). However, some authors also argue that the use of multiple social commerce features might overwhelm consumers ("social overload") and negatively affect their buying behavior (Baethge et al. 2016; Olbrich and Holsing 2011). Given the different assumptions about the potential effects of multiple social commerce features, this study aims to investigate how the intensity of social commerce features (i.e., the number of social commerce features integrated into an e-commerce website) influences the effectiveness of social commerce initiatives by stimulating the consumers' buying behavior.

12.2.2 Consumers' Buying Behavior and Social Factors in Context of Social Commerce

Prior studies have applied a wide range of different theories to investigate the consumers' buying behavior in the context of social commerce (a collection of theories can be found in Zhang and Benyoucef 2016). Well-known and frequently applied theories are the Theory of Reasoned Action (TRA), the Theory of Planned Behavior (TPB), and the Technology Acceptance Model (TAM). In general, all three theories posit that an individual's behavior can be predicted by his or her intention towards the behavior (Ajzen 1991; Davis 1989; Fishbein and Ajzen 1975). Considering that social commerce builds on the consumers' social interactions and relationships (Wang and Zhang 2012), researchers have also applied various social theories to investigate the specific characteristics of social commerce (Liang and Turban 2011; Zhang and Benyoucef 2016). Based on a systematic literature review (Friedrich 2015), we identified three factors which stem from different social theories and which have been frequently examined (at least three times) in the social commerce literature: *social presence*, *social support*, and *social influence*. In this study, we focus on these three social factors because indications are given that these factors play an important role in the consumers' buying behavior (Hajli and Sims 2015; Liang et al. 2011; Shen 2012; Wang and Zhang 2012). Moreover, calls exist in the social commerce literature to study the antecedents and impacts of these factors in more detail (Liang et al. 2011; Zhang and Benyoucef 2016).

Initially, the theory of social presence has been introduced by Short et al. (1976) to examine what effect telecommunication media can have on person-to-person telecommunications. According to Short et al. (1976, p. 65), *social presence* is defined as *"the degree of salience of another person in the interaction"* and is considered as *"being a quality of the communication medium"*. Based on their argumentation, it is assumed that communication media vary in their degree of social presence and that these variations are important in determining how individuals interact. Face-to-face communication, for instance, is considered to have the highest social presence while a business letter is considered to have a low level of social presence because its text-based nature makes it less able to convey social cues, such as facial expressions, gestures, and sounds (Fulk et al. 1987; Short et al. 1976). In recent years, social presence has received increased attention in the e-commerce literature as researchers recognized that e-commerce websites typically lack human warmth and sociability (Cyr et al. 2007; Gefen and Straub 2003; Hassanein and Head 2005; Hess et al. 2009). In these studies, social presence has been conceptualized as the warmth, sociability, and the sense of human contact that can be conveyed through a website. So far, scientific findings have demonstrated that certain website elements and features, such as human images (Hassanein and Head 2007), live chat tools (Qiu and Benbasat 2005), customer ratings and reviews (Kumar and Benbasat 2006), or recommendation agents (Al-Natour et al. 2011), can significantly increase the consumers' perception of social presence in a commercial website. Moreover, research has shown that a higher perception of social presence can positively mediate the consumers' buying behavior through other behavior-related factors, such as trust, perceived enjoyment, or perceived usefulness (Cyr et al. 2007; Gefen and Straub 2003; Hassanein and Head 2007). Since social commerce websites are designed to visualize other consumers' social profiles and interactions, literature on social commerce has confirmed the importance of social presence with similar results (Lu and Fan 2014; Shen 2012; Zhang et al. 2014).

A factor in which social commerce considerably differs from e-commerce and that stresses the consumers' social relationships is *social support* (Liang et al. 2011). Rooted in social psychology, the theory of social support can be defined as *"the information leading the subject to believe that he is cared for and loved, esteemed, and a member of a network of mutual obligations"* (Cobb 1976, p. 300). Social support is considered as an important determinant of an individual's well-being since humans have the fundamental need to have frequent personal interaction or contact with someone who cares about their welfare and who likes and/or loves them (Baumeister and Leary 1995; Crocker and Canevello 2008). According to House (1981), social support can be divided into four different types: emotional, informational, instrumental, and appraisal support. Emotional support involves the provisioning of empathy, love, caring, and trust. Informational support is defined as the information (e.g., advice, guidance, suggestions) given to someone for problem solving. Instrumental support refers to the provisioning of tangible resources, such as financial assistance, material goods, and services. Appraisal support is considered as the communication of information, which is useful for self-evaluation (e.g., encouraging someone that he/she made the right choice). With its potential impact on an individual's well-being, social support has predominantly been investigated in the context of health maintenance, disease prevention, and in the process of work stress (Cobb 1976; Deeter-Schmelz and Ramsey 1997; House 1981; Lakey and Cohen 2000; Schaefer et al. 1981). However, with the advent of the Internet and the rising popularity of social media platforms, researchers started to investigate how users perceive social support in computer-mediated environments such as in online communities (Ballantine and Stephenson 2011; Huang et al. 2010; Obst and Stafurik 2010; Shaw and Gant 2002; Weiss et al. 2013). As the findings of these studies reveal, users of online communities can perceive a strong sense of social support, especially of informational and emotional support. By applying the concept of social support to the context of social commerce, researchers could

demonstrate that consumers also perceive social support (i.e., informational and emotional support) on social commerce websites and that higher perceptions of social support can have a significant positive influence on the consumers' buying behavior (Li et al. 2014; Liang et al. 2011; Shin 2013; Wang and Hajli 2014; Zhang et al. 2014). On social commerce websites, social support, for instance, can be generated through the sharing of shopping experiences or product knowledge between consumers, which is enabled by social commerce features such as rating and review tools, social product recommendation tools, or social wish lists (Liang et al. 2011).

One of the most important determinants of an individual's behavior is *social influence* (Burnkrant and Cousineau 1975). In general, social influence can be described as *the pressure that an individual perceives from significant others to perform, or not to perform, a certain behavior* (Rivis and Sheeran 2003). Following Deutsch and Gerard (1955, p. 629), two types of social influence can be distinguished: normative social influence and informational social influence. Normative social influence occurs when individual conforms to the positive expectations of others. Informational social influence occurs when an individual accepts information obtained from others as evidence about reality. Defined as subjective norm, normative social influence has become an important part in many theories, such as the TRA (Fishbein and Ajzen 1975), the TPB (Ajzen 1991), or the refined versions of the TAM (Venkatesh and Bala 2008; Venkatesh and Davis 2000). In the e-commerce literature, researchers have conceptualized normative social influence as the consumer's perception of whether the behavior of buying products on a commercial website conforms to the consumer's circle of influence (Limayem et al. 2000; Pavlou and Dimoka 2006). According to the findings of these studies, perceptions of normative social influence can have a significant impact on the consumers' buying behavior. Likewise, research on e-commerce has confirmed that informational social influence, which refers to the information provided by other consumers, can positively influence the consumers' buying behavior (Lee et al. 2006; Lee et al. 2011). As social commerce encourages consumers to interact with each other and to generate valuable content, social influence is considered as an important factor for the success of social commerce initiatives. Kwahk and Ge (2012), for instance, empirically demonstrate that informational social influence can have a positive impact on the consumers' buying behavior on social commerce websites while normative social influence has been reported to have a negative impact. Kim and Srivastava (2007) conceptually demonstrate how both types of social influence (i.e., normative and informational social influence) can be generated on e-commerce websites through the use of social commerce features such as social recommendation tools. In their study, social influence is generated by providing consumers with personalized product recommendations that are based on the consumers' social interactions and relationships. In the context of social commerce, Amblee and Bui (2011) furthermore demonstrate how social influence, which in their study is generated through online ratings and reviews, can influence the sales rank of e-books.

Considering the relationship between social commerce features and the three social factors, indications are given that each factor can be affected by the use of social commerce features. Kumar and Benbasat (2006), for instance, demonstrate that social commerce features such as rating and review tools can positively influence the social presence of a commercial website. We also found indications that social commerce features can increase the social support and the social influence of a commercial website (Amblee and Bui 2011; Hajli and Sims 2015; Kim and Srivastava 2007). However, since these studies do not consider the potential effect of different numbers of social commerce features, it remains unclear if the intensity of social commerce features further influences the consumers' perceptions of these social factors. Moreover, it

remains unclear how these social factors in combination influence the consumers' buying behavior as they so far have only been investigated independently.

12.2.3 Stimulus-Organism-Response Paradigm

Rooted in the field of environmental psychology, the S-O-R paradigm suggests that certain signals in the environment (stimuli) directly affect the affective and cognitive states of an individual (organism), and thereby influence the individual's behaviors (response) (Mehrabian and Russell 1974). In the e-commerce domain, studies have adopted the S-O-R paradigm to examine how the features of an e-commerce website (e.g., product descriptions, pictures, navigation aids) influence the consumers' buying behavior (Chang and Chen 2008; Eroglu et al. 2001; Eroglu et al. 2003; Parboteeah et al. 2009). Given the different perspectives of these studies, various factors have been used to measure the affective and cognitive states, such as perceived usefulness, perceived enjoyment, social presence, trust, or risk. In the social commerce domain, Brengman and Karimov (2012) have used the S-O-R paradigm to examine how like buttons and blog pages can affect the consumers' trust in an e-commerce website, which can increase the consumers' buying intention. Similarly, Zhang et al. (2014) have used the S-O-R paradigm to examine how certain feature characteristics (i.e., interactivity, personalization, sociability) of social commerce websites influence the consumers' social commerce intention (i.e., the willingness to share and consider shopping-related information) through the factors social support, social presence, and flow.

As the findings of the above-mentioned studies demonstrate, the S-O-R paradigm is a well-suited framework for explaining how certain stimuli (in our context represented by the intensity of social commerce features) affect the organismic states (in our context represented by the consumers' perception of three social factors) and how these states influence the response (in our context represented by the consumers' buying behavior). By establishing a causal relationship between signals, states, and responses, the S-O-R paradigm provides a structured manner to examine the effects caused by the intensity social commerce features in a systematic way.

12.3 Research Model and Hypotheses Development

To contribute to a better understanding of the design of social commerce initiatives, we propose a research model, which allows to investigate how the intensity of social commerce features influences the consumers' buying behavior with respect to the consumers' perception of social factors. The research model is based on the S-O-R paradigm, which allows us to establish a theoretically grounded link between the intensity of social commerce features, the consumers' perception of social factors, and the consumers' buying behavior.

In our research model, the stimulus is conceptualized as the *intensity of social commerce features*, which represents the number of social commerce features integrated into an e-commerce website. As described in section 12.2, social commerce features are readily usable social media applications that are integrated into a website and that promote social interactions and exchanges among consumers. Through the use of this construct, this study aims to investigate what effect multiple social commerce features integrated into an e-commerce website can have on the consumers' buying behavior through various social factors. Investigating the impact of multiple social commerce features is an important aspect as research indicates that social commerce

initiatives can be more effective if they use multiple social commerce features (Curty and Zhang 2013; Huang and Benyoucef 2013a; Huang and Benyoucef 2013b; Zhang et al. 2014).

Referring to the organism (i.e., the affective and cognitive states), our research model uses the three social factors social presence, social support, and social influence. We decided to focus on these three social factors for the following reasons: first, all factors are justified by well-established theories, which have been identified as relevant in the context of social commerce. Second, all factors have been confirmed to represent important determinants in the consumers' buying behavior. Third, literature provides indications that social commerce features can have an impact on these factors. In our research model, the social factors are labeled as *perceived social presence*, *perceived social support*, and *perceived social influence* to illustrate that we intend to investigate how these factors are perceived by consumers.

To represent the response (i.e., the consumers' buying behavior), our research model uses the factor *buying intention* as outcome variable. Predicting individuals' behaviors through intentions is common practice in literature and grounded on well-established theories such as the TRA, the TPB, or the TAM (Gefen et al. 2003; Pavlou and Fygenson 2006). In the following, we develop the hypotheses guiding the evaluation of how the intensity of social commerce features influences the consumers' buying intention through the three social factors. Figure 12.1 depicts the structure of our research model.

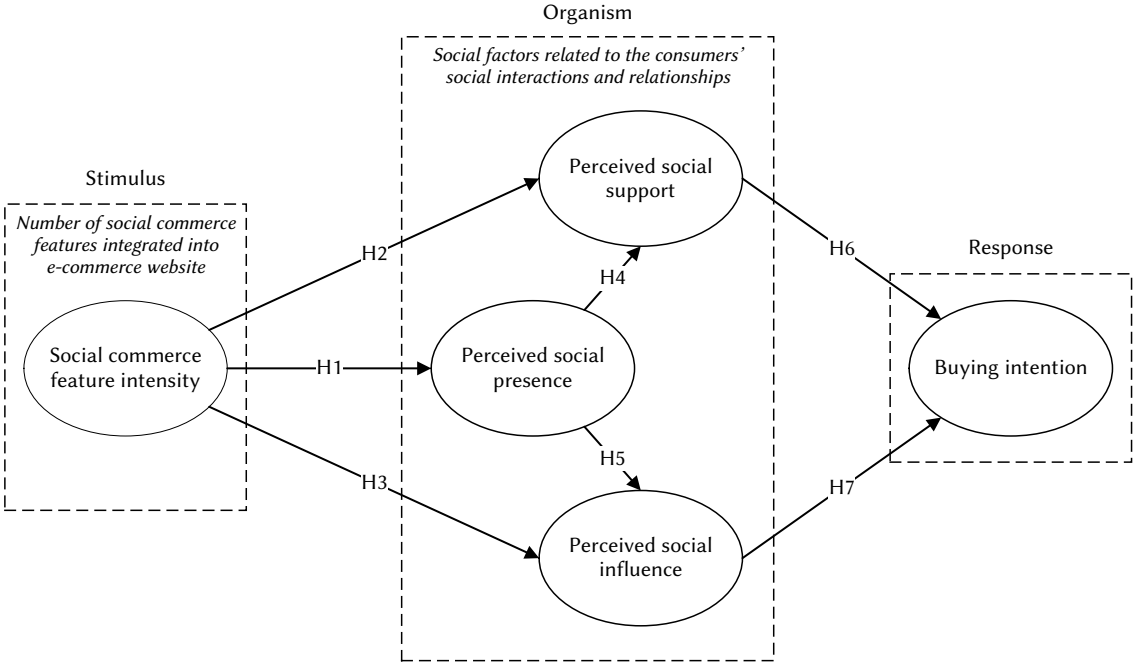


Figure 12.1 Research model to investigate the impacts of multiple social commerce features

12.3.1 Effects of Social Commerce Feature Intensity on Social Factors

We assume that the intensity of social commerce features positively influences the perception of the factors social presence, social support, and social influence. As noted in section 12.2, incorporating social cues (such as socially rich texts, photos, or videos) into e-commerce websites is considered as an important means to overcome the impersonal and transaction-focused

nature of online shopping environments. Social commerce features provide various means to incorporate social cues into e-commerce websites (Curty and Zhang 2013). For instance, rating and review tools enable consumers to share their opinions and experiences about products with other consumers (Mudambi et al. 2014). This consumer-generated content is then placed on the product pages of a commercial website. Research indicates that websites incorporating rating and review tools can convey a greater sense of human contact and thus increase the consumers' perception of social presence (Kumar and Benbasat 2006). Besides ratings and reviews, social commerce features can provide many other forms of socially rich design elements. Examples are postings generated through blogs or discussion forums, lists of favorite products created and shared through social wish lists, recent activities of customers displayed in activity feeds, numbers of shares and likes visualized through share and like buttons on product pages, or lists of customers with similar product preferences generated through social recommendation tools. As the examples illustrate, each social commerce feature provides a unique set of socially rich design elements that can be integrated into an e-commerce website. However, it is rational to argue that not all features will affect the consumers' perception of social presence in the same way. According to social presence theory, the level of social presence depends on how many different types of social cues a communication medium can convey (cf. section 12.2). As a greater number of social commerce features increases the potential range of social cues on a commercial website, it is likely that this results in a higher level of social presence. Hence, we hypothesize that:

H1: The intensity of social commerce features increases the perceived social presence.

Social support is considered as an important social value that consumers can perceive from social commerce websites (Liang et al. 2011). According to Liang et al. (2011), the role of social support on social commerce websites can be described as follows: when consumers perceive social support on a social commerce website (i.e., other consumers are caring about them and are providing helpful shopping information), it becomes natural that these consumers will also share their shopping experiences and advices to help other consumers. The effect can be traced back to social exchange theory, which argues that individuals reciprocate others' support when they derive benefits from the others (Blau 1964). Literature on social commerce indicates that the online social interactions between consumers, which are facilitated by social commerce features, can generate informational as well as emotional support (Hajli 2016; Hajli and Sims 2015; Li et al. 2014; Liang et al. 2011; Zhang et al. 2014). For instance, through rating and review tools, social recommendation tools, or discussion forums, consumers can exchange valuable shopping information which may help them to solve shopping-related problems, such as deciding which product should be purchased (Hajli and Sims 2015). Moreover, consumers can also use social commerce features to express their interests and feelings and thus address emotional concerns, such as caring, understanding, or empathy (Liang et al. 2011). Research further argues that social commerce features can provide consumers with a more personalized shopping experience as the content generated through social commerce features more effectively addresses the consumers' preferences and needs (Kumar and Benbasat 2006). Consequently, providing consumers with a more personalized shopping experience through the use of social commerce features can increase the likelihood that consumers believe that the company behind the commercial website cares about their interests, which can result in a higher level of social support (Zhang et al. 2014). As the examples indicate, increasing the number of social commerce features on an e-commerce website might broaden the path through which consumers can generate and receive social support. For instance, combining rating and review tools with like buttons enables consumers not only to exchange product knowledge (i.e., informational support), but also to express

their emotions (i.e., emotional support) through the liking of products. Therefore, we hypothesize that:

H2: The intensity of social commerce features increases the perceived social support.

When consumers possess limited knowledge or perceive certain amounts of risk, it is likely that they will wait and observe the experiences of other consumers before making a purchase decision on an e-commerce website (Lee et al. 2006; Lee et al. 2011). Moreover, consumers are more likely to believe the information provided by other consumers than the information provided by the company operating the website (Chen and Xie 2008; Lee and Jin Ma 2012). By promoting consumers' social interactions and exchanges, social commerce features incorporate these aspects and thus are considered as an important instrument to generate social influence (Kim and Srivastava 2007). Probably the most prominent example in this context are rating and review tools (Amblee and Bui 2011). Evidence is given that rating and review tools can help consumers to better asses the quality of products and/or services (Benlian et al. 2012; Mudambi and Schuff 2010). When consumers rely on the information that is generated through these tools, the effect is then considered as a form of social influence – i.e., informational social influence, cf. section 12.2 (Amblee and Bui 2011; Lee et al. 2011). Further examples, which can also be considered as potential routes for informational social influence, are the number of likes on product pages generated through like buttons, consumers' recent activities generated through activity feeds, lists of consumers' favorite products generated through social wish lists, or product recommendations based on the preferences of similar customers generated through social recommendation tools. Social commerce features can also have the potential to generate normative social influence, which refers to the effect that people want to be liked and conform to the expectations of others (cf. section 12.2). For instance, share buttons typically enable consumers to share product-related content on their favorite social media platforms. In this context, normative social influence is then generated when consumers use this feature to demonstrate their interests and to conform to the expectations of by important others, such as their friends (Kwahk and Ge 2012). By putting the above-mentioned examples together, it can be argued that social commerce features have the potential to generate social influence in different ways. However, when comparing social commerce features such as rating and review tools with share and like buttons, it seems rational that the social influence generated through these features can not only vary in its form (i.e., informational/normative), but also in its effect size. Accordingly, when the intensity of social commerce features is increased, it is likely that the potential amount of social influence will also increase. Therefore, we hypothesize that:

H3: The intensity of social commerce features increases the perceived social influence.

12.3.2 Effects Between Social Factors

In line with the literature, we consider social presence as a mediating factor that indirectly affects the consumers' buying intention through other behavior-related factors (Gefen and Straub 2003; Hassanein and Head 2005; Hassanein and Head 2007). In our context, the factors that are assumed to be affected by social presence are social support and social influence.

As illustrated in section 12.2, generating social support through an e-commerce website requires that the website provides consumers with messages that involve supportive emotions and/or supportive information. Research has shown that consumers perceive social support in the online environment especially on websites that incorporate social media functionalities, such as social networking sites, online community sites, or social commerce websites (Ballantine and

Stephenson 2011; Huang et al. 2010; Liang et al. 2011). By using features that facilitate social interactions, these websites typically are able to provide more social cues and thus are associated with higher levels of social presence (Zhang et al. 2014; Zhu et al. 2010). Accordingly, it can be argued that when an e-commerce website conveys a sense of human warmth and sociability, it is likely that consumers will be more receptive to supportive messages. Therefore, we hypothesize that:

H4: Perceived social presence increases the perceived social support.

Note that we assume that social presence increases social support, while Zhang et al. (2014) suggest that social support increases social presence. The reason for the opposite causal pathway is that we conceptualize social presence as being a quality of the communication medium that reflects the amount of social cues that a medium conveys (cf. section 12.2). By referring to the social characteristics of a medium (in our context an e-commerce platform), we consider that social presence is independent from behavior-related factors, such as social support, as these factors do not change the characteristics of a medium. Our assumption is grounded on studies which confirmed that social presence acts as a mediating factor that affects other behavior-related factors, such as trust, perceived enjoyment, or perceived usefulness (Cyr et al. 2007; Gefen and Straub 2003; Hassanein and Head 2007). In contrast to our study, Zhang et al. (2014) conceptualize social presence as a variable that reflects the quality of the consumers' social interactions and relationships.

The link between social presence and social influence can be established through social impact theory. According to Latané (1981), social impact theory suggests that the amount of influence between an individual and other people can be determined through three social forces: the number of people that are present, how important these people are to the individual, and how close in space and time these people are to the individual. Referring to the first aspect, research has shown that the mere presence of other individuals in a retail store can lead to higher perceptions of social influence (Argo et al. 2005). Accordingly, when an e-commerce website visualizes social cues, such as profile pictures of other consumers, and thus conveys a sense of human warmth and sociability, it is likely that consumers will perceive a greater amount of social influence. Hence, we hypothesize:

H5: Perceived social presence increases the perceived social influence.

12.3.3 Effects of Social Factors on Consumers' Buying Intention

Considering the relationship between the organism and the response, this study assumes that perceptions of social support as well as social influence will positively affect the consumers' buying intention. In line with the literature, we do not link social presence to the consumers' buying intention as we consider social presence as a mediating factor that indirectly affects the buying intention through social support and social influence (Gefen and Straub 2003; Qiu and Benbasat 2005; Shen 2012). Moreover, indications are given that no significant relationship exists between these two factors (Animesh et al. 2011).

As described in section 12.2, social exchange theory proposes that individuals tend to reciprocate others' support when benefits are obtained. Consequently, when a consumer receives support from other consumers, he/she may feel obligated to return a similar favor (Crocker and Canevello 2008). In the service science context, research has shown that perceptions of social support can lead to higher levels of customer satisfaction and loyalty (Rosenbaum and Massiah

2007; Yi and Gong 2007). In addition, research on social commerce has demonstrated that when consumers perceive social support on a social commerce website, it is more likely that they will participate in commercial activities and share valuable shopping information with other consumers (Liang et al. 2011; Shin 2013; Zhang et al. 2014). Hence, is seems rational to argue that consumers who perceive social support on an e-commerce website will have a stronger desire to purchase products on this website. Accordingly, we hypothesize:

H6: Perceived social support increases the consumers' buying intention.

As expressed in the Theory of Reasoned Action and the Theory of Planned Behavior, social influence represents an important factor that stimulates an individual's intention towards a certain behavior (cf. section 12.2). In the e-commerce and social commerce context, studies have shown that perceptions of social influence, for instance, generated through the expectations of others or through the information provided by other consumers, can significantly increase the consumers' buying intention (Kwahk and Ge 2012; Lee et al. 2006; Lee et al. 2011; Limayem et al. 2000; Pavlou and Fygenson 2006). As consumers, according to these studies, tend to base their buying decisions on the opinions of others, we hypothesize that:

H7: Perceived social influence increases the consumers' buying intention.

12.4 Research Methodology

To evaluate our research model and test the hypotheses, we designed an online experiment that consisted of browsing an e-commerce website, selecting, and buying a product. Building upon a controlled experimental setting allowed us to investigate and isolate the causal pathways that operate between the use of social commerce features, the perception of social factors, and the consumers' buying intention. In particular, we are able to examine how the intensity of the social commerce features provided on an e-commerce platform affects the perception of the social factors and the buying behavior.

12.4.1 Experimental Setting

The design of our experiment follows the concept of related studies, which explored the effects of various website features on the users' attitude towards the website using experiment-based surveys (Brengman and Karimov 2012; Cyr et al. 2009; Hassanein and Head 2007; Kumar and Benbasat 2006). As our experiment simulates the completion of a typical buying process on an e-commerce scenario, the task involves browsing an e-commerce website, selecting, and buying an appropriate product. We decided to conduct the experiment in a well-controlled environment in order to have measurements that are more accurate. We therefore conducted an online study in a laboratory setting in which we controlled the exogenous variables as much as possible by following a standardized procedure. The experiment uses a 1 x 3 between-subjects design, including one independent variable (the intensity of the social commerce features provided on the e-commerce website) with three levels of treatment. Using such a variable is a common practice in experimental studies and enables us to attribute differences in the groups directly to the increasing number of social commerce features (Brengman and Karimov 2012; Cyr et al. 2009; Hassanein and Head 2007; Kumar and Benbasat 2006). Moreover, we included various control variables to account for individual characteristics, which might influence the results. Particularly, we asked for the social media usage frequency and the online shopping frequency to evaluate if our results depend on how familiar the participants are with online shopping and social

media technologies. Additionally, we included standard control variables such as age or gender. The e-commerce website that we provided consisted of three versions, which were used by disjoint groups of participants. The first version of the website did not contain any social commerce features and thus represented a zero level. We used this zero level to verify that the absence of social commerce features on an e-commerce website indeed has the lowest effects on the consumers' perception of social factors. The second version of the website incorporated a product rating and review tool, thus implementing a complex social commerce feature, which is widespread in practice and supposed to work effectively (Amblee and Bui 2011; Jabr and Zhiqiang 2014; Kumar and Benbasat 2006). Taking existing reference architectures for the design of social commerce platforms as a benchmark, such a setting corresponds to a medium social commerce feature intensity (Huang and Benyoucef 2013a). The third version of the website contained a set of diverse social commerce features consisting of rating and review tools, share and like buttons, social wish lists, social login buttons, and activity feeds with live notifications about recent product purchases, product reviews, etc. According to existing reference architectures, this setting implements a high intensity of social commerce features (Huang and Benyoucef 2013a). Figure 12.2 illustrates the realization of the various social commerce features. Note that the website has been created in German language as the study was conducted with participants from Germany, which we wanted to address in their mother tongue.

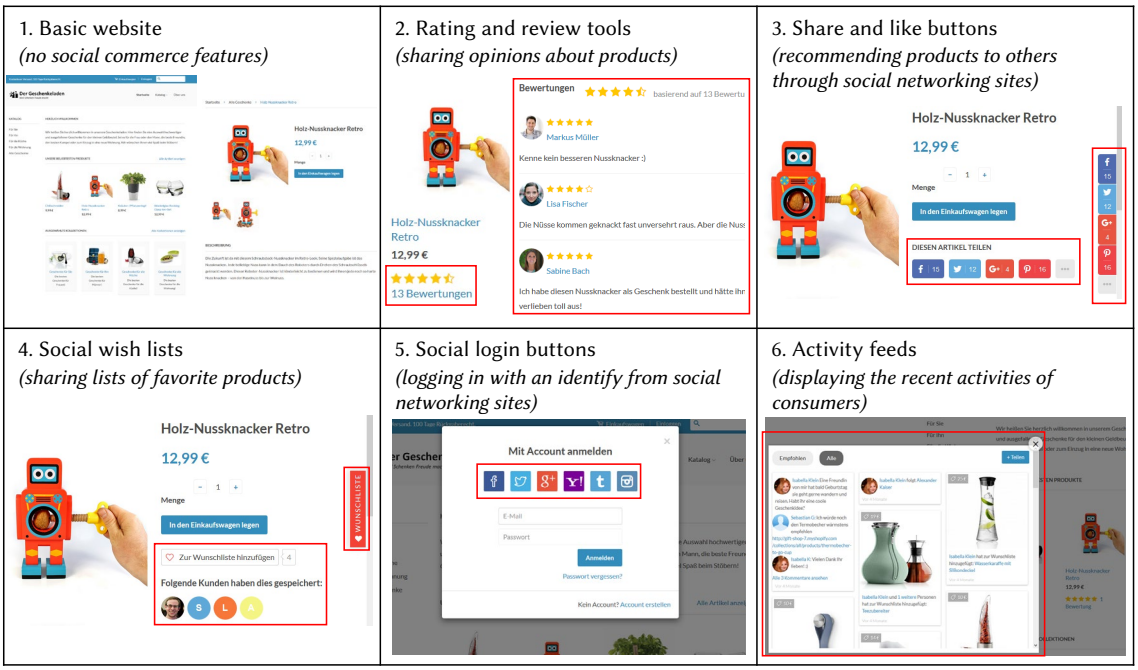


Figure 12.2 Implementation of social commerce features

To ensure that the experiment reproduces a realistic scenario, we have created our e-commerce website using a professional web-based platform, which supports the rapid creation of online-shops and their extension with additional features by using an app store. We were hence able to set up a complete e-commerce website and configure it with various social commerce features as needed. To ensure that the participants are confronted with a shopping domain, in which they can act profoundly, but might nevertheless appreciate additional information about the offered goods, we created an online shop of a fictitious company that sells unbranded gift gadgets. Unbranded gift gadgets seemed to be an appropriate choice for several reasons (Lowry et al. 2008): first, their selection is at least partially based on social and emotional aspects; second,

gift gadgets are associated with manageable financial risk; third, potential branding effects are avoided. We hence filled the store with several popular gift gadgets that we took over from real websites after acquiring permission. In addition, we generated all the information necessary to populate the various social commerce features with content. After implementing all these measures, we made sure that our e-commerce platform delivers an authentic shopping experience during a pilot test.

After completing the pilot test, the experiment was conducted online. To start the experiment, we asked the participants to open a webpage, which provided access both to the e-commerce platform as well as to the online survey. At the beginning, the participants were directed to a landing page, on which the task of the experiment was explained. Subsequently, relevant demographic information was inquired. Thereafter, the system randomly and automatically assigned the participants to one of three groups and gave them access to one of the three abovementioned versions of the e-commerce platform. Equipped with an identical amount of virtual money, the participants were asked to select and buy a gift of their choice for a friend. Each group had access to exactly one of the three website versions. After completing the shopping task on the e-commerce platform, the participants were redirected to an online survey, in which we asked for the perception of the various factors contained in the research model.

12.4.2 Measures

To measure the dependent variables, we used validated scales that we took over from literature with minor wording changes to adapt them to the context of our study. We measured perceived social support using the following questionnaire items (Ballantine and Stephenson 2011; Liang et al. 2011): *i) I think that other customers would make suggestions for gifts; ii) I have the impression that other customers would give me advice when selecting a gift; iii) I think that other customers would give me information about the gifts; iv) I think that other customers would show an interest in helping me to select a gift; v) I think that other customers would listen if I would report problems during the selection of a gift.* Perceived social presence was measured as follows (Gefen and Straub 2003; Kumar and Benbasat 2006): *i) There is a sense of human contact in the website/in this online shop; ii) There is a sense of personalness in the website/in this online shop; iii) There is a sense of sociability in the website; iv) There is a sense of human warmth in the website/in this online shop.* Perceived social influence was measured using the items (Bearden et al. 1989; Mangleburg et al. 2004): *i) During the selection of a gift, I searched for information provided by other customers; ii) During the selection of a gift, I oriented myself according to the opinion of other customers; iii) It was important for me to know which gifts appealed to others; iv) I chose a gift which I assumed to be popular among other customers.* We measured the buying intention using the following questionnaire items (Brengman and Karimov 2012; Pavlou 2003): *i) I would consider to buy gifts in this online shop; ii) If I need a gift in the future, I would visit this online shop; iii) If I need a gift in the future, I would probably buy it in this online shop.* All questionnaire items were operationalized using seven-point Likert scales.

To verify the manipulation of the independent variable, we followed guidelines to ask the participants directly if they experienced the manipulation (Straub et al. 2004). We asked a question in the form: "Did you notice <social commerce feature> on this website?" for each social commerce feature that played a role in our experiment. The answers were measured on three-point scales consisting of "no – yes – unsure". Following advice from literature, we also examined the age, gender, social media usage frequency, and online shopping frequency of the participants (Mikalef et al. 2013; Pavlou and Fygenson 2006; Wakefield et al. 2010; Wells et al. 2011). We

included these control variables into the study to account for individual characteristics of the participants, which might have a confounding effect on the results.

12.4.3 Participants

We decided to invite students of a large, public university in Germany as participants for the experiment. Although using students as substitutes for everyday users is sometimes put into question in literature, we deliberately chose to focus on this target group, as it is likely that student participants are highly familiar with online shopping and willing to try out new approaches. We hence invited students that participated in the current lecture courses of the faculty. We issued a call for participation using the online learning platform of the faculty and invited them personally during our lecture courses. Apart from a personal motivation, no incentive was given as we wanted to recruit intrinsically motivated individuals. The data collection took place from December 2015 until February 2016.

12.5 Data Analysis and Results

Overall, we received data from 162 participants. After sorting out incomplete responses, we retained 147 usable responses for data analyses. We decided to only include those responses in our final data set, where the participants did not wrongly assess which social commerce features were integrated in the employed online shop. As for example in Group 1, where no social commerce features were included, we eliminated all responses where participants stated that they perceived that any social commerce feature was included. In Group 3, where several social commerce features were included, we decided to eliminate all responses in which the participants did not realize the given social commerce features. Doing so allowed us to not only ensure that the participants' engagement was credible but also that their assessment of the online shop was valid. This procedure left us with a total of 115 responses. Of them, 78 were male and 37 were female. All participants were graduate students from business administration, information systems, and computer science degree programs. On average, they were 24 years old.

We then analyzed our theoretical model using (PLS) with SmartPLS 3 (Ringle et al. 2015). Partial least squares structural equation modeling (SEM-PLS) is appropriate to test our model because the model is comparably complex and includes various control variables. In particular, PLS is often referred to have the advantage that it not only maximizes the explained variance of the endogenous variables, but that it also is more stable to non-normal distributed data than other (co-)variance based approaches (Chin 1998). With 115 participants, we deem the sample size to be sufficient for a robust PLS calculation considering the number of variables and paths in our model (Chin 1998; Hair et al. 2012).

12.5.1 Measurement Validation

In the first step of our analysis, we performed various tests to check the validity of our model. Specifically, we tested for common method bias since all measures were collected from the same questionnaire. We therefore conducted a Harman's one-factor test and ran an explorative factor analysis. The results show that multiple factors are present and that the most covariance explained by one factor is 40.65%. This indicates that a common method bias is not likely to be a serious concern to our study (Podsakoff et al. 2003).

As we modelled all indicators of our model as reflective measures, we moreover determined the composite reliability (CR) as well as the convergent and discriminant validity to validate these measurements. In general, composite reliability should be higher than 0.70 (Werts et al. 1974). To further demonstrate adequate convergent and discriminant validity, the square root of the average variance extracted (AVE) should be higher than 0.707 and should also be higher than the correlations between the focal construct and other construct (Gefen et al. 2000). Furthermore, standardized item loadings should be greater than 0.70 and items should load more highly on their intended construct than on other constructs (Gefen et al. 2000). Table 12.2 summarizes the most important results of our measurement validation. As can be seen from there, the square roots of all AVE values are higher than 0.707 and exceed the correlations to the other constructs. Moreover, it can be seen that the composite reliability is consistently higher than 0.9.

Table 12.2 Reliability, validity and distribution statistics

	Mean	*Standard deviation*	*Loading range*	*CR*	*AVE*
Buying intention	4.62	1.40	0.908-0.954	0.948	0.860
Perceived social influence	3.23	1.72	0.826-0.899	0.923	0.749
Perceived social presence	2.98	1.44	0.892-0.956	0.957	0.848
Perceived social support	4.19	1.30	0.820-0.885	0.928	0.720

Table 12.3 depicts the reliability, validity, and summary statistics. It shows that the minimum item loading within the constructs is 0.826. Due to space limitations we were not able to depict the loadings to other constructs, however, the maximum item loading to another construct is 0.47. The results of the conducted measurement validation tests therefore all indicate that our model meets or even exceeds standards for validity and that our measures are valid and reliable (Straub et al. 2004).

Table 12.3 Square root of AVE (bold numbers) and correlations between latent variables

	Buying intention	*Int. of social commerce features*	*Perceived social influence*	*Perceived social presence*	*Perceived social support*
Buying intention	**0.927**				
Int. of social commerce features	0.109	**1.000**			
Perceived social influence	0.285	0.286	**0.866**		
Perceived social presence	0.252	0.305	0.297	**0.921**	
Perceived social support	0.369	0.343	0.343	0.482	**0.849**

12.5.2 Hypotheses Testing

The results of our PLS model are shown in Figure 12.3. The intensity of social commerce features has a significant positive effect on perceived social support (0.217, $p<0.01$), perceived social presence (0.305, $p<0.001$), and perceived social influence (0.215, $p<0.05$). Accordingly, the results support our hypotheses H1-H3. Moreover, perceived social presence significantly influences perceived social support (0.416, $p<0.001$) as well as perceived social influence (0.231, $p<0.05$), thus lending support for hypotheses H4-H5. Finally, the buying intention is significantly positively influenced by perceived social support (0.307, $p<0.01$) and by perceived social influence (0.180, $p<0.05$), which supports hypotheses H6-H7.

Perceived social support and perceived social influence thereby explain 16.5% of the variance of the buying intention. Furthermore, the intensity of social commerce features combined with the perceived social presence explain 27.5% of the variance of the perceived social support and 13% of the perceived social influence, whereas the intensity of social commerce features alone determines 9.3% of the variance of the perceived social presence. In summary, the results support our hypotheses H1-H7. The results moreover indicate that our hypotheses are robust against individual characteristics such as the social media usage frequency, online shopping frequency, age, and gender of the participants since none of these control variables had a significant influence.

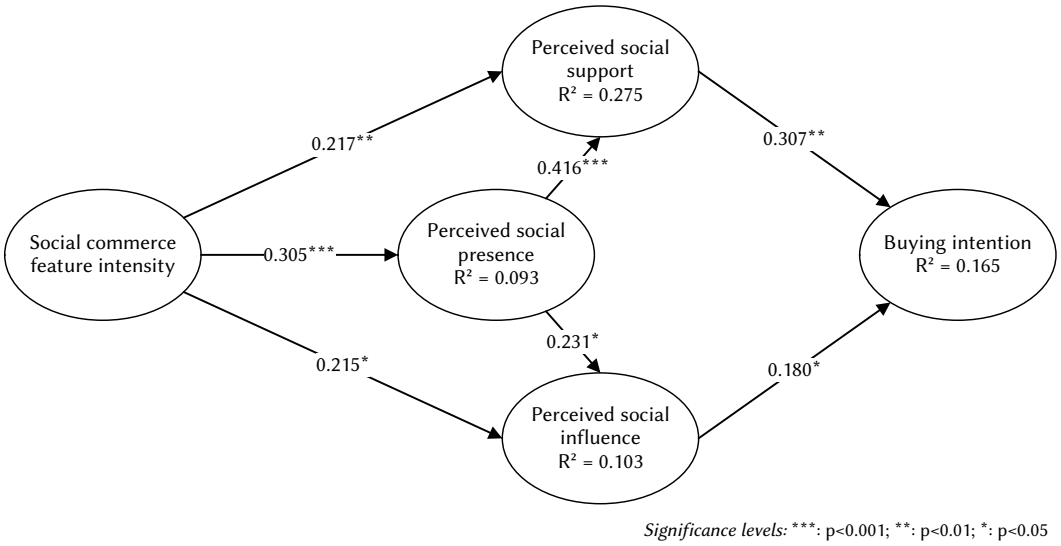


Figure 12.3 Results of PLS analysis

12.6 Discussion

In the following subsections, we discuss the key findings, implications, and limitations of our study.

12.6.1 Key Findings

Motivated by the need to support the design of social commerce initiatives, this study sought to investigate how the use of social commerce features influences the consumers' buying behavior with respect to the perception of social factors. Social factors, which are manipulated by the consumers' social interactions and exchanges, are considered as a key characteristic of social commerce (Liang et al. 2011; Wang and Zhang 2012). Accordingly, efforts have been made to explore how the consumers' perception of social factors, such as social presence, social support, and social influence, can influence the consumers' buying behavior. However, when considering the antecedents of social factors, little is known about the role of social commerce features since the causal relationship between social commerce features and social factors has not been investigated systematically yet. As it is sometimes assumed that social commerce initiatives can be made more effective if multiple social commerce features are used, our first aim was to explore how the intensity of the social commerce features present on an e-commerce website can impact the consumers' buying intention. Moreover, with respect to the social factors, our second aim was to examine through which causal pathways social commerce features can affect

the consumers' buying intention. Accordingly, two key findings can be derived from the results of this study.

First, we could demonstrate that the intensity of social commerce features indeed can have a significant and positive impact on the perception of social factors. Hence, when multiple social commerce features are integrated into an e-commerce website, it is more likely that the website stimulates the consumers' perception of the three social factors social presence, social support, and social influence. Referring to social presence, the examined effect can be described as follows. An e-commerce website that provides multiple social commerce features, such as rating and review tools, share and like buttons, or activity feeds, conveys its consumers a higher sense of human warmth and sociability. Referring to social support, the effect describes that the use of multiple social commerce features increases the likelihood that consumers perceive that the website supports them in their decision making and thus conveys a sense of caring. With respect to social influence, the examined effect can be understood as when an e-commerce website uses multiple social commerce features, it becomes more likely that consumers will perceive social influence either by considering the information that is provided by other consumers or by conforming to the positive expectations of others.

The second key finding is related to the social factors and the causal pathways through which the intensity of social commerce features can influence the consumers' buying intention. According to our results, we could demonstrate that social presence is an important factor that has a positive and significant influence on social support and social influence. This effect means that when a website conveys a sense of human warmth and sociability, it is more likely that consumers are stimulated to perceive the support and influence of other consumers. Moreover, we could demonstrate that both social support and social influence have a significantly positive effect on the consumers' buying intention. Consequently, when consumers perceive social support and social influence on an e-commerce website, it becomes more likely that they will purchase products on this website. When comparing these two social dimensions, our findings indicate that social support has a stronger and more significant effect on the consumers' buying intention than social influence.

12.6.2 Theoretical and Practical Implications

The findings of our study provide various implications for research and practice. From a theoretical standpoint, we could demonstrate that the mere integration of social commerce features into an e-commerce website can significantly influence the consumers' buying intention through various social factors. For this purpose, we developed a novel research model that is based on the S-O-R paradigm and that enabled us to establish a theoretically grounded link between the intensity of social commerce features, the consumers' perception of social factors, and the consumers' buying intention. Through the establishment of this link, we answer calls from researchers that suggest to directly link the impacts of IT artifacts to the study of perceptions and intentions (Benbasat and Zmud 2003; Kumar and Benbasat 2006). Referring to the independent variable of our research model, we could demonstrate how an important concern in the design of social commerce initiatives, namely the intensity of social commerce features, can be conceptualized and systematically investigated in a controlled experimental setting. Investigating the intensity of social commerce features is important given the fact that no clear statement can be derived whether an increased number of social commerce features might have positive or negative effects on the success of social commerce initiatives (Baethge et al. 2016; Curty and Zhang 2013; Huang and Benyoucef 2013a; Olbrich and Holsing 2011). According to

our results, we made a first step to empirically confirm researchers' assumptions that social commerce initiatives can be more effective if multiple social commerce features are used (Huang and Benyoucef 2013a). With respect to the potential impacts of social commerce features, this study could show that the intensity of social commerce features has a significantly positive affect on the consumers' perception of social presence, social support, and social influence. So far, studies investigating the impacts of social commerce features on social factors have not taken into account how different numbers of social commerce features might influence these factors (Hajli and Sims 2015; Kumar and Benbasat 2006; Kwahk and Ge 2012; Liang et al. 2011; Zhang et al. 2014). By integrating three different social factors into one research model, our study moreover can contribute to a more complete understanding of how social commerce features can strengthen the perception of social factors on e-commerce platforms.

Considering the relationship between the three social factors, we could show that social presence can positively mediate the relationship between the intensity of social commerce features and the two social factors social support and social influence. The mediating role of social presence corresponds to prior findings in literature in which social presence has been reported to positively affect the consumers' perceptions of usefulness, enjoyment, and trust (Cyr et al. 2007; Gefen and Straub 2003; Hassanein and Head 2005). By demonstrating that social presence can also significantly influence social factors, such as social support and social influence, our study furthermore contributes to the research stream that investigates the impacts of social presence. Referring to the outcome variable of our research model, we could demonstrate that the two factors social support and social influence can have a significantly positive influence on the consumers' buying intention. Consequently, our results strengthen the initial findings reported in the social commerce literature that both factors can play an important role in shaping consumers' intentions towards commercial activities (Hajli and Sims 2015; Kim and Srivastava 2007; Kwahk and Ge 2012; Liang et al. 2011; Zhang et al. 2014).

Our study has implications for practice as well. According to our results, we can provide support for a key argument made by social commerce practitioners (Marsden 2010; Mulpuru et al. 2010), namely that social commerce features in combination can increase the success of a social commerce initiative. Specifically, we could show that the intensity of social commerce features can stimulate the consumers' perception of social factors, which in turn can increase the consumers' buying intention. As the social interactions and relationships between consumers are a key characteristic of social commerce, companies therefore should aim to strengthen these characteristics by integrating multiple social commerce features into their e-commerce websites. A promising instrument in this context is the reference model developed by Huang and Benyoucef (2013a), which illustrates how different social commerce features can be effectively combined. Referring to the social factors, companies should ensure that the selected social commerce features convey a sense of human warmth and sociability in order to enhance the consumers' perception of social presence. Moreover, companies should also ensure that these features enable consumers to generate supportive messages in order to increase the perception of social support as well as to enable consumers to consider the information and/or behavior of other consumers in order to increase the perception of social influence.

12.6.3 Limitations

The presented study has several noteworthy limitations. First, we deliberately decided to focus on social factors as these factors are considered as a key characteristic of social commerce (Liang et al. 2011; Wang and Zhang 2012). However, the intensity of social commerce features might

also influence other factors that have not been taken into account in this study, such as utilitarian factors (e.g., perceived usefulness, perceived ease of use), hedonic factors (perceived enjoyment), relational factors (e.g., trust, commitment, satisfaction), or risk factors (e.g., privacy risk, financial risk) (Featherman and Hajli 2015; Grange and Benbasat 2010; Liang et al. 2011). Moreover, we decided to conduct a controlled experiment in order to achieve results with a high internal validity and to demonstrate the causal relations between the variables contained in our research model. Although we have taken care to simulate a realistic case, we had to make some reasonable but strict assumptions. As we could not make use of advanced control mechanisms such as eye tracking techniques, we decided to test the validity of our independent variable by directly asking the participants if they experienced the experimental manipulation. In order to advance the external validity of our findings, future studies are hence encouraged to complement our findings with field data (e.g., investigate the consumers' actual buying behavior). Moreover, students of a German university so far were the only participants in our experiment. We were hence not yet able to investigate cultural differences, which can have a significant impact in the e-commerce domain (Cyr 2008; Moon et al. 2008; Pavlou and Chai 2002). Moreover, by using a student sample, we were not able to claim that the reported effects are generalizable to other types of customers. Likewise, we cannot claim that the reported effects apply for social commerce scenarios in general, since we only focused on a fictitious company that sells unbranded gift gadgets. The participants where hence not familiar with the website and acted as first-time buyers. As social interactions and relationships typically develop over time, we recommend further investigating the relationship between social commerce features and the perception of social factors in longitudinal studies.

12.7 Conclusion

As an instrument to increase sales volumes by integrating social media applications into e-commerce platforms, social commerce is rapidly becoming popular in practice. Yet, the unique and characteristic effects, which social commerce features might have on the buying behavior, have remained largely unexplained. The results of the study presented in the paper at hand particularly highlight the importance of a profound understanding of the effects on the perception of social factors that result from the integration of social commerce features into e-commerce platforms. Lending support to initial findings from literature, the results of our study indicate that the usage of social commerce features can uniquely affect the perception of social factors, which in turn have a direct and positive impact on the consumers' buying behavior. Social commerce accordingly might indeed provide unique and innovative measures to stimulate the buying behavior of consumers in practice.

With the research model developed during our study, we provide a theoretical lens through which the effects of social commerce features on the perception of social factors and the causal relationship between the perceived social factors and the consumers' buying intention can be analyzed systematically. Interestingly, our findings indicate that social commerce features might rather influence the buying behavior through the provided social support than through the generated social influence. This observation might have consequences for the design and use of social commerce features such as popups with activity notifications, which inform consumers about the current buying behavior of others as an emotional appeal to decide for a certain product. According to the results of our study, the influence of such features on the buying behavior might be somewhat limited compared to the effect of features, which aim at influencing the buying decision by increasing the perceived social support. In addition, the results of

our study suggest that the perception of social factors, which results from the adoption and use of social commerce features, can be positively influenced by increasing the intensity of the social commerce features on an e-commerce platform. In general, our findings corroborate hypotheses that social commerce features might indeed better work in concert (Huang and Benyoucef 2013a). Despite the existing limitations, in the light of which our results certainly have to be interpreted, our study hence provides novel insights that inform the design and implementation phases of social commerce initiatives.

We are convinced that studying the unique effects of social commerce features on the social factors that are perceived when acting as a consumer on e-commerce platforms provides a rich avenue for future research. In particular, future research should determine in how far the findings presented in this paper are robust with respect to consumer attributes (e.g., age, culture, etc.) and shopping scenarios (e.g., different types of products). In addition, it is conceivable to make use of advanced control mechanisms such as cursor or eye tracking techniques to verify if study participants indeed realize or use certain social commerce features to make a buying decision. To a considerable extent, the impact of a social commerce feature will moreover depend on the quality of its implementation, which – from a consumers' point of view – is reflected in factors such as the perceived usability, usefulness, or ease of use. Finally yet importantly, future studies hence should also investigate the impact of social commerce features and their possibly alternative implementations on the perception of additional factors, which we did not examine so far. With the presented research model and the developed modular technological infrastructure to support further experiments, we provide a starting point for such endeavors.

12.8 References

Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50(2), pp. 179-211.

Al-Natour, S., Benbasat, I., & Cenfetelli, R. (2011). The Adoption of Online Shopping Assistants: Perceived Similarity as an Antecedent to Evaluative Beliefs. *Journal of the Association for Information Systems*, 12(5), pp. 347-374.

Amblee, N., & Bui, T. (2011). Harnessing the Influence of Social Proof in Online Shopping: The Effect of Electronic Word of Mouth on Sales of Digital Microproducts. *International Journal of Electronic Commerce*, 16(2), pp. 91-113.

Animesh, A., Pinsonneault, A., Sung-Byung, Y., & Wonseok, O. (2011). An Odyssey into Virtual Worlds: Exploring the Impacts of Technological and Spatial Environments on Intention to Purchase Virtual Products. *MIS Quarterly*, 35(3), pp. 789-810.

Argo, J. J., Dahl, D. W., & Manchanda, R. V. (2005). The Influence of a Mere Social Presence in a Retail Context. *Journal of Consumer Research*, 32(2), pp. 207-212.

Baethge, C., Klier, J., & Klier, M. (2016). Social Commerce – State-of-the-Art and Future Research Directions. *Electronic Markets*, 26(3), pp. 1-22.

Ballantine, P. W., & Stephenson, R. J. (2011). Help Me, I'm Fat! Social Support in Online Weight Loss Networks. *Journal of Consumer Behaviour*, 10(6), pp. 332-337.

Baumeister, R. F., & Leary, M. R. (1995). The Need to Belong: Desire for Interpersonal Attachments as a Fundamental Human Motivation. *Psychological Bulletin*, 117(3), pp. 497-529.

Bearden, W. O., Netemeyer, R. G., & Teel, J. E. (1989). Measurement of Consumer Susceptibility to Interpersonal Influence. *Journal of Consumer Research*, 15(4), pp. 473-481.

Benbasat, I., & Zmud, R. W. (2003). The Identity Crisis within the IS Discipline: Defining and Communicating the Discipline's Core Properties. *MIS Quarterly*, 27(2), pp. 183-194.

Benlian, A., Titah, R., & Hess, T. (2012). Differential Effects of Provider Recommendations and Consumer Reviews in E-Commerce Transactions: An Experimental Study. *Journal of Management Information Systems*, 29(1), pp. 237-272.

Bilgihan, A., & Bujisic, M. (2015). The Effect of Website Features in Online Relationship Marketing: A Case of Online Hotel Booking. *Electronic Commerce Research and Applications*, 14(4), pp. 222-232.

Blau, P. M. (1964). *Exchange and Power in Social Life*. New York, USA: John Wiley & Sons.

Brengman, M., & Karimov, F. P. (2012). The Effect of Web Communities on Consumers' Initial Trust in B2C E-Commerce Websites. *Management Research Review*, 35(9), pp. 791-817.

Burnkrant, R. E., & Cousineau, A. (1975). Informational and Normative Social Influence in Buyer Behavior. *Journal of Consumer Research*, 2(3), pp. 206-215.

Chang, H. H., & Chen, S. W. (2008). The Impact of Online Store Environment Cues on Purchase Intention. *Online Information Review*, 32(6), pp. 818-841.

Chen, Y., & Xie, J. (2008). Online Consumer Review: Word-of-Mouth as a New Element of Marketing Communication Mix. *Management Science*, 54(3), pp. 477-491.

Chevalier, J. A., & Mayzlin, D. (2006). The Effect of Word of Mouth on Sales: Online Book Reviews. *Journal of Marketing Research*, 43(3), pp. 345-354.

Chin, W. W. (1998). Issues and Opinion on Structural Equation Modeling. *MIS Quarterly*, 22(1), pp. VII-XVI.

Cobb, S. (1976). Social Support as a Moderator of Life Stress. *Psychosomatic Medicine*, 38(5), pp. 300-314.

Crocker, J., & Canevello, A. (2008). Creating and Undermining Social Support in Communal Relationships: The Role of Compassionate and Self-Image Goals. *Journal of Personality & Social Psychology*, 95(3), pp. 555-575.

Curty, R., & Zhang, P. (2011). Social Commerce: Looking Back and Forward. *Proceedings of the American Society for Information Science and Technology*, pp. 1-10.

Curty, R., & Zhang, P. (2013). Website Features that Gave Rise to Social Commerce: A Historical Analysis. *Electronic Commerce Research and Applications*, 12(4), pp. 260-279.

Cyr, D. (2008). Modeling Web Site Design Across Cultures: Relationships to Trust, Satisfaction, and E-Loyalty. *Journal of Management Information Systems*, 24(4), pp. 47-72.

Cyr, D., Hassanein, K., Head, M., & Ivanov, A. (2007). The Role of Social Presence in Establishing Loyalty in E-Service Environments. *Interacting with Computers*, 19(1), pp. 43-56.

Cyr, D., Head, M., Larios, H., & Pan, B. (2009). Exploring Human Images in Website Design: A Multi-Method Approach. *MIS Quarterly*, 33(3), pp. 539-566.

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3), pp. 319-340.

Deeter-Schmelz, D. R., & Ramsey, R. P. (1997). Considering Sources and Types of Social Support: A Psychometric Evaluation of the House and Wells (1978) Instrument. *The Journal of Personal Selling and Sales Management*, 17(1), pp. 49-61.

Deutsch, M., & Gerard, H. B. (1955). A Study of Normative and Informational Social Influences Upon Individual Judgment. *The Journal of Abnormal and Social Psychology*, 51(3), pp. 629-636.

Eroglu, S. A., Machleit, K. A., & Davis, L. M. (2001). Atmospheric Qualities of Online Retailing: A Conceptual Model and Implications. *Journal of Business Research*, 54(2), pp. 177-184.

Eroglu, S. A., Machleit, K. A., & Davis, L. M. (2003). Empirical Testing of a Model of Online Store Atmospherics and Shopper Responses. *Psychology & Marketing*, 20(2), pp. 139-150.

Featherman, M. S., & Hajli, N. (2015). Self-Service Technologies and e-Services Risks in Social Commerce Era. *Journal of Business Ethics*, 2015, pp. 1-19.

Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*. Reading, USA: Addison-Wesley.

Friedrich, T. (2015). Analyzing the Factors that Influence Consumers' Adoption of Social Commerce – A Literature Review. *Proceedings of the 21st Americas Conference on Information Systems (AMCIS)*, Puerto Rico, USA, pp. 1-16.

Fulk, J., Steinfield, C. W., Schmitz, J., & Power, J. G. (1987). A Social Information Processing Model of Media Use in Organizations. *Communication Research*, 14(5), pp. 529-552.

Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in Online Shopping: An Integrated Model. *MIS Quarterly*, 27(1), pp. 51-90.

Gefen, D., & Straub, D. (2003). Managing User Trust in B2C e-Services. *e-Service Journal*, 2(2), pp. 7-24.

Gefen, D., Straub, D., & Boudreau, M.-C. (2000). Structural Equation Modeling and Regression: Guidelines for Research Practice. *Communications of the Association for Information Systems*, 4(1), pp. 1-77.

Grange, C., & Benbasat, I. (2010). Online Social Shopping: The Functions and Symbols of Design Artifacts. *Proceedings of the 43rd Hawaii International Conference on System Sciences (HICSS)*, pp. 1-10.

Hair, J. F., Sarstedt, M., Ringle, C. M., & Mena, J. A. (2012). An Assessment of the Use of Partial Least Squares Structural Equation Modeling in Marketing Research. *Journal of the Academy of Marketing Science*, 40(3), pp. 414-433.

Hajli, N. (2016). Ethical Environment in the Online Communities by Information Credibility: A Social Media Perspective. *Journal of Business Ethics*, 2016, pp. 1-12.

Hajli, N., & Sims, J. (2015). Social Commerce: The Transfer of Power from Sellers to Buyers. *Technological Forecasting and Social Change*, 94, pp. 350-358.

Hassanein, K., & Head, M. (2005). The Impact of Infusing Social Presence in the Web Interface: An Investigation Across Product Types. *International Journal of Electronic Commerce*, 10(2), pp. 31-55.

Hassanein, K., & Head, M. (2007). Manipulating Perceived Social Presence Through the Web Interface and Its Impact on Attitude Towards Online Shopping. *International Journal of Human-Computer Studies*, 65(8), pp. 689-708.

Hess, T., Fuller, M., & Campbell, D. (2009). Designing Interfaces with Social Presence: Using Vividness and Extraversion to Create Social Recommendation Agents. *Journal of the Association for Information Systems*, 10(12), pp. 889-919.

House, J. S. (1981). *Work Stress and Social Support*. Reading, USA: Addison-Wesley.

Huang, K.-Y., Nambisan, P., & Uzuner, Ö. (2010). Informational Support or Emotional Support: Preliminary Study of an Automated Approach to Analyze Online Support Community Contents. *Proceedings of the 31st International Conferences on Information Systems (ICIS)*, St. Louis, USA, pp. 1-12.

Huang, Z., & Benyoucef, M. (2013a). From E-Commerce to Social Commerce: A Close Look at Design Features. *Electronic Commerce Research and Applications*, 12(4), pp. 246-259.

Huang, Z., & Benyoucef, M. (2013b). User-Centered Investigation of Social Commerce Design. *Proceedings of the 5th International Conference on Online Communities and Social Computing*, A. A. Ozok, & P. Zaphiris (Eds.), pp. 287-295.

Huang, Z., Yoon, S. Y., & Benyoucef, M. (2012). Adding Social Features to E-Commerce. *Proceedings of the Conference on Information Systems Applied Research*, pp. 1-11.

Jabr, W., & Zhiqiang, Z. (2014). Know Yourself and Know Your Enemy: An Analysis of Firm Recommendations and Consumer Reviews in a Competitive Environment. *MIS Quarterly*, 38(3), pp. 645-654.

Kim, Y. A., & Srivastava, J. (2007). Impact of Social Influence in E-Commerce Decision Making. *Proceedings of the 9th International Conference on Electronic Commerce (ICEC)*, D. Sarppo (Ed.), pp. 293-301.

Kumar, N., & Benbasat, I. (2006). Research Note: The Influence of Recommendations and Consumer Reviews on Evaluations of Websites. *Information Systems Research*, 17(4), pp. 425-439.

Kwahk, K.-Y., & Ge, X. (2012). The Effects of Social Media on E-Commerce: A Perspective of Social Impact Theory. *Proceedings of the 45th Hawaii International Conference on System Sciences (HICSS)*, R. H. Sprague (Ed.), pp. 1814-1823.

Lakey, B., & Cohen, S. (2000). Social Support Theory and Measurement. In: *Measuring and Intervening in Social Support*, S. Cohen, L. G. Underwood, & B. H. Gottlieb (Eds.). New York, USA: Oxford University Press, pp. 29-52.

Latané, B. (1981). The Psychology of Social Impact. *American Psychologist*, 36(4), pp. 343-356.

Lee, H. H., & Jin Ma, Y. (2012). Consumer Perceptions of Online Consumer Product and Service Reviews. *Journal of Research in Interactive Marketing*, 6(2), pp. 110-132.

Lee, M. K. O., Cheung, C. M. K., Sia, C. L., & Lim, K. H. (2006). How Positive Informational Social Influence Affects Consumers' Decision of Internet Shopping? *Proceedings of the 39th Annual Hawaii International Conference on System Sciences (HICSS)*, pp. 1-10.

Lee, M. K. O., Shi, N., Cheung, C. M. K., Lim, K. H., & Sia, C. L. (2011). Consumer's Decision to Shop Online: The Moderating Role of Positive Informational Social Influence. *Information & Management*, 48(6), pp. 185-191.

Li, H., Yao, Z., & Bai, Y. (2014). Social Commerce User Purchase Intention Study: What Factors Are Taking Effect? *Proceedings of the 18th Pacific Asia Conference on Information Systems (PACIS)*, pp. 1-13.

Liang, T.-P., Ho, Y.-T., Li, Y.-W., & Turban, E. (2011). What Drives Social Commerce: The Role of Social Support and Relationship Quality. *International Journal of Electronic Commerce*, 16(2), pp. 69-90.

Liang, T.-P., & Turban, E. (2011). Introduction to the Special Issue Social Commerce: A Research Framework for Social Commerce. *International Journal of Electronic Commerce*, 16(2), pp. 5-14.

Limayem, M., Khalifa, M., & Frini, A. (2000). What Makes Consumers Buy from Internet? A Longitudinal Study of Online Shopping. *IEEE Transactions on Systems, Man and Cybernetics, Part A: Systems and Humans*, 30(4), pp. 421-432.

Lowry, P. B., Vance, A., Moody, G., Beckman, B., & Aaron, R. (2008). Explaining and Predicting the Impact of Branding Alliances and Web Site Quality on Initial Consumer Trust of E-Commerce Web Sites. *Journal of Management Information Systems*, 24(4), pp. 199-224.

Lu, B., & Fan, W. (2014). Social Presence, Trust, and Social Commerce Purchase Intention: An Empirical Research. *Proceedings of the 18th Pacific Asia Conference on Information Systems (PACIS)*, pp. 1-17.

Mangleburg, T. F., Doney, P. M., & Bristol, T. (2004). Shopping with Friends and Teens' Susceptibility to Peer Influence. *Journal of Retailing*, 80(2), pp. 101-116.

Marsden, P. (2010) Social Commerce: Monetizing Social Media. SYZYGY Group, pp. 1-27.

Mehrabian, A., & Russell, J. A. (1974). *An Approach to Environmental Psychology*. Cambridge, USA: The MIT Press.

Mikalef, P., Giannakos, M., & Pateli, A. (2013). Shopping and Word-of-Mouth Intentions on Social Media. *Journal of Theoretical and Applied Electronic Commerce Research*, 8(1), pp. 17-34.

Moon, J., Chadee, D., & Tikoo, S. (2008). Culture, Product Type, and Price Influences on Consumer Purchase Intention to Buy Personalized Products Online. *Journal of Business Research*, 61(1), pp. 31-39.

Mudambi, S. M., & Schuff, D. (2010). What Makes a Helpful Online Review? A Study of Customer Reviews on Amazon.com. *MIS Quarterly*, 34(1), pp. 185-200.

Mudambi, S. M., Schuff, D., & Zhewei, Z. (2014). Why Aren't the Stars Aligned? An Analysis of Online Review Content and Star Ratings. *Proceedings of the 47th Hawaii International Conference on System Sciences (HICSS)*, pp. 3139-3147.

Mulpuru, S., Evans, P. F., & McGowan, B. (2010) Techradar™ for E-Business and Channel Strategy Professionals: Social Commerce, Q1 2010. Forrester Research, pp. 1-31.

Obst, P., & Stafurik, J. (2010). Online We Are All Able Bodied: Online Psychological Sense of Community and Social Support Found through Membership of Disability-Specific Websites Promotes Well-Being for People Living with a Physical Disability. *Journal of Community & Applied Social Psychology*, 20(6), pp. 525-531.

Olbrich, R., & Holsing, C. (2011). Modeling Consumer Purchasing Behavior in Social Shopping Communities with Clickstream Data. *International Journal of Electronic Commerce*, 16(2), pp. 15-40.

Parboteeah, D. V., Valacich, J. S., & Wells, J. D. (2009). The Influence of Website Characteristics on a Consumer's Urge to Buy Impulsively. *Information Systems Research*, 20(1), pp. 60-78.

Pavlou, P. A. (2003). Consumer Acceptance of Electronic Commerce: Integrating Trust and Risk with the Technology Acceptance Model. *International Journal of Electronic Commerce*, 7(3), pp. 101-134.

Pavlou, P. A., & Chai, L. (2002). What Drives Electronic Commerce Across Cultures? A Cross-Cultural Empirical Investigation of the Theory of Planned Behaviour. *Journal of Electronic Commerce Research*, 3(4), pp. 240-253.

Pavlou, P. A., & Dimoka, A. (2006). The Nature and Role of Feedback Text Comments in Online Marketplaces: Implications for Trust Building, Price Premiums, and Seller Differentiation. *Information Systems Research*, 17(4), pp. 392-414.

Pavlou, P. A., & Fygenson, M. (2006). Understanding and Predicting Electronic Commerce Adoption: An Extension of the Theory of Planned Behavior. *MIS Quarterly*, 30(1), pp. 115-143.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *Journal of Applied Psychology*, 88(5), pp. 879-903.

Qiu, L., & Benbasat, I. (2005). An Investigation into the Effects of Text-to-Speech Voice and 3D Avatars on the Perception of Presence and Flow of Live Help in Electronic Commerce. *ACM Transactions on Computer-Human Interaction (TOCHI)*, 12(4), pp. 329-355.

Ringle, C. M., Wende, S., & Becker, J.-M. (2015). SmartPLS 3. *Bönningstedt: SmartPLS*. https://www.smartpls.com.

Rivis, A., & Sheeran, P. (2003). Social Influences and the Theory of Planned Behaviour: Evidence for a Direct Relationship Between Prototypes and Young People's Exercise Behaviour. *Psychology & Health*, 18(5), pp. 567-583.

Rosenbaum, M. S., & Massiah, C. A. (2007). When Customers Receive Support From Other Customers: Exploring the Influence of Intercustomer Social Support on Customer Voluntary Performance. *Journal of Service Research*, 9(3), pp. 257-270.

Schaefer, C., Coyne, J. C., & Lazarus, R. S. (1981). The Health-Related Functions of Social Support. *Journal of Behavioral Medicine*, 4(4), pp. 381-406.

Shaw, L. H., & Gant, L. M. (2002). In Defense of the Internet: The Relationship Between Internet Communication and Depression, Loneliness, Self-Esteem, and Perceived Social Support. *CyberPsychology & Behavior*, 5(2), pp. 157-171.

Shen, J. (2012). Social Comparison, Social Presence, and Enjoyment in the Acceptance of Social Shopping Websites. *Journal of Electronic Commerce Research*, 13(3), pp. 198-212.

Shin, D.-H. (2013). User Experience in Social Commerce: In Friends We Trust. *Behaviour & Information Technology*, 32(1), pp. 52-67.

Short, J., Williams, E., & Christie, B. (1976). *The Social Psychology of Telecommunications*. London, United Kingdom: Wiley.

Song, J., & Zahedi, F. M. (2005). A Theoretical Approach to Web Design in E-Commerce: A Belief Reinforcement Model. *Management Science*, 51(8), pp. 1219-1235.

Straub, D., Boudreau, M.-C., & Gefen, D. (2004). Validation Guidelines for IS Positivist Research. *Communications of the Association for Information Systems*, 13(1), pp. 380-427.

Turban, E., Bolloju, N., & Liang, T.-P. (2010). Social Commerce: An E-Commerce Perspective. *Proceedings of the 12th International Conference on Electronic Commerce (ICEC)*, T. Bui (Ed.), pp. 33-42.

Venkatesh, V., & Bala, H. (2008). Technology Acceptance Model 3 and a Research Agenda on Interventions. *Decision Sciences*, 39(2), pp. 273-315.

Venkatesh, V., & Davis, F. D. (2000). A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies. *Management Science*, 46(2), pp. 186-204.

Wakefield, R. L., Wakefield, K. L., Baker, J., & Wang, L. C. (2010). How Website Socialness Leads to Website Use. *European Journal of Information Systems*, 20(1), pp. 118-132.

Wang, C., & Zhang, P. (2012). The Evolution of Social Commerce: The People, Management, Technology, and Information Dimensions. *Communications of the Association for Information Systems*, 31(5), pp. 105-127.

Wang, Y., & Hajli, M. (2014). Co-Creation in Branding through Social Commerce: The Role of Social Support, Relationship Quality and Privacy Concerns. *Proceedings of the 20th Americas Conference on Information Systems (AMCIS)*, pp. 1-16.

Weiss, J. B., Berner, E. S., Johnson, K. B., Giuse, D. A., Murphy, B. A., & Lorenzi, N. M. (2013). Recommendations for the Design, Implementation and Evaluation of Social Support in Online Communities, Networks, and Groups. *Journal of Biomedical Informatics*, 46(6), pp. 970-976.

Wells, J. D., Valacich, J. S., & Hess, T. J. (2011). What Signals Are You Sending? How Website Quality Influences Perceptions of Product Quality and Purchase Intentions. *MIS Quarterly*, 35(2), pp. 373-396.

Werts, C. E., Linn, R. L., & Jöreskog, K. G. (1974). Intraclass Reliability Estimates: Testing Structural Assumptions. *Educational and Psychological Measurement*, 34(1), pp. 25-33.

Yadav, M. S., de Valck, K., Hennig-Thurau, T., Hoffman, D. L., & Spann, M. (2013). Social Commerce: A Contingency Framework for Assessing Marketing Potential. *Journal of Interactive Marketing*, 27(4), pp. 311-323.

Yi, Y., & Gong, T. (2007). An Integrated Model of Customer Social Exchange Relationship: The Moderating Role of Customer Experience. *The Service Industries Journal*, 29(11), pp. 1513-1528.

Zhang, H., Lu, Y., Gupta, S., & Zhao, L. (2014). What Motivates Customers to Participate in Social Commerce? The Impact of Technological Environments and Virtual Customer Experiences. *Information & Management*, 51(8), pp. 1017-1030.

Zhang, K. Z. K., & Benyoucef, M. (2016). Consumer Behavior in Social Commerce: A Literature Review. *Decision Support Systems*, 86, pp. 95-108.

Zhou, L., Zhang, P., & Zimmermann, H.-D. (2013). Social Commerce Research: An Integrated View. *Electronic Commerce Research and Applications*, 12(2), pp. 61-68.

Zhu, L., Benbasat, I., & Jiang, Z. (2010). Let's Shop Online Together: An Empirical Investigation of Collaborative Online Shopping Support. *Information Systems Research*, 21(4), pp. 872-891.

13 Paper IV: Social Commerce Feature Richness and Its Effects on Buying Intention

Table 13.1 Fact sheet Paper IV

Fact	*Description*
Title	Some Things Are Just Better Rich: How Social Commerce Feature Richness Affects Consumers' Buying Intention via Social Factors
Authors	Thomas Friedrich[1] thomas.friedrich@uni-bamberg.de Sebastian Schlauderer[1] sebastian.schlauderer@uni-bamberg.de Sven Overhage[1] sven.overhage@uni-bamberg.de [1] University of Bamberg An der Weberei 5 96047 Bamberg, Germany
Publication type	Journal Article
Publication outlet	Electronic Markets
Status	Accepted for publication
Full citation	Friedrich, T., Schlauderer, S., & Overhage, S.: Some Things Are Just Better Rich: How Social Commerce Feature Richness Affects Consumers' Buying Intention via Social Factors. Accepted for publication in *Electronic Markets*.
URL	https://dx.doi.org/10.1007/s12525-019-00374-7

Some Things Are Just Better Rich: How Social Commerce Feature Richness Affects Consumers' Buying Intention via Social Factors

Abstract. The social commerce discipline has produced several different social commerce features that can be integrated into e-commerce platforms. Thereby, it is assumed that using multiple social commerce features in combination can better stimulate consumers' social interactions. Yet, little is known about the effects of such strategies. This paper introduces the concept of social commerce feature richness and investigates its effects on consumers' buying intention via social factors. The results of a controlled online experiment, in which 237 participants used variants of an e-commerce platform with functionally diverse social commerce feature sets, confirm that the social commerce feature richness positively affects social factors, which increase consumers' buying intention. With the social commerce feature richness, we provide a novel, theoretically grounded and empirically verified concept to better understand how the use of functionally richer sets of social commerce features can maximize the success of social commerce initiatives

Keywords: Social commerce, feature richness, buying intention, social factors

13.1 Introduction

Inspired by the success of social networking websites, many companies are integrating social media into their e-commerce platforms to provide consumers a more interactive shopping experience and thereby increase sales volumes (Yadav et al. 2013). In literature, the term *social commerce* has been coined to summarize initiatives, in which social media are used to support e-commerce transactions (Liang and Turban 2011; Zhou et al. 2013). To facilitate the implementation of such initiatives, several social commerce features (i.e., readily usable social media applications) are available that can be integrated into e-commerce platforms. The most prominent features include rating and review tools, social wish lists, share buttons, like buttons, community feeds, and question and answer tools (Curty and Zhang 2013; Huang and Benyoucef 2015). By means of these features, consumers can for instance state and exchange opinions about products on e-commerce platforms, which can influence the buying decisions of others (Cheung and Thadani 2012; King et al. 2014). Such information, which is generated and shared using social media, is also referred to as social information (Cheung et al. 2014; Yadav et al. 2013).

In general, the features provided on an e-commerce platform (e.g., product search engines or product images) can significantly influence the shaping of consumers' buying intentions, which is a central determinant of their buying behavior (Hausman and Siekpe 2009; Parboteeah et al. 2009). Recent studies suggest that social commerce features might have a similar potential (Ding et al. 2017; Huang and Benyoucef 2017). They build on a characteristic mechanism that affects the buying intention by influencing social factors. Specifically, social commerce features are designed to stimulate interactions among consumers, which can lead to an increased perception of social factors such as social presence, social support, or social influence (Amblee and Bui 2011; Hajli and Sims 2015; Kumar and Benbasat 2006; Zhu et al. 2010). These social factors can significantly impact consumers' buying intention by positively shaping their attitudes towards the e-commerce platform (Bai et al. 2015; Kwahk and Ge 2012; Liang et al. 2011; Xi et al. 2016;

Zhang et al. 2014). The successful influencing of social factors is hence assumed to be a key performance indicator of social commerce initiatives (Liang et al. 2011; Wang and Zhang 2012).

The available social commerce features differ significantly in terms of the provided functionality, the conveyed social information, and, accordingly, the social interaction that is stimulated between consumers (Curty and Zhang 2013; Huang and Benyoucef 2013). By combining multiple social commerce features with differing functionality, e-commerce platforms can hence support the generation and sharing of a broader variety of social information. For instance, by means of a rating and review tool, social wish lists, and a community feed, consumers can publish product evaluations, encourage others to buy products, and discuss shopping activities. In this manuscript, we introduce the term *social commerce feature richness* to express the functional diversity of a set of social commerce features that is provided on an e-commerce platform. Note that different social commerce features can also provide similar functionality. The social commerce feature richness does hence not necessarily correspond to the number of social commerce features, which is contained in the set, but rather characterizes the extent of functionality.

Considering that functionally diverse sets of social commerce features convey different kinds of social information and stimulate varying forms of social interactions, it seems conceivable that the effects on social factors might be stronger if multiple social commerce features are provided on an e-commerce platform (Curty and Zhang 2013; Huang and Benyoucef 2013). Platforms with functionally richer sets of social commerce features might hence more effectively stimulate consumers' buying intention (Huang and Benyoucef 2017). However, there also exist indications that platforms with multiple social commerce features could overwhelm consumers with "social overload" and therefore might even negatively affect consumers' buying intention (Baethge et al. 2016; Olbrich and Holsing 2011). To better devise social commerce strategies, it is hence essential to understand if and how social commerce features should be provided in combination and how this impacts consumers' buying intention.

While considerable research focuses on examining the impacts of social commerce features, little is known about the effect that multiple social commerce features have on social factors and consumers' buying intention. So far, only the effects of individual social commerce features have been investigated. For instance, Kumar and Benbasat (2006) provide evidence that rating and review tools can positively influence the social presence of an e-commerce platform. Zhu et al. (2010) show that collaborative shopping features can have a similar effect. Literature also indicates that social commerce features such as rating and review tools, share buttons, or like buttons can generate social support and social influence (Amblee and Bui 2011; Hajli and Sims 2015; Kuan et al. 2014). Yet, no conclusion can be drawn if the effects on social factors and the buying intention can be strengthened when providing multiple social commerce features in combination. It hence remains unclear if and to what extent companies should integrate functionally rich sets of social commerce features into their e-commerce platforms.

With the study described in the manuscript at hand, we intend to contribute to the closure of this research gap. In particular, we pursue the investigation of two research questions: *(RQ1) How can the social commerce feature richness be conceptualized and how can it be increased on e-commerce platforms? (RQ2) What impact does the social commerce feature richness unfold on social factors and, ultimately, on consumers' buying intention?* To answer these questions, we theorize on the concept of social commerce feature richness and develop a research model that connects the social commerce feature richness with consumers' buying intention through its effects on several social factors. We evaluated the research model in a controlled online experiment. In

this experiment, 237 participants used and reported on different versions of an e-commerce platform, which varied only with respect to the level of social commerce feature richness.

The findings of our research provide novel contributions to the knowledge base about social commerce and help explaining the determinants of successful social commerce initiatives. On the one hand, we introduce social commerce feature richness as a new construct to represent the diversity of social media-based functionality on an e-commerce platform. The construct is derived from media richness theory and takes findings from prior studies regarding the design of social commerce initiatives into account. The construct helps to better understand how functionally richer sets of social commerce features can be conceptualized. On the other hand, we provide insights into the question whether e-commerce platforms can be made more successful by integrating functionally richer sets of social commerce features. Given the results of early studies, this question is of immediate interest, but has hardly been investigated until now. The developed research model illustrates how the social commerce feature richness affects consumers' buying intention via social factors. It provides a novel instrument that can be used to explain the unique effects that are generated by using functionally richer sets of social commerce features.

We proceed as follows: in the next section, we discuss the theoretical background underlying our study. In the third section, we develop our research model. In the fourth section, we describe the research methodology. The results of the controlled online experiment are presented in the fifth section. In the sixth section, we discuss the implications for academia and practice as well as the limitations that apply to our findings. In section seven, we conclude with a summary of the results and by highlighting future research directions.

13.2 Theoretical Background

13.2.1 Social Commerce

13.2.1.1 Definition and Types of Social Commerce

Social commerce combines economic, social, and technological concepts. It has gained attention in various research disciplines, including information systems, marketing, sociology, and psychology (Huang and Benyoucef 2013; Zhou et al. 2013). Accordingly, current literature provides a variety of social commerce definitions (a list of definitions can be found in Wang and Zhang 2012). Out of them, we adopt the definition of Liang and Turban (2011, p. 6), who define social commerce as "a subset of e-commerce that involves using social media to assist in e-commerce transactions and activities".

By investigating how the use of social commerce features can help companies to increase the effectiveness of their e-commerce platforms, our study furthermore focuses on business-to-consumer scenarios. While several studies consider social commerce to be centered around businesses and consumers (Liang and Turban 2011; Wang and Zhang 2012; Yadav et al. 2013), it has to be pointed out that social commerce can also occur in consumer-to-consumer settings (Chen et al. 2016; Stephen and Toubia 2010). In addition, literature distinguishes between two major types of social commerce initiatives (Liang and Turban 2011): (1) initiatives, in which commercial features are added to social media platforms to facilitate transactions; and (2) initiatives, in which social media-based features are added to e-commerce platforms to facilitate social

interactions and exchanges. We focus on the latter type of initiatives, in which social media-based features are integrated into e-commerce platforms.

13.2.1.2 Social Factors in Context of Social Commerce

The successful influencing of social factors is considered a core mechanism of social commerce initiatives (Baethge et al. 2016; Wang and Zhang 2012). Several studies have examined, which social factors can be affected by stimulating consumers' interactions with social commerce features, and how these factors in turn influence consumers' buying behavior. A structured overview of prior studies, the examined social factors and their effects can be found in Friedrich (2016) and Zhang and Benyoucef (2016). Based on the findings of prior studies, we decided to focus our analysis on the three social factors *social presence*, *social support*, and *social influence*, since each of them has been emphasized to significantly influence consumers' buying intention in more than one study (Bai et al. 2015; Kwahk and Ge 2012; Liang et al. 2011; Xi et al. 2016; Zhang et al. 2014). The selected factors hence seem to be important determinants for the success of social commerce initiatives.

According to Short et al. (1976, p. 65), *social presence* is "the degree of salience of another person in the interaction" and is considered as "being a quality of the communication medium". Based on their argumentation, it is assumed that communication media vary in their degree of social presence and that these variations are important in determining how individuals interact (Fulk et al. 1987; Short et al. 1976). Social presence has received considerable attention in the social commerce literature since social commerce platforms usually enable consumers to perceive each other and thus are accompanied by higher levels of social presence (Lu et al. 2016; Shen 2012; Zhang et al. 2014). In the according studies, social presence has been conceptualized as the sense of human warmth, sociability, and human contact that can be conveyed through a website.

Social support refers to "the information leading the subject to believe that he is cared for and loved, esteemed, and a member of a network of mutual obligations" (Cobb 1976, p. 300). Social support is considered as an important determinant of an individual's well-being since humans have a fundamental need of frequent personal interaction or contact with someone who cares about their welfare and who likes and/or loves them (Baumeister and Leary 1995; Crocker and Canevello 2008). The social commerce literature contains evidence that social commerce platforms can also provide social support, especially informational support and emotional support (Hajli and Sims 2015; Liang et al. 2011; Zhang et al. 2014). Informational support refers to the information (e.g., advice, guidance, suggestions) given to someone for problem solving, while emotional support involves the provisioning of empathy, love, caring, and trust (House 1981).

Social influence is described as "the pressure that people perceive from important others to perform, or not to perform, a behavior" (Rivis and Sheeran 2003, p. 568). Following Deutsch and Gerard (1955), two types of social influence can be distinguished: normative social influence and informational social influence. In the social commerce literature, normative social influence has been conceptualized as the extent, to which consumers' buying decisions are based on the expectations of others, while informational social influence has been conceptualized as the extent to which consumers accept information provided by other consumers when making their buying decisions (Kwahk and Ge 2012; Lee et al. 2011; Xi et al. 2016).

13.2.2 Social Commerce Features and Richness

13.2.2.1 Definition and Classification of Social Commerce Features

Social media applications, which can be integrated into websites as features, are an important technical enabler of social commerce (Wang and Zhang 2012; Zhou et al. 2013). We refer to them as *social commerce features* (Curty and Zhang 2013; Huang and Benyoucef 2015) and adopt the following definition: "A social commerce feature is a software artifact that is integrated into a website and provides a specific social media-based functionality to promote and support interactions among consumers" (Friedrich et al. 2016, p. 3). The term "functionality" thereby refers to the set of functions (or capabilities) that the social commerce feature can perform once it has been integrated into the website. On an e-commerce platform, the basic functionality of a rating and review tool, for instance, is to enable consumers to create and share subjective evaluations of products (Amblee and Bui 2011).

Today, several different types of social commerce features are available, which can vary significantly in functionality and can hence stimulate different forms of social interactions. To maintain an overview of the functionality that is provided by social commerce features, several classifications have been proposed in literature (Curty and Zhang 2013; Grange and Benbasat 2010; Huang and Benyoucef 2013). In the following, we refer to a reference model for the design of social commerce platforms, which has been proposed by Huang and Benyoucef (2013). It groups social commerce features into four layers according to their basic functionality:

(1) The *individual layer* summarizes features, which mainly enable consumers to identify themselves and be recognized by others. Features such as social profile pages, which show a consumer's name and picture, belong to this layer. According to Huang and Benyoucef (2013), providing a sense of self identification is a basic functionality of social commerce platforms. The individual layer is hence also viewed as a facilitator to realize the other layers.

(2) The *conversation layer* contains social commerce features that primarily enable consumers to create content and make it available to others. Features like rating and review tools, which allow consumers to publish product evaluations, and like buttons, which enable them to express their appreciation of products, belong to this layer.

(3) The *community layer* comprises features that mainly support the building and/or maintaining of interactive relationships between consumers. It encompasses features such as community feeds, which enable consumers to stay informed of and discuss the shopping activities of others, or question and answer tools, which enable consumers to answer product-related questions of others.

(4) The *commerce layer* consists of social commerce features that are specifically provided to stimulate commercial transactions on social commerce platforms. This layer accordingly is made of features like social wish lists, which encourage others to buy a desired product, share buttons, which allow consumers to recommend shopping-relevant information to others, group buying tools, which allow consumers to collaboratively purchase products, or product recommendation tools, which propose products based on consumers' social interactions.

13.2.2.2 Social Commerce Feature Richness

To conceptualize the functional diversity of a social commerce feature set, we introduce the *social commerce feature richness* as a new concept. We define social commerce feature richness as the *diversity of social media-based functionality that is provided by a set of social commerce features to stimulate interactions among consumers* (e.g., on an e-commerce platform). Our conceptualization of social commerce feature richness is based on the media richness theory, which broadly defines the richness of a communication medium as its capabilities to transmit information (Daft and Lengel 1986). This theory suggests that the ability of communication media to convey information, which is determined by the medium's features, can vary (Lengel and Daft 1988; Rice 1992). The broader the range of information that a medium can convey, the richer the medium is considered to be (Daft and Lengel 1986). Face-to-face communication, which includes speech, eye-contact, facial expression, and body language, for instance, is considered a rich medium because it conveys a broad range of information. Written documents are considered a lean medium since they convey a limited range of information (Lengel and Daft 1988).

Modern e-commerce platforms typically provide several features (e.g., product descriptions, product images, navigation menus, etc.) that enable the transmission of information (Palmer 2002; Simon and Peppas 2004). The media richness concept characterizes the overall information transmission capabilities of such a platform, which result from all its features. In contrast, the concept of social commerce feature richness specifically refers to the range of social information that is transmitted by the social commerce features of the platform. Depending on their functionality, social commerce features can transmit different kinds of social information (Curty and Zhang 2013; Huang and Benyoucef 2013). Social profile pages, for instance, allow consumers to express themselves and to be recognized by others. Rating and review tools enable consumers to create and share their opinions about products. A platform that contains social commerce features with differing functionality (such as the before-mentioned ones) conveys a broader range of social information. Conceptually, the social commerce feature richness hence is defined by the functional diversity of the social commerce feature set and the kinds of social information it conveys.

Note that the social commerce feature richness of an e-commerce platform (or any website for that matter) does not necessarily correspond to the number of its features. Since there exist various social commerce features with similar functionality, adding a new feature to the platform does not automatically increase its social commerce feature richness. In a similar way to rating and review tools, for instance, like buttons enable consumers to express subjective opinions on products (albeit in condensed form). Adding like buttons to a platform that already provides a rating and review tool would hence increase the number of its features but not affect its social commerce feature richness. To increase the social commerce feature richness of the e-commerce platform, one would instead have to add social commerce features, which differ from the already incorporated ones in functionality.

To operationalize the abstract concept of social commerce feature richness and to better understand how it can be maximized on an e-commerce platform, additional knowledge is required about what constitutes differences in the functionality of social commerce features. As social commerce is still an emerging approach, this aspect is subject to ongoing research. Nevertheless, some approaches to classify social commerce features according to their characteristic functionalities already have been proposed (Curty and Zhang 2013; Grange and Benbasat 2010; Huang and Benyoucef 2013). As discussed in the last section, we adopt the reference model for the design of social commerce platforms (Huang and Benyoucef 2013) to show how social

commerce features can be distinguished and combined according to their basic functionality. However, we emphasize that our conceptualization of social commerce feature richness is not dependent on this reference model and could be operationalized using others as well.

The adopted reference model groups social commerce features into four layers according to their basic functionality (cf. previous section). Building upon this classification, we argue that the more layers a set of social commerce features encompasses, the more its functional diversity and hence its social commerce feature richness will increase. A set of social commerce features that encompasses the individual, conversion, and community layers will accordingly have a higher social commerce feature richness than a set, which only contains features of the individual and conversation layers. Augmenting a set with social commerce features from a layer, which is already covered, will accordingly increase the number of features, but leave the social commerce feature richness unchanged. Taking the reference model as a scale, we can hence measure the social commerce feature richness of a social commerce feature set as the number of functional layers that is covered by its features.

13.3 Research Model and Hypotheses Development

Against this background, we develop a research model that links the social commerce feature richness to consumers' buying intention via social factors. In our research model, the independent variable is the *social commerce feature richness*. Investigating the effects of the social commerce feature richness is an important concern given the assumption that social commerce initiatives might be more effective if they use multiple social commerce features in combination (Curty and Zhang 2013; Huang and Benyoucef 2013).

The success of e-commerce platforms considerably depends on their ability to influence consumers' buying decisions (DeLone and McLean 2004; Kim and Lee 2002). The dependent variable in our research model therefore is represented by *consumers' buying intention*, which we use as a proxy for the actual buying behavior. Predicting consumers' buying behavior through their intention is common practice in the e-commerce and social commerce literature (Gefen et al. 2003; Pavlou and Fygenson 2006; Zhang and Benyoucef 2016). Note that buying intention in our context does not refer to the intention to buy a specific product. Consistent with prior studies in the e-commerce and social commerce domains, it instead refers to consumers' intention to use a specific commercial platform to buy products (Bai et al. 2015; Hsiao et al. 2010; Loiacono et al. 2007; van der Heijden et al. 2003).

Standing between the social commerce feature richness and consumers' buying intention, social factors represent the mediating variables in our research model. We decided to focus on social factors in this study since influencing these factors is considered a core mechanism in social commerce initiatives (Liang et al. 2011; Wang and Zhang 2012). Following the discussion in section 13.2, our research model includes the three social factors *social presence*, *social support*, and *social influence*. Figure 13.1 depicts the overall structure of our research model.

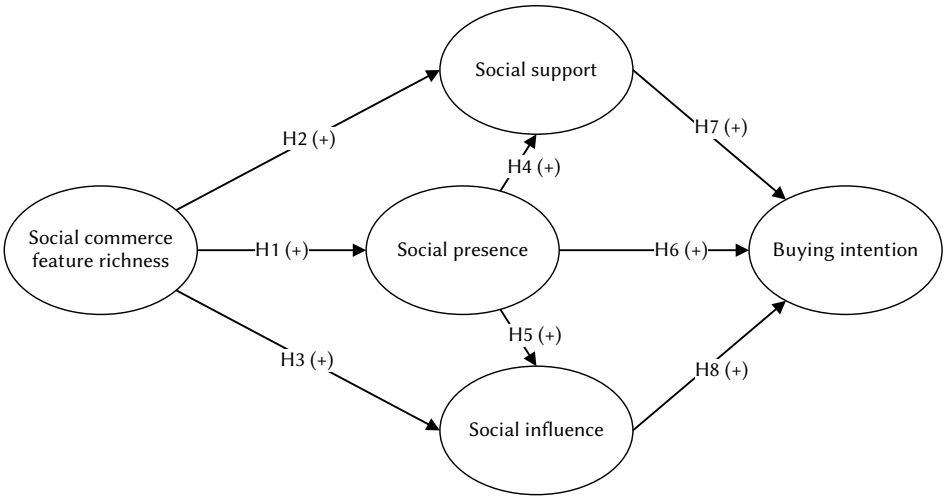


Figure 13.1 Research model

13.3.1 Effects of Social Commerce Feature Richness on Social Factors

Previous studies showed that incorporating socially rich design elements, such as human images, human videos, personalized greetings, or socially rich product descriptions, can significantly increase the social presence of an e-commerce platform (Cyr et al. 2009; Gefen and Straub 2003; Hassanein and Head 2007; Kumar and Benbasat 2002). Social commerce features also provide various means to incorporate socially rich design elements into e-commerce platforms (Curty and Zhang 2013). For instance, rating and review tools enable consumers to share their opinions and experiences about products with other consumers (Mudambi and Schuff 2010). Kumar and Benbasat (2006) found that websites incorporating rating and review tools can convey a greater sense of human contact and thus increase a website's level of social presence. Besides ratings and reviews, social commerce features can provide many other forms of socially rich design elements. Examples are lists of favorite products created and shared through social wish lists, recent activities of customers displayed in community feeds, or numbers of shares visualized through share buttons on product pages (Curty and Zhang 2013; Huang and Benyoucef 2015).

Consequently, if an e-commerce platform incorporates a greater diversity of functionally different social commerce features, such as combining a rating and review tool with social wish lists and a community feed, it seems plausible that the range of socially rich design elements will likewise increase. According to social presence theory, the level of social presence depends on the different types of social cues a communication medium can convey (cf. section 13.2). It is hence likely that platforms, which provide a higher level of social commerce feature richness and accordingly convey different kinds of social information, will also be associated with a higher level of social presence. For this reason, we hypothesize:

H1: Social commerce feature richness is positively related to social presence.

Literature indicates that social commerce features can generate different forms of social support, that is, informational support and emotional support (Hajli 2016; Hajli and Sims 2015; Liang et al. 2011; Zhang et al. 2014). For instance, through rating and review tools or question and answer tools consumers can exchange valuable shopping information, which may help

them solving shopping-related problems such as deciding, which product to buy (Hajli and Sims 2015). Moreover, consumers can also use social commerce features, such as like buttons or social wish lists, to express their interests and feelings and thus address emotional concerns, such as caring, understanding, or empathy (Liang et al. 2011).

Using social commerce features to provide consumers a personalized shopping experience can also generate social support. Specifically, Zhang et al. (2014) could show that a personalized web interface can increase the likelihood that consumers believe that the people behind the platform care about their interests, which resulted into higher levels of social support. Social commerce features provide various means to provide consumers a more personalized shopping experience (Kumar and Benbasat 2006). Using social product recommendation tools or community feeds, for instance, e-commerce platforms can display what other consumers with similar preferences bought to better address consumers' interests, support them in their decision-making, and thereby provide social support. By using functionally richer sets of social commerce features, e-commerce platforms can broaden the path, through which consumers can generate and receive different forms of social support. For instance, by combining rating and review tools with like buttons, consumers can not only exchange product knowledge (i.e., informational support), but also express their feelings by liking products (i.e., emotional support). We thus hypothesize:

H2: Social commerce feature richness is positively related to social support.

When consumers possess limited knowledge or perceive certain amounts of risk, it is likely that they will consider the experiences of other consumers before making a buying decision on an e-commerce platform (Lee et al. 2011). Moreover, consumers are more likely to trust information provided by other consumers than information provided by the company operating the platform (Chen and Xie 2008; Lee and Jin Ma 2012). If consumers rely on the information provided by other consumers, the effect is considered as informational social influence (Amblee and Bui 2011; Lee et al. 2011). Social commerce features are considered an important instrument to generate informational social influence (Kim and Srivastava 2007). For instance, by enabling consumers to exchange their experiences about products, rating and review tools can help consumers to better assess the quality of products and/or services (Benlian et al. 2012; Mudambi and Schuff 2010). Further examples, which can be considered as forms of informational social influence, are product answers generated by question and answer tools, comments and advices generated through commenting tools, and product suggestions generated by discussion forums.

Social commerce features also have a potential to generate normative social influence (Kwahk and Ge 2012). For instance, to conform to the expectations of others, consumers might base their buying decisions on the likes on product pages generated through like buttons. Similar forms of social influence might also be generated if consumers consider other consumers' recent activities generated through community feeds or other consumers' favorite products generated through social wish lists when making their buying decisions. Putting the above-mentioned examples together, it can be argued that social commerce features can generate social influence in different ways. Consequently, if functionally different social commerce features are used in combination that convey different kinds of social information, it becomes likely that the generated amount of social influence will also increase. For instance, by combining rating and review tools with social wish lists and like buttons, consumers might not only consider the information provided by other consumers but also consider their shopping preferences, wishes, and expectations. Therefore, we hypothesize:

H3: Social commerce feature richness is positively related to social influence.

13.3.2 Effects Between Social Factors

Generating social support through an e-commerce platform requires that the platform provides consumers with messages that involve supportive emotions and/or supportive information. Prior research has shown that social support is especially generated on websites that incorporate social media functionalities, such as social networking sites, online community sites, or social commerce websites (Ballantine and Stephenson 2011; Huang et al. 2010; Liang et al. 2011). By using features that facilitate social interactions, these websites typically provide a wide range of social cues and thus are associated with higher levels of social presence (Zhang et al. 2014; Zhu et al. 2010). According to these studies, it can be argued that if an e-commerce platform provides different socially rich design elements that enable consumers to perceive and to interact with each other in various ways, it is likely that the platform will also generate a greater amount of social support. Therefore, we hypothesize:

H4: Social presence is positively related to social support.

According to Latané (1981), the amount of influence between an individual and other people is considerably determined by three social forces: the number of people that are present, how important these people are to the individual, and how close in space and time these people are to the individual. With respect to social presence, research in the offline retail context could show that the mere presence of other individuals in a retail store can lead to higher levels of social influence (Argo et al. 2005). Accordingly, if an e-commerce platform enables consumers to perceive and to interact with each other and thus is associated with a higher level of social presence, it is likely that the platform will also generate a greater amount of social influence. Hence, we hypothesize:

H5: Social presence is positively related to social influence.

13.3.3 Effects of Social Factors on Consumers' Buying Intention

Social presence is considered an important means to overcome the impersonal and transaction-focused nature of online shopping environments (Cyr et al. 2007; Hassanein and Head 2007). In the e-commerce domain, several studies could show that social presence can positively affect consumers' buying intention through factors such as perceived usefulness, perceived enjoyment, or trust (Animesh et al. 2011; Cyr et al. 2007; Gefen and Straub 2003; Hassanein and Head 2005; Weisberg et al. 2011). Similar results have also been found in the social commerce domain (Lu et al. 2016; Shen 2012; Zhang et al. 2014). As the results of these studies demonstrate, the higher the social presence of an e-commerce platform, the more likely it is that consumers will have positive attitudes towards the platform, resulting in an increased buying intention. Therefore, we hypothesize:

H6: Social presence is positively related to consumers' buying intention.

In the social commerce literature, several studies could show that social support can positively affect consumers' buying intention (Liang et al. 2011; Shin 2013; Zhang et al. 2014). In line with these studies, we argue that if a commercial platform gives consumers the impression that they will receive support from other consumers when needed, such as when consumers need help to decide between different products, it becomes more likely that consumers associate the platform with positive feelings, which increases the likelihood that consumers intend to buy from the platform. In line with prior social commerce studies, we therefore hypothesize:

H7: Social support is positively related to consumers' buying intention.

Solid evidence is also given that social influence, for instance generated through the information provided by other consumers or by confirming to other consumers opinions, can positively affect consumers' buying intention (Kwahk and Ge 2012; Lee et al. 2011; Xi et al. 2016). Note that recent studies suggest differentiating between positive and negative social influence (Baethge et al. 2017; Liu et al. 2016). Negative social influence is generated if consumers influence other consumers in a negative way, such as not to buy a specific product (e.g., via negative product reviews). Negative social influence can have a detrimental effect on consumers' intention to buy a specific product (Ballantine and Au Yeung 2015; Lee et al. 2008). In this study, however, we focus on consumers' intention to use a specific website and not to buy a specific product. In line with prior studies that also investigate buying intention with respect to website use (Kwahk and Ge 2012; Xi et al. 2016), we argue that social influence in general has a positive effect on buying intention. The positive effect seems reasonable because any form of social influence can help consumers to make buying decisions (Purnawirawan et al. 2015). For instance, positive as well as negative reviews can make it easier for consumers to decide whether to buy a specific product or not (Mudambi and Schuff 2010). Consequently, if an e-commerce platform enables consumers to generate social influence (either positive or negative), it can be assumed that consumers will more likely intent to use the platform. As any form of social influence can support consumers' buying decisions, we do not explicitly differentiate between positive and negative social influence. Following this argumentation, we hypothesize:

H8: Social influence is positively related to consumers' buying intention.

13.4 Research Methodology

13.4.1 Experimental Design

To evaluate our research model, we conducted a controlled online experiment. Choosing this experimental setting enabled us to manipulate the social commerce feature richness systematically, which would not have been possible in natural e-commerce environments. Moreover, this setting helped us to rule out the effect of exogenous variables as much as possible and hence to obtain measurements that are more accurate.

When designing our experiment, we closely followed recommendations of related experiment-based studies, which explore the effects of website features on the users' attitude (Brengman and Karimov 2012; Cyr et al. 2009; Hassanein and Head 2007; Kumar and Benbasat 2006). As treatment, we designed six different versions of an e-commerce platform, which we then provided to disjoint participant groups. The six platform versions only differed with respect to the social commerce features that were integrated. We based the integration of social commerce features to the platform versions on the reference model for the design of social commerce platforms developed by Huang and Benyoucef (2013). This allowed us to increase the social commerce feature richness systematically by selecting social commerce features from different layers of the reference model. As control group, we also implemented a platform version without any social commerce features. We used this "zero" treatment condition to investigate if the absence of social commerce features indeed leads to the lowest effects on social factors.

According to Huang and Benyoucef (2013), social commerce initiatives should first address the individual and conversation layers of the reference model. For this purpose, the second platform

version incorporated social profile pages and a rating and review tool. Social profile pages enable consumers to create their own profiles and to view the profiles of other consumers, which targets the individual layer of the reference model. Note that the individual layer is not represented as a separate treatment condition since it mainly offers basic functionality that is used by the other layers. Rating and review tools enable consumers to publish product evaluations, which addresses the conversation layer of the reference model. We refer to this version as the "low" treatment condition.

After the conversation and individual layers, social commerce initiatives should pay attention to the commerce layer (Huang and Benyoucef 2013). The third platform version hence incorporated social wish lists besides the rating and review tool and the social profile pages. By enabling consumers to encourage others to buy a desired product, social wish lists address the commerce layer. This version is labeled as the "medium" treatment condition.

To cover all four layers of the reference model (i.e., individual, conversation, community, and commerce layer), the fourth platform version incorporated a community feed in addition to social wish lists, a rating and review tool, and social profile pages. A community feed enables consumers to stay informed of and discuss the shopping activities of others. Such a functionality addresses the community layer of the reference model. This version represents the "high" treatment condition.

However, since Huang and Benyoucef (2013) did not empirically evaluate the suggested reference model, we were interested if we could further increase the effectiveness of our platform by extending the sheer amount of social commerce features. We therefore created two additional platform versions, in which some layers of the reference model were covered with more than one social commerce feature.

The first additional platform version, which represented an extension of the third platform version (i.e., medium condition), additionally incorporated share buttons besides social wish lists, a rating and review tool, and social profile pages. By enabling consumers to recommend shopping-relevant information to others, share buttons target the commerce layer of reference model. Like the third platform version, this version provided features for two of the three suggested layers of the reference model (i.e., individual, conversation, and commerce layer). However, one layer (i.e., commerce) was covered with more than one social commerce feature. We refer to this version as the "medium-plus" treatment condition.

The second additional platform version, which represented an extension of the fourth platform version (i.e., high condition), additionally incorporated a product question and answer tool and share buttons besides a community feed, social wish lists, a rating and review tool, and social profile pages. Question and answer tools enable consumers to answer product-related questions of others and thus address the community layer of the reference model. Like the fourth platform version, this version covered all four layers of the reference model (i.e., individual, conversation, community, and commerce layer). However, two (i.e., the community and commerce) layers were equipped with more than one social commerce feature. This version is called the "high-plus" treatment condition.

Table 13.2 presents the different treatment conditions used in the experiment ordered by the provided level of social commerce feature richness. Figure 13.4 (see Appendix) provides screenshots of the different treatment conditions. Note that the platform was created in German language as we conducted the study with participants from Germany.

Table 13.2 Overview of treatment conditions

Treatment condition	*Level of feature richness*	*Layers in reference model (Huang and Benyoucef 2013)*	*Level of feature amount*	*Integrated social commerce features*
Zero	Zero	-	-	-
Low	Low	Individual Conversation	Normal	Social profile pages Rating and review tool
Medium	Medium	Individual Conversation Commerce	Normal	Social profile pages Rating and review tool Social wish lists
Medium-plus	Medium	Individual Conversation Commerce	Extended	Social profile pages Rating and review tool Social wish lists Share buttons
High	High	Individual Conversation Commerce Community	Normal	Social profile pages Rating and review tool Social wish lists Community feed
High-plus	High	Individual Conversation Commerce Community	Extended	Social profile pages Rating and review tool Social wish lists Share buttons Community feed Question and answer tool

Using a professional web-based platform to create our e-commerce platform enabled us to quickly integrate additional social commerce features using an app store and consequently allowed us to reproduce a realistic shopping scenario. To moreover provide a shopping domain with which the participants are familiar with, but where they might nevertheless appreciate additional information about the goods, we decided to create an online shop for unbranded gift gadgets. Following recommendations in literature, we deemed unbranded gift gadgets to be appropriate for the subsequent reasons (Lowry et al. 2008): first, their selection is partially based on social and emotional aspects; second, gift gadgets have a low financial risk; third, potential branding effects are avoided. Each version of the platform was filled with an identical set of gift gadgets to avoid potential biases arising from differences in the product portfolio. The set consisted of 42 gift gadgets that we took over from real platforms after acquiring permission. In addition, we generated all the information necessary to populate the social commerce features with content. The content was primarily generated based on information that we found on real platforms selling the gift gadgets. For instance, the content for the rating and review tool was generated from customer reviews provided on Amazon Germany (i.e., amazon.de). In so doing, we ensured that the platform provided participants an authentic shopping experience.

A pilot test was conducted prior to the experiment to verify that our setting worked as intended. Within that test, five participants carefully browsed, selected, and bought a product from each of the six versions of the e-commerce platform. Any problems that occurred were recorded and appropriate changes were made. Additionally, the participants verified that each platform version provided a different set of social commerce features, which indicated that our treatment conditions worked appropriately.

13.4.2 Scenario

Simulating a realistic e-commerce setting and following recommendations for related experiment-based studies, we designed a task that comprised browsing an e-commerce platform as well as selecting and buying a product (Brengman and Karimov 2012; Cyr et al. 2009; Hassanein and Head 2007). The entire experiment was conducted online and followed the procedure depicted in Figure 13.2.

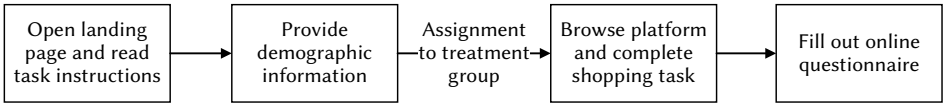


Figure 13.2 Experimental procedure

The participants first were directed to a landing page, which contained general instructions about the task as well an inquiry about relevant demographic information. Afterwards, the system automatically and randomly assigned the participants to one of the six treatment conditions and gave them access to exactly one of the six versions of the e-commerce platform. For instance, participants assigned to the low feature richness scenario did have access to the platform, in which social profile pages and a rating and review tool were implemented. The platforms' features and content were identical for all participants in that treatment condition.

As regards the task, participants were asked to select and buy a gift of their choice for a good friend's upcoming birthday party. The description of the task was adapted from Brengman and Karimov (2012). Participants were given an identical amount of virtual money (i.e., 20 EUR), which was enough to buy a gift of their choice. The participants had no time limit, i.e. they had as much time as they needed to browse the platform and select a gift. The platform as well as all included features were fully functional to enable the participants to interact with them. However, note that the shopping task did not require the participants to use any social commerce features. In so doing, we ensured that the shopping task was as realistic as possible and identical for all participants. Furthermore, we did not mention the social commerce features in the shopping task description to avoid any potential bias that might come from the participants' awareness of the treatment. After the participants completed the shopping task, they were directed to the online survey in which they had to rate the factors contained in our research model.

13.4.3 Measures

The social commerce feature richness represented the independent variable in our experimental setting. It was measured as categorical variable with four levels (i.e., zero, low, medium, high). We designed the levels in a way that each subsequent level comprised a functionally richer set of social commerce features based on the reference model proposed by Huang and Benyoucef (2013). Specifically, we selected features that address different layers of the reference model to increase the social commerce feature richness in a systematic manner. With respect to the statistical analysis, we followed recommendations in literature and converted the social commerce feature richness into a formative construct that consisted of three binary dummy variables, each representing one treatment level (Henseler et al. 2016). Using such dummy variables to represent the treatment conditions is also in line with other experimental-based studies (Chen et al. 2009; Cyr et al. 2009; Kamis et al. 2008). In addition, we asked the participants directly if they experienced the treatment manipulation, which is recommended to verify the manipulation of independent variables (Straub et al. 2004). For each social commerce feature, we accordingly

asked: "Did you notice <social commerce feature> in this online shop?" (Brengman and Karimov 2012).

To measure the dependent variable (i.e., consumers' buying intention) and the mediating variables (i.e., social presence, social support, and social influence), we adapted validated scales from literature with minor wording changes to the context of our study. Social presence was measured using four items adapted from Gefen and Straub (2003), social support with five items adapted from Liang et al. (2011), social influence with four items adapted from Bearden et al. (1989) and Shen et al. (2010), and consumers' buying intention with three items adopted from Loiacono et al. (2007) and van der Heijden et al. (2003). We measured all items on a seven-point Likert scale. A list of the measurement items is provided in Table 13.7 (see Appendix).

In addition, we included several control variables to account for individual characteristics that might affect the social factors and the buying intention. Based on advice from literature, we measured the age, gender, internet usage duration, online shopping frequency, and social media usage duration of the participants (Mikalef et al. 2013; Pavlou and Fygenson 2006; Wakefield et al. 2010; Wells et al. 2011). Moreover, we included the feature amount as a control variable to account for potential effects that might be generated when covering layers of the reference model of Huang and Benyoucef (2013) with more than one social commerce feature. The variable was coded as a binary dummy variable to represent the two levels of feature amount (i.e., normal, extended) used in our experimental setting.

13.4.4 Subjects

We invited students of a large university in Germany as participants for the experiment. Even though substituting everyday users with students is sometimes put into question in literature, we decided to do so as students are highly familiar with online shopping and open to test new approaches (McKnight et al. 2002; Wells et al. 2011). Additionally, this enabled us to conduct the experiment in a controlled setting, which helped us to minimize the number of confounding variables. We invited students participating in our current lecture courses via an online learning platform of the university and personally during our lecture courses. As we wanted to recruit intrinsically motivated participants, we gave no incentive apart from a personal motivation.

13.5 Data Analysis and Results

Of 347 data sets in total, we retained 288 responses after sorting out incomplete data sets. In line with of Straub et al. (2004), we only included responses for our data analysis in which the participants correctly assessed the social commerce features provided in the e-commerce platform. For instance, in the zero-treatment condition, in which no social commerce features were provided, we eliminated all responses where the participants noted that they perceived any social commerce feature. In so doing we could ensure that the participants' engagement was credible and that their assessment of the platform was valid. This left us with a total of 237 responses, of whom 150 (63.3%) were male and 87 (36.7%) were female. They were 24 years old on average and all studied computer science, information systems, or business administration in undergraduate or graduate programs. In the four groups, the number of participants ranged from 35 to 44. The demographic profile of the participants is illustrated in Table 13.3.

Table 13.3 Participants' demographic profile

Demographics	*Category*	*Frequency (%)*
Age	≤ 19	12 (5.1)
	20 - 29	215 (90.7)
	30 - 39	8 (3.4)
	≥ 40	2 (0.8)
Gender	Female	87 (36.7)
	Male	150 (63.3)
Internet usage duration (hours per day)	Less than 1	2 (0.8)
	1 - 2	39 (16.5)
	2 - 3	62 (26.2)
	3 - 5	94 (39.7)
	6 - 10	29 (12.2)
	More than 10	11 (4.6)
Online shopping frequency (times per month)	Never	4 (1.7)
	Less than 1	45 (19.0)
	1 - 2	89 (37.6)
	3 - 5	70 (29.5)
	6 - 10	21 (8.9)
	More than 10	8 (3.4)
Social media usage duration (hours per day)	Do not use social media	10 (4.2)
	Less than 1	78 (32.9)
	1 - 2	97 (40.9)
	2 - 3	44 (18.6)
	3 - 5	7 (3.0)
	More than 5	1 (0.4)

We conducted a one-way analysis of variance (ANOVA) to test if the participants were equally distributed for each of the demographic statistics. The results of the tests confirmed that there were no statistically significant differences between the treatment conditions as far as age ($F = 0.770$, $p>0.1$), gender ($F = 1.182$, $p>0.1$), internet usage duration ($F = 0.897$, $p>0.1$), online shopping frequency ($F = 0.665$, $p>0.1$), and social media usage duration ($F = 0.385$, $p>0.1$) were concerned. Accordingly, the random assignment of participants across the treatment conditions was successful in terms of participant characteristics.

To analyze our theoretical model, we employed partial least squares (PLS) with SmartPLS 3 (Ringle et al. 2015). As our model is comparably complex and includes various control variables, we deem PLS structural equation modeling (PLS-SEM) to be appropriate. In particular, PLS is often referred to have the advantage to be more stable to non-normal distributed data than other (co-)variance-based approaches (Chin 1998). With 237 participants, our sample size is sufficient for a robust PLS calculation considering the number of variables and paths in our model (Chin 1998; Hair et al. 2012). Note that social commerce feature richness is modelled as formative construct that consists of three binary dummy variables to capture the four different treatment levels (cf. section 13.4). The remaining variables are modelled as reflective constructs.

13.5.1 Reliability and Validity Testing

We began our analysis with various tests to check the reliability and validity of our measurement model. First, we tested for common method bias since all reflective items were collected from the same questionnaire. We therefore conducted a Harman's one-factor test and ran an exploratory factor analysis. The result shows four factors with eigenvalues greater than 1,

which account for 78.51% of the total variance. The first factor captures 42.06% of the variance, which is below the 50% threshold as recommended by Podsakoff et al. (2003). This indicates that our data is not likely to be affected by common method bias.

Table 13.4 Construct reliability and convergent validity statistics

Construct	*Item*	*Mean*	*Std. dev.*	*Item loading*	*Cronbach's alpha*	*Composite reliability*	*AVE*
Social presence (SP)	SP1	3.461	1.742	0.901	0.937	0.955	0.841
	SP2	3.129	1.603	0.950			
	SP3	3.134	1.671	0.922			
	SP4	2.776	1.636	0.894			
Social support (SS)	SS1	4.157	1.479	0.854	0.891	0.920	0.696
	SS2	4.261	1.574	0.864			
	SS3	4.775	1.395	0.807			
	SS4	4.207	1.572	0.867			
	SS5	4.136	1.593	0.776			
Social influence (SI)	SI1	3.382	2.130	0.870	0.881	0.918	0.737
	SI2	3.545	2.133	0.884			
	SI3	3.664	2.047	0.855			
	SI4	3.578	1.964	0.824			
Buying intention (BI)	BI1	5.056	1.445	0.895	0.914	0.946	0.853
	BI2	4.714	1.602	0.952			
	BI3	4.245	1.583	0.924			

To further validate the reflective measures, we calculated the construct reliability as well as the convergent and discriminant validity. Table 13.4 summarizes the results of the reliability and convergent validity testing. As shown, the Cronbach's alpha and composite reliability values are consistently higher than the suggested threshold of 0.7 (Nunnally 1978; Rivard and Huff 1988; Werts et al. 1974). This indicates good construct reliability. For convergent validity, all item loadings are above the recommended value of 0.7 (Gefen et al. 2000). Moreover, all average variance extracted (AVE) values are above the desired threshold of 0.5 (Fornell and Larcker 1981). This suggests adequate convergent validity.

Table 13.5 illustrates the results of the discriminant validity testing. As shown, the square roots of all AVE values are higher than the recommended value of 0.707 and exceed the correlations to the other constructs, which suggests adequate discriminant validity (Gefen et al. 2000).

Table 13.5 Discriminant validity statistics

Construct	*SP*	*SS*	*SI*	*BI*
Social presence (SP)	**0.917**			
Social support (SS)	0.544	**0.834**		
Social influence (SI)	0.269	0.316	**0.858**	
Buying intention (BI)	0.311	0.355	0.323	**0.924**

Bold numbers are the square root of the AVE.

To validate the formative measure (i.e., social commerce feature richness), we examined the weights and the variance inflation factor (VIF) values of the three formative items (i.e., the three binary dummy variables) (Cenfetelli and Bassellier 2009). All item weights are significant (0.479,

p<0.05; 0.985, p<0.001; 1.374, p<0.001). Moreover, the VIF values do not exceed the recommended threshold of 5 (1.810, 2.159, 2.082), which suggests that multicollinearity is not likely a concern (Hair et al. 2011).

13.5.2 Hypotheses Testing

Following the suggestions of Hair et al. (2011), bootstrapping with 5.000 subsamples was performed to test the statistical significance of each path coefficient. Note that PLS-SEM does not generate an overall goodness-of-fit index. Therefore, model validity is primarily assessed by examining the structural path and the R^2 values (Chwelos et al. 2001). The results of the PLS analysis are shown in Figure 13.3. All control variables (i.e., age, gender, internet usage duration, online shopping frequency, social media usage duration, and feature amount) were included in the PLS analysis. For readability, Figure 13.3 illustrates only the significant effects of the control variables.

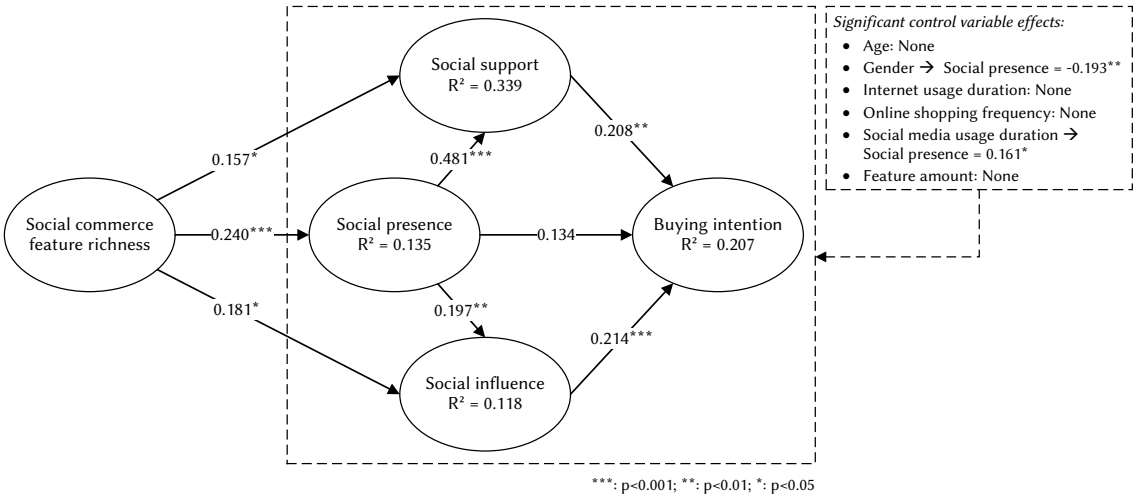


Figure 13.3 PLS results

Social commerce feature richness has a significant positive effect on social presence (0.240, p<0.001), social support (0.157, p<0.05), and social influence (0.181, p<0.05). Thus, hypotheses H1-H3 are supported. Social presence significantly influences social support (0.481, p<0.001) and social influence (0.197, p<0.01), thus lending support for hypotheses H4-H5. Buying intention is significantly influenced by social support (0.208, p<0.01) and social influence (0.214, p<0.001), which supports hypotheses H7-H8. However, H6 was not supported since the effect of social presence on buying intention was not significant (0.134, p>0.05). Table 13.6 summarizes the results of the hypotheses testing.

Referring to the R^2 values, social commerce feature richness combined with the control variables explain 13.5% of the variance of social presence. Furthermore, social commerce feature richness combined with social presence and the control variables explain 33.9% of the variance of social support and 11.8% of the variance of social influence. In addition, social presence, social support, social influence, and the control variables explain 20.7% of the variance of buying intention. As recommended by literature, all R^2 values exceed the threshold level of 0.10 (Falk and Miller 1992).

The results of the control variables show that gender (i.e., male participants) has a significant negative effect on social presence (-0.193, p<0.01). In addition, social media usage duration has

a significant positive effect on social presence (0.161, p<0.05). All other effects of the control variables are non-significant. This particularly applies to the feature amount. Table 13.8 (see Appendix) illustrates the effects of all control variables, including the non-significant effects.

Table 13.6 Results of hypotheses testing

Hypothesis	*Path coefficient*	*t-value*	*Supported*
H1: Social commerce feature richness → Social presence	0.240***	3.484	Yes
H2: Social commerce feature richness → Social support	0.157*	2.458	Yes
H3: Social commerce feature richness → Social influence	0.181*	2.390	Yes
H4: Social presence → Social support	0.481***	10.031	Yes
H5: Social presence → Social influence	0.197**	3.028	Yes
H6: Social presence → Buying intention	0.134	1.798	No
H7: Social support → Buying intention	0.208**	2.596	Yes
H8: Social influence → Buying intention	0.214***	3.518	Yes

***: p<0.001; **: p<0.01; *: p<0.05.

13.6 Discussion

13.6.1 Key Findings

Based on the media richness theory, we proposed the concept of social commerce feature richness to characterize the diversity of the functionality that an e-commerce platform provides by the set of social commerce features it incorporates. The results of our study show that the social commerce feature richness is a determinant for the effectiveness of the e-commerce platform, as it positively affects the buying intention of consumers. More specifically, we found that the social commerce feature richness positively affects the three examined social factors social presence, social support, and social influence. Whereas social presence seems to stimulate the other two factors social support and social influence, the latter unfold a significantly positive effect on consumers' buying behavior.

These findings support our assumption that an e-commerce platform with a higher social commerce feature richness can stimulate social interactions among consumers more effectively, since it conveys different kinds of social information. As a result, the platform seems to convey a higher sense of human warmth and sociability to its users (social presence). A higher level of social commerce feature richness moreover appears to increase consumers' feeling that others will support them in their decision-making if needed. The e-commerce platform thus conveys a greater sense of caring (social support). As a consequence of the more intensive interactions, it also seems more likely that consumers consider the information provided by others and conform to their expectations and preferences (social influence). Both the increased social support and the higher level of social influence make it more likely that consumers will buy from the platform. The results of our study hence indicate that increasing a platform's social commerce feature richness can be a viable strategy to strengthen the effect of social commerce initiatives.

The results of our study furthermore show that adding social commerce features with a functionality similar to those already incorporated in the platform does not produce a significant effect on the examined social factors and, accordingly, consumers' buying intention. In the conducted experiment, significant effects could only be observed when social commerce features were added, which differed from the others in functionality. These findings suggest that merely

maximizing the amount of social commerce features is probably not an advisable strategy to strengthen the effect of social commerce initiatives. It rather seems to be crucial to maximize the amount of provided functionality, which is characterized by the social commerce feature richness of the platform. Compared to the number of social features, the introduced concept of social commerce feature richness hence seems to provide a more suitable measure to maximize the effectiveness of social commerce initiatives.

To show how the social commerce feature richness can be measured and systematically increased on e-commerce platforms, we built upon the reference model proposed by Huang and Benyoucef (2013). It classifies social commerce features into four layers of different basic functionalities. While we did not specifically aim at verifying this reference model, the results of our study show that the effects on social factors and consumers' buying intention increase when augmenting a platform with social commerce features from different layers. With respect to the reference model, we could hence confirm that a social commerce strategy might indeed be most effective if it covers all layers with features. Moreover, we found that covering individual layers with more than one feature did not generate a significant effect. Together with the before-mentioned observation, this finding corroborates that the layers of the reference model can serve as a scale to measure a platform's social commerce feature richness. Yet, as we did not examine other classifications of social commerce features, alternative scales might exist as well.

Coming back to the effect of the examined social factors, we were surprised not to find a significant effect of social presence on consumers' buying intention. Instead, we found that social support and social influence fully mediate the relationship between social presence and consumers' buying intention. This finding indicates that enabling consumers to perceive each other and to interact with each other, which is reflected by social presence, does not yet affect their buying intention on its own. Social presence rather seems to act as a facilitator that unfolds a positive impact on social support and social influence. Although we found its direct effect on consumers' buying intention to be non-significant, social presence should hence nevertheless be considered as an important factor that can determine the success of social commerce initiatives. As our analysis of demographic data indicates, social presence seems to be particularly felt by female participants and frequent users of social media applications. The observation seems plausible, since women are considered to be more attentive to social cues (Croson and Gneezy 2009; Cyr et al. 2007). There might be a similar receptivity to social presence in individuals, who are frequently using social media applications and thus might be more oriented towards seeking human contact and sociability.

13.6.2 Implications for Academia

Our study yields several implications for academia. First, and most importantly, we provide a new conceptual basis that helps to better understand the effects of combining multiple social commerce features, which has been identified as an important determinant for the success of social commerce initiatives but hardly been studied systematically yet (Curty and Zhang 2013; Huang and Benyoucef 2013). With the social commerce feature richness, we introduce a new concept that characterizes the diversity in social media-based functionality, which is provided by a set of social commerce features. The concept is rooted in the media richness theory and explains the functional richness of a set of social commerce features in terms of its capabilities to convey different kinds of social information.

While the media richness theory describes the overall ability of a communication medium (e.g., an e-commerce platform) to convey information, the social commerce feature richness specifically describes the ability of a set of social commerce features to transmit different kinds social information. So far, studies that investigated consumers' buying intention on e-commerce platforms through the lens of the media richness theory mainly focused on the effects of general product information (Jahng et al. 2007; Simon and Peppas 2004). The social commerce feature richness introduces a new lens to analyze the effects of social information that is generated and shared by consumers. It conceptually differs from media richness by means of its specific perspective.

Second, we provide empirical evidence that increasing the social commerce feature richness and hence the range of conveyed social information is an effective strategy to increase the success of social commerce initiatives. Based on the results of our study, we can also delimit the concept of social commerce feature richness from the number of features as a potentially competing concept. We found that increasing the number of social commerce features without raising the feature richness does neither increase the examined social factors nor consumers' buying intention. As we only achieved such effects when raising the social commerce feature richness, this concept hence seems to be responsible for the observed outcomes.

With respect to the observed outcomes, we found that the social commerce feature richness positively affects social presence, social support, and social influence. While the effect of social commerce features on these factors has already been examined, prior studies have not considered feature combinations (Hajli and Sims 2015; Kumar and Benbasat 2006; Liang et al. 2011; Zhang et al. 2014). Regarding the effects of the social factors, prior studies found that social presence can positively affect consumers' buying intention through factors such as perceived usefulness, perceived enjoyment, and trust (Cyr et al. 2007; Gefen and Straub 2003; Hassanein and Head 2005). To our best knowledge, however, the effects of social presence on social support and social influence have not been considered so far. We hence also provide novel contributions to the research stream that investigates how social presence affects consumers' buying intention (Lu et al. 2016; Shen 2012; Zhang et al. 2014). Specifically, we could show that social presence does not have a direct impact on consumers' buying intention but indirectly influences it through its effect on social support and social influence. By showing that social support and social influence have a significantly positive effect on consumers' buying intention, our results furthermore corroborate previous findings (Hajli and Sims 2015; Liang et al. 2011; Zhang et al. 2014; Zhang and Benyoucef 2016).

Third, we demonstrated how the social commerce feature richness can be operationalized and measured using the functional layers of the reference model proposed by Huang and Benyoucef (2013) as a guideline. Although it was not the aim of the study to evaluate the model, the results indicate that adding features of different functional layers contributes to increasing the social commerce feature richness while adding features of the same layers does not. The results of our study hence corroborate and empirically substantiate the relevance of the functional layers of the reference model. While we found that the functional layers of the reference model provide a scale to measure the social commerce feature richness of a platform, more refined functional classifications of social commerce features might exist outside the scope of this study. We therefore ensured that the concept of social commerce feature richness can also be operationalized by using other taxonomies.

13.6.3 Implications for Practice

The results of our study also have implications for practice. With the increasing popularity of social commerce, a broad variety of social commerce features has been made available and can be integrated into e-commerce platforms. Companies therefore need to better understand if and how social commerce features should be used in combination on their platforms to maximize the success of social commerce initiatives. With the concept of social commerce feature richness and its operationalization based on the reference model for the design of social commerce platforms, this study explains how social commerce features can be combined efficiently. Most importantly, our findings indicate that platform operators should not simply aim at increasing the number of social commerce features to maximize the effect on consumers' buying intention. Instead, they should combine features that differ in functionality and hence can convey different kinds of social information.

The results of our experiment, for instance, show that adding like buttons to a platform that already contains a rating and review tool does not increase the effect of a social commerce initiative, since both features are similar in functionality (i.e., they both allow consumers to express subjective opinions on products). Adding features that differ with respect to their basic functionality (such as a community feed) increases the effect of the social commerce initiative, however. By taking the functional layers of the above-mentioned reference model or another feature classification as a benchmark, platform providers can hence select a minimalistic feature set that maximizes the social commerce feature richness and, accordingly, the effect on consumers' buying intention. Since providing multiple social commerce features can cause social overload (Olbrich and Holsing 2011), such a minimalist approach also appears to be the most appropriate way to balance the intended effectiveness of social commerce strategies and the resulting social load on the platform.

As the social interactions stimulated among consumers are an important part of the mechanism of social commerce initiatives, companies should aim at strengthening them by integrating functionally richer sets of social commerce features into their e-commerce platforms. Apart from using functional classifications such as the above-mentioned reference model, desirable functionalities of social commerce features can basically also be identified based on the stimulated social factors. Accordingly, companies should ensure that the selected social commerce features convey a sense of human warmth and sociability to enhance social presence. The selected features should also enable consumers to generate supportive messages to increase social support. Finally, they should enable consumers to consider the information and/or behavior of other consumers to generate social influence.

Companies furthermore ought to stimulate consumers to frequently use these features to interact with each other and to generate socially rich content. Frameworks such as the customer engagement cycle developed by Sashi (2012) might help to find out how customers can effectively be turned into supportive advocates.

13.6.4 Limitations

Although we have taken several precautions to enhance the validity of our findings, the presented study is not without limitations. First, we conducted our experiment in a laboratory setting. While this allowed us to manipulate the social commerce feature richness in a systematic manner and to control all other variables as much as possible, the results of a real-world setting

might nevertheless differ. However, we tried to simulate a realistic case as much as possible to increase the external validity of our findings. To enhance the validity of our independent variable, we decided to directly ask if the participants correctly experienced the treatment manipulation. Participants that did not correctly assess the social commerce features provided in the e-commerce platform were excluded from the data set. Note that website features do not necessarily need to be consciously perceived by consumers to trigger a reaction (Ahn and Lee 2012; Brengman and Karimov 2012). It is thus possible that the participants who were excluded from our data set were nevertheless affected by them. However, since we could not make use of advanced tracking mechanisms such as eye tracking or EEG, we were not able to objectively determine whether a participant might have experienced a social commerce feature. Accordingly, we followed recommendations in literature and asked the participants directly if they perceived the treatment condition (Straub et al. 2004). Future studies should ideally complement our findings with field data and verify them by making use of advanced control mechanisms.

Second, the participants of our study consisted solely of students from a German university. Consequently, we were not able to examine demographic and/or cultural differences, which can have a significant impact in the e-commerce domain (Cyr 2008; Moon et al. 2008; Ng 2013; Pavlou and Chai 2002). Additionally, by choosing students as participants, we are not able to generalize the reported effects to other types of customers. As our experiment was based on a fictitious company that sells unbranded gift gadgets, we moreover cannot claim that the reported effects apply for social commerce scenarios in general. Finally, the participants had never seen the platform before and hence acted as first-time buyers. As social interactions and relationships, which are reflected by social factors, typically develop over time, we recommend to further investigate the effects of the social commerce feature richness on social factors in longitudinal studies.

Third, we only incorporated six different social commerce features into our experiment. While we carefully selected the features and systematically varied the level of social commerce feature richness based on the reference model of Huang and Benyoucef (2013), there exist additional features that we did not examine. Most prominently, we left out social commerce features that require group interactions, such as live chat tools or group buying tools. However, to examine such features, we would have had to ensure that the participants simultaneously browse the platform. This would have required a much more restrictive experimental setting, which would have interfered with our goal to design the experiment as realistically as possible. It should additionally be noted that the reference model, which helped us to determine the implementation order of features, has not been empirically evaluated so far and only makes suggestions about the order of abstract design layers. For instance, the reference model suggests that every social commerce initiative should start by addressing the individual and conversation layers. However, the reference model does not suggest if one should for instance do so by implementing rating and review tools or like buttons, which both address the conversation layer. Future studies are hence encouraged to examine the effects of different implementation orders of social commerce features in more detail.

13.7 Conclusion

To provide consumers a more interactive shopping experience and to increase sales volumes, many companies are integrating social commerce features into their e-commerce platforms. By providing multiple social commerce features in combination, e-commerce platforms might

support the generation and sharing of a broader variety of social information and hence strengthen the effect of social commerce initiatives. Yet, literature so far has not considered if and how social commerce features should be provided in combination and how this impacts consumers' buying intention. With the study presented in this manuscript, we emphasize that social commerce initiatives should focus on combining social commerce features, which differ in functionality. Social commerce features should hence not be combined to increase the number of features, but to increase the functional diversity that a set of social commerce features provides. Our results suggest that increasing the social commerce feature richness on an e-commerce platform can positively influence consumers' buying intention via social presence, social support, and social influence. Our findings hence lend support to so far unproven hypotheses that social commerce features might better work in concert (Huang and Benyoucef 2013), albeit only if they differ in functionality. Accordingly, using functionally richer sets of social commerce features can be an effective strategy to stimulate the buying intention of consumers.

With the construct of social commerce feature richness, we provide a new theoretical construct to characterize the functional diversity of a set of social commerce features that is integrated into an e-commerce platform. The developed research model moreover provides a novel instrument that can be used to explain the effects that are generated by functionally richer sets of social commerce features. Despite existing limitations, in the light of which our results ought to be interpreted, our study hence provides novel insights that inform the design and implementation of social commerce initiatives as well as research endeavors to study their effects.

Future research could verify our results in different contexts or study the effects of the social commerce feature richness on additional factors, such as perceived usefulness, perceived enjoyment, or trust, which can be integrated into the presented research model. Higher levels of social commerce feature richness may also induce negative side effects, such as social overload or fatigue effects, which could be addressed by future research (Park and Lee 2008). As we kept the content provided by a social commerce feature identical across the treatment conditions, future studies could also investigate the effects of varying content in more detail and, for instance, examine the effects if either positive or negative product reviews are provided. In addition, future research should focus on developing more refined categorizations of social commerce features based on the provided functionality and the conveyed kind of social information. While the reference model chosen in our study provides a first approach, it broadly concentrated on the basic functionality of features. On social commerce platforms, consumers moreover can also perform other activities than purchasing products, which include participating in the community, sharing information with other consumers, or seeking for information from other consumers (Zhang and Benyoucef 2016). Consequently, future studies could enrich our findings by also taking different consumer activities into account. With the study presented in this manuscript, we hope to provide a starting point for such endeavors.

13.8 Appendix

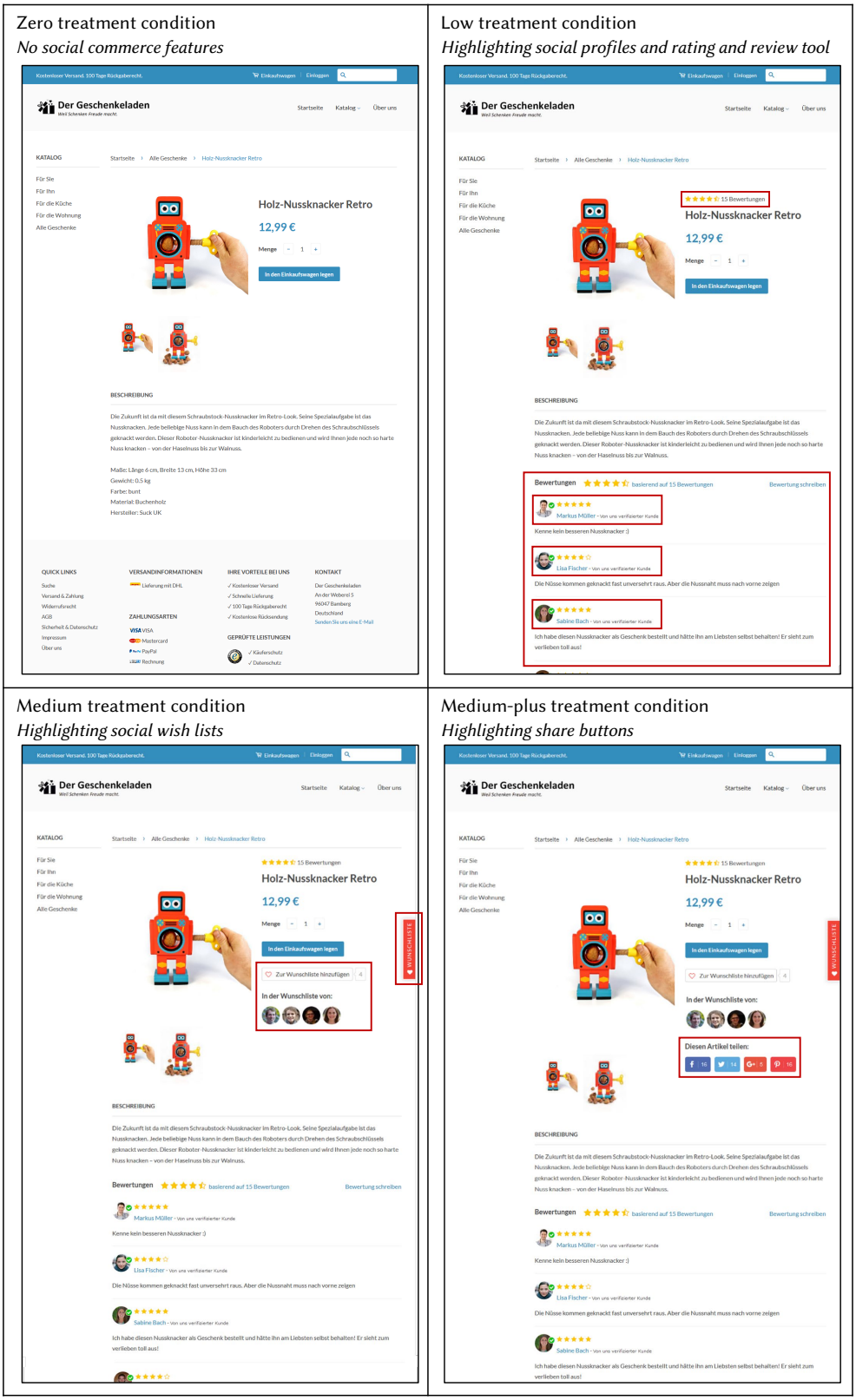


Figure 13.4 Screenshots of treatment conditions (product page examples)

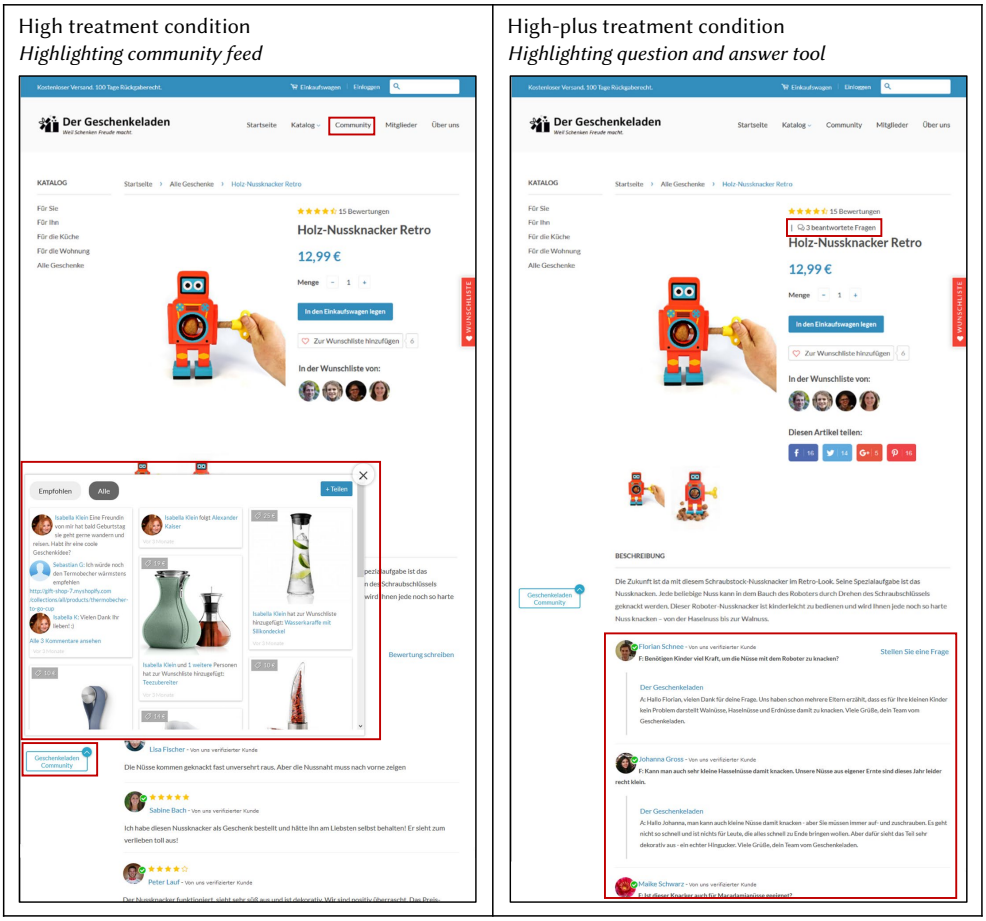


Figure 13.4 (continued)

Table 13.7 Survey instrument

Construct	*Item*
Social presence (SP)	*Adapted from Gefen and Straub (2003):* SP1: There is a sense of human contact in this online shop. SP2: There is a sense of personalness in this online shop. SP3: There is a sense of sociability in this online shop. SP4: There is a sense of human warmth in this online shop.
Social support (SU)	*Adapted from Liang et al. (2011):* SU1: I think that other customers would make suggestions for gifts. SU2: I have the impression that other customers would give me advice when selecting a gift. SU3: I think that other customers would give me information about the gifts. SU4: I think that other customers would show an interest in helping me to select a gift. SU5: I think that other customers would listen if I would report problems during the selection of a gift.
Social influence (SI)	*Adapted from Bearden et al. (1989) and Shen et al. (2010):* SI1: During the selection of a gift, I searched for information provided by other customers. SI2: During the selection of a gift, I oriented myself according to the opinion of other customers. SI3: It was important for me to know which gifts appealed to others. SI4: I chose a gift, which I assumed to be popular among other customers.

Table 13.7 (continued)

Construct	*Item*
Buying intention (BI)	*Adapted from Loiacono et al. (2007) and van der Heijden et al. (2003):* BI1: I would consider buying gifts from this online shop. BI2: If I need a gift in the future, I would probably revisit this online shop. BI3: If I need a gift in the future, I would probably buy it from this online shop.
Manipulation check items	*Adapted from Brengman and Karimov (2012):* 1. Did you notice other consumers' profiles in this online shop? 2. Did you notice product ratings and reviews in this online shop? 3. Did you notice social wish lists in this online shop? 4. Did you notice share buttons in this online shop? 5. Did you notice a community feed in this online shop? 6. Did you notice product questions and answers in this online shop?

Table 13.8 Effects of control variables

Path	*Path coefficient*	*t-value*
Age → Social presence	0.009	0.148
Age → Social support	0.040	0.628
Age → Social influence	-0.047	0.608
Age → Buying intention	0.068	0.834
Gender → Social presence	-0.193**	2.826
Gender → Social support	-0.038	0.692
Gender → Social influence	-0.081	1.141
Gender → Buying intention	0.021	0.328
Internet usage duration → Social presence	-0.039	0.549
Internet usage duration → Social support	-0.052	0.730
Internet usage duration → Social influence	0.035	0.426
Internet usage duration → Buying intention	0.084	1.148
Online shopping frequency → Social presence	0.081	1.268
Online shopping frequency → Social support	-0.067	1.204
Online shopping frequency → Social influence	0.074	1.122
Online shopping frequency → Buying intention	0.017	0.267
Social media usage duration → Social presence	0.161*	2.280
Social media usage duration → Social support	0.116	1.717
Social media usage duration → Social influence	0.025	0.346
Social media usage duration → Buying intention	0.028	0.421
Feature amount → Social presence	-0.022	0.307
Feature amount → Social support	-0.003	0.046
Feature amount → Social influence	0.000	0.005
Feature amount → Buying intention	0.041	0.653

***: p<0.001; **: p<0.01; *: p<0.05.

13.9 References

Ahn, J.-H., & Lee, J. (2012). Attention to Banner Ads and Their Effectiveness: An Eye-Tracking Approach. *International Journal of Electronic Commerce*, 17(1), pp. 119-137.

Amblee, N., & Bui, T. (2011). Harnessing the Influence of Social Proof in Online Shopping: The Effect of Electronic Word of Mouth on Sales of Digital Microproducts. *International Journal of Electronic Commerce*, 16(2), pp. 91-113.

Animesh, A., Pinsonneault, A., Sung-Byung, Y., & Wonseok, O. (2011). An Odyssey into Virtual Worlds: Exploring the Impacts of Technological and Spatial Environments on Intention to Purchase Virtual Products. *MIS Quarterly*, 35(3), pp. 789-810.

Argo, J. J., Dahl, D. W., & Manchanda, R. V. (2005). The Influence of a Mere Social Presence in a Retail Context. *Journal of Consumer Research*, 32(2), pp. 207-212.

Baethge, C., Klier, J., & Klier, M. (2016). Social Commerce – State-of-the-Art and Future Research Directions. *Electronic Markets*, 26(3), pp. 1-22.

Baethge, C., Klier, J., Klier, M., & Lindner, G. (2017). Customers' Influence Makes or Breaks Your Brand's Success Story–Accounting for Positive and Negative Social Influence in Online Customer Networks. *Proceedings of the 38th International Conference on Information Systems (ICIS)*, Seoul, South Korea, pp. 1-20.

Bai, Y., Yao, Z., & Dou, Y.-F. (2015). Effect of Social Commerce Factors on User Purchase Behavior: An Empirical Investigation from renren.com. *International Journal of Information Management*, 35(5), pp. 538-550.

Ballantine, P. W., & Au Yeung, C. (2015). The Effects of Review Valence in Organic Versus Sponsored Blog Sites on Perceived Credibility, Brand Attitude, and Behavioural Intentions. *Marketing Intelligence & Planning*, 33(4), pp. 508-521.

Ballantine, P. W., & Stephenson, R. J. (2011). Help Me, I'm Fat! Social Support in Online Weight Loss Networks. *Journal of Consumer Behaviour*, 10(6), pp. 332-337.

Baumeister, R. F., & Leary, M. R. (1995). The Need to Belong: Desire for Interpersonal Attachments as a Fundamental Human Motivation. *Psychological Bulletin*, 117(3), pp. 497-529.

Bearden, W. O., Netemeyer, R. G., & Teel, J. E. (1989). Measurement of Consumer Susceptibility to Interpersonal Influence. *Journal of Consumer Research*, 15(4), pp. 473-481.

Benlian, A., Titah, R., & Hess, T. (2012). Differential Effects of Provider Recommendations and Consumer Reviews in E-Commerce Transactions: An Experimental Study. *Journal of Management Information Systems*, 29(1), pp. 237-272.

Brengman, M., & Karimov, F. P. (2012). The Effect of Web Communities on Consumers' Initial Trust in B2C E-Commerce Websites. *Management Research Review*, 35(9), pp. 791-817.

Cenfetelli, R. T., & Bassellier, G. (2009). Interpretation of Formative Measurement in Information Systems Research. *MIS Quarterly*, 33(4), pp. 689-707.

Chen, J. V., Su, B. C., & Widjaja, A. E. (2016). Facebook C2C Social Commerce: A Study of Online Impulse Buying. *Decision Support Systems*, 83, pp. 57-69.

Chen, Y.-C., Shang, R.-A., & Kao, C.-Y. (2009). The Effects of Information Overload on Consumers' Subjective State Towards Buying Decision in the Internet Shopping Environment. *Electronic Commerce Research and Applications*, 8(1), pp. 48-58.

Chen, Y., & Xie, J. (2008). Online Consumer Review: Word-of-Mouth as a New Element of Marketing Communication Mix. *Management Science*, 54(3), pp. 477-491.

Cheung, C. M. K., & Thadani, D. R. (2012). The Impact of Electronic Word-of-Mouth Communication: A Literature Analysis and Integrative Model. *Decision Support Systems*, 54(1), pp. 461-470.

Cheung, C. M. K., Xiao, B. S., & Liu, I. L. B. (2014). Do Actions Speak Louder Than Voices? The Signaling Role of Social Information Cues in Influencing Consumer Purchase Decisions. *Decision Support Systems*, 65, pp. 50-58.

Chin, W. W. (1998). Issues and Opinion on Structural Equation Modeling. *MIS Quarterly*, 22(1), pp. VII-XVI.

Chwelos, P., Benbasat, I., & Dexter, A. S. (2001). Research Report: Empirical Test of an EDI Adoption Model. *Information Systems Research*, 12(3), pp. 304-321.

Cobb, S. (1976). Social Support as a Moderator of Life Stress. *Psychosomatic Medicine*, 38(5), pp. 300-314.

Crocker, J., & Canevello, A. (2008). Creating and Undermining Social Support in Communal Relationships: The Role of Compassionate and Self-Image Goals. *Journal of Personality & Social Psychology*, 95(3), pp. 555-575.

Croson, R., & Gneezy, U. (2009). Gender Differences in Preferences. *Journal of Economic Literature*, 47(2), pp. 448-474.

Curty, R., & Zhang, P. (2013). Website Features that Gave Rise to Social Commerce: A Historical Analysis. *Electronic Commerce Research and Applications*, 12(4), pp. 260-279.

Cyr, D. (2008). Modeling Web Site Design Across Cultures: Relationships to Trust, Satisfaction, and E-Loyalty. *Journal of Management Information Systems*, 24(4), pp. 47-72.

Cyr, D., Hassanein, K., Head, M., & Ivanov, A. (2007). The Role of Social Presence in Establishing Loyalty in E-Service Environments. *Interacting with Computers*, 19(1), pp. 43-56.

Cyr, D., Head, M., Larios, H., & Pan, B. (2009). Exploring Human Images in Website Design: A Multi-Method Approach. *MIS Quarterly*, 33(3), pp. 539-566.

Daft, R. L., & Lengel, R. H. (1986). Organizational Information Requirements, Media Richness and Structural Design. *Management Science*, 32(5), pp. 554-571.

DeLone, W. H., & McLean, E. R. (2004). Measuring e-Commerce Success: Applying the DeLone & McLean Information Systems Success Model. *International Journal of Electronic Commerce*, 9(1), pp. 31-47.

Deutsch, M., & Gerard, H. B. (1955). A Study of Normative and Informational Social Influences Upon Individual Judgment. *The Journal of Abnormal and Social Psychology*, 51(3), pp. 629-636.

Ding, C., Cheng, H. K., Duan, Y., & Jin, Y. (2017). The Power of the "Like" Button: The Impact of Social Media on Box Office. *Decision Support Systems*, 94, pp. 77-84.

Falk, R. F., & Miller, N. B. (1992). *A Primer for Soft Modeling*. Akron, USA: University of Akron Press.

Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18(1), pp. 39-50.

Friedrich, T. (2016). On the Factors Influencing Consumers' Adoption of Social Commerce – A Review of the Empirical Literature. *Pacific Asia Journal of the Association for Information Systems*, 8(4), pp. 1-32.

Friedrich, T., Overhage, S., & Schlauderer, S. (2016). The More the Better? Exploring the Relationship Between Social Commerce Feature Intensity, Social Factors, and Consumers' Buying Behavior. *Proceedings of the 37th International Conference on Information Systems (ICIS)*, Dublin, Ireland, pp. 1-21.

Fulk, J., Steinfield, C. W., Schmitz, J., & Power, J. G. (1987). A Social Information Processing Model of Media Use in Organizations. *Communication Research*, 14(5), pp. 529-552.

Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in Online Shopping: An Integrated Model. *MIS Quarterly*, 27(1), pp. 51-90.

Gefen, D., & Straub, D. (2003). Managing User Trust in B2C e-Services. *e-Service Journal*, 2(2), pp. 7-24.

Gefen, D., Straub, D., & Boudreau, M.-C. (2000). Structural Equation Modeling and Regression: Guidelines for Research Practice. *Communications of the Association for Information Systems*, 4(1), pp. 1-77.

Grange, C., & Benbasat, I. (2010). Online Social Shopping: The Functions and Symbols of Design Artifacts. *Proceedings of the 43rd Hawaii International Conference on System Sciences (HICSS)*, pp. 1-10.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a Silver Bullet. *Journal of Marketing Theory and Practice*, 19(2), pp. 139-152.

Hair, J. F., Sarstedt, M., Ringle, C. M., & Mena, J. A. (2012). An Assessment of the Use of Partial Least Squares Structural Equation Modeling in Marketing Research. *Journal of the Academy of Marketing Science*, 40(3), pp. 414-433.

Hajli, N. (2016). Ethical Environment in the Online Communities by Information Credibility: A Social Media Perspective. *Journal of Business Ethics*, 2016, pp. 1-12.

Hajli, N., & Sims, J. (2015). Social Commerce: The Transfer of Power from Sellers to Buyers. *Technological Forecasting and Social Change*, 94, pp. 350-358.

Hassanein, K., & Head, M. (2005). The Impact of Infusing Social Presence in the Web Interface: An Investigation Across Product Types. *International Journal of Electronic Commerce*, 10(2), pp. 31-55.

Hassanein, K., & Head, M. (2007). Manipulating Perceived Social Presence Through the Web Interface and Its Impact on Attitude Towards Online Shopping. *International Journal of Human-Computer Studies*, 65(8), pp. 689-708.

Hausman, A. V., & Siekpe, J. S. (2009). The Effect of Web Interface Features on Consumer Online Purchase Intentions. *Journal of Business Research*, 62(1), pp. 5-13.

Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS Path Modeling in New Technology Research: Updated Guidelines. *Industrial Management & Data Systems*, 116(1), pp. 2-20.

House, J. S. (1981). *Work Stress and Social Support*. Reading, USA: Addison-Wesley.

Hsiao, K. L., Chuan-Chuan Lin, J., Wang, X. Y., Lu, H. P., & Yu, H. (2010). Antecedents and Consequences of Trust in Online Product Recommendations. *Online Information Review*, 34(6), pp. 935-953.

Huang, K.-Y., Nambisan, P., & Uzuner, Ö. (2010). Informational Support or Emotional Support: Preliminary Study of an Automated Approach to Analyze Online Support Community Contents. *Proceedings of the 31st International Conferences on Information Systems (ICIS)*, St. Louis, USA, pp. 1-12.

Huang, Z., & Benyoucef, M. (2013). From E-Commerce to Social Commerce: A Close Look at Design Features. *Electronic Commerce Research and Applications*, 12(4), pp. 246-259.

Huang, Z., & Benyoucef, M. (2015). User Preferences of Social Features on Social Commerce Websites: An Empirical Study. *Technological Forecasting and Social Change*, 95, pp. 57-72.

Huang, Z., & Benyoucef, M. (2017). The Effects of Social Commerce Design on Consumer Purchase Decision-Making: An Empirical Study. *Electronic Commerce Research and Applications*, 25, pp. 40-58.

Jahng, J., Jain, H., & Ramamurthy, K. (2007). Effects of Interaction Richness on Consumer Attitudes and Behavioral Intentions in E-Commerce: Some Experimental Results. *European Journal of Information Systems*, 16(3), pp. 254-269.

Kamis, A., Koufaris, M., & Stern, T. (2008). Using an Attribute-Based Decision Support System for User-Customized Products Online: An Experimental Investigation. *MIS Quarterly*, 32(1), pp. 159-177.

Kim, J., & Lee, J. (2002). Critical design factors for successful e-commerce systems. *Behaviour & Information Technology*, 21(3), pp. 185-199.

Kim, Y. A., & Srivastava, J. (2007). Impact of Social Influence in E-Commerce Decision Making. *Proceedings of the 9th International Conference on Electronic Commerce (ICEC)*, D. Sarppo (Ed.), pp. 293-301.

King, R. A., Racherla, P., & Bush, V. D. (2014). What We Know and Don't Know About Online Word-of-Mouth: A Review and Synthesis of the Literature. *Journal of Interactive Marketing*, 28(3), pp. 167-183.

Kuan, K. K. Y., Zhong, Y., & Chau, P. Y. K. (2014). Informational and Normative Social Influence in Group-Buying: Evidence from Self-Reported and EEG Data. *Journal of Management Information Systems*, 30(4), pp. 151-178.

Kumar, N., & Benbasat, I. (2002). Para-Social Presence: A Re-Conceptualization of 'Social Presence' to Capture the Relationship Between a Web Site and Her Visitors. *Proceedings of the 35th Annual Hawaii International Conference on System Sciences (HICSS)*, pp. 106-112.

Kumar, N., & Benbasat, I. (2006). Research Note: The Influence of Recommendations and Consumer Reviews on Evaluations of Websites. *Information Systems Research*, 17(4), pp. 425-439.

Kwahk, K.-Y., & Ge, X. (2012). The Effects of Social Media on E-Commerce: A Perspective of Social Impact Theory. *Proceedings of the 45th Hawaii International Conference on System Sciences (HICSS)*, R. H. Sprague (Ed.), pp. 1814-1823.

Latané, B. (1981). The Psychology of Social Impact. *American Psychologist*, 36(4), pp. 343-356.

Lee, H. H., & Jin Ma, Y. (2012). Consumer Perceptions of Online Consumer Product and Service Reviews. *Journal of Research in Interactive Marketing*, 6(2), pp. 110-132.

Lee, J., Park, D.-H., & Han, I. (2008). The Effect of Negative Online Consumer Reviews on Product Attitude: An Information Processing View. *Electronic Commerce Research and Applications*, 7(3), pp. 341-352.

Lee, M. K. O., Shi, N., Cheung, C. M. K., Lim, K. H., & Sia, C. L. (2011). Consumer's Decision to Shop Online: The Moderating Role of Positive Informational Social Influence. *Information & Management*, 48(6), pp. 185-191.

Lengel, R. H., & Daft, R. L. (1988). The Selection of Communication Media as an Executive Skill. *The Academy of Management Executive (1987-1989)*, 2(3), pp. 225-232.

Liang, T.-P., Ho, Y.-T., Li, Y.-W., & Turban, E. (2011). What Drives Social Commerce: The Role of Social Support and Relationship Quality. *International Journal of Electronic Commerce*, 16(2), pp. 69-90.

Liang, T.-P., & Turban, E. (2011). Introduction to the Special Issue Social Commerce: A Research Framework for Social Commerce. *International Journal of Electronic Commerce*, 16(2), pp. 5-14.

Liu, C.-W., Agarwal, R., & Gao, G. (2016). The Dark Side of Positive Social Influence. *Proceedings of the 37th International Conference on Information Systems (ICIS)*, Dublin, Ireland, pp. 1-14.

Loiacono, E., Watson, R., & Goodhue, D. (2007). WebQual: An Instrument for Consumer Evaluation of Web Sites. *International Journal of Electronic Commerce*, 11(3), pp. 51-87.

Lowry, P. B., Vance, A., Moody, G., Beckman, B., & Aaron, R. (2008). Explaining and Predicting the Impact of Branding Alliances and Web Site Quality on Initial Consumer Trust of E-Commerce Web Sites. *Journal of Management Information Systems*, 24(4), pp. 199-224.

Lu, B., Fan, W., & Zhou, M. (2016). Social Presence, Trust, and Social Commerce Purchase Intention: An Empirical Research. *Computers in Human Behavior*, 56, pp. 225-237.

McKnight, D. H., Choudhury, V., & Kacmar, C. (2002). Developing and Validating Trust Measures for E-Commerce: An Integrative Typology. *Information Systems Research*, 13(3), pp. 334-359.

Mikalef, P., Giannakos, M., & Pateli, A. (2013). Shopping and Word-of-Mouth Intentions on Social Media. *Journal of Theoretical and Applied Electronic Commerce Research*, 8(1), pp. 17-34.

Moon, J., Chadee, D., & Tikoo, S. (2008). Culture, Product Type, and Price Influences on Consumer Purchase Intention to Buy Personalized Products Online. *Journal of Business Research*, 61(1), pp. 31-39.

Mudambi, S. M., & Schuff, D. (2010). What Makes a Helpful Online Review? A Study of Customer Reviews on Amazon.com. *MIS Quarterly*, 34(1), pp. 185-200.

Ng, C. S.-P. (2013). Intention to Purchase on Social Commerce Websites Across Cultures: A Cross-Regional Study. *Information & Management*, 50(8), pp. 609-620.

Nunnally, J. C. (1978). *Psychometric Theory*, (2 ed.). New York, USA: McGraw Hill.

Olbrich, R., & Holsing, C. (2011). Modeling Consumer Purchasing Behavior in Social Shopping Communities with Clickstream Data. *International Journal of Electronic Commerce*, 16(2), pp. 15-40.

Palmer, J. W. (2002). Web Site Usability, Design, and Performance Metrics. *Information Systems Research*, 13(2), pp. 151-167.

Parboteeah, D. V., Valacich, J. S., & Wells, J. D. (2009). The Influence of Website Characteristics on a Consumer's Urge to Buy Impulsively. *Information Systems Research*, 20(1), pp. 60-78.

Park, D.-H., & Lee, J. (2008). eWOM Overload and Its Effect on Consumer Behavioral Intention Depending on Consumer Involvement. *Electronic Commerce Research and Applications*, 7(4), pp. 386-398.

Pavlou, P. A., & Chai, L. (2002). What Drives Electronic Commerce Across Cultures? A Cross-Cultural Empirical Investigation of the Theory of Planned Behaviour. *Journal of Electronic Commerce Research*, 3(4), pp. 240-253.

Pavlou, P. A., & Fygenson, M. (2006). Understanding and Predicting Electronic Commerce Adoption: An Extension of the Theory of Planned Behavior. *MIS Quarterly*, 30(1), pp. 115-143.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *Journal of Applied Psychology*, 88(5), pp. 879-903.

Purnawirawan, N., Eisend, M., De Pelsmacker, P., & Dens, N. (2015). A Meta-analytic Investigation of the Role of Valence in Online Reviews. *Journal of Interactive Marketing*, 31, pp. 17-27.

Rice, R. E. (1992). Task Analyzability, Use of New Media, and Effectiveness: A Multi-Site Exploration of Media Richness. *Organization Science*, 3(4), pp. 475-500.

Ringle, C. M., Wende, S., & Becker, J.-M. (2015). SmartPLS 3. *Bönningstedt: SmartPLS*. https://www.smartpls.com.

Rivard, S., & Huff, S. L. (1988). Factors of Success for End-User Computing. *Communications of the ACM*, 31(5), pp. 552-561.

Rivis, A., & Sheeran, P. (2003). Social Influences and the Theory of Planned Behaviour: Evidence for a Direct Relationship Between Prototypes and Young People's Exercise Behaviour. *Psychology & Health*, 18(5), pp. 567-583.

Sashi, C. M. (2012). Customer Engagement, Buyer-Seller Relationships, and Social Media. *Management Decision*, 50(2), pp. 253-272.

Shen, J. (2012). Social Comparison, Social Presence, and Enjoyment in the Acceptance of Social Shopping Websites. *Journal of Electronic Commerce Research*, 13(3), pp. 198-212.

Shen, Y.-C., Huang, C.-Y., Chu, C.-H., & Liao, H.-C. (2010). Virtual Community Loyalty: An Interpersonal-Interaction Perspective. *International Journal of Electronic Commerce*, 15(1), pp. 49-74.

Shin, D.-H. (2013). User Experience in Social Commerce: In Friends We Trust. *Behaviour & Information Technology*, 32(1), pp. 52-67.

Short, J., Williams, E., & Christie, B. (1976). *The Social Psychology of Telecommunications*. London, United Kingdom: Wiley.

Simon, S. J., & Peppas, S. C. (2004). An Examination of Media Richness Theory in Product Web Site Design: An Empirical Study. *Info*, 6(4), pp. 270-281.

Stephen, A. T., & Toubia, O. (2010). Deriving Value from Social Commerce Networks. *Journal of Marketing Research*, 47(2), pp. 215-228.

Straub, D., Boudreau, M.-C., & Gefen, D. (2004). Validation Guidelines for IS Positivist Research. *Communications of the Association for Information Systems*, 13(1), pp. 380-427.

van der Heijden, H., Verhagen, T., & Creemers, M. (2003). Understanding Online Purchase Intentions: Contributions from Technology and Trust Perspectives. *European Journal of Information Systems*, 12(1), pp. 41-48.

Wakefield, R. L., Wakefield, K. L., Baker, J., & Wang, L. C. (2010). How Website Socialness Leads to Website Use. *European Journal of Information Systems*, 20(1), pp. 118-132.

Wang, C., & Zhang, P. (2012). The Evolution of Social Commerce: The People, Management, Technology, and Information Dimensions. *Communications of the Association for Information Systems*, 31(5), pp. 105-127.

Weisberg, J., Te'eni, D., & Arman, L. (2011). Past Purchase and Intention to Purchase in E-Commerce: The Mediation of Social Presence and Trust. *Internet Research*, 21(1), pp. 82-96.

Wells, J. D., Valacich, J. S., & Hess, T. J. (2011). What Signals Are You Sending? How Website Quality Influences Perceptions of Product Quality and Purchase Intentions. *MIS Quarterly*, 35(2), pp. 373-396.

Werts, C. E., Linn, R. L., & Jöreskog, K. G. (1974). Intraclass Reliability Estimates: Testing Structural Assumptions. *Educational and Psychological Measurement*, 34(1), pp. 25-33.

Xi, H., Hong, Z., Jianshan, S., Li, X., Jiuchang, W., & Davison, R. (2016). Impulsive Purchase Behaviour in Social Commerce: The Role of Social Influence. *Proceedings of the 20th Pacific Asia Conference on Information Systems (PACIS)*, pp. 1-18.

Yadav, M. S., de Valck, K., Hennig-Thurau, T., Hoffman, D. L., & Spann, M. (2013). Social Commerce: A Contingency Framework for Assessing Marketing Potential. *Journal of Interactive Marketing*, 27(4), pp. 311-323.

Zhang, H., Lu, Y., Gupta, S., & Zhao, L. (2014). What Motivates Customers to Participate in Social Commerce? The Impact of Technological Environments and Virtual Customer Experiences. *Information & Management*, 51(8), pp. 1017-1030.

Zhang, K. Z. K., & Benyoucef, M. (2016). Consumer Behavior in Social Commerce: A Literature Review. *Decision Support Systems*, 86, pp. 95-108.

Zhou, L., Zhang, P., & Zimmermann, H.-D. (2013). Social Commerce Research: An Integrated View. *Electronic Commerce Research and Applications*, 12(2), pp. 61-68.

Zhu, L., Benbasat, I., & Jiang, Z. (2010). Let's Shop Online Together: An Empirical Investigation of Collaborative Online Shopping Support. *Information Systems Research*, 21(4), pp. 872-891.

14 Paper V: Effects of Social Commerce Feature Richness on Website Stickiness

Table 14.1 Fact sheet Paper V

Fact	*Description*
Title	The Impact of Social Commerce Feature Richness on Website Stickiness Through Cognitive and Affective Factors: An Experimental Study
Authors	Thomas Friedrich[1] thomas.friedrich@uni-bamberg.de Sebastian Schlauderer[1] sebastian.schlauderer@uni-bamberg.de Sven Overhage[1] sven.overhage@uni-bamberg.de [1] University of Bamberg An der Weberei 5 96047 Bamberg, Germany
Publication type	Journal Article
Publication outlet	Electronic Commerce Research and Applications
Status	Published
Full citation	Friedrich, T., Schlauderer, S., & Overhage, S. (2019). The Impact of Social Commerce Feature Richness on Website Stickiness Through Cognitive and Affective Factors: An Experimental Study. *Electronic Commerce Research and Applications*, 36, pp. 1-19.
URL	https://dx.doi.org/10.1016/j.elerap.2019.100861

The Impact of Social Commerce Feature Richness on Website Stickiness Through Cognitive and Affective Factors: An Experimental Study

Abstract. *Website stickiness*, which describes how much attention a website receives from its users, is a critical success factor for e-commerce websites. While many e-commerce websites are currently integrating social commerce features to enhance consumers' shopping experience, little is known about how such features affect the website stickiness, especially when used in combination. Building upon the *stimulus-organism-response* (S-O-R) paradigm, we develop a research model to explain how social commerce feature richness affects the website stickiness through consumers' perception of cognitive and affective factors. The research model is evaluated in a controlled online experiment, in which 164 participants used variants of an e-commerce website with varying levels of social commerce feature richness. The results indicate that the feature richness positively affects cognitive and affective factors, which in turn increase the website stickiness. This implies that e-commerce websites can be made more successful when using functionally diverse social commerce features in combination.

Keywords: Electronic commerce, social commerce, feature richness, website stickiness, perceived usefulness, perceived enjoyment, trust, consumer behavior

14.1 Introduction

Designing an effective e-commerce website that attracts and retains consumers is a major challenge for online businesses (Chen et al. 2010; King et al. 2016). In highly competitive online environments, consumers can easily search for product information, compare prices, and switch from one website to another with only a few clicks (Brown et al. 2003; Srinivasan et al. 2002). This makes it difficult for online businesses to keep consumers on their websites (Cao et al. 2005). In such environments, the *website stickiness* is considered as a critical determinant for the success of e-commerce websites (Li et al. 2006; Zott et al. 2000). Briefly defined, website stickiness refers to how much attention a website receives from its users over time (Davenport 2000). On sticky websites, consumers typically spend more time and interact more with the website, which increases the likelihood of purchases and nurtures customer loyalty (Lin 2007; Lin et al. 2010). It is thus important for online businesses to understand how to increase the stickiness of their websites (Li et al. 2006).

Various studies in the e-commerce and marketing domain indicate that augmenting an e-commerce website with features such as a product search engine or product images can positively affect the website stickiness (Bansal et al. 2004; Benlian 2015; Danaher et al. 2006). Inspired by the success of social networking websites, many companies have begun integrating social commerce features into their e-commerce websites to increase their attractiveness for consumers (Huang and Benyoucef 2017). *Social commerce features* involve "a software artifact that is integrated into a website and that provides a specific social media-based functionality to promote and support interactions among consumers" (Friedrich et al. 2016, p. 3). Prominent examples of social commerce features are rating and review tools, social wish lists, community feeds, and social profile pages (Curty and Zhang 2013; Huang and Benyoucef 2015).

By using social commerce features, consumers can create and share product relevant information, which can support the making of purchase decisions (Mikalef et al. 2017). For instance, by using rating and review tools, consumers can read other consumers' opinions about a product or service before making their purchase decisions. The information that is created and shared by consumers is also referred to as *social information* (Cheung et al. 2014; Yadav et al. 2013). As such information can help consumers in their decision-making, they will ideally spend more time on websites that provide social commerce features.

Social commerce features differ from each other with respect to the provided functionality and the transmitted kind of social information, however. By integrating functionally diverse social commerce features in combination, e-commerce websites can hence provide consumers different kinds of social information, which in turn may be useful during different stages of the purchase decision-making process (Huang and Benyoucef 2017). We use the term *social commerce feature richness* to refer to the functional diversity of a feature set. Assuming that different kinds of social information can support different stages of the purchase decision-making process, it appears plausible that websites with a higher social commerce feature richness will be more effective in retaining consumers (Curty and Zhang 2013; Huang and Benyoucef 2013).

Yet, functionally richer sets of social commerce features could also overwhelm consumers with information overload so that they will spend less time on the website, resulting in a decreased website stickiness (Hsu and Liao 2014; Park and Lee 2008). To ensure the success of social commerce initiatives, it becomes hence important to understand if and how functionally diverse social commerce features should be used in combination and what impact such endeavors may create.

Yet, although literature provides initial evidence that a positive causal relationship may exist between the provisioning of individual social commerce features and the average time consumers spend on a website (Olbrich and Holsing 2011), the effects of social commerce features on the stickiness of e-commerce websites have not yet been explored in detail. The present literature hence does not explain why social commerce features may influence the stickiness of website. While consumers' perception of cognitive and affective factors, such as perceived usefulness, perceived enjoyment, and trust, seems to play a significant role in the formation of website stickiness (Benlian 2015; Li et al. 2006; Lin 2007), only few studies have examined the effects of social commerce features on these factors. Kumar and Benbasat (2006) have analyzed how rating and review tools affect the perceived usefulness of an e-commerce website. Brengman and Karimov (2012) have studied how like buttons affect consumers' trust in the website providing such a feature.

Other studies have explored how social commerce website characteristics, such as interactivity or personalization, which can be caused by social commerce features, affect cognitive and/or affective factors (Grange and Benbasat 2010; Mikalef et al. 2012; Mikalef et al. 2013; Zhang et al. 2014). The results of the studies indicate that social commerce features may affect cognitive and affective factors differently depending on their functional characteristics. As only specific social commerce features or website characteristics have been investigated, it remains unclear how using functionally diverse sets of social commerce features may affect cognitive and/or affective factors and the resulting website stickiness.

To better understand if and how social commerce feature richness influences the stickiness of an e-commerce website, we present the results of a study, in which we systematically explored the effects generated by functionally richer sets of social commerce features. Our study is guided

by two research questions. Since literature has not investigated if the stickiness of an e-commerce website can be strengthened by integrating functionally richer sets of social commerce features, we want to better understand: *(RQ1) What impact does social commerce feature richness have on the stickiness of an e-commerce website?* To explain the impact of social commerce feature richness, we develop a research model that connects social commerce feature richness to the website stickiness through consumers' perception of cognitive and affective factors. In so doing, we investigate: *(RQ2) How do cognitive and affective factors mediate the relationship between social commerce feature richness and the website stickiness?*

The developed research model we have developed uses the stimulus-organism-response (S-O-R) model as an overarching framework to describe the causal relationship between social commerce feature richness, the cognitive and affective factors, and the website stickiness. We evaluated it by means of a controlled online experiment, in which 164 participants used and reported on several variants of an e-commerce website that differed from each other only with respect to the functional richness of the integrated social commerce features. To measure the website stickiness, we used different website metrics (i.e., number of clicks, page views, visit duration) that we collected from the participants' clickstream data.

The results of our study provide novel contributions to the research stream on website stickiness and on social commerce. On the one hand, we contribute insights to answer the question whether the website stickiness, which is a crucial factor for the success of e-commerce websites, can be strengthened by integrating functionally richer sets of social commerce features. Up to now, this question has not been examined although it is of immediate interest (Huang and Benyoucef 2013). The developed research model introduces the concept of social commerce feature richness as a determinant of consumer perceptions and behavioral responses. In so doing, we provide a novel instrument that can be used to explain the unique effects that are generated when using functionally richer sets of social commerce features. On the other hand, we provide a research model that allows to study how cognitive and affective factors and their interplay mediate the relationship between social commerce feature richness and the website stickiness. So far, early social commerce studies have only focused on studying how specific social commerce features or specific website characteristics can affect cognitive/affective factors. Our research model hence provides a step towards studying the effects of social commerce initiatives from a more holistic perspective.

14.2 Theoretical Background

From a theoretical standpoint, social commerce feature richness can be considered as a stimulus, which may trigger a desired response in a consumer, such as spending more time on a website. To depict this relationship in a structured manner, we adopt the S-O-R model as an overarching framework to develop our research model.

14.2.1 The S-O-R Model

Rooted in the field of environmental psychology, the S-O-R model suggests that certain signals in the environment (stimulus) influence the cognitive and affective states of an individual (organism), and thereby influence the individual's behavior (response) (Mehrabian and Russell 1974). According to the S-O-R model, the cognitive and affective states of the organism mediate the relationship between the stimulus and response. In the e-commerce domain, several studies

adopted the S-O-R model to examine how certain website features as stimulus (e.g., product descriptions, pictures, navigation aids) can affect consumers' responses, such as their buying behavior (Brengman and Karimov 2012; Chang and Chen 2008; Eroglu et al. 2001; Parboteeah et al. 2009). Similarly, Benlian (2015) used the S-O-R model to study how different web personalization cues can affect consumers' willingness to stick to a website.

Given the different perspectives of these studies, various factors have been suggested to measure the cognitive and affective states of consumers, such as perceived usefulness, perceived enjoyment, or trust. Judging from the findings of these studies, the S-O-R model not only is well suited to explain how a certain website stimulus such as social commerce feature richness affects the cognitive and affective states of consumers and, in turn, affects a response such as consumers' sticking to a website. By establishing a causal relationship between stimulus, organism, and response, it moreover provides a structured framework to trace the effects caused by social commerce feature richness in a systematic manner.

14.2.2 Social Commerce Feature Richness as Stimulus (S)

In the social commerce literature, initial evidence is given that social commerce features may affect consumers' cognitive and affective states differently depending on their functional characteristics. For instance, Mikalef et al. (2012) as well as Mikalef et al. (2013) explored how different characteristics of social commerce websites can influence cognitive and affective factors and how these factors can affect consumers' browsing intention. According to their results, website characteristics such as providing a convenient shopping experience and a wide product selection can positively affect the cognitive state, while characteristics such as providing information about latest shopping trends and offering a sense of excitement when browsing the website can positively affect the affective state (Mikalef et al. 2012; Mikalef et al. 2013). Grange and Benbasat (2010) as well as Zhang et al. (2014) also provide initial evidence about different characteristics of social commerce websites and their effects on cognitive and/or affective factors. Zhang et al. (2014), for instance, show that the personalization of a social commerce website can trigger stronger affective reactions than the website's interactivity and sociability.

The results of these studies are relevant to our study, since the identified characteristics can be considered as the affordances that stem from the social commerce features of a website. However, while it is suggested that individual social commerce features can influence cognitive/affective factors differently, especially the specific effects that may emerge from the use of functionally diverse sets of social commerce features have not been considered in these studies. Investigating such effects is important to understand whether the use of functionally diverse sets of social commerce features can increase the stickiness of e-commerce websites.

To conceptualize the extent of social commerce functionality that is provided by the social commerce features of an e-commerce website, we introduce the concept of *social commerce feature richness*. We define social commerce feature richness as the *diversity of social media-based functionality being provided on an e-commerce website to promote and support interactions among consumers*. Our conceptualization of feature richness is rooted in the media richness theory, which broadly defines the richness of a communication medium as its capabilities to transmit information (Daft and Lengel 1986). Modern online communication media such as e-commerce websites typically provide several features (e.g., product descriptions, product images, navigation menus, etc.) that enable the transmission of information (Palmer 2002; Simon and Peppas 2004). While media richness according to this example addresses a website's overall information

transmission capabilities, which stems from all website features, the concept of social commerce feature richness specifically addresses the range of social information that is transmitted by the social commerce features of a website.

Since a more diverse social media-based functionality can transmit a broader range of social information, which can support different stages of the consumers' decision-making process (Huang and Benyoucef 2017), we expect social commerce feature richness to be an important determinant for the stickiness of the corresponding e-commerce website. Accordingly, social commerce feature richness represents the stimulus in our research model.

To operationalize the abstract concept of social commerce feature richness, knowledge about the functional diversity of social commerce features is required. In this study, we draw on the reference model for the design of social commerce platforms developed by Huang and Benyoucef (2013) to illustrate how social commerce features can be identified and combined according to their functional diversity. However, since literature also discusses other ways to classify social commerce features based on their functionality (Curty and Zhang 2013; Grange and Benbasat 2010), it should be pointed out that our conceptualization of social commerce feature richness is not restricted to this model. The reference model groups social commerce features into four different layers depending on the provided functionality.

The "individual" layer, which provides the basic functionality for all other layers, is composed of features that enable users to represent themselves and to be recognized by others, for instance, by creating social profile pages. The "conversation" layer comprises features that allow users to create content and to share information with others, for instance, in form of product reviews generated through rating and review tools or in form of shares and likes generated through share and like buttons. The "community" layer contains features to build communities and to maintain relationships, for instance, through community feeds or question and answer tools. The "commerce" layer comprises features to facilitate and stimulate commercial activities, for instance, by enabling users to create social wish lists or by generating social product recommendations based on the user interactions. According to Huang and Benyoucef (2013), successful social commerce websites ideally should cover each of the four reference model layers with at least one social commerce feature.

Based on the reference model, we argue that the more layers a set of social commerce features covers, the greater is the functional diversity and the higher is social commerce feature richness. For instance, a feature set that covers the individual, conversation, and commerce layer provides a higher level of social commerce feature richness than a set that only covers the individual and the conversation layer.

14.2.3 Cognitive/Affective Factors as States of the Organism (O)

To represent the cognitive and affective states (of the organism), we draw on three factors for which solid evidence is given that they can significantly influence the website stickiness (Benlian 2015; Li et al. 2006; Lin 2007; Polites et al. 2012). Moreover, literature indicates that individual social commerce features may have an impact on these factors (Brengman and Karimov 2012; Hajli 2013; Kumar and Benbasat 2006; Liu and Park 2015). These factors are *perceived usefulness*, *perceived enjoyment*, and *trust*. Note that some studies also use the factors utilitarian/hedonic motivation in a conceptually similar manner to perceived usefulness/enjoyment (Mikalef et al. 2012; Mikalef et al. 2013; Pöyry et al. 2013).

In line with prior studies, we use perceived usefulness in this study to measure the cognitive state, while perceived enjoyment is used to measure the affective state (Koufaris 2002; van der Heijden 2003). With respect to trust, researchers argue that trust encompasses both cognitive and affective elements, which are intertwined, and which makes it difficult to differentiate between them (Chang and Chen 2008; Corritore et al. 2003; Riegelsberger et al. 2005). We therefore consider trust in this study to address both the cognitive and the affective state.

Perceived usefulness is a central concept in the Technology Acceptance Model (TAM) and is defined as "the degree to which a person believes that using a particular system enhances his or her job performance" (Davis 1989, p. 320). While this definition of perceived usefulness was developed in the context of workplace systems, the concept has also been applied to the contexts of e-commerce and social commerce. In the e-commerce context, several studies showed that the perceived usefulness of an e-commerce website can significantly affect consumers' online behaviors, such as their website use, information search, or purchasing behavior (e.g., Chen et al. 2002; Gefen et al. 2003; Järveläinen 2004; Pavlou 2003; van der Heijden 2003).

Similar findings have also been found in the social commerce context (e.g., Featherman and Hajli 2015; Hajli 2014; Kim 2015; Noh et al. 2013; Shin 2013). Note that the TAM also suggests perceived ease of use as a potential determinant of the use of information systems. Other than perceived usefulness, which measures the effectiveness of an information system, perceived ease of use characterizes its efficiency (Davis 1989). Since we want to study how e-commerce websites can be made more effective, we decided to limit the scope of our examination to perceived usefulness.

Generally, enjoyment is an intrinsic motivator that stimulates people to do something (Deci and Ryan 1985; Ryan and Deci 2000). In the literature on technology adoption, perceived enjoyment is defined as "the extent to which the activity of using a particular system is perceived to be enjoyable in its own right, apart from any performance consequences that may be anticipated" (Davis et al. 1992, p. 1113). Like perceived usefulness, perceived enjoyment can have significant effects on individuals' system usage (Davis et al. 1992; van der Heijden 2004). Perceived enjoyment is also a critical factor in the e-commerce context. Significant positive effects of perceived enjoyment on consumers online behaviors, such as their website usage or purchasing behavior, have been found (e.g., Cyr et al. 2007; Koufaris 2002; Parboteeah et al. 2009; van der Heijden 2003). Similar effects have been reported in the social commerce literature (Sharma and Crossler 2014; Shen 2012; Shin 2013).

According to Mayer et al. (1995), trust can be defined as "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party" (Mayer et al. 1995, p. 712). Trust is an important determinant in the success of e-commerce websites given that consumers and website vendors are spatially and temporally separated and that products can only be experienced virtually (Brynjolfsson and Smith 2000; Pavlou 2003). Consequently, several e-commerce studies could show that trust can significantly increase consumers' online purchasing behavior (e.g., Gefen et al. 2003; McKnight et al. 2002b; Pavlou 2003). Positive effects of trust on consumers' purchasing and/or information sharing behavior have also been found in the social commerce domain (Chen and Shen 2015; Hajli 2015; Hsiao et al. 2010; Lu et al. 2016; Shi and Chow 2015). In this study, we adopt the online trust definition of McKnight et al. (2002a), which focuses on a consumer's initial trust in an e-commerce website. Initial trust refers to "the period during which a consumer visits and explores a vendor's website for the first time" (McKnight et al. 2002a, p. 336).

Studies in which online trust is the primary factor of interest oftentimes decompose trust into different trusting beliefs, such as competence, benevolence, and integrity, to better understand the different facets of trust (Brengman and Karimov 2012; Chow and Shi 2014; Lee and Turban 2001; McKnight et al. 2002a). Alternatively, if the research goal is to understand a more comprehensive user reaction to a website, trust is usually conceptualized as a single construct (Hassanein and Head 2007; Kim et al. 2008; Pavlou 2003; Suh and Han 2003; van der Heijden et al. 2003). Since the objective of this study is to investigate how social commerce feature richness affects the website stickiness through cognitive and affective factors, we take the latter approach and conceptualize trust as a single construct.

14.2.4 Website Stickiness as Response (R)

Website stickiness is a critical factor for e-commerce websites to create business value (Zott et al. 2000). The more attention an e-commerce website receives from consumers, the higher is the likelihood that the website generates sales transactions (Lin et al. 2010). In the e-commerce literature, website stickiness has broadly been conceptualized and measured from two different perspectives. On the one hand, website stickiness is conceptualized as the consumers' intention to consistently reuse a website in the future (Li et al. 2006). Studies adopting this conceptualization mostly use different questionnaire items to measure website stickiness, such as asking consumers whether they intend to continue using the website or how likely it is that they will return to the website (Benlian 2015; Li et al. 2006; Lin 2007). While this conceptualization has its uses, it is not without criticism as researchers point out that aspects such as the continued use and reuse of a website are also addressed by the concept of continuance (Bhattacherjee 2001; Li et al. 2006; Tangmanee 2017).

Hence, the label continuance intention could be used in such settings. On the other hand, website stickiness is conceptualized as the consumers' amount of time spent and interaction while using a website (Olbrich and Holsing 2011; Tangmanee 2017). Instead of focusing on consumers' intention to reuse a website, this conceptualization directly addresses consumers' actual website usage behavior. Therefore, studies adopting this conceptualization commonly measure website stickiness through different website metrics, such as the number of clicks, number of page views, and visit duration per consumer (Bansal et al. 2004; Bhat et al. 2002; Lin et al. 2010; Tangmanee 2017). In this study, we decided to focus on analyzing the actual website usage, which we deem to be a necessary precondition for future website reuse. Accordingly, we adopted the latter conceptualization and measurements. By clearly separating the concept of website stickiness from the concept of continuance, we were also able to restrict ourselves to reflecting consumers' behavioral responses (in contrast to intentions) as suggested by the S-O-R model (Mehrabian and Russell 1974).

14.3 Research Model and Hypotheses Development

Building on the before-mentioned theoretical background, we propose a research model that allows us to investigate how social commerce feature richness influences the website stickiness through cognitive and affective factors. Figure 14.1 depicts the overall structure of our research model.

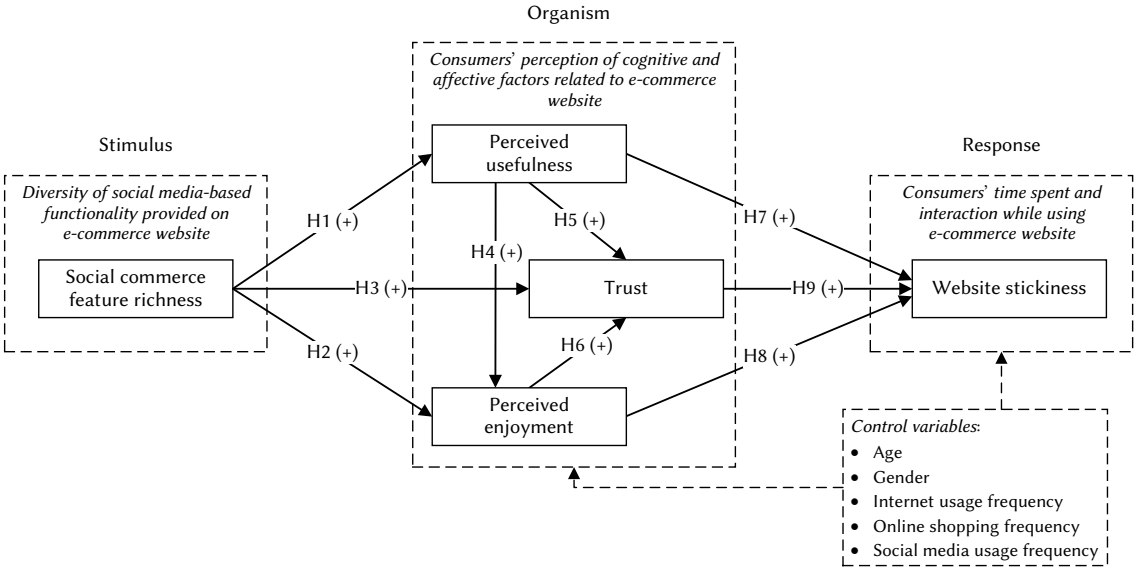


Figure 14.1 Research model

14.3.1 Effects of Social Commerce Feature Richness on Cognitive and Affective Factors

In the e-commerce context, Parboteeah et al. (2009) showed that task-relevant as well as mood-relevant website cues can significantly increase the perceived usefulness. Task-relevant website cues are more utilitarian-oriented and directly facilitate consumers' shopping tasks (e.g., product descriptions, navigation aids, shopping cart). Mood-relevant website cues are more hedonic-oriented and are used to create an appealing mood/atmosphere at a website (e.g., human pictures, music, colors). The positive effect of mood relevant website cues on perceived usefulness is because individuals associate an appealing website with a higher usability (Tractinsky et al. 2000; van der Heijden 2003). We argue that social commerce features can address both task-relevant and mood-relevant aspects (Grange and Benbasat 2010). Rating and review tools, for instance, are more task-oriented since they support consumers' shopping tasks by providing additional product-related information. Community feeds, in turn, are more mood-oriented since they create an appealing atmosphere on a website by showing what other consumers have recently bought. Consequently, by combining functionally diverse social commerce features, task-relevant and mood-relevant aspects can be addressed.

Considering how online consumers process information and make purchase decisions can further help to understand the effects of social commerce feature richness on perceived usefulness. According to the human information processing theory, consumers' decision-making on e-commerce websites can broadly be divided into two stages (Kumar and Benbasat 2006; Payne et al. 1992). In the first stage, the available products are briefly screened and reduced until a manageable set of alternatives remains. In the second stage, the products in the reduced set are evaluated in detail. The social information generated by social commerce features can support consumers in both stages. Social product recommendation tools, for instance, can help consumers in the first stage to identify potential product candidates more quickly by showing what other consumers with similar shopping interests bought (Kumar and Benbasat 2006).

By providing information about other consumers' opinions, rating and review tools, in turn, can assist consumers to evaluate the reduced set of products in more detail in the second stage

(Kumar and Benbasat 2006). Thus, by combining functionally diverse social commerce features to provide different kinds of social information, both stages of the decision-making process can be supported. Building on the rational that functionally richer sets of social commerce features can address task-relevant as well as mood-relevant aspects of the website and can support consumers in different stages of the purchase decision-making process, we hypothesize that:

Hypothesis 1 *(The Feature Richness-Usefulness Hypothesis). Social commerce feature richness has a positive effect on perceived usefulness.*

As shown by Parboteeah et al. (2009), task-relevant and mood-relevant website cues can also significantly increase the perceived enjoyment. By combining functionally diverse social commerce features that address task-relevant and mood-relevant aspects, higher levels of perceived enjoyment may thus be generated. Social presence theory can be used to explain the effect of social commerce feature richness on perceived enjoyment. Generally, social presence refers to "the degree to which the medium permits users to experience others as being psychologically present" (Fulk et al. 1987, p. 531). The more human warmth and sociability a medium conveys, the greater the social presence (Fulk et al. 1987; Short et al. 1976). Studies in the e-commerce literature found that websites incorporating socially rich design elements (e.g., human images, human videos, personalized greetings) can significantly increase the perceived enjoyment, since consumers associate websites that convey a sense of human warmth and sociability with more pleasure (Cyr et al. 2007; Hassanein and Head 2005; Wakefield et al. 2010).

Social commerce features provide various means to incorporate socially rich design elements into e-commerce websites (Curty and Zhang 2013). Examples are consumers' profile pictures displayed on social profile pages, opinions about products provided through rating and review tools, lists of favorite products created and shared through social wish lists, or recent shopping activities of other consumers visualized in community feeds (Curty and Zhang 2013; Huang and Benyoucef 2015). Consequently, it can be argued that if an e-commerce website incorporates a greater diversity of functionally diverse social commerce features to convey different kinds of social information, a greater sense of human warmth and sociability can be conveyed. For instance, by combining rating and review tools with social wish lists, consumers can not only perceive the presence of other consumers from their product opinions but also from their lists of favorite products. The more consumers can experience and interact with other consumers, including friends and family members, the more likely it is that they enjoy their shopping experience (Kim 2015; Zhang et al. 2014). Considering the above arguments, it seems reasonable that websites providing a higher level of social commerce feature richness will be associated with a higher level of perceived enjoyment. Hence, we hypothesize that:

Hypothesis 2 *(The Feature Richness-Enjoyment Hypothesis). Social commerce feature richness has a positive effect on perceived enjoyment.*

The effects of social commerce feature richness on trust can be explained through signaling theory (Spence 1973). Applied in the e-commerce context, signaling theory suggests that when it is difficult for consumers to assess the quality of a product or the trustworthiness of a website, they attend to specific kinds of informational cues as signals (Boulding and Kirmani 1993; Helm and Mark 2007; Kirmani and Rao 2000). In particular, they look for signals that are difficult to manipulate. The social information that is generated by social commerce features can provide such signals (Karimov et al. 2011). For instance, product ratings and reviews generated through rating and review tools include other consumers' opinions about their personal product experiences (Chen and Xie 2008). Consumers consider such opinions as a trustworthy source of

information (Benlian et al. 2012). Providing product ratings and reviews on an e-commerce website can thus signal consumers that the vendor behind the website acts in their best interest, which can increase consumers' trust in the website (Pavlou and Dimoka 2006). Signaling that the vendor acts in the consumers' best interests is reflected by the trusting belief "benevolence", which is considered as a form of affective trust (McAllister 1995; Riegelsberger et al. 2003).

Yet, social commerce features may also affect the cognitive dimension of trust, which relates to the trusting beliefs "competence" and "integrity" (McAllister 1995; Pavlou and Dimoka 2006; Riegelsberger et al. 2003). For instance, through rating and review tools, a website vendor can respond to negative product reviews and, accordingly, signal competence and integrity (Sparks et al. 2016). Similarly, a website vendor may signal competence and integrity by answering consumers' questions which are generated through question and answer tools. Following on from these examples, we argue that by combining functionally diverse social commerce features, cognitive as well as affective dimensions of trust can be addressed. Cue consistency theory can be used as an additional theoretical lens to explain the potential effects of social commerce feature richness on trust. Cue consistency theory suggests that individuals more likely rely on a set of cues if the information provided by these cues is consistent (Maheswaran and Chaiken 1991).

Using functionally diverse social commerce features in combination may thus have a cumulative effect on consumers' trust in the website (Brengman and Karimov 2012). For instance, displaying consumers' recent activities together with their social wish lists may corroborate the message that the website is also used by other consumers and thus may be trustworthy. Considering that functionally richer sets of social commerce features can affect both cognitive and affective dimensions of trust and that these effects may accumulate, it can be assumed that a higher level of social commerce feature richness will also be associated with a higher level of trust. We thus propose:

Hypothesis 3 *(The Feature Richness-Trust Hypothesis). Social commerce feature richness has a positive effect on trust.*

14.3.2 Effects Between Cognitive and Affective Factors

In the e-commerce domain, Parboteeah et al. (2009) as well as Al-Maghrabi and Dennis (2011) provide initial evidence that perceived usefulness can positively influence perceived enjoyment. Literature focusing on the interplay between cognition and affect in consumers' decision-making can be used to explain this effect (Shiv and Fedorikhin 1999). According to Berkowitz (1993), the exposure to a stimulus is usually first accompanied by cognitive processes, which can then trigger affective reactions. Cognitive reactions can thus lead to affective reactions (Holbrook and Batra 1987). For instance, by incorporating a functionally rich set of social commerce features, an e-commerce website may become more useful to consumers (i.e., cognitive reaction).

The higher the website's usefulness, the more likely it is that consumers can accomplish their shopping task, which can translate into greater levels of enjoyment (i.e., affective reaction) (Arnold and Reynolds 2003). Consequently, it can be argued that if consumers associate an e-commerce website with a higher usefulness, higher levels of enjoyment can be generated. Thus, we hypothesize:

Hypothesis 4 *(The Usefulness-Enjoyment Hypothesis). Perceived usefulness has a positive effect on perceived enjoyment.*

While the connection between perceived usefulness and trust has widely been investigated in the e-commerce literature, different opinions exist whether perceived usefulness influences trust or trust influences perceived usefulness (Beatty et al. 2011). In this context, studies focusing on initial online trust argue that since consumers have no prior experience with the vendor, the website gives a first impression of the vendor's capabilities (Chang and Chen 2008; Hampton-Sosa and Koufaris 2005; Koufaris and Hampton-Sosa 2004; McKnight et al. 2002b). Therefore, if consumers perceive that the website is useful, it is likely that they have higher trusting beliefs about the vendor's benevolence, competence, and integrity, and thus find the website more trustworthy (Hampton-Sosa and Koufaris 2005; McKnight et al. 2002b).

In contrast, studies focusing on scenarios in which consumers are already familiar with the vendor argue that since consumers may already trust the vendor and its website, higher levels of perceived usefulness may be generated (Gefen et al. 2003; Pavlou 2003). Since this study concentrates on initial trust (c.f. section 14.2), perceived usefulness is treated as an antecedent of trust. In line with studies focusing on initial trust (Chang and Chen 2008; Hampton-Sosa and Koufaris 2005), we assume that the perceived usefulness of a website can signal consumers that the vendor behind the website is competent and acts in their interest, which can result into higher levels of trust in the website. Therefore, we hypothesize:

Hypothesis 5 *(The Usefulness-Trust Hypothesis). Perceived usefulness has a positive effect on trust.*

Perceived enjoyment can also play a significant role in the formation of trust. For instance, Hampton-Sosa and Koufaris (2005) investigated how perceived usefulness and perceived enjoyment together influence the appeal of a website and how this appeal affects trust. According to their results, perceived enjoyment is positively related to consumers' trust trough website appeal (Hampton-Sosa and Koufaris 2005). In addition, Hwang and Kim (2007) investigated how the quality of an e-commerce website affects consumers' enjoyment and anxiety and how these factors together influence consumers' trusting beliefs in the website. Significant positive effects of perceived enjoyment on the trusting beliefs integrity and ability could be found (Hwang and Kim 2007). Flow theory can be used as a theoretical lens to understand these effects (Csikszentmihalyi 1975; Csikszentmihalyi and Csikszentmihalyi 1988). According to Csikszentmihalyi (1975, p. 43), flow denotes "the holistic sensation that people feel when they act with total involvement". It is described as the feeling after one says: "that was fun," or "that was enjoyable" (Csikszentmihalyi 1975, p. 43).

Thus, flow is conceptually related to enjoyment. When people are in flow, they use more mental resources to focus on the activity and more efficiently filter out irrelevant thoughts. Flow is also accompanied by a feeling of having control over one's actions and the environment (Csikszentmihalyi 1975). In the e-commerce context, studies could show that being in control can reduce consumers' uncertainty and risk perceptions, which in turn can increase consumers' trust in the website (Chang and Chen 2008; Dinev and Hart 2006). It can thus be reasoned that if consumers are in a state of flow and associate a website with a higher level of enjoyment, it is likely that they will also perceive the website as more trustworthy. Therefore, we hypothesize:

Hypothesis 6 *(The Enjoyment-Trust Hypothesis). Perceived enjoyment has a positive effect on trust.*

14.3.3 Effects of Cognitive and Affective Factors on Website Stickiness

With respect to the effect of perceived usefulness on website stickiness, Bansal et al. (2004) could show that certain website characteristics (e.g., information available, product selection), which are related to perceived usefulness, can positively affect consumers' overall website satisfaction, which in turn positively affects website stickiness. Furthermore, Polites et al. (2012) found that perceived usefulness can also directly influence website stickiness, besides its indirect influence through satisfaction. In addition, Lin (2007) provides evidence that the perceived value of a website, which is conceptually related to perceived usefulness, did positively affect consumers' intention to stick to a website. In line with the initial evidence provided in the e-commerce literature (Bansal et al. 2004; Lin 2007; Polites et al. 2012), it can be argued that the more consumers perceive that an e-commerce website is useful and supports them in their decision-making, the higher the likelihood that consumers will stick to the website. Hence, we propose:

Hypothesis 7 *(The Usefulness-Website Stickiness Hypothesis). Perceived usefulness has a positive effect on website stickiness.*

While several e-commerce studies have investigated how perceived enjoyment affects consumers' satisfaction, loyalty, or purchase intention (cf. section 14.2), the relationship between perceived enjoyment and website stickiness has only received little attention so far. With respect to social networking websites, Yang and Lin (2014) could show that the higher the perceived hedonic value (e.g., enjoyment) is, the higher is the individual's intention to stick to the website. In the e-commerce context, Benlian (2015) could show that different website personalization cues can positively affect the perceived enjoyment, which in turn can influence the stickiness intention. Following Benlian (2015), it can be argued that with greater levels of enjoyment, a website may become more comfortable to its users and thus may increase the likelihood that users will stay longer on the website. Therefore, we propose:

Hypothesis 8 *(The Enjoyment-Website Stickiness Hypothesis). Perceived enjoyment has a positive effect on website stickiness.*

Initial evidence has also been reported that trust can significantly increase the website stickiness. In the e-commerce context, Li et al. (2006) as well as Polites et al. (2012) found a significant positive relationship between trust and website stickiness. However, Xu and Liu (2010) also found a non-significant effect of trust on website stickiness, which leaves space for further investigations. In line with Li et al. (2006) as well as Polites et al. (2012), we follow the argumentation that if consumers do perceive a website as trustworthy, it is likely that they will be more attracted to the website and thus will more likely stick to the website. Conversely, if consumers do not trust a website, it becomes more likely that they will interact less and spend less time on the website. We thus propose:

Hypothesis 9 *(The Trust-Website Stickiness Hypothesis). Trust has a positive effect on website stickiness.*

14.3.4 Control Variables

The research model includes five control variables that we specified to account for possible confounding effects, which may arise from consumers' individual characteristics and may affect

the cognitive/affective factors as well as the website stickiness. Following advice from literature, we considered age, gender, internet usage frequency, online shopping frequency, and social media usage frequency as control variables (Chiu et al. 2014; Huang and Benyoucef 2017; Li et al. 2006; Stewart 2003; Wei et al. 2014).

14.4 Research Methodology

14.4.1 Experimental Setting

We evaluated our research model in a controlled online experiment. A controlled experimental setting was used as it enabled us to manipulate social commerce feature richness on an e-commerce website in a systematic manner, which is otherwise difficult to achieve in natural e-commerce environments. Moreover, it allowed us to control the exogenous variables as much as possible to obtain measurements that are more accurate.

The design of our experiment followed the concept of related experiment-based studies, which explored the effects of various website features on the users' attitude towards the website (Brengman and Karimov 2012; Cyr et al. 2009; Hassanein and Head 2007). The experiment used a 1 x 4 between-subjects design, manipulating four incremental levels of social commerce feature richness with four independent groups.

For the experiment, we designed an e-commerce website that consisted of four versions, which were used by disjoint groups of participants. The versions differed from each other only with respect to the functional richness of the integrated social commerce features. To select the social commerce features, we took the reference model for the design of social commerce platforms developed by Huang and Benyoucef (2013) into account (cf. section 14.2). Following the recommendations of Huang and Benyoucef (2013), we selected features that address different layers of the reference model. In so doing, we were able to increase social commerce feature richness in a systematic manner. The first version of the website did not include any social commerce features and thus represented a "zero level" (i.e., control group). We used this "zero level" to verify that the absence of social commerce features on an e-commerce website indeed leads to the lowest effects on the website stickiness.

The second version of the website provided a rating and review tool together with social profile pages. Rating and review tools are widespread in practice and supposed to work effectively (Amblee and Bui 2011; Huang and Benyoucef 2015). In general, rating and review tools enable consumers to create conversations about products and to share their product experiences and knowledge. According to Huang and Benyoucef (2013), such a functionality addresses the "conversation" layer of the reference model. Social profile pages were additionally used to display consumers' profile information together with the reviews. According to Huang and Benyoucef (2013), enabling consumers to create social profiles targets the "individual" layer and thus represents a basic functionality for all other layers. As the individual layer serves as a facilitator to realize the other layers (cf. section 14.2), we did not represent it as a separate treatment group. Nevertheless, our setting closely followed the recommendations of Huang and Benyoucef (2013) that any e-commerce website that plans to integrate social commerce features should start by addressing the individual and the conversation layer.

To increase social commerce feature richness, the third version of the website provided social wish lists next to the rating and review tool and the social profile pages. Following Huang and

Benyoucef (2013), social wish lists address the "commerce" layer since they link consumers with similar shopping interests and allow consumers to share these lists with potential customers. Consequently, our website covered three of the four suggested layers of the reference model (i.e., "individual", "conversation", and "commerce" layer). Moreover, it followed the recommendation that e-commerce websites planning to integrate social commerce features should pay attention to the commerce layer after addressing the conversation and individual layer (Huang and Benyoucef 2013).

To further increase social commerce feature richness, the fourth version of the website provided a community feed next to social wish lists, a rating and review tool, and social profile pages. The community feed that we used enabled consumers to post status messages and to view and comment on the recent activities of other consumers. With such a functionality, the community feed supports the creation of relationships, which addresses the "community" layer of the reference model (Huang and Benyoucef 2013). According to Huang and Benyoucef (2013), such as setting should be more effective than the previous settings as it covers all of the four layers of the reference model with functionally diverse social commerce features.

Table 14.2 illustrates the different website versions and the manipulated levels of social commerce feature richness used in the experiment. Screenshots of the different website versions and the integrated social commerce features are provided in Figure 14.3 (see Appendix). Note that the website has been created in German language as the study was conducted with participants from Germany, which we wanted to address in their mother tongue.

Table 14.2 Manipulation levels of social commerce feature richness used in the experiment

Website version	*Feature richness level*	*Available social commerce features*	*Layers in reference model (Huang and Benyoucef 2013)*
1	None	-	-
2	Low	Social profile pages (basic functionality) Rating and review tool	Individual Conversation
3	Medium	Social profile pages (basic functionality) Rating and review tool Social wish lists	Individual Conversation Commerce
4	High	Social profile pages (basic functionality) Rating and review tool Social wish lists Community feed	Individual Conversation Commerce Community

To ensure that the experiment reproduces a realistic scenario, we created our e-commerce website using a professional web-based platform, which supports the rapid creation of online shops and their extension with additional features by using an app store. We were hence able to set up a complete e-commerce website and configure it with the selected social commerce features as needed. To ensure that the participants are confronted with a shopping domain, in which they can act profoundly, but may nevertheless appreciate additional information about the offered goods, we created an online shop of a fictitious company that sells unbranded gift gadgets. Unbranded gift gadgets seemed to be an appropriate choice for several reasons (Brengman and Karimov 2012; Lowry et al. 2008). First, their selection is at least partially based on social and emotional aspects, which makes them attractive for social commerce scenarios. Second, gift gadgets are associated with manageable financial risk. Third, potential branding effects are avoided. We hence filled the website with several popular gift gadgets that we took over from

real websites after acquiring permission. In addition, we generated all the information necessary to populate the various social commerce features with content.

14.4.2 Task and Procedure

To simulate a realistic e-commerce scenario, we followed related experiment-based studies and used a task that involved browsing an e-commerce website, selecting, and buying a product (Brengman and Karimov 2012; Cyr et al. 2009; Hassanein and Head 2007). The experiment was entirely conducted online. To start the experiment, we asked the participants to open a webpage, which provided access to the e-commerce website and to the online survey. At the beginning, the participants were directed to a landing page, on which the task of the experiment was explained. Subsequently, relevant demographic information was inquired. Afterwards, the system automatically and randomly assigned the participants to one of the four groups and gave them access to one of the four above-mentioned variants of the e-commerce website. Equipped with an identical amount of virtual money, the participants were asked to select and buy a gift of their choice for a good friend's upcoming birthday party. The task description was adapted from Brengman and Karimov (2012). Each group had access to exactly one of the four website versions. The shopping task had no time limit to enable participants to browse the website as long as needed.

All website features including the social commerce features were fully functional so that the participants could interact with them as much as needed. Note that the shopping task could also be completed without using some or even any social commerce features. With the described design, we ensured that the shopping task was as realistic as possible and identical across the groups. The social commerce features were also not mentioned in the task to avoid any potential bias that may result from the participants' awareness of the experimental treatment. After completing the shopping task on the e-commerce website, the participants were redirected to an online survey, in which we asked for their perception of the cognitive and affective factors contained in our research model.

14.4.3 Measures

Social commerce feature richness was measured using a four-level categorical variable to capture the four manipulation levels (i.e., zero, low, medium, high) used in our experimental setting. Starting from the "zero level", each subsequent level represented a functionally richer set of social commerce features according to the functional layers of the reference model of Huang and Benyoucef (2013). By selecting features that address different layers, the reference model thus helped us to make sure that social commerce feature richness was increased in a systematic manner. To ensure that the variable can be appropriately included in the subsequent statistical analysis, we followed the recommendations of Henseler et al. (2016) and converted the variable into a formative construct that consisted of three binary dummy variables. The three binary dummy variables were used to categorically capture the four different levels of social commerce feature richness. Using dummy variables to represent different treatment conditions is also consistent with prior experiment-based studies (Chen et al. 2009; Cyr et al. 2009; Kamis et al. 2008).

To verify the manipulation of the independent variable, we followed guidelines to ask the participants if they experienced the manipulation (Straub et al. 2004). We asked a question in the form: "Did you notice <social commerce feature> in this online shop?" for each social commerce

feature that played a role in our experiment (Brengman and Karimov 2012). The answers were measured on three-point scales consisting of "yes – no – unsure".

To measure the cognitive and affective factors, we used validated scales that we took over from literature with minor wording changes to adapt them to the context of our study. All questionnaire items were operationalized using seven-point Likert scales. Table 14.3 provides a list of the items.

Table 14.3 Measurement items used in the online survey

Construct	*Item*	*Sources*
Perceived usefulness (PU)	PU1: This online shop enables me to search and buy gifts faster. PU2: This online shop makes it easier for me to search and buy gifts. PU3: This online shop improves my performance in gift searching and buying. PU4: I find this online shop useful for searching and buying gifts.	Gefen et al. (2003), Kumar and Benbasat (2006)
Perceived enjoyment (PE)	PE1: I found my visit to this online shop fun. PE2: I found my visit to this online shop exciting. PE3: I found my visit to this online shop entertaining. PE4: I found my visit to this online shop boring. (reverse coded)	Koufaris (2002), Hassanein and Head (2005)
Trust (TR)	TR1: I would trust this online shop. TR2: I find this online shop trustworthy. TR3: I believe that this online shop keeps its promises and commitments. TR4: I think that this online shop knows how to provide excellent service. TR5: I believe that this online shop keeps my best interests in mind.	Pavlou (2003), Suh and Han (2003)
Manipulation check items	1. Did you notice other consumers' profiles in this online shop? 2. Did you notice product rating and reviews in this online shop? 3. Did you notice social wish lists in this online shop? 4. Did you notice a community feed in this online shop?	Brengman and Karimov (2012)

Website stickiness was measured by investigating the participants' actual website usage behavior. As described in section 14.2, various website metrics can be used to measure website stickiness. In this study, we adapted the approach of Tangmanee (2017) and measured website stickiness through the following three website metrics: number of clicks per user, number of pages viewed per user, and time spent per user. As prior studies could show, all three metrics are significantly related and thus can be used to measure website stickiness (Mallapragada et al. 2016; Olbrich and Holsing 2011; Tangmanee 2017). Table 14.13 provides a description of the employed website metrics.

Table 14.4 Website stickiness metrics used in the experiment

Website stickiness metric	*Description*
Number of clicks per user (NCU)	The total number of clicks a user made while using the e-commerce website.
Number of pages viewed per user (NPU)	The total number of pages a user viewed while using the e-commerce website.
Time spent per user (TSU)	The total amount of time (in seconds) a user spent while using the e-commerce website.

Clickstream data was used to collect these metrics. In general, a clickstream is a record of a user's actions on a given website such as the sequence of pages visited by the user (Bucklin and Sismeiro 2009). To gather the clickstream data, a self-developed JavaScript session tracking tool

was integrated into the e-commerce website. The tool recorded the number of clicks, the pages viewed, and the viewing duration of the pages for each user session. The tool worked in the background and was not noticeable for the user. The recorded user session data was stored in a separate database, which we set up for the experiment. URL parameters were used to link the recorded user session data of the e-commerce website to the online survey data. In so doing, we were able to investigate how the participants' perception of the cognitive and affective factors is related to the website stickiness metrics. Note that according to our experimental task, each participant could visit the e-commerce website exactly one time to keep the setting identical across the participants. Repeated visits were thus explicitly excluded. The recorded user session data consisted of single visits, which is in line with prior studies (Olbrich and Holsing 2011; Tangmanee 2017).

With respect to the control variables (i.e., consumers' individual characteristics), the items for age and gender were taken from Li et al. (2006), the items for internet usage frequency and online shopping frequency were taken from Huang and Benyoucef (2017), and the items for social media usage frequency were taken from Wei et al. (2014).

14.4.4 Pilot Test

A pilot test was conducted to verify that the experimental setting worked as intended. For the pilot test, we invited five student participants to test the e-commerce website and the online survey. Following the experimental task, the participants had to carefully browse, select, and buy a product from each of the four versions of the e-commerce website. Afterwards, we asked the participants to provide feedback on the different versions of the e-commerce website and on the online survey. Questions and problems concerning the e-commerce website and the online survey were recorded, and appropriate changes were made. Furthermore, the participants independently reported that each version of the website provided a different functional richness of social commerce features, which suggested that the versions were manipulated sufficiently and appropriately.

14.4.5 Participants

We decided to invite students of a large university in Germany as participants for the experiment. Although using students as substitutes for everyday users is not without critics, we deliberately chose to focus on this target group, as it is likely that student participants are highly familiar with online shopping and willing to try out new approaches (McKnight et al. 2002a; Wells et al. 2011). Moreover, using students as substitutes allowed us to conduct the experiment in a controlled setting and consequently to limit the number of confounding variables. We invited students that participated in current lecture courses. We issued a call for participation using the online learning platform of the university and invited them personally during our lecture courses. Apart from a personal motivation, no incentive was given as we wanted to recruit intrinsically motivated individuals.

14.5 Data Analysis and Results

Overall, we collected data from 212 participants. After sorting out incomplete responses, we retained 180 usable responses for data analyses. Following the recommendations of Straub et al. (2004), we decided to only include those responses in our final data set, in which the participants

did not wrongly assess the social commerce features employed in the online shop. The procedure was applied to all four groups used in our experimental setting. As for example in group 1, to which no social commerce features were provided, we eliminated the responses where participants stated that they perceived any social commerce feature. In group 2, to which social profile pages and a rating and review tool were provided, we eliminated the responses where the participants did not realize the provided features or wrongly recognized not included features (e.g., social wish lists, community feed). Responses in group 3 and group 4 were treated in a similar manner. Doing so allowed us to not only ensure that the participants' engagement was credible but also that their assessment of the online shop was valid. This procedure left us with a total of 164 responses.

Of them, 75 (45.7%) were female and 89 (54.3%) were male. All participants were undergraduate or graduate students from business administration, information systems, and computer science degree programs. On average, they were 24 years old. Table 14.5 depicts the demographic statistics of the participants.

Table 14.5 Participant demographic statistics (n = 164)

Demographics	*Category*	*Numbers*	*Percentage*	*Sources*
Gender	Female	75	45.7%	Li et al. (2006)
	Male	89	54.3%	
Age	Younger than 20 years old	7	4.3%	Li et al. (2006)
	20 - 29 years old	146	89.0%	
	30 - 39 years old	10	6.1%	
	Older than 39 years old	1	0.6%	
Internet usage frequency	Less than one hour per day	4	2.4%	Huang and Benyoucef (2017)
	1 - 2 hours per day	22	13.4%	
	2 - 3 hours per day	40	24.4%	
	3 - 6 hours per day	54	32.9%	
	6 - 10 hours per day	37	22.6%	
	More than 10 hours per day	7	4.3%	
Online shopping frequency	Never	1	0.6%	Huang and Benyoucef (2017)
	Less than once per month	37	22.6%	
	1 - 2 times per month	64	39.0%	
	3 - 5 times per month	42	25.6%	
	6 - 10 times per month	17	10.4%	
	More than 10 times per month	3	1.8%	
Social media usage frequency	Do not use social media	8	4.9%	Wei et al. (2014)
	Less than one hour per day	55	33.5%	
	1 - 2 hours per day	59	36.0%	
	2 - 3 hours per day	30	18.3%	
	3 - 5 hours per day	10	6.1%	
	More than 5 hours per day	2	1.2%	

To verify that the participants were equally distributed over the four treatment groups, we conducted *a one-way analysis of variance* (ANOVA) for each of the demographic statistics. Group sizes ranged from 39 to 43 participants. There were no significant differences in age ($F = 0.502$, $p>0.1$), gender ($F = 0.783$, $p>0.1$), internet usage frequency ($F = 0.666$, $p>0.1$), online shopping frequency ($F = 0.690$, $p>0.1$), and social media usage frequency ($F = 1.310$, $p>0.1$) among the four groups.

We then analyzed our theoretical model using *partial least squares* (PLS) with SmartPLS 3 (Ringle et al. 2015). PLS structural equation modeling (PLS-SEM) is appropriate to test our model

because the model is comparably complex and includes various control variables. In particular, PLS is often referred to have the advantage that it not only maximizes the explained variance of the endogenous variables, but that it also is more stable to non-normal distributed data than other (co-)variance based approaches (Chin 1998). With 164 participants, we deem the sample size to be sufficient for a robust PLS calculation considering the number of variables and paths in our model (Chin 1998; Hair et al. 2012). Note that in the PLS analysis, social commerce feature richness was modelled as a formative construct that consisted of three binary dummy variables to categorically capture the four different levels of social commerce feature richness, as suggested by Henseler et al. (2016). All other variables were modelled as reflective constructs.

14.5.1 Measurement Validation

We performed various tests to check the validity and reliability of our measurement model. In line with Hair et al. (1995), we used standardized data for the tests since we measured the cognitive/affective factors and the website stickiness on different scales. First, we checked for common method bias (Podsakoff et al. 2003). By employing different techniques to measure the cognitive/affective perceptions (i.e., survey data) and the website stickiness (i.e., clickstream data), the chance of common method was reduced in our study. Nevertheless, we tested for common method bias by conducting a Harman's one-factor test as suggested by Podsakoff et al. (2003). The results showed that multiple factors are present, and that the most covariance explained by one factor is 45.59%. This indicates that a common method bias is not likely a serious concern to our study.

To validate the reflective measures, we determined the construct reliability, the convergent validity, and the discriminant validity. Referring to the construct reliability, composite reliability and Cronbach's alpha should be higher than 0.7 (Nunnally 1978; Werts et al. 1974). With respect to the convergent validity, standardized item loadings should be higher than 0.7 (Gefen et al. 2000) and the average variance extracted (AVE) from a construct should be higher than 0.5 (Fornell and Larcker 1981). Table 14.6 summarizes the results of our measurement validation. As shown, the composite reliability is consistently higher than 0.9 and the Cronbach's alpha is consistently higher than 0.8. Moreover, the item loadings are consistently higher than 0.7 and the AVE is consistently higher than 0.6.

Table 14.6 Descriptive, reliability, and validity statistics

Construct	*Item*	*Mean*	*Std. dev.*	*Item loading*	*CR*	*Cronbach's alpha*	*AVE*
Perceived usefulness (PU)	PU1	5.358	1.340	0.891	0.921	0.886	0.746
	PU2	5.391	1.384	0.888			
	PU3	4.451	1.709	0.778			
	PU4	5.337	1.450	0.893			
Perceived enjoyment (PE)	PE1	4.920	1.405	0.880	0.907	0.864	0.710
	PE2	4.092	1.632	0.835			
	PE3	4.356	1.594	0.848			
	PE4	4.691	1.635	0.804			
Trust (TR)	TR1	5.616	1.174	0.846	0.917	0.887	0.689
	TR2	5.503	1.254	0.858			
	TR3	5.509	1.130	0.886			
	TR4	4.898	1.307	0.718			
	TR5	5.274	1.381	0.834			
Website stickiness (WS)	NCU	10.123	5.480	0.902	0.927	0.882	0.809
	NPU	6.012	3.510	0.915			
	TSU	114.779	66.222	0.881			

Note: (1) Descriptive statistics refer to the raw data, while the reliability and validity statistics were calculated on standardized data. (2) Social commerce feature richness is excluded since it is measured as a formative construct.

To demonstrate adequate discriminant validity, the square root of the AVE from a construct should be higher than 0.707 and should also be higher than the construct's correlations to the other constructs (Gefen et al. 2000). Table 14.7 shows that the square roots of all AVE values are higher than 0.707 and exceed the correlations to the other constructs. The cross-loadings of the items are presented in Table 14.12 (see Appendix).

Table 14.7 Construct correlations and square root of AVE (bold numbers)

Construct	*PU*	*PE*	*TR*	*WS*
Perceived usefulness (PU)	**0.864**			
Perceived enjoyment (PE)	0.622	**0.842**		
Trust (TR)	0.519	0.513	**0.830**	
Website stickiness (WS)	0.437	0.494	0.442	**0.900**

Note: Social commerce feature richness is excluded since it is measured as a formative construct.

The formative measure (i.e., social commerce feature richness) was validated by examining the weights and the variance inflation factor (VIF) values for the three formative items (i.e., the three binary dummy variables) (Cenfetelli and Bassellier 2009). The result showed that the weights were significant for all three items (0.557, $p<0.01$; 0.981, $p<0.001$; 1.132, $p<0.001$). Moreover, all VIF values were below the rule of thumb of 5 (1.545, 1.551, 1.532), indicating that multicollinearity is not a serious concern (Hair et al. 2011).

14.5.2 Hypotheses Testing

Figure 14.2 shows the results of our PLS analysis. As recommended by Hair et al. (2011), we performed bootstrapping with 5.000 subsamples. Note that while we included all control variables in the PLS analysis, only the significant effects of the control variables are shown in Figure 14.2 to reduce the figure's complexity.

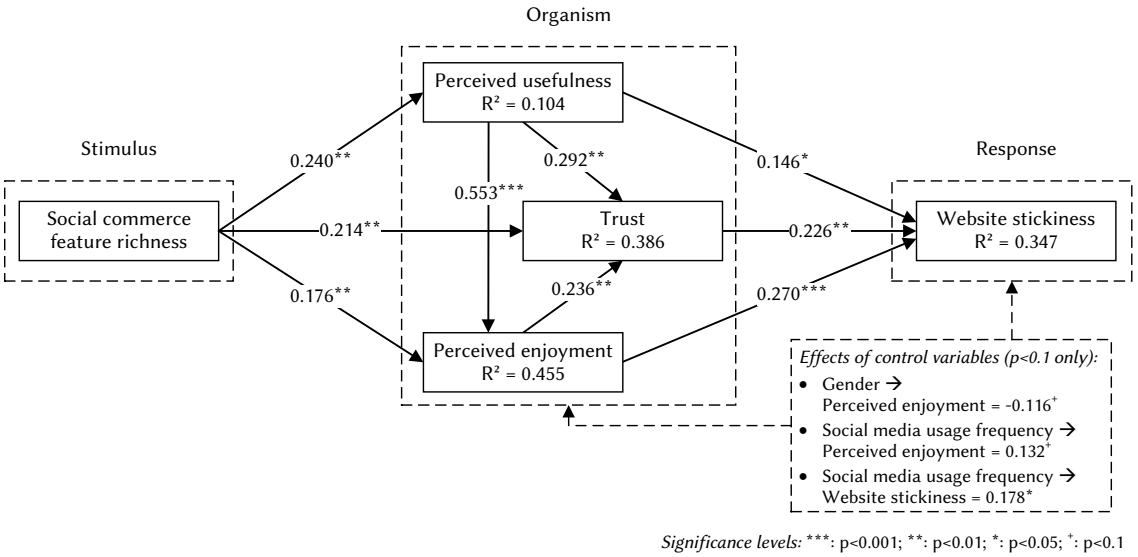


Figure 14.2 Results of PLS analysis

The results of our PLS analysis show that all path coefficients are statistically significant (see Table 14.8). Social commerce feature richness has a significant positive effect on perceived usefulness (0.240, p<0.01), perceived enjoyment (0.176, p<0.01), and trust (0.214, p<0.01). Accordingly, the results support hypotheses H1-H3. Moreover, perceived usefulness significantly influences perceived enjoyment (0.553, p<0.001) as well as trust (0.292, p<0.01), thus lending support for hypotheses H4-H5. Furthermore, perceived enjoyment has a significant positive effect on trust (0.236, p<0.01), which supports hypothesis H6. Finally, website stickiness is significantly positively influenced by perceived usefulness (0.146, p<0.05), perceived enjoyment (0.270, p<0.001), and trust (0.226, p<0.01), which supports hypotheses H7-H9.

With respect to the R^2 values, perceived usefulness, perceived enjoyment, trust, and the control variables explain 34.7% of the variance of website stickiness. Social commerce feature richness combined with perceived usefulness, perceived enjoyment, and the control variables explain 38.6% of the variance of trust, while social commerce feature richness together with perceived usefulness and the control variables explain 45.5% of the variance of perceived enjoyment. Furthermore, social commerce feature richness together with the control variables determines 10.4% of the variance of perceived usefulness. The results are in line with the recommendation of Falk and Miller (1992) that the R^2 value should be above 0.10.

With respect to the control variables, our results demonstrate that gender (in our study men) has a weak significant negative effect on perceived enjoyment (-0.116, p<0.1). Moreover, social media usage frequency has a weak significant positive effect on perceived enjoyment (0.132, p<0.1) and a significant positive effect on website stickiness (0.178, p<0.05). All other relationships between the control variables and the constructs in our research model are above the p<0.1 level. The effects of all control variables are listed in Table 14.13 (see Appendix).

Table 14.8 Results of hypotheses testing

Hypothesis	*Causal path*	*Path coefficient*	*t-value*	*p-value*	*Result*
H1	SCFR → PU	0.240	2.850	0.004	Supported
H2	SCFR → PE	0.176	2.860	0.004	Supported
H3	SCFR → TR	0.214	2.942	0.003	Supported
H4	PU → PE	0.553	8.897	0.000	Supported
H5	PU → TR	0.292	3.097	0.002	Supported
H6	PE → TR	0.236	2.751	0.006	Supported
H7	PU → WS	0.146	2.205	0.027	Supported
H8	PE → WS	0.270	3.729	0.000	Supported
H9	TR → WS	0.226	2.850	0.004	Supported

SCFR: social commerce feature richness; PU: perceived usefulness; PE: perceived enjoyment; TR: trust; WS: website stickiness.

14.5.3 Post-hoc Analysis

We further analyzed and explored our data set by conducting a post-hoc analysis. First, we were interested in figuring out to what extent the relationship between social commerce feature richness and website stickiness is mediated by the cognitive and affective factors. For this purpose, we conducted a mediator analysis as suggested by Hair et al. (2014). Following the procedure of Hair et al. (2014), we first assessed the significance of the direct path between the independent variable (i.e., social commerce feature richness) and the dependent variable (i.e., website stickiness) without the mediator variables (i.e., cognitive/affective factors). The result showed a significant positive effect of social commerce feature richness on website stickiness (0.232, $p<0.01$). We then included the mediator variables (i.e., cognitive/affective factors) and assessed the significance of the indirect paths between the independent variable and dependent variable through the mediator variables.

All indirect paths were significant at the $p<0.05$ level. The direct path between social commerce feature richness and website stickiness was nonsignificant (0.040, $p>0.1$). All significant indirect paths were then added and divided by the total effect (i.e., indirect effect and direct effect) to determine the variance accounted for (VAF). The VAF determines how much the mediator variables absorb of the direct effect. The result showed a VAF of 82.31%, indicating that the relationship between social commerce feature richness and website stickiness is fully mediated by the cognitive/affective factors in our research model.

Second, we were interested whether the control variable social media usage frequency moderates the relationship between perceived enjoyment and website stickiness since both factors are positively influenced by social media usage frequency. After adding social media usage as a moderator, the result showed a nonsignificant moderation effect (0.077, $p>0.1$). To account for potential gender-specific differences, we additionally run a PLS multi-group analysis (MGA) using gender as the grouping variable. No significant differences in path coefficients could be found between the female and the male group.

Third, we were interested in finding out how the different levels of social commerce feature richness affect the three cognitive/affective factors (i.e., perceived usefulness, perceived enjoyment, and trust). Table 14.9 provides an overview of the mean values of the cognitive/affective factors across the four different treatment groups. The groups are defined by the four levels of social commerce feature richness (cf. section 14.4).

Table 14.9 Mean values of the cognitive/affective factors across the four treatment groups

		Cognitive/Affective factor					
		PU		*PE*		*TR*	
SCFR level	*N*	*Mean*	*Std. dev.*	*Mean*	*Std. dev.*	*Mean*	*Std. dev.*
Zero	39	4.546	1.136	3.796	1.413	4.745	1.049
Low	42	5.179	1.078	4.321	1.267	5.223	0.934
Medium	43	5.273	1.241	4.890	1.038	5.612	0.868
High	40	5.475	1.477	4.950	1.350	5.805	1.043

SCFR: social commerce feature richness; PU: perceived usefulness; PE: perceived enjoyment; TR: trust.

To verify if the mean values were significantly different across the four treatment groups, we performed a multivariate analysis of covariance (MANCOVA). Social commerce feature richness represented the independent variable, while perceived usefulness, perceived enjoyment, trust represented the dependent variables. Control variables were included as covariates. MANOCVA test statistics (i.e., Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root) were significant ($p<0.001$) across all four treatment groups. The F-statistic was significant ($p<0.05$) for all dependent variables, which means that for each of the dependent variables significant differences exist across the treatment groups (see Table 14.9).

Table 14.10 MANCOVA results

Dependent variable	*Sum of squares*	*df*	*Mean square*	*F*	*Sig. (p-value)*
Perceived usefulness (PU)	10.531	3	3.510	3.799	0.012
Perceived enjoyment (PE)	16.294	3	5.431	6.341	0.000
Trust (TR)	21.447	3	7.149	8.406	0.000

Note: social commerce feature richness is the independent variable.

Table 14.11 provides more details on the differences of the dependent variables across the treatment groups. MANCOVA contrasts were computed by comparing the mean values of the three groups, in which our e-commerce website provided a certain level of social commerce feature richness, to the group, in which the level of social commerce feature richness was zero (control group).

Table 14.11 MANCOVA contrast results

		Dependent variable		
Contrast		*PU*	*PE*	*TR*
Low vs. zero SCFR	Contrast estimate	0.477	0.349	0.405
	Standard error	0.218	0.210	0.209
	Sig. (p-value)	0.030	0.099	0.055
Medium vs. zero SCFR	Contrast estimate	0.573	0.790	0.824
	Standard error	0.218	0.210	0.209
	Sig. (p-value)	0.009	0.000	0.000
High vs. zero SCFR	Contrast estimate	0.703	0.767	0.957
	Standard error	0.222	0.213	0.213
	Sig. (p-value)	0.002	0.000	0.000

SCFR: social commerce feature richness; PU: perceived usefulness; PE: perceived enjoyment; TR: trust.

A comparison between the low and zero social commerce feature richness conditions showed a significant contrast ($p<0.05$) for the factor perceived usefulness. Thus, the low level of social commerce feature richness generated a significant difference in perceived usefulness when compared to the zero level. However, while the mean values for the other factors did also increase between the zero richness and the low richness condition, the contrasts for perceived enjoyment and trust were only weak significant ($p<0.1$). When increasing the level of social commerce feature richness to medium, the contrasts for all factors increased, resulting in a significant difference for perceived enjoyment ($p<0.001$) and trust ($p<0.001$) in comparison to the zero level. Moreover, the contrast for perceived usefulness became more significant ($p<0.01$). Finally, increasing the level of social commerce feature richness to high provided the highest and most significant contrasts for perceived usefulness ($p<0.01$) and trust ($p<0.001$). However, while the mean value for perceived enjoyment did also increase between the high richness and the medium richness condition, the contrast did not further increase ($p<0.001$).

14.6 Discussion

14.6.1 Key Findings

Several findings result from our study. First, with social commerce feature richness, we provide a novel theoretical concept that can be used to specifically characterize the functional diversity of social commerce features and the different kinds of social information that can be provided by these features. To illustrate how the concept can be operationalized, we took findings from prior studies on the design of social commerce initiatives into account. Specifically, we used the reference model of Huang and Benyoucef (2013) as an example to identify and combine functionally diverse social commerce features. The more layers of the reference model a set of social commerce features covers, the greater is the functional diversity and the higher is social commerce feature richness. As demonstrated in our experimental setting, the highest level of social commerce feature richness can be achieved when covering all four layers of the reference model with functionally diverse social commerce features. For instance, combining social profile pages with a rating and review tool, social wish lists, and a community feed addresses all four layers of the reference model and thus represents a high feature richness.

Second, we could show that social commerce feature richness has a significant positive impact on the stickiness of an e-commerce website by positively influencing consumers' perception of cognitive and affective factors. If an e-commerce website uses a functionally rich set of social commerce features and thereby provides different kinds of social information, it is thus likely that the website stimulates consumers' perception of perceived usefulness, perceived enjoyment, and trust more effectively, which in turn increases the website stickiness. As regards perceived usefulness, using a functionally rich set of social commerce features seems to support consumers in their shopping task more effectively and thus is evaluated with a higher usefulness. Referring to perceived enjoyment, providing a functionally rich set of social commerce features seems to increase consumers' feeling that using the website is interesting and fun. With respect to trust, it seems more likely that consumers perceive an e-commerce website as trustworthy, if the website contains a functionally rich set of social commerce features.

Third, considering the effects of the studied cognitive and affective factors, we could verify the results of prior studies that perceived usefulness has a significant positive effect on perceived enjoyment (Al-Maghrabi and Dennis 2011; Fu et al. 2018; Parboteeah et al. 2009). If a website

makes it easier for consumers to search and purchase products, greater levels of enjoyment can thus be generated. Moreover, and in line with prior studies, we could show that perceived usefulness and perceived enjoyment have a significant positive effect on trust (Hwang and Kim 2007; Ogonowski et al. 2014). This illustrates that if a website supports consumers in their decision making and triggers positive emotions, it becomes more likely that consumers trust the website. Our results also provide additional evidence that all three cognitive and affective factors have a significant positive effect on the website stickiness (Benlian 2015; Li et al. 2006; Lin 2007; Polites et al. 2012). Consequently, if consumers perceive an e-commerce website as useful, entertaining, and trustworthy, it obviously becomes more likely that they will stick to it. In addition, the effects of our control variables indicate that, in our experimental setting, male participants did tend to perceive the website as less enjoyable. In contrast, participants who are frequently using social media applications did tend to associate the website with more enjoyment and did stick longer to the website.

Fourth, according to the results of our post-hoc analysis, we could verify that the relationship between social commerce feature richness and the website stickiness is fully mediated by the three cognitive and affective factors. Moreover, the results of our post-hoc analysis revealed that the consumers' perception of the cognitive and affective factors are influenced differently, depending upon the level of social commerce feature richness. When the level of social commerce feature richness was low, only the contrast for perceived usefulness was significant while the contrasts for perceived enjoyment and trust were non-significant. When the level of social commerce feature richness was medium, the contrasts for perceived enjoyment and trust also became significant. Interestingly, while perceived usefulness provided the highest contrast in the low richness condition, perceived enjoyment and trust showed higher contrasts in the medium richness condition than perceived usefulness.

Considering the influence of perceived usefulness on perceived enjoyment and trust, it seems that the effects of social commerce feature richness and perceived usefulness might have accumulated. When increasing the level of social commerce feature richness to high, the highest contrasts for perceived usefulness and trust were also generated. However, the contrast for perceived enjoyment did not further increase in the high richness condition, which indicates that our experimental setting might have reached a certain threshold level.

Taken together, the results of our study show that higher levels of social commerce feature richness contribute to increasing the stickiness of e-commerce websites. This effect is achieved by manipulating consumers' perception of cognitive and affective factors that are attributed to the website. The obtained results moreover show that the effects of social commerce feature richness on such factors can vary depending on the integrated social commerce features and their functionality. Moreover, a certain level of social commerce feature richness appears necessary to significantly influence consumers' perceptions of the studied cognitive and affective factors.

14.6.2 Theoretical Implications

The findings of our research have several implications for academia. Combining functionally diverse social commerce features is considered an important aspect in the design of social commerce initiatives, which has, however, hardly been conceptualized and empirically investigated so far (Curty and Zhang 2013; Huang and Benyoucef 2013). With social commerce feature richness, we therefore proposed a new concept to represent the diversity of social media-based

functionality provided on an e-commerce website. To explain the theoretical mechanism behind social commerce feature richness, we built upon the media richness theory and took into account that functionally diverse social commerce features provide different kinds of social information. Social commerce feature richness conceptually differs from media richness as the former argues about the functional diversity of social commerce features and the different kinds of social information that are provided by such features, while the latter argues about a communication medium's overall ability to convey information.

Consequently, while the media richness theory addresses an e-commerce website's information transmission capabilities only from a general perspective, the concept of social commerce feature richness enabled us to specifically focus on the different kinds of social information that can be generated by the social commerce features of a website. In so doing, we could show that increasing the range of social information by using functionally richer sets of social commerce features can make e-commerce websites stickier. The concept of social commerce feature richness thereby provides researchers with a new lens through which the social information conveyed on an e-commerce website can be examined more specifically.

To identify functionally diverse social commerce features that convey different kinds of social information, we chose to build upon the reference model proposed by Huang and Benyoucef (2013) as a first guideline. While our study was not meant to specifically evaluate this reference model, the results show that the more layers of the reference model a set of social commerce features covers, the higher is its level of feature richness and the greater is its effectiveness with respect to the resulting stickiness of the e-commerce website. The results of our study hence corroborate and theoretically substantiate the layers of the reference model. Nevertheless, we preferred to formulate the concept of social commerce feature richness in a more abstract way and independently of a concrete taxonomy. In so doing, it can also be operationalized by other, more refined taxonomies and feature classifications that are developing in the social commerce domain.

This study also contributes a novel research model that is structured according to the S-O-R model and establishes a theoretically grounded link between social commerce feature richness and the website stickiness through consumers' perception of cognitive and affective factors. With the establishment of this link, we follow calls in literature to take the IT artifact(s), such as represented by social commerce feature richness, into account when studying users' perceptions and behavioral responses in IT contexts (Benbasat and Zmud 2003; Orlikowski and Iacono 2001). Investigating the effects of social commerce feature richness is important given the fact that so far no clear statement can be derived from literature whether functionally richer sets of social commerce features may have positive or negative effects on the website stickiness (Hsu and Liao 2014; Huang and Benyoucef 2017; Park and Lee 2008).

With our study, we provide empirical evidence that the stickiness of an e-commerce website can be increased if functionally richer (i.e., diverse) sets of social commerce features are used. With respect to the potential effects of social commerce feature richness, our study could show that social commerce feature richness has a significant positive effect on consumers' perception of perceived usefulness, perceived enjoyment, and trust, which in turn positively affect the website stickiness. While a few studies have investigated how specific social commerce features (Brengman and Karimov 2012; Kumar and Benbasat 2006) or specific website characteristics (Grange and Benbasat 2010; Mikalef et al. 2012; Mikalef et al. 2013; Zhang et al. 2014) can affect cognitive and affective factors, it has not been investigated so far how different combinations of social commerce features influence cognitive and affective factors in combination. In this

context, we could also demonstrate that the effects of social commerce feature richness can vary and that a certain level of feature richness appears to be necessary to effectively stimulate consumers' perception of cognitive and affective factors.

While prior studies have investigated how cognitive and affective factors can affect consumers' intention to stick to a website (Benlian 2015; Li et al. 2006; Lin 2007; Polites et al. 2012), this study links the effects of the cognitive and affective factors to the consumers' actual website usage behavior instead of their intention. Following recommendations in literature, we particularly measured website stickiness through various website metrics that we collected from the participants' clickstream data during our experiment (Mallapragada et al. 2016; Olbrich and Holsing 2011; Tangmanee 2017). While tracking actual behaviors in general is more difficult, such an approach avoids the limitation that self-reported intentions through survey data can be biased and thus may not accurately reflect actual behavior (Chandon et al. 2005; Huseynov and Yildirim 2015; Morwitz et al. 2007). This study therefore also provides a new perspective on how website stickiness as an actual behavioral outcome is affected by consumers' perception of cognitive and affective factors.

14.6.3 Practical Implications

Our study also provides several implications for practice. Up to now, a wide range of functionally diverse social commerce features has been produced that can be integrated into e-commerce platforms. For companies, it therefore becomes critical to understand if and how functionally diverse social commerce features should be used in combination and what impact such endeavors may create. Based on the concept of social commerce feature richness, this study illustrates how companies can effectively combine functionally diverse social commerce features to increase the success of their e-commerce platforms. For the evaluation of this concept, we created several variants of an experimental e-commerce website, in which different sets of social commerce features were integrated. With our websites, we provide realistic and fully functional prototypes that illustrate how various social commerce features (i.e., social profile pages, rating and review tools, social wish lists, community feeds) can be used in combination. The results of our experiment demonstrate that the effect of social commerce initiatives may be strengthened most effectively when integrating social commerce features with a different type of functionality. For instance, we could show that combining a community feed with social wish lists, a rating and review tool, and social profile pages is more effective concerning the stimulation of consumers' perception of cognitive and affective factors than just using a rating and review tool with social profile pages. Hence, our findings support practitioners to derive first insights about what combinations of social commerce features may be more effective.

Considering that website stickiness is as a critical factor for the success of e-commerce websites (Davenport 2000; Lin et al. 2010), our study provides practical guidelines on how social commerce initiatives can be used to increase the website stickiness. According to our results, we could show that if an e-commerce website provides a functionally richer set of social commerce features, consumers tend to stay longer and interact more with the website, which results in an increased website stickiness. As shown by extant literature, the higher the website stickiness, the more likely that consumers will make a purchase and that they will become loyal customers (Lin 2007; Lin et al. 2010). Companies should therefore aim at integrating functionally richer sets of social commerce features into their e-commerce websites. With respect to the measurement of website stickiness, this study used concrete website metrics that we collected from the users' clickstream data. Such website metrics are also provided by modern e-commerce

platforms and website analytic tools. Hence, practitioners can use similar website metrics as we did in our study to monitor how social commerce initiatives affect their e-commerce websites.

With respect to the cognitive and affective factors, our results demonstrate that companies should ensure that the selected social commerce features support consumers in their shopping task to increase the perception of perceived usefulness. Moreover, companies should ensure that the selected features convey a sense of fun and entertainment to increase the perception of perceived enjoyment. Finally, the selected features should give consumers an impression that the company behind the website acts in their best interest to increase consumers' trust in the website. In this context, it is also important that consumers frequently use these features to interact with each other and to generate socially rich content. Frameworks such as the customer engagement cycle developed by Sashi (2012) may support companies in finding out how they can effectively turn their customers into supportive advocates. Moreover, companies should also have a strategy on how to interact with consumers through these features. In this context, Sparks et al. (2016), for instance, could show that if companies respond to negative social information, it becomes more likely that consumers find the company and its website trustworthy.

The results of our study also indicate that consumers perceptions and responses may vary depending on individual characteristics, such as their gender or how often they use social media applications. While gender was only nearly significant in our study, Huang and Benyoucef (2017) did find significant differences between male and female consumers with respect to how they evaluate different social commerce design aspects within their purchase decision-making process. Therefore, companies should keep the individual characteristics of their target group in mind when planning to enrich their websites with social commerce features.

14.6.4 Limitations and Future Research

Our study also has several limitations, which offer avenues for future research. First, we deliberately decided to focus on the factors perceived usefulness, perceived enjoyment, and trust as prior literature provides evidence that these factors can significantly influence the website stickiness (Benlian 2015; Li et al. 2006; Lin 2007; Polites et al. 2012). Moreover, sporadic evidence is given that these factors may be influenced by social commerce features (Brengman and Karimov 2012; Hajli 2013; Kumar and Benbasat 2006; Liu and Park 2015). However, social commerce feature richness may also influence other factors that have not been considered, such as social factors (perceived social presence, perceived social support), risk factors (e.g., privacy risk, financial risk), or product-related factors (e.g., perceived product quality, product type) (e.g., Bai et al. 2015; Featherman and Hajli 2015; Liang et al. 2011; Sharma and Crossler 2014; Shen 2012). Future studies could therefore explore in which way social commerce feature richness influences such factors. An increased social commerce feature richness may also generate negative side effects, such as information overload, which we did not consider and measure in our study (Cheung et al. 2014; Furner and Zinko 2016; Zhou and Guo 2017).

Regarding the outcome variable, we focused on website stickiness since it is considered as a critical success factor for companies operating e-commerce websites (Li et al. 2006; Zott et al. 2000). While website stickiness can predict purchases (Lin et al. 2010), such an indicator is not as accurate as when measuring consumers' concrete purchase behavior. Consequently, future studies could enrich our findings by taking additional outcome variables, such as consumers' purchase behavior, into account.

Moreover, we decided to conduct a controlled experiment as it provides results with a high internal validity and as it enabled us to manipulate social commerce feature richness on an e-commerce website in a systematic manner. Although we have taken care to simulate a realistic case, we had to make some reasonable but strict assumptions. For instance, all participants in our experiment had a concrete shopping task, which differs from natural e-commerce settings in which consumers may only browse a website to inform themselves about products or in which consumers may make a purchase impulsively (Parboteeah et al. 2009; Pavlou and Fygenson 2006). To advance the external validity of our findings, future studies are hence encouraged to complement our findings with data from productive environments.

So far, students of a German university were the only participants in our experiment. We were hence not yet able to investigate demographic and/or cultural differences, which can have significant effects in e-commerce contexts (Cyr 2008; Moon et al. 2008; Ng 2013; Pavlou and Chai 2002). Moreover, by using a student sample, we were not able to claim that the reported effects are generalizable to other types of consumers. Likewise, we cannot claim that the reported effects apply for social commerce scenarios in general, since we only focused on a fictitious company that sells unbranded gift gadgets. The participants were hence not familiar with the website and acted as first-time visitors. Since factors such as trust can develop over time (Kim et al. 2009), and since the stickiness of a website can also be assessed as its continued (re-) use over a longer time period (cf. section 14.2), future research could also focus on conducting longitudinal studies.

Depending on their functional characteristics, social commerce features may influence cognitive and affective factors differently. Hence, future studies could also enrich our findings by investigating, comparing, and cataloging the effects stirred by individual social commerce features. The research model and the experiment design described in this manuscript may provide a blueprint for such endeavors. However, the effects of social commerce features on cognitive and affective factors may also vary depending on the way social information is processed. In our experiment, participants used social commerce features mainly to consume social information during the shopping task. If a task requires consumers to create social information, the effects on cognitive and affective factors may for instance be different, because consumers may also evaluate the features based on their support to generate social information. Future studies are hence also encouraged to complement our findings by taking additional usage forms of social commerce features and tasks into account. To get a more in depth understanding of the effects of functionally diverse social commerce features, future studies could moreover employ more advanced tracking techniques, such as eye tracking or EEG monitoring.

Referring to the implementation of social commerce features, we so far did only investigate four different social commerce features in one specific implementation order. While we carefully selected the four features according to the reference model of Huang and Benyoucef (2013), there exist additional features that we did not examine, such as live chat tools or group buying tools (Curty and Zhang 2013). To investigate such features, we would have to make sure that the participants simultaneously browse the experimental website, which, however, requires a different and more restrictive experimental setting. The reference model also helped us to determine the implementation order of the features. However, it should be noted that the reference model has not been empirically evaluated so far and that the reference model only makes suggestions about the order of abstract design layers and not about concrete social commerce features. Additional research is thus necessary to investigate the effects of different implementation orders of social commerce features more systematically. To a considerable extent, the

impact of different sets of social commerce features will moreover depend on the quality of their implementation. Future studies hence should also investigate the impact of different implementations of social commerce features, which we did not examine so far.

Besides their implementation, it is also important that social commerce features provide the right amount of content that consumers need for making their purchase decisions (Ding et al. 2017; Zhu and Huberman 2014). In our experimental setting, we kept the amount of content constant for each social commerce feature to avoid potential effects that are related to different levels of content. Future studies could therefore explore how different levels of content provided through social commerce features influence consumers' perception of cognitive and affective factors and the subsequent website stickiness.

14.6.5 Concluding Remarks

Website stickiness is a critical factor for the success of e-commerce websites. Although the advent of social commerce has made available a whole kind of new website features, the unique and characteristic effects, which functionally diverse sets of social commerce features might have on the website stickiness, have remained largely unexplained. With the concept of social commerce feature richness, we provide a novel theoretical lens to characterize the diversity of social media-based functionality being provided on an e-commerce website. With the proposed research model, we moreover provide an instrument, through which the causal relationship between social commerce feature richness, the consumers' perception of cognitive and affective factors, and the website stickiness can be analyzed systematically.

The results of our study particularly highlight the importance of acquiring a profound understanding of the effects that social commerce feature richness has on the website stickiness. Our results demonstrate that using functionally richer sets of social commerce features can uniquely affect the consumers' perception of cognitive and affective factors, which in turn can have a direct and positive impact on the website stickiness. Social commerce initiatives accordingly can provide a unique and innovative means to improve the effectiveness of e-commerce websites.

14.7 Appendix

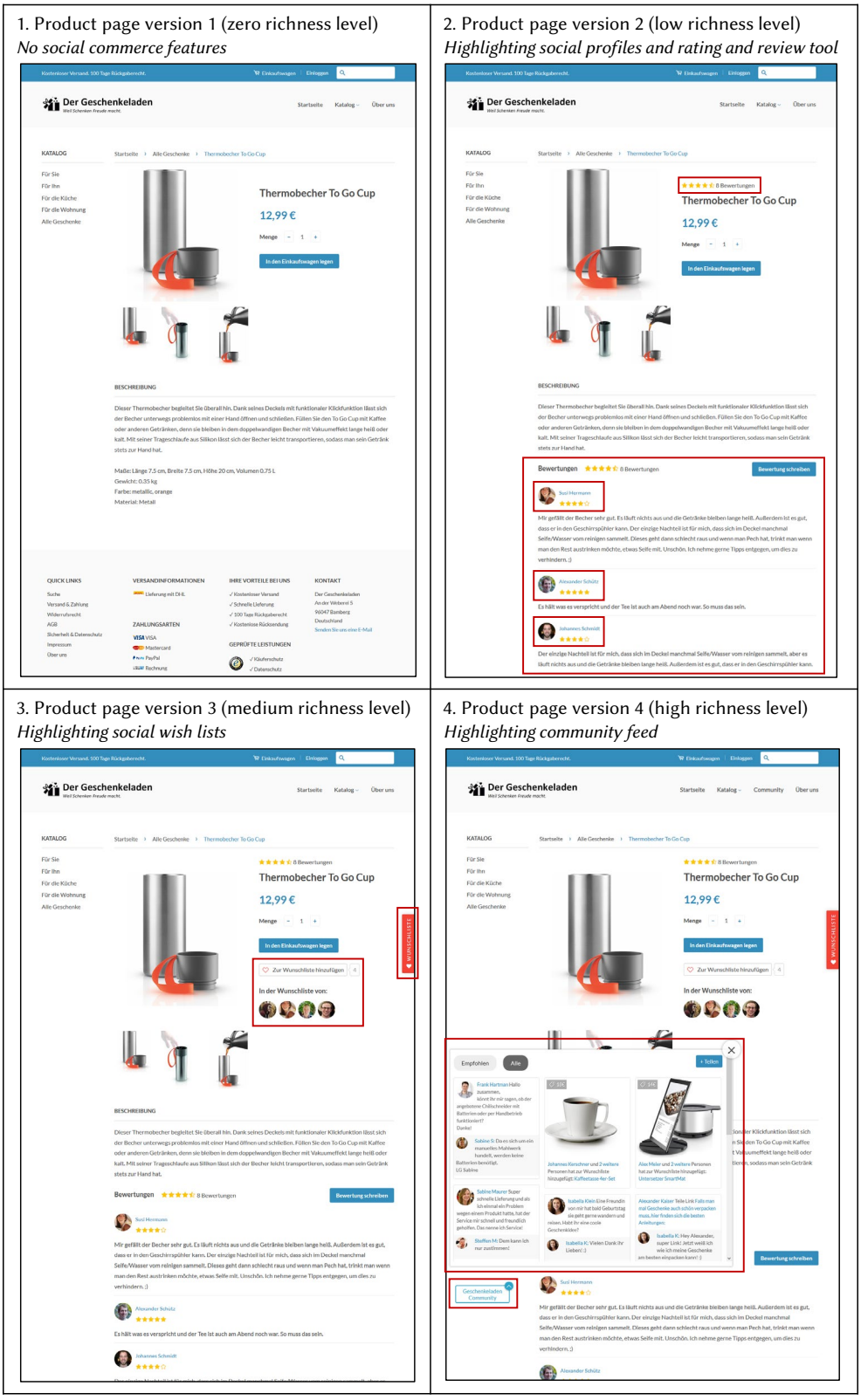


Figure 14.3 Product page examples

Table 14.12 PLS cross-loadings

	Construct			
Item	*PU*	*PE*	*TR*	*WS*
PU1	**0.891**	0.542	0.446	0.401
PU2	**0.888**	0.511	0.439	0.306
PU3	**0.778**	0.492	0.413	0.360
PU4	**0.893**	0.596	0.488	0.431
PE1	0.606	**0.880**	0.532	0.486
PE2	0.500	**0.835**	0.389	0.358
PE3	0.469	**0.848**	0.374	0.420
PE4	0.503	**0.804**	0.408	0.385
TR1	0.400	0.319	**0.846**	0.332
TR2	0.352	0.299	**0.858**	0.327
TR3	0.420	0.421	**0.886**	0.354
TR4	0.548	0.617	**0.718**	0.403
TR5	0.366	0.371	**0.834**	0.383
NCU	0.406	0.455	0.421	**0.902**
NPU	0.367	0.443	0.374	**0.915**
TSU	0.404	0.433	0.397	**0.881**

PU: perceived usefulness; PE: perceived enjoyment; TR: trust; WS: website stickiness.

Table 14.13 Effects of control variables

Path	*Path coefficient*	*t-value*	*p-value*
Age → PU	-0.099	1.497	0.134
Age → PE	0.036	0.466	0.642
Age → TR	-0.085	1.017	0.309
Age → WS	0.109	1.582	0.114
Gender → PU	-0.104	1.374	0.170
Gender → PE	-0.116	1.912	0.056
Gender → TR	-0.075	1.111	0.267
Gender → WS	0.106	1.572	0.116
IUF → PU	0.065	0.791	0.429
IUF → PE	-0.039	0.580	0.562
IUF → TR	0.080	1.038	0.299
IUF → WS	-0.017	0.260	0.795
OSF → PU	-0.023	0.296	0.767
OSF → PE	0.067	1.152	0.249
OSF → TR	0.019	0.310	0.757
OSF → WS	-0.036	0.570	0.569
SMF →PU	0.091	1.146	0.252
SMF →PE	0.132	1.943	0.052
SMF →TR	0.011	0.167	0.868
SMF → WS	0.178	2.522	0.012

PU: perceived usefulness; PE: perceived enjoyment; TR: trust; WS: website stickiness; IUF: internet usage frequency; OSF: online shopping frequency; SMF: social media usage frequency.

14.8 References

Al-Maghrabi, T., & Dennis, C. (2011). What Drives Consumers' Continuance Intention to E-Shopping? *International Journal of Retail & Distribution Management*, 39(12), pp. 899-926.

Amblee, N., & Bui, T. (2011). Harnessing the Influence of Social Proof in Online Shopping: The Effect of Electronic Word of Mouth on Sales of Digital Microproducts. *International Journal of Electronic Commerce*, 16(2), pp. 91-113.

Arnold, M. J., & Reynolds, K. E. (2003). Hedonic Shopping Motivations. *Journal of Retailing*, 79(2), pp. 77-95.

Bai, Y., Yao, Z., & Dou, Y.-F. (2015). Effect of Social Commerce Factors on User Purchase Behavior: An Empirical Investigation from renren.com. *International Journal of Information Management*, 35(5), pp. 538-550.

Bansal, H. S., McDougall, G. H. G., Dikolli, S. S., & Sedatole, K. L. (2004). Relating E-Satisfaction to Behavioral Outcomes: An Empirical Study. *Journal of Services Marketing*, 18(4), pp. 290-302.

Beatty, P., Reay, I., Dick, S., & Miller, J. (2011). Consumer Trust in E-Commerce Web Sites: A Meta-Study. *ACM Computing Surveys (CSUR)*, 43(3), pp. 14-46.

Benbasat, I., & Zmud, R. W. (2003). The Identity Crisis within the IS Discipline: Defining and Communicating the Discipline's Core Properties. *MIS Quarterly*, 27(2), pp. 183-194.

Benlian, A. (2015). Web Personalization Cues and Their Differential Effects on User Assessments of Website Value. *Journal of Management Information Systems*, 32(1), pp. 225-260.

Benlian, A., Titah, R., & Hess, T. (2012). Differential Effects of Provider Recommendations and Consumer Reviews in E-Commerce Transactions: An Experimental Study. *Journal of Management Information Systems*, 29(1), pp. 237-272.

Berkowitz, L. (1993). Towards a General Theory of Anger and Emotional Aggression: Implications of the Cognitive-Neoassociationistic Perspective for the Analysis of Anger and Other Emotions. In: *Perspectives on Anger and Emotion*. Hillsdale, USA: Lawrence Erlbaum Associates, Inc, pp. 1-46.

Bhat, S., Bevans, M., & Sengupta, S. (2002). Measuring Users' Web Activity to Evaluate and Enhance Advertising Effectiveness. *Journal of Advertising*, 31(3), pp. 97-106.

Bhattacherjee, A. (2001). Understanding Information Systems Continuance: An Expectation-Confirmation Model. *MIS Quarterly*, 25(3), pp. 351-370.

Boulding, W., & Kirmani, A. (1993). A Consumer-Side Experimental Examination of Signaling Theory: Do Consumers Perceive Warranties as Signals of Quality? *Journal of Consumer Research*, 20(1), pp. 111-123.

Brengman, M., & Karimov, F. P. (2012). The Effect of Web Communities on Consumers' Initial Trust in B2C E-Commerce Websites. *Management Research Review*, 35(9), pp. 791-817.

Brown, M., Pope, N., & Voges, K. (2003). Buying or Browsing? *European Journal of Marketing*, 37(11/12), pp. 1666-1684.

Brynjolfsson, E., & Smith, M. D. (2000). Frictionless Commerce? A Comparison of Internet and Conventional Retailers. *Management Science*, 46(4), pp. 563-585.

Bucklin, R. E., & Sismeiro, C. (2009). Click Here for Internet Insight: Advances in Clickstream Data Analysis in Marketing. *Journal of Interactive Marketing*, 23(1), pp. 35-48.

Cao, M., Zhang, Q., & Seydel, J. (2005). B2C E-Commerce Web Site Quality: An Empirical Examination. *Industrial Management & Data Systems*, 105(5), pp. 645-661.

Cenfetelli, R. T., & Bassellier, G. (2009). Interpretation of Formative Measurement in Information Systems Research. *MIS Quarterly*, 33(4), pp. 689-707.

Chandon, P., Morwitz, V. G., & Reinartz, W. J. (2005). Do Intentions Really Predict Behavior? Self-Generated Validity Effects in Survey Research. *Journal of Marketing*, 69(2), pp. 1-14.

Chang, H. H., & Chen, S. W. (2008). The Impact of Online Store Environment Cues on Purchase Intention. *Online Information Review*, 32(6), pp. 818-841.

Chen, J., & Shen, X.-L. (2015). Consumers' Decisions in Social Commerce Context: An Empirical Investigation. *Decision Support Systems*, 79, pp. 55-64.

Chen, L.-d., Gillenson, M. L., & Sherrell, D. L. (2002). Enticing Online Consumers: An Extended Technology Acceptance Perspective. *Information & Management*, 39(8), pp. 705-719.

Chen, Y.-C., Shang, R.-A., & Kao, C.-Y. (2009). The Effects of Information Overload on Consumers' Subjective State Towards Buying Decision in the Internet Shopping Environment. *Electronic Commerce Research and Applications*, 8(1), pp. 48-58.

Chen, Y.-H., Hsu, I. C., & Lin, C.-C. (2010). Website Attributes That Increase Consumer Purchase Intention: A Conjoint Analysis. *Journal of Business Research*, 63(9-10), pp. 1007-1014.

Chen, Y., & Xie, J. (2008). Online Consumer Review: Word-of-Mouth as a New Element of Marketing Communication Mix. *Management Science*, 54(3), pp. 477-491.

Cheung, C. M. K., Xiao, B. S., & Liu, I. L. B. (2014). Do Actions Speak Louder Than Voices? The Signaling Role of Social Information Cues in Influencing Consumer Purchase Decisions. *Decision Support Systems*, 65, pp. 50-58.

Chin, W. W. (1998). Issues and Opinion on Structural Equation Modeling. *MIS Quarterly*, 22(1), pp. VII-XVI.

Chiu, C.-M., Wang, E. T. G., Fang, Y.-H., & Huang, H.-Y. (2014). Understanding Customers' Repeat Purchase Intentions in B2C E-Commerce: The Roles of Utilitarian Value, Hedonic Value and Perceived Risk. *Information Systems Journal*, 24(1), pp. 85-114.

Chow, W. S., & Shi, S. (2014). Understanding Consumer Trust in Social Commerce Websites. *Proceedings of the 18th Pacific Asia Conference on Information Systems (PACIS)*, pp. 1-20.

Corritore, C. L., Kracher, B., & Wiedenbeck, S. (2003). On-Line Trust: Concepts, Evolving Themes, a Model. *International Journal of Human-Computer Studies*, 58(6), pp. 737-758.

Csikszentmihalyi, M. (1975). Play and Intrinsic Rewards. *Journal of Humanistic Psychology*, 15(3), pp. 41-63.

Csikszentmihalyi, M., & Csikszentmihalyi, I. S. (1988). *Optimal Experience: Psychological Studies of Flow in Consciousness*. Cambridge, United Kingdom: Cambridge University Press.

Curty, R., & Zhang, P. (2013). Website Features that Gave Rise to Social Commerce: A Historical Analysis. *Electronic Commerce Research and Applications*, 12(4), pp. 260-279.

Cyr, D. (2008). Modeling Web Site Design Across Cultures: Relationships to Trust, Satisfaction, and E-Loyalty. *Journal of Management Information Systems*, 24(4), pp. 47-72.

Cyr, D., Hassanein, K., Head, M., & Ivanov, A. (2007). The Role of Social Presence in Establishing Loyalty in E-Service Environments. *Interacting with Computers*, 19(1), pp. 43-56.

Cyr, D., Head, M., Larios, H., & Pan, B. (2009). Exploring Human Images in Website Design: A Multi-Method Approach. *MIS Quarterly*, 33(3), pp. 539-566.

Daft, R. L., & Lengel, R. H. (1986). Organizational Information Requirements, Media Richness and Structural Design. *Management Science*, 32(5), pp. 554-571.

Danaher, P. J., Mullarkey, G. W., & Essegaier, S. (2006). Factors Affecting Web Site Visit Duration: A Cross-Domain Analysis. *Journal of Marketing Research*, 43(2), pp. 182-194.

Davenport, T. H. (2000). Sticky Business. *CIO Magazine*, 13(8), pp. 58-58.

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3), pp. 319-340.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Extrinsic and Intrinsic Motivation to Use Computers in the Workplace. *Journal of Applied Social Psychology*, 22(14), pp. 1111-1132.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic Motivation and Self-Determination in Human Behavior*. New York, USA: Plenum.

Dinev, T., & Hart, P. (2006). An Extended Privacy Calculus Model for E-Commerce Transactions. *Information Systems Research*, 17(1), pp. 61-80.

Ding, C., Cheng, H. K., Duan, Y., & Jin, Y. (2017). The Power of the "Like" Button: The Impact of Social Media on Box Office. *Decision Support Systems*, 94, pp. 77-84.

Eroglu, S. A., Machleit, K. A., & Davis, L. M. (2001). Atmospheric Qualities of Online Retailing: A Conceptual Model and Implications. *Journal of Business Research*, 54(2), pp. 177-184.

Falk, R. F., & Miller, N. B. (1992). *A Primer for Soft Modeling*. Akron, USA: University of Akron Press.

Featherman, M. S., & Hajli, N. (2015). Self-Service Technologies and e-Services Risks in Social Commerce Era. *Journal of Business Ethics*, 2015, pp. 1-19.

Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18(1), pp. 39-50.

Friedrich, T., Overhage, S., & Schlauderer, S. (2016). The More the Better? Exploring the Relationship Between Social Commerce Feature Intensity, Social Factors, and Consumers' Buying Behavior. *Proceedings of the 37th International Conference on Information Systems (ICIS)*, Dublin, Ireland, pp. 1-21.

Fu, S., Yan, Q., & Feng, G. C. (2018). Who Will Attract You? Similarity Effect Among Users on Online Purchase Intention of Movie Tickets in the Social Shopping Context. *International Journal of Information Management*, 40, pp. 88-102.

Fulk, J., Steinfield, C. W., Schmitz, J., & Power, J. G. (1987). A Social Information Processing Model of Media Use in Organizations. *Communication Research*, 14(5), pp. 529-552.

Furner, C. P., & Zinko, R. A. (2016). The Influence of Information Overload on the Development of Trust and Purchase Intention Based on Online Product Reviews in a Mobile Vs. Web Environment: An Empirical Investigation. *Electronic Markets*, 27(3), pp. 211-224.

Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in Online Shopping: An Integrated Model. *MIS Quarterly*, 27(1), pp. 51-90.

Gefen, D., Straub, D., & Boudreau, M.-C. (2000). Structural Equation Modeling and Regression: Guidelines for Research Practice. *Communications of the Association for Information Systems*, 4(1), pp. 1-77.

Grange, C., & Benbasat, I. (2010). Online Social Shopping: The Functions and Symbols of Design Artifacts. *Proceedings of the 43rd Hawaii International Conference on System Sciences (HICSS)*, pp. 1-10.

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1995). *Multivariate Data Analysis*, (4 ed.). New Jersey, USA: Prentice-Hall, Englewook Cliffs.

Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2014). *A Primer on Partial Least Squares Structural Equation Modeling*. Thousand Oaks, USA: Sage Publications.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a Silver Bullet. *Journal of Marketing Theory and Practice*, 19(2), pp. 139-152.

Hair, J. F., Sarstedt, M., Ringle, C. M., & Mena, J. A. (2012). An Assessment of the Use of Partial Least Squares Structural Equation Modeling in Marketing Research. *Journal of the Academy of Marketing Science*, 40(3), pp. 414-433.

Hajli, M. (2013). A Research Framework for Social Commerce Adoption. *Information Management & Computer Security*, 21(3), pp. 144-154.

Hajli, M. (2014). A Study of the Impact of Social Media on Consumers. *International Journal of Market Research*, 56(3), pp. 387-404.

Hajli, N. (2015). Social Commerce Constructs and Consumer's Intention to Buy. *International Journal of Information Management*, 35(2), pp. 183-191.

Hampton-Sosa, W., & Koufaris, M. (2005). The Effect of Web Site Perceptions on Initial Trust in the Owner Company. *International Journal of Electronic Commerce*, 10(1), pp. 55-81.

Hassanein, K., & Head, M. (2005). The Impact of Infusing Social Presence in the Web Interface: An Investigation Across Product Types. *International Journal of Electronic Commerce*, 10(2), pp. 31-55.

Hassanein, K., & Head, M. (2007). Manipulating Perceived Social Presence Through the Web Interface and Its Impact on Attitude Towards Online Shopping. *International Journal of Human-Computer Studies*, 65(8), pp. 689-708.

Helm, R., & Mark, A. (2007). Implications from Cue Utilisation Theory and Signalling Theory for Firm Reputation and the Marketing of New Products. *International Journal of Product Development*, 4(3/4), pp. 396-411.

Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS Path Modeling in New Technology Research: Updated Guidelines. *Industrial Management & Data Systems*, 116(1), pp. 2-20.

Holbrook, M. B., & Batra, R. (1987). Assessing the Role of Emotions as Mediators of Consumer Responses to Advertising. *Journal of Consumer Research*, 14(3), pp. 404-420.

Hsiao, K. L., Chuan-Chuan Lin, J., Wang, X. Y., Lu, H. P., & Yu, H. (2010). Antecedents and Consequences of Trust in Online Product Recommendations. *Online Information Review*, 34(6), pp. 935-953.

Hsu, C.-L., & Liao, Y.-C. (2014). Exploring the Linkages Between Perceived Information Accessibility and Microblog Stickiness: The Moderating Role of a Sense of Community. *Information & Management*, 51(7), pp. 833-844.

Huang, Z., & Benyoucef, M. (2013). From E-Commerce to Social Commerce: A Close Look at Design Features. *Electronic Commerce Research and Applications*, 12(4), pp. 246-259.

Huang, Z., & Benyoucef, M. (2015). User Preferences of Social Features on Social Commerce Websites: An Empirical Study. *Technological Forecasting and Social Change*, 95, pp. 57-72.

Huang, Z., & Benyoucef, M. (2017). The Effects of Social Commerce Design on Consumer Purchase Decision-Making: An Empirical Study. *Electronic Commerce Research and Applications*, 25, pp. 40-58.

Huseynov, F., & Yildirim, S. O. (2015). Behavioral Issues in B2C E-Commerce: The-State-of-the-Art. *Information Development*, 32(5), pp. 1343-1358.

Hwang, Y., & Kim, D. J. (2007). Customer Self-Service Systems: The Effects of Perceived Web Quality with Service Contents on Enjoyment, Anxiety, and E-Trust. *Decision Support Systems*, 43(3), pp. 746-760.

Järveläinen, J. (2004). Perceived Usefulness and Ease-Of-Use Items in B2C Electronic Commerce. In: *Building the E-Service Society*, W. Lamersdorf, V. Tschammer, & S. Amarger (Eds.). New York, USA: Springer US, pp. 475-489.

Kamis, A., Koufaris, M., & Stern, T. (2008). Using an Attribute-Based Decision Support System for User-Customized Products Online: An Experimental Investigation. *MIS Quarterly*, 32(1), pp. 159-177.

Karimov, F. P., Brengman, M., Van Hove, L., & Van, L. (2011). The Effect of Website Design Dimensions on Initial Trust: A Synthesis of the Empirical Literature. *Journal of Electronic Commerce Research*, 12(4), pp. 272-301.

Kim, D. J., Ferrin, D. L., & Rao, H. R. (2008). A Trust-Based Consumer Decision-Making Model in Electronic Commerce: The Role of Trust, Perceived Risk, and Their Antecedents. *Decision Support Systems*, 44(2), pp. 544-564.

Kim, D. J., Ferrin, D. L., & Rao, H. R. (2009). Trust and Satisfaction, Two Stepping Stones for Successful E-Commerce Relationships: A Longitudinal Exploration. *Information Systems Research*, 20(2), pp. 237-257.

Kim, J. B. (2015). The Mediating Role of Presence on Consumer Intention to Participate in a Social Commerce Site. *Journal of Internet Commerce*, 14(4), pp. 425-454.

King, R. C., Schilhavy, R. A. M., Chowa, C., & Chin, W. W. (2016). Do Customers Identify with Our Website? The Effects of Website Identification on Repeat Purchase Intention. *International Journal of Electronic Commerce*, 20(3), pp. 319-354.

Kirmani, A., & Rao, A. R. (2000). No Pain, No Gain: A Critical Review of the Literature on Signaling Unobservable Product Quality. *Journal of Marketing*, 64(2), pp. 66-79.

Koufaris, M. (2002). Applying the Technology Acceptance Model and Flow Theory to Online Consumer Behavior. *Information Systems Research*, 13(2), pp. 205-223.

Koufaris, M., & Hampton-Sosa, W. (2004). The Development of Initial Trust in an Online Company by New Customers. *Information & Management*, 41(3), pp. 377-397.

Kumar, N., & Benbasat, I. (2006). Research Note: The Influence of Recommendations and Consumer Reviews on Evaluations of Websites. *Information Systems Research*, 17(4), pp. 425-439.

Lee, M. K. O., & Turban, E. (2001). A Trust Model for Consumer Internet Shopping. *International Journal of Electronic Commerce*, 6(1), pp. 75-91.

Li, D., Browne, G. J., & Wetherbe, J. C. (2006). Why Do Internet Users Stick with a Specific Web Site? A Relationship Perspective. *International Journal of Electronic Commerce*, 10(4), pp. 105-141.

Liang, T.-P., Ho, Y.-T., Li, Y.-W., & Turban, E. (2011). What Drives Social Commerce: The Role of Social Support and Relationship Quality. *International Journal of Electronic Commerce*, 16(2), pp. 69-90.

Lin, J. C.-C. (2007). Online Stickiness: Its Antecedents and Effect on Purchasing Intention. *Behaviour & Information Technology*, 26(6), pp. 507-516.

Lin, L., Hu, P. J.-H., Sheng, O. R. L., & Lee, J. (2010). Is Stickiness Profitable for Electronic Retailers? *Communications of the ACM*, 53(3), pp. 132-136.

Liu, Z., & Park, S. (2015). What Makes a Useful Online Review? Implication for Travel Product Websites. *Tourism Management*, 47(0), pp. 140-151.

Lowry, P. B., Vance, A., Moody, G., Beckman, B., & Aaron, R. (2008). Explaining and Predicting the Impact of Branding Alliances and Web Site Quality on Initial Consumer Trust of E-Commerce Web Sites. *Journal of Management Information Systems*, 24(4), pp. 199-224.

Lu, B., Fan, W., & Zhou, M. (2016). Social Presence, Trust, and Social Commerce Purchase Intention: An Empirical Research. *Computers in Human Behavior*, 56, pp. 225-237.

Maheswaran, D., & Chaiken, S. (1991). Promoting Systematic Processing in Low-Motivation Settings: Effect of Incongruent Information on Processing and Judgment. *Journal of Personality and Social Psychology*, 61(1), pp. 13-25.

Mallapragada, G., Chandukala, S. R., & Liu, Q. (2016). Exploring the Effects of "What" (Product) and "Where" (Website) Characteristics on Online Shopping Behavior. *Journal of Marketing*, 80(2), pp. 21-38.

Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An Integrative Model of Organizational Trust. *The Academy of Management Review*, 20(3), pp. 709-734.

McAllister, D. J. (1995). Affect-and Cognition-Based Trust as Foundations for Interpersonal Cooperation in Organizations. *Academy of Management Journal*, 38(1), pp. 24-59.

McKnight, D. H., Choudhury, V., & Kacmar, C. (2002a). Developing and Validating Trust Measures for E-Commerce: An Integrative Typology. *Information Systems Research*, 13(3), pp. 334-359.

McKnight, D. H., Choudhury, V., & Kacmar, C. (2002b). The Impact of Initial Consumer Trust on Intentions to Transact with a Web Site: A Trust Building Model. *The Journal of Strategic Information Systems*, 11(3–4), pp. 297-323.

Mehrabian, A., & Russell, J. A. (1974). *An Approach to Environmental Psychology*. Cambridge, USA: The MIT Press.

Mikalef, P., Giannakos, M., & Pateli, A. (2012). Exploring the Business Potential of Social Media: An Utilitarian and Hedonic Motivation Approach. *Proceedings of the 25th Bled eConference*, Bled, Slovenia, pp. 1-14.

Mikalef, P., Giannakos, M., & Pateli, A. (2013). Shopping and Word-of-Mouth Intentions on Social Media. *Journal of Theoretical and Applied Electronic Commerce Research*, 8(1), pp. 17-34.

Mikalef, P., Giannakos, M. N., & Pappas, I. O. (2017). Designing Social Commerce Platforms Based on Consumers' Intentions. *Behaviour & Information Technology*, 36(12), pp. 1308-1327.

Moon, J., Chadee, D., & Tikoo, S. (2008). Culture, Product Type, and Price Influences on Consumer Purchase Intention to Buy Personalized Products Online. *Journal of Business Research*, 61(1), pp. 31-39.

Morwitz, V. G., Steckel, J. H., & Gupta, A. (2007). When Do Purchase Intentions Predict Sales? *International Journal of Forecasting*, 23(3), pp. 347-364.

Ng, C. S.-P. (2013). Intention to Purchase on Social Commerce Websites Across Cultures: A Cross-Regional Study. *Information & Management*, 50(8), pp. 609-620.

Noh, M., Lee, K., Kim, S., & Garrison, G. (2013). Effects of Collectivism on Actual S-Commerce Use and the Moderating Effect of Price Consciousness. *Journal of Electronic Commerce Research*, 14(3), pp. 244-260.

Nunnally, J. C. (1978). *Psychometric Theory*, (2 ed.). New York, USA: McGraw Hill.

Ogonowski, A., Montandon, A., Botha, E., & Reyneke, M. (2014). Should new online stores invest in social presence elements? The effect of social presence on initial trust formation. *Journal of Retailing and Consumer Services*, 21(4), pp. 482-491.

Olbrich, R., & Holsing, C. (2011). Modeling Consumer Purchasing Behavior in Social Shopping Communities with Clickstream Data. *International Journal of Electronic Commerce*, 16(2), pp. 15-40.

Orlikowski, W. J., & Iacono, C. S. (2001). Research Commentary: Desperately Seeking the "IT" in IT Research - A Call to Theorizing the IT Artifact. *Information Systems Research*, 12(2), pp. 121-134.

Palmer, J. W. (2002). Web Site Usability, Design, and Performance Metrics. *Information Systems Research*, 13(2), pp. 151-167.

Parboteeah, D. V., Valacich, J. S., & Wells, J. D. (2009). The Influence of Website Characteristics on a Consumer's Urge to Buy Impulsively. *Information Systems Research*, 20(1), pp. 60-78.

Park, D.-H., & Lee, J. (2008). eWOM Overload and Its Effect on Consumer Behavioral Intention Depending on Consumer Involvement. *Electronic Commerce Research and Applications*, 7(4), pp. 386-398.

Pavlou, P. A. (2003). Consumer Acceptance of Electronic Commerce: Integrating Trust and Risk with the Technology Acceptance Model. *International Journal of Electronic Commerce*, 7(3), pp. 101-134.

Pavlou, P. A., & Chai, L. (2002). What Drives Electronic Commerce Across Cultures? A Cross-Cultural Empirical Investigation of the Theory of Planned Behaviour. *Journal of Electronic Commerce Research*, 3(4), pp. 240-253.

Pavlou, P. A., & Dimoka, A. (2006). The Nature and Role of Feedback Text Comments in Online Marketplaces: Implications for Trust Building, Price Premiums, and Seller Differentiation. *Information Systems Research*, 17(4), pp. 392-414.

Pavlou, P. A., & Fygenson, M. (2006). Understanding and Predicting Electronic Commerce Adoption: An Extension of the Theory of Planned Behavior. *MIS Quarterly*, 30(1), pp. 115-143.

Payne, J. W., Bettman, J. R., & Johnson, E. J. (1992). Behavioral Decision Research: A Constructive Processing Perspective. *Annual Review of Psychology*, 43(1), pp. 87-131.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *Journal of Applied Psychology*, 88(5), pp. 879-903.

Polites, G. L., Williams, C. K., Karahanna, E., & Seligman, L. (2012). A Theoretical Framework for Consumer E-Satisfaction and Site Stickiness: An Evaluation in the Context of Online Hotel Reservations. *Journal of Organizational Computing and Electronic Commerce*, 22(1), pp. 1-37.

Pöyry, E., Parvinen, P., & Malmivaara, T. (2013). Can We Get from Liking to Buying? Behavioral Differences in Hedonic and Utilitarian Facebook Usage. *Electronic Commerce Research and Applications*, 12(4), pp. 224-235.

Riegelsberger, J., Sasse, M. A., & McCarthy, J. D. (2003). The Researcher's Dilemma: Evaluating Trust in Computer-Mediated Communication. *International Journal of Human-Computer Studies*, 58(6), pp. 759-781.

Riegelsberger, J., Sasse, M. A., & McCarthy, J. D. (2005). The Mechanics of Trust: A Framework for Research and Design. *International Journal of Human-Computer Studies*, 62(3), pp. 381-422.

Ringle, C. M., Wende, S., & Becker, J.-M. (2015). SmartPLS 3. *Bönningstedt: SmartPLS*. https://www.smartpls.com.

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions. *Contemporary Educational Psychology*, 25(1), pp. 54-67.

Sashi, C. M. (2012). Customer Engagement, Buyer-Seller Relationships, and Social Media. *Management Decision*, 50(2), pp. 253-272.

Sharma, S., & Crossler, R. E. (2014). Disclosing Too Much? Situational Factors Affecting Information Disclosure in Social Commerce Environment. *Electronic Commerce Research and Applications*, 13(5), pp. 305-319.

Shen, J. (2012). Social Comparison, Social Presence, and Enjoyment in the Acceptance of Social Shopping Websites. *Journal of Electronic Commerce Research*, 13(3), pp. 198-212.

Shi, S., & Chow, W. S. (2015). Trust Development and Transfer in Social Commerce: Prior Experience as Moderator. *Industrial Management & Data Systems*, 115(7), pp. 1182-1203.

Shin, D.-H. (2013). User Experience in Social Commerce: In Friends We Trust. *Behaviour & Information Technology*, 32(1), pp. 52-67.

Shiv, B., & Fedorikhin, A. (1999). Heart and Mind in Conflict: The Interplay of Affect and Cognition in Consumer Decision Making. *Journal of Consumer Research*, 26(3), pp. 278-292.

Short, J., Williams, E., & Christie, B. (1976). *The Social Psychology of Telecommunications*. London, United Kingdom: Wiley.

Simon, S. J., & Peppas, S. C. (2004). An Examination of Media Richness Theory in Product Web Site Design: An Empirical Study. *Info*, 6(4), pp. 270-281.

Sparks, B. A., So, K. K. F., & Bradley, G. L. (2016). Responding to Negative Online Reviews: The Effects of Hotel Responses on Customer Inferences of Trust and Concern. *Tourism Management*, 53, pp. 74-85.

Spence, M. (1973). Job Market Signaling. *The Quarterly Journal of Economics*, 87(3), pp. 355-374.

Srinivasan, S. S., Anderson, R., & Ponnavolu, K. (2002). Customer Loyalty in E-Commerce: An Exploration of Its Antecedents and Consequences. *Journal of Retailing*, 78(1), pp. 41-50.

Stewart, K. J. (2003). Trust Transfer on the World Wide Web. *Organization Science*, 14(1), pp. 5-17.

Straub, D., Boudreau, M.-C., & Gefen, D. (2004). Validation Guidelines for IS Positivist Research. *Communications of the Association for Information Systems*, 13(1), pp. 380-427.

Suh, B., & Han, I. (2003). The Impact of Customer Trust and Perception of Security Control on the Acceptance of Electronic Commerce. *International Journal of Electronic Commerce*, 7(3), pp. 135-161.

Tangmanee, C. (2017). Comparisons of Website Visit Behavior Between Purchase Outcomes and Product Categories. *International Journal of Research in Business and Social Science*, 6(4), pp. 1-10.

Tractinsky, N., Katz, A. S., & Ikar, D. (2000). What Is Beautiful Is Usable. *Interacting with Computers*, 13(2), pp. 127-145.

van der Heijden, H. (2003). Factors Influencing the Usage of Websites: The Case of a Generic Portal in the Netherlands. *Information & Management*, 40(6), pp. 541-549.

van der Heijden, H. (2004). User Acceptance of Hedonic Information Systems. *MIS Quarterly*, 28(4), pp. 695-704.

van der Heijden, H., Verhagen, T., & Creemers, M. (2003). Understanding Online Purchase Intentions: Contributions from Technology and Trust Perspectives. *European Journal of Information Systems*, 12(1), pp. 41-48.

Wakefield, R. L., Wakefield, K. L., Baker, J., & Wang, L. C. (2010). How Website Socialness Leads to Website Use. *European Journal of Information Systems*, 20(1), pp. 118-132.

Wei, H.-L., Lin, K.-Y., Lu, H.-P., & Chuang, I. H. (2014). Understanding the Intentions of Users to 'Stick' to Social Networking Sites: A Case Study in Taiwan. *Behaviour & Information Technology*, 34(2), pp. 151-162.

Wells, J. D., Valacich, J. S., & Hess, T. J. (2011). What Signals Are You Sending? How Website Quality Influences Perceptions of Product Quality and Purchase Intentions. *MIS Quarterly*, 35(2), pp. 373-396.

Werts, C. E., Linn, R. L., & Jöreskog, K. G. (1974). Intraclass Reliability Estimates: Testing Structural Assumptions. *Educational and Psychological Measurement*, 34(1), pp. 25-33.

Xu, J., & Liu, Z. (2010). Study of Online Stickiness: Its Antecedents and Effect on Repurchase Intention. *Proceedings of the International Conference on e-Education, e-Business, e-Management, and e-Learning (IC4E)*, pp. 116-120.

Yadav, M. S., de Valck, K., Hennig-Thurau, T., Hoffman, D. L., & Spann, M. (2013). Social Commerce: A Contingency Framework for Assessing Marketing Potential. *Journal of Interactive Marketing*, 27(4), pp. 311-323.

Yang, H.-L., & Lin, C.-L. (2014). Why Do People Stick to Facebook Web Site? A Value Theory-Based View. *Information Technology & People*, 27(1), pp. 21-37.

Zhang, H., Lu, Y., Gupta, S., & Zhao, L. (2014). What Motivates Customers to Participate in Social Commerce? The Impact of Technological Environments and Virtual Customer Experiences. *Information & Management*, 51(8), pp. 1017-1030.

Zhou, S., & Guo, B. (2017). The Order Effect on Online Review Helpfulness: A Social Influence Perspective. *Decision Support Systems*, 93, pp. 77-87.

Zhu, H., & Huberman, B. A. (2014). To Switch or Not To Switch: Understanding Social Influence in Online Choices. *American Behavioral Scientist*, 58(10), pp. 1329-1344.

Zott, C., Amit, R., & Donlevy, J. (2000). Strategies for Value Creation in E-Commerce: Best Practice in Europe. *European Management Journal*, 18(5), pp. 463-475.

15 Paper VI: Effects of Social Information Cues on Consumers' Product Choice Experiences

Table 15.1 Fact sheet Paper VI

Fact	*Description*
Title	How Do Social Information Cues Affect Consumers' Product Choice Experiences? Findings from a Controlled Online Experiment
Authors	Thomas Friedrich[1] thomas.friedrich@uni-bamberg.de Sven Overhage[1] sven.overhage@uni-bamberg.de Sebastian Schlauderer[1] sebastian.schlauderer@uni-bamberg.de [1] University of Bamberg An der Weberei 5 96047 Bamberg, Germany
Publication type	Conference Proceedings
Publication outlet	Internationale Tagung Wirtschaftsinformatik (WI)
Status	Conditionally accepted
Full citation	Friedrich, T., Overhage, S., & Schlauderer, S.: How Do Social Information Cues Affect Consumers' Product Choice Experiences? Findings from a Controlled Online Experiment. Conditionally accepted for *Internationale Tagung Wirtschaftsinformatik (WI2020)*.
URL	-

How Do Social Information Cues Affect Consumers' Product Choice Experiences? Findings from a Controlled Online Experiment

Abstract. Social media change the way consumers gather and evaluate information when choosing products. To benefit from this development, online sellers have begun augmenting product presentations with social information cues like sales numbers or product ratings. While such cues can influence consumers' buying behavior, it remains unclear how they affect consumers' product choice experiences. This makes it difficult to use them in a systematic manner. Using the stimulus-organism-response paradigm, we develop a research model to explain how a social information cue affects consumers' satisfaction with their product choice via perceived choice difficulty and enjoyment. We evaluate it in a controlled online experiment, in which 147 participants used versions of an e-commerce website with varying social information cues. The results indicate that the provisioning of social information cues positively affects the choice satisfaction by decreasing the perceived choice difficulty and increasing enjoyment. The effects of individual cues vary considerably, however.

Keywords: Social information cues, electronic commerce, product choice, stimulus-organism-response model, controlled online experiment

15.1 Introduction

Social media such as rating and review forums, community feeds, or like buttons are substantially changing the way consumers gather and evaluate information when choosing products. While this development puts e-commerce companies under pressure to integrate social media applications into their platforms, it also provides new opportunities to use social information for persuasion tools, which shall help to better retain consumers on the platform and encourage them to complete transactions.

A promising approach appears to be to enrich product presentations with social information cues. Such cues visualize social information in a highly condensed form, is derived from the actions and/or opinions of consumers and shared using social media (Cheung et al. 2014), (Kim et al. 2019). As companies are integrating more social media-based applications into their e-commerce platforms, several types of social information cues, among them product ratings, likes, or recent consumer activities, become available (Kim et al. 2019; Mou and Shin 2018). Such social information cues can provide an additional basis, from which consumers can infer shopping-relevant characteristics such as the quality or popularity (He and Oppewal 2018). Since products/services often can only be assessed imperfectly, consumers typically are susceptible to information, which is provided by others or inferred from their behavior, when having to choose a product/service (Huang and Chen 2006). Prior studies found that social information cues can indeed help to shape consumers' perception of products/services and hence influence their purchase intentions (Huang and Chen 2006; Park et al. 2007). For this reason, companies have even begun using social information cues in offline channels (e.g., to augment price tags in stores).

So far, however, the impact of social information cues has only been examined from a product-oriented perspective. Concretely, extant studies have analyzed the effects of social information

cues on consumers' perception of the product quality (Mou and Shin 2018; Yu et al. 2018), the perceived popularity (Deng et al. 2016; He and Oppewal 2018), and the product purchase intention (Cheung et al. 2014; Kao et al. 2016). Yet, it has not been investigated how social information cues affect consumers' product choice experiences, for instance with respect to the difficulty of the choice or the satisfaction with the choice. It hence remains unclear how social information cues can be used to support consumers in their product choice and why some cues might be superior to others in a certain scenario. For online sellers, ensuring that consumers are satisfied with their choice is an important factor to maximize consumer loyalty, website use, and consumer purchases, however (Heitmann et al. 2007; Kamis et al. 2008). Given the lack of empirical evidence regarding the effects of different types of social information cues on consumers' product choice experiences, we present the results of a study, in which we examined the following research questions: *How do social information cues affect consumers' product choice experiences? Do different types of social information cues lead to different choice experiences?*

To answer the first question, we develop a research model, which shows how a social information cue influences consumers' satisfaction with their product choice via cognitive (i.e., the perceived choice difficulty) and affective (i.e., the perceived enjoyment) factors. We evaluate the research model using data of a controlled online experiment, in which 147 participants used and reported on several versions of an e-commerce website that differed only with respect to the provided social information cues. On this basis, we also analyze the effects caused by different cues to answer the second research question. Our findings advance the current body of knowledge on social information cues in two ways. First, we explain how such cues affect consumers' cognitive and affective choice perceptions and, as a result, influence the choice satisfaction. Second, we show that the effects of social information cues can differ, thus providing a more refined basis to describe which cue is more effective in a scenario.

15.2 Theoretical Background

To trace the effects caused by social information cues systematically, we adopt the stimulus-organism-response (S-O-R) model as basis of our research model. It suggests that certain signals in the environment (stimuli) can affect the cognitive and affective states of an individual (organism) and thereby trigger a desired reaction (response) (Mehrabian and Russell 1974). Various e-commerce studies adopted the S-O-R model to examine how certain website elements (e.g., product descriptions, pictures) affect cognitive and affective factors (e.g., usefulness, enjoyment), and how these factors affect consumers' responses (e.g., satisfaction, purchase intention) (Chang and Chen 2008; Mosteller et al. 2014; Parboteeah et al. 2009). Accordingly, we use the S-O-R model to explain how a social information cue that is provided on an e-commerce website (stimulus) affects consumers' cognitive and affective choice perceptions (states) and how these factors influence consumers' choice satisfaction (response) as the main goal.

15.2.1 Social Information Cue as Stimulus (S)

We consider the provisioning of a *social information cue* to act as a stimulus that shall trigger a desired consumer response. To better inform consumers about the characteristics of products/services, e-commerce websites typically provide a variety of information cues, which can be categorized as intrinsic and extrinsic cues (Wells et al. 2011). Intrinsic cues describe physical characteristics of the product/service (e.g., weight, taste). Extrinsic cues represent product characteristics that are not inherent to the product/service (e.g., price, name). While both types can

play an important role in consumers' decision-making, evidence is given that online consumers often tend to base their decisions on extrinsic cues (Wells et al. 2011). In line with Cheung et al. (2014), we consider a social information cue to represent information that is generated by the actions and/or opinions of other consumers and that is visualized in a condensed form. Since they are not inherent to the product, social information cues are extrinsic cues. Popular examples of social information cues are product sales numbers (e.g., "bought by over 50 people"), product ratings (e.g., "on average 4.5 stars based on 30 reviews"), and product likes (e.g., "25 people like this"). In the following, we focus on these three types of social information cues as they are used on many popular e-commerce platforms (e.g., Amazon, eBay, Groupon) and all three cues have received attention in literature (Kim et al. 2019; Mou and Shin 2018).

15.2.2 Cognitive and Affective Factors as States (O)

Literature particularly discusses two perception-based factors that characterize the product choice and have been found to significantly influence consumers' choice satisfaction (Isen 2001; Iyengar and Lepper 2000; Spassova and Isen 2013; Valenzuela et al. 2009): *perceived choice difficulty* and *perceived enjoyment*. We build upon these factors to represent the internal cognitive and affective states of the consumer. In line with other studies, we use choice difficulty to represent the cognitive state and perceived enjoyment to depict the affective state (Hwang and Kim 2007; Smead et al. 1981). Research on consumers' choice-making reports that individuals tend to have difficulties managing complex choices (Iyengar and Lepper 2000). To refer to the extent to which an individual experiences difficulty when making a choice, the concept of choice difficulty has been proposed (Dhar 1996; Valenzuela et al. 2009). Analogous, enjoyment refers to the extent to which an individual experiences positive feelings like fun, joy, or excitement when making a choice (Harvey and Jellison 1974). Enjoyment is a critical aspect in consumers' choice-making as it facilitates problem solving, flexibility, and innovation (Isen 2001).

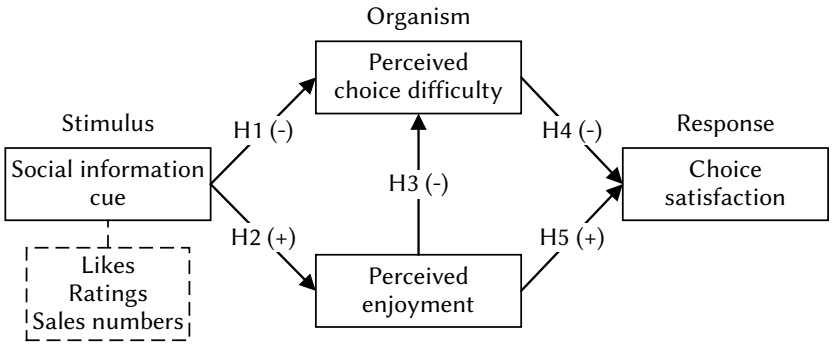
15.2.3 Choice Satisfaction as Response (R)

Since consumers' satisfaction with their choices is an important prerequisite to maximize consumer loyalty, website use, and purchases (Heitmann et al. 2007; Kamis et al. 2008), we consider it as the intended response to the stimulus. The marketing literature defines choice satisfaction as the "satisfaction with and confidence in one's choice" (Mosteller et al. 2014, p. 2488). It differs from consumption satisfaction as it is measured after a product or service was chosen, while the latter is measured after a product or service was consumed (Heitmann et al. 2007). Online sellers can significantly influence consumers' choice satisfaction by optimizing website features such as the provided product description (Fassnacht et al. 2015; Mosteller et al. 2014). In contrast, they only have little influence on consumption satisfaction, which is determined by the characteristics of the product (and hence by the manufacturer) (Fassnacht et al. 2015).

15.3 Research Model and Hypotheses

Against this background, we propose a research model, which suggests that providing a social information cue on an e-commerce website influences consumers' cognitive and affective choice perceptions, and consequently, their choice satisfaction (see Figure 15.1). We also included several control variables to account for individual characteristics, which might affect the

constructs contained in our research model (Heitmann et al. 2007; Kim et al. 2019). We controlled for the age, gender, online shopping frequency, and product familiarity.



Controls: age, gender, online shopping frequency, product familiarity

Figure 15.1 Research model

15.3.1 Effects of Social Information Cues

The technology-mediated nature of e-commerce makes it difficult for consumers to assess all relevant product characteristics, since products cannot be directly observed (Wells et al. 2011). Literature on consumers' choice-making has shown that if consumers have insufficient information about the attributes of the potential choice alternatives, choice-making becomes more difficult, which can result in choice deferral (Dhar 1996). To support consumers' product choices, it is hence important for online sellers to enrich their digital user interfaces with cues that help to assess characteristics such as the product quality (Wells et al. 2011). Social information cues provide several avenues to support the assessment of product characteristics such as the quality (Kao et al. 2016; Yu et al. 2018). On the one hand, cues such as product ratings can directly provide information about a product's quality, albeit in condensed form (Deng et al. 2016). For instance, if a product has an average rating of 4.5 stars, consumers might associate the product with a higher quality compared to a product that has a rating of 2.5 stars. On the other hand, cues such as product sales numbers or product likes can convey information, which can serve as a surrogate to infer the product quality. While both product sales numbers and product likes actually describe how popular a product is among other consumers, this information can also signal a certain quality level of the product (Kirmani and Rao 2000). Taken together, it can hence be argued that if an e-commerce website provides a social information cue, it should become easier for consumers to assess relevant product characteristics such as the quality, which should ease the product choice. Therefore, we hypothesize:

H1. Providing a social information cue on an e-commerce website decreases perceived choice difficulty.

Social presence theory can be used to explain the effect of a social information cue on perceived enjoyment. Generally, social presence refers to "the degree to which the medium permits users to experience others as being psychologically present" (Fulk et al. 1987, p. 531). The more human warmth and sociability a medium conveys, the greater is the social presence (Fulk et al. 1987). Websites, which incorporate social design elements such as social texts or social pictures, can significantly increase perceived enjoyment, since consumers associate websites that convey a sense of human warmth and sociability with more pleasure (Hassanein and Head 2005). Social information cues provide additional possibilities to incorporate social design elements into e-

commerce websites. Examples are social texts like sales numbers or graphical social content like star ratings or like buttons. It can thus be argued that if an e-commerce website contains such a cue, a greater sense of human warmth and sociability can be conveyed (Huang and Chen 2006). Consumers tend to consider other consumers' actions and/or opinions when making a product choice (Huang and Chen 2006). It hence seems reasonable that if an e-commerce website provides a social information cue, which notifies consumers about relevant actions and/or opinions of others, it becomes more likely that they associate their product choice with greater enjoyment. Accordingly, we posit:

H2: Providing a social information cue on an e-commerce website increases perceived enjoyment.

15.3.2 Effects of Cognitive and Affective Factors

While the interplay between affect and cognition has been discussed controversially in the literature on consumers' choice-making, recent research acknowledges that positive affective reactions can play a significant role in cognitive processes (Isen 2001; Shiv and Fedorikhin 1999). As shown by Isen (2001), positive feelings such as enjoyment can cause individuals to accomplish a choice task faster, to consider more information, and to be less confused by a large set of choice alternatives. In addition, Mosteller et al. (2014) suggest that perceptions of enjoyment can stimulate cognitive assessments while processing information. Judging from these findings, it can be argued that if individuals experience enjoyment, it becomes likely that more cognitive resources are activated, which increases the likelihood that a choice can be made with less difficulty. We thus assume:

H3: Perceived enjoyment decreases perceived choice difficulty.

Literature also indicates that a negative relationship exists between choice difficulty and choice satisfaction (Fassnacht et al. 2015; Heitmann et al. 2007; Iyengar and Lepper 2000). As shown by Heitmann et al. (2007), lower levels of satisfaction are derived from a choice, if individuals associate it with high evaluation costs. According to the "conservation of energy" principle, individuals rather prefer to conserve energy for "action when an appropriate opportunity or need presents itself" (Anderson 2003, p. 140). As difficult choices require individuals to spend more energy, it is hence likely that they are associated with less satisfaction. Consequently, we formulate:

H4: Perceived choice difficulty decreases choice satisfaction.

Studies that have examined consumers' choice making furthermore indicate that a positive relationship exists between enjoyment and choice satisfaction (Mosteller et al. 2014; Spassova and Isen 2013). As argued by Spassova and Isen (2013), perceiving pleasure when making a choice indicates that a choice matches individuals' preferences. This can in turn increase the likelihood that individuals are satisfied with their choice. We hence hypothesize:

H5: Perceived enjoyment increases choice satisfaction.

15.4 Research Methodology

We evaluated the research model in a controlled online experiment as this setting enabled us to investigate the effects of different social information cues in isolation, which is otherwise

difficult to achieve in productive e-commerce environments. Moreover, it allowed us to control exogenous variables as much as possible to obtain more accurate measurements.

Experimental design. The experiment used a 1x4 between-subjects design including one independent variable (i.e., "social information cue") with four levels of treatment. We designed four different versions of a fictitious e-commerce website, which were used by disjoint groups of participants. Each website version displayed the same products and followed the same design. Only the provided type of social information cue was manipulated. As described before (cf. section 15.2), we decided to focus on three popular social information cues: sales numbers, ratings, and likes. The first version of the website did not provide any social information cues and thus represented the control group. The second version provided sales numbers, showing how often a product was sold in the past. The third version provided ratings that were displayed as the number of consumer ratings together with the overall score as stars. The fourth version provided product likes in the form of like buttons and like numbers. The design of the social information cues was informed by prior studies (Kao et al. 2016; Mou and Shin 2018). To increase the validity of our results, the procedure to provide the social cues was consistent among all treatment groups. We accomplished this by randomly assigning social information cues to products for each participant. The only restrictions were that the social information cue content had to remain constant within the treatment groups and that half of the products had to be attributed with social information cues for each participant.

The product portfolio consisted of a homogenous set of four unbranded water bottles. We used water bottles for three reasons: first, functional products, such as the selected water bottles, are considered as particularly useful for investigating the effects of social information cues (Steinhart et al. 2014). Second, water bottles are appealing to both men and women. Third, potential branding effects are avoided. Figure 15.2 shows screenshots of the product overview pages of the different versions of the e-commerce website. Note that the website also provided detailed product pages, which were manipulated accordingly to the product overview page. The website was created in the German language as we conducted the study with participants from Germany.

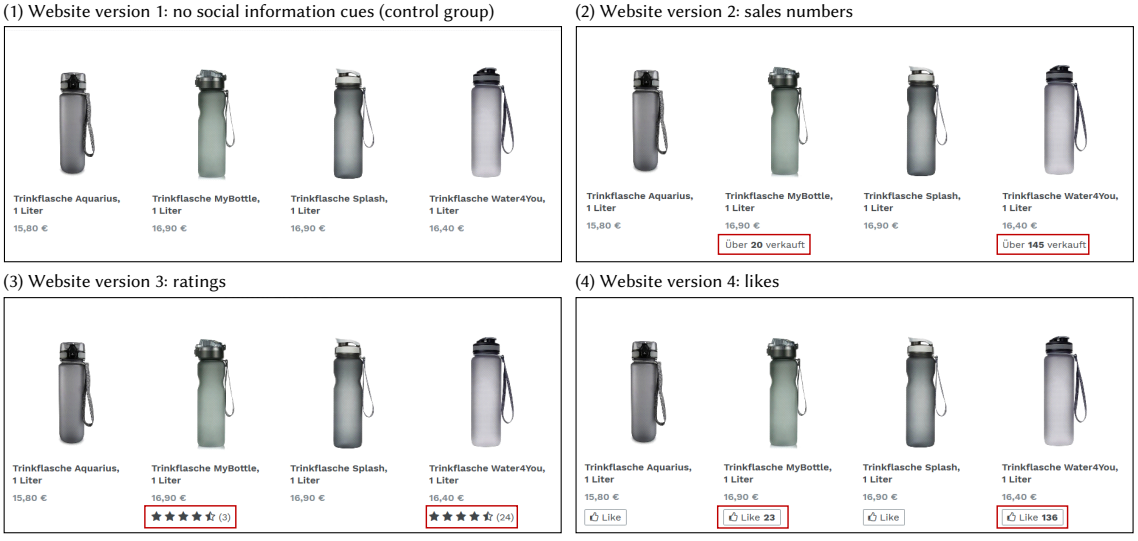


Figure 15.2 Screenshots of treatment conditions (product overview page)

Task and procedure. The experiment was conducted online. Participants were first directed to a landing page, on which the experimental setting and task were explained. The instructions asked the participants to purchase a water bottle as a present for an upcoming birthday party of a colleague. We deemed such a task to be appropriate since literature indicates that social information cues might be even more effective when purchasing for others (Wu and Lee 2016). Participants were informed that the product portfolio of the website deliberately was restricted to water bottles so that the offered products can be compared in more detail. Next, the participants were randomly forwarded to one of the four website versions, where they had to select and purchase one water bottle of their choice. Customer data and payment information was pre-filled to ease the task. After the shopping task, participants were asked to complete an online questionnaire that measured the relevant constructs of our research model.

Measures. The independent variable (i.e., social information cue) was operationalized using a four-level categorical variable to capture the four treatment experimental conditions, which is in line with prior experiment-based studies (Cyr et al. 2009). To measure the dependent variables, we used validated scales, which we took over from literature with minor wording changes to adapt them to the context of our study. Perceived choice difficulty was measured using the following items (Iyengar and Lepper 2000): i*) I found it difficult to choose a water bottle I wanted; ii) Choosing a water bottle was frustrating; iii) I felt hesitant when choosing a water bottle.* We measured perceived enjoyment using the items (Dahl and Moreau 2007): *i) I had fun choosing a water bottle; ii) I found it exciting to choose a water bottle; iii) Choosing a water bottle was enjoyable.* To measure choice satisfaction, we used the items (Mosteller et al. 2014): *i) I am confident that the chosen water bottle best meets my criteria; ii) I think that the person will like the chosen water bottle; iii) Overall, I am satisfied with my product choice.* All dependent variables were operationalized using seven-point Likert scales. Items for control variables were derived from related studies (Kim et al. 2019; Park et al. 2007).

Participants. We used students of a large German university as participants for the experiment, which we invited during our lecture courses. Using student participants is appropriate as they typically are highly familiar with online shopping, of younger age and higher educated, which corresponds to the characteristics of online consumers (Wells et al. 2011).

15.5 Results

We collected data from 164 participants. After sorting out incomplete responses, we retained 147 usable responses for analyses. Of the remaining participants, 57.1% were male and 42.9% female. They were undergraduate or graduate students from business administration, information systems, and computer science degree programs. On average, they were 23.2 years old. To verify that the participants were equally distributed over the four treatment groups, we conducted a one-way analysis of variance for each of the individual characteristics. Group sizes ranged from 35 to 38 participants. There were no significant differences in age (F = 0.322, p>0.05), gender (F = 0.088, p>0.05), online shopping frequency (F = 0.632, p>0.05), and product familiarity (F = 0.426, p>0.05) between the groups.

15.5.1 Measurement Validation

We performed several tests to check for validity and reliability threats. Specifically, we tested for common method bias as all measures were collected from one questionnaire. We therefore

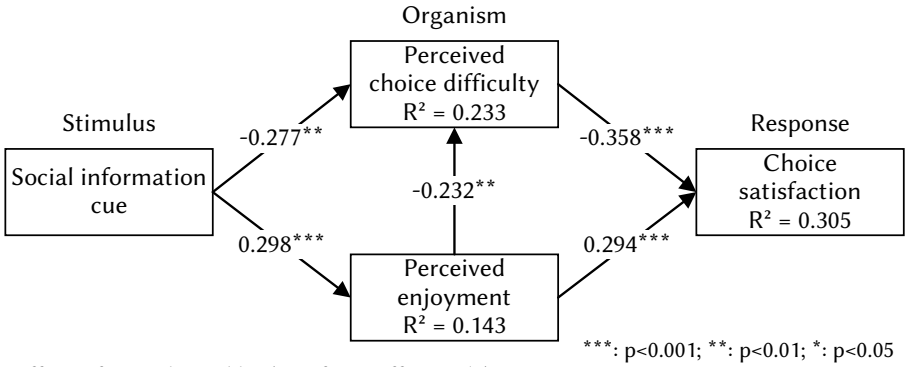
conducted a Harman's one factor test and ran an explorative factor analysis. The result showed that multiple factors are present, and that the most covariance explained by one factor was 46.79%, which indicated that common method bias is not likely a serious concern in our study (Podsakoff et al. 2003). To validate the reflective measures, we determined the construct reliability, the convergent validity, and the discriminant validity. Regarding the construct reliability, composite reliability (CR) and Cronbach's alpha (CA) should be higher than 0.7 (Hair et al. 2011). Regarding the convergent validity, standardized item loadings should be higher than 0.7 and the average variance extracted (AVE) from a construct should be higher than 0.5 (Hair et al. 2011). To demonstrate adequate discriminant validity, the square root of the AVE from a construct should be higher than 0.707 and higher than the construct's correlations to the other constructs (Hair et al. 2011). All values of our measurement model were within the recommendations. Table 15.2 summarizes the main validation results.

Table 15.2 Reliability and validity statistics

Construct	*Loading range*	*CR*	*CA*	*AVE*
Choice difficulty	0.756-0.915	0.896	0.823	0.742
Enjoyment	0.857-0.892	0.909	0.849	0.768
Choice satisfaction	0.859-0.911	0.918	0.866	0.788

15.5.2 PLS Analysis Results

We analyzed our theoretical model using partial least squares (PLS) with SmartPLS 3 (Ringle et al. 2015). With 147 participants, we deem the sample size to be sufficient for a robust PLS calculation, especially considering the number of variables and paths in our model (Hair et al. 2011). For the PLS analysis, social information cue was coded as a 0/1 dummy variable to specify if the website provided a cue (1) or not (0). Figure 15.3 shows the results of our PLS analysis. As recommended, we performed bootstrapping with 5.000 subsamples (Hair et al. 2011). While we included all control variables into the PLS analysis, only the significant effects of the control variables are shown in Figure 15.3 to reduce complexity.



Effects of control variables (significant effects only):

- Gender → perceived enjoyment = -0.196*
- Product familiarity → perceived choice difficulty = -0.149*

Figure 15.3 Results of PLS analysis

The results of our PLS analysis show that the provisioning of a social information cue has a significantly negative effect on choice difficulty (-0.277, p<0.01) and a significantly positive impact on enjoyment (0.298, p<0.001). Accordingly, the results support H1 and H2. Moreover, enjoyment significantly negatively influences choice difficulty (-0.232, p<0.01), thus lending

support to H3. Choice satisfaction is significantly negatively influenced by choice difficulty (-0.358, p<0.001) and significantly positively influenced by enjoyment (0.294, p<0.01), which supports H4 and H5. Regarding the R^2 values, choice difficulty, enjoyment, and the controls explain 30.5% of the variance of choice satisfaction. Social information cue combined with enjoyment and the controls explain 23.3% of the variance of choice difficulty. Furthermore, social information cue together with the controls determine 14.3% of the variance of enjoyment. The results are in line with the recommendation that the R^2 values should be above 0.1 (Falk and Miller 1992). Referring to the controls, male gender has a significantly negative impact on enjoyment (-0.196, p<0.05). Moreover, product familiarity has a significantly negative effect on choice difficulty (-0.149, p<0.05). All other relationships between the control variables and the constructs in our research model are non-significant.

We also conducted a mediator analysis to explore to what extent the cognitive and affective factors mediate the relationship between social information cue and choice satisfaction. To assess the mediation, we followed the procedure of Hair et al. (2014) and calculated the variance accounted for (VAF). The result yielded a VAF value of 81,2%, which indicates that choice difficulty and enjoyment fully mediate the relationship between social information cue and choice satisfaction.

15.5.3 Group Comparisons

To test whether there exist differences in the effects between the different types of social information cues, we performed a multivariate analysis of covariance (MANCOVA). First, we verified that our data meets the necessary statistical assumptions for conducting a MANCOVA. Box's test as well as Levene's test statistics were both non-significant (p>0.05), which indicates that the covariance matrices are nearly equal and that the assumption of homogeneity is met. For the MANCOVA, social information cue represented the independent variable, while choice difficulty and enjoyment represented the dependent variables. Control variables were included as covariates. MANCOVA test statistics (i.e., Pillai's Trace, Wilk's Lambda, Hotelling's Trace, and Roy's Largest Root) were significant (p<0.001) across all four treatment groups. The *F*-statistic was significant for choice difficulty ($F = 8.972$, p<0.001) and enjoyment ($F = 9.477$, p<0.001), which means that for each of the dependent variables significant differences exist across the treatment groups. Contrast analysis results, which are summarized in Table 15.3, show where these differences are.

Table 15.3 Contrast analysis results

	Choice difficulty	*Enjoyment*
(2) Sales numbers vs. (1) No cues	-0.753*	0.569*
(3) Ratings vs. (1) No cues	-1.511***	0.799**
(4) Likes vs. (1) No cues	-1.181***	1.427***
(2) Sales numbers vs. (3) Ratings	0.758*	-0.230
(2) Sales numbers vs. (4) Likes	0.429	-0.858**
(3) Ratings vs. (4) Likes	-0.329	-0.628*

***: p<0.001; **: p<0.01; *: p<0.05.

When comparing the mean values for the sales numbers group with the no cues group, a significant decrease in choice difficulty (-0.753, p<0.05) and a significant increase in enjoyment (0.569, p<0.05) can be identified. Comparing the ratings group with the no cues group also shows

a significant decrease in choice difficulty (-1.511, $p<0.001$) and a significant increase in enjoyment (0.799, $p<0.01$). Similarly, comparing the likes group with the no cues group results in a significant decrease in choice difficulty (-1.181, $p<0.001$) and a significant increase in enjoyment (1.427, $p<0.001$). When comparing the sales numbers group to the ratings group, the result shows a significant increase in choice difficulty (0.758, $p<0.05$), while the difference in enjoyment is non-significant. Contrarily, when comparing the sales numbers group to the likes group, the result shows a non-significant difference in choice difficulty, but a significant decrease in enjoyment (-0.858, $p<0.01$). A comparison of the ratings group to the likes group also yields a non-significant difference in choice difficulty, but a significant decrease in enjoyment (-0.628, $p<0.05$).

15.6 Discussion

Regarding our first research question, we found that the provisioning of social information cues on an e-commerce website can significantly increase consumers' satisfaction with their product choices. Social information cues are hence an effective tool to support consumers in their product choices. We could also show that social information cues can impact cognitive as well as affective choice perceptions. Specifically, they can reduce the perceived difficulty and increase the perceived enjoyment of choices. A social information cue can effectively reduce the difficulty of choices by delivering condensed information about product characteristics such as its quality or popularity, which is relevant for consumers when deciding which product/service to choose (He and Oppewal 2018). A social information cue can increase the enjoyment of choices by notifying consumers of relevant actions and/or opinions of others, which induces social warmth and provides an emotional basis when making a product choice (Huang and Chen 2006). We also found that enjoyment can reduce the perceived choice difficulty. Enjoyment seems to affect cognitive processes and let a product choice appear to be less difficult for consumers (Isen 2001).

Regarding our second research question, we determined that the effect on the perceived difficulty and enjoyment of choices can vary considerably between different social information cues. Among others, we observed that ratings have a stronger effect on choice difficulty than sales numbers and likes. This might be explained by the observation that ratings provide richer information about relevant product characteristics than the other cues. In particular, they can signal both product popularity (through the number of ratings) and quality (through the number of stars). Cues that provide richer information about product characteristics might hence be more effective in reducing choice difficulty. In contrast, product likes had a stronger effect on enjoyment than ratings and sales numbers. Considering that a like expresses an emotional reaction, it seems conceivable that cues, which convey emotional expressions, generate greater levels of enjoyment. Compared to ratings and likes, sales numbers had the lowest impact on choice difficulty and enjoyment. While the effects on both factors still were significant, the observation seems plausible as sales numbers provide less information about product characteristics than ratings and provide less emotional content than likes.

Regarding the control variables, we found that male gender negatively affects the perceived enjoyment of choices. The results of our study hence confirm that women tend to feel more enjoyment when shopping online than men (Seock and Bailey 2008). We also observed a negative effect of product familiarity on perceived choice difficulty, which is reasonable as

consumers who are familiar with the offered products/services should require less cognitive effort to evaluate and compare them (Heitmann et al. 2007).

15.6.1 Implications

Our findings have implications for both academia and practice. Regarding academia, we introduce a new theoretical perspective, through which the effects of social information cues on consumers' product choice experiences can be investigated systematically. While prior studies have shown the potential of social information cues to influence consumers purchase decisions (Cheung et al. 2014; Kao et al. 2016), it has not yet been examined how these cues effect consumers' product choice experiences. To bridge this gap, we proposed a novel research model, which is based on the S-O-R paradigm and establishes a link between the provisioning of a social information cue on an e-commerce website, consumers' cognitive and affective choice perceptions, and their satisfaction with the choices made. The findings of our study do not only advance the current body of knowledge on social information cues, but also contribute novel insights to the research stream on consumers' choice making. Prior choice-making studies have mainly focused on how differences in assortment sizes or product descriptions can affect consumers' cognitive/affective choice perceptions (Fassnacht et al. 2015; Heitmann et al. 2007; Mosteller et al. 2014; Spassova and Isen 2013). With our study, we provide a first empirical evidence that social information cues are also an important antecedent of consumers' cognitive/affective choice perceptions.

The results of our study demonstrate that the effects of social information cues on consumers' product choice experiences can vary considerably. Specifically, we found that cues such as ratings, which convey rich information about product characteristics, seem to address the cognitive dimension more effectively. In contrast, cues that incorporate emotional content, such as likes, seem to address the affective dimension more effectively. While initial evidence is given that social information cues can generate differential effects, the effects have only been examined from a product-oriented perspective (Cheung et al. 2014; Kao et al. 2016; Mou and Shin 2018; Yu et al. 2018). By focusing on consumers' product choice experiences, our study thus provides new insights on the differential effects of social information cues.

The results of our study might also help to better classify social information cues. Current attempts to classify social information cues are mainly focused on the provided content. For instance, related studies propose to distinguish cues according to whether their information is derived from the actions or the opinions of others (Cheung et al. 2014). The results of our study provide a foundation to also classify social information cues with respect to their effects on cognitive and/or affective choice perceptions. Such a classification might be useful to determine, which cues to use or combine to effectively support the product choice.

Regarding practice, we show that the use of social information cues can increase the effectiveness of e-commerce websites by making consumers more satisfied with their product choices. Increasing choice satisfaction is a critical success factor for online sellers considering its positive effects on consumer loyalty, website use, and purchase decisions (Heitmann et al. 2007; Kamis et al. 2008). With the results of our experiment, we provide practical guidelines on how e-commerce websites can be made more effective. Considering that the effects of different types of social information cues can vary, the results of our study provide hints, which cues might be more effective in a specific scenario. For instance, if an e-commerce website offers products that are mainly chosen because of rational considerations, it might be more effective to provide cues

that especially support the cognitive dimension. If an e-commerce website offers products that are rather chosen because of their emotional appeal, it might be more effective to provide cues that especially support the affective dimension. In case both dimensions matter, the effect of social information cues might be strengthened by combining cues that mainly influence cognitive factors with those that primarily influence affective factors. Yet, further empirical investigations are necessary to verify the predicted effects.

15.6.2 Limitations

Several limitations pertain to our study. Most importantly, it should be considered that we conducted a controlled online experiment to maximize the internal validity of the results and to reduce the impact of confounding variables. While we took care to simulate a realistic case, we had to make some reasonable but strict assumptions. To advance the external validity of our findings, future studies are hence particularly encouraged to complement our findings with field data obtained from productive e-commerce websites. Moreover, we chose students of a German university as participants for our experiment. We hence cannot claim that the reported effects are straightforwardly generalizable to other types of consumers.

15.7 Conclusion

This study investigated how the provisioning of social information cues can affect consumers' product choice experiences. With the proposed research model, we introduced a novel theoretical perspective, through which the causal relationship between a social information cue, consumers' cognitive and affective choice perceptions, and their satisfaction with the choice made can be analyzed systematically. The results of our study show that social information cues can cause differential effects on the studied factors. The introduced perspective thus builds a basis to explain why some cues might be particularly effective in a specific scenario. Future studies could include further factors into the presented research model. Moreover, they could analyze the effects of additional social information cues and confirm our results in settings with other products/services or on different platforms. Future studies should also vary the size of the product sample to account for potential changes of the observed effects on larger e-commerce websites. With the presented study, we intend to provide a starting point for such activities.

15.8 References

Anderson, C. J. (2003). The Psychology of Doing Nothing: Forms of Decision Avoidance Result from Reason and Emotion. *Psychological Bulletin*, 129(1), pp. 139-166.

Chang, H. H., & Chen, S. W. (2008). The Impact of Online Store Environment Cues on Purchase Intention. *Online Information Review*, 32(6), pp. 818-841.

Cheung, C. M. K., Xiao, B. S., & Liu, I. L. B. (2014). Do Actions Speak Louder Than Voices? The Signaling Role of Social Information Cues in Influencing Consumer Purchase Decisions. *Decision Support Systems*, 65, pp. 50-58.

Cyr, D., Head, M., Larios, H., & Pan, B. (2009). Exploring Human Images in Website Design: A Multi-Method Approach. *MIS Quarterly*, 33(3), pp. 539-566.

Dahl, D. W., & Moreau, C. P. (2007). Thinking inside the Box: Why Consumers Enjoy Constrained Creative Experiences. *Journal of Marketing Research*, 44(3), pp. 357-369.

Deng, H., Wang, W., & Lim, K. H. (2016). Reducing User Avoidance of Sponsored Search Results: The Effects of Social Influence Cues. *Proceedings of the 37th International Conference on Information Systems (ICIS)*, pp. 1-22.

Dhar, R. (1996). The Effect of Decision Strategy on Deciding to Defer Choice. *Journal of Behavioral Decision Making*, 9(4), pp. 265-281.

Falk, R. F., & Miller, N. B. (1992). *A Primer for Soft Modeling*. Akron, USA: University of Akron Press.

Fassnacht, M., Schmidt, T., & Pannek, J. (2015). Determinants of Choice Satisfaction in a High-Involvement Product Choice. *Journal of Management and Marketing Research*, 19, p. 1-19.

Fulk, J., Steinfield, C. W., Schmitz, J., & Power, J. G. (1987). A Social Information Processing Model of Media Use in Organizations. *Communication Research*, 14(5), pp. 529-552.

Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2014). *A Primer on Partial Least Squares Structural Equation Modeling*. Thousand Oaks, USA: Sage Publications.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a Silver Bullet. *Journal of Marketing Theory and Practice*, 19(2), pp. 139-152.

Harvey, J. H., & Jellison, J. M. (1974). Determinants of Perceived Choice, Number of Options, and Perceived Time in Making a Selection. *Memory & Cognition*, 2(3), pp. 539-544.

Hassanein, K., & Head, M. (2005). The Impact of Infusing Social Presence in the Web Interface: An Investigation Across Product Types. *International Journal of Electronic Commerce*, 10(2), pp. 31-55.

He, Y., & Oppewal, H. (2018). See How Much We've Sold Already! Effects of Displaying Sales and Stock Level Information on Consumers' Online Product Choices. *Journal of Retailing*, 94(1), pp. 45-57.

Heitmann, M., Lehmann, D. R., & Herrmann, A. (2007). Choice Goal Attainment and Decision and Consumption Satisfaction. *Journal of Marketing Research*, 44(2), pp. 234-250.

Huang, J.-H., & Chen, Y.-F. (2006). Herding in Online Product Choice. *Psychology and Marketing*, 23(5), pp. 413-428.

Hwang, Y., & Kim, D. J. (2007). Customer Self-Service Systems: The Effects of Perceived Web Quality with Service Contents on Enjoyment, Anxiety, and E-Trust. *Decision Support Systems*, 43(3), pp. 746-760.

Isen, A. M. (2001). An Influence of Positive Affect on Decision Making in Complex Situations: Theoretical Issues with Practical Implications. *Journal of Consumer Psychology*, 11(2), pp. 75-85.

Iyengar, S. S., & Lepper, M. R. (2000). When Choice Is Demotivating: Can One Desire Too Much of a Good Thing? *Journal of Personality and Social Psychology*, 79(6), pp. 995-1006.

Kamis, A., Stern, T., & Ladik, D. M. (2008). A Flow-Based Model of Web Site Intentions When Users Customize Products in Business-to-Consumer Electronic Commerce. *Information Systems Frontiers*, 12(2), pp. 157-168.

Kao, K. C., Rao Hill, S., & Troshani, I. (2016). Online Consumers' Responses to Deal Popularity as an Extrinsic Cue. *Journal of Computer Information Systems*, pp. 1-11.

Kim, H., Park, K., & Eighmey, J. (2019). The Effects of Social Information Cues Featured in SNS Ads on Unfamiliar Product Adoption. *Journal of Promotion Management*, 25(4), pp. 541-569.

Kirmani, A., & Rao, A. R. (2000). No Pain, No Gain: A Critical Review of the Literature on Signaling Unobservable Product Quality. *Journal of Marketing*, 64(2), pp. 66-79.

Mehrabian, A., & Russell, J. A. (1974). *An Approach to Environmental Psychology*. Cambridge, USA: The MIT Press.

Mosteller, J., Donthu, N., & Eroglu, S. (2014). The Fluent Online Shopping Experience. *Journal of Business Research*, 67(11), pp. 2486-2493.

Mou, J., & Shin, D. (2018). Effects of Social Popularity and Time Scarcity on Online Consumer Behaviour Regarding Smart Healthcare Products: An Eye-Tracking Approach. *Computers in Human Behavior*, 78, pp. 74-89.

Parboteeah, D. V., Valacich, J. S., & Wells, J. D. (2009). The Influence of Website Characteristics on a Consumer's Urge to Buy Impulsively. *Information Systems Research*, 20(1), pp. 60-78.

Park, D.-H., Lee, J., & Han, I. (2007). The Effect of On-Line Consumer Reviews on Consumer Purchasing Intention: The Moderating Role of Involvement. *International Journal of Electronic Commerce*, 11(4), pp. 125-148.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *Journal of Applied Psychology*, 88(5), pp. 879-903.

Ringle, C. M., Wende, S., & Becker, J.-M. (2015). SmartPLS 3. *Bönningstedt: SmartPLS*. https://www.smartpls.com.

Seock, Y.-K., & Bailey, L. R. (2008). The Influence of College Students' Shopping Orientations and Gender Differences on Online Information Searches and Purchase Behaviours. *International Journal of Consumer Studies*, 32(2), pp. 113-121.

Shiv, B., & Fedorikhin, A. (1999). Heart and Mind in Conflict: The Interplay of Affect and Cognition in Consumer Decision Making. *Journal of Consumer Research*, 26(3), pp. 278-292.

Smead, R. J., Wilcox, J. B., & Wilkes, R. E. (1981). How Valid are Product Descriptions and Protocols in Choice Experiments? *Journal of Consumer Research*, 8(1), pp. 37-42.

Spassova, G., & Isen, A. M. (2013). Positive Affect Moderates the Impact of Assortment Size on Choice Satisfaction. *Journal of Retailing*, 89(4), pp. 397-408.

Steinhart, Y., Kamins, M., Mazursky, D., & Noy, A. (2014). Effects of Product Type and Contextual Cues on Eliciting Naive Theories of Popularity and Exclusivity. *Journal of Consumer Psychology*, 24(4), pp. 472-483.

Valenzuela, A., Dhar, R., & Zettelmeyer, F. (2009). Contingent Response to Self-Customization Procedures: Implications for Decision Satisfaction and Choice. *Journal of Marketing Research*, 46(6), pp. 754-763.

Wells, J. D., Valacich, J. S., & Hess, T. J. (2011). What Signals Are You Sending? How Website Quality Influences Perceptions of Product Quality and Purchase Intentions. *MIS Quarterly*, 35(2), pp. 373-396.

Wu, L., & Lee, C. (2016). Limited Edition for Me and Best Seller for You: The Impact of Scarcity Versus Popularity Cues on Self Versus Other-Purchase Behavior. *Journal of Retailing*, 92(4), pp. 486-499.

Yu, S., Hudders, L., & Cauberghe, V. (2018). Are Fashion Consumers Like Schooling Fish? The Effectiveness of Popularity Cues in Fashion E-Commerce. *Journal of Business Research*, 85, pp. 105-116.

Part 3

Selection of
Social Commerce Features

16 Paper VII: Method to Systematically Select Social Commerce Features

Table 16.1 Fact sheet Paper VII

Fact	*Description*
Title	Selecting Technologies for Social Commerce: Towards a Systematic Method
Authors	Thomas Friedrich[1] thomas.friedrich@uni-bamberg.de Sven Overhage[1] sven.overhage@uni-bamberg.de Sebastian Schlauderer[1] sebastian.schlauderer@uni-bamberg.de Holger Eggs[2] holger.eggs@sap.com [1] University of Bamberg An der Weberei 5 96047 Bamberg, Germany [2] SAP SE Dietmar-Hopp-Allee 16 69190 Walldorf, Germany
Publication type	Conference Proceedings
Publication outlet	European Conference on Information Systems (ECIS)
Status	Published
Full citation	Friedrich, T., Overhage, S., Schlauderer, S., & Eggs, H. (2015). Selecting Technologies for Social Commerce: Towards a Systematic Method. *Proceedings of the 23rd European Conference on Information Systems (ECIS)*, Münster, Germany, pp. 1-17.
URL	https://aisel.aisnet.org/ecis2015_cr/50/

Selecting Technologies for Social Commerce: Towards a Systematic Method

Abstract. Social commerce, the use of social media in e-commerce, has become increasingly popular in research and practice. As social commerce initiatives are enabled by technologies, their success considerably depends on the ability of companies to select adequate candidates from the available social commerce technologies. However, with the popularity of social commerce, the number of technologies is steadily increasing. Without guidance, the selection of technologies becomes cumbersome and risky. Moreover, while social commerce initiatives are most effective if they combine multiple different technologies, existing software selection approaches are limited to a specific technology and only support selecting one product from a set of technologically equivalent alternatives. Combining design science research with action research, we therefore propose a new method to support the selection of multiple complementary social commerce technologies. The contribution is twofold: (1) we propose a procedure model that describes the problem of selecting a set of multiple technologies as tailor-made decision-making process; (2) we introduce a technology assessment catalog as a consolidated information base to assess social commerce technologies with respect to their impact on customers' buying behavior. The results of an evaluation in a social commerce project indicate that the method supports the selection of social commerce technologies.

Keywords: Social commerce, social media, e-commerce, decision making, design science

16.1 Introduction

In recent years, social media have become an important means to transform the formerly transactional and product-oriented e-commerce into a more lucrative, relationship-based and customer-centric business (Constantinides et al. 2009; Wigand et al. 2008). By integrating social technologies into e-commerce platforms, customers can be stimulated to actively participate in the various stages of the buying process and hence become a key part of the value chain (Ickler et al. 2009; Rad and Benyoucef 2010). In literature, such initiatives are summarized under the term *social commerce*, which is considered as a new form of e-commerce that places special emphasis on the active participation, communication, and interaction of customers through the use of social media (Turban et al. 2010; Wang and Zhang 2012; Zhou et al. 2013). Social commerce initiatives are rapidly becoming popular in practice as the provisioning of social media, which are adopted and used by customers, can positively influence customers' buying behavior (Dhar and Chang 2009; Mikalef et al. 2013; Olbrich and Holsing 2011).

However, together with the popularity of social commerce, the number of available social commerce technologies has been steadily increasing over the past decade (Curty and Zhang 2013). Meanwhile, there exists a wide range of technologies, such as rating and review systems, social recommendation systems, or community systems, which offer diverse functionalities and support different use cases (Mulpuru et al. 2010). Hence, the success of social commerce initiatives considerably depends on the ability of companies to efficiently identify and select technologies that best fit their business strategy (Huang et al. 2012). Furthermore, research indicates that social commerce initiatives can be more effective if they combine multiple complementary technologies (Huang and Benyoucef 2013a). However, the selection of adequate technologies is a cumbersome and risky task. It is cumbersome because a wide range of functionally different

social commerce technologies has to be evaluated although companies typically lack detailed knowledge of such technologies (Huang et al. 2012; Zhou et al. 2013). In addition, the task is risky because selecting the wrong technologies can easily lead to an ineffective social commerce initiative, which fails to encourage customers to buy products from the company's website (Kietzmann et al. 2011; Turban et al. 2010).

It consequently ought to be investigated how different social commerce technologies can be assessed and selected (Hajli 2013; Turban et al. 2010; Wang and Zhang 2012). However, research in social commerce is still focused on examining the theoretical foundations, for example the concept itself and its historical evolution (Liang and Turban 2011; Wang and Zhang 2012; Zhou et al. 2013), its activities (Saundage and Lee 2011), technological features (Curty and Zhang 2013; Huang et al. 2012), and influence factors (Hajli 2012a; Kwahk and Ge 2012; Liang et al. 2011). Furthermore, traditional software selection approaches from the related enterprise software domain do neither contain social commerce-specific selection criteria nor support the selection of multiple complementary technologies. Instead, they are limited to a specific technology (e.g., CRM systems) and only support the selection of one software product from a set of technologically equivalent candidates (e.g., Salesforce CRM vs. SAP CRM, see section 16.2). The task to select multiple complementary technologies that best fit to the goals behind a company's social commerce initiative is thus not supported by these approaches.

To contribute to the closure of this research gap and better support the design of social commerce initiatives, we propose a new method that supports the systematic selection of multiple complementary social commerce technologies. Building upon a research approach that iterates between design science research and action research stages, we address the following research questions: *(i) What are potential criteria to evaluate and select social commerce technologies? (ii) How can a company systematically select a set of multiple complementary social commerce technologies?* The action research stages of our research project were conducted at a world-wide leading German enterprise software company, which used the proposed method in a complex social commerce initiative. This setting allowed us to obtain feedback on the practical applicability of the method and to incorporate any necessary adaptations.

The remaining manuscript is structured according to Gregor's and Hevner's guidelines for publishing the results of design science research endeavors (Gregor and Hevner 2013): in section 16.2, we describe the theoretical background and further highlight the research gap. In section 16.3, we explain our research approach. In section 16.4, we present the developed method to systematically select social commerce technologies. The results of the conducted evaluation are described in section 16.5. In section 16.6, we discuss the findings, implications, limitations, and future directions of our research.

16.2 Theoretical Background

In the following, we describe the theoretical background that our method is built upon. First, we look at the technological perspective of social commerce, identify the underlying technologies, and investigate their potential impacts. Afterwards, we discuss the characteristics of related software selection approaches from the conceptually close enterprise software domain. Drawing on the existing literature, we then describe the research gap.

16.2.1 Technological Perspective of Social Commerce

Together with people, information, and the proper business, technologies are perceived as one of the central building blocks of social commerce initiatives (Wang and Zhang 2012; Zhou et al. 2013). Furthermore, it is emphasized that social commerce is enabled and usually even driven by technologies (Curty and Zhang 2013). Accordingly, there already exists an entire research stream that investigates which technologies can be used for social commerce initiatives. Despite these efforts, there seems to be no common understanding regarding the technologies that are associated with social commerce. On the one hand, different terms are used to describe technologies. For instance, technologies are described under the terms "feature" (Curty and Zhang 2013; Huang et al. 2012; Olbrich and Holsing 2011), "component" (Hajli 2012b; Leitner and Grechenig 2009), "functionality" (Ickler et al. 2009), "tool" (Kwahk and Ge 2012; Leitner and Grechenig 2008), or "dimension" (Shadkam and O'Hara 2013). On the other hand, different technology sets, frameworks, and classifications have been proposed (Curty and Zhang 2011; Curty and Zhang 2013; Grange and Benbasat 2010; Huang et al. 2012). To synthesize the different conceptions, we define a social commerce technology to represent a class of functionally similar software products that support social commerce. In its simplest form, a social commerce technology represents a class of software tools with a certain basic functionality (e.g., like buttons, share buttons, etc.). A complex social commerce technology instead represents a class of software systems that provide a certain multifaceted functionality (e.g., co-browsing systems, community systems, etc.). Table 16.2 gives an overview of social commerce technologies that have frequently been mentioned in research-oriented and practitioner-oriented literature.

Table 16.2 Frequently mentioned social commerce technologies

Technologies	*References*
• Activity/news feeds[2,5,9] • Ask a friend/expert tools[2,4,5,9] • Co-browsing/co-shopping systems[4,5,8,9,10] • Collaboration systems (e.g., blogs, micro-blogs, wikis)[1,2,4,6,7,9,10] • Communication systems (e.g., text, audio, video chat)[1,2,5,6,9] • Community systems (e.g., discussion boards, forums)[1,2,4,5,6,10] • Group buying systems[2,4,5,8,9] • Like, share, and follow buttons[2,4,5,6,8,9,10] • Rating and review systems[1,2,3,4,5,6,7,8,9,10] • Social bookmarking systems (e.g., favorites, wish lists)[1,2,3,4,5,6,7,9] • Social login tools (login with social network profile)[8,9] • (Social) recommendation systems[2,4,5,6,9,10]	*Research-oriented literature:* [1] Curty and Zhang (2011) [2] Curty and Zhang (2013) [3] Grange and Benbasat (2010) [4] Huang et al. (2012) [5] Huang and Benyoucef (2013b) [6] Kailer et al. (2013) [7] Leitner and Grechenig (2008) *Practitioner-oriented literature:* [8] Khera (2012) [9] Marsden (2010) [10] Mulpuru et al. (2010)

As several terms, technology sets, and classifications are used in parallel today, the selection of social commerce technologies is generally made difficult. Additionally, only little research has examined the design of social commerce platforms. To support this task, Huang and Benyoucef (2013a) developed a basic reference model of a social commerce platform that contains four layers of abstract social commerce features. The innermost "individual" layer is composed of features that represent the users on a social commerce platform and allow them to generate individual content. The surrounding "conversation" layer comprises features that allow customers to interact and share content with others. The "community" layer summarizes features to coordinate and endorse conversations to build a community. The outermost "commerce" layer comprises features that leverage communities to facilitate commercial activities, for example, by generating recommendations based on the user interactions. After applying the model to

two leading social commerce platforms, Huang and Benyoucef (2013a) demonstrate that social commerce platforms can be more effective if they cover all four layers with a minimum set of social commerce features. However, they only sporadically describe how technologies can be used to fill the layers. Moreover, their model does not provide information about the resulting business impact, leaving open the question which of the proposed features a company should focus on.

16.2.2 Potential Impacts of Social Commerce Technologies

According to Turban et al. (2010), a large number of customer- and vendor-related benefits has been associated with social commerce. However, most of these benefits are described in practitioner-oriented publications (e.g., Dennison et al. 2009; Marsden 2010; Mulpuru et al. 2010) and only few descriptions are grounded on theories or solid empirical data. Since social commerce is centered on customers (Wang and Zhang 2012), theoretical advice about the impacts of social commerce technologies can best be derived from studies which examine the customers' buying behavior. In this context, Ickler et al. (2009), Kim and Srivastava (2007), and Rad and Benyoucef (2010) conceptually demonstrate how specific social commerce technologies can influence the different stages of the customers' buying process. In addition, several empirical studies have investigated which factors influence customers' buying behavior on social commerce platforms. Table 16.3 lists factors that have frequently been examined in the literature.

Table 16.3 Potential impacts of social commerce technologies

Factor	*Description*	*Social commerce references*
Perceived ease of use	Degree to which a person believes that using a particular system would be free of effort (Davis 1989).	Hajli (2012a); Li et al. (2014); Shen (2012); Teh and Ahmed (2012)
Perceived enjoyment	Extent to which the activity of using the system is perceived to be enjoyable (Davis et al. 1992).	Sharma and Crossler (2014); Shen (2012); Shin (2013)
Perceived usefulness	Degree to which a person believes that using a particular system enhances his or her performance (Davis 1989).	Li et al. (2014); Hajli (2012a); Shen (2012); Shin (2013); Teh and Ahmed (2012)
Social influence	Degree to which an individual's behavior is affected by others. Differentiated between normative (subjective norm) and informational social influence (Deutsch and Gerard 1955).	Kwahk and Ge (2012); Lin et al. (2013); Sharma and Crossler (2014); Shin (2013)
Social presence	Degree to which a medium permits users to experience others as psychologically present (Fulk et al. 1987).	Hajli (2012a); Lu and Fan (2014); Shen (2012)
Social support	An individual's perceptions of support from people in their social network, which enhances functioning, or may protect them from adverse outcomes (Demaray and Malecki 2002).	Li et al. (2014); Liang et al. (2011); Shin (2013); Wang and Hajli (2014)
Trust	Willingness to be vulnerable to another party based on a separate set of trustworthiness beliefs in ability, benevolence, and integrity (Mayer et al. 1995). See Gefen et al. (2003) for additional conceptualizations of trust.	Chow and Shi (2014); Hajli (2012a); Hajli et al. (2014); Kim and Noh (2012); Lu and Fan (2014); Shin (2013); Teh and Ahmed (2012)

According to the social commerce literature, all of the above-mentioned factors have the potential to positively influence customers' buying behavior. However, most studies focus their investigations on only a small number of factors and rarely specify concrete technologies.

16.2.3 Characteristics of Software Selection Approaches

Since social commerce technologies represent classes of functionally similar software products, it seems obvious to support the selection task by using existing software selection approaches. Especially in the conceptually close enterprise software domain, various selection approaches have been developed. Referring to the literature reviews conducted by Jadhav and Sonar (2009), Lin et al. (2007), and Sen et al. (2009), approaches for selecting enterprise software share several typical characteristics:

- Nearly all approaches are tailored to support the selection of software products of a specific technology such as customer relationship management (CRM) systems (Colombo and Francalanci 2004) or enterprise resource planning (ERP) systems (Onut and Efendigil 2010). Only a small number of approaches is generic and not tailored to a specific technology (Lin et al. 2007; Sen et al. 2009).

- All identified approaches focus on selecting a specific software product out of a set of technologically equivalent software candidates, for example, selecting the most appropriate CRM system out of a set of CRM system candidates (Jadhav and Sonar 2009; Lin et al. 2007). None of the approaches supports the selection of multiple products that are technologically different.

- Most of the suggested selection criteria are related to quality and cost aspects, such as functional completeness, usability, maintainability or portability. Such criteria are typically relevant when comparing functionally similar software packages. Criteria related to the functionality or the impact of the software packages have rarely been suggested (Jadhav and Sonar 2009).

- Nearly all proposed selection approaches follow a process of sequential stages, usually starting with the determination of selection criteria, followed by the identification and evaluation of software candidates, and ending with the final purchase decision (Jadhav and Sonar 2009; Sen et al. 2009).

- As selecting enterprise software generally constitutes a multi-criteria decision-making problem, much effort has been devoted to the development and enhancement of evaluation techniques. Techniques that have been commonly used to select enterprise software are the weighted sum model (WSM), the analytic hierarchic process (AHP), and approaches based on fuzzy set theory (Jadhav and Sonar 2009; Lin et al. 2007; Sen et al. 2009).

- Most approaches either specify selection criteria, a selection methodology, or an evaluation technique. Only few approaches provide selection criteria together with a selection methodology and an evaluation technique (Jadhav and Sonar 2009; Sen et al. 2009). Moreover, only half of the approaches has been evaluated through practical application (Jadhav and Sonar 2009).

Against this background, we found three shortcomings to limit the support of current approaches for the selection of social commerce technologies. First, existing approaches only support the selection of one single software product out of a set of technologically similar software candidates. However, as social commerce initiatives typically combine multiple complementary technologies (Huang and Benyoucef 2013a), the applicability of traditional software selection approaches is limited. Moreover, product-specific criteria such as quality and costs are not yet

relevant when deciding which technologies to use. Such decisions are rather based on factors influencing customers' buying behavior. The available criteria are hence not adequate for the selection of social commerce technologies. Second, due to the different terms, technology sets, and classifications used in the literature, it is not clear for the designers of social commerce initiatives, what technologies are available. Third, most of the impacts associated with social commerce technologies have not been clearly specified yet. While several studies examined the influence factors of various social commerce technologies on the customers' buying behavior, the findings are scattered across the literature base and often not transparent. To provide a better support for the selection of social commerce technologies, we therefore propose a new method that overcomes the before-mentioned deficiencies and provides a tailor-made decision-making procedure.

16.3 Research Approach

To ensure both the rigorous scientific construction of the proposed method and its practical applicability, we adopted a research approach that combines design science research with action research in an iterative manner (Iivari 2007; Iivari and Venable 2009). First, we built upon the design science paradigm to construct the method and its constituents (Hevner et al. 2004). Thereafter, we used the action research paradigm (Baskerville 1999) to evaluate the developed method in a complex social commerce project of a world-wide leading German enterprise software manufacturer. Thereby, the chosen action research setting allowed us to delve into the project context and to incorporate any refinements or adaptations into the method that were found necessary to ensure its practical applicability (Iivari 2007). In contrast to other mixed-method approaches, such as the action design research approach (Sein et al. 2011), our research approach allowed us to begin the construction of the proposed method independently of any project-specific context. Nonetheless, we remained able to promptly adapt to practical requirements due to the subsequent action research step.

For the construction of the method, we closely followed the design science research paradigm, which provides rigorous, scientific guidelines to support the creation of novel IT artifacts (Hevner et al. 2004). Particularly, we implemented two measures: first, we systematically based the construction of our method on the knowledge base (Gregor and Hevner 2013) and surveyed prior work that could advise the construction of our method. On the one hand, we made use of the existing knowledge about social commerce technologies and their potential impacts. On the other hand, we took into account the typical characteristics of approaches for the selection of enterprise software. Second, we followed the design cycle, a systematic procedure model that structures the design research process into an iterative series of steps with well-defined in- and outputs (Takeda et al. 1990; Vaishnavi and Kuechler 2004). We only adapted the evaluation step of the model to fit our mixed-method research approach (see Figure 16.1).

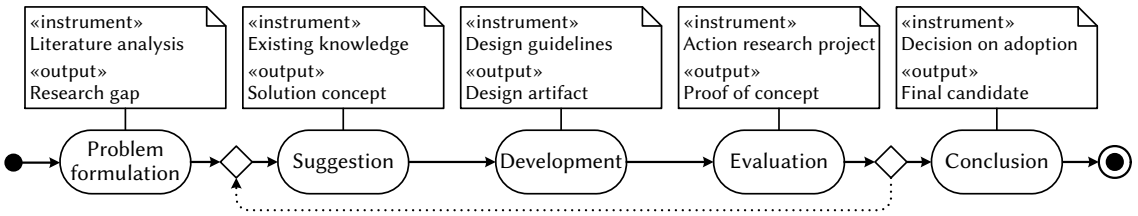


Figure 16.1 Design cycle of the research project (based on Takeda et al. 1990)

Currently, we have completed the first iteration of the design cycle. In this iteration, we defined the procedure model and the inputs that are required to systematically select social commerce technologies. We began by formulating the research problem. Building upon the knowledge base, we then defined a solution concept. This concept served as a foundation for the development of the actual method in the third step. Finally, we applied the method in a real-world project to evaluate its practical applicability and refine it according to the practical requirements of the project. To this end, we included one of the method's designers as a guide into the project team. He advised the team to proceed according to our method, observed any adjustments that were made in practice, and gathered feedback from the practitioners. Thereby, we also identified room for improvements which we will address in future iterations.

16.4 Systematic Selection of Social Commerce Technologies

In the following, we present the first version of our method to systematically select social commerce technologies. The goal of our research endeavor was to describe the selection of social commerce technologies as a structured, generally applicable decision-making process. For this purpose, we developed a *procedure model* that operationalizes the selection problem as a set of well-defined steps (see Figure 16.2). The procedure model is based upon the typical structure of selection methodologies from the enterprise software domain (see section 16.2). It starts with the determination of relevant selection criteria, followed by the identification of potential technology candidates, and the technology evaluation. Although the procedure model may thus look like other established software selection processes at a first glance, we had to make several modifications to the activities and the parameters of each step to support the selection of social commerce technologies. Moreover, we had to introduce an additional step to verify that the selected technologies can be effectively composed with each other (step 4). In general, the procedure model is meant to be executed in sequence but will also support reiterations if necessary.

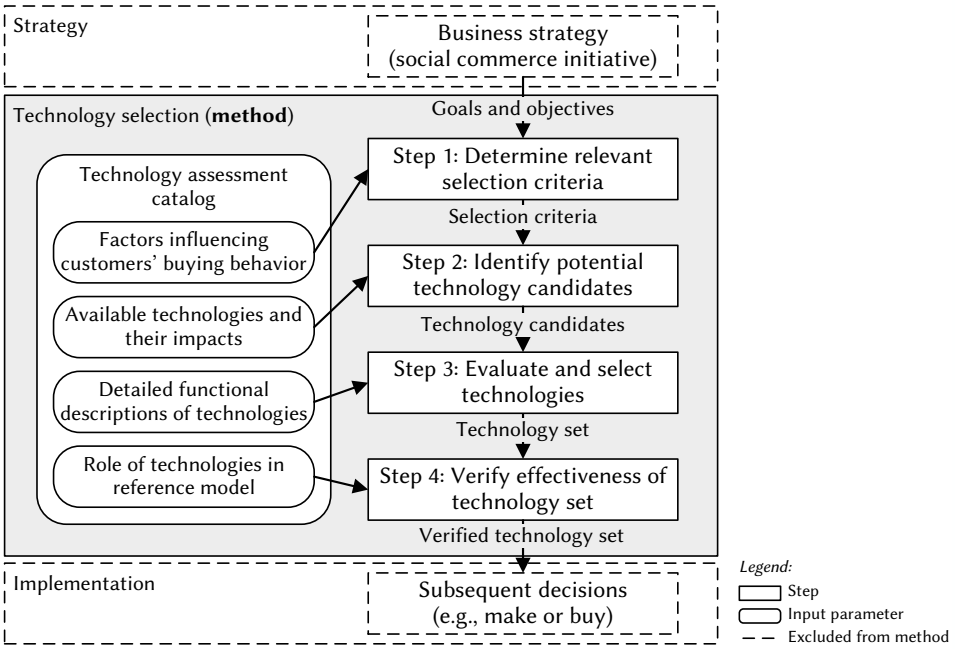


Figure 16.2 Procedure model of the method

Next to the procedure model, consolidated information about available social commerce technologies and their impacts is required to facilitate the selection process. To provide such information, we developed a *technology assessment catalog* that serves as the method's overall input parameter. The catalog has been designed to provide detailed information about the available social commerce technologies and to describe their support of the suggested selection criteria. Building upon the results of our literature review, we initially filled the catalog with a list of available social commerce technologies, a faceted description of their functional characteristics, and a classification of their particular role in an effective social commerce platform. Moreover, the catalog describes various dimensions in which the technologies influence the customers' buying behavior, which are used as selection criteria. During the catalog design, we ensured that both the technologies and selection criteria can be augmented in future.

In the next sections, we will describe each step of the method in detail. To illustrate the method's application, we will refer to a fictive company that plans to integrate social commerce technologies into its e-commerce platform to increase the number of transactions and raise the market share.

16.4.1 Step 1: Determine Relevant Selection Criteria

In step 1, it is necessary to determine appropriate criteria for the selection of social commerce technologies. As discussed in section 16.2, traditional quality and cost-related criteria from the enterprise software domain do not fit the selection of technologies that offer diverse functions and support different use cases. Instead, a different type of criteria is required that is related to the potential outcome generated by social commerce. Drawing on the results of our literature review, the customers' buying behavior is seen as the dominant outcome variable in social commerce initiatives (Ickler et al. 2009; Kim and Srivastava 2007; Rad and Benyoucef 2010; Yadav et al. 2013). Thus, we suggest using the identified factors that influence the customers' buying behavior (see section 16.2) as selection criteria. In the current version, the technology assessment catalog covers the most frequently cited influence factors, which are *perceived ease of use*, *perceived enjoyment*, *perceived usefulness*, *social influence*, *social presence*, *social support*, and *trust*. Although criteria such as usefulness, social influence, or trust can be further decomposed into more detailed sub-criteria, we suggest to use these criteria in their highest abstraction level. As practitioners may not be familiar with more detailed sub-criteria such as the different types of trust (Gefen et al. 2003), they might not be able to properly apply them.

Considering the goals and objectives of its business strategy, a company needs to decide which of the proposed selection criteria it intends to target with its social commerce initiative. For example, when a company, on the one hand, plans to increase its reputation, trust may be an important selection criterion. When a company, on the other hand, wants to improve the shopping experience on its website, factors such as perceived ease of use, enjoyment, or usefulness may be considered as relevant criteria. As all of the selection criteria have been operationalized with measurable items in empirical studies, a company can also survey its customers to get advice on which of the proposed selection criteria it should focus. For this purpose, we added several questionnaire items to the technology assessment catalog, which we gathered from literature (see Table 16.4). By using these questions as guidelines, a company can determine which of the criteria customers perceive to be important and thus try to improve them. This option may be especially useful when a company does not yet have a clearly defined social commerce strategy.

Table 16.4 Operationalization of selection criteria

Criteria	*Exemplary questionnaire items*
Perceived ease of use (adapted from Gefen et al. 2003; Hajli 2012a; Shen 2012)	
PEOU1	My interaction with the shopping platform is clear and understandable.
PEOU2	The shopping platform is flexible to interact with.
PEOU3	Learning to operate the shopping platform is easy.
Perceived usefulness (adapted from Gefen et al. 2003; Hajli 2012a; Kumar and Benbasat 2006)	
PU1	The shopping platform enables me to search and buy products faster.
PU2	The shopping platform increases my productivity in searching and buying products.
PU3	The shopping platform makes it easier to search and buy products.
Social presence (adapted from Hajli 2012a; Kumar and Benbasat 2006; Shen 2012)	
SP1	There is a sense of human contact in the shopping platform.
SP2	There is a sense of human sensitivity in the shopping platform.
SP3	There is a sense of sociability in the shopping platform.
… (perceived enjoyment, social influence, social support, trust)	

Following its before-mentioned goals, our fictive company has to decide which of the specified selection criteria it wants to target with its social commerce initiative. Judging from a conducted customer survey, the company determines that its e-commerce platform ought to better support social presence and social influence. Accordingly, it chooses these two criteria to select adequate social commerce technologies.

Note that our method is designed in a way that additional selection criteria (e.g., company-specific requirements) can be added to the technology assessment catalog. With the continued use of the method, we expect the scope of the catalog to broaden accordingly.

16.4.2 Step 2: Identify Potential Technology Candidates

The purpose of step 2 is to identify social commerce technologies that are generally able to fulfill the defined selection criteria. As there already exists a large number of functionally diverse social commerce technologies, it is necessary to reduce the number of technology candidates before beginning with a detailed technology evaluation. If the evaluation step would include technologies that do not match the selection criteria, it would otherwise require extensive effort. We support the identification of suitable technology candidates with the technology assessment catalog. Therefore, the catalog contains a list of social commerce technologies that we compiled during our literature review. To complete the list, we furthermore conducted a comprehensive market analysis, in which we examined several social commerce software solutions from various software vendors. Currently, the catalog contains 25 social commerce technologies. The catalog also gives information about the ability of the technologies to fulfill the selection criteria that we proposed in step 1. To this end, we categorized the technologies according to the selection criteria as shown in Table 16.5.

To obtain the classification, we searched the existing knowledge base for empirical evidence. Kumar and Benbasat (2006), for example, demonstrate that consumer ratings and reviews can improve the social presence and perceived usefulness of a shopping platform. Hence, we classified rating and review systems accordingly. As we only found empirical evidence for 10 of the 25 technologies, we screened practitioner reports to obtain more information about the technologies' impacts. For the search, we used terms and phrases that are conceptually related to

the proposed selection criteria. For instance, we used the terms “fun”, “enjoyment”, and “entertainment” to identify technologies that have a potential impact on perceived enjoyment. In this way, we were able to additionally classify eight of the technologies. To verify and complete our classification, we furthermore consulted three domain experts. Together with the experts, we discussed the potential impacts for each technology. In cases where the experts agreed on an impact of a technology that we had not already identified in the literature, we added this information to our classification. We constrained our classification to contain only the basic values “match” or “no match” since any more detailed assessment would have been too subjective. However, the resulting classification is sufficient to support the identification of technology candidates in step 2. For this purpose, the catalog needs to be browsed for technologies that match the defined selection criteria.

Table 16.5 Technology overview (excerpt from technology assessment catalog)

Selection criteria / *Technologies*	Perceived ease of use	Perceived enjoyment	Perceived usefulness	Social influence	Social presence	Social support	Trust	*References (examples)*
Co-browsing/-shopping systems	-	-	-	-	X	-	-	Seedorf et al. (2014)
Community systems	-	-	-	X	X	X	X	Brengman and Karimov (2012); Hajli (2012b); Liang et al. (2011)
Group buying systems	-	X*	X*	-	-	-	-	Expert opinion
Like, share, and follow buttons	-	X*	-	X*	-	-	X	Chen et al. (2013); expert opinion
Rating and review systems	-	-	X	X	X	-	X	Hajli (2012b); Kumar and Benbasat (2006)
Social login tools	X	-	-	-	-	-	-	Gafni and Nissim (2014)
(Social) recommendation systems	-	-	X	X	X	-	-	Kim and Srivastava (2007); Kumar and Benbasat (2006)

Legend: X (match), - (no match), * (expert opinion).

Using the catalog excerpt from Table 16.5, our fictive company reduces the number of technologies to a set of 11 technology candidates, which match the criteria social influence or social presence.

16.4.3 Step 3: Evaluate and Select Technologies

In step 3, the social commerce technologies that best fulfill the selection criteria need to be identified and selected from the set of potential technology candidates. To achieve this task, a company has to establish a ranking of the identified technology candidates. As it still can choose between multiple candidates, a structured decision-making approach is needed to create such a ranking. Referring to the related domain of selecting enterprise software, decision-making techniques, such as WSM, AHP, and approaches based on fuzzy set theory, could basically be used to solve this kind of task (see section 16.2). However, each of these techniques comes with its own strengths and limitations (Jadhav and Sonar 2009). While WSM, for example, is easy to use and well-known in practice, it requires a common numerical scaling of the data and hence does not support the comparison of different types of technologies and selection criteria (Jadhav and Sonar 2009; Kontio 1996). AHP, in turn, is very powerful and can solve both qualitative and quantitative multi-criteria decision problems. However, due to the complex mathematical

calculations and required number of pairwise comparisons, AHP is time-consuming and dependent on the support of a software tool (Forman and Gass 2001; Jadhav and Sonar 2009). Approaches based on fuzzy set theory in turn are designed to better support the vagueness and ambiguity in human decision making, yet they are difficult to compute and often unknown by practitioners (Jadhav and Sonar 2009). During our action research project (see section 16.5), we observed that the ranking of the technologies can also be efficiently accomplished in an interactive discussion with experts. This procedure is less formal in nature but allows the decision makers to better exchange and reflect their arguments. Although our method is not restricted to a specific evaluation technique, a company should ensure that the preferred approach supports the selection of different technologies by multiple criteria.

All of the above-mentioned evaluation techniques require the decision maker(s) to comparatively rank the technologies according to the fulfillment of the defined selection criteria. For this task, detailed information about the technologies is required as input. To provide such information in an efficient manner, the assessment catalog contains faceted descriptions for all identified social commerce technologies. Referring to the findings of our literature review and the gathered expert statements, we describe the functionality, the potential impacts on the customers' buying behavior, and the corresponding layer of the social commerce reference model (used in step 4) for each technology in detail. Table 16.6 depicts the detailed description of rating and review systems.

Table 16.6 Technology details (excerpt from technology assessment catalog)

Technology	*Rating and review systems*
Description of function	Rating and review systems enable customers to share their opinions about products and services they have purchased from a company. Other customers can then see this additional information on the company's website. […]
Potential impacts	According to Kumar and Benbasat (2006), rating and review systems can increase the perceived usefulness and social presence of a company's website. As ratings and reviews are a type of social word-of-mouth, they can also increase the consumers' trust in the company (Hajli et al. 2013). Moreover, ratings and reviews affect the customers buying decision process regarding the product evaluations. In this way, they can also increase informational social influence (Kwahk and Ge 2012).
Layer of reference model	Since they encourage customers to share and exchange information, rating and review systems target the conversation layer (Huang and Benyoucef 2013a).
Examples	Amazon.com, BestBuy.com, eBay.com, Tripadvisor.com

Based on the detailed descriptions, a ranking of the technologies can be established either by considering all selection criteria simultaneously or by creating separate rankings for each of the criteria and then consolidating them. After the ranking has been established, a company needs to select the final set of technologies. The basis for this decision inherently depends on the situational context of the company. Hence, no universally valid decision principles can be formulated. However, we can draw on the results of our action research project to identify decision principles that potentially can matter in practice. On the one hand, we found that technologies were excluded because their implementation costs would have exceeded the budget granted for the initiative (see section 16.5). To identify these costs, the company either has to search the market for suitable social commerce products that realize the desired technology or estimate the effort for the implementation of the technology as bespoke software. On the other hand, we found that some technologies were deliberately selected because the company already had suitable products in use and could leverage resulting synergies.

Using an interactive discussion round and the detailed descriptions as basis, our fictive company ranks each technology candidate according to the determined selection criteria. Taking into account its limited budget, the company decides to select the two highest-ranked technologies for each selection criterion.

16.4.4 Step 4: Verify Effectiveness of Technology Set

In step 4, it ought to be verified that the chosen technologies can be composed with each other. During our literature review, we identified a reference model suggesting that social commerce platforms are more effective if they cover four layers of social commerce-specific features (see section 16.2). We adopted the model as a benchmark to verify the chosen technology set against and to derive recommendations for complementary technologies. To facilitate the verification, the assessment catalog contains information about the layers of the reference model to which a technology contributes (see Table 16.6).

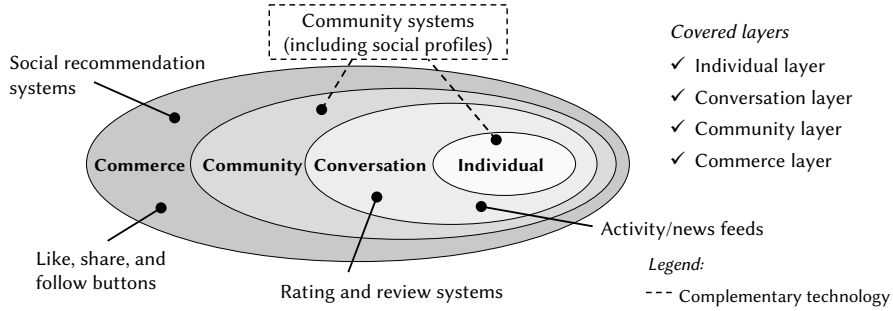


Figure 16.3 Example of an effective technology set (based on Huang and Benyoucef 2013a)

Figure 16.3 depicts the technologies that our fictive company selects to realize its social commerce initiative. In step 3, the company selected four social commerce technologies, which contribute to the conversation and the commerce layers. To increase the effectiveness of its platform, the company decides to augment the technology set with an additional technology that targets the community and the individual layers. As depicted in Figure 16.3, the company extends the technology set with a community system that contributes to both layers. Note that a technology set does not necessarily need to cover all four layers, especially when a company already has implemented other social commerce technologies.

After verifying the technology set, a company can begin with the implementation and decide, for instance, if the chosen technologies should be realized by third-party products or by custom development.

16.5 Practical Application

In the early stages of design science research, examining a single (but realistic) business case is a recommended evaluation technique to observe an artifact in use and to obtain a proof of concept (Gregor and Hevner 2013). For this purpose, we decided to perform an action research stage, in which we applied our method in a complex social commerce project of a world-wide leading German enterprise software company. The company operates an electronic marketplace as online sales platform for its software products and those of its partners. As the company wants to grow the ecosystem around its software products, it intends to offer an aesthetical

shopping experience and continuously seeks to attract new customers to the platform. Following these goals, the company recently decided to start a social commerce initiative and was faced with the task of selecting adequate technologies for it. The company agreed to use our method to support the selection process and involved one of the method's designers as a guide into the project. Besides this person, the project team consisted of five platform specialists, three platform marketers, and three developers. All had several years of expertise in their fields.

To select social commerce technologies, the project team closely followed the proposed procedure model and completed all four steps in sequence. In the first step, the team defined the selection criteria. As proposed by our method, the team agreed to focus on the factors of social commerce technologies that influence the customers' buying behavior. This decision was in accordance with the company's primary business objective to increase the selling of products on its platform. The project members extensively discussed which of the proposed selection criteria best fit the company's business strategy. Central elements of the strategy were to provide a best-possible shopping experience and to increase the reputation of its marketplace. Hence, the team decided to focus on technologies that support one or more of the three factors "perceived ease of use", "perceived usefulness", and "trust". The first two were selected to target the shopping experience, the latter was selected to increase the reputation of the platform. Factors such as perceived enjoyment or social influence/presence were deliberately excluded as they did not clearly fit the company's business model (i.e., the selling of enterprise software packages).

In the second step, the technologies satisfying the defined selection criteria had to be identified. The project team browsed the technology assessment catalog for technologies that match the selection criteria. In so doing, the project team was able to reduce the set of applicable social commerce technologies to 11 potential candidates. To conduct the detailed assessment in the third step, the project team agreed upon an interactive discussion in which the technologies were ranked based on an expert consensus. This procedure was deemed preferable as the team members had little or no experience with structured decision-making techniques such as AHP. An interactive assessment also helped the team members to reflect and clarify their own preferences. In the discussion rounds, the set of potential technology candidates was further reduced. Using the detailed information of the technology assessment catalog, the team established separate rankings for each of the selection criteria. The technologies were then prioritized according to their potential fulfillment of the selection criteria and the estimated implementation effort. Taking into account a maximum amount of person-days that was granted for the implementation of the social commerce initiative, the team used the prioritization to reduce the candidates to a set of five technologies (see Figure 16.4). The set covered the specified selection criteria completely. Its implementation was estimated to require about 100 person-days of development time.

In the last step, the remaining five technologies were verified for comprehensiveness according to the layers of the proposed reference model. It turned out that the chosen set of technologies covered all four layers of the reference model and consequently formed a theoretically effective social commerce platform. The result reinforced the decision to choose the selected technologies. Accordingly, the team members decided to adopt the selected technologies. As our interviews during a retrospective meeting showed, the team members were satisfied both with the achieved results and the applicability of the proposed method. The method was found to effectively support the selection process and to be easily useable. Especially the information contained in the technology assessment catalog was judged to be an important measure to facilitate

the decision process. The different steps of the procedure model were moreover found to support a systematic reflection of the decision, starting with the selection criteria to the characteristics of individual technologies and their interaction in the resulting social commerce platform. Altogether, the conducted evaluation attests the practical applicability of our method and indicates that it can indeed contribute to a more efficient selection of social commerce technologies.

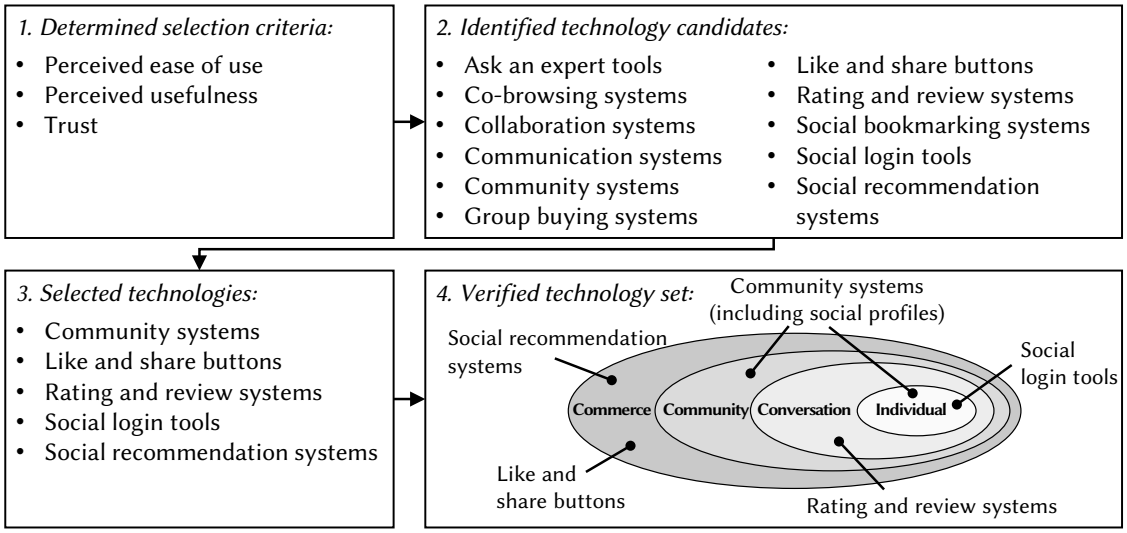


Figure 16.4 Results of each step of the procedure model

16.6 Discussion and Conclusion

Motivated by the need to better support social commerce initiatives, we presented a new method for the selection of social commerce technologies. The method is based upon a systematic, tailor-made decision-making procedure and provides two contributions: (i) a procedure model to operationalize the process of selecting a set of complementary social commerce technologies; (ii) a catalog of available social commerce technologies and their potential impacts on the customers' buying behavior. Both elements of the method have been evaluated in a complex organizational setting. The conducted evaluation indicates that the method is applicable in practice and effective in supporting the selection of multiple complementary social commerce technologies.

The results of our research endeavor have implications for academia as well as practice. For academia, we show how to operationalize and formulate the problem of selecting adequate social commerce technologies as a systematic decision-making procedure. With the developed technology assessment catalog, we moreover provide a unique overview of existing social commerce technologies and their potential impacts on the customers' buying behavior. By providing an initial instrument to support a goal-driven design of social commerce initiatives and by establishing a consolidated information base about available social commerce technologies and their impacts, we contribute to advancing the state of research in the still premature social commerce domain. In addition, we also provide a novel contribution to the field of software selection. The procedure proposed in the work at hand is distinctly different from existing software selection approaches that have, amongst others, been developed in the enterprise software domain. Other than existing approaches, it supports the selection of multiple complementary technologies and, to that end, is designed to handle a large set of functionally diverse technology

candidates as input. Although we created the method having the social commerce domain in mind, the basic concept might be transferable to other realms such as the enterprise architecture domain, where it could support a goal-driven design of application landscapes that inherently consist of multiple technologies.

For practice, we deliver a readily applicable method to select social commerce technologies. It has been designed to support the persons responsible for the planning and design of social commerce initiatives in companies. Due to constituents such as the technology assessment catalog, the method was perceived as efficient and easily useable by this target group during the conducted evaluation. Compared to the current state of the art, we thus expect it to deliver process improvements and to facilitate the implementation of social commerce initiatives. Although we evaluated the method in a complex project with multiple goals and selection criteria, we deem it to be equally useful for smaller social commerce initiatives. Such initiatives are often led by non-experts, who have limited social commerce expertise and hence might particularly benefit from the knowledge encapsulated in the technology assessment catalog.

However, we will have to conduct further evaluations of our method to verify such claims. As we only concentrated on examining the feasibility of the method so far, we have not yet gathered reliable empirical data on its effectiveness and efficiency. We plan to gather such data in future iterations of our research project. Furthermore, we found several points for improvement during our action research project that we intend to address. On the one hand, we plan to extend the technology assessment catalog with a detailed survey instrument to systematically support the determination of relevant selection criteria. On the other hand, we intend to search for additional selection criteria that might be of relevance and include them into the technology assessment catalog. Furthermore, we plan to extend the technology assessment catalog with additional technologies and to conduct empirical evaluations on their fulfillment of the identified selection criteria. Building upon this basis, we also intend to develop a systematic taxonomy of social commerce technologies. To give more precise recommendations on the different decision-making techniques, we finally need to experiment with structured (yet efficiently applicable) decision-making approaches such as AHP in future design iterations. Notwithstanding these limitations, the presented method already provides a theoretically substantiated, systematic procedure to select social commerce technologies. It might hence present a starting point to evolve social commerce initiatives from primarily technology-driven endeavors into goal-driven, strategically managed processes.

16.7 References

Baskerville, R. (1999). Investigating Information Systems with Action Research. *Communications of the Association for Information Systems*, 2, pp. 1-32.

Brengman, M., & Karimov, F. P. (2012). The Effect of Web Communities on Consumers' Initial Trust in B2C E-Commerce Websites. *Management Research Review*, 35(9), pp. 791-817.

Chen, Y. Y., Lai, F. W., Goh, K. N., & Daud, S. C. (2013). The Effect of Integrating Social Plugins into E-Commerce Website: A Study on Online Consumer Behaviour. *Proceedings of the 7th International Conference on Ubiquitous Information Management and Communication (ICUIMC)*, pp. 1-6.

Chow, W. S., & Shi, S. (2014). Understanding Consumer Trust in Social Commerce Websites. *Proceedings of the 18th Pacific Asia Conference on Information Systems (PACIS)*, pp. 1-20.

Colombo, E., & Francalanci, C. (2004). Selecting CRM Packages Based on Architectural, Functional, and Cost Requirements: Empirical Validation of a Hierarchical Ranking Model. *Requirements Engineering*, 9(3), pp. 186-203.

Constantinides, E., Romero, C. L., & Boria, M. A. G. (2009). Social Media: A New Frontier for Retailers? In: *European Retail Research,* B. Swoboda, D. Morschett, T. Rudolph, P. Schnedlitz, & H. Schramm-Klein (Eds.). Wiesbaden, Germany: Springer Gabler, pp. 1-28.

Curty, R., & Zhang, P. (2011). Social Commerce: Looking Back and Forward. *Proceedings of the American Society for Information Science and Technology*, pp. 1-10.

Curty, R., & Zhang, P. (2013). Website Features that Gave Rise to Social Commerce: A Historical Analysis. *Electronic Commerce Research and Applications*, 12(4), pp. 260-279.

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3), pp. 319-340.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Extrinsic and Intrinsic Motivation to Use Computers in the Workplace. *Journal of Applied Social Psychology*, 22(14), pp. 1111-1132.

Demaray, M. K., & Malecki, C. K. (2002). Critical Levels of Perceived Social Support Associated with Student Adjustment. *School Psychology Quarterly*, 17(3), pp. 213-241.

Dennison, G., Bourdage-Braun, S., & Chetuparambil, M. (2009) Social Commerce Defined. IBM, pp. 1-12.

Deutsch, M., & Gerard, H. B. (1955). A Study of Normative and Informational Social Influences Upon Individual Judgment. *The Journal of Abnormal and Social Psychology*, 51(3), pp. 629-636.

Dhar, V., & Chang, E. A. (2009). Does Chatter Matter? The Impact of User-Generated Content on Music Sales. *Journal of Interactive Marketing*, 23(4), pp. 300-307.

Forman, E. H., & Gass, S. I. (2001). The Analytic Hierarchy Process – An Exposition. *Operations Research*, 49(4), pp. 469-486.

Fulk, J., Steinfield, C. W., Schmitz, J., & Power, J. G. (1987). A Social Information Processing Model of Media Use in Organizations. *Communication Research*, 14(5), pp. 529-552.

Gafni, R., & Nissim, D. (2014). To Social Login or not Login? Exploring Factors Affecting the Decision. *Issues in Informing Science and Information Technology*, 11, pp. 57-72.

Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in Online Shopping: An Integrated Model. *MIS Quarterly*, 27(1), pp. 51-90.

Grange, C., & Benbasat, I. (2010). Online Social Shopping: The Functions and Symbols of Design Artifacts. *Proceedings of the 43rd Hawaii International Conference on System Sciences (HICSS)*, pp. 1-10.

Gregor, S., & Hevner, A. R. (2013). Positioning and Presenting Design Science Research for Maximum Impact. *MIS Quarterly*, 37(2), pp. 337-355.

Hajli, M. (2012a). An Integrated Model for E-Commerce Adoption at the Customer Level with the Impact of Social Commerce. *International Journal of Information Science and Management*(Special Issue), pp. 77-97.

Hajli, M. (2012b). Social Commerce Adoption Model. *Proceedings of the UK Academy for Information Systems Conference*, pp. 1-26.

Hajli, M. (2013). A Research Framework for Social Commerce Adoption. *Information Management & Computer Security*, 21(3), pp. 144-154.

Hajli, M., Hajli, M., & Khani, F. (2013). Establishing Trust in Social Commerce Through Social Word of Mouth. *International Journal of Information Science and Management*(Special Issue), pp. 39-53.

Hajli, N., Lin, X., Featherman, M. S., & Wang, Y. (2014). Social Word of Mouth: How Trust Develops in the Market. *International Journal of Market Research*, 56(5), pp. 673-689.

Hevner, A. R., March, S. T., Park, J., & Ram, S. (2004). Design Science in Information Systems Research. *MIS Quarterly*, 28(1), pp. 75-105.

Huang, Z., & Benyoucef, M. (2013a). From E-Commerce to Social Commerce: A Close Look at Design Features. *Electronic Commerce Research and Applications*, 12(4), pp. 246-259.

Huang, Z., & Benyoucef, M. (2013b). User-Centered Investigation of Social Commerce Design. *Proceedings of the 5th International Conference on Online Communities and Social Computing*, A. A. Ozok, & P. Zaphiris (Eds.), pp. 287-295.

Huang, Z., Yoon, S. Y., & Benyoucef, M. (2012). Adding Social Features to E-Commerce. *Proceedings of the Conference on Information Systems Applied Research*, pp. 1-11.

Ickler, H., Schülke, S., Wilfling, S., & Baumöl, U. (2009). New Challenges in E-Commerce: How Social Commerce Influences the Customer Process. *Proceedings of the 5th National Conference on Computing and Information Technology (NCCIT)*, pp. 51-57.

Iivari, J. (2007). A Paradigmatic Analysis of Information Systems as a Design Science. *Scandinavian Journal of Information Systems*, 19(2), pp. 39-64.

Iivari, J., & Venable, J. (2009). Action Research and Design Science Research – Seemingly Similar but Decisively Dissimilar. *Proceedings of the 17th European Conference on Information Systems (ECIS)*, pp. 1-13.

Jadhav, A. S., & Sonar, R. M. (2009). Evaluating and Selecting Software Packages: A Review. *Information and Software Technology*, 51(3), pp. 555-563.

Kailer, D., Mandl, P., & Schill, A. (2013). An Empirical Study on the Usage of Social Media in German B2C-Online Stores. *International Journal of Advanced Information Technology*, 3(5), pp. 1-14.

Khera, N. (2012) Merchants of 'Social': Exploring the Use of Social Technologies to Drive Commerce. MaRS Market Insights, pp. 1-23.

Kietzmann, J. H., Hermkens, K., McCarthy, I. P., & Silvestre, B. S. (2011). Social Media? Get Serious! Understanding the Functional Building Blocks of Social Media. *Business Horizons*, 54(3), pp. 241-251.

Kim, S., & Noh, M.-J. (2012). Determinants Influencing Consumers' Trust and Trust Performance of Social Commerce and Moderating Effect of Experience. *Information Technology Journal*, 11(10), pp. 1369-1380.

Kim, Y. A., & Srivastava, J. (2007). Impact of Social Influence in E-Commerce Decision Making. *Proceedings of the 9th International Conference on Electronic Commerce (ICEC)*, D. Sarppo (Ed.), pp. 293-301.

Kontio, J. (1996). A Case Study in Applying a Systematic Method for Cots Selection. *Proceedings of the 18th International Conference on Software Engineering (ICSE)*, pp. 201-209.

Kumar, N., & Benbasat, I. (2006). Research Note: The Influence of Recommendations and Consumer Reviews on Evaluations of Websites. *Information Systems Research*, 17(4), pp. 425-439.

Kwahk, K.-Y., & Ge, X. (2012). The Effects of Social Media on E-Commerce: A Perspective of Social Impact Theory. *Proceedings of the 45th Hawaii International Conference on System Sciences (HICSS)*, R. H. Sprague (Ed.), pp. 1814-1823.

Leitner, P., & Grechenig, T. (2008). Customer Generated Content: Embedding Interactive Collaboration Tools into E-Shops. *Proceedings of the International Conference E-Commerce (IADIS)*, pp. 271-274.

Leitner, P., & Grechenig, T. (2009). Scalable Social Software Services: Towards a Shopping Community Model Based on Analyses of Established Web Service Components and Functions. *Proceedings of the 42nd Hawaii International Conference on System Sciences (HICSS)*, R. H. Sprague (Ed.), pp. 1-10.

Li, H., Yao, Z., & Bai, Y. (2014). Social Commerce User Purchase Intention Study: What Factors Are Taking Effect? *Proceedings of the 18th Pacific Asia Conference on Information Systems (PACIS)*, pp. 1-13.

Liang, T.-P., Ho, Y.-T., Li, Y.-W., & Turban, E. (2011). What Drives Social Commerce: The Role of Social Support and Relationship Quality. *International Journal of Electronic Commerce*, 16(2), pp. 69-90.

Liang, T.-P., & Turban, E. (2011). Introduction to the Special Issue Social Commerce: A Research Framework for Social Commerce. *International Journal of Electronic Commerce*, 16(2), pp. 5-14.

Lin, H.-Y., Hsu, P.-Y., & Sheen, G.-J. (2007). A Fuzzy-Based Decision-Making Procedure for Data Warehouse System Selection. *Expert Systems with Applications*, 32(3), pp. 939-953.

Lin, X., Featherman, M., & Sarker, S. (2013). Information Sharing in the Context of Social Media: An Application of the Theory of Reasoned Action and Social Capital Theory. *Proceedings of the 2013 AIS SIGHCI Workshop on HCI Research in MIS*, pp. 1-5.

Lu, B., & Fan, W. (2014). Social Presence, Trust, and Social Commerce Purchase Intention: An Empirical Research. *Proceedings of the 18th Pacific Asia Conference on Information Systems (PACIS)*, pp. 1-17.

Marsden, P. (2010) Social Commerce: Monetizing Social Media. SYZYGY Group, pp. 1-27.

Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An Integrative Model of Organizational Trust. *The Academy of Management Review*, 20(3), pp. 709-734.

Mikalef, P., Giannakos, M., & Pateli, A. (2013). Shopping and Word-of-Mouth Intentions on Social Media. *Journal of Theoretical and Applied Electronic Commerce Research*, 8(1), pp. 17-34.

Mulpuru, S., Evans, P. F., & McGowan, B. (2010) Techradar™ for E-Business and Channel Strategy Professionals: Social Commerce, Q1 2010. Forrester Research, pp. 1-31.

Olbrich, R., & Holsing, C. (2011). Modeling Consumer Purchasing Behavior in Social Shopping Communities with Clickstream Data. *International Journal of Electronic Commerce*, 16(2), pp. 15-40.

Onut, S., & Efendigil, T. (2010). A Theorical Model Design for ERP Software Selection Process under the Constraints of Cost and Quality: A Fuzzy Approach. *Journal of Intelligent & Fuzzy Systems*, 21(6), pp. 365-378.

Rad, A. A., & Benyoucef, M. (2010). A Model for Understanding Social Commerce. *Proceedings of the 3rd Annual Conference on Information Systems Applied Research*, pp. 1-11.

Saundage, D., & Lee, C. Y. (2011). Social Commerce Activities – A Taxonomy. *Proceedings of the Australiasian Conference on Information Systems (ACIS),* P. Seltsikas, D. Bunker, L. Dawson, & M. Indulska (Eds.), pp. 1-9.

Seedorf, S., Thum, C., Schulze, T., & Pfrogner, L. (2014). Social Co-Browsing in Online Shopping: the Impact of Real-Time Collaboration on User engagement. *Proceedings of the 22nd European Conference on Information Systems (ECIS)*, pp. 1-15.

Sein, M. K., Henfridsson, O., Purao, S., Rossi, M., & Lindgren, R. (2011). Action Design Research. *MIS Quarterly*, 35(1), pp. 37-56.

Sen, C. G., Baracli, H., & Sen, S. (2009). A Literature Review and Classification of Enterprise Software Selection Approaches. *International Journal of Information Technology & Decision Making*, 8(2), pp. 217-238.

Shadkam, M., & O'Hara, J. (2013). Social Commerce Dimensions: The Potential Leverage for Marketers. *Journal of Internet Banking and Commerce*, 18(1), pp. 1-14.

Sharma, S., & Crossler, R. E. (2014). Intention to Engage in Social Commerce: Uses and Gratifications Approach. *Proceedings of the 20th Americas Conference on Information Systems (AMCIS)*, pp. 1-12.

Shen, J. (2012). Social Comparison, Social Presence, and Enjoyment in the Acceptance of Social Shopping Websites. *Journal of Electronic Commerce Research*, 13(3), pp. 198-212.

Shin, D.-H. (2013). User Experience in Social Commerce: In Friends We Trust. *Behaviour & Information Technology*, 32(1), pp. 52-67.

Takeda, H., Veerkamp, P., Tomiyama, T., & Yoshikawa, H. (1990). Modeling Design Processes. *AI Magazine*, 11(4), pp. 37-48.

Teh, P.-L., & Ahmed, P. K. (2012). Understanding Social Commerce Adoption: An Extension of the Technology Acceptance Model. *Proceedings of the International Conference on Management of Innovation and Technology (ICMIT)*, pp. 359-364.

Turban, E., Bolloju, N., & Liang, T.-P. (2010). Social Commerce: An E-Commerce Perspective. *Proceedings of the 12th International Conference on Electronic Commerce (ICEC),* T. Bui (Ed.), pp. 33-42.

Vaishnavi, V., & Kuechler, B. (2004). Design Research in Information Systems. http://desrist.org/desrist/content/design-science-research-in-information-systems.pdf. Accessed 10 October 2019.

Wang, C., & Zhang, P. (2012). The Evolution of Social Commerce: The People, Management, Technology, and Information Dimensions. *Communications of the Association for Information Systems*, 31(5), pp. 105-127.

Wang, Y., & Hajli, M. (2014). Co-Creation in Branding Through Social Commerce: The Role of Social Support, Relationship Quality and Privacy Concerns. *Proceedings of the 20th Americas Conference on Information Systems (AMCIS)*, pp. 1-16.

Wigand, R. T., Benjamin, R. I., & Birkland, J. L. H. (2008). Web 2.0 and Beyond: Implications for Electronic Commerce. *Proceedings of the 10th International Conference on Electronic Commerce (ICEC)*, pp. 1-5.

Yadav, M. S., de Valck, K., Hennig-Thurau, T., Hoffman, D. L., & Spann, M. (2013). Social Commerce: A Contingency Framework for Assessing Marketing Potential. *Journal of Interactive Marketing*, 27(4), pp. 311-323.

Zhou, L., Zhang, P., & Zimmermann, H.-D. (2013). Social Commerce Research: An Integrated View. *Electronic Commerce Research and Applications*, 12(2), pp. 61-68.