Digital channels and B2B customer experience among industrial companies

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Doctoral Thesis Summary

Tomas Bata University in Zlín

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Faculty of Management and Economics

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Zákaznická zkušenost s digitálními kanály u průmyslových firem

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ABSTRACT

In the digital era, companies can get lost in the variety of available tools and tactics now at their disposal. Industry 4.0. and digital transformation change B2B industrial buyer-seller relationships, making them customer-centric. To deliver a good customer experience, companies must understand the values of their buyers and develop an effective communication strategy with a clear and consistent value proposition. The study uses primary data collected from 143 B2B industrial companies in Germany to identify which customer values create a positive B2B buyer's experience. This exploratory descriptive study builds a theoretical model upon the existing technology adoption theories, literature review, and expert interviews. The study offers some important insights into the theory of technology adoption applied to B2B customer experience. The online survey analysis conducted with PLS-SEM highlights the importance of information quality, perceived ease of use, perceived usefulness, and service quality for B2B communication. The study contributes to both theory and practice and partially confirms previous observations from the technology adoption models. In line with previous research, the results reveal the importance of perceived ease of use, perceived enjoyment and service quality for perceived usefulness, service quality and information quality for satisfaction and information quality for perceived ease of use. However, contrary to expectations, the study did not confirm a positive relationship between satisfaction and customer loyalty, which were used to operationalise customer experience. At the same time, the study provides the first comprehensive assessment of customer engagement from two points of view – end-user-to-buyer and buyer-to-customer. Herewith, it assesses the complexity of a communication process in B2B buyer-seller relationships.

Furthermore, the study reveals the importance of entertaining and easy-structured information, which indirectly influences the perception of information quality. The growth of multi-channel and omnipresent marketing makes it challenging to provide qualitative and consistent information throughout the whole range of communication channels. The analysis of communication channels at different customer journey stages demonstrates that industrial buyers use WOM and recommendations in the pre-purchase stage and prefer highly customised and direct communication when business relationships are established. The study contributes to the literature by expanding the current understanding of ease of use and customer engagement and revealing new insight about tools and values customers prize the most in buyer-seller communication.

ABSTRAKT

V digitálním věku se mohou společnosti snadno ztratit v široké nabídce nástrojů a taktik, které jsou jim nyní k dispozici. Průmysl 4.0. a digitální transformace mění dodavatelsko-odběratelské vztahy B2B v průmyslu a zaměřuje je na zákazníka. K dosažení dobrých zákaznických zkušeností musí společnosti porozumět hodnotám svých zákazníků a vyvíjet efektivní komunikační strategii s jasnou a konzistentní nabízenou hodnotou. Tato studie používá primární data shromážděná od 143 průmyslových B2B společností v Německu k identifikaci zákaznických hodnot vytvářejících pozitivní B2B zkušenost zákazníka. Tato výzkumná popisná studie vytváří teoretický model na základě stávajících teorií přijímání technologií, rešerší z dostupné literatury a rozhovorů s odborníky. Nabízí některé důležité vhledy do teorie přijímání technologií aplikované na zákaznickou zkušenost B2B. Analýza online průzkumu provedená s PLS-SEM zdůrazňuje důležitost kvality informací, vnímané snadnosti použití, vnímané užitečnosti a kvality služeb pro komunikaci B2B. Tato práce přispívá k teoretickým i praktickým poznatkům a částečně potvrzuje předchozí pozorování založená na modelech přijímání technologií. V souladu s předchozím výzkumem výsledky ukazují důležitost vnímané snadnosti použití, vnímané zábavnosti a kvality služeb pro vnímanou užitečnost, kvality služeb pro spokojenost a kvality informací pro vnímanou snadnost použití. Navzdory očekáváním však tato studie nepotvrdila pozitivní vztah mezi spokojeností a loajalitou zákazníků, které byly použity k operacionalizaci zákaznické zkušenosti. Současně tato práce poskytuje první ucelené hodnocení angažovanosti zákazníků ze dvou hledisek – od koncového uživatele ke kupujícímu a od kupujícího k zákazníkovi. Pokouší se vyhodnotit složitost komunikačního procesu v odběratelsko-dodavatelských vztazích B2B. Studie dále ukazuje důležitost zábavnosti a přehledné struktury informací, která nepřímo ovlivňuje vnímání kvality informací. Rozvoj vícekanálového a všudypřítomného marketingu ztěžuje poskytování kvalitních a konzistentních informací napříč všemi komunikačními kanály. Analýza komunikačních kanálů v různých fázích cesty zákazníka ukazuje, že průmysloví odběratelé používají WOM a doporučení ve fázi před nákupem a po navázání obchodních vztahů preferují osobní přístup a přímou komunikaci. Tato práce přispívá ke zmíněnému tématu rozšířením aktuálního chápání snadnosti použití a angažovanosti zákazníků a přináší nové poznatky týkající se nástrojů a hodnot, kterých si zákazníci nejvíce cení v komunikaci mezi odběratelem a dodavatelem.

TABLE OF CONTENTS

LIST OF FIGUERES

LIST OF ABBREVIATIONS

AVE	Average Variance Extracted
B2B	Business-to-Business
B2C	Business-to-Customer
CE	Customer Engagement
CE-EU	End-User Engagement
CEO	Chief Executive Officer
CL	Customer Loyalty
CRM	Customer Relationship Management
H	Hypothesis
HTMT	Heterotrait-Monotrait Ratio
IDT	Innovation Diffusion Theory
IQ	Information Quality
IS	Information System
IT	Information Technology
PE	Perceived Enjoyment
PEOU	Perceived Ease of Use
PLS	Partial Least Squares
PU	Perceived Usefulness
S	Satisfaction
SEM	Structural Equation Modelling
SMEs	Small and medium-sized enterprises
SQ	Service Quality
TAM	Technology Acceptance Model
TOE	Technology-Organisation-Environment
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
UTAUT	Unified Theory of Acceptance and Use of Technology
VIF	Variance Inflation Factor
WOM	Word-of-Mouth

INTRODUCTION

Digital marketing changes the approach to business strategy and customer relationship management. B2B industrial customers, alongside end-users, have become more knowledgeable and demanding regarding response times, customising levels, and the quality of communication. As a result, customer experience has become the focus of buyer-seller relationships. Recently, considerable literature has evolved around digital transformation and digital marketing. Hoverer, existing research initially focused on particular marketing channels, e.g., e-commerce or social media (Cao et al., 2020; Chen et al., 2013; Mai et al., 2013) or has given attention only to B2C settings. Digital transformation in the B2B context is not a new term, but B2B industrial companies were always cautious in adopting cost-demanding and mindset-changing strategies (McKinsey & Company, 2016; Morgan, 2019). With the outbreak of the COVID-19 pandemic, businesses are left with no choice but to facilitate digital transformation and rapidly adopt new trends. According to the latest research provided by McKinsey & Company in November 2021, nine out of ten customers nowadays use omnichannel marketing with more than ten communication channels (Harrison et al., 2021). Based on the survey results, customer experience is important more than ever – eight out of ten B2B decision-makers reported a desire to consider a new business partner if the quality of the existing business relationship is not satisfying. The survey respondents outline the growth of self-service, which implicates an increase in the importance of information quality and other customer values essential for making a purchase decision. To prevent failure and deliver a good customer experience, marketing managers should, amongst other things, better understand the values of their buyers and develop an effective communication strategy with a clear and consistent value proposition. The study aims to determine what value digital communication channels deliver to create a positive customer experience.

The dissertation contains seven chapters. The introduction sets the preamble for the study and emphasises the motivation and the research problem. The first chapter (state of the art) presents the theories on technology adoption and the theoretical underpinnings of the variables related to the study. The research problem and gap are posed based on the literature review and expert interviews. The second chapter specifies the research goals, objectives, hypotheses, and conceptual framework to address the research problem. Chapter three presents a detailed methodology consisting of the research design, approach, measurement items, sampling, and data collection. The data analysis with PLS-SEM, including preliminary analysis and assessing the measurement and the structural models, is presented in chapter five. The main results and discussions are shown in the succeeding chapter. The contribution of the study to science, academia, and practice, as well as study limitations and the recommendation for future work, are presented in the last two chapters.

1. STATE OF THE ART

1.1 Communication among B2B industrial companies

The specifics of B2B industrial markets strongly influence the communication process among companies. Industrial companies integrate suppliers' and buyers' needs into all value-creation activities to improve communication (Deloitte AG [online], 2015). Given the complexity of business products and the nature of B2B relationships, industrial buyers use multiple communication channels and tools to gather relevant information for making a purchase decision. Modern customers are knowledgeable and empowered (Bashir et al., 2017). As a result of an abundance of use of social media platforms and multiple devices, customers have gained unlimited access to information, which facilitates transparency and information consistency. The changes in customer behaviour have shifted the primary goal of customer relationship management from traditional managing customers to managing dialogue with customers (Lipiäinen, 2015). Companies try to make doing business with customers easier, engaging them and inspiring them. This requires new communication strategies and a holistic approach to a digital appearance. Due to the absence of physical contact, it has become more difficult to gain customer trust and, consequently, to achieve customer satisfaction and loyalty. To boost the existing and build new business relationships, companies must better understand the needs of their customers at every stage of the customer journey. The key to industrial content is to provide qualitative, technical, and value-added information. Customer behaviour theories help to understand customer values. Consumer behaviour explores the decision-making processes and behavioural intentions of individuals, groups, or organisations. Over many years the research in consumer behaviour has been based on intention-based research, which helps to identify, describe, and predict the factors that cause technology adoption.

1.2 Information quality

Information quality plays an essential role in B2B buyer-seller relationships. On the one hand, qualitative information enables effective communication with a company, the media, or other media users. On the other hand, it plays a vital role in decision-making. Due to the specifics of B2B relationships, information is essential in the pre-purchase phase of the customer journey. The lack of physical contact makes B2B companies rely on the information available across different touchpoints (Chen et al., 2013). It is important to have timed, up-to-date, consistent, and coordinated information across different touchpoints (McKnight et al., 2017). For companies to base their decisions on the information they receive, it must be relevant, applicable, and helpful for the task at hand (Knight and Burn, 2005). Based on previous research, information quality is an important predictor of satisfaction (Bai et al., 2008; Petter & McLean, 2009).

1.3 Perceived usefulness

Perceived usefulness is the core construct of the TAM (Davis, 1989) and TAM2 (Venkatesh & Davis, 2000). A growing number of studies analyse the perception of usefulness in the B2B settings. The existing research among B2B companies shows the impact of perceived usefulness on attitude (Karjaluoto et al., 2014; Lacka & Chong, 2016), usage intention (Lacka & Chong, 2016; Siamagka et al., 2015; Venkatesh & Davis, 2000), satisfaction (Chen et al., 2013; Lee & Park, 2008) and loyalty (Chen et al., 2013). Researchers highlight the role of online information in the search prior to purchase, which helps to evaluate the search and helps in the decision-making process (S. Sohn, 2017).

1.4 Perceived ease of use

Perceived ease of use was proposed initially within the TAM. Easy navigation and convenience help users access product information quickly (Wong et al., 2014). Navigability and clear information quality create a positive customer experience, letting them achieve their goals and improving customer journeys (Mai et al., 2013). The original TAM emphasises the importance of perceived ease of use as a predictor of perceived usefulness. Some researchers have confirmed these findings (Sinisalo et al., 2015). However, other studies do not support this relationship (Lacka & Chong, 2016; Siamagka et al., 2015). Recent studies indicate that the increasing level of experience in using specific touchpoints, e.g. social media platforms or mobile devices, reduces the influence of the ease of use on behavioural intentions (Siamagka et al., 2015). With the development of digitalisation, more and more people use such technologies as social media and mobile devices, not only at work but also for their private purposes. Based on these findings, some researchers consider ease of use not in the context of using a technology *per ce* (e.g. ease of use of a tablet or a mobile phone), but in the contexts of hedonic characteristics of technology, a channel or a touchpoint, such as a touchpoint or a system quality (López-Miguens & Vázquez, 2017; Petter & McLean, 2009), usability (Lacka & Chong, 2016), navigability (Janita & Miranda, 2013; Toufaily et al., 2013), website infrastructure (Oliveira et al., 2017), website image (Pereira et al., 2016) or effort expectancy (Boonsiritomachai & Pitchayadejanant, 2019). Researchers agree that if a customer gets a consistent customer experience across different channels, this increases the value of the business relationship and makes communication with the company easier. The existing literature on B2B technology adoption determines a significant effect of perceived ease of use on attitude (C. L. Hsu & Lin, 2008), behaviour intention (Karjaluoto et al., 2014), customer satisfaction (Wong et al., 2014) and customer loyalty (Wong et al., 2014).

1.5 Perceived enjoyment

Perceived enjoyment refers to the perception that a product, service, or technology is enjoyable, pleasant, or interesting (Venkatesh, 2000). With the increase of digitalisation, more studies on perceived enjoyment have shifted their focus from B2C to B2B context. They highlight the importance of emotional contact, engagement, and interaction in B2B relationships. Researchers report the influence of perceived enjoyment on perceived ease of use (Driediger & Bhatiasevi, 2019; Venkatesh, 2000), perceived usefulness (Driediger & Bhatiasevi, 2019; Ha & Stoel, 2009) and the positive attitude toward a new technology (Ha & Stoel, 2009; C. L. Hsu & Lin, 2008). These studies report that perceived enjoyment is one of the main factors driving an acceptance of new technology (C. L. Hsu & Lin, 2008; Yang et al., 2014). The growing number of studies on B2B companies generate the idea that decisions made in B2B settings may not always be based on rational argumentation (Candi & Kahn, 2016; Jensen & Klastrup, 2008; Prior, 2013), which contradicts the previous understanding of B2B relationships as purely rational and value-based driven (Russo et al., 2016).

1.6 Service quality

With the development of digitalisation, the concept of service quality has shifted from the assessment of interactions between humans to the evaluation of interactions between humans and technology (M. Kim et al., 2006). Different studies confirm the impact of service quality on behavioural intentions (Molinari et al., 2008; Zeithaml et al., 1996), perceived usefulness (Chen et al., 2013), perception of value (S. Roy et al., 2019), satisfaction (Chen et al., 2013; S. Roy et al., 2019) and customer loyalty (Chen et al., 2013; Parasuraman et al., 2004) in the B2B context. The previous research considers a strong link between service quality perception and satisfaction, which in its turn leads to customer loyalty and then a positive WOM (S. Roy et al., 2019).

1.7 Satisfaction

Satisfaction is seen as a phenomenon linked to cognitive judgements and affective responses (López-Miguens & Vázquez, 2017; Oliver, 1997). The cognitive component represents the evaluation of an experience. The affective component is exhibited by particular feelings that are formed as a result of the evaluation (Gil-Saura et al., 2009). Satisfaction has an accumulative manner and results from the appraisal of all aspects of the business relationship with a seller (López-Miguens & Vázquez, 2017; Russo et al., 2016). A large body of existing research has been dedicated to understanding satisfaction and its role in B2B relationships (Yang, 2015). Satisfaction in B2B settings is considered one of the key antecedents of customer loyalty (Oliveira et al., 2017).

1.8 Customer loyalty

Customer loyalty can be seen from two dimensions: attitudinal and behavioural (Pan et al., 2012). Attitudinal loyalty focuses on physiological components of loyalty, such as likeliness, satisfaction or intent (Toufaily et al., 2013; Valvi & Fragkos, 2012). Behavioural loyalty is defined by repeat purchase behaviour and measures the number or frequency of purchases (Toufaily et al., 2013; Valvi & Fragkos, 2012). The composite approach to loyalty combines both previous approaches. Oliver (1997, 1999) proposes four stages of customer loyalty - cognitive, affective, conative and action. Attitudinal loyalty is presented by the cognitive and the affective stages, and behavioural loyalty – by the conative stage and the action itself. The cognitive stage reflects an attitude to a product, service or technology based on previous or existing knowledge or experience. Cognitive loyalty could be determined by the information related to perceived value involving price, functional or psychological aspects and quality. Affective loyalty reflects a favourable attitude to a product, service or technology and involves emotions and satisfaction. Conative stage indicates the desire to intend an action. Conative loyalty involves a strong commitment to a product, service or technology and the intention to re-purchase.

1.9 Customer engagement

Literature understands customer engagement as an extension of customer emotional and rational bond with a brand or a company (Steward et al., 2018; Vivek et al., 2012). The existing research recognises affective, cognitive and behavioural dimensions of customer engagement (W. L. Wang et al., 2019). The affective dimension of customer engagement indicates a positive feeling toward a seller and a willingness or tendency to engage (Ng et al., 2020; Steward et al., 2018). The cognitive dimension involves collaboration and knowledge sharing. Cognitive engagement brings advantages in buyer-seller business relationships. From a buyer's point of view, collaboration and knowledge sharing help a buyer learn new information about a product, a service, or a company. From the point of view of a seller, cognitive engagement helps to understand a buyer's actual needs by using direct communication with a buyer (Hardwick & Anderson, 2019). The behavioural dimension of customer engagement refers to active actions, including buying behaviour, referrals, and responses to promotional efforts or feedback (R. J. H. Wang, 2020). Many studies consider the impact of customer engagement in the development and maintenance of long-lasting instead of transactional business relationships (Ng et al., 2020). Another part of the existing research considers customer engagement under the lens of the social exchange theory. From this point of view, customer engagement is seen as a two-directional process involving the interaction of both parties - a buyer and a seller (Ng et al., 2020; Nyadzayo et al., 2020).

2. THEORETICAL FRAMEWORK

2.1 Research problem

Industry 4.0 announced by the German government in 2013, refers to a trend in the industrial sector associated with a high level of automation and industrial information integration. It promotes the adoption of different technologies, including digitalisation, the Internet of Things, process automatisation, cloud computing, and big data analytics. With these changes and the focus on digital transformation, B2B companies must re-organise internal processes, sales and communication channels to improve customer experience (Morgan, 2019). However, this process includes several challenges and risks. Statistically, some 70% of the cases of digital transformation fail (Bucy et al., 2016). To prevent failure and gain customer loyalty, sellers should, among others, better understand the values of their buyers and develop an effective communication strategy with a clear and consistent value proposition.

These gaps show the practical and scientific need for further research on customer experience in a multi-channel B2B industrial environment. For B2B sellers developing customer relations by integrating digital tools is vital and yet an enigma. To bridge these research gaps, the current research attempts to determine what value digital communication channels deliver and to what extent they influence buyer-seller relationships and contribute to creating a B2B customer experience.

2.2 Research goal and research objectives

The current research deepens the understanding of buyer-seller digital communication among industrial companies. The primary goal is to investigate the value that digital communication channels deliver to industrial buyers and how they impact B2B customer experience.

The main objective of the research is to assess what attributes of digital communication influence customer experience in B2B buyer-seller relationships among industrial companies. The attributes of communication were derived from the existing technology adoption models and reflect the characteristics of digital communication tools.

To achieve the primary goal, the following secondary objectives have been developed. First, the current study aims to explore how the choice of digital channels changes with the development of business relationships. Second, the study seeks to understand how complex the purchase process among B2B industrial companies is and who is involved in this process. Third, the study investigates the impact of end-user customer engagement on the relationship between a buyer and a seller and explores its moderating role.

2.3 Research questions

The following research questions are addressed in the current research:

RQ1: What communication tools do B2B industrial companies use?

RQ1a: What communication tools do B2B industrial companies use to get information about a product, a service, or a company before the first contact with a seller?

RQ1b: What communication tools do B2B industrial companies use to get information about a product, a service, or a company during the existing business relationships with a seller?

RQ2: What attributes of communication are significant in buyer-seller relationships?

RQ3: To what extent does digital communication in buyer-seller relationships influence customer loyalty among B2B industrial companies.

RQ4: How does end-user customer engagement affect the relationships between industrial buyers and sellers?

RQ5 How complex is the decision-making process among industrial buyers?

2.4 Research hypotheses

H_1: Information quality has a positive impact on perceived ease of use.

H_2: Information quality has a positive impact on perceived usefulness.

H_3: Information quality has a positive impact on satisfaction.

H_4: Perceived usefulness has a positive impact on satisfaction.

H_5: Perceived ease of use has a positive impact on perceived usefulness.

H_6: Perceived enjoyment has a positive impact on perceived usefulness.

H_7: Service quality has a positive impact on perceived usefulness.

H_8: Service quality has a positive impact on satisfaction.

H_9: Satisfaction has a positive impact on customer loyalty.

H_{10}: End-user engagement has a positive moderation effect on the relationships between satisfaction and customer loyalty.

H_{11}: Customer engagement has a positive impact on customer loyalty.

H_{12}: End-user engagement has a positive impact on customer loyalty.

2.5 Conceptual framework

The conceptual framework of the research was inspired by the existing intention-based behavioural theories on technology acceptance: Theory of Reasoned Actions (Fishbein & Ajzen, 1975), Technology Acceptance Model (Davis, 1989), the Information System success model (DeLone & McLean, 1992, 2003) and the Seddon model (Seddon, 1997). TAM introduces two main attributes of the adoption of new technology - perceived usefulness and perceived ease of use. The IS success model helps to understand the importance of information and service quality in the attitude toward digital technology. The Seddon model helps connect the level of satisfaction and system usage with the quality of a system and information.
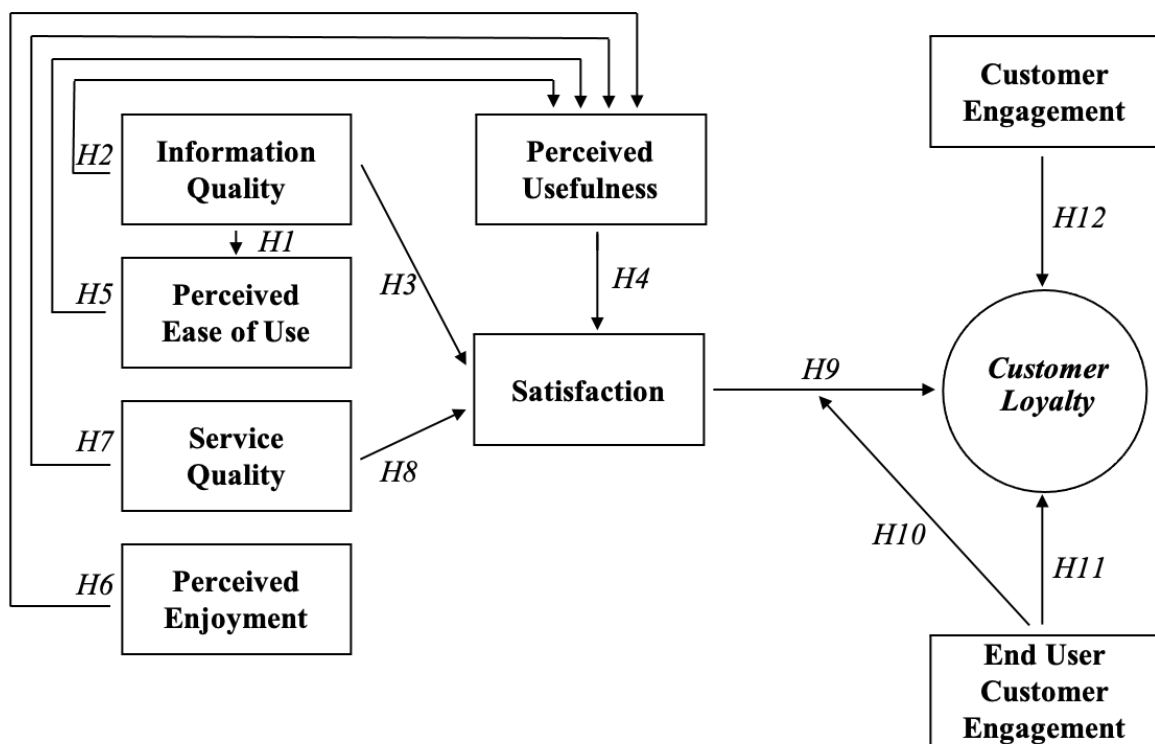

Fig. 2.1: Graphical depiction of the research hypotheses. Source: Author.

3. METHODOLOGY

3.1 Research design

The research used a multi-domain approach to fulfil the research goals and objectives and gain a deep understanding of the research domain-based outlined in *Fig. 3.1*. First, the literature review was conducted to identify the best practices in B2B customer loyalty research. A theoretical framework and the research instruments have been determined based on the literature review. In the next step, some expert interviews have been conducted to increase the understanding of the research problem and validate the theoretical framework. Next, a couple of interviews with experts in the academic field and a pilot study were conducted to validate the chosen survey instrument. Upon validation of the research instrument, an online survey has been provided on a platform of one of the leading research agencies in Europe. The collected data have been analysed using PLS-Modelling with the help of the software SmartPLS3.0.

3.2 Research approach

The current research used both exploratory and descriptive research. Exploratory research was primarily used in the early stage of the research in the form of secondary data analysis and expert interviews and during the online survey to specify the answers. Descriptive research in the form of an online survey was used to describe the adoption of communication tools and represented the main approach in the current research.

The research used a mixed approach combining qualitative and quantitative research methods. Qualitative research has been adopted to get a deeper understanding of the research's status quo and validate the selected research instrument. Four semi-structured expert interviews were conducted to verify the theoretical framework of the research. A pilot study was conducted to test and verify the questions and the online survey. The quantitative research method was used to obtain the information required to cover the research questions and test hypotheses. Statistical data were used to collect data and provide their analysis. The study used open and closed-ended questions to connect quantitative and qualitative research methods in the online survey.
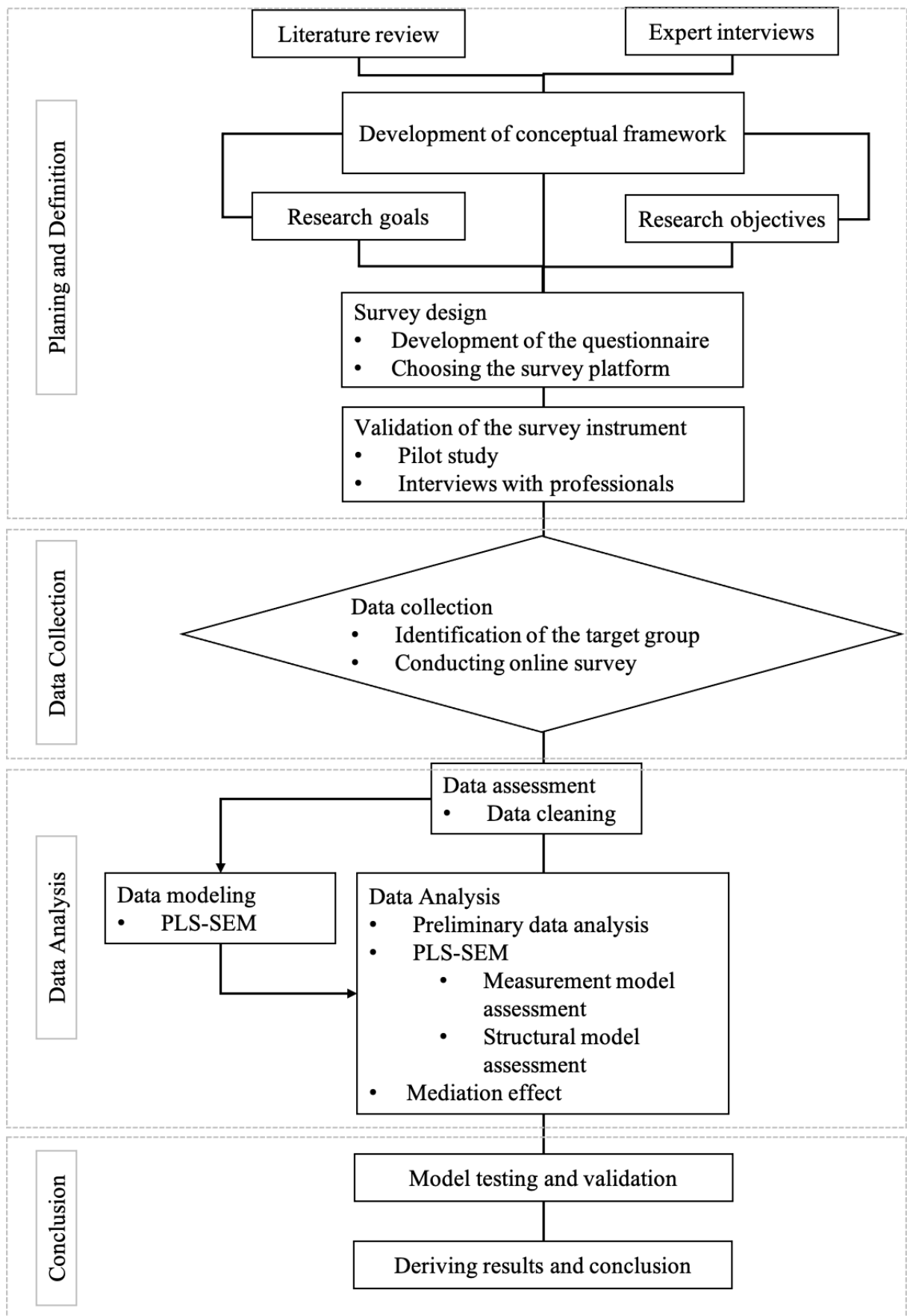
Fig. 3.1: Research design. Source: Author.

3.3 Measurement items

The measurement items for the study were adapted from previous research. Table 3.1 provides a definition of a variable, which was adapted from the previous studies. The current study operationalises customer experience by employing the constructs of satisfaction and customer loyalty. Customer engagement is operationalised by employing affective, cognitive, and behavioural dimensions for both the buyer-seller engagement (CE) and the end-user-buyer engagement (CE_EU). The attributes of communication are derived from various technology adoption models and are operationalised by the constructs of perceived ease of use, perceived usefulness, information quality and perceived enjoyment.

Table 3.1 Definition of variables. Source: Author.

Variable	Definition	Supporting literature
Information quality	Information quality is a user's perception of the goodness and usefulness of the information in an information system.	(Hilligoss & Rieh, 2008)
Perceived usefulness	Perceived usefulness reflects a user believing that using the technology will enhance his or her performance.	(Siamagka et al., 2015)
Perceived ease of use	Perceived ease of use reflects the extent to which a person believes that using technology will be free of effort.	(Davis, 1989)
Perceived enjoyment	Perceived enjoyment refers to the perception that a product, service, or technology is enjoyable, pleasant, or interesting.	Adapted from (Venkatesh, 2000)
Service quality	Service quality reflects the degree of support delivered by the service provider.	(Chen et al., 2013; DeLone & McLean, 2003)
Satisfaction	Satisfaction is a process of evaluating a purchase experience based on comparing the expectations with the result.	(Gil-Saura et al., 2009)
Customer loyalty	Customer loyalty is a deeply held commitment to consistently rebuy or re-patronise a specific product or service.	(Oliver, 1997)
Customer engagement	Customer engagement is an extension of a customer emotional and rational bond with a brand or a company.	(Steward et al., 2018; Vivek et al., 2012)

Thus, information quality was measured through five items adapted from (Chen et al., 2013; McKnight et al., 2017; S. Sohn, 2017), perceived ease of use - through six items adapted from (Davis, 1989; S. K. Roy et al., 2018; K. Sohn & Kwon, 2020; Venkatesh, 2000; Venkatesh & Davis, 2000), perceived usefulness - through seven items adapted from (Chen et al., 2013; Davis, 1989; Karjaluoto et al., 2014; Siamagka et al., 2015), perceived enjoyment - through three items adapted from (L.-C. Hsu et al., 2013; López-Miguens & Vázquez, 2017; K. Sohn & Kwon, 2020), service quality - through six items adapted from (Chen et al., 2013; López-Miguens & Vázquez, 2017; Yang et al., 2014), satisfaction - through three items adapted from (Chen et al., 2013; López-Miguens & Vázquez, 2017; Oliveira et al., 2017), customer loyalty - through six items adapted from (Čater & Čater, 2010; C. L. Hsu & Lin, 2008; López-Miguens & Vázquez, 2017) and customer engagement - through six items adapted from (Chen et al., 2013; Vivek et al., 2012). All the items were measured on a 5-point Likert scale (from "1=totally agree" to "5=totally not agree").

3.4 Sampling and data collection

The sample size has been determined by stratified sampling. The structure of the sample group reflected the structure of the German industry sector based on revenue for the year 2019. The number of responses was pre-defined to represent the weighted number of revenues generated per industry sector.

The questions were first designed in English and then translated into German. The questions were collected from the existing research in the English language and have been already validated and verified from the previous research. The final version of the survey questions in German has been proofread by two peers, both German native speakers. Once the survey questions had been developed, a pilot study was conducted to verify the questions' flow and wordings. The pilot study included ten respondents from the target group who tested the survey and provided feedback. Some minor changes, mostly related to the wordings, have been made.

To collect the data, an online survey was used. The survey contained 50 closed and open questions. Ten questions were general questions to collect general information about the respondent and the company, including the industry, the company size, and the position of the respondent. Forty questions were closed questions with the answers on a 5-point Likert scale (from "1=totally agree" to "5=totally not agree"). The survey was provided online from March 1, 2021, to March 10, 2021, using the panel offered by the research agency Bilendi (www.bilendi.de). The panellists have received an invitation via e-mail with the relevant information regarding the survey, its goal, and the link to the panel platform. In total, 3379 respondents took part in the survey. The survey has delivered 164 responses, and the response rate accounted for 4,85%.

4. ANALYSIS

4.1 Partial least squares structural equation modelling

Structural equation modelling (SEM) is a comprehensive statistical approach, which represents, tests, and evaluates multivariate casual relationships. SEM consists of a structural model, measuring the relationships between the variables, and the measurement model, measuring directional and non-directional relationships among the latent variable and its observable indicators. The objective of SEM analysis is to evaluate the degree to which the hypothetical model is supported by the sample data (Schumacker & Lomax, 2010).

The partial least squares structural equation modelling (PLS-SEM) is a part of SEM and represents the variance-based approach of SEM. The partial least squares structural equation modelling (PLS-SEM) is a method used to estimate complex cause-effect relationships in path models with latent and observed variables (Hair et al., 2017). PLS-SEM combines factor analysis and regression analysis. PLS-SEM generally shows high levels of statistical power with small sample sizes. It delivers robust results for samples with missing values (which need to be below a reasonable level) or not normally distributed. PLS-SEM has been often used in complex relationship models that require multivariable analysis. The chosen method assesses the relationship between the constructs on one side and the path analysis on the other side. It estimates the path relationships in the model with the goal of maximising the R^2 value of the endogenous constructs. PLS-SEM is a preferred method used in research for theory development and explanation of variance, where a key target construct has to be predicted or a key "driver" construct has to be identified (Hair et al., 2017).

4.2 Assessing the measurement model

Before the analysis of the measurement model, data cleaning and preliminary analysis was conducted. First, it was evaluated whether the results included missing values. All questions were obligatory for the respondents, and therefore, no relevant missing values have been detected.[1] Second, the response time has been evaluated. The responses obtained within a time lower than 2 minutes have been deleted. Next, the tendency has been analysed: the responses with the tendency to the extreme positions have been deleted, e.g., all the answers with the same response variance. The final response rate accounted for 4,22% and included 143 responses. The preliminary analysis includes descriptive statistics of the variables, including the mean, median, and mode as measures of central tendency

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[1] One missing value has been identified during the evaluation case. The question [Q6] "*Which of the following answer options best describes your current job position?" h*ad an answer option "*Others (please specify)*" and had to be specified in the next questions. However, the question has not been specified, what has been probably caused by mistake by the research company. However, this has not influenced the results.

and standard deviation, variance, minimum and maximum variables, kurtosis, and skewness as measures of variability (Pallant, 2011). No missing values and outliers have been detected. The normality check was made by assessing the skewness and the kurtosis, which lay within the accepted range -/+1.

The analysis in PLS is usually provided in two steps. Firstly, the measurement model is assessed. Secondly, the ability of the model to predict a certain outcome is assessed by means of the structural model analysis. During the analysis of the measurement model as part of factor loading analysis, the items with loadings lower than 0,6 were deleted (Latif et al., 2020): one item for perceived ease of use (PEOU3=no effort, w=0,530) and two items for perceived usefulness (PU1=productivity, w=0,590 and PU2=useful, w=0,522, PU5=makes job easier, w=0,672). After the deletion of the items, the factor analysis was assessed again. After that, the factor loadings in the range between 0,600 and 0,700 were analysed. The deletion of IQ1 (Currency), PEOU5 (Omnichannel), PU6 (Supports in tasks completion), and PU9 (Assistance) had a negative effect on discriminant validity and therefore, it was decided to retain the indicator. The deletion of CE3 (Behavioural environment) could cause context validity problems for the construct of customer engagement, and therefore it was decided to retain the indicator.

The internal consistency reliability has been assessed by means of Cronbach's alpha and composite reliability. Composite reliability coefficients were acceptable, ranging from 0,80 to 0,88. Cronbach's alpha ranged from 0,625 to 0,811. Convergent validity was assessed by means of the analysis of the factor loading and average variance extracted (AVE), which all exceeded the threshold of 0,50.

Discriminant validity was tested by examining cross-loadings, the Fornell-Larcker criterion and the heterotrait-monotrait ratio of correlations (HTMT). The cross-loadings of the associated constructs were all greater than the loadings to other constructs. The cross-loadings analysis of the constructs of customer engagement CE and CE_EU has been provided in the same vein. The results have shown that affective engagement CE1 has the cross loading less than 0,1 to end-user affective engagement CE_EU. The deletion of this item could, however, create content validity issues. As the method of cross-loadings and the Fornell-Larcker criterion have indicated the discriminant validity of both customer engagement constructs, it has been decided to leave the item. The results of the HTMT have shown that some of the values are above the threshold of 0,90. To assess whether the measured indicators correlate stronger and have higher loadings to the construct with the value of HTMT over 0,90 than to the same constructs, the cross-loadings have been analysed. The research showed that none of the constructs with the HTMT-value above the threshold had cross-loadings with less than 0,1 to other latent variables.

4.3 Analysis of the structural model

In the next step, the relationships between the constructs have been assessed. No issues with collinearity were detected as the variance inflation factor (VIF) values for all the constructs were less than the threshold of 5.0 (Hair et al., 2014). Bootstrapping was used to analyse the structural model. *Fig. 4.1* present the results of the path analysis.

In the next step, the coefficient of determination (R^2), which shows how well the regression model fits the observed data, has been assessed. The values for satisfaction and customer loyalty are considered moderate, as they are above or close to a rough rule of the value of 0,5 (Hair et al., 2014). In addition to the evaluation of the R square, the effect size f^2 has been examined. The effect size evaluates the impact on the R square when an exogenous variable is removed from the model. The results show the large effect size of information quality on perceived ease of use (f^2=0,416), the medium effect size of customer engagement on customer loyalty (f^2=0,305), service quality on satisfaction (f^2=0,304), perceived enjoyment on perceived usefulness (f^2=0,182), and service quality on perceived usefulness (f^2=0,165). The following effect sizes were found to be small: perceived ease of use on perceived usefulness (f^2=0,117), customer engagement with the end-user on customer loyalty (f^2=0,097), satisfaction on customer loyalty over customer engagement (f^2=0,088), information quality on satisfaction (f^2=0,035), and perceived usefulness on satisfaction (f^2=0,035). Besides assessing R square as an indicator of predictive accuracy, Stone-Geisser's Q^2 value was examined as an indicator of predictive relevance by means of blindfolding. The results showed that Q^2 for customer engagement, customer loyalty, perceived usefulness and satisfaction are all above the threshold of zero, which implies that a model has a predictive variance for these constructs.

In addition, mediation analysis was performed to assess the mediating role of the constructs on perceived usefulness, satisfaction, and customer loyalty. The mediation analysis has shown no significant impact of any constructs on customer loyalty or satisfaction but a small mediation effect of perceived ease of use on the relationship between information quality and perceived usefulness.

The results of the moderation analysis revealed that end-user engagement moderates the relationships between satisfaction and customer loyalty (coefficient=0,157, t=2,634, p=0,009).
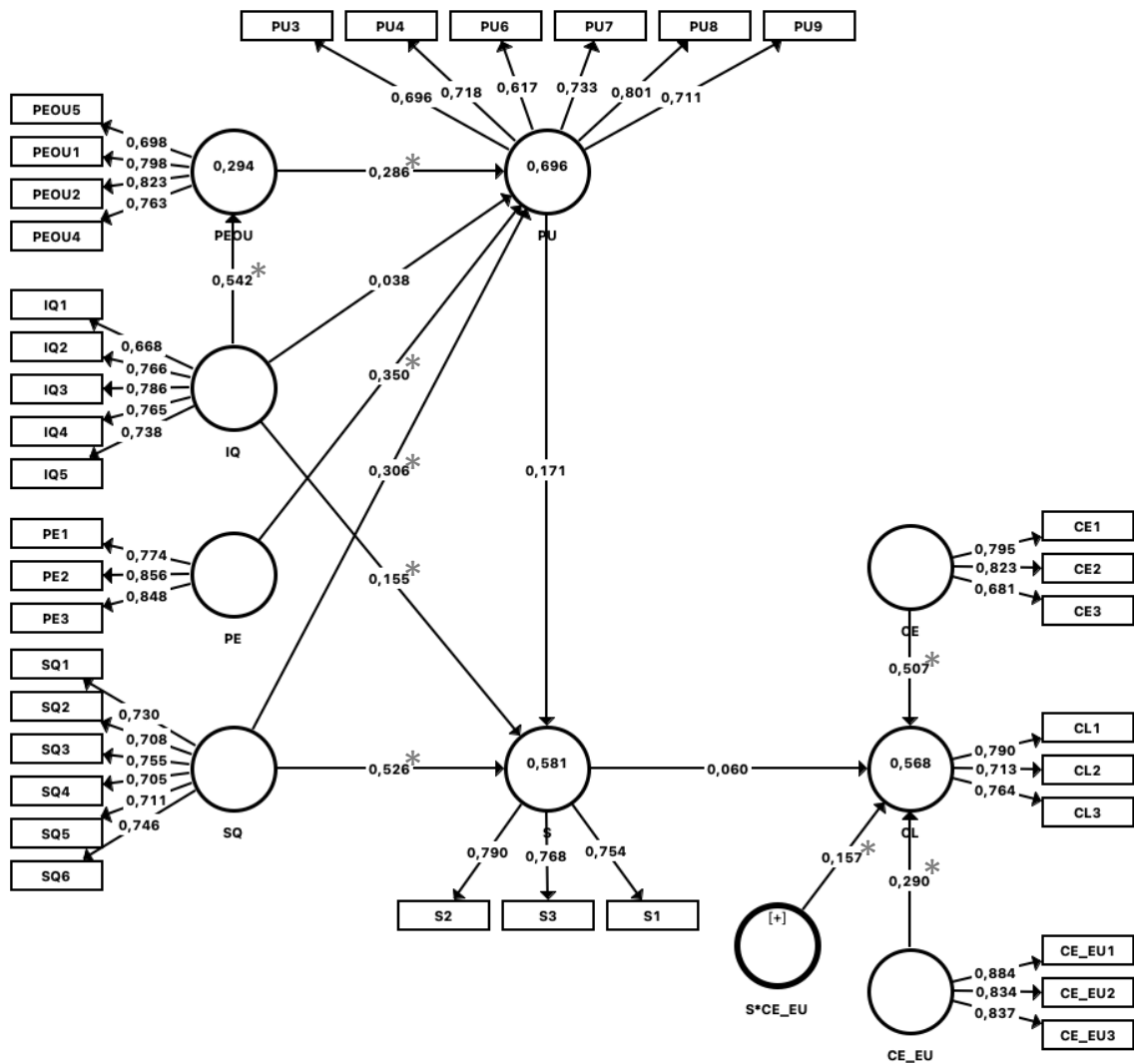
Fig. 4.1: Results of the path analysis. Source: Author.

Note: CE1 - *affective engagement*, CE2 - *cognitive engagement*, CE3 - *behavioural engagement*, CE-EU1 – *end-user affective engagement*, CE-EU2 – *end-user behavioural engagement*, CE-EU2 – *end-user cognitive engagement*, CL1 - *first choice*, CL2 - *re-purchase*, CL3 - *WOM - recommend*, IQ1 - *currency*, IQ2 - *accuracy*, IQ3 - *relevancy*, IQ4 - *completeness*, IQ5 - *consistency*, PE1 - *entertainment*, PE2 - *attraction*, PE3 - *enjoyment*, PEOU1 - *easy to learn and use*, PEOU2 - *navigation (clear and understandable)*, PEOU3 - *no effort*, PEOU4 – *multi-channel*, PEOU5 - *omnichannel*, PU1 - *productivity*, PU2 - *useful*, PU3 - *effectiveness*, PU4 - *job / business performance*, PU5 - *makes job easier*, PU6 - *supports in tasks completion*, PU7 - *problem-solving capability*, PU8 - *valuability*, PU9 - *assistance*, S * CE-EU – *moderation effect of end-user engagement on the relationship between satisfaction and customer loyalty*, S1 - *satisfaction*, S2 - *high quality*, S3 - *positive feelings*, SQ1 - *professionalism*, SQ2 - *personalisation*, SQ3 - *timeliness*, SQ4 - *responsiveness*, SQ5 - *knowledgeability*, SQ6 - *communication quality; * - significance level of 0,05.*

4.4 Hypotheses testing and achieving secondary objectives

Overall, nine out of twelve hypotheses were supported (significance level of 0,05) (*Fig. 4.1*). The survey helped to assess the supportive objectives.

One of the research objectives was to assess the process of purchase decision-making. The survey revealed a relatively low complexity of the purchasing process. Only 2,8% of the respondents reported a complex purchasing process involving more than six departments. The procurement department refers to the most important department that takes part in the purchasing process.

Another objective of the current study was to understand what tools companies use in communication with their supplies and how the communication strategy changes with the development of buyer-seller relationships. The resurvey result reveals that the TOP-5 communication tools the companies use to find information about a product or a company, bevor contacting the company for the first time, are a company website, e-mails, Internet search, direct calls, and customer reviews. The most frequently used tools during existing business relationships are e-mails, direct phones, and chats (*Fig. 4.2*).
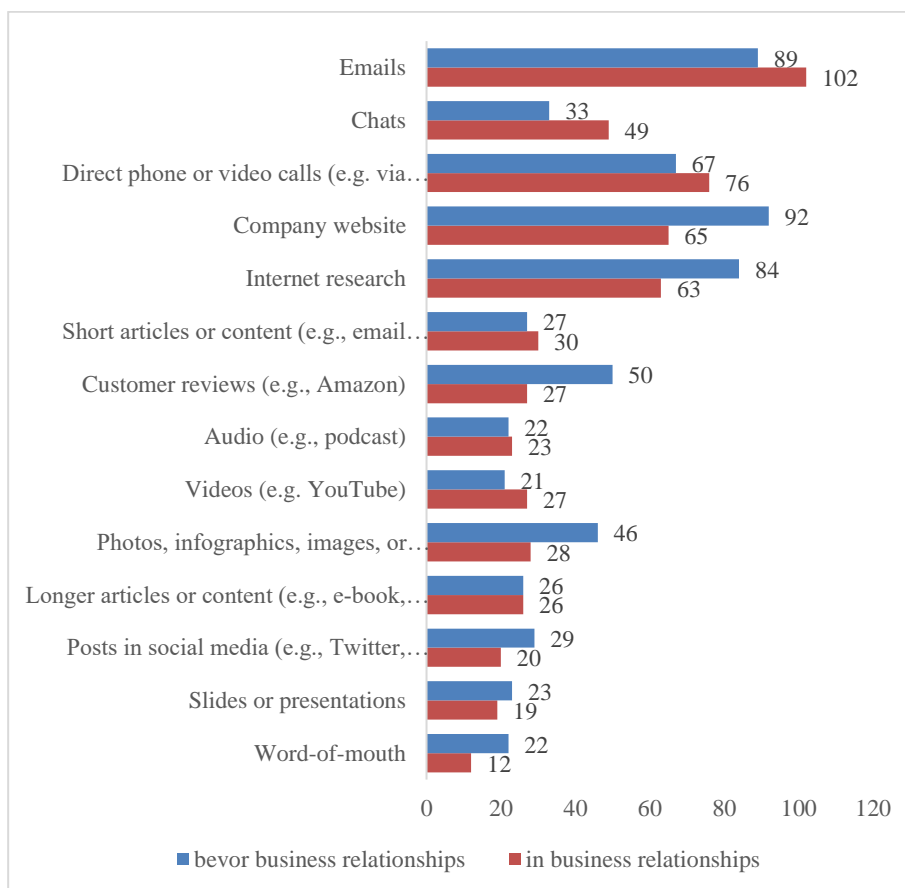
Note: N=143

Fig. 4.2: The use of communication tools before and after starting the business relationship with the seller. Source: Author.

5. MAIN RESULTS AND DISCUSSIONS

In the face of digital transformation and growing digitalisation, the question of how buyer-seller communication influences B2B customer experience has received increasing attention in academic and professional research. Digital transformation is often connected to technology adoption theories because digital communication tools are still a novel topic, especially in B2B settings. Previous research focuses on separate marketing channels, such as social media or websites, mainly among B2C companies. The current study expands the technology adoption theories to a multi-channel context and examines buyer-seller relationships from a holistic standpoint. Additionally, the study evaluates the change in the use of communication channels with the development of business relationships and contributes herewith to the marketing communication literature. Moreover, the study provides a new viewpoint on customer engagement by adding to the traditional engagement from the standpoint of buyer-seller relationships the perspective of a buyer's relationship with the end-user.

The study first develops a model based on existing technology adoption theories. The proposed theoretical model incorporates different variables, reflecting the communication process's complexity in B2B buyer-seller relationships. The model aims to identify those variables that have the most impact on a buyer's experience. The analysis of the survey responses among 143 industrial companies with PLS-SEM outlines the importance of information quality, perceived ease of use, perceived usefulness, and service quality in B2B communication among a buyer and a seller.

The findings reveal that perceived ease of use, perceived enjoyment and service quality are the critical antecedents of perceived usefulness. The model explains 70% of the variance in perceived usefulness. This finding supports evidence from previous observations. For instance, the relationship between perceived ease of use and perceived usefulness refers to the classical outcomes of the TAM. The impact of perceived enjoyment on perceived usefulness was already revealed in the works of Driediger and Bhatiasevi (2019) and Ha and Stoel (2009). Several previous studies confirmed the effect of service quality on perceived usefulness based on the IS success model (Chen et al., 2013; Y. Kim & Lee, 2014). These results are likely to be related to the recent changes in customer relationships. The previous understanding of B2B buyer-seller relationships was based on the idea of rational decision-making. Digitalisation has transformed communication not just in private settings but also at work. Customers expect to have fast and qualitative solutions to their requests (Bough et al., 2020; McKinsey & Company, 2016). They want convenient and easy results, making their problems solved before they occur. Hence, the trends that have been detected in B2C settings influence B2B relationships as well. The borderline between B2C and B2B customers in terms of communication process becomes even more blurred than before.

Interestingly, the direct impact of information quality on perceived usefulness was statistically not significant. However, the analysis has shown a significant moderating effect of perceived ease of use on the relationships between information quality and perceived usefulness. This means that industrial buyers evaluate the quality of the information they consume through the easiness of its consumption, namely multi-channel and omnipresent approach, ease of navigation and use. This finding corresponds to the latest results revealing the trending demand for agile transformation among B2B customers (Bough et al., 2020). These results have important implications for developing marketing and a content strategy. Companies must provide easily readable technical and functional information, consistent through multiple channels and easy to find and consume.

Further findings from the study indicate that service quality positively affects satisfaction and explains 59% of the variance in satisfaction. Information quality is important for perceived ease of use and explains 30% of the variance in perceived ease of use. The mediation analysis has shown no significant impact of any constructs on customer loyalty or satisfaction. The provided model explains 57% of the variance in customer loyalty. The results show a positive effect of both constructs of customer engagement on customer loyalty - buyer-seller engagement and end-user-buyer engagement.

However, satisfaction is found to have no significant impact on customer loyalty. Contrary to expectations, the study did not find a significant relationship between satisfaction and customer loyalty. Two reasons may explain this phenomenon. First, there could be other factors than attributes of communication that influence customer loyalty, e.g., switching costs. Previous research, for instance, by Yang (2015) or Russo et al. (2016), confirmed that customer loyalty is a complex structure and that there is a significant impact on customer loyalty by switching costs (Russo et al., 2016; Yang, 2015). Taking into consideration the specifics of B2B industrial companies and the limited number of market players, the costs of changing from one business partner to another might not be worthwhile. In that case, the level of satisfaction plays a minor role. Another reason could be connected to the derived nature of B2B industrial companies. When the communication with a supplier is built in a way that helps to develop successful relationships with the end customer, the buyer could be motivated to keep these relationships irrelevant to the satisfaction level.

The analysis of the communication channels through different stages of the customer journey has shown some interesting results. Firstly, the research expectedly demonstrated the increase in the usage of direct communication tools, such as e-mails, direct calls, or chats, with the development of business relationships. Industrial buyers seem to avoid spending their time searching for the required information by themselves when they can get it from the source directly. As confirmation, the latest surveys indicate that customers still prefer live communication for complex requests (Bough et al., 2020). Hence, industrial

buyers prefer customised and direct communication with little effort when business relationships are established. The second finding is related to the first outcome. The increase in the use of direct communication tools logically leads to the decrease in the use of indirect and non-specified tools, e.g., a company website or an internet search. Based on the study results, a company's website and internet search are the key communication tools to access relevant information before the first contact and during the existing business relationships. The third finding relates to a noticeable drop in the usage of peers' reviews and WOM. The survey results confirm the importance of WOM and customers' reviews in the early stage of the customer journey, but not much in the existing business relationships. The subsequent finding reveals the importance of long content like articles or whitepapers for both the early and the developed stages of business development.

Further findings highlight the growth in direct communication and the growing importance of short content and audio- and video content for the existing customers. This trend could be explained by the desire of buyers to consume technical, product-related information, which could be gained from podcasts, YouTube-Videos, or blog postings. Recent marketing surveys confirmed that over 70% of B2B buyers watch videos as part of their pre-purchase product research (522 [online], 2021).

Altogether these results provide important insights into industrial buyer values and demands and their role in customer experience. Hence, current research allowed filling research gaps and getting answers to the research questions formulated at the beginning of the study. However, the results were not straightforward. One out of three null hypotheses on satisfaction has been accepted. Unfortunately, the study could not prove any significant direct or indirect impact of any variables, reflecting attributes of communication, on customer loyalty. Nevertheless, the study reveals the importance of customer engagement and end-user customer engagement in gaining customer loyalty and service quality in achieving satisfaction.

6. BENEFITS OF THE RESEARCH

The main body of the current research was finished before the outbreak of the COVID-19 pandemic. The changes in every aspect of life, which the pandemic has implicated, highlight the importance of the researched topic and the benefits for science, academia, and practice.

Benefits for science

The current study provides deeper insight into technology adoption theories. Whilst previous studies applied technology adoption theories to separate marketing channels, e.g., websites, social media or e-commerce, the current research expands these theories to a multi-channel context and evaluates buyer-seller customer experience from a holistic standpoint. Additionally, the study evaluates the choice of communication channels at different stages of the customer journey and contributes herewith to the marketing communication literature.

Benefits for academia

The research raises awareness about B2B industrial marketing and can attract more researchers to the field. The study creates a basis for further research in the related area for students and researchers. The model creates an opportunity to compare the outcomes for different companies, branches of the industrial sector or countries.

Benefits for practice

The findings of the research have specific managerial implications. The study offers practical suggestions for improving customer experience at both the individual and company levels. At the individual level, managers, who have direct contact with industrial buyers, may influence customer experience by using direct, multi-channel and omni-presented communication channels. Sellers could contribute to the building of qualitative business relationships with buyers by using easily accessible and consumable information, which helps buyers solve their problems and requests in a way that is convenient, timely, and sufficient for business objectives. Some important contributions to the marketing strategy could be made at the company level. The study highlights the importance of entertaining and easy structured information for establishing high levels of B2B relationships. With the development of multi-channel and omnipresent marketing, it is challenging to provide qualitative and consistent information throughout the whole range of communication channels.

7. CONCLUSION

The current research attempted to determine what value digital communication channels deliver and to what extent they influence buyer-seller relationships and contribute to creating a B2B customer experience. The study's main contribution relates to the impact of end-user customer engagement on customer loyalty. This finding has important implications for sellers' content marketing strategy. Since buyers need to keep their own customers (end-users) engaged, which affects customer loyalty to sellers, this finding must be considered in designing the content for digital communication channels. The information derived through all communication channels should include information relevant to end-users, which could be, with little effort, re-used in end-user-buyer communication.

Another important implication for a marketing strategy involves the choice of digital touchpoints at the pre-purchase stage of the customer journey and during the existing business relationships. The findings reveal the importance of long content, websites, and Internet search for both stages of the customer journey. With the development of business relationships, according to the analysis, the importance of short content, e.g., blog posts or newsletters, as well as video and audio content slightly growing. Based on the study results, it is suggested to use WOM only at the pre-purchase stage of the customer journey.

Finally, the study provides some important implications for top management commitment. Without adequate managerial support, it would be difficult to face the challenge of digital transformation and design an agile and holistic communication strategy. The changes could involve processual changes not just in marketing teams but in the whole company structure. For instance, companies might consider establishing cross-functional teams, which link online orders, sales platforms, manufacturing, and logistics to avoid functional silos.

When thinking about digital transformation, one can picture an iceberg. Approximately ⅛ of an iceberg's mass lies above water and is visible; ⅞ of its mass is hidden from the view submerged in the ocean. Similarly, interactions with industrial buyers that are devoted to customer-centricity typically account for only a tiny percentage of all company activities. However, below the surface lie many company processes, which all need to be sufficiently mature if digital transformation is to be successful. The pandemic has accelerated the already-evolving processes toward digitalisation in B2B buyer-seller relationships. It has forced companies to digitalise rapidly, triggered omnichannel and e-commerce and encourage business agility. Various renowned consulting companies reveal that digital transformation is more important than ever, and the changes the pandemic has caused will be imperative going forward (BDO [online], 2021; Driedonks & Paulowsky, 2021; Harrison et al., 2021). Hence, it is high time to rethink business strategies and adapt existing processes to the ongoing changes.

8. LIMITATIONS AND FUTURE RESEARCH

This study has certain limitations, which can be addressed in future studies. First, the data set represents industrial companies from only one country, Germany. While it is regarded as the study's advantage, it may limit the generalisability of the results with respect to other countries. More research from other countries could be done to explore differences in and among other countries. Second, the data set was based on the respondents registered at a research platform. Despite the effort to get access to a qualitative data set, from a methodological perspective, the use of a database of a research agency could create concerns about possible biases among respondents. Moreover, the respondents might not represent the opinion of all German industrial buyers. Third, the study focuses on B2B industrial sector and does not differentiate whether the companies offer products or services. Considerably more work will need to be done to determine the differences in marketing strategy for service and production B2B industrial companies. Forth, a bias might exist because of the selection of the sampling method. Online survey as a method had certain limitations due to the lack of control and face-to-face interaction. Respondents may interpret the questions differently than the researcher based on their own experience and judgements. Furthermore, although peer-reviewed, the translation into German might cause some linguistic differences. Fifth, the small effect sizes of the effect of an end-user-engagement on customer loyalty and its moderation effect indicate that future research needs to examine under different settings. For instance, the study examines only two variables of customer experience – satisfaction and customer loyalty. The analysis also did not show a significant impact of the defined attributes of communication on satisfaction and loyalty. Future research may examine other variables of customer experience, such as trust (Lecoeuvre et al., 2021) or expectations (Cortez & Johnston, 2016). Moreover, future research may continue expanding the idea of the impact of the end-user relationships on buyer-seller experience and explore the other variables, e.g., end-user customer loyalty on buyer-seller loyalty. Finally, the current research did not aim to examine customer experience at different stages of the customer journey, which could be a greater focus for future research. As a result, future research should broaden the current study model and include new factors.

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Digital channels and B2B customer experience among industrial companies

Zákaznická zkušenost s digitálními kanály u průmyslových firem

Doctoral Thesis Summary