Antecedents and Consequences of

the Engagement Concept

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Foreword

The cumulative dissertation presented by Mrs. Nicola Kleer is dedicated to the engagement concept. In corporate practice and behavioral research, customer/user engagement plays an important role in the area of online and social media and networks. Here, engagement manifests itself, for example, in likes, comments, or shares of content published on platforms like Facebook, Instagram, and Twitter. In addition to the engagement of customers, consumers, and users, research has recently investigated the engagement of other actors and has adopted a more holistic perspective.

Despite its great importance in different disciplines of behavioral sciences, which are service management, marketing, media management, or management information systems, research focusing on the antecedents and consequences of engagement is rare. Although there are various conceptualizations and operationalizations of the engagement construct and initial empirical studies that measure engagement, validate the construct, and investigate the impact of selected influencing factors on engagement, the state of research lacks a comprehensive overview of the multitude of relationships of engagement and interplay with other concepts. Thus, there is a lack of quantitative-empirical studies in the area of customer/consumer/user engagement behavior in special situations such as crises, or in the area of actor engagement contextualization and case study-based qualitative-empirical analyses in the practice-relevant context of changing business models of actors and their value creation.

With her dissertation, Nicola Kleer addresses relevant research gaps and aims to contribute to the advancement of knowledge and a better understanding of engagement and to provide conceptual and empirical insights into the nomological network of this concept by applying statistical methods such as quantitative content analysis, a qualitative case study approach, regression analysis, and structural equation modeling. In addition, she pays special attention to highlighting the practical significance of this concept and its management, especially in the field of the media and technology industries. I would like to emphasize that in her dissertation, Nicola Kleer also complemented her studies with the development of guidelines that are relevant for media and technology companies.

This dissertation contains a total of six articles, of which most have already been published in top-tier business administration and media management journals. The articles are compactly summarized in an abstract and a synopsis, motivated and comprehensibly contextualized in an introduction, and finally acknowledged in a detailed conclusion. Overall, this dissertation pays special attention to an under researched, scientifically as well as practically relevant topic; it

provides an extensive literature review, considers current issues in empirical studies using both conceptual and primarily quantitative methods, and thus makes important research contributions to engagement management. All empirical articles demonstrate methodological expertise in the selection and implementation of the procedures. They are also convincing because of the detail and care with which the quality and robustness criteria are observed and assessed. Following a comprehensible line of argumentation and detailed discussions, the derivation of implications based on the findings of the empirical studies, as well as the reflected appreciation of the limitations and the presentation of starting points for future research are to be emphasized as particularly successful.

This dissertation advances knowledge and understanding of the engagement concept, including actor engagement, customer engagement, and online engagement. It offers an extraordinary degree of originality and may also inspire future intra- and interdisciplinary research in behavioral sciences, particularly in the context of the management of engagement. The findings have the potential to be acknowledged by both scholars and practitioners and utilized in the future by a variety of decision makers in academia and management.

I would like to thank Nicola Kleer for the excellent cooperation during the last years, and I wish her all the best for the publication and recognition of her dissertation, as well as for her future projects in business and research.

<div align="right">Prof. Dr. Reinhard Kunz</div>

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Date of Oral Defense: June 22, 2023

Dedication

This dissertation is dedicated to my family

Acknowledgements

First of all, I would like to thank my parents, my sister, and my future husband for their endless support, love, and encouragement. They supported me in accomplishing my goals and realizing my dreams. Moreover, they encouraged me to believe in myself.

I would like to offer my special thanks to my principal supervisor Prof. Dr. Reinhard Kunz for his trust, support, intellectual input, and constructive feedback throughout the whole project. He gave me the opportunity to explore interesting research fields, to gain valuable academic insights, and to conduct my research during these special times. His expertise and academic guidance helped me to improve my research and teaching skills.

I would also like to express my gratitude to Dr. Christian-Mathias Wellbrock for his enduring support and encouragement. He believed in me, always encouraged me, and gave me valuable feedback/advice throughout my academic career. As a former member of his team, I was able to gain insights into scientific processes and tasks. During this time, I developed my passion for academic research. I also want to thank him for his support as my second supervisor.

I am also thankful for the support of my colleagues Lea Püchel, Nicolas Robin Weber, Daniel O'Brien, and Alexander Roth. Finally, I would like to thank Sina Wenzel for the inspiring collaboration during our research project.

Abstract

In today's highly networked environment, the engagement concept has become increasingly important for scholars and practitioners. This dissertation offers a better understanding of engagement by providing insights into the nomological network of this concept and by considering the micro- and macro-level perspective. Empirical and conceptual methodological approaches and statistical methods/techniques such as quantitative content analyses, a qualitative case study approach, regression analyses, and partial least squares structural equation modeling are applied to identify key drivers and business consequences of engagement. This dissertation argues that the engagement of actors can have beneficial consequences if it is managed in an adequate and effective manner. Engaged actors offer other actors like companies access to resources. These resources can lead to the improvement of—or the development of new—offerings, activities, and processes. This doctoral thesis shows that actor engagement (macro-level perspective) can be a driver of business model modifications. Practitioners willing to benefit from the engagement of actors should consider the antecedents identified in this dissertation (i.e., shared goals, access to resources, outcome expectations). At the micro level, the quantitative engagement studies of this dissertation examine the dyadic interaction between customers and brands/companies in the social media environment. These studies emphasize the importance of appropriate (crisis) communication on social media. They reveal that post-related attributes such as interactive elements or crisis-related content can influence the behavioral engagement of customers on social media. The insights of this dissertation offer guidance for companies and their managers willing to improve their engagement strategies.

Kurzzusammenfassung

Die vorliegende Dissertation befasst sich mit dem Engagement von unterschiedlichen Akteuren (bspw. Kundinnen/Kunden) eines Netzwerkes und trägt zu einem besseren Verständnis dieses Konzeptes bei, indem verschiedene Perspektiven (‚Micro'- und ‚Macro'-Level) untersucht werden. Die Erkenntnisse dieser Arbeit unterstreichen die Bedeutung von Engagement für die Wissenschaft und Praxis. Diese Dissertation identifiziert und beleuchtet relevante Einflussfaktoren und (betriebswirtschaftliche) Auswirkungen von Engagement und liefert somit relevante konzeptionelle und empirische Einblicke.

Akteure eines Netzwerkes, die mit einem anderen Akteur (z. B. einem Unternehmen) ‚engagen', verschaffen diesem Zugang zu neuen Ressourcen, welche zu einer Verbesserung bestehender oder zu der Entwicklung neuer Angebote, Aktivitäten und Prozesse führen können. Die Ergebnisse dieser Dissertation zeigen hierbei, dass das Engagement von Akteuren (Macro-Level) das Geschäftsmodell eines Unternehmens beeinflussen kann. Unternehmen können von dem Engagement verschiedener Akteure eines Netzwerkes profitieren, wenn sie dieses adäquat managen. Hierfür sollten diese relevante, in dieser Dissertation untersuchte, vorgelagerte Konstrukte und Faktoren (bspw. Zugang zu Ressourcen, gemeinsame Ziele) des Engagement-Konstruktes kennen und berücksichtigen.

Mithilfe von Regressionsanalysen und Strukturgleichungsmodellen identifiziert diese Dissertation zudem auch Einflussfaktoren des verhaltensbezogenen Kundenengagements (Micro-Level). Diese Untersuchungen geben Einblicke in die Unternehmenskommunikation im digitalen Zeitalter und unterstreichen die Relevanz von industriespezifischen Analysen und der Berücksichtigung von Moderationseffekten bei der Untersuchung unternehmensgenerierter Social-Media-Beiträge. Die vorliegende Dissertation bietet Handlungsempfehlungen, die internationale Unternehmen nutzen können, um effektiv mit ihren Kundinnen/Kunden in den sozialen Medien zu kommunizieren. So zeigt diese Dissertation beispielsweise, dass Medien- und Technologieunternehmen ihre sozialen Aktivitäten (z. B. Spenden) in den sozialen Medien kommunizieren sollten, um somit das verhaltensbezogene Kundenengagement zu steigern. Informative Inhalte und interaktive Elemente in einem Social-Media-Beitrag stehen hingegen in einem negativen Zusammenhang mit den Engagement-Aktivitäten und sollten somit von diesen Unternehmen vermieden werden. Basierend auf den Erkenntnissen dieser Dissertation können Unternehmen ihre Engagement-Strategien anpassen und/oder neue Strategien entwickeln und implementieren, um die Interaktion und Kommunikation mit anderen Akteuren eines Netzwerkes zu verbessern und das Engagement dieser Akteure zu erhöhen.

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List of Abbreviations

AE	actor engagement
BM	business model
CBE	customer brand engagement
CE	customer engagement
CEB	customer engagement behavior
CSR	corporate social responsibility
EoG	expression of gratitude
MDI	Mythic Dungeon International
MMORPG	massively multiplayer online role playing games
NFI	normed fit index
OEB	online engagement behavior
OBCE	online brand community engagement
PLS-SEM	partial least squares structural equation modeling
RQ	research question
SCCT	situational crisis communication theory
SD	standard deviation
SDL; S-D logic	service-dominant logic
SNS/SNSs	social networking sites
SoB	sense of belonging
SRMR	standardized root mean square residual
TMT	technology, media, and telecommunications
VIF	variance inflation factor
WoW	World of Warcraft

List of Figures

Please note: Research paper C is a German article. Hence, for figures 5 and 6, the original text refers to the German term 'Abbildungen.' This dissertation has translated this term to ensure consistency.

List of Tables

Please note: Research paper C is a German article. Hence, for Tables 12 and 13, the original text refers to the German term 'Tabelle.' This dissertation has translated this term to ensure consistency.

1. Introduction

1.1. Background

"The more you engage with customers the clearer things become and the easier it is to determine what you should be doing."

John Russell

Former Vice President and Managing
Director of Harley-Davidson in Europe

In today's dynamic and networked environment, the customer engagement (CE) concept has become increasingly important for researchers and practitioners (Brodie et al., 2011; de Oliveira Santini et al., 2020; Verhoef et al., 2010). CE is defined as a state that "occurs by virtue of interactive customer experiences with a focal agent/object within specific service relationships" (Brodie et al., 2011, p. 258).

John Russell's quote emphasizes the importance of the engagement concept for companies. It implies that engagement can help companies to understand customers (and their needs). Managers and scholars consider CE to be "a crucial source of knowledge" (van Doorn et al., 2010, p. 260) and critical to the success and growth of a company (Hyken, 2021; Sashi, 2012). The furnishings house IKEA and the video streaming service Netflix show that a focus on customers and their engagement can be a successful strategy. According to IKEA (n.d.), the engagement of different actors helps to "learn and inspire each other and find the best solution".

In order to manage CE, companies are pursuing different strategies (van Doorn et al., 2010; Verhoef et al., 2010). For instance, they provide certain technologies and processes and/or offer incentives to support and foster the engagement of customers (van Doorn et al., 2010) or other actors. IKEA, for example, provides several engagement opportunities such as the application 'Place,' which helps customers to engage with the company by co-creating interior designs that are unique (Jessen et al., 2020).

However, according to Levine (2022) and Hollebeek et al. (2018), companies should not only focus on CE but also on the engagement of different actor types, namely actor engagement (AE). Actors can be 'single actors' (e.g., customers) or "groups of actors (collectives or organizations)" (Storbacka, 2019, p. 8). The literature highlights the importance of "zooming out" and taking a multi-actor view/perspective when examining the nature of the engagement concept (Alexander et al., 2018; Brodie et al., 2019; Li et al., 2017). Companies like the video game developer Electronic Arts Inc. offer multiple actors different engagement mechanisms

and opportunities; for instance, they distribute surveys to different actors in a network (e.g., employees, customers) to promote their engagement (Electronic Arts, 2022). These engagement opportunities are "designed to help [the company] understand the issues that matter most" to those actors (Electronic Arts, 2022, p. 40).

Even though these examples and the literature have already emphasized the importance of engagement (e.g., Brodie et al., 2011; Verhoef et al., 2010), multiple companies have only recently started to use the engagement of actors in a way that improves the services for and experiences of actors (Hyken, 2021).

1.2. Engagement Literature and Research Gaps

1.2.1. Actor Engagement Literature

Definition

Although most of the engagement literature focuses on the dyadic relationship between customers and brands/companies (i.e., CE) (Alexander et al., 2018; Li et al., 2018), the literature has started to examine "engagement as nested within a larger set of relationships" (Chandler & Lusch, 2015, p. 9). Researchers have thus moved from a dyadic perspective (i.e., micro level) to a broader perspective (i.e., macro level), namely AE, which deals with the interactions among multiple actors in a network (Li et al., 2018). AE is defined as "an actor's […] exchange-based and non-exchange-based resource contributions, that are facilitated by dispositions" (Storbacka, 2019, p. 6; see also Storbacka et al., 2016) and which go beyond what is fundamental to the exchange (Alexander et al., 2018). According to Storbacka (2019), resource contributions are the core of AE.

Literature Overview and Research Gap(s)

Most of the AE papers are conceptual (see Table 1), such as Baker et al. (2021), Storbacka (2019), and Alexander et al. (2018), and provide a better understanding of the AE conceptualization and definition. Some of these conceptual articles also focus on the antecedents of AE; they identify psychological ownership (Baker et al., 2021), shared beliefs, cognitive evaluations, social norms, hedonic feelings (Li et al., 2018), translation (i.e., the presentation and adaption of opportunities) (Snihur et al., 2017), and actor embeddedness (Wajid et al., 2019) as drivers of AE.

Ekman et al. (2021) empirically examine drivers of AE by interviewing customers and representatives of a real estate company. These scholars identify engagement connectedness[1] and customers' engagement disposition[2] as antecedents of AE (Ekman et al., 2021).

Several articles also present consequences of AE (e.g., Jaakkola & Aarikka-Stenroos, 2019; Storbacka, 2019; Wajid et al., 2019). These scholars show that AE can result in value (co)-creation (Jaakkola & Aarikka-Stenroos, 2019; Wajid et al., 2019) and value co-production (Wajid et al., 2019) in a service system. The conceptual paper by Storbacka (2019, p. 8) considers AE "both as a driver of resource density and, thus, value creation, and as a shaper of market systems." This shows that actors can benefit from AE.

Although these articles provide important and relevant insights into the antecedents and consequences of AE, their findings and propositions are rather abstract and provide little insights into the business consequences of AE. Moreover, most of these articles are conceptual in nature and do not empirically examine the relationship between AE and other concepts.

Hollebeek et al. (2021) call for research that examines the drivers and consequences of AE. Accordingly, this dissertation addresses these research gaps by examining relevant antecedents of AE and investigating the relationship of AE with the business model (BM) concept theoretically and empirically.

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[1] Engagement connectedness contains the attributes 'interaction characteristics' and 'relationship foundation' (Ekman et al., 2021).
[2] Engagement disposition contains the attributes 'experience' and 'strategic fit' (Ekman et al., 2021).

Table 1. Literature Overview—Actor Engagement

Article	Method/Approach		AE Topics Covered				
	Empirical	Conceptual	Activities, Valence, Conceptualization	Antecedents	Consequences		
					Value Outcomes/(Co-)Creation Process	Market Shaping	Business Consequences
Alexander et al. (2018)		X	X	(X)			
Baker et al. (2021)		X	X	X			
Blasco-Arcas et al. (2020)	X *(qual. case study)*	X	X	(X)			
Brodie et al. (2019)		X	X	X			
Ekman et al. (2021)	X *(interviews)*			X			
Fehrer et al. (2020)		X *(includes an illustrative case study)*				X	
Hollebeek et al. (2022)		X	X				
Hollebeek et al. (2018)		X	X				
Jaakkola and Aarikka-Stenroos (2019)*	X *(field study, interviews)*		X *(customer referencing)*		X		
Li et al. (2018)		X	X	X			
Li et al. (2017)	X *(qual. case study)*		X	(X)	X		
Prior and Marcos-Cuevas (2016)	X *(qual. case study)*		X				
Snihur et al. (2017)		X		(X)			
Storbacka (2019)		X	X		X	X *(and resource density)*	
Storbacka et al. (2016)		X	X		X		
Wajid et al. (2019)		X		X	X		
Paper A (dissertation)		X	X	X	X		X
Paper B (dissertation)	X *(qual. case study)*		X	X			X

Notes: *This article examines customer referencing as business AE behavior; qual. = qualitative; AE = actor engagement; (X) = topics are not explicitly addressed.

1.2.2. Customer Engagement Literature

Definition and Conceptualization

The literature "initially explored customer engagement […] within the firm–customer dyad" (micro level), and then started to focus on the macro level by examining the engagement of multiple actors in a network (i.e. AE) (Brodie et al., 2019, p. 173). While AE refers to the relationship between different actors in a network, CE focuses on the relationship between customers and a company/brand (Alexander et al., 2018). Hence, CE is considered as a "specific form of actor engagement" (Li et al., 2018, p. 492).

The number of articles examining CE has multiplied significantly in recent years due to the increasing practical and theoretical relevance of the concept (Brodie et al., 2011; Hollebeek et al., 2021; Lim et al., 2021). In the literature, engagement "has been discussed with different meanings in various contexts" and research fields (Brodie et al., 2011, p. 295; see also Pansari & Kumar, 2017; Vivek et al., 2012).

In line with scholars such as Cheung et al. (2015) and Vivek et al. (2012), this dissertation considers CE as a multidimensional concept comprising a cognitive, affective (also referred to as emotional), and behavioral dimension. It defines CE as a state that results from a customer's interactive/'co-creative' experiences with a company in an interaction (Brodie et al., 2011) that goes beyond the exchange itself (van Doorn et al., 2010). The concept represents the intensity of a customer's participation and connection with a company/brand or its offerings (Bijmolt et al., 2010; Vivek et al., 2014; Vivek et al., 2012).

While the cognitive dimension of CE reflects a customer's "level of brand-related thought processing and elaboration in a particular consumer/brand interaction", the affective dimension refers to the "degree of positive brand-related affect in a particular consumer/brand interaction" (Hollebeek et al., 2014, p. 154). The behavioral dimension is defined as the time, resources, and effort a customer invests in a specific interaction (Hollebeek et al., 2014). CE is characterized by different behaviors, such as co-developing/-creation and compliance activities or word-of-mouth and feedback behaviors (Verhoef et al., 2010; Verleye et al., 2014). On social media, customers can engage with a brand or company by commenting, liking, or sharing company-generated social media posts (Antoniadis et al., 2019; Cvijikj & Michahelles, 2013; Luarn et al., 2015). The empirical CE studies in this dissertation also measure the behavioral engagement based on those metrics.

Even though most of the engagement literature deals with the concept of CE, some academic articles also refer to the concept of consumer or user engagement (Brodie et al., 2013; Dessart

et al., 2016; Devereux et al., 2020). While the term 'customer' includes only actors that purchase the goods or services, the terms 'consumer' and 'user' include actors that actually consume or use the goods/services (McDonald & Wilson, 2011). Scholars such as Brodie et al. (2013) and Devereux et al. (2020) use the terms 'consumer engagement' and 'customer engagement' interchangeably. Although those terms are "somewhat disparate, semantically, careful scrutiny of their respective articles reveals a high degree of similarity in their conceptual core" (Hollebeek et al., 2021, p. 295; see also Hollebeek et al., 2019).

In the social media environment, it is difficult to specify whether an actor that engages with a company or brand online is a customer, consumer, or any other actor type. Accordingly, this dissertation refers to a broader definition of customers[3] that includes actual, potential, former, and 'sub-final'[4] customers (Meyer & Davidson, 2001).

Literature Overview and Research Gap(s)

CE can have several financial benefits for companies (de Oliveira Santini et al., 2020; Pansari & Kumar, 2017). For instance, CE can increase a company's performance (e.g., higher revenue, profits, market share) and improve a brand's/company's reputation and recognition (Pansari & Kumar, 2017; van Doorn et al., 2010). However, to successfully manage CE, companies need to be aware of the antecedents of CE. According to the CE literature, the identification with a brand, perceived engagement benefits/costs, brand commitment, and trust are relevant antecedents of CE (van Doorn et al., 2010; Wirtz et al., 2013).

CE articles dealing with engagement behavior in the online environment are gaining more attention in the literature (Hollebeek et al., 2021) because digitalization has facilitated the exchange and communication between companies and other actors such as customers (Fitzgerald et al., 2014). In the online context, several empirical studies identify community characteristics (e.g., system support, rewards/recognition) (Chan et al., 2014), community identification (Algesheimer et al., 2005; Kaur et al., 2020; Liu et al., 2019; Ray et al., 2014), brand relationship characteristics (e.g., brand strength) (De Vries & Carlson, 2014), involvement (Dessart, 2017; Islam & Rahman, 2017), knowledge self-efficacy, and satisfaction (Ray et al., 2014) as key drivers of CE[5].

Practitioners are "increasingly connecting with customers and fans through social media" (Tafesse & Wien, 2018, p. 241), which is defined as "a group of Internet-based applications

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[3] Research paper D of this dissertation refers to 'online engagement behavior' (OEB) because one reviewer suggested to use this term instead of 'customer engagement behavior' (CEB).

[4] Sub-final customers are actors that influence the target group directly or indirectly (e.g., influencers).

[5] Research paper C of this dissertation provides more in-depth insights into the existing CE literature.

that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content" (Kaplan & Haenlein, 2010, p. 61). Social media platforms like Facebook or Instagram provide new opportunities for companies to engage and interact with their customers (Kaplan & Haenlein, 2010).

Multiple articles have already examined the impact of post-related attributes on engagement behaviors (e.g., liking, commenting, sharing) in social media (e.g., Cvijikj & Michahelles, 2013; Luarn et al., 2015; Rooderkerk & Pauwels, 2016). These articles show that the timing of a post (Devereux et al., 2020; Rooderkerk & Pauwels, 2016), the content of a post (e.g., business/product-related content) (Bapna et al., 2019; Devereux et al., 2020; Khan et al., 2016), the length of a post (Banerjee & Chua, 2019; Ge & Gretzel, 2018), and the type of a post (e.g., video, photo) (Cvijikj & Michahelles, 2013; Sabate et al., 2014) can influence engagement behavior on social media. However, academic insights into effective and interactive crisis communication are rare (Liu et al., 2020). Most of the crisis communication literature does not indicate how specific post-related attributes can affect engagement behavior. Thus, little is known about what factors "may lead to different forms of social media users' engagement behavior toward a global crisis" (Azer et al., 2021, p. 99).

In addition, most of the engagement literature that examines social media communication focuses on product-oriented industries like the food or automotive industry (Cvijikj & Michahelles, 2013; Khan et al., 2016; Le, 2018). In contrast, engagement research in service-oriented industries like the technology, media, and telecommunications (TMT)[6] industry is rare. However, it is likely that social media guidelines from other industries do not apply to the TMT industry because differences between the TMT industry and other industries exist in terms of the consumption motives of users/customers (e.g., entertainment, information) and purposes of the companies (Lugmayr & Grueblbauer, 2017; Riskos et al., 2022). The TMT industry, which "is at the centre of the digital transformation" (KPMG, n.d.), produces and delivers content and provides the infrastructures/devices that connect actors (Daidj & Jung, 2011; McKinsey, n.d.).

Swani et al. (2014) have already emphasized that social media research is needed that considers specific industries and that analyzes the engagement behavior of customers. It is therefore important to examine industries like the TMT industry separately to develop industry-specific communication guidelines that managers and brand page administrators of TMT companies can use to publish social media content that stimulates customer engagement behavior (CEB). This dissertation addresses the identified research gaps by conceptually and

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[6] Even though research papers C and D examine media/technology companies, this dissertation refers to the TMT industry in the following sections of the dissertation because these companies also belong to this industry.

empirically examining specific industries and corporate (crisis) communication on social media.

1.3.   Research Aims and Questions

The main objective of this doctoral thesis is to offer a better understanding of the engagement concept by examining the interplay and relationship of engagement with other concepts. This dissertation develops a conceptual framework that depicts both relevant antecedents of the engagement concept and its consequences by examining the relationship between engagement and the BM phenomenon from a service-oriented perspective.

The engagement phenomenon "is not merely an individual, customer-only and isolated concept, rather engagement is continuous and interrelated with other groups of actors in the network" (Li et al., 2017, p. 754; see also Alexander et al., 2018). Hence, it is important to understand the engagement concept within a service system that includes several actors before examining the engagement of specific actor types (e.g., customers). Therefore, the conceptual framework 'zooms out' of the dyadic relationship between a brand/company and the customer (i.e., the micro level) and focuses on the higher-order concept of AE to create a conceptual framework that allows a broader and more 'holistic' view (i.e., macro-level perspective). The objective of the qualitative case study (research paper B) is to empirically investigate certain relationships (i.e., the interplay between AE and BM) presented in the framework in order to provide relevant insights into the concept of AE.

This dissertation (especially research papers A and B) builds on the service-dominant logic (SDL), which "offers a natural theoretical basis for broadening the scope of engagement research" (Alexander et al., 2018, p. 334). The SDL represents an alternative to the (traditional) goods-dominant logic and considers all actors as resource integrators (Vargo & Akaka, 2009). According to this logic, "value is cocreated by multiple actors" that engage in resource integration and service exchange (Vargo & Lusch, 2016, p. 8). The engagement of actors is therefore considered essential for value co-creation (Tsiotsou, 2021) because "without actor engagement, […] no value can be co-created" (Storbacka et al., 2016, p. 3008). This dissertation aims to contribute to the service-centered perspective by linking the concepts of engagement, BM, and value co-creation. Connecting these concepts offers important theoretical insights and a better understanding of these phenomena.

The engagement of actors "on social media has become an important topic in marketing for both academics and practitioners" (Tsiotsou, 2021, p. 351). More actors are using technological developments like "social media platforms as a means of expressing opinions and interacting

with companies" and/or brands (de Oliveira Santini et al., 2020, p. 1212). In January 2022, 4.62 billion people actively used social media (DataReportal, 2022). It is therefore important for companies and practitioners to manage the engagement of actors (e.g., customers) in the social media environment. Central to a successful and effective management of engagement is an understanding of the factors that stimulate engagement behavior in the social media context (Carlson et al., 2018; Tsiotsou, 2021). The quantitative studies of this dissertation therefore examine relevant antecedents of engagement behavior on social media to broaden the understanding of this concept and to develop social media guidelines companies can use to effectively communicate with other actors. By considering different theories (e.g., uncertainty reduction theory, theory of image restoration) and theoretical approaches (e.g., uses and gratification approach), this dissertation aims to expand empirical insights into the engagement concept and refine existing theories in the online environment.

These objectives lead to the following overarching research questions:

RQ1: What factors influence the engagement of actors like customers?

RQ2: How does the engagement of actors influence the BM concept?

The empirical studies of this dissertation focus on the engagement of specific actor types like gamers and customers (instead of actors in general) to derive detailed guidelines. The main reason for this focus is the abstract nature of AE (Kleer & Kunz, 2021), which makes it difficult to measure and operationalize this concept.

1.4. Overall Contribution

Each paper of this dissertation addresses a specific research gap in the engagement literature and answers research questions relevant for scholars and practitioners. Research papers A and B address research gaps by conceptually and empirically examining the business consequences of engagement from a multi-actor and micro-level perspective (i.e., AE). Research papers C-F focus on the micro level of engagement (i.e., CE) in the social media environment. These papers close gaps in the literature by examining the impact of post-related attributes on the behavioral engagement of customers during a crisis and/or within the service-oriented TMT industry. Figure 1 presents an overview of the research papers included in this dissertation. It specifies the research aims/question(s) and major contribution of each research paper and the overall contribution of this dissertation.

This dissertation contributes to the literature by extending existing findings about the nomological network of the engagement concept. A nomological network "guide[s] construct validity" and "specifies the laws that explain to what extent and why theoretical constructs are

related with each other and with corresponding measures" (Preckel & Brunner, 2017, p. 3). Thus, the elaboration of the nomological network provides a better understanding of the theoretical construct, the engagement concept (Cronbach & Meehl, 1995).

This dissertation conceptually and empirically examines relevant antecedents and business consequences related to the engagement of multiple actors in a network (i.e., AE) and to the engagement of specific actor types such as customers and gamers. It thereby contributes to the SDL by offering important insights into how AE influences other actors in a network and their BMs. While most of the engagement literature focuses on the micro level of engagement (Alexander et al., 2018), this dissertation examines both the macro and micro levels and thereby provides a better and more holistic understanding of the engagement phenomenon.

The conceptual framework developed in research paper A provides a solid basis and structure for the present dissertation (especially for research paper B) as well as for future research in different engagement domains. Scholars can use this framework to empirically investigate the described relationships in different contexts. Moreover, the conceptual framework and the empirical studies of this dissertation enable scholars and managers to fully understand the engagement concept on a micro level (i.e., CE) and a macro level (i.e., AE). Insights of this dissertation offer guidance for companies/managers willing to improve their engagement strategies. This dissertation shows which factors practitioners need to consider when they interact and communicate with specific actors to stimulate their engagement. With regard to the micro level, this dissertation (i.e., research papers C-F) provides insights that companies can use to effectively communicate with their customers online. Based on the findings of the empirical studies, social media guidelines for companies and their (social media) managers are developed. Moreover, these studies contribute to the literature by emphasizing the importance of considering moderator variables when examining engagement on social media and measuring the performance of social media posts. This dissertation (i.e., research papers E and F) also deals with the social media communication of companies during a crisis, namely the COVID-19 pandemic. It offers valuable insights into post-related attributes that are important for effective crisis communication because inadequate communication during a crisis can have negative economic consequences (Su et al., 2021).

Figure 1. Overall Contribution of the Dissertation and Research Papers

Antecedents and Consequences of the Engagement Concept

		Research Aim/Research Question(s)	Contribution	Research Method
AE (macro level)	**Paper A**	Research aim: Examining relevant antecedents of AE and the relationship of AE with the BM concept.	Understanding the antecedents of AE and its interplay with the BM concept.	Conceptual paper
	Paper B	How does AE impact the BMs of video game developers?	Providing practical insights into the business consequences of AE; broadening the understanding of engagement.	Qualitative case study
CE/CEB/OEB (micro level)	**Paper C**	Research aim: Providing an overview of current CE/CEB literature and insights into the concept's importance within the media industry.	Understanding the importance of CE for the media industry in the digital age.	Conceptual paper
	Paper D	What factors of brand-generated social media posts published by TMT companies are related to CEB?	Understanding the relationship between post-related attributes and CEB and the importance of moderators. Developing guidelines that help TMT companies to communicate effectively.	Quantitative content analysis; multiple regression analysis (*SPSS*; *PROCESS*)
	Paper E	1) How do company-generated posts with crisis-related content affect OEB in social media? 2) Which crisis-relevant attributes of social media posts impact OEB through social media? 3) How do crisis-related content and post types moderate the impact on OEB?	Developing social media guidelines for crisis communication. Understanding the relationship between crisis-related post attributes and OEB.	Quantitative content analysis; PLS-SEM (*SmartPLS*)
	Paper F	1) How does the content type of company-generated posts correlate with CEB? 2) How does the COVID-19-related context of company-generated posts correlate with CEB?	Developing social media guidelines for crisis communication. Understanding the relationship between crisis-related post attributes and CEB.	Hierarchical regression analysis (*SPSS*)

Overall Contribution

1) Providing a better understanding of the concepts of AE and CE/CEB
2) Identifying relevant antecedents and consequences of the engagement concept
3) Providing insights companies can use I) to effectively communicate with their customers and/or II) to better manage the engagement of different actors

Notes: AE = actor engagement; BM = business model; OEB = online engagement behavior; CE = customer engagement; CEB = customer engagement behavior; TMT = technology, media, and telecommunications industry; PLS-SEM = partial least square structural equation modeling.

To answer the superordinate research questions, conceptual and empirical methodological approaches such as quantitative coding techniques and a qualitative case study approach are applied (see Figure 1). The data, which is collected by applying these approaches, is analyzed using content analyses, partial least squares structural equation modeling (PLS-SEM), and regression analyses. The conceptual research papers of this dissertation aim to provide insights into research areas that have received little attention in the existing literature. They theoretically/conceptually examine relationships among concepts and/or contexts that can be tested in future research.

1.5.   Research Papers

This dissertation examines the engagement concept from two different perspectives and is thus thematically divided into two parts/research strings. The first part focuses on the macro-level perspective and provides insights into the antecedents and consequences of AE. The second part investigates the engagement of a specific actor type, the customers, at a micro level and provides insights into the antecedents of CE/CEB in the online environment. Both parts emphasize the importance of engagement and help to broaden the understanding of the engagement concept.

Table 2 provides an overview of the research papers[7] included in this dissertation and presents additional information, such as the title, author(s), paper type, and publication status of each research paper.

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[7] Please note that the research papers were adapted to the layout of this dissertation, which required small adjustments in the research papers. The tables and figures are numbered consecutively.

Table 2. Overview: Research Papers

Paper	Author(s)	Title	Publication Status
A)	Nicola Kleer & Reinhard E. Kunz	"The interplay between actor engagement and business models."	Under review: *Journal of Service Management* (1st round)
B)	Nicola Kleer & Reinhard E. Kunz	"The impact of actor engagement on the business models of video game developers."	Published in the *International Journal on Media Management*
C)	Nicola Kleer	„Die Bedeutung von Kundenengagement für die Medienbranche im digitalen Zeitalter." ["The importance of customer engagement for the media industry in the digital age."]	Accepted for publication in the *MedienWirtschaft*
D)	Nicola Kleer & Reinhard E. Kunz	"Customer engagement behaviour in social networks—A quantitative content analysis of the technology, media, and telecommunications industry."	Under revision: *Electronic Markets* (revise and resubmit)
E)	Nicola Kleer & Reinhard E. Kunz	"The impact of company-generated posts with crisis-related content on online engagement behavior."	Under revision: *Journal of Business Research* (3rd round; minor revision)
F)	Sina Wenzel, Nicola Kleer, & Reinhard E. Kunz	"Customer engagement behaviour in the media and technology industry: a quantitative content analysis of content types and COVID-19 context."	Published in the *Journal of Media Business Studies*

Note: Some of the research papers are written in British English.

1.5.1. Extended Abstract—Paper A

Title: "The interplay between actor engagement and business models."

Research paper A contributes to this dissertation as it provides a better understanding of the engagement concept. In this research paper, the authors develop a conceptual framework which serves as a basis for this dissertation (especially for research paper B).

Background and Purpose

"Recent engagement research offers a broader theoretical view" and focuses on the engagement of multiple actors (Blasco-Arcas et al., 2020, p. 74). Scholars have derived AE propositions (Brodie et al., 2019), have examined AE as a "microfoundation" for value co-creation (Storbacka et al., 2016, p. 3008), and have explored the concept from different aggregation levels (Alexander et al., 2018). However, these researchers do not focus on the impact of AE on the BM concept. Alexander et al. (2018) emphasize the need for further research that examines how actors like companies respond to AE. Hollebeek et al. (2021) also argue that it is important to investigate the drivers and consequences of AE. This paper therefore addresses this research gap by examining the drivers of AE and its relationship with the BM concept.

Method/Approach

The authors developed a conceptual framework based on the SDL and existing literature. The framework depicts the interplay and relationship between AE and BMs and presents relevant antecedents of the AE phenomenon from a service-oriented perspective.

Findings and Implications

The authors argue that AE causes multiple changes in the BM concept. An actor that engages in an interaction with other actors voluntarily contributes resources. Actors like organizations can combine those resources (provided by engaged actors) with their own resources, which results in modifications of their BMs. These changes, in turn, can affect the AE concept. This research paper also identifies shared goals, access to resources, and outcome expectations of actors as key drivers of their engagement. The authors consider the context in which actors are situated as a moderating factor that affects the strength of the relationship between AE and BM.

This research paper emphasizes the importance of developing BMs that consider the engagement of multiple actors in a network, and thereby provides important practical insights. Practitioners willing to benefit from AE should consider the antecedents identified in this research paper by offering actors relevant resources and by managing the interactions with actors based on those actors' outcome expectations.

Originality/Value

This research paper contributes to the engagement literature by examining the nomological network of AE. It thereby provides a better understanding of the AE phenomenon. It also contributes to the literature by examining the relationship between the concepts of AE and BM in more detail, which are only loosely connected in existing literature.

Publication Status and Personal Contribution

This paper is co-authored by Prof. Dr. Reinhard Kunz, Department of Media and Technology Management at the University of Cologne. It was submitted to the *Journal of Service Management* in February 2023. My personal contribution to this research paper is presented in Table 3.

Table 3. Personal Contribution—Paper A

1. Intellectual Input (Problem Definition & Idea Development)			
◯ Less than 25%	◯ 25%-50%	⊗ 51%-75%	◯ 76%-100%
Comments:			
The problem definition and idea development were co-developed by the authors.			
2. Literature Search and Conceptualization			
◯ Less than 25%	◯ 25%-50%	◯ 51%-75%	⊗ 76%-100%
Comments:			
I analyzed existing literature to develop the conceptual basis of this research paper.			
3. Writing Process			
◯ Less than 25%	◯ 25%-50%	◯ 51%-75%	⊗ 76%-100%
Comments:			
I wrote the draft version of this research paper and revised it based on the co-author's comments.			

1.5.2. Extended Abstract—Paper B

Title: "The impact of actor engagement on the business models of video game developers."

While research paper A investigates the impact of AE on BM conceptually, research paper B examines this impact by conducting a qualitative case study in the media industry. It thereby contributes to the overall objective of this dissertation by broadening the understanding of the AE concept and by providing practical insights into the concept's business consequences.

Background and Purpose

In the media context, scholars such as Burger-Helmchen and Cohendet (2011) and Parmentier and Mangematin (2014) have already emphasized the importance and benefits of engaged actors like community members and gamers. The engagement of actors can influence the resources, activities, or relationships of other actors (Brodie et al., 2019; Prior & Marcos-Cuevas, 2016). However, previous research does not explicitly focus on the business consequences of AE. This study addresses this research gap by empirically examining the impact of AE on the BM concept in the context of the digital media industry.

Method/Approach

The authors developed propositions dealing with the impact of AE on the elements of a BM. Based on these propositions, they conducted a qualitative single case study focusing on the video game developer Blizzard Entertainment, Inc. and its video game World of Warcraft (WoW). Data was collected from different sources, such as annual reports, forum posts, and online articles, and was categorized with a focus on content related to the engagement of gamers. The authors then analyzed the data according to the BM dimensions and elements.

Findings and Implications

In the context of the video game sector, the authors show that the engagement of actors can lead to changes in the dimensions and elements of the BM of video game developers. This study therefore argues that AE is a driver of BM changes. It shows that video game developers and managers should consider the engagement of different actors (especially those of gamers). Moreover, these developers and managers should develop collaborative competencies and engagement opportunities that enable, facilitate, and foster the engagement of those actors.

Originality/Value

This study provides practical insights into a rather abstract research field and emphasizes the importance and potential benefits of AE in the media industry. It expands existing literature by

investigating the business consequences of the AE concept and thereby contributes to a better understanding of this concept. The propositions developed in this study serve as a starting point for future research.

Publication Status and Personal Contribution

The first author has presented a previous version of this joint research project (working title: "The impact of actor engagement on media business models: A case study on World of Warcraft") at the Conference of the International Media Management Academic Association in Qatar in 2019 (co-author: Prof. Dr. Reinhard Kunz).

Afterwards, the authors submitted a revised version of this paper to the *International Journal on Media Management.* This paper, which is co-authored by Prof. Dr. Reinhard Kunz, was published by the journal (Volume: 23; Issue: 3–4) in 2022 with the following title: "The impact of actor engagement on the business models of video game developers". The personal contribution of the author is presented in Table 4.

Table 4. Personal Contribution—Paper B

1. Intellectual Input (Idea Development & Conceptualization)			
◯ Less than 25%	◯ 25%-50%	⊗ 51%-75%	◯ 76%-100%
Comments:			
The problem definition, conceptualization, and idea development were co-developed by the authors.			
2. Literature Search			
◯ Less than 25%	◯ 25%-50%	◯ 51%-75%	⊗ 76%-100%
Comments:			
I conducted the literature research.			
3. Data Collection and Analysis			
◯ Less than 25%	◯ 25%-50%	◯ 51%-75%	⊗ 76%-100%
Comments:			
I collected the data from different sources, categorized, and analyzed it.			
4. Writing Process			
◯ Less than 25%	◯ 25%-50%	⊗ 51%-75%	◯ 76%-100%
Comments:			
I wrote the draft version of this research paper and revised it based on the co-author's comments.			

Citation

Kleer, N., & Kunz, R. E. (2021). The impact of actor engagement on the business models of video game developers. *International Journal on Media Management*, *23*(3-4), 204-237.

DOI: https://doi.org/10.1080/14241277.2022.2038604

1.5.3.   Extended Abstract—Paper C

Title: "Die Bedeutung von Kundenengagement für die Medienbranche im digitalen Zeitalter." ["The importance of customer engagement for the media industry in the digital age."]

This research article provides an overview of the social media communication of (media) companies and constitutes the basis of the remaining research papers (D, E, F) of this dissertation, which examine corporate communication in an interactive social media context.

Background and Purpose

In the digital media industry, CE is a key performance indicator (Goldapp, 2015) that is becoming increasingly important in practice and in the literature. Media companies therefore need to be aware of the nomological network of CE. However, insights into the antecedents and consequences of CE within the media industry are rare.

This article aims to emphasize the importance of CE in the context of the media industry by providing an overview of existing literature and identifying antecedents and consequences of CE and CEB. In addition, it presents the opportunities and risks related to social media usage.

Method/Approach

This conceptual research article provides an overview of the existing CE/CEB literature and offers practical insights into the engagement concept within the media industry.

Findings and Implications

This article highlights the central role of engagement for media companies by identifying beneficial consequences of CE/CEB for companies. Media companies should therefore create digital and analogue interaction opportunities to increase the engagement (behavior) of their customers.

This article shows that multiple researchers have already examined CE/CEB in the context of social media (Luarn et al., 2015). Social media offer new opportunities for media companies to increase CE and the reach of company-generated posts. The author emphasizes that companies should create and publish social media posts that promote the engagement of customers. The article reveals that the content-oriented media industry (Daidj & Jung, 2011) should place a special focus on the content of their social media posts.

Originality/Value

This research article provides a better understanding of the CE concept in the context of the media industry. It offers an overview of existing articles dealing with the antecedents and consequences of CE. Moreover, the article provides insights into how media companies can communicate with their customers on social media to increase their engagement.

Publication Status and Personal Contribution

The author presented this research project at the '*Fachgruppentagung der Medienökonomie der Deutschen Gesellschaft für Publizistik- und Kommunikationswissenschaft*' (working title: "Die Bedeutung von Kundenengagement im digitalen Zeitalter" ["The importance of customer engagement in the digital age"]) in Munich in 2022. The single-author article was then submitted to the *MedienWirtschaft* and will be published in 2023.

The author's contribution to this article is presented in Table 5. I would like to emphasize that Prof. Dr. Reinhard Kunz provided me with valuable suggestions as well as constructive criticism on the manuscript.

Table 5. Personal Contribution—Paper C

1. Intellectual Input (Idea Development & Conceptualization)			
◯ Less than 25%	◯ 25%-50%	◯ 51%-75%	⊗ 76%-100%
2. Literature Search			
◯ Less than 25%	◯ 25%-50%	◯ 51%-75%	⊗ 76%-100%
3. Writing Process			
◯ Less than 25%	◯ 25%-50%	◯ 51%-75%	⊗ 76%-100%

Citation

Kleer, N. (*forthcoming*). Die Bedeutung von Kundenengagement für die Medienbranche im digitalen Zeitalter. *MedienWirtschaft*.

1.5.4. Extended Abstract—Paper D

Title: "Customer engagement behaviour in social networks—A quantitative content analysis of the technology, media, and telecommunications industry."

The following three research projects examine the social media communication of global companies. While research papers E and F focus on crisis communication, research paper D examines the communication of TMT companies with their customers on social media and thereby addresses research gaps identified in the previous paper (i.e., research paper C).

Background and Purpose

In today's highly competitive and dynamic environment, TMT companies need to adapt their strategies to increase the engagement behavior of their customers. However, articles that provide insights into how TMT companies can effectively communicate with their customers on social media to increase CEB are rare.

This article examines social media posts published by companies of the TMT industry. It analyzes post-related attributes such as interactivity, sentiment, actuality, content type, and content, and their relationships with the CEB concept, which is measured by the number of likes, comments, shares, and emoji reactions.

Method/Approach

A quantitative content analysis of 2,600 company-generated posts on 20 TMT Facebook brand pages was conducted. The authors analyzed the data by applying multiple regression analysis using the software *IBM SPSS Statistics 27*. Moreover, the authors examined the mean centered interaction effects using *PROCESS v3.5*.

Findings and Implications

This research paper reveals that the examined content types (i.e., informational/entertaining content) and interactive elements are negatively related to CEB. In contrast, post attributes such as the post sentiment, type (video vs. photos), or length are positively related to the engagement concept. The findings also show that certain post attributes such as post length moderate the relationship between CEB and other post attributes, such as informational content.

The authors of this article develop social media communication guidelines that TMT companies can follow to increase CEB. For instance, the authors recommend that TMT managers/social media administrators create posts with a higher word count, to use visual elements in social media posts, and to avoid interactive posts.

Originality/Value

This research paper contributes to the CE literature by empirically investigating and concretizing the CEB concept in the TMT industry. Moreover, it emphasizes the importance of considering moderator variables when empirically examining CEB and corporate communication on social media.

Publication Status and Personal Contribution

This paper is co-authored by Prof. Dr. Reinhard Kunz. The first author has presented this joint research project (working title: "Social media communication guidelines for media companies—quantitative content analysis and multiple regression analysis of media brands' Facebook posts") at the Conference of the European Media Management Association in Munich in 2022. A revised version of the research paper was submitted to the Journal *Electronic Markets* in November 2022. In February 2023, the paper received a 'revise and resubmit' request (in progress). The personal contribution of the author is presented in Table 6.

Table 6. Personal Contribution—Paper D

1. Intellectual Input (Idea Development & Conceptualization)			
◯ Less than 25%	◯ 25%-50%	⊗ 51%-75%	◯ 76%-100%
Comments:			
I developed the idea related to the investigation of social media posts by conducting a content analysis and refined it with the co-author.			

2. Literature Search			
◯ Less than 25%	◯ 25%-50%	◯ 51%-75%	⊗ 76%-100%
Comments:			
I researched the literature and identified the research gap.			

3. Data Collection and Analysis			
◯ Less than 25%	◯ 25%-50%	⊗ 51%-75%	◯ 76%-100%
Comments:			
I developed the table for the manual content analysis. I coded a large subset of the posts to check the accuracy of the coding, supervised the coders, and provided them with feedback on a regular basis. I also cleaned/prepared the data set, analyzed the data, and interpreted the results.			

4. Writing Process			
◯ Less than 25%	◯ 25%-50%	◯ 51%-75%	⊗ 76%-100%
Comments:			
I wrote the draft version of this research paper and revised it based on the co-author's comments.			

1.5.5. Extended Abstract—Paper E

Title: "The impact of company-generated posts with crisis-related content on online engagement behavior."

Like the previous research paper, this research project deals with companies' communication on social media. While research papers D and F focus on the TMT/media and technology industries, this paper examines international companies from different industries. It offers communication guidelines that help those companies to publish appropriate social media posts/content during a crisis. Moreover, it offers insights into the CEB concept by identifying relevant antecedents of behavioral engagement.

Background and Purpose

Social media have fundamentally changed the way companies can communicate during a crisis (Lee, 2020). According to Lin et al. (2016), crisis managers should proactively enter into online conversations. Despite the importance of good online communication during a crisis like the COVID-19 pandemic, insights into what kind of crisis-related social media content companies should publish during a global crisis are rare. This research paper addresses this research gap by examining direct and interaction effects of crisis-related attributes in company-generated social media posts on online engagement behavior (OEB). It also examines additional post attributes (i.e., expression of gratitude, employees, sense of belonging) and their relationships with OEB, as well as the moderation effects of post types (i.e., link, visual elements).

Method/Approach

The authors conducted a quantitative content analysis of 2,600 official Facebook posts of 20 international companies operating in different industries. They used PLS-SEM to test the hypotheses of the paper in *SmartPLS 3*.

Findings and Implications

The analysis reveals that social media posts that implicitly addressed the COVID-19 pandemic increased OEB. However, posts that showcased the employees of a company decreased OEB. The variables 'COVID-19 explicit,' 'sense of belonging,' and 'expression of gratitude' were not significantly related to OEB. This research paper also shows that crisis-related content and the post types can moderate the relationship of crisis-relevant post attributes with OEB.

Based on the findings, the authors provide guidelines that help companies publish social media content that communicates effectively with their customers/users during a

pandemic/crisis. It is argued that the findings can also be relevant for future global pandemics and crisis situations.

Originality/Value

The authors offer relevant insights into effective social media communication for international companies that want to improve or maintain their relationships with customers/users during a crisis. The article contributes to the literature by emphasizing the relevance of considering moderator variables when conducting a content analysis.

Publication Status and Personal Contribution

This paper is co-authored by Prof. Dr. Reinhard Kunz. A first version of the manuscript (working title: "The impact of company-generated posts with crisis-related content on customer engagement") was submitted to the *Journal of Business Research*. After the initial submission, the authors submitted a revised version of the manuscript (working title: "The impact of company-generated posts with crisis-related content on online engagement behavior"). In February, the authors received a request for a minor revision (in progress). My contribution to this article is presented in Table 7.

Table 7. Personal Contribution—Paper E

1. Intellectual Input (Idea Development & Conceptualization)			
◯ Less than 25%	◯ 25%-50%	⊗ 51%-75%	◯ 76%-100%
Comments:			
I developed the idea related to the investigation of COVID-19-related content and the content analysis, and refined it with the co-author.			
2. Literature Search			
◯ Less than 25%	◯ 25%-50%	◯ 51%-75%	⊗ 76%-100%
Comments:			
I researched the literature and identified the research gap.			
3. Data Collection and Analysis			
◯ Less than 25%	◯ 25%-50%	⊗ 51%-75%	◯ 76%-100%
Comments:			
I developed the table for the manual content analysis. I coded a large subset of the posts to check the accuracy of the coding, supervised the coders, and provided them with feedback on a regular basis. I also cleaned/prepared the data set, analyzed the data, and interpreted the results.			
4. Writing Process			
◯ Less than 25%	◯ 25%-50%	◯ 51%-75%	⊗ 76%-100%
Comments:			
I wrote the draft version of this research paper and revised it based on the co-author's comments.			

1.5.6. Extended Abstract—Paper F

Title: "Customer engagement behaviour in the media and technology industry: A quantitative content analysis of content types and COVID-19 context."

This paper also deals with the COVID-19 pandemic and provides social media guidelines for companies, describing how they should communicate with their customers during a crisis. Unlike the previous research project, this paper examines companies operating in a specific industry—the media and technology industry—and does not examine global companies in general.

Background and Purpose

Social networking sites (SNS) like Facebook have become an important communication tool for companies and users/customers (Liu & Brown, 2014; Marengo et al., 2021), especially during a crisis like the COVID-19 pandemic. This pandemic has posed considerable challenges (e.g., changing customer needs, major business disruptions due to lockdowns) for companies (Hartmann & Lussier, 2020; Karpen & Conduit, 2020; Macnamara, 2021). Companies like media and technology companies should interact and communicate with their customers appropriately to meet those challenges. However, guidelines describing how they should communicate via social media during the crisis are rare.

Therefore, this paper examines crisis-related social media attributes and investigates the relationship of content type and a 'COVID-19-related context' with engagement behavior in the service-oriented media and technology industry. Moreover, it investigates the moderating effect of a 'COVID-19-related context' on the relationship between content type and CEB.

Method/Approach

The authors conducted a manual content analysis of 1,946 Facebook brand posts created and published by 16 media and technology companies including Adobe, SAP, AT&T, and Cisco. They operationalized CEB by the number of likes, comments, shares, and negative/neutral/positive emoji reactions. The hypotheses developed in the article were empirically tested by conducting hierarchical linear regressions, using *IBM SPSS Statistics 27*.

Findings and Implications

The findings of this research paper reveal that COVID-19-related posts were negatively correlated with CEB. However, posts related to a company's support during the pandemic were positively correlated with the engagement metrics. The authors also show that informative content is either not, or negatively, related to CEB. However, entertaining posts were positively

associated with CEB. The research paper also shows that the variable 'support during COVID-19' had a moderating effect on CEB. A 'COVID-19 context', however, had no significant moderating effect on the engagement behavior of customers.

This research paper contributes to the literature by providing empirical insights into the relationship between content types and a COVID-19 context in a service-oriented industry. It offers valuable social media guidelines for media and technology companies. Moreover, it provides relevant insights that help practitioners to communicate adequately and effectively during a crisis.

Originality/Value

Service-oriented industries are rarely examined in the CEB literature. This research project addresses this research gap and provides social media guidelines describing how media and technology companies should communicate with their customers on social media during a crisis like a pandemic.

Publication Status and Personal Contribution

This research paper is co-authored by Sina Wenzel and Prof. Dr. Reinhard Kunz. The paper is based on the Master's thesis of Sina Wenzel, which was supervised by the co-authors of this paper.

Prof. Dr. Reinhard Kunz and the author of this dissertation jointly presented this research paper (working title "The impact of content type and COVID-19 context on customer engagement: A quantitative content analysis of media and technology companies") at the European Media Management Association Conference in 2021 in Jönköping (Sweden). The authors submitted a revised version of the manuscript to the *Journal of Media Business Studies*. The manuscript was accepted for publication after the third revision round (published online in November 2022). Table 8 shows my contribution to this research paper.

Table 8. Personal Contribution—Paper F

1. Intellectual Input (Idea Development & Conceptualization)			
○ Less than 25%	○ 25%-50%	⊗ 51%-75%	○ 76%-100%

Comments:

I developed the idea related to the investigation of COVID-19-related content and the content analysis and refined it with the co-authors.

2. Literature Search			
⊗ Less than 25	○ 25%-50%	○ 51%-75%	○ 76%-100%

Comments:

The literature research was conducted by the first author of this research paper. I added literature that supported the argumentation.

3. Data Collection and Analysis			
⊗ Less than 25%	○ 25%-50%	○ 51%-75%	○ 76%-100%

Comments:

I developed the table for the manual content analysis. The first author collected and analyzed the data. The third author and I supervised these steps and provided feedback on the data collection and analysis.

4. Writing Process			
○ Less than 25%	⊗ 25%-50%	○ 51%-75%	○ 76%-100%

Comments:

The first author wrote the draft of this research paper. I revised and restructured this draft and adapted it to the instructions/specifications of the journal and to several scientific standards. The first author and I implemented the comments/advice/suggestions provided by the third author.

Citation

Wenzel, S., Kleer, N., & Kunz, R. E. (2022). Customer engagement behaviour in the media and technology industry: A quantitative content analysis of content types and COVID-19 context. *Journal of Media Business Studies*, 1-23.

DOI: https://doi.org/10.1080/16522354.2022.2139997

2. Actor Engagement Papers

2.1. Paper A: The Interplay Between Actor Engagement and Business Models

Nicola Kleer and Reinhard E. Kunz

Department of Media and Technology Management, Faculty of Management, Economics and Social Sciences, University of Cologne, Cologne, Germany

2.1.1. Abstract

Purpose—The actor engagement literature does not focus on the impact of actor engagement on businesses, including the business model concept. However, several scholars emphasize the need for further research that examines the drivers and consequences of AE. Therefore, this paper examines the antecedents of actor engagement and its effects on the business model concept from a service-oriented perspective.

Design/Methodology/Approach—The authors develop a conceptual framework based on existing engagement and business model literature. This framework presents relevant drivers of actor engagement and depicts the interplay between actor engagement and business models.

Findings—Actor engagement causes multiple changes in an actor's business model because of the dynamic and interactive nature of this engagement concept. These changes, in turn, can affect the actor engagement phenomenon. The authors also identify actors' outcome expectations, access to resources and engagement platforms, and shared goals as relevant antecedents of actor engagement. They also consider and emphasize the importance of the context in which actors are situated.

Originality—This paper provides a better understanding of the actor engagement concept and contributes to the engagement literature by examining the nomological network of actor engagement. It offers a service-oriented and actor-centric perspective on the business model concept and links it with actor engagement.

2.1.2. Introduction

Digitalization drives the connectivity among actors, "which blurs the previously strict actor roles" (Storbacka, 2019, p. 5). Digital technologies provide new communication and engagement channels for actors like organizations, customers, and suppliers (Rivera-Arrubla and Zorio-Grima, 2016). In this interactive and networked environment, the engagement concept has become increasingly important (Jaakkola and Alexander, 2014; Li et al., 2017).

Actor engagement is defined as "the activity of engaging in an interactive process of resource integration" (Storbacka et al., 2016, p. 3009) that goes beyond what is fundamental to the exchange (Alexander et al., 2018). An engaged actor invests in and contributes resources to interactions with other actors in a network by performing interactive engagement behaviors (Alexander et al., 2018; Brodie et al., 2019). Actors can be individuals (e.g., humans) or collections of individuals (e.g., organizations) (Storbacka et al., 2016; Storbacka, 2019).

Because of its dynamic and interactive nature, actor engagement has a direct impact on other actors' actions, resources, relationships, and dispositions (Brodie et al., 2019; Prior and Marcos-Cuevas, 2016), and thus may influence an actor's business model. From a service-oriented and actor-centric perspective, business models are collections or groups of institutions that—through interconnected resources/activities and interaction with other actors—can result in innovations (Wieland et al., 2017, p. 926; Fehrer and Wieland, 2021).

Even though the relationship between actor engagement and business models has not been explicitly explored in the literature, several studies have assumed that interactions and knowledge exchanges among actors can lead to business model modifications (Frow et al., 2015; Mason and Leek, 2008; Nailer and Buttriss, 2019; Storbacka et al., 2012). If true, this assumption may indicate that actor engagement has the potential to impact the business models of actors.

We address the research gap in existing literature by examining the relationships with relevant concepts that are part of the nomological network of actor engagement. This paper responds to the call by Hollebeek et al. (2021) and Alexander et al. (2018) to explore the antecedents and (business) consequences of actor engagement. The paper thereby broadens and refines current insights into actor engagement and business modeling by depicting the relationship between the concepts. Practitioners need to be aware of this relationship to mobilize and integrate actors in value co-creation activities/processes. To adapt a business model appropriately and to benefit from business model changes, a better understanding of the drivers of business model changes from a service-oriented perspective is important. By gaining insights

into the influence of actor engagement on business models, practitioners can benefit from the relationship between the two by actively promoting actor engagement within a service ecosystem. To encourage and manage the concept of actor engagement successfully, practitioners also need a clear sense of its antecedents.

This paper builds on the service-dominant (S-D) logic, which offers a theoretical basis for providing a better understanding of the engagement concept (Alexander et al., 2018). The major objective of this paper is to develop a conceptual framework that depicts the relationship between actor engagement and business models from a service-oriented perspective. Factors affecting actor engagement might also impact business models indirectly and are therefore also incorporated into our conceptual framework to create a holistic picture and to provide a better understanding of the actor engagement phenomenon. Our framework helps practitioners and scholars to understand the antecedents of actor engagement, their underlying mechanisms and consequences, and the context in which actors are situated. It also provides guidance to practitioners willing to manage the engagement of diverse actors, which is considered "a strategic priority" (Storbacka, 2019, p. 4).

2.1.3. Theoretical Background

The Service-dominant Logic

The S-D logic is a network- and service-centered perspective that "provides a telescopic lens to view actors not in their dyadic roles as producers and consumers but in a more generic sense as actors in a system of other actors" (Lusch and Nambisan, 2015, p. 160). It represents a shift from goods-dominant to service-dominant thinking (Vargo and Lusch, 2004).

According to the goods-dominant logic, companies develop and sell goods in which value is embedded (Vargo and Lusch, 2004; Skålén et al., 2015). In the S-D logic, however, value cannot be created and provided by a single actor; it can only be co-created by multiple actors that engage in resource integration and service exchange (Vargo and Lusch, 2016; Pinho et al., 2014). All actors (e.g., companies, customers) offer value propositions (Chandler and Lusch, 2015)—defined as configurations of an actor's resources and practices (Skålén et al., 2015)—which are evaluated by other actors (e.g., customers) (Vargo and Lusch, 2008).

Value is "the set of benefits each actor receives from […] interactions" (Pinho et al., 2014, p. 481); it occurs during 'consumption'/usage when an actor (e.g., customer, supplier) combines their/its resources with the resources provided by other actors (Lusch et al., 2007). The S-D logic considers all actors as service providers and resource integrators (Vargo and Lusch, 2016) and sees service, which "is defined as the application of competences (knowledge and skills)

for the benefit of another party" (Vargo et al., 2008, p. 256), as the essential basis for exchange (Vargo and Lusch, 2017).

According to Aarikka-Stenroos and Jaakkola (2012, p. 17), "[v]alue co-creation is conceptualized as joint problem solving, which involves supplier and customer resources integrated in a collaborative interaction process." Value co-creation is as a collaborative and interactive process coordinated by institutions and institutional arrangements (Vargo and Lusch, 2016; Vargo et al., 2008). In the S-D logic, institutions are actor-generated norms, rules, and beliefs (Vargo and Lusch, 2016) and institutional arrangements are considered "higher-order assemblages of interrelated institutions" (Vargo and Lusch, 2017, p. 49). Both institutions and institutional arrangements are important facilitators of value co-creation in the S-D logic (Vargo and Lusch, 2016).

The Actor Engagement Concept

In the literature, 'engagement' "has been discussed with different meanings in various contexts" and research fields (Pansari and Kumar, 2017, p. 295; Brodie et al., 2011). Several scholars have examined engagement with a focus on the dyadic relationship between customers and companies (i.e., customer engagement) (Li et al., 2017). Recent engagement literature has started to examine this concept from a broader perspective that views the interactions among multiple actors in a network (Li et al., 2017). Thus, the concept of actor engagement has emerged in the literature (Storbacka et al., 2016), which is concerned with the engagement of different actors, including suppliers, customers, employees, community members, and business partners (Brodie et al., 2019; Li et al., 2017; Storbacka et al., 2016).

Actor engagement is defined as a dynamic concept characterized by actors' voluntary contribution of resources to interactions with other actors (Alexander et al., 2018; Li et al., 2017). Hence, the "core of actor engagement is resource contributions" (Storbacka, 2019, p. 5). Different activities and behaviors are associated with actor engagement, such as influencing behavior (e.g., sharing experiences), mobilizing behavior (e.g., recruiting actors), or co-developing behavior (e.g., co-developing offerings) (Alexander et al., 2018).

Scholars have also examined various actor engagement styles in the context of value co-destruction (Prior & Marcos-Cuevas, 2016), "customer referencing as a manifestation of business actor engagement behavior" (Jaakkola and Aarikka-Stenroos, 2019, p. 29), and the evolution of actor engagement in actor networks (Li et al., 2018). Other studies have derived fundamental actor engagement propositions (Brodie et al., 2019), have investigated actor engagement as a "microfoundation" for value co-creation (Storbacka et al., 2016, p. 3008), and

have explored the concept from different aggregation levels (i.e., micro, macro, and meso) (Alexander et al., 2018). Most actor engagement studies are abstract and theoretical and thus offer only limited insights for practitioners. Moreover, they do not focus on the relationship between actor engagement and the business model concept.

The Business Model Concept

In the last decade, the business model concept has received increasing attention in the literature (e.g., DaSilva and Trkman, 2014; Wieland et al., 2017; Keiningham et al., 2020). The business model literature mostly refers to a company-centric and rather traditional conceptualization of the business model concept (see Table 9) (Fehrer and Wieland, 2021; Wieland et al., 2017). It focuses on business models of companies rather than on business models of other actors (e.g., customers).

In the company-centric literature, a business model is variously defined as a mediator for innovation (Boons and Lüdeke-Freund, 2013), a system of interrelated activities that specifies how a company "does business" (Amit and Zott, 2012, p. 37), a description of an organization (Massa et al., 2017), and the architecture that describes how a company creates, delivers, and captures value (Carayannis et al., 2015; Timmers, 1998; Teece, 2010). This range of descriptions (see Table 9), which "only partially overlap," illustrates that there is no universally accepted definition of this concept (Zott et al., 2011, p. 1022). Nevertheless, multiple scholars agree that a business model emphasizes both value creation and capture (Benson-Rea et al., 2013; Fehrer et al., 2018; Howell et al., 2018; Teece, 2010; Nenonen and Storbacka, 2010). These scholars argues that value is created by an organization and delivered to the customer (e.g., Howell et al., 2018; Schaltegger et al., 2016; Saebi and Foss, 2015).

A more recent perspective (i.e., S-D logic), however, emphasizes that value is not created and delivered by an organization, but co-created through the exchange, integration, and combination of resources of multiple actors of a network (Wieland et al., 2017; Vargo et al., 2008). This perspective also requires a more service-oriented conceptualization of business models (Fehrer et al., 2018; Wieland et al., 2017).

Fehrer and Wieland (2021) have already proposed that the business model concept does not describe an organization's creation, delivery, and capture of value, but the dynamic co-creation of value and the integration of resources of multiple actors of a network. In contrast to the traditional perspective, the service-oriented perspective argues that all actors can have a business model (not only organizations) (Fehrer and Wieland, 2021; Wieland et al., 2017). Wieland et al. (2017, p. 926) define business models as "dynamic assemblages of institutions"

which, through the activities of actors of a network, link and affect innovations and shape the perception of resources and the relationship with other actors. According to these scholars, business models are considered as "formulized solutions in response to a specific problem" (Wieland et al., 2017, p. 935).

Table 9. Business Model Definitions in the Literature

	Definition	Perspective	
		Company-centric	Actor-centric
Amit and Zott (2012)	"a system […] that determines the way the company 'does business'" (p. 37)	X	
Carayannis et al. (2015)	"the architecture of an organization to accomplish a specific purpose, usually value creation" (p. 88)	X	
Fehrer and Wieland (2021)	They describe "*systemic and dynamic value cocreation and resource integration practices of broad sets of actors*" (p. 613)		X
Morris et al. (2005)	"concise representation of how an interrelated set of decision variables in the areas of venture strategy, architecture, and economics are addressed to create sustainable competitive advantage" (p. 727)	X	
Ruiz-Alba et al. (2019)	"a reflection of the firm's realized strategy" (p. 633)	X	
Saebi and Foss (2015)	"the content, structure, and governance of transactions […] in support of the company's creation, delivery and capture of value" (p. 203)	X	
Teece (2010)	"the architecture of revenues, costs, and profits" (p. 173)	X	
Teece (2018)	"an architecture for how a firm creates and delivers value to customers and the mechanisms employed to capture a share of that value" (p. 40)	X	
Timmers (1998)	"an architecture for the product, service and information flows" (p. 4)	X	
Wieland et al. (2017)	"dynamic assemblages of institutions that, through the performative practices […] of actors, reciprocally link and influence technological and market innovation and contribute to" an actor's service system's viability (p. 926)		X
Zott and Amit (2010)	"a system of interdependent activities that transcends the focal firm and spans its boundaries" (p. 216)	X	
Zott et al. (2011)	"a firm-centric, yet boundary-spanning, activity system" (p. 1037)	X	
Zott and Amit (2013)	"a template that depicts the way the firm conducts its business" (p. 404)	X	

In line with those scholars, we also define the business model concept from a service perspective and describe it as "assemblages of institutions" that—through interconnected **activities** and **resources** and the **relationship** with other actors (of a network)—can lead to

innovations (Wieland et al., 2017, p. 926; Fehrer and Wieland, 2021). Business models should contribute to an actor's/service network's viability (Wieland et al., 2017).

Business Model Changes

Although multiple scholars have examined the business model concept, there are only limited insights into the drivers of business model changes (Saebi et al., 2017; Foss and Saebi, 2017). Changes of a business model can occur in different ways (e.g., business model innovation/transformation/renewal) when actors "shift from one business model to another" (Willemstein et al., 2007, p. 222; Saebi et al., 2017).

The company-centric literature identifies factors like risks and opportunities (Saebi et al., 2017; Johnson et al., 2008), crisis situations (Ritter and Pedersen, 2020), (digital) technologies (Teece, 2010; Foss and Saebi, 2017; Baden-Fuller and Haefliger, 2013), learning and experience (Sosna et al., 2010), and environmental changes such as shifts in competition (Demil and Lecocq, 2010; Foss and Saebi, 2017; Johnson et al., 2008) as predictors of business model changes. A company's responsive or proactive market orientation, external actors (e.g., customers, government), and companies' relationships with these actors can also impact the business model concept (Ferreira et al., 2013; Miller et al., 2014; Yang et al., 2020). In other words, actors and their engagement might affect business models.

Articles that deal with business model changes from a service-oriented perspective are rare. To the best of the authors' knowledge, there is no study that examines the impact of specific actor behaviors (e.g., actor engagement) on an actor's business model. Nevertheless, understanding the influence of actor engagement on business models is essential to manage actors and their engagement effectively. Practitioners also need a clear sense of the reverse, that is, the effect that changes in business models have on actor engagement.

2.1.4. The Conceptual Framework

Drivers of Actor Engagement

Outcome Expectations

Scholars such as Gummerus et al. (2012, p. 860) argue that "engagement behaviors may […] be motivated by satisfying needs" (see also, Gagné and Deci, 2005; Wirtz et al., 2013). The more that an actor's needs can or will be addressed, the more likely this actor will be to contribute resources (Hou et al., 2020). Actors engage in activities when they expect that the respective activities will gratify their needs. Thus, actors' expectations determine their allocation of resources (Sniezek et al., 1990) and therefore their engagement (Leckie et al.,

2018). For instance, actors contribute resources (e.g., sharing information) if they expect to receive activity-related rewards. According to social exchange theory and expectancy theory, expected benefits influence an actor's motivation to engage (Roberts et al., 2014). Actors are motivated to engage in an activity if they expect beneficial outcomes, such as the improvement of relationships/competencies with other actors, a reduction in risks/costs, or an increase in control or reputation (Etgar, 2008; Jaakkola and Alexander, 2014). For instance, actors are more likely to interact and engage if they expect such feedback to improve their relations with other actors. We therefore argue that an actor's expectation of an activity's outcome influences their/its engagement.

Access to Resources and Engagement Platforms

Interactions among actors depend on their resource integration processes and resource density, defined as the extent to which actors can access resources in a specific space at a particular time (Storbacka, 2019; Storbacka and Nenonen, 2011; Wieland et al., 2017). Actors are more likely to engage in an interaction when resources crucial for this interaction are available and accessible (Jaakkola and Alexander, 2014; Li et al., 2017; van Doorn et al., 2010). By definition, actor engagement (i.e., an actor's voluntary contribution of resources) depends on access to relevant resources: Without access to these resources, an actor cannot engage. For instance, actors with limited time-related resources likely prefer to avoid time-consuming activities, leading to reduced actor engagement. Moreover, engagement platforms, defined as "physical or virtual customer touch points where actors exchange resources and co-create value" (Breidbach et al., 2014, p. 592) are also crucial to enable and facilitate actor engagement (Li et al., 2017). Virtual engagement platforms allow actors from different locations/countries to engage with one another (Kleinaltenkamp et al., 2019). Access to those platforms and resources (e.g., time, knowledge) therefore influence the engagement of actors (van Doorn et al., 2010; Kleinaltenkamp et al., 2019).

Shared Goals

Shared goals are defined as the degree to which actors share collective visions, missions, goals, and a common understanding with other actors (Hau et al., 2013; Inkpen and Tsang, 2005). Multiple authors have concluded that sharing a vision with other actors has a positive impact, not only on actors' overall attitude to contributing resources (e.g., sharing knowledge) but also on the quantity and quality of those resources (e.g., knowledge) (Chow and Chan, 2008). According to Chiu et al. (2006), a shared vision with other actors has a positive impact on the quantity and quality of resources (e.g., knowledge) contributed by an actor. Moreover, shared

goals "promote mutual understandings and exchanges of ideas and resources" (Chow and Chan, 2008, p. 157; see also Inkpen and Tsang, 2005) and thus foster actor engagement. Accordingly, we argue that shared goals of actors can stimulate their engagement.

The Impact of Actor Engagement on Business Models

Resources. Interactions and the exchange of resources among actors can affect the resources to which they have access; for instance, conversations between actors can increase their expertise and knowledge (Taillard et al., 2016). Accordingly, actors gain access to new resources (e.g., innovative ideas, expertise, skills) through the engagement of another actor (Herrera, 2016; Frow et al., 2015). Access to relevant resources facilitates the identification and understanding of the latent needs and desires of those actors (Kristensson et al., 2008; Herrera, 2016). Engaged actors are therefore considered "a crucial source of knowledge" and of further resources (van Doorn et al., 2010, p. 260).

The configuration of resources (i.e., value propositions) provided by actors can thus change when they engage in service exchange. These changes can occur either intentionally or subconsciously/automatically. The value proposition can change intentionally when a company, for instance, uses feedback from its customers to adapt its offering to the needs of those actors. One example is the video game developer Electronic Arts Inc. which uses account management systems to evaluate and integrate resources provided by different types of gamers (e.g., professional/regular gamers, 'modders'). The company then combines its own resources with the resources provided by the engaged gamers to intentionally change the value proposition according to the needs and opinions of those gamer types (Krishnakanthan, 2013). Content creators on the video live streaming platform Twitch can also use the resources provided by engaged actors to improve their content on the platform. Twitch provides a feedback channel that viewers can use to engage with creators and their channels.

The engagement of multiple actors "can [also] function as an important catalyst for more stimulating ideation sessions and creative outcomes" (Kleinaltenkamp et al., 2019, p. 19). As a result, new innovations might be developed and/or co-created. For instance, in 2016, BMW introduced the BMW Innovation Lab, a program that not only allows start-ups to engage with the BMW group but also gives BMW access to these actors' resources (e.g., innovative ideas, expertise) and helps the organization to deliver new and improved offerings.

According to Brodie et al. (2019), actor engagement can affect the actions and resources of the focal actor as well as other actors. Because actor engagement is a dynamic and interactive concept, we assume that it also impacts an actor's capabilities, defined as "an actor's ability to

utilize its resources effectively" (Storbacka et al., 2012, p. 63). Actors gain access to resources (e.g., expertise) through actor engagement. They aim to improve the density of resources; to achieve this, they integrate accessible resources (Storbacka and Nenonen, 2011). This resource integration can result in an improvement or expansion of existing resources and capabilities. Accordingly, actors may be able to offer value propositions that better meet the needs of other actors based on the insights into their desires and opinions gained through actor engagement. Actor engagement can therefore enable actors like organizations to reduce risk by identifying potential weaknesses in their offerings (van Doorn et al., 2010).

Activities. Engaged actors that share their impressions, experiences, and ideas with other actors on multiple platforms (e.g., rating platforms) "create new resource linkages" and thereby intensify the resource density of the market (Fehrer et al., 2020, p. 1427). Other actors can integrate the resources provided by the engaged actor; for instance, they can read the feedback and evaluations on a rating platform, which may directly affect their actions and dispositions (Alexander et al., 2018; Brodie et al., 2019; Li et al., 2017).

Resources have no value themselves: They have a value potential (Edvardsson et al., 2011). Whether this value potential can be realized depends on the actors' resource integration activities and capabilities (Storbacka, 2019; Watson et al., 2018). Moreover, integrating resources requires collaborative activities, cooperative processes, abilities, and different forms of collaboration (Edvardsson et al., 2011; Kleinaltenkamp et al., 2012). If an actor lacks these activities and processes, it cannot integrate and combine the resources provided by engaged actors appropriately (Ayuso et al., 2011; Ayuso et al., 2006). Therefore, it may be necessary for an actor to implement new—or adjust existing—activities, processes, and capabilities to integrate resources (van Doorn et al., 2010).

According to Zott and Amit (2010, p. 217), "the overall objective of a […] business model is to exploit a business opportunity." Thus, if actor engagement provides access to promising opportunities, actors respond to the engagement by actively exploiting these opportunities (Amit and Zott, 2012; George and Bock, 2011). For instance, when the fast-food chain McDonald's recorded a decline in customer satisfaction in 2014, it conducted a customer survey to investigate the reasons. The survey revealed the primary causes of customer dissatisfaction: unfriendly employees and long waiting times for food. In response, the organization revamped its employee training program and introduced new processes to reduce the time customers would have to wait for food (Peterson, 2016).

Relationships. Actor engagement can intensify connections among actors and thus can have an impact on network connections (Brodie et al., 2019). It may also attract other actors, such as

new customers or suppliers, because of its interactive nature (Brodie et al., 2019). In short, it enables to design and develop novel offerings that may attract the attention of other actors. For instance, the sportswear brand Adidas recruited the American rapper Kanye West to design and promote his own shoes. Together with a team of designers, Kanye West developed the successful footwear 'Yeezy' for Adidas Originals (Adidas, 2016), a novel offering that attracted multiple actors[8] (e.g., fans). Another example is the FIFA World Cup: Many soccer fans watch the matches in public spaces (i.e., public viewing, stadium) or together at home. They thereby engage in interactions with other actors that are related to this sporting event, which creates a sense of belonging and a "spectator-induced atmosphere" (Horbel et al., 2016, p. 516). This feeling of belonging and atmosphere can, in turn, attract other actors (including non-soccer fans) and stimulate their engagement.

Actor engagement may also forge new links with other actors like suppliers, partners, and customers as it affects the resource integration processes among actors in a network (Kleinaltenkamp et al., 2019); for instance, when engaged actors request offerings not provided by an organization. This can result in new relationships between the organization and other actors that possess crucial resources to develop the demanded offerings. A good example of this is when more and more Nespresso customers requested a milk frother (Frankenberger et al., 2014). However, because Nespresso did not have the resources to develop a high-quality milk frother, it decided to collaborate with an engineering company that did have the requisite resources. As a result, a new link was forged indirectly in response to actor engagement. According to Breidbach and Brodie (2017), actor engagement can result in increased loyalty, trust, and satisfaction. We therefore argue that actor engagement may also strengthen existing relationships among actors.

The Impact of Business Model Changes on Actor Engagement

According to Chandler and Lusch (2015, p. 10), the engagement of actors is based on their "present-day connections that have emerged from past service experiences and are oriented toward future service experiences." Business model changes can influence the experience of an actor (Keiningham et al., 2020) and may therefore affect their engagement.

We argue that business models changed in response to actor engagement may influence the engagement of actors. These modifications can facilitate or incentivize actor engagement. For instance, novel or adjusted value propositions can attract new actors in a network and might motivate them to engage in an interaction. Multiple supermarkets, for example, have introduced

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[8] In 2022, Adidas terminated the collaboration with Kanye West.

and expanded vegan product lines in response to rising demand from various actors, motivating new actors—such as producers and suppliers of vegan products—to engage with those supermarkets. If these offerings appeal to them, new customers will likely engage with those supermarkets.

Resources—like technologies—that have been either adopted or renewed through actor engagement can simplify multiple processes and have "the potential to change the volume and variety of actors available for engagement" (Kunz et al., 2017, p. 3010; see also Lenka et al., 2017; Westergren and Holmström, 2012; Storbacka et al., 2016), which may foster actor engagement. Processes developed or adjusted by an actor, independent of technologies, can also support the actions and behaviors of other actors, including their engagement (van Doorn et al., 2010).

However, business model changes implemented as a result of actor engagement do not necessarily have a positive influence on actor engagement. Actors modifying their business model without considering the full spectrum of actors may negatively affect other actors (Van Riel et al., 2019), leading to a decrease in actor engagement.

The Importance of Context

Context "is central to our understanding of how actors engage in resource integration activities" (Storbacka et al., 2016, p. 3012). A context is a particular combination of actors and their unique relationships with each other (Alexander et al., 2018; Chandler and Vargo, 2011). However, a context refers not only to the social sphere but also to the temporal, physical, mental, and spatial spheres (Grönroos and Voima, 2013). Actors are usually situated within a set of contexts resulting in different engagement intensities (Brodie et al., 2019).

With regard to the relationship between actor engagement and business models, context can be considered a moderator that affects the strength of that relationship (MacKinnon, 2011). For example, context can affect an actor's ability to modify its business model; consider the effect that governmental regulations might have (Bock et al., 2012; Foss and Saebi, 2017; Frankenberger et al., 2014). If the context does not permit business model changes, then an actor may not be able to implement changes—or only to a limited extent—in response to actor engagement. In this case, context would weaken the impact of actor engagement on business models. However, context can also have a strengthening effect on the relationship between actor engagement and business models. For instance, an interactive technological context facilitates and accelerates the interaction and resource exchange among actors. It also supports the management of resources and the modification of business models—such as processes or

activities—and can thereby strengthen the impact of actor engagement on business models. We propose that the context influences the extent to which business model changes are implemented in response to actor engagement.

Moreover, context can affect a collaborative behavior among actors, including engagement (Hill et al., 2009). Engagement is considered a 'context-dependent' factor/concept; it occurs "within specific sets of context-dependent conditions" (Brodie et al., 2011, p. 260). Context can either directly impact engagement or moderate the impact of a focal concept on engagement (van Doorn et al., 2010; Brodie et al., 2011). We propose that specific contextual conditions are essential for actor engagement in response to business model changes. For instance, the spatial and temporal spheres of context may intensify or diminish the impact of business model changes on actor engagement. Actors willing to interact with an actor because of their modified business model may not be able to engage with them due to spatial separation or temporal restrictions. We therefore argue that context affects the strength of the impact of business model changes on actor engagement.

The Value Co-creation Value Outcomes

Value is co-created when actors of a network engage in a service exchange and integrate resources (Pinho et al., 2014). According to Storbacka et al. (2016, p. 3008), "without actor engagement, no resource integration happens and no value can be co-created." Actors integrate resources provided by other engaged actors of a network. They also combine these resources with their own, which can lead to business model changes and thereby can lead to co-created value.

Table 10 summarizes potential value outcomes that are related to actor engagement and business model changes. For instance, actors can improve their activities/processes, value propositions, and relationships with actors by integrating and combining the resources provided by engaged actors. This can facilitate decision-making and may result in cost and/or time savings (Pinho et al., 2014).

Table 10. Potential Value Outcomes: Actor Engagement

	Value outcomes
Resources	• Access to several resources (e.g., information) → insights into actors' needs • Development of novel ideas • Improvement of own resources and the value proposition → better experience • Social benefits (e.g., better reputation)
Activities	• Improvement of own activities and processes • Support in decision-making
Relationships	• Relationships with "new" actors • Improvement of existing relationships with actors

Figure 2 depicts the relationships between actor engagement and business models and shows relevant antecedents of actor engagement. The figure also shows that actors can co-create value when they engage in service exchange, which "takes place between [at least] two parties […], who are both resource integrators and beneficiaries of the exchange" (Edvardsson et al., 2011, p. 332). Moreover, the figure depicts that changes in an actor's business model can also result in co-created value.

Figure 2. The Conceptual Framework
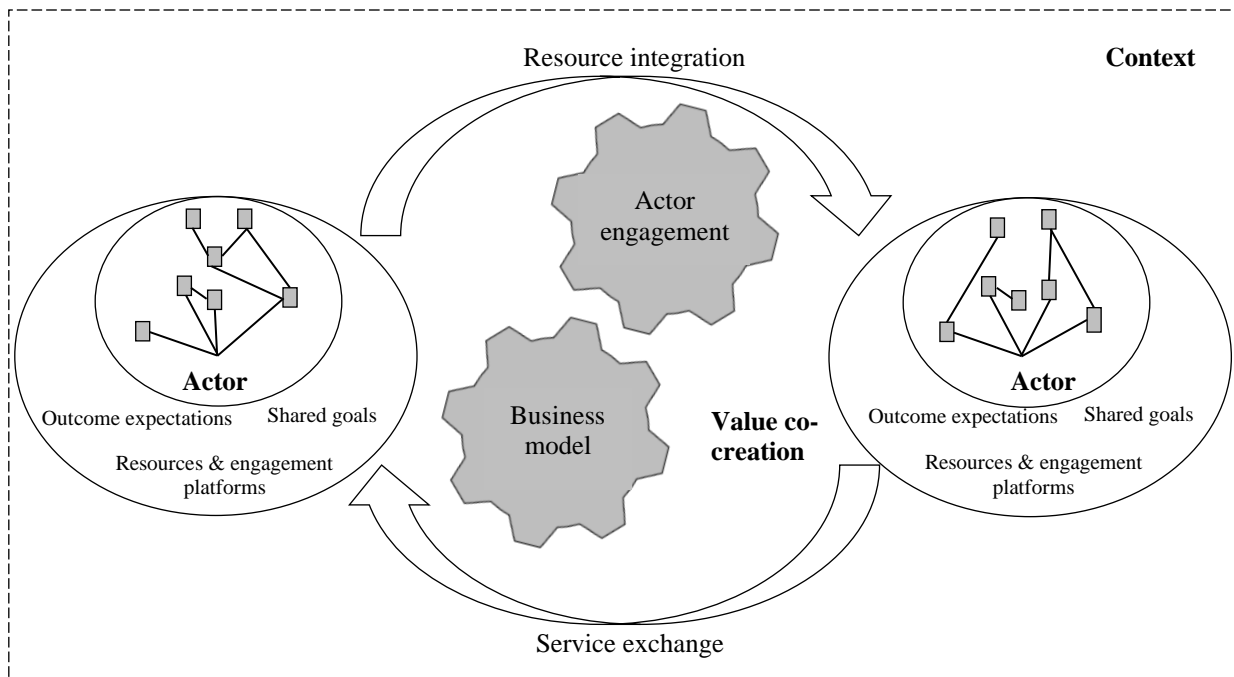
Source: Based on Vargo (2009) and Wieland et al. (2017).

2.1.5. Conclusion

This paper provides a better understanding of the actor engagement concept by examining the antecedents of actor engagement and its interplay with the business model concept. We illustrate the relationship between actor engagement, business models, and value co-creation in a conceptual framework. We argue that actor engagement leads to business model changes. Engaged actors voluntarily contribute resources, which are then accessible to other actors, who can integrate and combine those resources with their own resources. This leads to modification of the business model and can result in the co-creation of value. Business models are proactively changed by the actor (e.g., organization) in response to actor engagement with the aim to improve resource density, which "corresponds to more value" (Storbacka and Nenonen, 2011, p. 242). These business model changes may, in turn, facilitate, support, and/or incentivize actor behaviors, increasing actor engagement. Depending on how an actor has implemented these business model changes, they can also decrease engagement, which may negatively affect value co-creation. Thus, business model changes can also impact actor engagement and value co-creation. Other relevant antecedents of actor engagement identified in our paper are an actor's outcome expectations, available resources and engagement platforms, and shared goals with other actors.

Our paper expands the literature on actor engagement by identifying the antecedents and the effects of engagement. It thereby aims to support the development of broader and unified engagement theory (Brodie et al., 2019). Existing engagement literature has focused on dyadic settings (e.g., customer engagement). This paper, however, reveals novel insights into the engagement phenomenon from a multi-actor perspective. The present paper also contributes to the service literature by examining the relationship between the concepts of business model and actor engagement in more detail. At the time of writing, only a loose connection between business model changes and interactions among actors or resource exchanges of actors has been established in the literature (Mason and Leek, 2008; Nailer and Buttriss, 2019; Storbacka et al., 2012). This paper addresses this research gap and offers insights into the relationship to better understand the underlying mechanisms. It also contributes to the business model literature by examining the concept and its relationship with other concepts from a service-oriented perspective.

Theoretical and Managerial Implications

Most of the business model literature (e.g., Saebi et al., 2017; Carayannis et al., 2015; Teece, 2010) focuses on the business models of companies (firm/company-centric perspective).

However, "business models are not unique to 'producers' (e.g., firms)" (Wieland et al., 2017, p. 940). In today's highly networked environment, it is increasingly important to also consider the business models of other actors like customers or suppliers. This paper examines the business model concept from a service-oriented perspective and develops a framework that scholars can use as a basis for future research.

Practitioners can also employ the conceptual framework developed and derived in this paper to understand the importance of actor engagement in the business model context. Existing actor engagement literature is theoretical and examines this concept in an abstract manner, therefore it has only limited implications for practitioners. Our paper connects the theoretical actor engagement phenomenon with the practice-relevant business model concept to offer important practical implications. This paper emphasizes the importance of developing business models that accommodate the engagement of multiple actors in a network. Organizations that do not consider the engagement (and business models) of multiple actors might suffer from their disengagement (Snihur et al., 2017). Thus, the "management of actor engagement […] is a key capability that firms need to focus on" (Storbacka et al., 2016, p. 8).

In addition, this paper offers guidance for organizations that are willing to design engagement strategies. Managers willing to benefit from actor engagement must consider the antecedents identified in this paper not only by assessing the resources available to them but also by managing each group of actors based on their outcome expectations. These are relevant factors for marketing managers to influence the engagement of diverse actors in a network.

Practitioners will need to access multiple capabilities, activities, assets, and processes to integrate resources for their organizations to benefit from the engagement of actors (Watson et al., 2018; van Doorn et al., 2010). For that to happen, they need to develop their ability to manage actor engagement and exploit the resources gained from it (Watson et al., 2018).

Furthermore, this paper emphasizes the importance of context and highlights that a context influences the extent to which changes in the business model are implemented as a reaction to actor engagement. Actors (e.g., organizations, managers) should also consider the context in which actor engagement takes place—such as the temporal or spatial spheres—when implementing business model changes or responding to actor engagement.

Business models are complex concepts characterized by interdependencies (George and Bock, 2011; Kohler, 2015). Practitioners willing to change a business model should consider interdependencies within their business models to avoid negative effects (Amit and Zott, 2012). New and adapted business models provide novel conditions for interactions among actors

(Bankvall et al., 2017) that should be considered by practitioners prior to any changes in the business model (Van Riel et al., 2019).

Limitations and Future Research

Although this paper provides a better understanding of the actor engagement and business model phenomena, it also contains several limitations. First, we conceptually examine the relationships presented in our framework based on previous literature. However, we do not empirically test the interplay among those concepts. Future research should empirically explore and test the relationships between the concepts (i.e., business model, actor engagement) from a service-oriented perspective. Explanatory case studies, which enable researchers to examine links that are too complex for other research approaches, could be a first step to empirically examine our conceptual framework (Baxter and Jack, 2008). When conducting such case studies, researchers should analyze specific actor types (e.g., suppliers, customers, consumers). Second, this paper focuses on specific antecedents of actor engagement that we consider to be relevant from a service-oriented perspective. However, the literature has identified other actor engagement antecedents, such as actor embeddedness (Wajid et al., 2019) or cognitive evaluations, hedonic feelings, and social norms (Li et al., 2018). Future research could provide a literature overview of these antecedents to offer practitioners insights on how to stimulate the engagement of other actors. In conclusion, the fields of actor engagement and business models still offer a variety of opportunities for researchers to conduct future studies. This paper provides an appropriate basis for future actor engagement and business model research.

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2.2. Paper B: The Impact of Actor Engagement on the Business Models of Video Game Developers

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3. Customer Engagement Papers

3.1. Paper C: Die Bedeutung von Kundenengagement für die Medienbranche im digitalen Zeitalter

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3.2. Paper D: Customer Engagement Behaviour in Social Networks—A Quantitative Content Analysis of the Technology, Media, and Telecommunications Industry

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3.2.1. Abstract

In today's competitive environment, technology, media, and telecommunications companies need to align their social media strategies. However, research that provides guidelines for these companies to effectively communicate with their customers on social networking sites is rare. This study therefore examines the relationships among post-related attributes (e.g. interactivity, actuality, sentiment, content, content type) and customer engagement behaviour in this industry. The authors empirically examined 2,600 Facebook posts by conducting a quantitative content analysis and a multiple regression analysis. While the content types and interactive elements are negatively related to customer engagement behaviour, attributes like videos (compared to photos), sentiment, or post length are positively related to customer behaviour. The authors develop guidelines that technology, media, and telecommunications companies can follow to increase engagement. This study contributes to the literature by empirically examining and concretizing the customer engagement behaviour concept in the technology, media, and telecommunications industry.

3.2.2. Introduction

Technology, media, and telecommunications (TMT) companies are facing new digital challenges, opportunities, and dynamics (Boston Consulting Group, n.d.). They therefore need to align their social media strategies in order to survive in today's digital and highly competitive environment (Chan-Olmsted, 2011; Kim & Desai, 2021). Despite the importance of social media within the TMT industry (Kaplan, 2015), research that provides guidelines for companies to effectively communicate with their customers on social networking sites (SNS) to increase customer engagement behaviour (CEB) is rare. CEB is defined as the behavioural manifestations of customers that have a company/brand focus, and that go beyond the actual transaction (i.e. purchase; van Doorn et al., 2010). The engagement of customers in the online

environment has beneficial consequences for companies, such as an increase in loyalty in the form of repurchase and word-of-mouth intentions, and in online sales of media offerings like video games (Chan et al., 2014; Cheung et al., 2015; Zheng et al., 2015). Companies therefore need a clear sense of how post-related factors might affect the engagement of their customers in SNS. Although several authors have already investigated the relationship between post-related attributes and CEB, they often examine companies in general (e.g. Luarn et al., 2015; Sabate et al., 2014). Swani et al. (2014), however, call for research that examines customers' social media behaviour by considering specific industries. The TMT industry differs from other industries due to specific characteristics (e.g. media is "an industry of content"; Daidj & Jung 2011, p. 42), the companies' purposes and customers' consumption motives (e.g. information-seeking, entertainment) (Lugmayr & Grueblbauer, 2017; Riskos et al., 2022). According to Piepponen et al. (2022, p. 323), the media industry "experience[s] significant digital transformation" and, unlike other industries, may become completely digital. Thus, it is likely that guidelines for SNS from other industries do not apply to the TMT industry, which compromises fixed-line/wireless telecommunication services (e.g. Deutsche Telekom, Comcast), internet (access) services (e.g. Meta) and (news) media services (e.g. Thomson Reuters) (Jope et al., 2010). It is therefore important to examine this industry separately in order to develop industry-specific guidelines in the digital environment.

Kim and Desai (2021) have already examined the impact of those post-related factors on CEB in the news media sector. Their findings reveal that animated photos increase CEB and that links and hashtags decrease this engagement. Moran et al. (2019), who also examine the social media communication of media companies, focus on media richness (e.g. video, photo, text) and the interactivity of social media posts. These scholars find that visual elements, such as photos and videos, as well as interactive elements (e.g. 'Call to Act') attract CEB. In contrast, scholars like Cvijikj and Michahelles (2013) and Le (2018) who examine other industries (i.e. food/beverage; automotive industry) find a negative impact of interactivity on CEB. Moran et al. (2019, p. 542) emphasise that their findings "confirm the somewhat inconsistent findings of previous studies." A plausible reason for these controversial findings could be the different industries examined in those studies.

Even though Moran et al. (2019) and Kim and Desai (2021) already provide valuable insights into the communication of media companies in SNS, they examine only a few antecedents of CEB and consider only a few or even no interaction effects. However, to provide a better understanding of the engagement concept and to provide detailed guidelines for TMT companies, it is important to investigate additional factors and consider relevant interaction

effects with a focus on different engagement metrics. The present study therefore examines the relationships among multiple post-related attributes, for instance, interactivity (e.g. link, hashtag, question), actuality of a post (historical/current topic), sentiment of a post (negative/positive), content (e.g. sustainability content), post characteristics (i.e. post length, visual/textual elements), quotations, and content type (i.e. informational/entertaining content) and CEB in the context of the TMT industry. Moreover, this study examines the effect of communicating corporate social responsibility (CSR) in social media posts. Even though the importance of CSR communication might have increased due to the Ukraine war and the COVID-19 pandemic, research on the impact of content related to CSR is rare. This leads to the following research question: *What factors of brand-generated social media posts published by TMT companies are related to CEB*?

To answer this question, we empirically examined 2,600 official Facebook posts published by 20 international TMT companies by conducting a quantitative content analysis and a multiple regression analysis. SNS like Facebook "convey new means to render interpersonal relationships more transparent and traceable" (Oinas-Kukkonen et al., 2010, p. 62). We focused on the TMT industry to develop guidelines not only for traditional media companies but also for companies belonging to adjacent technology and telecommunications industries like Comcast or Zoom Video Communications.

Our study contributes to the engagement literature by providing a better understanding of the relationship between relevant social-media-related factors and CEB in the online environment by examining multiple variables and their relationships. The analysis of company-generated posts in SNS highlights the importance of an industry-specific analysis of social media content and offers a basis for theory building in the communication research. In addition, we show the importance of considering moderation effects when examining and measuring the performance of social media posts. Based on our findings, we develop social media guidelines that help TMT companies adopt an effective social media communication strategy. We therefore provide valuable insights and implications for those companies to increase the social media responses of their customers (i.e. CEB). Our study also emphasizes the importance of an industry-specific communication strategy.

3.2.3. Literature Review and the Conceptual Model

The Customer Engagement Concept

The customer engagement concept has attracted the attention and interest of multiple scholars and practitioners in the online environment (e.g. Boujena et al., 2021; Quijada et al., 2021).

Even though customer engagement is often examined in the literature, there is no consensus on the definition of this concept (Pansari & Kumar, 2017). Several scholars define customer engagement as a multidimensional concept consisting of a cognitive, affective, and/or behavioural dimension (e.g. Brodie et al., 2013; Cheung et al., 2015; Vivek et al., 2012). In contrast, other researchers define customer engagement as a unidimensional concept that is behavioural in nature (e.g. Verhoef et al., 2010; Vivek et al., 2012). The behavioural dimension/conceptualization of customer engagement (i.e. CEB), which better captures the concept's actual meaning (Harmeling et al., 2017; van Doorn et al., 2010), can be observed using content analysis. We therefore refer to this behavioural dimension and define CEB "*as a customer's behavioral manifestations that have a brand or firm focus, beyond purchase, resulting from motivational drivers*" (van Doorn et al., 2010, p. 254: italics in original). Customer engagement is characterised by multiple behaviours (Verhoef et al., 2010). On SNS like Facebook, customers can engage with a company by liking, commenting on, or sharing company-generated posts (e.g. Antoniadis et al., 2019; Cvijikj & Michahelles, 2013; Luarn et al., 2015). Companies can use these metrics to measure, monitor, and evaluate CEB on their social media pages (Boujena et al., 2021; Quijada et al., 2021).

Post-related Factors and Customer Engagement Behaviour

Interactivity

Interactivity refers to "the extent of two-way communication between businesses and customers, as well as among customers" (Chua & Banerjee, 2015, p. 277). According to Chua and Banerjee (2015), high levels of interactivity are negatively associated with likes, shares, and comments on Facebook. Moreover, the authors find a positive relationship between moderate levels of interactivity and these engagement metrics. Also examining the social media platform Facebook, Khan et al. (2016) and Luarn et al. (2015), however, find a positive relationship between interactive content and these engagement metrics (see Table 14).

Links, which are an interactive post feature, either do not affect CEB or result in lower engagement (Kim & Desai, 2021; Lee et al., 2018). In the context of news organizations, Kim and Desai (2021) find that links to a news website decrease the engagement of users on Tumblr. Questions and hashtags (i.e. metadata tag; #) are additional interactive factors that can increase engagement with a social media post (Lee et al., 2018; Rooderkerk & Pauwels, 2016); help users to understand what the posts are about; and increase the reach of the post (Kim & Desai, 2021). Hashtags are positively associated with the digital traffic to the websites of news organizations and negatively related to the number of likes and shares on the social networking

site Tumblr (Kim & Desai, 2021). A content analysis of multiple Facebook pages (i.e. pages of brands/celebrities/websites) shows that a post which includes a question is positively related to the number of comments and negatively related to the number of likes (Lee et al., 2018).

With regard to media offerings, interactivity enables a greater involvement of customers (Wirtz et al., 2013), which is considered an important antecedent of CEB (Brodie et al., 2013). Due to changes in the media industry, customers are no longer just consumers of media offerings, but are now content producers/co-creators themselves (Piepponen et al., 2022). They thus actively participate in content production in social media. Therefore, customers might be more likely to engage with interactive posts published by TMT companies as they appreciate the effort of a company to involve customers. Figure 7 illustrates the relationships among the post-related factors and CEB.

Corporate Social Responsibility Content

The content of a post, which is of great importance across all SNS (Quijada et al., 2021), can influence CEB (Devereux et al., 2020). Scholars have already examined different types of content in the context of SNS, such as business-related or product-related content (Devereux et al., 2020; Khan et al., 2016). Even though multiple companies use social networks to report on their social activities and sustainability initiatives, research on the impact of content related to CSR, "the commitment of business to contribute to sustainable economic development, working with employees, their families, the local community and society at large to improve quality of life, in ways that are good for business", in SNS is rare (Reilly & Hynan, 2014, pp. 57-58). However, Lim et al. (2021) emphasise the importance of research that helps to understand how companies can increase CEB through CSR activities.

In this study, we focus on CSR-related content in terms of social equality (e.g. gender/racial equality), environmental sustainability, and social activities (e.g. social support like donations) as these types of content play an important role, especially in times of current crisis/developments/incidents (e.g. COVID-19 pandemic, Ukraine war, climate change, racist incidents). Companies often use SNS like Facebook to communicate their CSR activities (Manetti & Bellucci, 2016). According to Dutot et al. (2016), CSR communication is positively related with a company's online reputation. In the context of the life insurance industry, a survey by Agyei et al. (2021) reveals that the customers' perception of a company's CSR positively influences CE. These scholars however do not focus on CSR communication in SNS. Iazzi et al. (2022) examine Twitter posts and find that the inclusion of sustainable development goals in a post can positively influence the engagement of users. However, controversial

companies[9] that publish posts with content related to the sustainable development goals receive lower engagement because users might perceive such posts as greenwashing (Iazzi et al., 2022).

In the online environment, companies should communicate CSR stories in their social media posts (Kapoor et al., 2021) as these can be appealing for customers (Andersen, 2021). "[T]he primary focus of CSR social media content should be on the initiatives themselves, not the company" (Andersen, 2021, para. 12). Moreover, integrating calls to action in CSR social media posts increases the engagement of customers (Chae, 2021). Manetti and Bellucci (2016) find that posts which deal with renewable resources stimulate comments on Facebook. For TMT companies, we also assume that CSR-related content is positively associated with CEB.

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[9] Companies whose environmental/social activities are perceived as unethical (Iazzi et al., 2022).

Table 14. Literature Overview of Post-related Factors

	Relationship	Impact/Relation	CEB metrics	Article	Industry (no. of examined pages)	Platform	Time frame[†]
Interactivity	Direct	+	Comments, likes, shares	Chua and Banerjee (2015)	Different industries (n = 50)	Facebook	n/a-2014
	Moderation	–					
	Direct	+	Comments, likes, shares	Khan et al. (2016)	Food industry (n = 5)	Facebook	2014
	Direct	+	Comments, likes, shares	Luarn et al. (2015)	Different industries (n = 10)	Facebook	2014
Interactional	Direct	– (comments, hearts, angry emojis)	Comments, likes, shares, hearts, emojis	Present study	TMT industry (n = 20)	Facebook	2019-2021
Links	Direct	– (notes, incl. likes, reblogs)	Likes, reblogs	Kim and Desai (2021)	News industry (n = 50)	Tumblr	n/a-2016
	Direct	–	Comments	Rooderkerk and Pauwels (2016)	Healthcare industry (n = 1)	LinkedIn	2009-2010
	Direct	– (exception sad emojis)	Comments, likes, shares, hearts, emojis	Present study	TMT industry (n = 20)	Facebook	2019-2021
Questions	Direct	+ (comments) – (likes)	Comments, likes	Lee et al. (2018)	n/a (n = 2,600)	Facebook	n/a
	Direct	– (likes, hearts)	Comments, likes, shares, hearts, emojis	Present study	TMT industry (n = 20)	Facebook	2019-2021
	Direct	+	Comments	Rooderkerk and Pauwels (2016)	Healthcare industry (n = 1)	LinkedIn	2009-2010
Tags/hashtags	Direct	–	Likes, reblogs	Kim and Desai (2021)	News industry (n = 50)	Tumblr	n/a-2016
	Direct	– (comments, likes, shares, hearts, angry emojis)	Comments, likes, shares, hearts, emojis	Present study	TMT industry (n = 20)	Facebook	2019-2021
Sustainable development goals	Direct	+	Comments, retweets, favourite	Iazzi et al. (2022)	European companies (n = 62)	Twitter	2019
Equality	Direct	+ (hearts, angry/laughing emojis)	Comments, likes, shares, hearts, emojis	Present study	TMT industry (n = 20)	Facebook	2019-2021
Environmental sustainability	Direct	– (comments, shares, hearts)	Comments, likes, shares, hearts, emojis	Present study	TMT industry (n = 20)	Facebook	2019-2021
Social activities	Direct	+ (comments, likes, shares, hearts)	Comments, likes, shares, hearts, emojis	Present study	TMT industry (n = 20)	Facebook	2019-2021

Entertaining content	Direct	+	Comments, likes	Cvijikj and Michahelles (2013)	Food/beverage industry (n = 100)	Facebook	2012
	Direct	n.s. (marg. negative on comments)	Comments, likes	De Vries et al. (2012)	Cosmetic, food, telecommunication, leisure wear, fashion industry (n = 11)	n/a	2010-2011
	Direct	+ (likes)	Comments, likes, shares	Khan et al. (2016)	Food industry (n = 5)	Facebook	2014
	Direct	– (views, comments, shares)	Views, replies, comments, likes, shares	Le (2018)	Automotive industry, car community (n=1)	Otosaigon, Facebook	2016
	Direct	n.s.	Comments, likes, shares	Lei et al. (2017)	Tourism industry (n = 6)	Facebook	2014-2015
	Direct	+ (shares)	Comments, likes, shares	Luarn et al. (2015)	Famous brand pages (n = 10)	Facebook	2014
	Direct	– (comments, likes, shares, hearts, angry emojis)	Comments, likes, shares, hearts, emojis	Present study	TMT industry (n = 20)	Facebook	2019-2021
Informational content	Direct	– (hearts)	Comments, likes, shares, hearts, emojis	Present study	TMT industry (n = 20)	Facebook	2019-2021
	Direct	+	Comments, likes, shares	Antoniadis et al. (2019)	Greek retail brands (n = 8)	Facebook	2016
	Direct	+	Comments, likes	Cvijikj and Michahelles (2013)	Food/beverage industry (n = 100)	Facebook	2012
	Direct	n/s	Comments, likes	De Vries et al. (2012)	Cosmetic, food, telecommunication, leisure wear, fashion industry (n = 11)	n/a	2010-2011
Sentiment	Direct	Neg. comments: + (comments) Pos. comments: +	Comments, likes	De Vries et al. (2012)	Cosmetic, food, telecommunication, leisure wear, fashion industry (n = 11)	n/a	2010-2011
	Direct	Negative/positive: + (likes) Neutral: n/s (likes)	Comments, likes, shares	Khobzi et al. (2019)	Technology industry (n = 17)	Facebook	n/a-2018
	Direct	Negative sent.: + Positive sent.: + (comments, likes); – (sad/angry/surprised/ laughing emojis)	Comments, likes, shares, hearts, emojis	Present study	TMT industry (n = 20)	Facebook	2019-2021

Category	Type	Effect	Metrics	Study	Industry	Platform	Year[†]
Current topic	Direct	<u>Negative instead of positive posts</u>: + (comments)	Comments, likes	Yang and Adomavicius (2019)	Aviator, bank, consumer products, food, retail industry (n = 41)	Facebook	2012
	Direct	+ (exception: comments)	Comments, likes, shares, hearts, emojis	Present study	TMT industry (n = 20)	Facebook	2019-2021
	Moderation	+/−					
Historical topic	Direct	+ (shares)	Comments, likes, shares, hearts, emojis	Present study	TMT industry (n = 20)	Facebook	2019-2021
Photos/videos	Direct	Photo > Text > Video	Comments, likes, shares, fans	Bonsón et al. (2015)	Government/public sector (n = 75)	Facebook	n/a-2013
	Direct	+	Comments, likes	Cvijikj and Michahelles (2013)	Food/beverage industry (n = 100)	Facebook	2012
	Direct	+	Comments, likes, shares	Lei et al. (2017)	Tourism industry (n = 6)	Facebook	2014-2015
	Direct	+	Comments, retweets, favourite	Iazzi et al. (2022)	European companies (n = 62)	Twitter	2019
	Direct	+	Comments, likes, shares, clicks	Moran et al. (2014)	Media industry, Radio (n = 1)	Facebook	n/a
	Moderation	+					
	Direct	<u>Videos</u>: + (likes) n.s. (comments) <u>Photos</u>: +	Comments, likes	Sabate et al. (2014)	Travel industry (n = 5)	Facebook	2011
Videos vs. photos	Direct	Videos > Photo	Comments, likes, shares, hearts, emojis	Present study	TMT industry (n = 20)	Facebook	2019-2021
Post length	Direct	−	Comments, likes, reposting	Ge and Gretzel (2018)	Travel industry (n = 1)	Weibo	2014
	Direct	−	Comments, likes	Lee et al. (2018)	n/a (n = 2,600)	Facebook	n/a
	Direct	−	Comments	Rooderkerk and Pauwels (2016)	Healthcare industry (n = 1)	LinkedIn	2009-2010
	Direct	+ (exception sad emojis)	Comments, likes, shares, hearts, emojis	Present study	TMT industry (n = 20)	Facebook	2019-2021
	Moderation	+/−					
Quotations	Direct	+ (likes, shares, hearts, surprised emojis) +/−	Comments, likes, shares, hearts, emojis	Present study	TMT industry (n = 20)	Facebook	2019-2021

Notes: † = Publication time frame of the examined posts; − = negative impact; + = positive impact; n.s. = not significant; n/a = not available.

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Content Type

According to the uses and gratification approach, users have different motivations to consume media, including the entertainment and information motivation (Muntinga et al., 2011). Some 28.9% of the respondents of a survey indicate that they follow entertaining accounts on social media (Hootsuite & WeAreSocial, 2022b). Finding entertaining content and 'filling spare time' are major motives for using social media (GlobalWebIndex, 2022; Hootsuite & WeAreSocial, 2022b). These hedonic motivations also increase the sharing behaviours of customers on social networks (Salehan et al., 2017). For entertaining content (e.g. funny videos/slogans), the literature contains ambiguous findings: While several scholars (Cvijikj & Michahelles, 2013; Khan et al., 2016; Luarn et al., 2015) find a positive impact of entertaining content on CEB, Le (2018) finds a negative impact, and Lei et al. (2017) and De Vries et al. (2012)[10] find no significant impact.

"Finding information" and "keeping up-to-date with news and events" are major reasons for using the internet (Hootsuite & WeAreSocial, 2022a). Obtaining useful information is a utilitarian motivation that predicts customers' participation in social networks (Salehan et al., 2017). According to a survey by Hootsuite and WeAreSocial (2022b), 17.5% of the respondents follow journalists or news media on social media. For Facebook, a central usage motive is to be informed about current topics (GlobalWebIndex, 2022). Companies can use social media to "communicate and share information" with their customers (Baumöl et al., 2016, p. 200). Informational posts (i.e. posts that inform customers about the company/its offerings, or certain developments/events; Luarn et al., 2015) are thus likely to increase customer responses, such as likes, shares, and comments (e.g. Antoniadis et al., 2019; Cvijikj & Michahelles, 2013; Le, 2018). However, De Vries et al. (2012) find no positive relationship between informational content and the number of likes and comments. Differences in the industries examined could be a reason for the ambiguous results in the literature. Thus, it is likely that investigations within the TMT industry—in which these content types are particularly important—will find different results in terms of CEB.

Sentiment

Several scholars (De Vries et al., 2012; Khobzi et al., 2019; Yang & Adomavicius, 2019) show that positively and negatively framed user-generated comments can stimulate the engagement of other users (compared to neutral posts). Posts or comments that provide negative information

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[10] De Vries et al. (2012) find a negative impact of entertainment on the number of likes, which is marginally significant (p<0.1).

increase the visiting intentions of customers if "posted by distant acquaintances (i.e. weak ties)" (Bitter & Grabner-Kräuter, 2016, p. 228) and stimulate shares and comments (Le, 2018). According to Yang and Adomavicius (2019), negative posts receive more comments than positive posts. Sharing positive customer comments can also increase the attractiveness of a post and thus enhance CEB (De Vries et al., 2012). Zhao and Chen (2022), who define sentiment as the valence of an actor's opinion/communication, find a weak positive impact of a stakeholder's positive sentiments on the online brand community engagement. These findings, however, offer insights into the impact of the sentiment only of customer-/user-generated posts or comments, not of company-generated posts.

According to Berger and Milkman (2012, p. 192), "positive [online] content is more viral than negative content." However, Rooderkerk and Pauwels (2016), who examine company-generated posts, find no significant impact of negative and positive information included in these posts on CEB. These scholars examine a discussion group for healthcare experts on LinkedIn and thus focus on a small group of actors belonging to a specific industry. It is likely that these findings cannot be transferred to other industries, such as the TMT industry. We assume that, in the TMT industry, positively and negatively framed posts stimulate the emotions of customers and thus lead to increasing CEB.

Actuality

Digital technologies led to a transition in the media industry "from retrospective information available at specific times in a single format to continuous and ongoing access to real-time information in multiple formats" (Piepponen et al., 2022, p. 322). Keeping up to date with current events is one of the main motives for using Facebook (GlobalWebIndex, 2022). In particular, real-time information that focusses on current/up-to-date topics is valued by customers (Heinonen, 2011). A survey (distributed via multiple Facebook fan pages) reveals that trendiness—the degree to which a company communicates the latest information—is a driver of CEB (Cheung et al., 2020). Thus, the actuality of content affects customers' social media behaviour. In the context of the TMT industry, we assume that current topics in social media posts are appealing and attract more engagement than posts that deal with historical or general topics. Historical topics could lead to lower engagement, especially among customers of media companies who consume these companies' offerings to obtain up-to-date/real-time information. However, research that examines the relationship between past/historical content and customers' social media behaviour is scarce.

Post Characteristics

An important factor that is often examined in the CEB literature is the post type (i.e. photo, video, text). Photos are considered "the main element in the content of posts and therefore have a decisive impact on the engagement of brands with consumers" (Quijada et al., 2021, p. 128). According to Cvijikj and Michahelles (2013) and Moran et al. (2019), visual elements, such as photos and videos, positively influence the engagement metrics. Bonsón et al. (2015) find that photos receive the highest engagement and that text-based Facebook posts are more effective than videos (at engaging users). However, these scholars examine the engagement of citizens with governments' social media pages.

The number of words used in a post is negatively related with CEB (Banerjee & Chua, 2019; Ge & Gretzel, 2018; Lee et al., 2018; Rooderkerk & Pauwels, 2016). Reviews/posts with a lot of words might lead to an information overload, which can negatively influence customers' behaviour (Fink et al., 2018). Within the TMT industry, however, customers might expect these companies to provide sufficient information, which is why they might be more likely to engage with longer posts.

Quotation

Direct quotations, often enclosed by quotation marks, are powerful tools to influence the perception of media consumers (Gibson & Zillmann, 1993; Haapanen & Perrin, 2017). With the emergence of social media, the quoting concept has evolved (Haapanen & Perrin, 2017). Even though some scholars examine quotations or quote functions in the social media context (e.g. Garimella et al., 2016; Jang et al., 2019), they do not examine how quotations relate to the performance of a post, as measured by CEB. However, these insights are especially important for media companies that often use quotations for their storytelling and reporting (Haapanen & Perrin, 2017).

Figure 7. Research Model
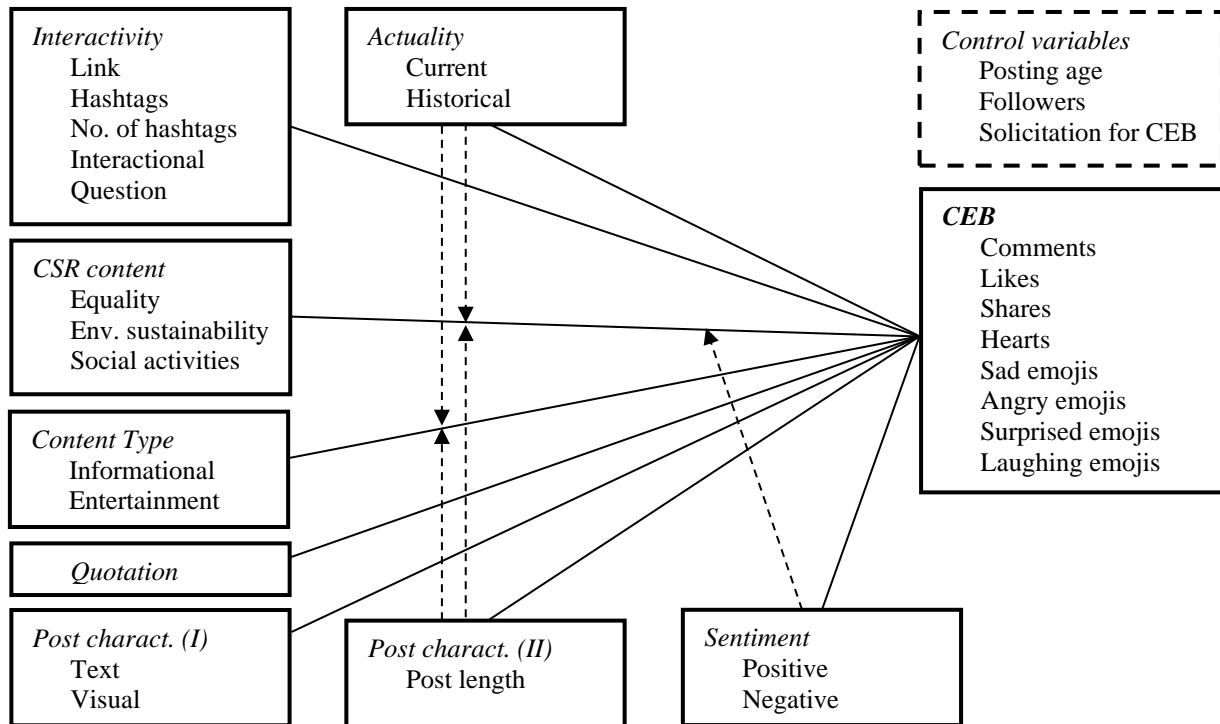
Notes: Dashed lines represent the moderation effects; CEB = customer engagement behaviour; CSR = corporate social responsibility; No. = number.; Charact. = character; Env. = environmental.

Moderation Effects

Post Length. According to Andersen (2021), CSR posts should focus on the social initiatives and should offer a link to a web page to provide additional information. Customers might therefore prefer shorter CSR posts which include only relevant information. Post length could therefore negatively influence the relationship between CSR content and CEB. Moreover, we assume that customers might be more likely to engage with shorter (than with longer) entertaining posts. Customers might often consume entertaining content to seek relaxation and might therefore be less willing to engage in effortful activities such as processing a lot of information provided in a long post (Cheung et al., 2020; Noguti & Waller, 2020). In contrast, customers who seek information provided by TMT companies might be willing to engage in time-consuming and effort-intensive activities (Noguti & Waller, 2020) like processing long informational posts.

Actuality. Customers use SNS like Facebook to receive real-time and up-to-date information (Heinonen, 2011; Hootsuite & WeAreSocial, 2022a). For this reason, we assume that customers interact more with informative posts published by TMT companies if they cover current (rather than historical) topics.

Furthermore, we assume that actuality positively influences the relationship between CSR content and CEB. Current CSR topics may stimulate a customer's interest and could therefore

result in higher engagement. We assume that people want to receive up-to-date information when it comes to CSR. Especially during the COVID-19 pandemic, people's interest in social and environmental corporate activities related to the pandemic has increased (Knowles et al., 2020). Moreover, more people expect their favourite companies to engage in CSR initiatives (He & Harris, 2020). It is therefore likely that customers engage more with CSR posts that reference current (instead of past) initiatives.

Sentiment. Yang and Adomavicius (2019) show that scholars who examine the sentiment of a post should consider the content of a post. With regard to entertaining content, which is often "perceived as fun, exciting, cool" (De Vries et al., 2012; Le, 2018, p. 165), we assume that a positive sentiment stimulates CEB more than a negative sentiment. People may not consider entertaining social media content published by TMT companies that has a negative sentiment as adequate and might therefore avoid engaging with such posts.

A lot of people "aim to avoid negative information, which could decrease their mood" (Rooderkerk & Pauwels, 2016, p. 11). We therefore assume that informational content with a negative sentiment is related to lower levels of engagement. In contrast, we argue that informational content with a positive sentiment might stimulate CEB as people want to be happy and thus actively search for positive information (Rooderkerk & Pauwels, 2016).

3.2.4. Method

We conducted a content analysis to systematically compare and evaluate a large sample of social media content (Kolbe & Burnett, 1991; Luarn et al., 2015). Therefore, we examined the official Facebook pages of 20 international TMT companies (see Table 15). We considered Facebook an appropriate research objective because it is still the most-used social networking site with 2.91 billion monthly active users (Hootsuite & WeAreSocial, 2022a, 2022b).

We selected the TMT companies using the Forbes Global 2,000 list (Forbes, 2021) and applied the following criteria to select companies: 1) active Facebook accounts and 2) companies that operate in the TMT industry. We examined different sectors in this industry to provide general guidelines that go beyond the traditional media sector (e.g. news media).

Table 15. Descriptive Statistics of the TMT Companies' Facebook Pages

Brand page	Sector	Followers[†]	Page creation[‡]
Adobe	Software development	1,393,052	February 17, 2010
Amazon.com	Retailing	3,996,419	March 8, 2008
AT&T	Telecommunication	471,729	March 5, 2008
Cisco	Technology hardware & equipment	1,720,313	June 14, 2010
Comcast	Telecommunication	115,581	December 10, 2015
Dell	Hard-/software development	83,977	July 1, 2009
Deutsche Telekom AG	Telecommunication	121,595	July 15, 2009
FOX	TV network	2,763,673	October 24, 2008
Google (Alphabet)	IT software & service	28,143,163	July 15, 2015
Hitachi, Ltd. Global	Conglomerate	365,743	August 22, 2011
Intel	Semiconductors	37,054,751	July 10, 2008
Meta (Facebook)	Social networking	22,795,111	January 31, 2020
Microsoft	Software development	14,141,756	September 27, 2010
SAP	Software development	1,185,871	November 26, 2007
Siemens	Conglomerate	736,878	August 13, 2012
Thomson Reuters	Mass media	188,960	November 5, 2009
Rogers	Telecommunication	693,511	November 12, 2009
RTL	Content creator	1,380,874	November 30, 2010
Vodafone Deutschland	Telecommunication	1,336,674	May 18, 2009
Zoom	Video communication	568,795	May 22, 2012

[†] Number of followers at the time of data collection; [‡] Date of page creation.

Data Collection and Coding

The coders randomly selected 130 posts[11] for each Facebook page published by TMT companies (January 2019 to December 2021). They excluded company-generated posts that were published two days prior to the data collection, that featured a change in the profile picture, and that reported news (i.e. news coverage). These selection criteria and the period of time should help to ensure stable post metrics and to avoid distorted results (e.g. coronavirus-related biases). Six independent coders manually coded the Facebook posts between August 2021 and January 2022. The authors provided these coders with coding instructions in advance and feedback after coding a small portion (10-15 posts) of the sample (before continuing to the full task). The coding was monitored on a regular basis; any ambiguities were discussed with the research team and the independent coders. To ensure coding reliability, a small subset of the posts (5%) was encoded independently by at least two coders. The intercoder reliability (calculated using IBM SPSS Statistics 27) was measured by Cohen's *kappa* and reached .8631.

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[11] To avoid differences in the impact of the brand pages due to unequal monthly posts, we specified a certain number of posts per brand page. The selection of posts was also determined in advance. Depending on the average monthly posts of a brand page, the coders selected, for instance, every second, third, or fourth post.

Operationalization

Following previous engagement studies, we measure CEB by the number of comments, likes, and shares of a post (e.g. Hughes et al., 2019; Lee et al., 2018; Luarn et al., 2015), as well as by the number of hearts and emojis (i.e. sad/angry/surprised/laughing emojis). The variable 'visual' was coded as a binary variable, for which a value of 0 indicates that a photo is used, and a value of 1 indicates that a video is used in the post[12]. The 'number of hashtags' indicates how many hashtags are included in a post and the 'post length' measures the number of words included in a post.

The remaining independent variables are binary variables, for which a value of 0 indicates the absence of an attribute, and 1 indicates its presence. To measure a positive sentiment, the coders assigned a value of 1 to a post that is positively valenced, for instance, posts that use 'positive words' (e.g. "It's the **most wonderful** time of the year"), otherwise it takes a value of 0. Posts that are framed negatively or that use negatively valenced words (e.g. "Five things to remember when coping with **loss** and **grief**.") are coded with a 1 ('negative sentiment' = 1). For the variable 'entertainment,' the variable equals 1 if the post contains entertaining content, and 0 otherwise. The variable 'informational' indicates whether a post is informational (= 1)[13]. The actuality of a post is measured using two categories: 'current topic' (i.e. post referencing a current topic = 1) and 'historical topic' (i.e. post referencing a past/historical topic = 1). In addition, we determine whether a post deals with 'equality' (= 1), refers to 'environmental sustainability' (= 1), references a social project ('social activities' = 1), or includes a 'hashtag' (= 1), 'question' (= 1), or a direct quotation ('quotation' = 1). The variable 'interactional' indicates whether a post promotes interaction (e.g. a post with the caption "Click below to read"; = 1). To measure 'text,' the coders assigned a value of 1 to posts that include text-based elements, otherwise they assigned a value of 0.

Further, we include control variables, namely the 'posting age' (i.e. age of the post in days), the number of 'followers,' and the 'solicitation for CEB,' which indicates whether a post explicitly encourages engagement, for instance, a post that instructs customers to write comments (see Table 16). The coders also gathered post and brand page-specific details, such as the 'monthly posts' (i.e. the average number of posts per month) and the creation dates of the posts and the brand pages.

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[12] We merged the variables 'photo' and 'video' because they indicated a high multicollinearity.
[13] The posts were coded as either informational, entertaining, or neither.

Table 16. Description of the Variables

	Variable	Description
CEB[†‡]	Comments	Number of comments
	Likes	Number of likes
	Shares	Number of shares
	Hearts	Number of hearts
	Sad emojis	Number of sad emojis
	Angry emojis	Number of angry emojis
	Surprised emojis	Number of surprised emojis
	Laughing emojis	Number of laughing emojis
Interactivity	Link	Whether a post contains a link
	Hashtags	Whether a post contains a hashtag '#'
	Number of hashtags	Number of hashtags ('#') in a post
	Interactional	Whether a post promotes interaction
	Question	Whether a post contains a question
CSR content	Equality	Whether a post references a topic related to equality
	Social activities	Whether a post references a topic related to social activities (e.g. donations)
	Environmental sustainability	Whether a post references a topic related to sustainability that is concerned with the environment and natural resources.
Content type	Informational	Whether a post contains informational content
	Entertainment	Whether a post contains entertaining content
Sentiment	Positive	Whether a post has a positive sentiment
	Negative	Whether a post has a negative sentiment
Actuality	Current	Whether a post references a current/up-to-date topic
	Historical	Whether a post references a past/historical topic
Post characteristics	Text	Whether a post contains text-based elements
	Post length	Total number of words used in a post
	Visual	Whether a post contains a photo or video (photo = 0/video = 1)
Quotation	Quotation	Whether a post contains a direct quotation
Control variables	Solicitation for CEB	Whether a customer is prompted to interact (e.g. like, share) with a post
	Followers	Number of users following the brand page[†]
	Posting age	Age of the post in days[†]
Page-/post-related variables	Page creation	Date of page creation
	Monthly posts	Average number of posts per month[†]
	Date	Publication date of the examined post

Notes: [†] At the time of data collection; [‡] CEB = customer engagement behaviour; CSR = corporate social responsibility; the engagement metrics are ln-transformed.

Data Analysis

We analysed the data by applying multiple linear regressions using IBM SPSS Statistics 27. We transformed the CEB metrics (i.e. dependent variables) with natural logarithms in order to capture nonlinear effects. To test the moderation effects, we used the SPSS plugin PROCESS v3.5 (Model 1) by Andrew F. Hayes and examined the mean centered interaction effects.

3.2.5. Results

Descriptive Statistics

Table 17 provides an overview of the descriptive statistics.

Table 17. Descriptive Statistics

Variable	Mean	SD	Min	Max
CEB				
Comments	287.87	2157.401	0	60,445
Likes	1455.94	13431.568	0	279,687
Shares	331.70	5172.340	0	215,336
Hearts	291.68	3717.191	0	143,212
Sad emojis	23.68	833.457	0	42,253
Angry emojis	18.77	163.587	0	3,836
Surprised emojis	10.62	101.272	0	2,292
Laughing emojis	36.82	421.460	0	13,848
Interactivity				
Link	.71	.454	0	1
Hashtags	.44	.497	0	1
Number of hashtags	.82	1.255	0	15
Interactional	.14	.351	0	1
Question	.15	.355	0	1
CSR content				
Equality	.05	.225	0	1
Social activities	.10	.300	0	1
Environmental sustainability	.03	.156	0	1
Content type				
Informational	.74	.438	0	1
Entertainment	.17	.378	0	1
Sentiment				
Negative sentiment	.01	.098	0	1
Positive sentiment	.47	.499	0	1
Actuality[14]				
Current topic	.64	.481	0	1
Historical topic	.02	.135	0	1
Post characteristics				
Text	.98	.153	0	1
Post length	39.96	35.882	0	672
Visual (Photo=0/Video=1)	.28	.447	0	1
Quotation	.10	.297	0	1
Control variables				
Solicitation for CEB	.02	.153	0	1
Followers	5,962,921.30	10,511,431.056	83,977	37,054,751
Posting age	266.19	241.344	0	1,976

Notes: CSR = corporate social responsibility; CEB = customer engagement behaviour.

The average number of followers equals 5,962,921 per brand page (SD = 10,511,431; min = 83,977; max = 37,054,751) and the average post length (i.e. word count) equals 39.96 (SD = 35.882; min = 0; max = 672). We examined 2,600 posts in total, 130 posts per brand page, of which 1,927 posts are informational (74.12%) and 449 are entertaining (17.27%). With regard to the interactivity, 1,844 posts include a link (70.92%), 374 posts have an interactional content (14.38%), 1,149 posts include hashtags (44.19%), and 384 posts include a question (14.77%). The average number of hashtags equals .82 (SD = 1.255; min = 0; max = 15). Sixty-five posts

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[14] We excluded the variable 'general topic' because it indicated a high correlation with the variable 'actual topic'.

indicate sustainability-related content (2.50%), 260 posts refer to the social activities of a company (10%), and 139 posts reference equality-related topics (5.35%). Regarding the sentiment, 1,229 posts have a positive (47.27%) and 25 posts have a negative sentiment (.96%). While 1,658 posts reference current topics (63.78%), 48 posts refer to historical topics (1.85%). Text and visual elements are included in 2,538 posts (97.62%). Some 698 posts include a video (26.85%) and 1,840 posts include a photo (70.77%). Moreover, 254 posts (9.77%) contain a direct quotation.

Regression Results—Direct Effects

The regression results are summarised in Table 18. Our results show that the presence of links and the number of hashtags are negatively related to most of the CEB metrics. The inclusion of hashtags, however, is only negatively associated with the number of likes and surprised emojis. Posts that include questions also receive lower CEB (in terms of likes and hearts). Additionally, interactional content is negatively related to the number of comments, hearts, and angry emojis.

With regard to CSR content, our results reveal that posts which reference the company's social activities have a positive relationship with the number of comments, likes, shares, and hearts, but a negative relationship with the number of angry and laughing emojis. Furthermore, equality and environmental sustainability are related to CEB. While equality-related content is positively associated with the number of hearts and angry/laughing emojis, sustainability-related content is negatively related to the engagement metrics.

Entertaining content shows a negative relationship with the CEB metrics. Informational content, however, is only significantly and negatively associated with the number of hearts. In terms of sentiment, posts with a negative sentiment receive significantly more comments, likes, shares, and sad emojis. A positive sentiment also receives significantly more comments and likes but fewer emoji responses. Moreover, posts that reference current topics are positively related to CEB and posts that address historical topics are positively associated with the number of shares.

With regard to post characteristics, text-based elements have a positive relationship with the number of likes, and surprised emojis and videos (compared to photos) a positive relationship with the number of likes, shares, hearts, and angry and surprised emojis (see 'visual'). Even though the number of words (i.e. post length) is positively related to CEB (with the exception of sad emojis), this relationship is weak. Moreover, our results reveal that posts which include direct quotations are positively related with the number of likes, shares, hearts, and surprised emojis.

Table 18. Regression Results

	Comments	Likes	Shares	Hearts	Sad	Angry	Surprised	Laughing
Link	**-.891*****	**-.752*****	**-.621*****	**-.883*****	-.200	**-.482*****	**-.390*****	**-.549*****
Hashtags	-.028	**-.273****	**-.257***	-.199	-.393	.082	**-.518*****	**-.475*****
No. of hashtags	**-.331*****	**-.079***	**-.155*****	**-.131****	-.148	**-.199****	.051	-.132
Interactional	**-.323***	-.126	-.238	**-.324***	-.388	**-.493****	-.100	-.232
Question	.235	**-.196***	-.301	**-.319***	-.081	.007	-.039	-.071
Equality	.318	.032	.016	**.361***	.240	**.472****	-.051	**.683*****
Social activities	**.342***	**.216***	**.316****	**.259***	.145	**-.351***	-.176	**-.603*****
Sustainability	**-.771***	-.025	**-.703****	**-.529***	.243	-.521	-.207	-.245
Informational	-.256	-.173	-.263	**-.610*****	-.247	-.376	-.041	-.137
Entertainment	**-.829*****	**-.467****	**-.550****	**-.792*****	-.557	**-.949*****	**-.490***	-.375
Negative sent.	**.947***	**.662***	**.913****	.555	**1.227****	.112	.376	.574
Positive sent.	**.199***	**.298*****	.025	.109	**-.624*****	**-.336****	**-.235***	**-.330****
Current topic	.266	**.295*****	**.319*****	**.324*****	**.436****	**.570*****	**.262****	**.410*****
Historical topic	-.153	.516	**.531***	.126	-.087	.219	.074	-.167
Text	.546	**.588***	.219	.324	-.547	-.427	**.150***	-.490
Post length	**.009*****	**.011*****	**.009*****	**.010*****	-.001	**.004****	**.005*****	**.004****
Visual	.464	**.260****	**.697*****	**.374*****	.193	**.208***	**.326****	.071
Quotation	.083	**.623*****	**.299***	**.614*****	-.059	-.039	**.299***	.160

Notes: Level of significance: *p < .05, **p < .01, ***p < .001; significant coefficients are highlighted in bold; the engagement metrics are ln-transformed; no. = number; sent. = sentiment; sustainability = environmental sustainability.

Regression Results—Moderation Effects

Post Length

Table 19 summarises the moderation effects. Even though post length moderates the relationship between multiple factors, most of these moderation effects are weak. Our results indicate that the positive relationship between equality and the number of laughing emojis becomes stronger with an increasing post length. Thus, posts which reference equality-related topics receive more laughing emojis when the number of words integrated in a post increases. Post length also strengthens the positive relationship between social activities and likes. In other words, social media posts that deal with a company's social activities attract more likes if they use more words. Moreover, a higher number of words decreases the negative relationship between environmental sustainability and angry emojis. While a low number of words results in a negative relationship between environmental sustainability and the number of angry emojis, a high number of words leads to a positive relationship between these variables (see Figure 8), and thus inverts the effect. Moreover, post length moderates the relationship between environmental sustainability and sad emojis. The higher the number of words used in a post, the stronger the positive relationship between environmental sustainability and sad emojis. In contrast, posts that do not reference sustainability-related topics receive fewer sad emojis if more words are used.
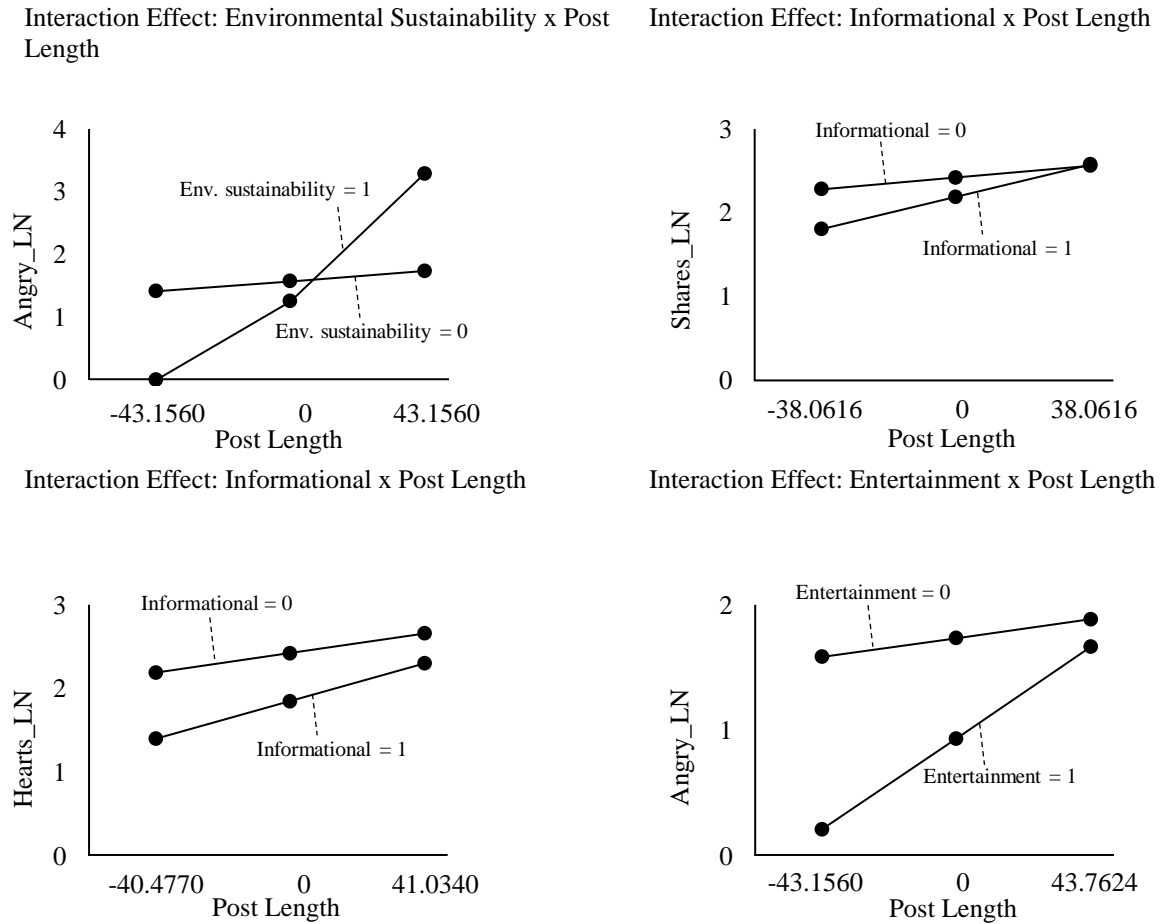
Table 19. Regression Results: Moderation Effects

	Comments	Likes	Shares	Hearts	Sad	Angry	Surprised	Laughing
Moderator—Post length								
Equality	.0021	-.0016	-.0011	-.0010	.0017	.0018	-.0037	**.0063**[*]
Social activities	.0007	**-.0077**[*]	-.0047	-.0052	-.0042	-.0049	-.0045	-.0016
Sustainability	.0374	.0093	.0087	.0123	**.0717**[*]	**.0428**[*]	-.0022	.0067
Informational	.0070	.0080	**.0064**[*]	**.0053**[*]	-.0085	**-.0087**[*]	-.0004	.0042
Entertainment	-.0036	-.0050	**-.0089**[*]	-.0031	.0058	**.0133**[*]	-.0033	-.0062
Moderator—Current topic								
Equality	-.0316	.3019	.2656	.2249	-.6916	-.0508	-.1260	.4330
Social activities	-.1398	.1413	.0310	.0062	.1452	-.1928	.3301	-.0552
Sustainability	-.0141	.5405	.2650	-.1188	.3618	.7990	-.0965	.6904
Informational	.3537	**.7241**[*]	**.5743**[*]	**.7938**[*]	.5148	**.5291**[*]	.2661	**.8930**[*]
Entertainment	-.1441	**-.6065**[*]	**-.4228**[*]	**-.5615**[*]	.3035	-.3256	.0069	**-.7136**[*]
Moderator—Positive sentiment								
Informational	**-.5740**[*]	**-.5789**[*]	**-.4657**[*]	-.1811	.0456	.0348	-.0953	-.3076
Entertainment	**1.0558**[*]	**.8309**[*]	**.8188**[*]	.4132	-.0585	.3308	.1610	**1.0022**[*]
Moderator—Negative sentiment								
Informational	1.7897	-3.5549	**-3.5779**[*]	-3.0010	**-4.1395**[*]	-1.4782	-1.4870	-1.3949

Notes: Level of significance: [*]p < .05; significant coefficients are highlighted in bold; the engagement metrics are ln-transformed; sustainability = environmental sustainability.

Our results show that post length also moderates the relationship between informational content and the CEB metrics shares, hearts, and angry emojis. Post length can counteract the negative relationship between informational content and the number of shares. While informational content with few words receives fewer shares, informational content with a higher number of words attracts more shares compared to uninformative posts (see Figure 8). Post length moderates the relationship between informational content and hearts; the higher the number of words used in informational posts, the higher the number of hearts these posts receive (see Figure 8). For informative posts, post length increases the negative relationship with angry emojis. Post length strengthens the negative relationship between shares and entertaining posts and decreases the negative relationship between angry emojis and entertaining posts and. Entertaining posts attract more angry emojis if they include a higher number of words (see Figure 8).

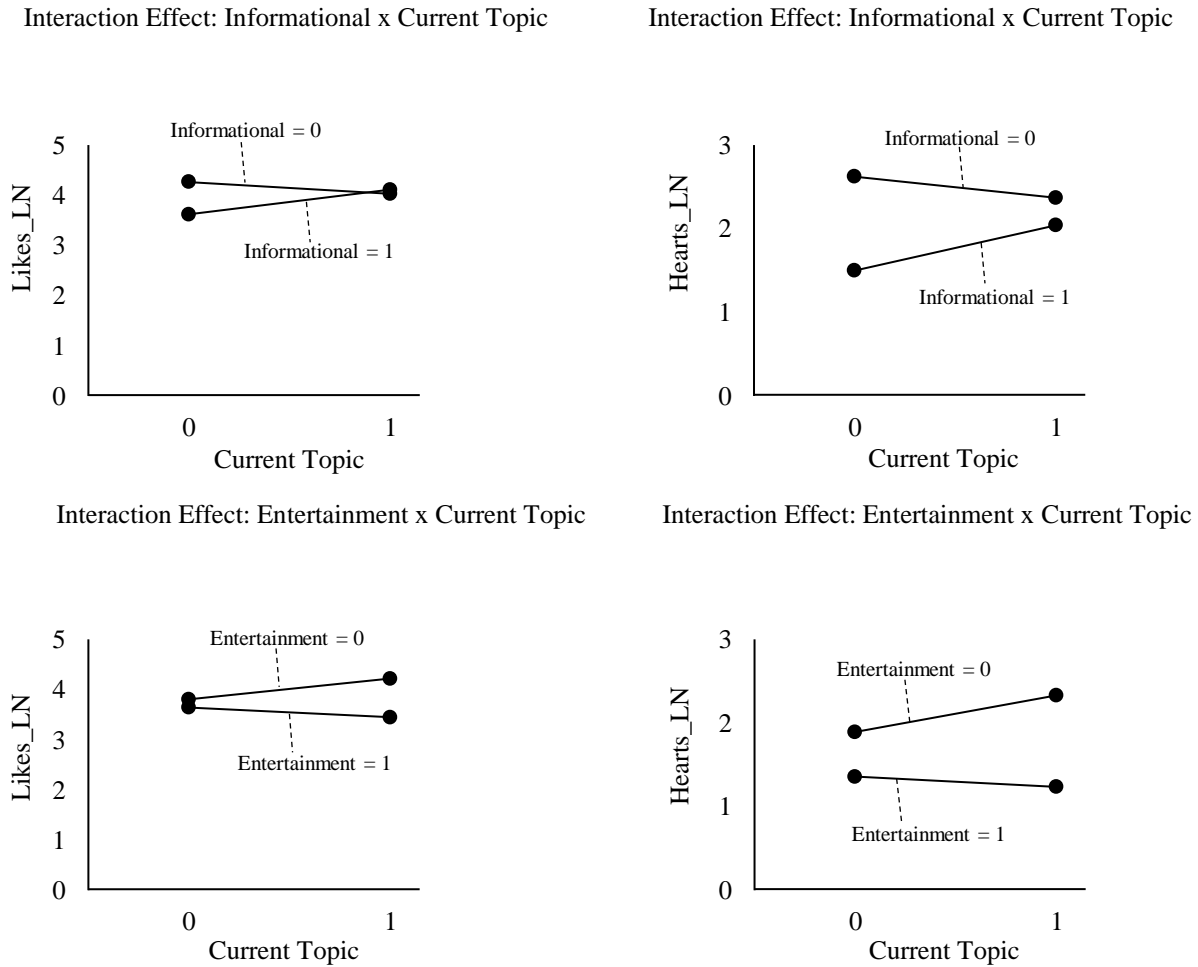**Figure 8. Interaction Plots—Post Length** *(mean centered interaction effects)*

Interaction Effect: Environmental Sustainability x Post Length

Interaction Effect: Informational x Post Length

Interaction Effect: Informational x Post Length

Interaction Effect: Entertainment x Post Length

Current Topic

Our results reveal that the variable 'current topic'[15] does not moderate the relationship between the CSR variables (i.e. equality, social activities, environmental sustainability) and CEB. However, our results show that current topics included in a post counteract the negative relationships between informative content and certain CEB metrics (i.e. likes, shares, laughing emojis). According to our findings, Facebook posts with informational content stimulate likes, shares, hearts, angry, and laughing emojis if they reference current topics (compared to posts that do not reference current topics). Our analysis also reveals that entertaining posts attract fewer likes, shares, hearts, and laughing emojis if current topics are addressed. Selected moderations effects are graphically depicted in Figure 9.

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[15] We did not examine the moderation effects of the variable 'historical topic' because our sample included no historical posts that, for example, reference sustainability or equality.

Figure 9. Interaction Plots—Current Topic *(mean centered interaction effects)*

Interaction Effect: Informational x Current Topic

Interaction Effect: Informational x Current Topic

Interaction Effect: Entertainment x Current Topic

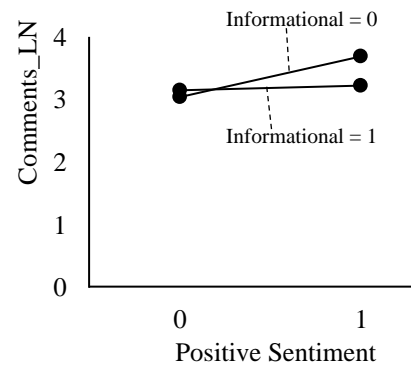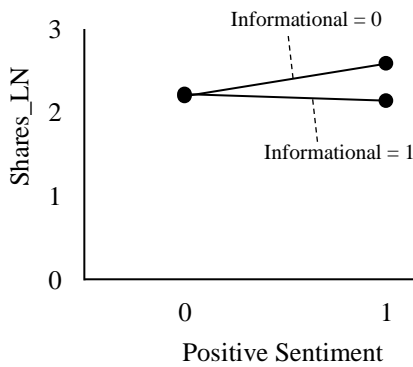Interaction Effect: Entertainment x Current Topic

Sentiment

For informational and entertaining content, a positive sentiment attracts more comments and likes (compared to posts without a positive sentiment). Moreover, our results reveal that entertaining posts with a positive sentiment receive more shares and laughing emojis. However, for posts with an informational content, a positive sentiment results in fewer shares. Posts with informational content attract more shares and sad emojis if they have a negative sentiment[16]. Selected interaction plots related to the sentiment of a post are shown in Figure 10.

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[16] We did not examine the moderation effects of the variable 'negative sentiment' on the relationship between entertaining content and CEB because our sample included no entertaining posts with a negative sentiment.

Figure 10. Interaction Plots—Sentiment *(mean centered interaction effects)*
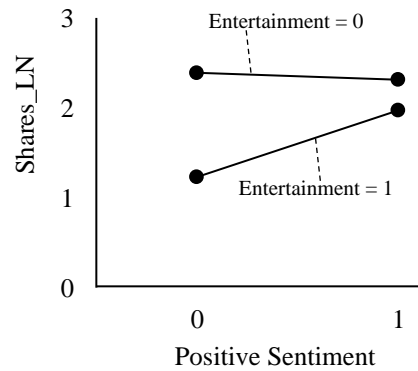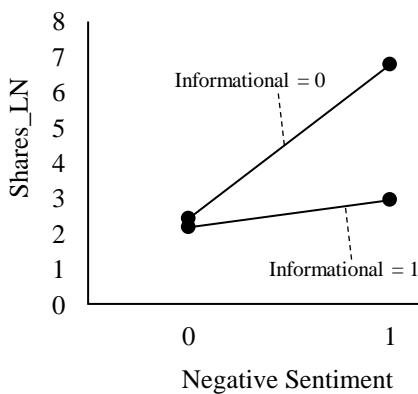
Interaction Effect: Informational x Positive Sentiment

Interaction Effect: Informational x Positive Sentiment

Interaction Effect: Informational x Negative Sentiment

Interaction Effect: Entertainment x Positive Sentiment

3.2.6. Discussion

Our results show that posts with interactive features (e.g. questions, links) were negatively related to CEB. One reason for this could be that the interactivity level of the examined posts was too high. According to Chua and Banerjee (2015), interactivity has a curvilinear relationship with CEB. In other words, the interactivity of posts can help to "draw attention only up to an optimum level, beyond which there [is] a negative association" with the engagement metrics (Chua & Banerjee, 2015, p. 79). Posts with a high interactivity ask the customer to engage in time-consuming activities (Chua & Banerjee, 2015), for instance to download an update or an app/software. However, customers who use social media or the offerings of TMT companies as a diversion or for entertainment may not want to engage in time-consuming activities. Additionally, some of the examined TMT companies ask their customers to share their habits (e.g. "Show/tell us what you eat!"). Many customers may not

want to share personal information about their behaviour/habits, so they may consider these posts less appealing.

In line with Chae (2021) and Manetti and Bellucci (2016), our findings show that CSR content included in a post were related to CEB. In our study, posts referencing social activities had a positive relationship with the number of likes, comments, hearts, and shares, and a negative relationship with the number of laughing and angry emojis. Customers might not consider these emoji reactions as adequate responses in this context and thus might avoid using them. However, in terms of equality-related content, we found a positive relationship not only with the number of hearts but also with the number of angry and laughing emojis. The media coverage of racial injustice evokes empathy and several emotions in customers (Nguyen et al., 2021), which can be expressed with these emoji responses. Customers might show their empathy with those affected by responding with hearts and might express their anger regarding injustice by reacting with angry emojis. Unlike Manetti and Bellucci (2016), we show that posts which reference sustainability-related topics were related to lower CEB. A potential reason for this relationship could be that customers consider sustainable initiatives less influential (or relevant) in the TMT industry than in industries that are associated with environmental pollution (e.g. oil and gas industry).

In contrast to the literature and the uses and gratification approach (e.g. Cvijikj & Michahelles, 2013; Luarn et al., 2015), entertaining and informational content were negatively related to customers' social media behaviour. One explanation for this might be that entertaining content is often "unrelated to the brand, while brand fans are interested in the brand" (De Vries et al., 2012, p. 89). In addition, customers might prefer to consume entertaining content passively, without engaging in "active and effort-intensive behaviour" (Cheung et al., 2020, p. 709). The decrease in customers' hedonic motivation in social networks over time (Salehan et al., 2017) and differences in the industries under study could be other reasons for the negative impact of entertaining and informational content on CEB. While our study focusses on the TMT industry, other studies examine brand pages from multiple or other industries, such as the food/beverage industry (e.g. Cvijikj & Michahelles, 2013; Luarn et al., 2015). People who follow TMT companies' Facebook pages may expect these companies to publish entertaining and informational content and could therefore be less likely to engage with them.

A positive and negative sentiment was positively correlated with the engagement metrics likes and comments. Negative and positive content might "enhance a general interest in the brand post," which increases customer responses in the form of likes and comments (De Vries

et al., 2012, p. 89). This shows that even a negative sentiment stimulates "a vivid discussion" and motivates people to share their opinion in SNS in the form of comments (De Vries et al., 2012, p. 89; Le, 2018). In our study, entertaining posts were more effective when they had a positive sentiment. One potential reason for this could be that customers may consider posts with entertaining content (e.g. posts with funny videos/slogans) appealing if they spread a positive mood. With regard to posts with informational content, a positive sentiment resulted in fewer shares and a negative sentiment in more shares. Negative informational posts might affect customers more emotionally than positive informational posts. Posts that evoke high-arousal emotions are likely to be shared with friends, colleagues, and relatives (Berger & Milkman, 2012). Even though Berger and Milkman (2012, p. 201) find that positive news posts are more viral than negative news posts, they emphasise that a "common wisdom suggests that people tend to pass along negative news more than positive news," which is consistent with our findings.

Interestingly, posts with current and historical topics were positively associated with CEB. This shows that TMT companies' customers not only want to receive and engage with current/up-to-date information on social media (GlobalWebIndex, 2022), but are also interested in past/historical content. This is particularly interesting in the context of technology companies, which are expected to come up with innovative ideas. However, old posts could possibly show the progress of technology companies' offerings, which may attract the attention of customers. In general, content that is oriented toward the past might also evoke certain emotions and nostalgic feelings/memories in customers, which could increase their responses. In our study, current topic does not moderate the relationship between CSR content and the engagement metrics. It is possible that CSR content triggers emotions that are independent of current circumstances. Informational content, however, was related to a higher level of engagement if it references a current topic. Multiple customers use social media and the offerings of TMT companies to be informed about current topics/events (Hootsuite & WeAreSocial, 2022a). Thus, the actuality of a topic seems to be important for the effectiveness of informative content in the TMT industry.

The variable 'visual' was also related to CEB: Posts with videos (compared to photos) resulted in higher levels of CEB. Hence, the inclusion of a video, considered as visually stimulating social media content, "is more engaging than less rich, or lean, content" (Moran et al., 2019, p. 540; see also Banerjee & Chua, 2019). Plain-text posts or posts with photos published by media companies stimulate only a few senses and therefore achieve a lower customer response compared to videos that stimulate more senses (Moran et al., 2019). Our

study, however, revealed that textual elements were positively associated with CEB. The fact that only 2.4% of the posts examined in our study are plain-text posts could be the reason for the ambiguous findings. Another reason could be that people might prefer social media posts published by TMT companies that offer a text-based description and thus provide additional insights.

In contrast to previous studies (e.g. Banerjee & Chua, 2019; Rooderkerk & Pauwels, 2016), our study shows that post length was positively associated with the engagement of customers. Customers might show their appreciation for the time and effort TMT companies have taken to create longer posts (Rooderkerk & Pauwels, 2016) by engaging with them. Moreover, customers could expect TMT companies to provide more information, making longer posts more appealing. This could also explain why post length positively influenced the relationship between informative content and CEB.

Post length also strengthened the negative relationship between entertaining content and the number of shares. Reading long posts and sharing them—which often "entails clicking a button as well as writing some comments"—is time-consuming (Banerjee & Chua, 2019, p. 630). However, customers might be less likely to spend a lot of time on entertaining posts. The effort associated with longer posts and time-consuming engagement activities (e.g. comments) could be a reason why we did not find a significant interaction effect between post length and the number of comments. Furthermore, our analysis reveals that post length positively influenced the relationship between CSR content and CEB. A potential reason could be that customers find these posts appealing and interesting and thus want to receive more information about the CSR topics addressed. Even though CSR-related social media posts should focus on the respective initiative (Andersen, 2021), they should use more words to provide enough insights.

3.2.7. Conclusion

This study examines the content-related factors of social media posts that are associated with CEB. Our analysis of company-generated posts on SNS helps to specify the engagement concept in the literature. Our empirical findings show that in the context of the TMT industry several post-related factors are positively related with CEB. For instance, with regard to post characteristics, our findings reveal that videos (compared to photos), the number of words, and text elements are positively related to most engagement metrics. Negative and positive sentiments as well as current and historical topics are also positively associated with CEB. Interactive elements integrated in posts (e.g. links, hashtags, questions) and entertaining/informational content are, however, negatively associated with CEB. Our findings

also indicate a relationship between CSR-related posts and CEB. While references to equality and TMT companies' social activities in posts are positively related to most of the engagement metrics, references to environmental sustainability are negatively associated with the engagement metrics. To the best of the authors' knowledge, our study is the first attempt to empirically test the relationship between CSR-related social media content and CEB. Researchers can use these findings as a starting point for their research. Our results also show that post length, sentiment, and actuality of a post are relevant moderators that should be considered by social media managers when creating social media postings and by researchers when examining social media communication. Multiple articles have already analysed direct effects on CEB but most of them have not examined potential moderation effects (e.g. Le, 2018; Luarn et al., 2015; Sabate et al., 2014). Our study, however, shows the importance of considering moderator variables when examining communication and engagement behaviours on SNS and thereby contributes to the literature. The results of the present study reveal that the moderators cannot only strengthen several relationships but they can also counteract them. For instance, our findings show that post length counteracts the negative relationship between informational content and the engagement activity 'shares'. It offers a better understanding of CEB and can help other scholars to develop new and more elaborated theoretical models in the online environment. In addition, we provide empirical findings on the relationship between post-related factors and CEB within the TMT industry. Our findings indicate that it is important for scholars to analyse specific industries or at least to consider differences among those industries.

Our study offers TMT companies insights into how to communicate effectively with their customers. Based on our findings, we develop the following guidelines that help TMT managers to communicate effectively with their customers on social media.

TMT managers should…

1) … select post content with care because in this industry—the industry of content (Daidj & Jung, 2011)—content is a central factor that can influence customer responses.

2) … post CSR content that is related to equality and the company's social activities.

3) … create longer CSR posts (higher word count).

4) … use visual elements, especially videos.

5) … reference current and historical topics.

6) … avoid using interactive features like links, hashtags, or questions in their social media posts.

7) … provide informational content related to current topics, they should avoid entertaining content related to current topics.

8) … publish entertaining and informational content with a positive sentiment.

Our study has limitations, which offer interesting avenues for future research. First, we did not examine the valence of customers' responses. For example, negative sentiment might stimulate customer-generated comments that are negatively framed. Thus, future research should conduct a sentiment analysis of the customers' comments by examining the performance of a post in terms of the negative and positive tonality of customer-generated comments/responses. Moreover, future research could examine the response communication behaviour of companies in social media to extend our findings and develop further guidelines. Second, we did not examine potential differences between the sectors of the respective brand pages (e.g. telecommunication, software development). Future research could therefore focus on these differences to develop sector-specific guidelines. Third, we collected data only from Facebook. As consumption motives differ among SNS (GlobalWebIndex, 2022), future studies should examine TMT companies' communication on other SNS, such as Instagram or LinkedIn, to see if they reach the same conclusions. Fourth, we measured CEB based on the number of comments, likes, shares, and emoji reactions but we did not consider other behaviours such as clicks/views. However, clicks/views of a post cannot easily be measured/observed (unlike the number of comments, likes, shares or emojis); this would require additional information provided by the platform or the company. Nevertheless, we have already examined a large set of engagement metrics and included metrics (i.e. emoji reactions) in our analysis that have not been considered in previous studies (see Table 14). Future studies should examine additional engagement behaviours, such as the number of clicks and views or whether a customer has provided feedback, to give more detailed guidelines.

3.2.8. References

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3.3.   Paper E: The Impact of Company-generated Posts with Crisis-related Content on Online Engagement Behavior

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3.4. Paper F: Customer Engagement Behaviour in the Media and Technology Industry: A Quantitative Content Analysis of Content Types and COVID-19 Context

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4. Conclusion

4.1. Summary

This dissertation analyzes the nomological network of engagement with a focus on the macro (AE) and micro (CE/CEB) levels of engagement. It examines and identifies relevant antecedents of engagement (*RQ1*) and reveals that actors' access to resources and engagement platforms, their outcome expectations, and shared goals can affect their engagement. These factors and concepts are therefore considered relevant drivers of AE.

The present dissertation also examines drivers of engagement in the social media environment. At a micro level, the analysis of corporate communication shows that social activities communicated through social media posts (published by TMT companies) can stimulate the engagement behavior of customers (e.g., number of likes, shares, comments). This relationship is also confirmed in the context of a crisis—the COVID-19 pandemic. The crisis-related research projects (i.e., research papers E and F) of this dissertation show that social activities in terms of a company's support during a crisis are positively related to the engagement metrics. Furthermore, other crisis-related attributes of social media posts and their relationships with the engagement behavior of customers are examined. An investigation of international companies from different industries shows that company-generated social media posts promoted engagement when they mentioned the crisis (i.e., COVID-19 pandemic) implicitly. The analysis of media and technology companies, however, reveals that a crisis-related context (e.g., COVID-19 context) in social media posts was negatively related to CEB. Potential reasons for this difference may be the investigation of different industries and crisis-related variables. While one research paper focuses on a rather broad definition of the crisis/COVID-19 variable, the other research paper examines COVID-19-related sub-variables (i.e., 'COVID-19 explicit,' 'COVID-19 implicit').

The research papers included in this dissertation examine the direct and interaction effects of several post-related factors and show that entertaining and informational content as well as visual elements are relevant moderators that can influence the relationship between post-related attributes, such as the sentiment or actuality of a post, and engagement behavior. The findings also reveal that informational content and interactive elements in company-generated social media posts are negatively related to engagement activities.

This dissertation highlights the importance of the engagement concept for practitioners and scholars and deals with business-related consequences of AE by examining the concept's

relationship with the BM concept (*RQ2*). The introductory quote by John Russell emphasizes that the engagement of actors like customers enables companies to understand those actors and their needs and thereby helps companies to make (important) decisions. This dissertation also reveals that engaged actors (e.g., customers, suppliers, partners) give other actors like companies access to their resources, which can lead to the improvement of existing—or the development of new—offerings, activities, processes, relationships, revenue models, etc. Therefore, the engagement of actors can lead to several modifications in the BM. These BM changes can, in turn, affect the behaviors of actors, including their engagement.

The findings of this dissertation offer valuable implications for practitioners and scholars, which are presented in the following.

4.2. Theoretical Implications

The objective of this dissertation was to broaden and refine the understanding of engagement by examining the concept on a micro and a macro level. The dissertation builds on the SDL, which is a theoretical foundation that helps us understand the engagement of actors in a network (Brodie et al., 2019). Based on the SDL, the dissertation links the concepts of BM, AE, and value co-creation and thereby offers relevant theoretical insights.

Most of the engagement research focusses on the dyadic relationship between customers and companies (Alexander et al., 2018; Li et al., 2018). This dissertation, however, emphasizes that it is important to adopt a multi-actor perspective when studying the engagement concept (Li et al., 2017). It also shows that a multi-actor perspective and service-oriented conceptualization of BMs is important to better understand the nature of the concept. The literature mainly focusses on company-centric BMs. However, "business models are not unique to producers" (i.e., companies) (Wieland et al., 2017, p. 940). Therefore, this dissertation investigates the engagement concept and its relationship with the BM phenomenon from a service-dominant and multi-actor perspective and thereby expands the theoretical understanding of both concepts. Scholars should consider multiple actors, including single actors (e.g., employees, customers) and collections of actors (e.g., organizations), and their engagement in academic research to offer a more 'holistic' perspective.

This dissertation shows that research that empirically examines engagement from a macro level and that investigates the (business) consequences of AE is rare. Existing AE literature is mostly conceptual/theoretical and analyzes AE in an abstract manner (Alexander et al., 2018). However, the AE research papers included in this dissertation offer practice-relevant insights by connecting the rather practical BM phenomenon with the theoretical AE concept. The

relationship between those concepts is also depicted in a conceptual framework and empirically measured in a qualitative case study. This dissertation thereby provides a baseline for future (empirical) research examining AE. Scholars can refer to the conceptual framework to develop new theories and hypotheses/propositions.

The second part of this dissertation (research papers C-F) 'zooms in' and focuses on the engagement of a specific actor type (micro level)—the customer—in the social media environment. The empirical analyses of companies' social media communication provide valuable insights (relevant for theory and practice) into the relationship between post-related attributes and the behavioral engagement of customers. These analyses show a need for an investigation of the post attributes with a focus on specific industries. Therefore, scholars should consider unique properties and characteristics when examining communication on social media or when applying findings/guidelines from one company, industry, or sector to another.

Previous engagement articles focus primarily on direct/main effects of certain factors on CEB (e.g., Chua & Banerjee, 2015; Cvijikj & Michahelles, 2013; Ge & Gretzel, 2018; Moran et al., 2019). However, this dissertation examines both direct and moderation effects and argues that engagement researchers need to consider moderation effects when examining social media posts. The moderators examined in this dissertation strengthen the relationship between specific post-related attributes and CEB/OEB and can even reverse a negative relationship into a positive relationship. This dissertation shows that informational and entertaining content, for instance, should be considered as moderator variables when examining other post attributes. Scholars should therefore include factors (identified in the literature) that may moderate the hypothesized relationships in their conceptual model.

4.3. Managerial Implications

The literature shows "that engagement is associated with a number of positive outcomes" (Chan et al., 2014, p. 90), such as higher revenues or a better reputation and recognition (Pansari & Kumar, 2017; van Doorn et al., 2010). Bill Magnuson (former CEO of Braze) also argues that "[t]he secret weapon that differentiates exceptional, enduring companies is the quality of their customer engagement" (Hyken, 2021). To benefit from these consequences, practitioners need a good understanding of the engagement concept and a clear sense of what factors influence the engagement of actors (e.g., customers). This dissertation offers practitioners relevant insights into and guidance on how to stimulate the engagement of actors. It highlights the relevance of considering the engagement of multiple actors (e.g., partners, suppliers) in a network. For companies to be successful and to realize full engagement potential, a good mix of actors is

important (Braze, 2022). Managers should therefore make the engagement of different actors in a network a priority within their company and should develop BMs that consider their engagement.

This dissertation shows that engaged actors can not only positively affect a company's processes, resources, and activities (Brodie et al., 2019), but also result in BM changes. It emphasizes the importance of the engagement concept for practitioners and identifies relevant antecedents of the concepts AE and CE/CEB/OEB. The presented findings reveal that a company can influence AE by offering actors relevant resources and managing their outcome expectations. This dissertation also shows that contextual factors can have a direct or moderation effect on engagement. According to Brodie et al. (2011, p. 260), engagement is considered a "context-dependent concept". Practitioners should therefore consider the context—"whether social, physical, temporal, and/or spatial" (Grönroos & Voima, 2013, p. 138)—when managing the engagement of actors. Based on these findings, managers can create processes/activities and adapt and implement certain strategies to improve the interaction and communication with other actors and to increase these actors' responses by fostering their engagement.

"Engagement is a conversation" (McKinsey, 2012), which is why effective communication is so important. This dissertation provides guidelines that practitioners can use to effectively and appropriately communicate with their customers. Especially with regard to a company's social media presence, marketing managers and social media administrators should consider the concept of engagement when developing specific communication online strategies. This dissertation reveals which post-related attributes companies should integrate into their social media posts to stimulate the engagement of their customers. For instance, TMT companies should communicate their social activities through social media to increase the engagement behavior of customers online.

This dissertation also provides crisis communication guidelines and emphasizes that adequate communication is important to stimulate the behavioral engagement of customers and strengthen the relationships with those actors during a crisis. Managers can use the information and insights provided to publish adequate crisis-related content on social media.

As mentioned, the findings of articles examining specific industries may not be transferable to other industries. Therefore, companies should not implement social media strategies/guidelines from other industries without screening and testing them first. Moreover, social media administrators should not assess the performance of post-related factors/attributes

independently. Rather, they should consider the interaction effect between different attributes to assess their performance and examine their relationship with the engagement concept.

4.4. Overall Limitations and Avenues for Future Research

Even though this dissertation has improved the understanding of the engagement concept, it has several limitations that provide avenues for future research. First, research papers A and B examine the antecedents and consequences of AE using a conceptual or qualitative single case study approach. However, to gain a deeper understanding and to test the relationships between AE and other concepts/factors (e.g., BM), quantitative research approaches and/or qualitative multiple case studies are necessary. For instance, future studies could conduct multiple case studies examining different industries/sectors, actor types, and companies. In addition, future research could develop an AE scale that can be used to measure the concept.

Second, the research papers D, E, and F of this dissertation solely examine company-generated social media posts published on Facebook. However, consumption motives differ among social media platforms (GlobalWebIndex, 2020): While Instagram and Facebook "are used to fill an empty moment" and to interact with other actors, platforms like YouTube or Pinterest are primarily used to find entertaining content (Voorveld et al., 2018, p. 50). Future studies should, therefore, replicate those analyses examining social media communication on other platforms (e.g., Instagram, Pinterest, Twitter, LinkedIn) to evaluate whether those findings are applicable to a different context.

Third, this dissertation does not focus on the sentiment/valence of engagement. For example, it does not examine whether the engagement has a negative or positive valence. While positive engagement is characterized by favorable feelings, "negative engagement is associated with unpleasant feelings and negative appraisals of the engagement object" (Li et al., 2018, p. 492). Managers willing to increase actors' positively valenced engagement need to be aware of the factors that stimulate positive engagement. Future engagement studies could replicate the analyses/studies of this dissertation and distinguish between positive and negative engagement. For instance, future research should conduct a sentiment analysis to examine a positive, neutral, or negative tonality of actors' feedback/responses/comments. Such an analysis could help to develop more detailed engagement guidelines.

Fourth, this dissertation does not investigate potential differences in the engagement levels of actors across industries/sectors. However, actors like customers might engage differently with companies operating in other industries or sectors. Hence, the impact of certain post-related attributes on the engagement concept might differ between companies operating in the

TMT industry and companies operating in other industries, such as the food or travel industry. This dissertation shows that, in the TMT industry, posts with a higher word count are positively related to engagement behaviors (see research paper D). In contrast, studies examining the travel or healthcare industries find a negative relationship between post length and engagement (Ge & Gretzel, 2018; Rooderkerk & Pauwels, 2016). Future research should therefore focus on these differences to develop industry-/sector-specific insights and guidelines.

Fifth, another limitation is related to the focus and operationalization of behavioral engagement. The empirical studies included in this dissertation mainly examine the behavioral dimension of engagement. Even though scholars like Harmeling et al. (2017) argue that this dimension captures the actual meaning of the engagement concept in a better way, future engagement research should also consider the affective and cognitive engagement dimensions. Scholars can use the engagement scale developed by Dessart et al. (2016) to measure and empirically examine the affective, cognitive, and behavioral dimensions. The empirical studies of this dissertation also measure engagement behavior based on the number of comments, likes, shares, and/or emoji reactions a company-/brand-generated social media post receives. Even though the analysis of these metrics offers important and relevant insights for researchers and practitioners, future studies should consider additional online engagement metrics, such as messages a customer/user sends to a company using a social media platform.

Sixth, the social media studies of this dissertation primarily focus on the micro level of engagement. However, future research should 'zoom out' and analyze the engagement of different actors, like influencers, employees, and/or competitors, on social media. Also, future studies could empirically examine the impact of post-related attributes on engagement by considering dynamic interaction/relationships among multiple actors in the social media ecosystem.

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Appendix

Contents*

Please note: Research paper E refers to the "Digital Appendix", which is included in this dissertation as "Appendix"

Appendix A. Descriptive Statistics for the Examined Variables

Variable	Mean	SD	Min	Max
COVID-19 explicit	.14	.345	0	1
COVID-19 implicit	.20	.398	0	1
Support during COVID-19	.08	.267	0	1
Expression of gratitude	.06	.235	0	1
Employees	.17	.378	0	1
Sense of belonging	.05	.221	0	1
Online engagement behavior				
Comments	295.33	2,163.885	0	60,445
Likes	2,078.76	13,970.296	0	279,687
Shares	366.31	5,188.964	0	215,336
Link	.69	.461	0	1
Visual (Photo = 0; Video = 1)	.33	.472	0	1
Brand page popularity	8,236,615.10	11,913,817.333	83,977	37,054,751
Posting age	278.49	255.296	3	1,095
COVID-19 winner/n.a./loser	.30	.781	-1	1
Industry	4.05	1.987	1	8
Monthly posts	25.76	15.35	6	58
Post length	38.36	36.154	0	672

Note: Online engagement behavior is the dependent variable.

Appendix B. Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11
1. Comments	1.00										
2. Likes	.71**	1.00									
3. Shares	.62**	.75**	1.00								
4. COVID-19 expl.	.09**	.02	.02	1.00							
5. COVID-19 impl.	.04*	.05*	.06**	-.20**	1.00						
6. Support	.09**	.12**	.12**	.40**	.14**	1.00					
7. EoG	.02	.06**	.02	.00	.13**	.07**	1.00				
8. SoB	.02	.02	.03	.15**	.13**	.23**	.17**	1.00			
9. Employee	-.03	-.04	-.02	.03	.00	-.02	.08**	.05**	1.00		
10. Link	-.09**	-.06**	-.01	.07**	-.01	.00	-.16**	-.02	-.06**	1.00	
11. Visual	.10**	.07**	.07**	-.02	-.05*	-.02	.12**	.03	.12**	-.20**	1.00

Notes: Level of significance *p < .05, **p < .01; EoG = Expression of gratitude; SoB = Sense of belonging; Support = Support during COVID-19.

Appendix C. Coding Instructions

Instructions: First coding round	
General instructions	- Select and code 130 brand-generated Facebook posts for each brand page assigned using the coding scheme. (Code these posts with care!) - If you are unsure about a post or a specific variable, contact the research team. - Any ambiguities will be discussed with the research team and the other coders. - After coding 10–15 posts, send the coding scheme to the research team. You will receive feedback afterwards. - Implement the feedback provided by the research team.
Selection procedure	- Select 130 posts that were published over the previous three years (starting point: September 2021; moving backward). - Select all COVID-19-related brand posts that were published by the brand page up to September 2021. - Select the remaining posts randomly according to the following scheme: - For brand pages that rarely publish posts (e.g., 1–10 average monthly posts): Select every second post (in exceptional cases: every post). - For brand pages that occasionally publish posts (e.g., 11–20 average monthly posts): Select every third post. …
Exclusion criteria	- Exclude posts that were published two days (i.e., 48 hours) prior to the analysis. - Exclude posts that feature a changed cover/profile picture.
Coding procedure	- Indicate the name of the brand page. - Specify the industry, average number of monthly posts, and the number of followers in the columns of the coding scheme. - Select a post (see instructions above). - Name the post; Example: Brand-x_01; Brand-x _02; Brand-x_03 (e.g., Netflix_01). - Please note: Each post should have an individual name/title. - Take a screenshot of the post and integrate it with the name of the post (e.g., Netflix_01) into the corresponding worksheet of the document. - Specify the posting age in the column of the coding scheme. - Code the remaining variables using the coding scheme.
Variables	**OEB:** Note the number of likes, comments, shares in the respective columns. **COVID-19 explicit:** Assign a value of 1 to a post that includes the terms 'COVID-19,' 'corona,' 'virus,' or 'pandemic,' otherwise assign a value of 0. **COVID-19 implicit:** Assign a value of 1 to a post that uses phrases such as 'stay at home,' 'the current situation,' 'stay at home,' or 'flatten the curve,' otherwise assign a value of 0. **Support during COVID-19:** Assign a value of 1 to a post that indicates a company's support during the crisis (e.g., donation of money/equipment), otherwise assign a value of 0. **Expression of gratitude:** Assign a value of 1 to a post that expresses gratitude (e.g., appreciative phrases such as 'Thank you' = 1), otherwise assign a value of 0. **Employees:** Assign a value of 1 to a post that refers to company employees, otherwise assign a value of 0. **Sense of belonging:** Assign a value of 1 to a post that evokes a sense of belonging (e.g., phrases like 'We are all in this together,' 'We will get through this together' = 1), otherwise assign a value of 0. **Video:** Assign a value of 1 to a post that includes a video, otherwise assign a value of 0. **Photo:** Assign a value of 1 to a post that includes a photo, otherwise assign a value of 0. **Link:** Assign a value of 1 to a post that includes a link, otherwise assign a value of 0.

Appendix C. Coding Instructions *(continued)*

Instructions: Second coding round	
General instructions	• Code the specified posts in the coding scheme (see worksheet 'Screenshots'). • Search for the respective post (screenshot) of the brand page in Facebook. • Code the variables according to the instructions mentioned above.

Appendix C. Coding Instructions *(continued)*

Appendix D. Direct Effects: Comments

Relationship	p-value	Coefficient	SE	T-statistic
COVID-19 explicit → Comments	.001	.167**	.050	3.308
COVID-19 implicit → Comments	.000	.080***	.015	5.490
Support during COVID-19 → Comments	.578	.025	.046	.557
Expression of gratitude → Comments	.199	.043.	.033	1.285
Employee → Comments	.001	-.029**	.009	3.212
Sense of belonging → Comments	.323	-.012	.012	.989

Notes: Level of significance *p < .05, **p < .01, ***p < .001; R^2 = .132; SRMR = .001; NFI = 1.00.

Appendix E. Direct Effects: Likes

Relationship	p-value	Coefficient	SE	T-statistic
COVID-19 explicit → Likes	.556	.029	.050	.590
COVID-19 implicit → Likes	.000	.066***	.014	4.857
Support during COVID-19 → Likes	.027	.106*	.048	2.215
Expression of gratitude → Likes	.434	.032	.041	.783
Employee → Likes	.268	-.013	.011	1.109
Sense of belonging → Likes	.643	-.008	.017	.463

Notes: Level of significance *p < .05, **p < .01, ***p < .001; R^2 = .117; SRMR = .002; NFI = 1.00.

Appendix F. Direct Effects: Shares

Relationship	p-value	Coefficient	SE	T-statistic
COVID-19 explicit → Shares	.568	.029	.051	.572
COVID-19 implicit → Shares	.000	.066***	.013	4.903
Support during COVID-19 → Shares	.032	.106*	.049	2.150
Expression of gratitude → Shares	.412	.032	.039	.820
Employee → Shares	.265	-.013	.011	1.114
Sense of belonging → Shares	.641	-.008	.016	.466

Notes: Level of significance *p < .05, **p < .01, ***p < .001; R^2 = .094; SRMR = .002; NFI = 1.00.

Curriculum Vitae – Nicola Kleer

Research Areas and Interests

Business model dynamics
Actor engagement and the service-dominant logic
Customer engagement (behavior)

Teaching Experience

WiSe 2019/20
Master Seminar: MTM Selected Issues: Business Model Dynamics

Bachelor Seminar: Mediennutzung der GenZ

SuSe 2020
Bachelor Lecture: Medienunternehmen und -technologien: Einführung in Managementthemen (Übung)

Master Seminar: The Antecedents of Customer Engagement: An Empirical Analysis of Media and Technology Customers

Bachelor Seminar: Engagement von Nutzern in Digitalen Medien und Sozialen Netzwerken: Erstellung eines Literaturüberblicks

WiSe 2020/21
Bachelor Seminar: Social Media Engagement

SuSe 2021
Bachelor Lecture: Medienunternehmen und -technologien: Einführung in Managementthemen (Übung)

SuSe 2021
Bachelor Seminar: Sustainability und Innovation im Medien- und Technologiemanagement
Master Seminar: Research and Publications: Literature Review and Research in Digital Innovation and Sustainability Management in the Media and Technology Business

WiSe 2022
Bachelor Seminar: Customer Engagement Behavior in the Media and Technology Industries

Master Seminar: Research and Publications: Business Models, Digital Innovation, and Sustainability Management in the Media and Technology Industries

Publications

Books and Book Chapters
Kunz, R. & Kleer, N. (2020). Das Management von Medienunternehmen im Wandel, in: Roth, S., Horbel, C., & Popp, B. (eds.): Perspektiven des Dienstleistungsmanagements. Springer Gabler, 571-592. Online: https://doi.org/10.1007/978-3-658-28672-9_29.

Academic Articles

Kleer, N. (2023). Die Bedeutung von Kundenengagement für die Medienbranche im digitalen Zeitalter. *MedienWirtschaft*.

Kleer, N. & Kunz, R. (2022). The impact of actor engagement on the business models of video game developers. *International Journal on Media Management*. Online: https://doi.org/10.1080/14241277.2022.2038604

O'Brien, D., Wellbrock, C. M., & Kleer, N. (2020). Content for free? Drivers of past payment, paying intent and willingness to pay for digital journalism–A systematic literature review. *Digital Journalism*, *8*(5), 643-672. Online: https://doi.org/10.1080/21670811.2020.1770112.

Wenzel, S., Kleer, N., & Kunz, R. (2022). Customer engagement behavior in the media and technology industry: A quantitative content analysis of content types and COVID-19 context. *Journal of Media Business Studies*. Online: https://doi.org/10.1080/16522354.2022.2139997.

Conference Presentations

Conference of the International Media Management Academic Association (IMMAA), Qatar, October 2019: The impact of actor engagement on media business models: A case study on World of Warcraft (with R. Kunz).

Conference of the International Media Management Academic Association (IMMAA), Qatar, October 2019: Digital technologies and their impact on business model innovation (with R. E. Kunz and J. Mütterlein).

Annual Conference of the European Media Management Association (EMMA), Jönköping, October 2021: The impact of content zype and COVID-19 context on customer engagement: A quantitative content analysis of media and technology companies (with R. E. Kunz and S. Wenzel).

Annual Conference of the European Media Management Association (EMMA), Munich, June 2022: Social media communication guidelines for media companies – A quantitative content analysis and multiple regression analysis of media brands' Facebook posts (with R. E. Kunz).

Deutsche Gesellschaft für Publizistik- und Kommunikationswissenschaft (DGPuK) Jahrestagung, Munich, June 2022: Die Bedeutung von Kundenengagement im digitalen Zeitalter.

N. Kleer

Köln, 15.02.2023

Statement

Eidesstattliche Erklärung
nach § 8 Abs. 3 der Promotionsordnung vom 17.02.2015

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Köln, 15.02.2023
Ort, Datum

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