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The role of immersive technology in Customer Experience Management

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ABSTRACT

Immersive technologies are redefining and revolutionizing the staging of experiences and co-creation of value, implicating the management of customer experiences. However, limited studies have looked at the role of immersive technologies as part of the customer experience management (CXM) process. Incorporating the concepts of experience economy and value co-creation, this study proposes a dynamic CXM framework that highlights the emerging field of immersive technologies like augmented and virtual reality as part of business and marketing research. The framework acts as a guide for researchers and industry practitioners to initiate immersive technology ventures that are rooted in the co-creation and management of customer experiences.

Introduction

Immersive technology, such as augmented and virtual reality, is gaining momentum in the consumer market as companies such as Facebook and Apple are announcing and executing large investments in this field sparking discussions about the future of immersive technology (Hoium, 2021). The retail sector has already started to introduce various applications of immersive technology as part of marketing and sale strategies such as virtual mirrors (Javornik, 2018) to create value across the customer journey. However, the current consumer market is increasingly defined by co-creating value across service and product interactions. Technological advancements shift dynamics of control from businesses to customers, and in various industries from retail to tourism and education, the involvement of multiple stakeholders in the value co-creation process is flourishing (Tom Dieck et al., 2018b). Jung and Tom Dieck (2017) argued that immersive technology had the potential to serve as a platform for value co-creation among customers, shaping the design and consumption of customer experiences.

A number of studies have made an attempt to better understand the phenomenon of customer experiences (Bastiaansen et al., 2019; Han & Tom Dieck, 2019; Lim & Kim, 2018). One of the most dominant approaches to study customer experiences leans on the concept of the experience economy coined by Pine and Gilmore (1998). However, the four realms of experiences defined by Pine and Gilmore (1998) do not provide sufficient consideration of the management of customer experiences. Homburg et al. (2017) acknowledged that the understanding of customer experience management (CXM) was still fragmented and studies largely context specific to industries such as retail. Understanding the totality of the customer experience requires an investigation of how value is created and co-created during the pre-purchase, purchase, and post-purchase stage (Grønholdt et al., 2015). Multiple studies have adopted or proposed a multi-stakeholder perspective for the design of experiences (De Goey et al., 2017; Lim & Kim, 2018) to uncover how stakeholders co-create and add value to the total customer experience. While there is a vast scope of potential stakeholders that are impacted, in the context of this paper, we regard "stakeholders" as businesses and consumers involved across all stages of the customer experience engaging with immersive technology as part of the customer journey.

In a time of emerging immersive technologies that have the capability to influence customer experiences at different touchpoints throughout a customer journey, the positioning of technology implementation needs to be reevaluated. Despite the increased importance of immersive technologies, there has been limited research on their effects on customer experiences, with the majority of studies only appearing in industry journals. Several scholars expressed the need to study customer experiences particularly in the time of increasing technological advancements and changing value dynamics (Farah et al., 2019; Kirk et al., 2015). However, insights

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into the management thereof and how these are co-created with multiple stakeholders in an era of immersive technologies are still debated and unclarified. One of the underlying reasons for this challenge is the continuous evolvement of experiences that change over time, as customer expectations evolve and technological developments disrupt our lives. As a result, future directions and ambitions are still unclear which limits our understanding and possibly exploiting the use of immersive technologies.

Therefore, the aim of this paper is to contribute to existing literature and advance our understanding in two areas: 1) to explore the influence of immersive technology on CXM; 2) to develop a strategic framework that integrates theories of value co-creation and experience economy in the use of immersive technology to provide an avenue for future research and a guide to managers when investing in immersive technologies.

Literature review

Customer Experience Management (CXM)

The sheer amount of studies conducted around the design, staging, and managing of customer experiences in various sectors in recent years illustrates the importance as well as complexity of customer experiences and the considerations that still need to be addressed (Homburg et al., 2017; Jung et al., 2017). Businesses operate in a world that is increasingly competitive and customer expectations for a complete and fulfilling experience are rising. It is no longer sufficient to compete on product quality, service quality, or price, and companies have started to focus on the total customer experience instead. As a result, it is crucial to get a better grasp on how customer experiences are created and managed over time.

Pine and Gilmore (1998) early recognized the shift toward the co-creation rather than a simple staging of experiences and developed the experience economy concept. Their concept proposed four realms of experiences (education, esthetics, entertainment, and escapism) spread over a spectrum from passive to active participation and absorption to immersion. The concept has gained widespread recognition among experience design and technology researchers, as it is thought to explain consumer experiences and experience design requirements (e.g., M. C. Tom Dieck et al., 2018a). The theoretical roots of the experience economy lie in the theory of experienced utility, developed by Kahneman and Thaler (1991); as part of this theory, it is suggested that utility refers to the overall benefits visitors receive from an experience (Kim et al., 2019). Chang (2018) acknowledged the theory of experienced utility suggests that experiences are strongly emotional; thus, customers perceive stronger experiences when engaging in hedonic applications. Consequently, the concept of experience economy suggests that increasingly more consumers are looking for and purchasing entire experiences rather than isolated products or services. As a result, it is imperative for businesses to recognize the need to understand and manage the complete picture of the customer experience to better control for influencing factors through the engagement and collaboration of multiple stakeholders.

Schmitt (1999) emphasized that successfully staged customer experiences provide "sensory, emotional, cognitive, behavioral and relational values that replace functional values" (p. 12). According to Schmitt's framework, CXM involves a 5-step approach (1) analyzing the experiential world of customers, (2) building the experiential platform, (3) designing the brand experience, (4) structuring the customer experience, and (5) engaging in continuous innovation. Edelman and Singer (2015) suggested to manage customer experiences, and touchpoints specifically, using a customer journey perspective to address issues affecting the complete experience. Ratcliff (2015, p. 1) added that "customer experience is the sum of all experiences a customer has with a business during their entire lifetime relationship, taking in not just the key touchpoints (product awareness, social contact, the transaction itself, post-purchase feedback) but also how personal and memorable these experiences are".

Furthermore, Verhoef et al. (2009) suggested that technological advancements such as self-service counters would blur the lines of influencing factors depending on the method of technology implementation and affect the perceived customer experience. Being able to manage complete customer experiences that synthesize functional and emotional influencers is difficult for competitors to copy and to severe customer loyalty. It is evident in earlier studies that customer experiences were largely examined using a temporal perspective on evaluating a given experience. However, managing customer experiences requires constant monitoring and reevaluating existent and emerging interventions among stakeholders. The aim is to manage emotional and functional clues that create continuous total customer experiences effectively to trigger specific emotional responses in customers that can lead to sustained customer loyalty. In an attempt to accomplish this, Homburg et al. (2017) suggested CXM to be a company-wide approach that integrates the company's cultural mind-sets, strategic directions, and capabilities into one framework to create value for the customer.

Value co-creation in CXM

Value co-creation is defined as "joint activities by parties involved in direct interactions, aiming at contributing to the value that emerges for one or both parties" (Grönroos, 2012, p. 1520). Traditionally, firms offered value propositions to customers. However, new dynamics moved toward the co-creation of value whereby consumers are part of the value-creation process once they decided to accept the value proposition (Finsterwalder, 2018). This new approach to service delivery is referred to as service-dominant logic (S-D logic) (Vargo & Lusch, 2008). The philosophy of co-creation stems from the basic belief that consumers need to be part of innovation processes to add value from the demand point-of-view (Albinsson et al., 2016). Whereas the traditional goods-dominant logic focused on the exchange of resources, the S-D logic involves the inclusion of knowledge and skills (Vargo et al., 2008). Overall, customers take a more active role in the development process (Prahalad & Ramaswamy, 2004; tom Dieck & Han, 2019), aiming to increase the likelihood of a successful implementation of new products and services, helping companies to create a competitive advantage. To fully grasp the scope of managing customer experiences, it is crucial to get a clear understanding of the value that is anticipated and created for all stakeholders involved. In this perspective, the value creation process is inevitably linked to the management of value and resulting stakeholder relationships. Numerous researchers (e.g., Binkhorst, 2006; Ponsignon et al., 2017; Prebensen, 2013) assessed the importance of co-creation to create rich and memorable experiences. In fact, Binkhorst (2006, p. 4) argued, "When the experience environment is sufficientl7y compelling, customer communities can take on a life on their own and thereby becoming directly involved in the co-creation of individual experience".

Due to technological advancements, businesses and consumers have realized the possibilities to engage with one another to create new ways of co-creating value. However, perspectives and discussions on the involvement of different stakeholders for total CXM are limited despite long successes of such participatory research principles. The engagement of multiple stakeholders in collaboration was suggested as a necessity in fields such as tourism, where customers are passing through a vast number of touchpoints with different businesses in a single trip (March & Wilkinson, 2009). While earlier studies identify organizational benefits by collaborating in an alliance (McCabe et al., 2012), one of the challenges is to involve the right stakeholders at the right time of the project (Danov et al., 2003). We propose that collaboration among stakeholders is not merely a result of creating a potential win-win situation anymore, but a core necessity to compete in the market and manage customer experiences that are meaningful and continuously perceived as valuable.

In fact, customers are increasingly searching for novel, but personalized experiences, which creates an opportunity for small- and medium-sized enterprises (SMEs) to get involved and create value in the CXM process. To ensure successful experiences for the customer, Ponsignon et al. (2017) found that businesses need to fully understand intended and realized experiences, which leads to a necessity of properly designing and managing the customer journey. Novelli et al. (2006) argued that collaborations are often more effective and efficient by involving smaller businesses due to their flexibility toward innovation. Digital technologies in the consumer market allow consumers to connect and co-create experiences at different points of a process, which results in increasing challenges in the design, monitoring, and managing of customer experiences. However, there is a need for further research in the involvement of multiple stakeholders for innovative initiatives engaging with immersive technologies.

Immersive technologies

Immersive technologies are defined as any form of technology that allows the blurring of virtual and real worlds while providing a sense of immersion. However, "relatively little research has been conducted to better understand what we know and what we need to know about immersive technology and how users experience these technologies" (Suh & Prophet, 2018, p. 77). The most prominent examples of immersive technologies are augmented and virtual reality (AR and VR), and a number of studies have started to explore how these technologies can enhance consumer experiences (Farah et al., 2019), learning experiences (Moorhouse et al., 2019) or training and planning (e.g., Gavish et al., 2015). More recently, marketing literature started to look into the opportunities and challenges of immersive technologies with a focus on consumer adoption (Rauschnabel et al., 2019), gratification factors (Rauschnabel et al., 2017), gaming (Pallavicini et al., 2019), health (Qidwai et al., 2019) and business models (e.g., Cranmer et al., 2018). According to Rauschnabel et al. (2019, p. 44), "given the fundamental differences between AR and many existing media formats (e.g., AR integrates virtual content in a user's perception of the real world, whereas traditional media typically present content separately from reality),

established frameworks might neglect potentially relevant factors such as the quality of augmentation in AR".

Just recently, Parong et al. (2020) published a study on immersive technologies, focusing on VR and its potential for learning, and found that the sense of "being there" has huge implications for positive learning experiences. This concept of social presence makes immersive technologies such an effective tool for marketing- and business-related purposes. According to Nussipova et al. (2019), presence is a subjective feeling of being in an artificial environment, although actually being located in the real-world. Potentially, the feeling could surpass reality, leading to exceptional experiences. Nowadays, customers interact with companies and other customers through various touchpoints using multiple and ever immersive technologies (Lemon & Verhoef, 2016). Nussipova et al. (2019) explored value creation through immersive technologies within the Business-to-Business (B2B) context and proposed a link between the value formed through physical activities and emotional responses of immersive technologies. According to Lemon and Verhoef (2016), customer journey channels differ in benefits and costs, and different channels are considered appropriate for different stages in the customer experience process. Nevertheless, they also acknowledged that different customer segments and characteristics require different channels as part of their customer journey.

For instance, within the tourism journey, Jung and Tom Dieck (2017) acknowledged that VR is often considered an appropriate immersive technology for the pre-planning stage, while AR is mainly used to enhance the on-trip experience with social media is being employed for post-trip sharing, rating, and reminiscing. This is an important part of CXM as customer-to-customer interaction is key in today's business and retailing environment (Gilboa et al., 2019). Overall, this trend is particularly facilitated by the increased use of mobile devices, and associated applications. In fact, customer engagement is a key area within the marketing literature that developed with the emergence of technology. Hilken et al. (2017) found that online customers often struggle to get an idea and feeling for a service experience and thus, the concept of service augmentation can be considered an important element to strengthen consumers' online decision-making. Immersive technology has the potential to move the customer journey toward immediacy, receiving up-to-date information and content wherever required. In addition, Jung and Tom Dieck (2017) found that immersive technologies could help to personalize experiences and the customer journey, through its interactive, value adding, and co-creational characteristics. Nevertheless, as acknowledged by Rauschnabel et al. (2019), immersive technology is often used in isolation and not well

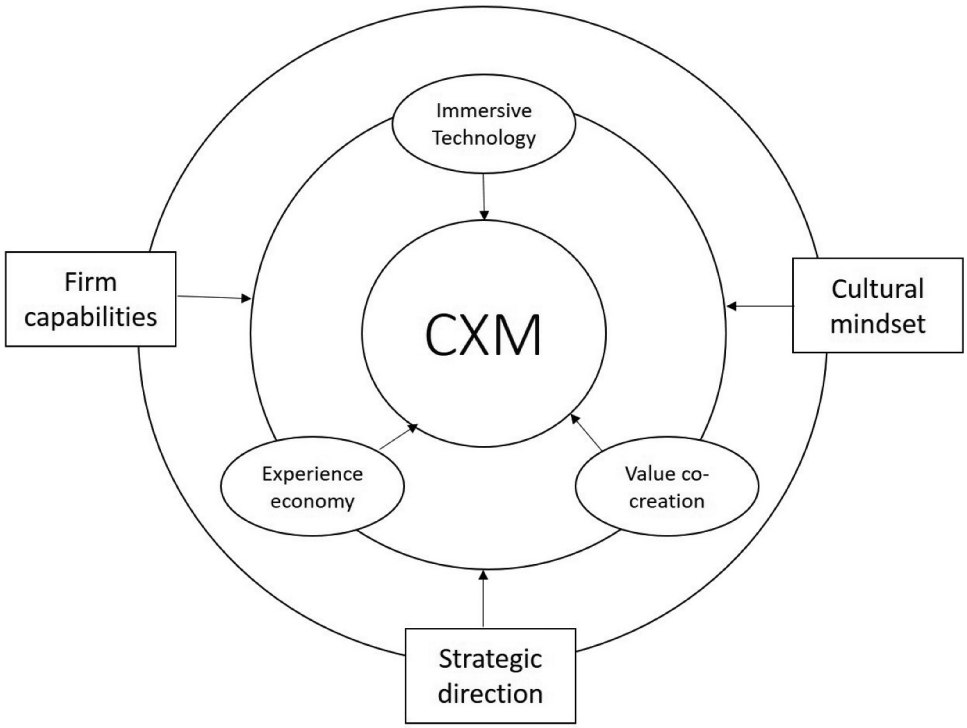

Figure 1. Integration of key concepts.

integrated into the customer journey and therefore we believe that more research and conceptual understanding of the use of immersive tech within the CXM cycle is required.

Figure 1 summarizes the integration of key concepts from the literature review. It is highlighting how the concepts of value co-creation, experience economy, and employment of immersive technology are central to the future of CXM. The outer layer (cultural mind-set, strategic direction, and firm capabilities) guides the strategic thinking around the CXM process and will be discussed in the following sections.

Discussion

Based on the literature reviewed, we propose a Customer Experience Management (CXM) framework that illustrates the integrated role of key concepts outlined in previous sections. According to our proposed immersive technology CXM framework, which is based on Homburg et al.'s (2017) model (see Figure 1), we suggest that CXM within the immersive technology context is a continuous cycle starting with the initiating of a cultural mind-set, the exploring of strategic directions, and the developing of firm capabilities. We approach this topic through a holistic perspective with the need of engaging customers to co-create value and extend to CXM in a world that is increasingly disrupted by immersive technologies. We discuss specific implications of immersive technology leaning on Pine and Gilmore (1998) Experience Economy dimensions to capture how immersive technology influences total CXM at various points of the value-generating process (see Figure 2).

The influence of immersive technology on the four Realms of the Experience Economy

In the context of immersive technology, studies such as M. C. Tom Dieck et al. (2018a) have explored the effect of immersive technologies on individual realms of the experience economy. According to Pine and Gilmore (1999), esthetics were originally outlined to signify the immersive design that shapes the environment of the consumed experience. However, in the context of immersive technologies, esthetics and escapism are crucial realms that need to be redefined due to the level of immersion that AR, VR, or MR (Mixed Reality) technologies are able to create, as previously claimed by Jung et al. (2016). Escapism through immersive technology allows users to momentarily forget their physical realities and related happening by fully immersing

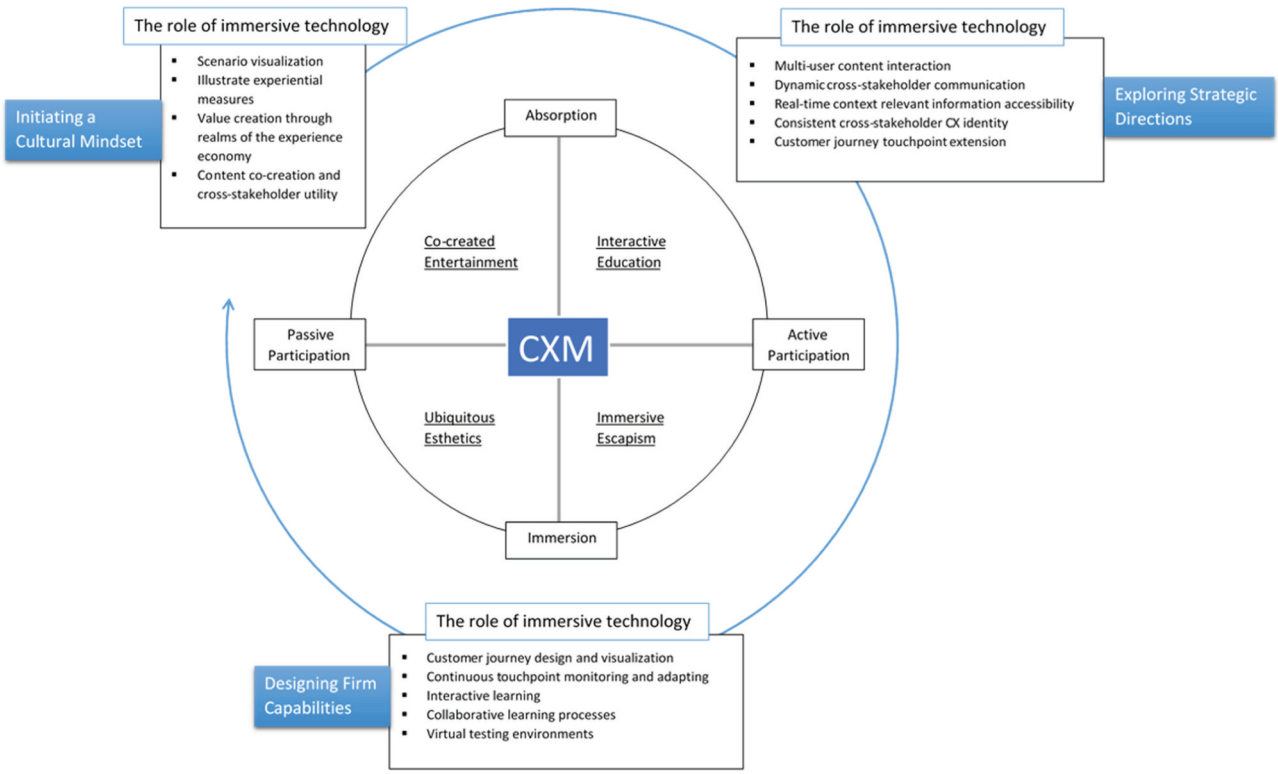

Figure 2. Immersive technology customer experience management framework.

themselves in the computer-generated environment. This phenomenon is expected to become increasingly important, as technological capabilities improve.

Although the realm of enjoyment in the experience economy construct largely refers to the passive consumption of content, the use of immersive technology will likely redefine entertainment, where consumers become active co-creators by using applications to create enjoyable experiences. While recent studies have attempted to link the impact of immersive technology on the experience economy, they are largely focusing on individual realms or outline the influence of immersive technology from a generic perspective. Our framework further extends the current knowledge on the impact of immersive technology on the experience economy and identifies key areas of immersive technology implementation across a holistic customer experience management process. We believe that this knowledge is imperative for industry practitioners and researchers alike to identify specific impact points of immersive technology implementation across the whole spectrum of CXM.

As several researchers have indicated in their studies (e.g., Moorhouse et al., 2019; Rauschnabel et al., 2019), immersive technology needs to be integrated in reference to the entire customer journey in order to understand its value and purpose that it will create to the totality of the experience. This has so far been largely neglected in the industry, as the implementation has largely been limited to enhancing a specific touchpoint only. Immersive technology has a number of unique characteristics that we propose to influence the customer experience journey. Interactivity, immersiveness, social presence, engagement, or social connectedness are some of the characteristics that influence the way immersive technology experiences are designed, implemented, and initiated. Therefore, the involvement of stakeholders plays a key role in the successful implementation of immersive technologies within the service industry context. It is known that past customer experiences, brands, and service interfaces also influence the perception of the experience and future experiences of customers (Verhoef et al., 2009). In addition, mechanic clues, such as ambient lighting, leads customers to perceive the store as more pleasant resulting in prolonged shopping times, while hand-written blackboards in cafes would trigger the belief of an authentic coffee experience (Puccinelli et al., 2009). Social environmental factors such as the effect of crowds and characteristics of personnel were also revealed to affect the customer experience (Gao et al., 2020; Tubillejas Andrés et al., 2016), suggesting further research into the effects of social factors in the online environment (Kemp et al., 2020). The necessity to focus on the designing of experiences within the initiation stage is shown through the inclusion of the experience economy concept within the CXM framework. While mechanic clues in immersive environments have advanced significantly since the introduction of immersive technology in the consumer market, further research in immersive technology environments is needed to explore how social clues can be enhanced to create seamless customer experiences comparable with familiar social interactions of the real world. Creating social interactions that are equally engaging and enjoyable in the immersive environment, we expect a steep increase in the global mass adoption of immersive technology. The design of entertaining, educational, escapism, and esthetic experiences was shown to greatly influence the customer journey, both within the AR and VR context. Immersive technology applications that follow the principles of the experience economy are already being explored within various immersive technology contexts.

The role of immersive technology in the CXM process

In the conceptualization of CXM by Homburg et al. (2017), a key focus emerges on the understanding and orientation of business resources to the customer journey and related touchpoints. However, they also state that cultural mind-sets are driven by alliance orientation, referring to "The mindset that proneness toward alliances for aligning different touchpoints in a person's related environment contributes to loyalty-enhancing experiential responses" (p. 388). Obvious benefits are notable in the travel industry where airlines form alliances with car rental companies and hotels and other tourist attractions to capture the complete mobility of customers during their travels. We propose that in today's world where customer experiences are formed across brands and companies and mediated by emerging technologies, before alliances can be formed meaningfully, adopting a multi-stakeholder perspective is crucial to better understand and (co-)manage the totality of the customer experience and influence of individual touchpoints.

Initiating a Cultural Mind-Set

The starting point of any collaboration of stakeholders was suggested to require a common interest or goal that motivates potential participants to get involved in the cooperation, the so-called cultural mind-set. In a previous study, it was differentiated between experiential response orientation, touchpoint journey orientation, and alliance orientation (Homburg et al., 2017).

We believe that the interest to embrace emerging technological solutions could certainly be a starting point of bringing multiple stakeholders to the table. This approach is often evident when new technologies enter the market and businesses aim to present themselves as pioneers to embrace technological advancements. In this case, introducing the technology in their respective fields is seen as the core reason and motivation to cooperate. While this sounds interesting from pioneering intentions, it is often challenging to sustain the motivation of all stakeholders over time, as technology becomes the norm, outdated, or simply irrelevant due to practical, social, or technological challenges (see Google Glass as an example). The result is often disappointing for involved stakeholders considering the time and financial investments that participating parties have contributed. Multiple experiential responses as indicated by Homburg et al. (2017) need to be taken into consideration here. This goes beyond ticking off the economic benefits that can be attained through multi-stakeholder collaboration and respect experiential measures, such as evoking gratitude or joy, that are not directly reflected in monetary terms but are impactful for the customer experience. Using the high level of immersiveness, we consider VR being able to keep collaborative partners, and particularly customers engaged and motivated by illustrating experiential measures in the virtual environment. To generate beneficial stakeholder engagements over time, further research is needed in the context of multi-stakeholder relationships to identify how immersive technologies can serve as stakeholder platforms to build long-term relationships and ecosystems.

Within the initiating stage that builds the cultural mind-set, it is crucial to develop immersive technology applications that consider all four realms of the experience economy in order to add value to the customer experience; a combination of entertaining, educational, visually attractive, and escaping applications is considered to be well perceived by consumers. Taking the retail experience as an example, virtual mirrors have the potential to attract customers (one important aspect of CXM) through their wow-factor. Meaningful designs will then ensure, that immersive tech is not just a gimmick to attract customers but an actual tool to engage, capture and keep customers in the long term. Barnes and Krallman (2019) found that positive employee behavior is strongly linked to customer delight during a service encounter hence, employees need to play a key part in enhancing the immersive tech experience, leading to the necessity of staff training and engagement. Leaning on touchpoints across the customer journey can facilitate this approach by identifying "moments of truth" that have a strong influence on the overall evaluation of the customer experience. Finally, Homburg et al. (2017) refer to alliance orientation to highlight considerations in the cultural mind-set that builds loyalty enhancing customer experience responses. Customer to customer interaction is key in today's business environment as customers heavily depend on reviews and co-created content in order to make informed decisions prior to purchasing and during the use of products and services. This means that management needs to realize that experiential responses are formed through the engagement with a combination of stakeholders influencing a specific touchpoint for the customer. Immersive technology needs to facilitate the sharing of information through the co-creation of content and cross-stakeholder utility. Management needs to understand that MR is not another form of marketing channel but part of the experience. Linking the immersive technology experience to social media, enabling sharing to friends and family, can create a bond between customers and businesses, whilst also adding to the acquisition of new customers. Such is an example where future research is much needed to explore how digital contexts can be transformed into mutually beneficial ecosystems for all involved stakeholders. Recent times have shown that virtual stores are becoming increasingly important, with UK online sales within the beauty sector rising by 140% due to the closing of brick and mortar shops (Gilliland, 2020). Providing a compelling virtual presence, engaging customers, and forming an emotional connection are therefore becoming more and more essential to survive in a fierce market place. The gaming sector, and most notably Pokémon Go (Rauschnabel et al., 2017), has shown how AR captures people's interest while resulting in emotional, social, and hedonic benefits, ultimately leading to in-app sales and intentions to reuse. Taking ideas from the gaming context and adding it to the retail experience, by creating entertaining, escaping, educational, and esthetic immersive experiences adds to the overall value of the business offering.

Exploring Strategic Directions

Previous research divided the strategic directions into thematic cohesion, consistency, context sensitivity, and connectivity of touchpoints (Homburg et al., 2017). Elements referring to strategic directions are largely based on the notion of shared responsibility and management, information transparency, and accessibility. AR has the potential to provide relevant real-time information to the user through the overlay of computer-generated content on the user's immediate surroundings. We need to think about the effect of instant information access and sharing on the collaboration process

of stakeholders. Interaction of multiple users within the same computer-generated environment in VR or the same content through AR or MR is currently some of the main areas of development. It offers the possibility of meeting and seamlessly collaborating with the virtual environment as part of a co-creating process of content and resulting value. However, much research is needed in the area of multi-user interactivity using immersive technologies to ensure an efficient and effective integration and use of technology and avoid deterring potential consumers from facing usability issues. Early prototypes of emerging technologies often face the challenge of unresolved technological issues that potential users have to deal with. This limits the potential acceptance and adoption of emerging technologies.

The nature of immersive technology allows for customer involvement as part of the service co-creation process. For instance, examples from events and entertainment show that nowadays immersive content is co-created, uploaded, and shared with fellow users in order to create unique, enhanced, and personalized experiences. Applications that are purely implemented for marketing purposes (e.g., 360 degree VR tours) are expected to disappoint, fail and consequently result in negative experiences as they are missing key characteristics of immersive tech (e.g., immersiveness, engagement, social connectedness). Instead, the involvement of all stakeholders, also as part of the management of projects, is crucial in order to co-create value, add meaningful experiences (rather than PR opportunities) as well as create stakeholder benefits.

A key aspect of stakeholder management is the continuous communication for the decision-making by stakeholders throughout the co-operation. In the light of defining the strategic direction (Homburg et al., 2017), the communication between stakeholders that includes consumers needs to be consistent throughout different touchpoints to increase loyalty-enhancing responses. Stakeholders will have different perspectives, goals, and requirements in their role and reasoning to engage, which can be challenging but also precisely the benefit of involving businesses and consumers on the same platform. However, consistency in forming the identity of the customer experience across stakeholders is imperative to allow for alignment of touchpoints within the customer journey and make them relevant for the customer's specific context. Homburg et al. (2017) outline the importance of thematic cohesion between touchpoints. It signifies the relevance of extending a moment of truth that influences the customer experience across multiple touchpoints. We see the future of immersive technology not only as a technology that enhances user interaction but as a potential ecosystem that is able to tear down the barriers of communication across multiple stakeholders. To achieve this vision, we propose future research in the context of virtual platforms powered by immersive technologies to evolve current social platforms in the digital environment. Using immersive technology as the communication tool and platform to extend touchpoints and increase their relevance across the customer journey is expected to further enhance and provide opportunities for co-creating value between peers and with other stakeholders. However, the success of projects involving multiple stakeholders will depend on the "right mix" of parties involved, as this could highly influence the co-creation across touchpoints and to avoid the forming of undesired hierarchical structures. Therefore, it is imperative to capture critical touchpoints between businesses and customers and get a better understanding of the involvement of different stakeholders at various touchpoints throughout the customer journey. As immersive technology continues to evolve and be implemented, it will be crucial for management to connect touchpoints across media platforms and find seamless content and functional integration in the customer experience and value co-creation process.

Developing Firm Capabilities

Firm capabilities were previously referred to establish design aspects, prioritization, journey monitoring, and adaptation (Homburg et al., 2017). In the context of our proposed model, we highlight that the CXM framework needs to be a continuous and evolving process and argue that to integrate immersive technology in CXM, it is crucial not to regard immersive technology as an added element in the final product, but that it needs to be managed as an integrated element in the process at different touchpoints between co-creators. It can be challenging to involve various stakeholders in projects around emerging technologies, as not all stakeholders will be at the same standard of technology implementation and knowledge. Virtual scenario-based developments can be used to design and envision possible customer journey scenarios through the implementation of new technologies that is applicable for them and create interest and involvement. AR, VR, or MR can be used for scenario visualization to construct future scenarios virtually that are dynamic and cost-effective and allow the visualization and interaction of the computer-generated content by multiple stakeholders. Information visualization through AR or MR could facilitate the process of visually mapping out shared processes and the value network in order to identify and tackle emerging issues in a transparent and shared approach to facilitate strategic business planning. Dataview VR and

3Data are examples of companies generating collaborative AR environments that allow participants to view and interact with the same augmented 3D model in the real environment (Nichols, 2019). This technology will revolutionize the way we communicate using interactive and dynamic 3D visualizations. This is highly relevant in discussing opportunities for a collaboration that involves multiple parties with various backgrounds. It allows for a more involved platform of discussion and sharing of perspectives to facilitate inter-stakeholder communication. Through the ubiquitousness and social interactivity for multiple users that immersive technology provides, "what if" scenarios can be generated and analyzed in a more efficient and shared approach.

As part of firm capabilities, continuous monitoring, assessment, and improvement of touchpoints throughout the customer journey are essential. We have integrated this in two areas. First, a key reasoning behind monitoring the process is the opportunity it provides for learning and continuous improvement. AR, VR, and MR create an opportunity to greatly enhance interactivity in learning environments to support the clarity of communication and understanding of different perspectives across stakeholders. However, one of the key drawbacks is the information overload, which, in combination with occasional hardware or software errors, resulted in confusion and frustration in users. Second, immersive technology is able to provide monitoring and measuring mechanisms across stages. For instance, VR and AR are increasingly being used to study and measure processes and user experiences by creating a virtual, controlled environment that represents specific situations and contexts in the real world. A combination of sensors and AR is used to measure areas in the product development cycle with the aim to improve the development process in the automotive industry (Faath et al., 2017). VR can be used to measure user behavior by immersing them in computer-generated VR environments to assess users' risk-taking behavior (De Juan Ripoll et al., 2018). The use of VR can be extended to measure the impact of experiences in real-life situations in a controlled lab setting in combination with measuring sensors to get a more complete picture of experiences during the experience consumption (Bastiaansen et al., 2019). We strongly advocate for further research in these types of approaches to grow AR and MR use cases that allow for prototypes of all forms to be visualized and tested in order to measure the potential consequences of the final product and create widely accepted customer experience measurements relevant and applicable for management practices that go beyond traditional financial indicators. The flexibility to visualize and prototype processes and tangible elements that connect stakeholders is expected to make a great impact on stakeholder engagement and facilitate the collaborative process of multiple stakeholders. The proposed framework highlights the implementation of immersive technology in individual stages across the CXM process. It thereby provides a holistic framework that integrates immersive technology as an integral part of the multi-stakeholder engaged CXM approach.

Conclusion

The aim of this paper was twofold. First, we explored the influence of immersive technology on CXM. Second, we developed a strategic framework that integrates the theory of value co-creation and experience economy in the use of immersive technology to provide an avenue for future research and a guide to managers to invest in this new technology. As shown throughout this study, there are multiple use cases of immersive technologies within the business and retail context however, these are normally isolated and not well integrated into the customer experience. Hence, we hope that this study will guide as a future reference point for further research for immersive technology integration into the full customer life cycle. Developing applications with the consideration of the experience economy dimensions and by involving multiple stakeholders in the value co-creation process, it is believed that immersive technology will play a central role in future CXM strategies.

Theoretical contributions

This study proposes a CXM framework in the era of immersive technologies, which changes the way different stakeholders such as companies in the private sector and consumers interact, co-create value, and manage experiences together. The proposed model has three major theoretical contributions to the study of CXM. First, the model is the first to take a holistic perspective at the use of immersive technologies within the CXM cycle. Second, the model incorporates the concepts of value co-creation and experience economy (rooted in the theory of experienced utility) (Chang, 2018), utilizing immersive technology as a facilitator for CXM. This is linked to an ongoing implementation and development cycle. Third, the model proposes the role of immersive technology in CXM and emphasizes the importance of involving stakeholders in the value co-creation process to create engaging and long-lasting experiences for all involved stakeholders. In isolation, these concepts have received a fair amount of attention within the business and marketing literature. However, a holistic framework on the influences of these concepts

strategically managed and implemented through looking at the cultural mind-set, strategic direction, and firm capabilities provides a roadmap for future research and development of CXM strategies for the immersive technology context. The proposed model signifies the beginning of a new area of research, the purpose of which will be to inform the further theoretical development of immersive technology within CXM in business and marketing literature.

Practical implications

For industry practitioners, the model provides a starting point to identify how stakeholders can be brought together and managed aiming at managing more complete customer experiences. Although prior studies in immersive technology all seem to agree that the implementation of respective technologies has the potential of improving processes, enhancing experiences, and making our lives better overall, it is often not clear how these ambitious goals can actually be addressed and achieved. The proposed framework aims to provide a more structured approach to integrate immersive technology in the CXM ecosystem. It puts emphasis on individual stages in the process and discusses the use of immersive technology in each stage with the aim of resulting in an overall improvement, enhancement, and more valuable customer experience for all involved stakeholders. Further, the proposed framework provides important implications with regards to immersive technology application design in terms of creating entertaining, educational, esthetic, and escapism applications to enhance the customer experience. This paper proposes that an optimal mix between these characteristics results in enhanced customer experiences, if, considered under the umbrella of value co-creation and stakeholder involvement. Respecting different skill sets, business managers, user experience designers, and app developers should work hand in hand in order to ensure that immersive technology enhances experiences. Examples include VR applications that so far, have often been designed as marketing gimmicks. Instead, for businesses to follow the immersive technology CXM framework is expected to provide beneficial applications that are usable by customers as part of the entire customer journey. This is expected to create value for both, businesses and consumers.

Future research directions

We are proposing a number of future research directions. First, we are suggesting the validation and extension of the proposed categories and sub-categories of the immersive technology CXM framework in different contexts. Second, different businesses are assumed to have different touchpoints and priorities which should be evaluated via case studies. Third, a large-scale quantitative analysis should validate the proposed framework. Fourth, future research is highly recommended to study how various senses are engaged in immersive environments to stimulate virtual escapes. Studies in this field of research are much needed and relevant not only for the entertainment and game industries but also for business purposes as the current impact of COVID-19 regulations globally has caused a significant proportion of the workforce to work digitally. This trend is expected to continue which makes the effect of immersive technology on the consumer experience dimensions highly relevant and timely. Fifth, further research is recommended on how stakeholders will engage in such interactive and co-creative systems. Particularly for business co-operations, various measures need to be taken into consideration, such as the sharing and accessibility of data. While increasing access to data is generally believed to add to information transparency, data security in co-created and shared immersive technology ecosystems is an area that needs much attention. Sixth, more research is needed to define the scope of impact on experience realms caused by immersive technology as well as explore the degree of impact of multiple experience realms concurrently and optimize immersive technology interventions throughout the customer experience. Finally, we propose involving consumers in future research early in the technology development process to generate immersive technology solutions that not only bring novel technological capabilities but seamless user interaction experiences to drive user acceptance and adoption.

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