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The Augmented and Virtual Reality of Tourism and Creative Industry: Communicating Indonesia's New Way to the Digital Economy

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Abstract

The uniqueness of this paper lies in its attempt to discuss augmented reality (AR) and virtual reality (VR) in the creative industry and cultural products. Several business lines include crafts, advertising, product design, marketing, tourism, architecture, graphics, and fashion. The creative sector also includes film, television, video, visual arts, photography, software, computer services, museums, art galleries, and libraries that need innovative and tech-savvy marketing communications. This paper aims to analyze AR/VR applications in the tourism and creative industry. The systematic literature review (SLR) method analyzed 98 academic articles. Coding used several relevant keywords to analyze AR/VR in each creative sector. This research shows that AR/VR is applied to the creative industry to strengthen campaign strategies in reaching the worldwide target market. AR/VR is a strategic choice worth considering for companies' sustainability in the tourism and creative industry and communicating Indonesia's new way to the digital economy. Research implications and recommendations for future research are also discussed.

Keywords: *Augmented and virtual reality; Artificial intelligence marketing; Digital economics; Tourism development; Tourism communication campaign*

JEL Classifications: M31, O33, Q55, R11

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Доповнена та віртуальна реальність туризму та креативної індустрії: комунікація нового шляху Індонезії до цифрової економіки

Анотація

Унікальність цієї статті полягає в спробі обговорити доповнену реальність (AR) і віртуальну реальність (VR) у творчій індустрії та культурних продуктах. Кілька бізнес-напрямків включають ремесла, рекламу, дизайн продукції, маркетинг, туризм, архітектуру, графіку та моду. Творчий сектор також включає кіно, телебачення, відео, образотворче мистецтво, фотографію, програмне забезпечення, комп'ютерні послуги, музеї, художні галереї та бібліотеки, яким потрібні інноваційні та технічно підковані маркетингові комунікації. Ця стаття спрямована на аналіз додатків AR/VR у туристичній та творчій індустрії. Методом систематичного огляду літератури (SLR) проаналізовано 98 наукових статей. Кодування використовувало кілька відповідних ключових слів для аналізу AR/VR у кожному творчому секторі. Це дослідження показує, що AR/VR застосовується в креативній індустрії для посилення стратегій кампаній для досягнення цільового ринку в усьому світі. AR/VR — це стратегічний вибір, який варто розглянути для сталого розвитку компаній у сфері туризму та креативної індустрії та для поширення нового шляху Індонезії до цифрової економіки. Також обговорюються наслідки дослідження та рекомендації для майбутніх досліджень.

Ключові слова: Доповнена та віртуальна реальність; Маркетинг штучного інтелекту; цифрова економіка; розвиток туризму; Туристична комунікаційна кампанія.

1. Introduction

The world of business and marketing communications is a territory that is closely related to growth trends in communications technology. People's lives today are such that separating the physical from the virtual is difficult because the two are intertwined and integrated. Augmented and virtual reality are part of modern city life. Plus, changes in the context of producers and consumers, who were previously separate, have now come together to collaborate as prosumers (Toffler, 2022). Prosumers gain experience directly (physically) or through virtual visits that share a sense of reality. Meanwhile, media users and participants now find it difficult to separate their virtual lives from their physical lives. Apart from the business landscape, communication technology itself is a significant business. Various other business lines require AR/VR as a channel to communicate the essence of their business to target markets and stakeholders (Schiavi et al., 2022). This topic is critical to study in this paper.

Various previous studies regarding AR/VR have been carried out to examine the application of this technology in multiple areas of life and the business world, especially in museum management, tourism, and education with immersive interactive technology applications (Vishnevskaya et al., 2017; Shehade & Stylianou-Lambert, 2020; Parker & Saker, 2020). AR/VR is also used by prisoners to virtually go home and see the atmosphere around their residences as entertainment. Likewise, it may not be accessible in sports, and someone can never do it, but through AR/VR, everyone can do challenging things (Pan, 2015). However, this paper discusses AR/VR technology from a cybernetic communication perspective with a central point on human existence in relevant business categories such as the creative industry.

Previous researchers on "creativity" placed their studies in the context of marketing and innovation. For example, creativity is discussed from the perspective of the four "Ps," which include people, process, and place (Mallia, 2019; Sasser & Koslow, 2008). This study differs from what is discussed in this paper by taking a perspective from information, communication, and technology by highlighting the creative industry sector.

The creative industry highlighted in this paper emerged from rapid advances in media technology, which has become a communication channel. The results of tangible and intangible human work are a heritage whose values are maintained and passed down across generations. On the one hand, media convergence has placed heritage as a cultural product alongside modern contemporary products. Therefore, product culture is a concern in the study of this paper.

Furthermore, a complete understanding of the creative sector includes advertising and marketing communications, architecture, product design, handicrafts, graphic design, fashion and accessories, films, television programs, video content, radio, photography, information technology, software, publishing, museums, art galleries, libraries, music and visual arts (Loumos et al., 2019). The diversity of products and services in the creative industry is unique in the discussion of this paper. Some sub-sectors above are included at the conventional media level whose business may have faded, such as publishing and printing, radio broadcasting, and libraries. Therefore, only a few sub-sectors most relevant to AR/VR are selected in the discussion analysis.

The focus of the discussion is the uniqueness of the technical discussion of AR/VR on the specific characteristics of several creative industry product categories. Several questions are analyzed in this paper. First, how does the AR/VR concept work in the most relevant subsectors in business today? Second, how do creative industry sub-sectors such as museums, cultural arts products, architecture, graphic and fashion design, visual arts, music performances, tourism,

automotive, and education apply AR/VR? Finally, how will the creative industry sector in the future communicate with AR/VR as a marketing effort for the AR/VR product itself?

2. Brief Literature Review

Tourism and Creative Industry Concepts

Tourism is a business that provides goods and services to fulfill tourists' needs and activities. Human creativity to produce, distribute, and consume creative products is based on adding value to intellectual property. Creativity arises from innovative science and technology concerning cultural heritage and natural beauty. Some of the scope of the creative industry includes product design, visual communication or fine arts, audio-visual or film, architecture, artifacts and heritage, film, animation, and photography. Creativity also produces culinary application software for mobile, music, fashion, and game development. Performing arts are also considered creative products, followed by graphics and publishing, advertising, television and radio streaming, and art performances.

The definition of culture includes the values of human social conventions along with material objects that are integrated with that behavior. Culture, thus, provides language, ideas, beliefs, customs, codes, institutions, tools, techniques, works of art, rituals, ceremonies, and other elements. The culture industry refers to popular culture, which is similar to a factory that produces standard cultural goods such as films, radio, magazines, and so on to be used as communication channels that influence and manipulate mass society in various ways (Adorno & Horkheimer, 1972; Power & Scott, 2004; Kong, 2014).

During its development, there was a shift from the concept of "culture industry" to "cultural industry" with a critical analytical perspective, followed by the emergence of the creative industry as a moment that marked the current era of the cultural industry. In 1997, the British government created the concept of "creative industries" as a sector classification that replaced the concept of "cultural industries" above (Kong, 2014; Mommaas, 2009; O'Connor, 2007; O'Connor & Gu, 2013; Jung & tom Dieck, 2017). Cultural products are related to the creative industry from the perspective of the creation process, which requires innovation and creativity (Lee & Cho, 2020; Loumos et al., 2019; Lin et al., 2020).

Digital Economy Development

Economic growth with conventional tourism and creative industry development factors will produce results using traditional formulas. However, the digitalization process of all supporting sectors will accelerate integrated growth in digital economic development. Tourist destinations build regional performance in all industries that mutually support local growth in an integrated manner. Therefore, every destination region must prioritize the digital economy as an acceleration theme. This future development model trend can deepen structural reform on the supply side and encourage the implementation of innovation-based development strategies to increase competitive advantage (Wei, 2020). Tourist destinations and the creative industries within them need to adopt the characteristics of the digital economy to choose fundamental indicators from several dimensions focused on development, such as technology, economics, and the environment.

The creative industry must be based on technology, where the adoption of augmented and virtual reality is one of the applications to accelerate growth (Adriyanto & Triani, 2015). Upgrading strategies for the digital economy can dramatically transform organizations, such as

all elements of stakeholders in a region (Sturgeon, 2021). The destination's digital strategy also prioritizes communication content with promotional messages that pay attention to the customer experience, starting virtually and continuing physically. Digital economic development is not limited to producing and marketing products but is much broader, such as determining the social development strategy as is done in various countries.

Digital economy and society cross-sectorally aim to identify practical legal, regulatory, economic, and financial infrastructure mechanisms (Zubchuk & Kireev, 2019). All these elements aim to develop a “digital society” that will facilitate the rapid development of the digital economy. Developing tourist destination areas and creative industries strengthen the entrepreneurial spirit in a growth ecosystem strategy with startups and all other digital supporting components (Thomas et al., 2019).

Digital Reality Concept

The term "reality" is a set of conceptions and perceptions in a person's mind that form an integrated understanding of something possible, desired, and actual. Integrated understanding is essential because reality consists of many components with different levels of reality. Integrating understanding components strengthens understanding new meanings of people's experiences in the same context (Baranyi, 2021). A series of possibilities (events, objects, circumstances), wishes or desires (in the mind), and actual manifestations the five senses receive can significantly influence one another. Therefore, the term "virtual" refers to something real but as a manifestation of the natural equivalent.

Digital media is here to strengthen the term "something real" because it resembles a physical object. Therefore, with communication channels, every manifestation is “virtual” with referential meaning content—either purely from someone's mind or because of the proposed digital solution. This means that reality can be something physically real or something imaginary or characteristic (Baranyi, 2021). However, a tangible interface can also be considered a virtual tool if it is linked or in sync with a backend system—both digital and physical—even if it is essentially digital (Ishii, 2008; Zhao, 2013). Heritage in physical buildings or formations of past social values (which are no longer physically possible for people to visit now) constitutes a "virtual" museum. Visiting artifacts in heritage means "virtually" going into the past to understand the formation of social values. Thus, natural, artificial, and basic reality choices emerge (Zhao, 2013).

It should be noted that reality does not always mean a visual appearance—similar to an equivalent reference—but can be in an abstract form in ideas as long as it has affordances in other modalities. Because visuals always have an interpretation to fill realized cognition, even though nothing is truly abstract. All ideas and desires begin with experience—a human mind-body interaction (Glenberg, 2015). So, the issue in AR/VR studies is whether the degree is closer or further from physical reality, which is essential to understand (Barsalou, 1999; Mahon & Caramazza, 2008).

Interaction and communication as the experience of media users, both as participants and consumers, is valuable information obtained directly through digital channels. Digital reality has changed the meaning of each person's physical reality in everyday life because, in conception and perception, reality includes what people are possible and want (Serkova, 2020; Budanov & Aseeva, 2019). This means that reality can be achieved with or without physical presence but through digital channels accompanied by integrated thoughts and actions. Thus, digital reality can be defined as integrating high-level virtual reality—including AR, VR, digital simulations (DS), and their counterparts. Also, 2D digital environments and artificial

intelligence (AI) create a contextual reality for participants and consumers who have experienced a different world before (Baranyi, 2021; Kang & Yang, 2020; Li & Zhou, 2016).

Digital interactivity in communication and transactions allows each participant to increase their productivity in various areas of life, both physically and digitally. Digital interactivity between networks of users and managers creates new social entities and structures in society. Conventional features, such as education, museums, exhibitions, tourism, etc., are transformed into virtual worlds in 3D formation (Baran & Baran, 2022; Gong, 2021).

AR/VR Concept

AR plays a role in integrating computer-generated virtual objects into the real world, creating a new way of seeing and understanding the mixed real and virtual parts (Gatto et al., 2021). Meanwhile, VR is produced from a computer connection that is isolated from the natural environment by immersing users in the inactivity of several objects (Cisternino, 2019). Based on this definition, AR/VR are two points connected in a continuum as the Reality-Virtuality continuum (Milgram, 1995). In this continuum, objects on the left are natural objects or anything in the real world that can be observed directly through the human eye. Meanwhile, the right endpoint is an entirely virtual object, such as a computer-generated graphic simulation on a monitor or immersively (Gatto et al., 2021; Gatto et al., 2022; Arayaphan et al., 2022).

AR integrates digital information with nature to enhance the visuals of graphics, sounds, and 3D objects compared to natural ones. Presentation of information that is enriched visually, sound, and adding digital content to interact with user actions by touch because it is very responsive (Loumos et al., 2019; Krichenbauer, 2017; Kim, 2022). VR is a complex tool that utilizes several low-level technologies, from robotics engineering to 3D visual graphics, computing, and art. The resulting output is a digital environment that is comfortable and enjoyable to interact with so that users feel immersed in watching 3D displays, places, and objects in cyberspace. it (Carrozzino et al., 2009; Carrozzino & Bergamasco, 2010; Bruno et al., 2010). Users can discover fantastic worlds by using most of their senses precisely as they would in the real world. However, the visual quality obtained depends on the ability of computer hardware and software to perform graphic rendering and simulation (Loumos et al., 2019). VR is a representation of a "possible world" to create a "sense of presence" in the user in a "new world" by experiencing something incredibly new and luxurious but at the same time alive and interactive. An artificial world that can change human nature through increasing perceptive and cognitive abilities in the trap of technology (Guazzaroni & Pillai, 2019; Madary & Metzinger, 2016).

3. Purposes

Based on the theoretical framework and relevant concepts on this topic with specific inquiry in Indonesia, the research objectives in this article are as follows: first, to analyze the development of tourism and creative industries involving virtual reality communication channels. Second, to explore the role and techniques of virtual reality on various products in the creative industry and tourism destinations. Third, to describe the development of regional economic aspects in areas used as tourist destinations in digital economy environment.

4. Research Methodology

A systematic literature review (SLR) collected 98 academic papers published in various international journals. Selected papers were collected with related keywords such as

"augmented reality," "virtual reality," "digital virtual," "digital reality," "artificial intelligence," "culture industry," "cultural product," "creative industry," "tourism industry," "virtual tourism," "AR/VR museum," "AR/VR architecture," "AR/VR tourism," "AR/VR visual arts," "AR/VR marketing," and other relevant matters. Some research articles are displayed in the list of references.

The SLR procedure is as follows (Xiao & Watson, 2019): First, the research problem is formulated in research questions. Second, a research protocol was developed and validated. Next, searching and collecting literature, especially from previous research. Fourth, literature verification and screening only consist of papers published in journals and papers disseminated at international conferences. Fifth, the quality of the article is verified again according to its relevance to the topic. Sixth, extracting data and findings from previous research. Seventh, analyze and synthesize data. Finally, eighth, write and report the results of secondary data analysis. In SLR, various and different reviews are found, so skills are needed to sort out context, analyze, and summarize data for presentation in this paper.

5. Result and Discussion

Tourism Destination and Creative Industry Development as Digital Economy

Tourism destinations and creative industries are the main sectors of the present and future economy. The tourism concept developed following significant technological changes, eliminating space and time barriers. Indonesia, an archipelagic country in the equatorial region, has great potential for regional economic development in tourism and creative industries. Tourism destinations need better management in the current digital era (Morrison, 2013).

Tourism and creative industries are highly prioritized in Indonesia's regional economic development. The government has specifically issued Presidential Instruction Number Six of 2009 and the Indonesian government regulation for developing the creative economy—including the digital economy—under the Ministry of Tourism and Creative Economy. Tourism and creative industry have unique and specific characteristics, considering that Indonesia is an archipelagic country located on the equator, affecting resources, production, and consumption (Presidential Instruction No. 6 of 2009).

The digital economy is growing along with increasingly open opportunities for every person and every family to participate. The economic sector previously controlled by large corporations has been distributed as a process of economic democratization to young entrepreneurs as digital entrepreneurs (Holle et al., 2023; Bakker & Twining-Ward, 2018; Mosedale & Voll, 2017). Until the end of 2022, the creative economy's largest subsector will be the culinary business sector, at 43.60 percent, followed by the crafts subsector at 18.68 percent. In third place is the fashion subsector with 18.08 percent, followed by the publishing subsector with 4.04 percent, and fifth, organizing entertainment and recreation activities with 3.02 percent. Striking growth occurred from 2011 to 2018 in the tourism industry and creative economy by 36.05 percent. Previously, from 2001 to 2010, the creative economy grew 33.40 percent, and from 1991 to 2000, it rose 17.59 percent. Meanwhile, similar businesses that had started operating before 1991 grew 11.75 percent (Rufiadi et al., 2020). This data reflects that in the digitalization era, the development of the creative economy has accelerated compared to before digitalization.

The creative economy sector in Indonesia contributed seven percent to the country's gross domestic product (GDP), or US\$46,930 billion, in 2013. With a workforce absorption capacity of 11.8 million people, its growth will double by the end of 2020—the growth of the creative economy with a

significant contribution to the growth of the Indonesian national economy. In 2013, the creative and tourism sector employed 11.8 million people in the fashion industry and its accessories. 3.8 million people are in the workrafts subsector, 167,000 are used in industry, and 43,000 are experts in architecture (Rufiadi et al., 2020). Accelerated growth occurred with the adoption of digital technology in marketing communications and expanded distribution. Collaboration with startups greatly influences increasing sales in the creative industry, which includes small and medium-sized restaurants, bakeries, catering, food streets, confectionery, cafes, and coffee shops.

Matching AR/VR Characteristics and Creative Economics

AR/VR applications have become a necessity in contemporary businesses due to the various benefits gained in these applications. Some of these include generating new business opportunities and personalization, and efficiency by reducing product development costs—goods and services. In the field of training and education, AR/VR helps efforts to reduce teaching operational costs (Xiao & Watson, 2022; Ruan, 2022). This application has been proven to increase sales with 3D visualization in marketing. Digitization allows marketing and communications operations, resulting in 7/24 non-stop transactions regarding time freedom and eliminating geographical boundaries.

Accelerated transaction execution and significant time savings to achieve business efficiency in addition to saving time in information transfer. AR/VR also has advantages in project visualization and makes it easier for messages to be conveyed through new types of more engaging and lively presentations. Participants in two-way communication because of interactivity between participants, which accelerates the achievement of understanding. AR/VR displays simple exhibits with high mobility, information available in real-time, ease of operation, and simultaneously reduces service costs to customers (Vishnevskaya et al., 2017; Hagl & Duane, 2020).

In a business context, consumer experience is critical for building business continuity (Li et al., 2003). Therefore, user experience is the starting point for adopting and developing AR/VR in business. To attract customer engagement and create content, virtual customer interaction can be provided on all online communication channels, starting from websites, social media, and YouTube. All relevant outlets and digital displays to attract customers are placed at various levels of shopping centers and public spaces. Table 1 shows the characteristics of AR/VR for creating 3D content and 360 photos that are believable and explorable, which are the simplest for users who only use VR devices. The experience with AR is more integrated with content and access.

Table 1. Characteristics of Immersive Technologies

	User's Experience	Content	Access
VR	Believable and explorable	3D models 360 photos	VR headsets
	Lively & interactive movements	High quality analysis	High speed Internet connection
	Integration with human senses (sight, hearing, touch)	Level of design detail depending on device	Mid to low priced equipment
AR	Similar to mobile UX methodology	Images, sound, 3D models & holograms	Mobile devices & hi-tech AR headsets
	Simple but impressive, emphasis on visual aspect	Information and visual representations	Average speed Internet
	Need of sensors and cameras	Augment the physical object on camera	Mit to extremely high priced equipment

Source: (Loumos et al., 2019).

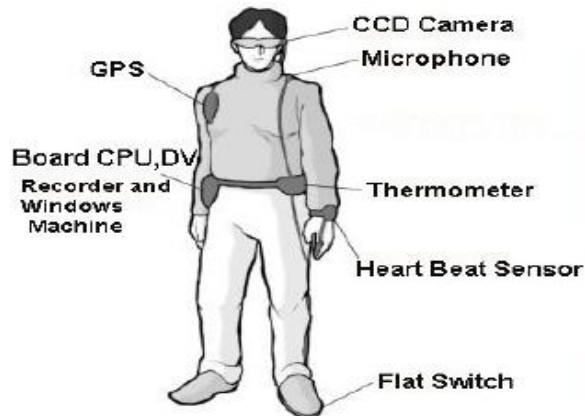


Fig. 1. Wearable Computer for Recording Experience (Hirose, 2006).

Placing AR/VR facilities in shopping centers will help introduce this application to the company's business lines. People will gain experience, knowledge, and insight into the products' benefits. Figure 1 shows the performance of a visitor to an AR/VR facility for a product with a complete wearable computer. The jacket has GPS, glasses, a CCD camera, and a microphone on his shoulder. Meanwhile, the belt is equipped with a CPU board, DV in the form of a recorder, and a Windows machine, apart from a thermometer on the left waist. The hands are wrapped around a super sensitive sensor, the Heart Beat Sensor and the footwear is equipped with a Flat Switch.

Detailed user performance must be part of the augmented reality hand illusion (Figure 2). The Kinect Camera device has become dominant for recording all user movements and desires. The AR mask is equipped with thick glasses, which are an extension of the function of the human body, a Head-mounted Display, and a Camera. The Kinect Camera responds to the physical movements of the hands, feet, and body and produces a Virtual Hand on the screen.

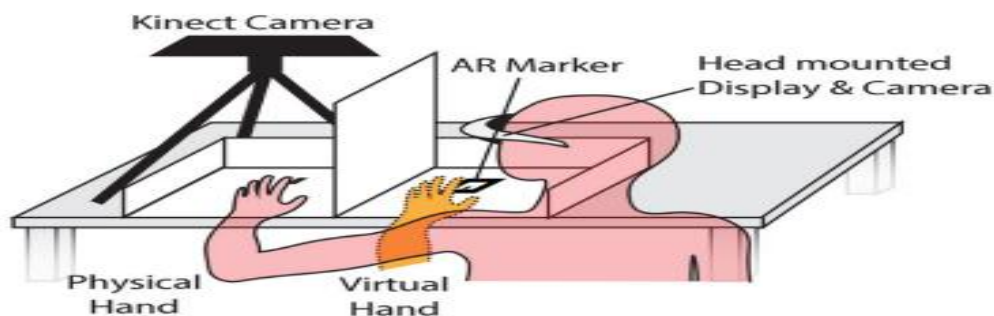


Fig. 2. An Augmented Reality Hand Illusion (Madary & Metzinger, 2016)

AR/VR uses main features with the 4-I principles, such as immersion, interactivity, imagination, and integration. In the computer-mediated communication perspective (Rafaeli et al., 2007), interactivity is a central concern in online communication as a meeting point between mass and interpersonal communication and an energy of fusion of traditional and innovative media channels. Interactivity and imagination are essential characteristics that differentiate VR from other communication channels and as a human-computer interface. The human sensory world simulates reality and combines it with new imaging realities (Zhao et al., 2023).

Human-computer interactivity with 3D is a virtual environment that requires various sensory stimuli. In this case, media users looking for information and entertainment or consumers of a product try to use sensor and control devices to enter an environment that presents objects and views or whatever they want in their minds to realize a 3D model as a virtual world created. The real world also goes hand in hand with the control of sensors and to provide feedback. Users directly create the virtual world by referring to the modeling module (Figure 3).

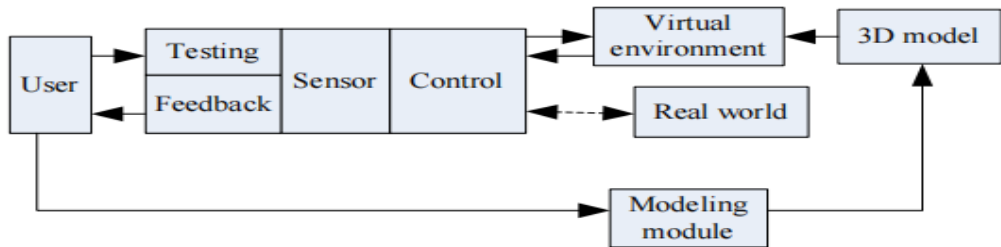


Fig. 3. Conceptual Model of Virtual Reality (Zhong Et Al., 2021).

AR/VR for Creative Industry

Marketing communication for cultural products, creative industries, automotive, sports, tourism, etc., is the goal of AR/VR applications in a significant business context. Content related to these products distributed on the web or hosted in permanent installations on display in museums exhibition, modern shopping centers, and other public spaces is a space for user interactivity (Innerhofer et al., 2018; Jung et al., 2016; Puig et al., 2020). Various creative industry products, in particular, can be classified according to the strengths and weaknesses of each creative industry subsector or product category (Figure 4).

Several cultural products have a relatively high degree of immersion, such as museums, art galleries, visual arts and photography, heritage and tourism, and craft design. However, the interaction aspects are highest, such as museums, architectural and art galleries, mainly sculptures and reliefs or artifacts. Apart from that, several product categories have low immersion but have a medium level of interaction, such as film, television, video, advertising, and marketing. The high interactivity becomes an opportunity for the fashion product category.

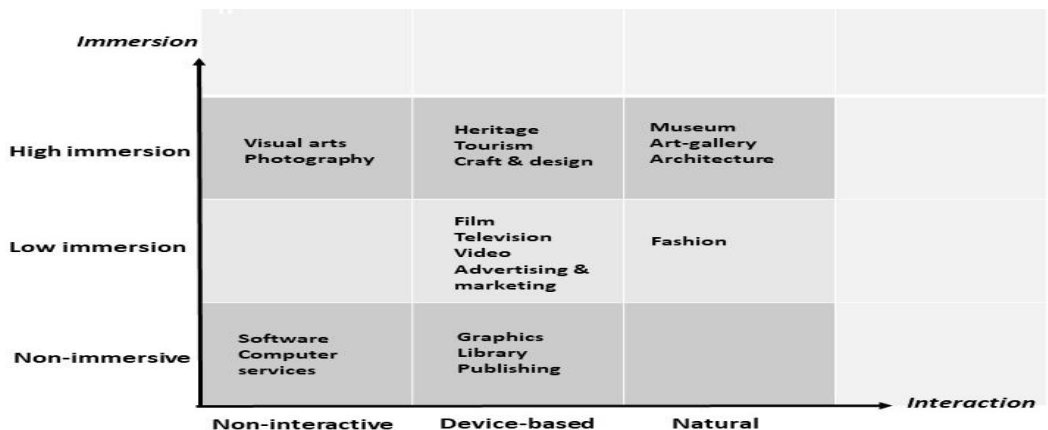


Fig. 4. The Presented AR/VR Systems in the Proposed Classification of Creative Industry (Adapted from Carrozzino & Bergamasco, 2010).

A low level of immersion but still a moderate level of interactivity can be found in the graphic, library, and other publishing product categories that implement 2D and 3D. Meanwhile, creative products such as software and computer services do not have interactivity and immersion. Based on this mapping and classification for creative industry products, various AR/VR marketing communication activities can be proposed to provide impressive experience and knowledge for potential and existing customers.

Specifically for the creative industry, AR/VR systems can be categorized, as can applications in various other sectors. Classification is based on the level of abstraction of the virtual environment (VE), starting from entirely abstract VEs, then to non-realistic VEs when abstract and realistic are present together, then to realistic VEs (either modeled or digitally derived), to photo VEs realistic ones that may be difficult to distinguish from the original VE (Table 2).

Table 2. Classification of VR Devices on the Interaction Axis of Creative Industry

Line of business	AR/VR Devices classification and characteristics			
	Desktop Devices	Wired sensors	Wireless sensors	No sensors
Advertising and marketing, Film, television and video	Mouse keyboard, Joystick, Touch screen	Brain computer interfaces, desktop haptics	Wearable haptics, Wearable MoCap, Optical MoCap	Gesture recognition, Speech recognition
Architecture, Heritage tourism, Museums and art galleries, Visual arts and photography, Crafts and design product	Mouse keyboard, Joystick, Touch screen	Brain computer interfaces, desktop haptics	Encountered heptics, real objects	Gesture recognition, Speech recognition
Fashion	Mouse keyboard, Joystick, Touch screen	Brain computer interfaces, desktop haptics	Encountered heptics, real objects	Gesture recognition, Speech recognition
Graphic, libraries, publishing	Mouse keyboard, Touch screen	Brain computer interfaces, desktop haptics	Desktop haptics	Gesture recognition, Speech recognition
Software and computer services	Mouse keyboard, Touch screen	Brain computer interfaces, desktop haptics	Desktop haptics	

Source: Adapted from Carrozzino & Bergamasco (2010).

The classification and characteristics of AR/VR devices are divided into interactivity and immersiveness (Roussou, 2001; Lee et al., 2020; Pallud & Straub, 2014; Huang & Han, 2014). On the interaction axis, AR/VR systems for creative industries can be grouped into three classifications: 1) non-interactive, 2) mediated interaction, and 3) using natural interaction. Furthermore, for AR/VR devices on immersivity in the orthogonal axis, the classification includes 1) non-immersive, such as desktop systems, 2) more immersive systems based on reduced levels of invasiveness, and 3) high immersion (Table 3).

Table 3. Classification of VR Devices on the Immersion Axis of Creative Industry

Line of business	Non-immersive		Low immersion	High immersion
	Visual	Accoustic	Haptics	Motion
Advertising and marketing, Film, television and video	HMD, Retinal display	Headphones	Wearable haptics	Whole body, motion interface
Architecture, Heritage tourism, Museums and art galleries, Visual arts and photography, Crafts and design product	Powerwell, panoramic powerwell. CAVE	Multichannel speakers	Encountered heptics, real objects	Motion platform
Fashion	Powerwell, panoramic powerwell. CAVE	Multichannel speakers	Encountered heptics, real objects	Motion platform
Graphic, libraries, publishing	Monitor, Workbench	Desktop speakers	Desktop haptics	
Software and computer services	Monitor, Workbench	Desktop speakers	Desktop haptics	

Source: Adapted from Carrozzino & Bergamasco (2010).

Tourism and Creative Products Communication Campaigns with AR/VR

The acceleration of regional economic growth in Indonesia is related to developing tourism destinations and creative industries as its prominent supporters. Digitalization in business planning, production, distribution, and marketing has positively contributed to regional economic growth. Augmented and virtual reality are advanced developments in marketing communication activities that introduce destinations and creative industry products so that tourists visit physically after enjoying tourism virtually (Idris et al., 2021). It has become mandatory for marketing communications for the tourism industry and creative economy to be carried out online or using social media such as 27.88 percent by placing billboards, including digital banners at 15.47 percent. Likewise, the distribution of digital leaflets was 4.06 percent, and through local conventional media, 1.70 percent. Customer experience is one of the mainstays of electronic word-of-mouth (e-WOM), so travel experience content on YouTube always becomes a reference for future consumers. However, Augmented and virtual reality have become inseparable from destination marketing campaign activities and creative industries. E-WOM tourism has achieved a channel for introducing new destinations in Indonesia by 62.92 percent (Rufiadi et al., 2020).

Virtual reality in marketing communications is the culmination of applications in each business line described because these virtual and online channels convey significant messages to the public, potential customers, and stakeholders. Customer experience is very determined in the purchasing decision-making process, both virtual and physical experiences. The virtual experience is a psychological state of prospects and customers in their minds and behavior to actively and effectively interact with product objects in the 3D format in a computer-mediated environment (Alcañiz, 2019; Klein, 2019; Throsby, 2001, 2007).

The AR/VR application in marketing communication or virtual experience marketing (VEM) (Chen & Liu, 2007) aims to provide a simulation of natural or physical experiences that occur

in a computer-mediated environment (computer-mediated communication) developed to differentiate between direct experiences, such as product trials and indirect ones, such as advertising and other brand activation to consumer and social learning processes, likewise for long-term business sustainability (Luhita & Rosiana, 2021; Youn, 2012; Bhadauria et al., 2022).

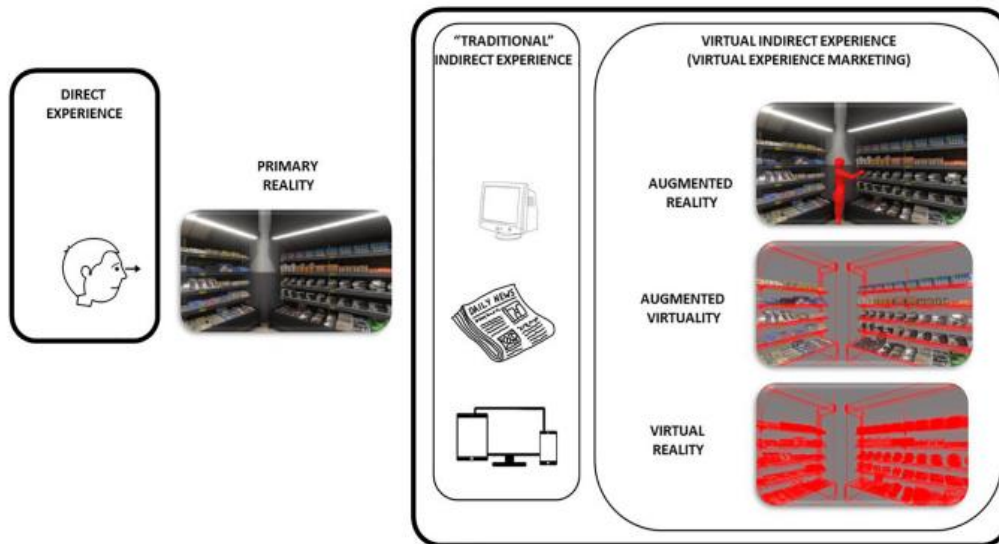


Fig. 5. Classification for contents in VEM (Alcañiz, 2019).

By watching television commercials, for example, or other types of advertisements on YouTube, viewers have actually been brought by the sender of the message to follow a "Reality-Virtuality" continuum. Subliminal advertising is a persuasive approach in advertising stories that engages the emotional side of viewers so that their thoughts and feelings are carried away (Luo et al., 2011; Chen et al., 2008). Along with advertising, AR/VR strengthens customer experience factors in marketing communication strategies for cultural products and tourist destinations (Figure 5).

The left side illustrates AR/VR users' direct observation of the natural world (direct consumer experience) through conventional and online media channels, then moves to the right as traditional indirect consumer experience. The far right, as the remainder of the continuum, shows the different situations in the virtual experience, ranging from AR scenarios where VR is superimposed on real-life scenes to VR scenarios where everything is virtual through AR. At the right end of this virtual product, the virtual context is augmented or enriched with real-life information.

The application of AR/VR in digital marketing communication strategies is necessary and cannot be postponed now. Every corporation that targets competitive advantage in its industry must be able to meet the demands of the latest technology. Meanwhile, customers have more interaction space to gain experience subscribing to a product. Therefore, experiential marketing in the digital era must be aimed at building sustainable customer relationships while building sustainable businesses that are in synergy with technology (Urdea et al., 2021; Subawa et al., 2020). Increasing customer engagement by providing social experiences and education will ensure customer loyalty melalui kanal digital heritage platforms (Permatasari et al., 2020; Shobeiri et al., 2014).

6. Conclusion

AR/VR are two essential components of communication and information technology applications and must be applied in many business fields today especially for tourism destination and creative economy marketing campaigns. Increasing organizational performance is an urgent, more realistic target for every business organization.

The creative industry is a group of business sectors with various goods and services. AR/VR is important in planning, business processes, and marketing communications to the public. Public service sectors such as museums, heritage and tourism, and cultural products such as visual arts, architecture, music performance, film, video, graphic design, education, and fashion are business and service sectors synergistic with AR/VR applications. Marketing communications for tourism and creative industry products must reflect the AR/VR application so that the public and customers have a virtual marketing experience and become a social learning process in a broader context.

AR/VR is one of the objective strategies that can be pursued to achieve synergy and efficiency in corporation operations. The application of technology is also an effort to ensure that the business sector and technological developments are in line and sustainable.

The implications of implementing AR/VR require the harmony of all organizational functions so that support for achieving a competitive advantage is completed and maintained continuously. The creative industry is a group of business sectors proliferating and requires AR/VR applications internally in business processes and communication campaigns to stakeholders.

Recommendations for future research indicate the importance of a more empirical research approach to examine stakeholder responses, especially customers and potential customers who are friendly to technology. A more integrated study is needed in several industries, sports, and entertainment fields.

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