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## Features of the Use of Immersion Technologies in Marketing 6.0

**Abstract**

The *purpose* of the publication is to systematically analyse and critically evaluate current trends in the development of immersion technologies, such as virtual and augmented reality, in the context of their influence on the transformation of Marketing 6.0. The publication focuses on identifying their potential to enhance communication efficiency between producers and consumers, optimise decision-making processes and contribute to the creation of a unique consumer experience that aligns with the principles of sustainable development and social responsibility. *Methodology.* The study of immersion marketing technologies 6.0 is conducted with a clear distinction between components, areas of use, segments and sub-segments of industrial activity, types of software and immersion services. The attainment of the formulated objective of the study is facilitated by a comprehensive examination of the technical aspects of extended, mixed, and immersive virtual reality. The research objectives have therefore been achieved: to examine the specific impact of immersive technologies on changes in marketing strategies; to identify the characteristics and challenges of implementing immersive technologies in sectoral marketing; to assess the effectiveness of using immersive technologies in the context of enhancing competitiveness; to develop recommendations for the effective integration of immersive technologies into Marketing 6.0 based on the results of the empirical study. *Practical implication.* The authors' vision of the structure of an extended physical-digital reality as part of an enriched physical reality, mixed virtuality and virtual reality is substantiated. Their definition is provided and the application of these concepts in marketing is described. With clear reference to the features of augmented, virtual and mixed reality, the use of digitalisation tools in marketing activities to form and maintain a unique consumer path is evaluated. *Value/Originality.* The established areas of application of digital immersion tools for physical-digital marketing 6.0 allow determination of the ways in which visualisation, training and simulation of activities, personalisation of experience, product customisation, increased engagement, improved service and sales processes, monitoring of the consumer journey, planning of marketing campaigns, customer support information, immersion tours of production and adoption decisions in conditions involving the choice of various options, comparing and determining the objective and subjective value of purchases, etc. can be used to improve management of processes for forming hyper-personal consumer experiences based on emotional intelligence, empathy, ethical branding and maximum consumer trust.

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**1 Introduction**

Various sectors of the modern digital economy face numerous challenges, such as the need to adapt to rapidly changing market conditions, growing consumer demands, and the globalisation of the economy. In this context, innovative approaches are needed to ensure the competitiveness of marketing

activities. Immersive technologies, such as virtual reality (VR) and augmented reality (AR), offer new opportunities for marketing transformation at the 6.0 stage. However, their implementation presents several challenges. Traditional marketing methods often fail to provide sufficient information about consumer preferences and behaviours, making it difficult to adapt strategies accordingly. Although

**Keywords**

digitalisation of marketing, immersive reality, consumer behaviour management, customer experience formation

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immersion technologies can help to create more transparent communication channels, their implementation requires significant investment. The technological challenges of implementing the necessary tools include the requirement for suitable infrastructure and resources, which may be unavailable to many enterprises, particularly small and medium-sized ones. While immersion technologies can significantly improve the consumer experience, research into their use is not yet sufficiently advanced. It is important to evaluate the impact of these technologies on consumer behaviour and satisfaction. The use of new technologies can exacerbate social and ethical issues related to data privacy and access to technology, as well as the impact on traditional business practices. In the face of an exponential increase in the number and complexity of manifestations of global climate change and environmental crises, the digital economy must integrate sustainable development principles. While immersion technologies can contribute to this process, their use must be reasonable and comply with environmental standards. Thus, the use of immersion technologies in Marketing 6.0 is a complex and multifaceted process requiring an integrated approach to research and practical implementation. The identification and analysis of existing problems are critical for the successful integration of these technologies into marketing activities. This can ensure sustainable development and competitiveness in the modern economy and guarantee the achievement of the goals of humanitarian projects based on the OECD's recommendations, "10 steps for policymakers to advance immersive technologies".

## 2 Analysis of Recent Research and Publications

According to research results published by The Business Research Company, the rapid development of innovative technologies means that their various applications are becoming increasingly important in marketing [thebusinessresearchcompany.com]. Professional research into immersion tools is usually divided into separate segments, including components, technologies, areas of use, and types of industrial activity and software services.

Thus, a recent study by Kagdelwar & Ahmed summarises the most significant technological milestones in the historical development of VR practices. The authors identify several major stages in the evolution of virtual reality systems. The first stage includes non-immersive systems that reproduce a virtual representation of reality through desktop computers and head-mounted displays (HMDs) (Cruz-Neira et al.). The second stage involves semi-immersive technologies, particularly Fish Tank VR, which provides a stereoscopic three-dimensional

image of a virtual scene by synchronising perspective projection with the observer's head position (Ware & Sherbourne). The third stage is represented by fully immersive systems that create a sense of technological immediacy, presence and "being inside" a virtual environment (Lombard & Ditton). On this basis, the authors outline the prospects for applying VR technologies across various forms of cognitive activity. Fully immersive environments make it possible to generate virtual experiences of commercial interaction and consumer behaviour that, from the perspective of human psychology, are often difficult to distinguish from real-life experiences (Loomis et al.). Similar applications have also been explored in communicative activity (Biocca et al.), architecture and construction (Whyte & Nicolici), as well as business and management (Wexelblat). According to Kagdelwar & Ahmed, one of the most significant breakthroughs in the physiology of brain activity is associated with the clinical research of the 2014 Nobel Prize in Medicine laureates J.M. O'Keefe, M.-B. Moser and E. Moser. Their studies on specialised neural mechanisms, often described as a form of "brain GPS", demonstrated how the brain determines spatial orientation and a person's position in space.

A substantial body of academic literature is devoted to the use of immersive marketing technologies in shaping both the physical and digital consumer journey within B2C (business-to-consumer) markets. Various aspects of this issue have been examined in the works of Batat, Gahler et al., Mele & Russo Spena, Moravcikova & Majerova, Shi et al., and Trujillo-Torres et al. At the same time, research on the application of Marketing 6.0 technologies in B2B markets remains relatively fragmented and limited (Alcañiz Raya et al., Mathwick, Johnson & Barlow, Grewal et al., Purcărea). A comparatively insufficient level of research can also be observed in German-language studies devoted to the digitalisation of marketing in general (Fend & Hofmann, Groß & Pfennig, Schuster), particularly in relation to immersive technologies and artificial intelligence (Dörr et al., Wagener, Wennker). Existing publications mainly address peripheral aspects of VR and AR implementation in the real sector of the economy, while relatively little attention is paid to their role in shaping new forms of consumer experience and improving communication strategies.

It is evident that current studies do not adequately address the exploration of the specifics of the introduction of immersion technologies in B2B marketing, nor their impact on the competitiveness of enterprises. The exceptions to the aforementioned points pertain to the most recent studies on the limited production use of immersion technologies, including 360° (photo and video) immersion content, necessary equipment, 3D modelling, training and simulation, software solutions employing VR, AR, MR, computer

screens, mobile devices (see Isafiade & Mabiletsa), short videos and immersion live streaming (see Xu & Chen), human-machine communication issues in the field of production (see Anastasiou et al.), large-scale reviews of the prospects of immersion mastery with the latest manufacturing technologies by Keenan Ario et al., and the joint US-Ukrainian project Bidon [see bidon-gs.com], ways to bridge the gap between learning and production technologies on the way to transitioning from immersive technologies to the Metaverse (see Asfarian et al.). The research conducted and the results published indicate a growing interest in immersion technologies for marketing purposes, both in Ukraine and abroad. While domestic scientists focus on the specifics of the Ukrainian market, foreign researchers provide a more global perspective. Continuing academic research in this area is essential for optimising the implementation of immersion technologies.

### **3 Immersion Component of Marketing 6.0**

Marketing is the integration of technologies, innovations and sustainable development principles into the management systems of enterprises in the real economy sector. The focus is on meeting consumer needs, social and economic responsibility, and the environmental sustainability of activities. Marketing 6.0 is a synergistic combination of traditional economic practices and the achievements resulting from the consistent improvement of high-tech technologies up to the level of artificial intelligence. This is implemented to master highly intellectual methods of scientific cognition, legal competitive capture, continuous innovative updating, objective critical review, and the practical commercial monetisation of technically available, technologically secure, and actually applied immersion technologies. These technologies are used to manage consumer experience in the process of business development, which involves forming a conscious and loyal dependence of solvent end consumers on specific brands of products or services in the primary and secondary sectors of the economy.

### **4 Technological Features of the Segments of Immersion Marketing 6.0**

The technological segments of digital marketing technologies 6.0 are:

1. Augmented reality (AR) is a technology that integrates virtual elements, such as images, animations and text, into the real world to create a new context for perceiving information. It uses sensors, cameras and software to overlay digital objects on physical environments, enabling users to interact with these

elements in real time. One example is mobile apps that use a camera to display virtual objects on a phone screen in a real-world context.

2. Immersive Virtual Reality (IVR) uses specialised devices to completely immerse the user in a computer-generated environment. IVR technology creates the illusion of being present in a three-dimensional space, allowing users to interact with virtual objects and environments. It provides an opportunity to explore new realities without physical limitations.

3. MR, or mixed reality is a technology that combines elements of augmented and virtual reality. It allows users to interact with real and virtual objects in a phygital environment. MR enables digital objects to respond to physical elements, creating a more complex and interactive experience. It has been used in industry, education and entertainment to enable users to carry out tasks in real time using real and virtual resources.

### **5 Features of User Experience Formation in the Context of the Introduction of Immersive Marketing Technologies 6.0**

According to representatives of various scientific schools, the development of the sphere of interaction and mutual enrichment of the practice of using a set of physical and digital distribution channels is facilitated by dynamic means of supporting processes that form a continuous, adaptive, and comprehensive user experience at the points of contact between product brands and consumers in the B2B and B2C markets. In the 2020s, the user experience in the field of AR, VR and MR is dynamic and multifaceted. There is a particular focus on interactivity and personalisation, as well as new capabilities in various fields. These technologies are constantly evolving, opening up new possibilities for users. The user experience, based on augmented (AR), virtual (VR) and mixed reality (MR) technologies, is characterised by a number of key anthropocentric aspects:

1. Interactivity and immersion. Virtual reality (VR) offers complete immersion in a virtual environment, enabling users to interact with 3D objects. In contrast, augmented reality (AR) integrates digital elements into the real world, enabling users to interact with virtual objects in real time.

2. Personalisation. AR and VR technologies enable customisation of content to suit individual users' needs, thereby increasing engagement and satisfaction levels.

3. Application in various fields: education (the use of VR to teach in medical, technical, and other specialties, allowing students to learn the material in a safe environment); commerce (AR allows consumers to "try on" products (clothes, furniture) before buying, which reduces the risk of dissatisfaction).

4. Social interaction. MR facilitates communication and interaction in shared virtual spaces, thereby generating novel opportunities for social connection.

5. Technological innovations. The development of wearable devices, such as AR/VR glasses, is making these technologies more accessible and convenient. Improved graphics and faster data processing provide a smoother, more realistic experience.

6. Challenges and limitations: technical barriers (the high cost of equipment and the need for powerful devices can limit availability); adaptation issues (not all users are ready for new technologies, which can affect their perception).

The technical features of the user experience in the field of AR, VR and MR in the 2020s are characterised by high interactivity, realistic graphics and intuitive interfaces. Thanks to constant technological development, these experiences are becoming increasingly accessible and popular in a variety of fields. The technical features of the 2020s user experience, based on AR, VR and MR, cover several key aspects.

1. Equipment. VR/AR glasses and helmets, such as the Oculus Quest, the HTC Vive and the Microsoft HoloLens, provide immersion in virtual or mixed worlds. Mobile devices with AR apps use smartphone cameras and sensors to make this technology accessible to a wide range of users.

2. Software. Development platforms such as Unity, Unreal Engine, ARKit (for iOS) and ARCore (for Android) allow users to create interactive AR and VR experiences. Content management systems provide ease of content creation by offering applications for managing 3D models and animations.

3. Tracking technologies. Using sensors and cameras to track position in space ensures accurate interaction with virtual objects. Motion tracking, which involves integrating controllers and sensors to track hand movements, allows users to interact with objects.

4. Graphics and rendering. Realistic graphics and high-quality rendering include textures, lighting and physical effects, creating a realistic experience. 3D modelling is used to create interactive virtual objects.

5. Interfaces and interaction. Voice assistant integration allows for hands-free application management, while gestures provide a more intuitive way to interact with virtual objects.

6. Connectivity and performance. High-speed networks based on 5G and Wi-Fi 6 provide a stable connection for streaming video and data, which is crucial for AR and VR; data processing using powerful processors and graphics cards in devices ensures smooth, lag-free performance.

7. Security and privacy. Using encryption and other technologies enables one to protect users' personal data when they are using AR/VR applications.

## 6 Conclusions

The key characteristics of Marketing 6.0 include the extensive digitalisation of economic activity through the use of big data, analytics, the Internet of Things and Services (IoT&S) to optimise production processes and improve managerial decision-making. Another important feature is strong customer orientation, achieved through the individualisation of products and services in response to continuously changing consumer preferences and needs. A further characteristic is the emphasis on sustainable development, which involves integrating environmental and social considerations into business models in order to minimise negative environmental impacts and support local communities. Marketing 6.0 also relies on the active implementation of innovative technologies, including biotechnical solutions, automation, robotisation and the broad application of artificial intelligence to enhance productivity and product quality. In addition, globalization plays a significant role as economic sectors adapt to global market trends and international standards, requiring businesses to remain flexible, innovative and responsive to continuous change. Immersion virtual reality technologies have significant potential to transform product and service markets, offering new ways to learn, present, and interact. Investing in these technologies has powerful potential and can generate dominant competitive advantages.

Areas of application for VR in business:

- Staff education and training. VR can be used to train marketers, product promotion specialists and other employees, allowing them to gain hands-on experience in a safe environment.
- Virtual tours. Companies can organise virtual tours of their production facilities, enabling potential partners and customers to familiarise themselves with their products and technologies.
- Product presentation. VR can be used by manufacturers to showcase their products and services.
- Data analysis and modelling. VR can be integrated with analytical tools to visualise data about products or services, aiding purchasing decisions.
- Planning and design. The utilisation of VR in the conception of novel technical and technological solutions facilitates the visualisation of outcomes prior to their physical implementation.
- Development prospects. The increasing interest in innovation, driven by technological advancements, has led to a growing demand for innovative solutions in business, thereby creating new opportunities for VR.
- Cost reduction. Companies can reduce training and marketing costs with VR, as virtual solutions are often cheaper than traditional ones.

- Improved customer experiences. VR can enhance interaction between suppliers and buyers, providing a more engaging experience.

The study's findings offer a foundation for future research, particularly in the realm of marketing strategy. Companies stand to benefit from exploring ways to adapt to a dynamic market through the adoption of immersive technologies in specific areas. This adaptation, as outlined in the table, can be achieved in conjunction with the introduction of innovations across all facets of marketing activities. To improve the efficiency of immersive technologies, it is proposed that several measures be taken. The most promising of these are:

Boost user engagement in the shopping experience by providing an interactive, engaging experience that leaves a lasting impression on customers. These

technologies can also open up creative opportunities for marketers, enabling them to capture the attention of highly informed consumers with rapidly changing preferences. The increasing use of AR applications in e-commerce allows potential customers to visualise products in their personal space before making a purchase, significantly reducing the likelihood of returns.

- Improving conversion rates by providing a more personalised and realistic experience that can positively influence purchase decisions.
- Using immersive technologies for customer retention can have a significant impact on maintaining brand interest and engagement over time. It creates memorable and immersive experiences that foster long-term relationships and encourage repeat purchases.

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