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# Using immersive marketing techniques to improve and develop product designs (A field study in a selected group of interior decoration companies in Nineveh)

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**A B S T R A C T**

The current research aims to test the relationship between immersive marketing techniques and their impact on product design and development, as the field of marketing has witnessed remarkable development with the emergence of immersive marketing techniques that rely on virtual reality and augmented reality to create rich interactive experiences for consumers. These techniques allow sensory and realistic interaction with products and brands. This type of marketing aims to transform the consumer's experience from simple traditional interaction to a multisensory immersive experience, enabling the customer to perceive product details, design, and test it virtually before making a purchase decision. The current research, within its conceptual framework, considers immersive marketing as an explanatory variable. also addressed the topic of product design and development as a responsive variable. The problem centered on how the researched companies can elevate their product design levels and develop them through the use of immersive marketing techniques. Accordingly, the importance lies in informing the researched companies about the clear role that immersive marketing techniques play in designing and developing their products, and in motivating customers to purchase them. To achieve this, a questionnaire was used as the primary tool for data collection, distributed randomly to 60 employees in the researched companies, with valid responses for analysis regarding the current state of the research variables. The data were analyzed using statistical tools to achieve the research objectives and test hypotheses, relying on the statistical software SPSS version 26. Based on the practical findings, the research reached several conclusions, upon which a set of recommendations was made to the management of the researched companies

**Introduction:**

Immersive marketing is one of the modern tools that has revolutionized the interaction methods between consumers and products by utilizing virtual reality, augmented reality, and multi-dimensional interactive media. This type of marketing goes beyond traditional promotion; it creates experimental environments that allow consumers to engage directly and sensorially with the product during its early design phases, providing genuine opportunities to better understand their needs and expectations.

A key dimension of this relationship is the transformative role immersive marketing plays in enhancing product design and development processes. Interactive platforms offer extensive data on user behavior and experience, which serve as a scientific foundation to improve product features and adapt them to the dynamic market requirements. Accordingly, immersive marketing emerges as a strategic element in the product life cycle, enhancing the ability of design and development teams to reduce costly mistakes, accelerate innovation processes through repeated virtual experimentation, and analyze consumer feedback in near-realistic environments.

This integration between immersive marketing and product design processes effectively contributes to elevating product quality and achieving a sustainable competitive advantage in contemporary markets. It also opens broad research horizons centered on studying the effects of technological innovations in improving customer experience and increasing the efficiency of the product value chain.

Thus, the current research included four main axes. The first of them included the research methodology, the second included the theoretical aspect in its two parts (immersive marketing and product design and development), while the third included the practical aspect, and the last axis addressed the most important conclusions and proposals presented to the companies studied.

**Keywords**: Interactive marketing techniques, product design improvement and development, interior design companies in Nineveh

## First axis / Research methodology

**Firstly :Research Problem**

The rapid changes in the Iraqi environment, including shifts in competition methods among companies and the wide variety of customer preferences regarding product acquisition—where customers even contribute ideas related to product design—have pushed many companies to develop strategies that enable them to keep pace with these changes and adapt accordingly, especially in product design. Immersive marketing technologies are likely to be a turning point in achieving this.recent studies indicate the effectiveness of immersive marketing in enhancing product design through increased interaction and innovation, with higher conversion rates when using immersive product demonstrations during launches. Systematic reviews have also shown improvements in early development stages via virtual reality, which reduces costs and accelerates innovation. For instance, the study by Rasha (2020) demonstrated the positive impact of immersive marketing techniques on all stages of the purchase decision-making process, including product evaluation and design, albeit with moderate customer trust levels in the regional context, supporting the growth of the immersive technology market in the Middle East due to its efficacy in marketing and industrial design.

Through exploratory visits conducted by the researcher from May 5 to 20, 2025, to the targeted companies (Blanco Design Company, Bluna Company, and Burak Kitchens Company)—considered leading firms in product design and development, representing a pioneering model in Iraq's sector, particularly in decor and kitchens in northern regions like Mosul—these companies face challenges of accelerating competition and customization based on customer preferences, making them ideal for studying the adoption of immersive

marketing to improve designs. Through interviews with company managers and relevant department heads, limited knowledge of immersive marketing technologies was evident, despite the urgent need for them to address competitive changes and customer-driven customization. This gap hinders these companies' ability to elevate their product design levels and development efficiently, thereby raising the main research problem:

**How can the studied companies enhance their product designs and development through adopting and applying immersive marketing technologies?**

1. What is the position of the companies under study, including their management and officials, regarding the research variables represented by (immersive marketing and product design)?
2. Can immersive marketing techniques contribute to supporting product design and development for the companies under study?
3. Do the companies studied realize the importance of implementing immersive marketing and its impact on product design and development?

**Secondly: Importance o1f the Research**
The importance of the current research is evident in the following points:

1. It has gained great importance by providing a theoretical framework based on reviewing various specialized literatures related to the research topics.

2. Clarifying the concept of immersive marketing and its techniques, as well as simulating the concept of product design and its most important dimensions through what authors have presented, which will contribute to building a solid foundation that can be practically utilized.

3. Addressing a real problem in the companies under study concerning its two variables.

4. Defining for the companies under study the clear role played by immersive marketing on social media networks to motivate customers within organizations to purchase their products.

**Thirdly: Research Objectives**
The current research aims to achieve the following:
1. Presentation of the fundamental concepts of the research variables (immersive marketing and product design) and the dimensions of each, as clarified by the literature and writings.

2. Investigating the significance of the correlation between the two researched variables in the companies under study.

3. Determining the strength and significance of the effect of the independent variable (immersive marketing) on the dependent variable (product design) in the companies under study.

4. Providing a set of recommendations and mechanisms for their implementation.

**Fourthly: Research Framework and Hypotheses**

For the systematic treatment of the research problem and in light of the theoretical framework and its contents, it is necessary to present a hypothetical framework for the research represented by Figure (1):

Figure (1) Hypothetical research pl

Source: Prepared by the researcher

**Fifthly: Research Hypotheses**

**The following hypotheses emerge from the research plan:**

1. The first hypothesis: There is no statistically significant correlation between immersive marketing in terms of its techniques and product design in the companies under study( Sub-hypothesis).
2. The second hypothesis: There is no statistically significant effect of immersive marketing in terms of its techniques on product design in the companies under study.

**Sixthly: Research Methodology**

The research adopted the descriptive-analytical method to describe its population and sample, as well as to study and analyze the correlation and impact relationships among its variables, leading to the conclusions and recommendations that will be reached.

**Seventhly: Data and Information Collection Methods**

The research adopted the descriptive-analytical method to describe its population and sample, as well as to study and analyze the correlation and impact relationships among its variables, leading to the conclusions and recommendations that will be reached.

**Eighthly:Statistical analysis methods:** The current research relied on using a set of statistical analysis tools aligned with its objectives of reaching conclusions about the relationships between variables, as well as verifying and measuring the proposed hypotheses. The ready software SPSS V26 was used to infer percentages, frequencies, means, standard deviations, and to study correlation and impact relationships along with testing statistical hypotheses among the variables under study. It is noted that the number of distributed questionnaires was (70), with (60) valid responses.

**Ninthly: Description of the research community and sample:** In alignment with the research methodology, a group of decoration companies was selected, including Blanco
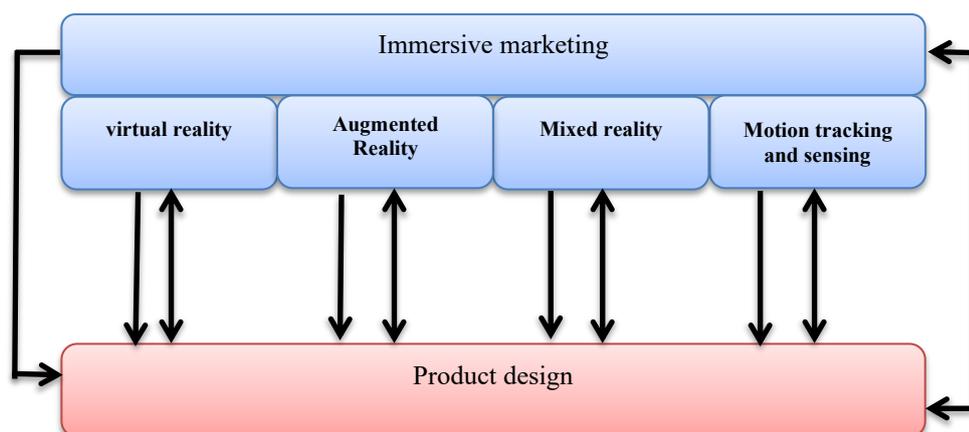


Design Company, a company specialized in interior design for decorations, offering classic and luxurious designs. It has extensive experience and a team of creative designers. The company is located in Mosul, Al-Zuhur District, with approximately (35) employees  Also selected was Blonna Company, specialized in home furniture and modern designs, aiming to provide a distinctive experience for customers through high-quality products and professional

customer service. This makes it a popular choice for those seeking elegant and contemporary furniture in the city, with around (45) employees. Furthermore, Bourak Kitchens Company was chosen, specialized in designing and implementing kitchens according to order, characterized by high-quality execution using high-level materials. The company offers innovative and modern kitchen designs with careful attention to detail and elegance in design. It also provides professional services with a specialized engineering and technical team to ensure kitchens are executed to meet customers' precise desires. The company employs approximately (40) people.

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**Second axis / Theoretical framework of the research**
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**First: Immersive Marketing**

**• The Concept of Immersive Marketing**

The rapid and successive technological advancements in organizations have led them to compete in employing modern technologies across marketing, sales, management, and engagement with their diverse audiences. In recent years, there has been a notable acceleration in adopting the concept of immersive marketing due to computer advancements, enhanced mobile device performance, and the growth of high-speed internet. These developments have enabled brands to design more impactful, interactive, and personalized marketing campaigns( Yadav, et al.,2025:440). The evolution of immersive marketing is also linked to changes in consumer behavior, with consumers increasingly seeking marketing experiences that go beyond traditional messages and stimulate their sensory and emotional engagement directly with products and services. Academic and research interest in immersive marketing has notably increased over the past two decades, Researchers have begun studying the impact of modern marketing experiences on consumer behavior and its relationship with the brand, focusing on their effectiveness in enhancing loyalty and increasing conversion rates in digital markets. Immersive marketing today has become an essential part of advanced digital marketing strategies, benefiting from evolving innovations in artificial intelligence, big data analytics, and modern sensor systems.( Alfaro, et al.,2019:485-486) Based on the literature, various perspectives from researchers emerge, with immersive marketing being succinctly defined as the future of marketing strategies due to its provision of deep sensory experiences focused on direct interaction. This approach accelerates the decision-making process and strengthens the consumer's connection to the product or brand in unconventional ways, seamlessly integrated into users' lives innovatively and effectively( Tung, 2024:20) It is also defined as the use of advertising strategies that create a deep and engaging consumer experience through advanced technologies that allow them to view and interact directly with genuine product offerings, generating dynamic, real-time opportunities between the consumer and the brand. as he pointed out(Maheswari, & Balakrishnan, 2025:148 )  Immersive marketing is a modern marketing approach that utilizes advanced technologies such as virtual reality (VR), augmented reality (AR), and artificial intelligence to create interactive, multi-sensory marketing experiences. These experiences allow consumers to interact with products or brands in a realistic and immersive way. ).(Artyukhova & Dluhopolskyi,2025:62) This type of marketing aims to move consumers from a traditional passive viewing experience to an active, interactive one, making them feel as if they are inside the brand's world. This enhances the chances of psychological and emotional impact and increases the likelihood of brand recall.

from the above, the researcher concludes that immersive marketing is an advanced marketing approach that uses virtual reality, augmented reality and other digital technologies to create immersive and interactive experiences that allow consumers to

interact with products and brands in a multi-sensory and realistic way (Michele, 2025:25). Digital technology is integrated with reality to create a rich and realistic user experience, which aims to improve communication between the brand and the consumer in innovative and attractive ways.

• **The importance of immersive marketing:** The importance of immersive marketing is embodied in the following key points:
(Yadav,etal.,2025:440)(Maheswari,&Balakrishnan,2025:148) (Colamatteo,2024:133).

1. Capturing customer attention through multi-sensory interactive experiences that enhance brand attractiveness.
2. Building deeper and more loyal emotional bonds between the consumer and the brand.
3. Surpassing the limitations of traditional advertising in an information-rich and competitive digital environment.
4. Creating dynamic real-time opportunities to showcase products and interact with them directly.
5. Enhancing brand recall and increasing recognition among the target audience.
6. Increasing engagement rates and interaction with marketing campaigns
7. Providing unique and innovative user experiences that motivate more customers to make purchases.

8. Improving conversion rates and sales through offering detailed product experiences prior to purchase.
9. Collecting accurate data on customer behavior that helps in developing and refining future campaigns.
10. Enabling brands to differentiate themselves in a competitive market through technological innovation and immersive experiences.
11. Serving as an effective tool for building long-term relationships with customers and enhancing their trust and the brand's credibility.

• **Immersive marketing techniques:**

Immersive marketing technologies have caused a fundamental transformation in global marketing practices, with companies now using advanced technological tools to deliver interactive experiences that simulate reality and truly immerse the customer in the brand world. These technologies aim to enhance customer engagement and provide a multisensory experience that increases purchase likelihood and deepens brand loyalty. Immersive marketing offers a wide range of benefits compared to traditional advertising approaches by creating highly engaging interactive experiences for consumers. The following technologies are considered the most prominent in immersive marketing(Uwaoma, et al. ,2023:967):

1- Virtual reality technology: Virtual reality is one of the most prominent tools in immersive marketing that has transformed the concept of modern marketing strategies and represents the future of interaction between brands and customers.( Sinesio,et al.,2019: 130). It allows brands to deliver unique immersive experiences that engage the senses and emotions, offering consumers an opportunity to explore products and services in a way not possible through traditional methods. As more companies invest in this technology, it is expected to become a core element of future digital marketing strategies, driving innovation and enhancing engagement and connection with audiences(Michele, 2025:22).

2- Augmented reality technology: This technology allows customers to experience the product before purchase interactively Forexample, customers can use augmented reality to virtually try product colors or shapes through their phone cameras, helping them better evaluate options and make an informed purchasing decision(Lampropoulos,2025:58). It also enables gathering deeper insights into user preferences and how they interact with product design and development, allowing companies to create designs that better meet customer needs. Augmented reality combines the real world with layers of digital information to enhance and enrich the user's experience of their environment in an interactive and information-rich way(Carmigniani,etal.,2011:360).

3- Mixed reality technology: The production sector experienced a radical transformation with the emergence of mixed reality technology, which reshaped the traditional shopping experience into an immersive and interactive journey(Klico& Muhić,2022:88). Mixed reality has become a pivotal technology in the retail sector by blending the physical and digital worlds, offering innovative ways to attract customers and enhance their shopping experiences. This technology aims to provide a comprehensive shopping experience by integrating elements such as product information, reviews, recommendations, and purchase options(Uwaoma, et al. ,2023:967).

4- Motion Tracking and Sensing Technologies: Motion tracking and sensing technologies in immersive marketing rely primarily on virtual reality and augmented reality (AR) technologies, which allow consumers to interact with products or brands in a sensory, realistic, and multi-dimensional way.( Sinesio,et al.,2019:127-130). These technologies use motion sensors to track users' movements in real time, enabling them to interact with the virtual or augmented environment accurately and naturally. Motion tracking technologies in immersive marketing include: (Pandey, & Tripathi,2025:49) .( Alfaro, et al.,2019:488)

- Motion tracking using cameras and dedicated sensors to precisely measure body or hand movements.
- Use of virtual reality or augmented reality glasses equipped with sensors to record head movement and orientation for an immersive interactive experience.
- Sensors capturing eye movement to enhance personalized and direct interaction within the experience.
- Direction recognition and tactile interaction technologies that allow users to control products or information displayed in the virtual environment.
- These technologies allow consumers not only to visually view products but also to interact with them directly, enhancing the user experience and leading to increased customer engagement and brand loyalty. They also enable the collection of valuable data on customer preferences and behavior in realistic simulated conditions, helping to improve targeted marketing strategies and achieve better results.

Therefore, motion tracking and sensing technologies in immersive marketing are vital tools for creating immersive and interactive marketing experiences that enhance the relationship between the brand and the consumer and product development.

**Second: Product design and development.**

**• The concept of product design and development**

Product design and development is a fundamental activity today as it can generate and develop ideas through a process of creating new products to meet the continuously changing needs and expectations of users, manufacturing institutions, and various users throughout the product life cycle. This process brings a good user experience and better social and environmental benefits to the community, which helps companies to survive and compete globally. Therefore, controlling product design and development throughout the entire life cycle is a vital activity for institutions, aimed at finding a balance between cost and product quality(Ulrich,et al.,1995:384) .by examining numerous studies and authors who have focused on product design and development, the researcher addressed the concept of product design and development. Many researchers define it as the activities or structuring of constituent parts in a way that allows for the delivery or creation of specific value. In industrial companies, the engineer's role is to create designs accompanied by detailed drawings or specifications aimed at defining weight, dimensions, colors, and other characteristics( Marion&Fixson, 2021:199). It has also been defined as the process of assembling activities or elements to ensure a product with high efficiency and quality. Through reviewing a number of studies and authors who focused their writings on product design and development, the researcher addressed the concept of product design and development by defining it, as done by many researchers, as encompassing the activities or structuring of components in such a way that it is possible to deliver or create specific value( Dang, et al.,2024:120). It is observed in industrial companies that the role of the engineer involves preparing designs accompanied by detailed drawings or detailed specifications aimed at specifying weight, dimensions, colors, and other characteristics. It has been defined as the process of assembling activities or elements to ensure obtaining a product with high efficiency and quality(Demirbilek,&Sener,2003:14) It is also defined as an integrated process that includes knowledge, planning, innovation, experimentation, and continuous development to ensure product success in the market and achieve customer satisfaction.( Lo, C. K., Chen & Zhong, 2021:48).

The researcher believes that product design and development is a set of activities and factors that will affect a product that has distinctive characteristics, qualities, and elements by defining the conditions and specifications in a way that ensures obtaining a product with high efficiency and quality( Jindal, et al.,2016:23).

**• The importance of product design and development**

The importance of effective product design and development lies in understanding the purpose behind the product's success and its use, which indicates the efficiency of the final product. The following are the most important points highlighted by several researchers and experts in this field (Lo,etal.,2021:48)(Mourtzis & Angelopoulos,2024:56):

1. The importance of design li6es in enabling the product to reach the market as quickly as possible.

2. The involvement of all stakeholders, from the designer to the final delivery to the customer, is achieved by listening to the customer through a team composed of marketing personnel, engineers, and manufacturing staff. This integrated team studies production stages and prioritizes customer needs, then develops and improves product designs. This collaborative approach facilitates faster production and market introduction, playing a crucial role in achieving the required product development time for rapid market entry.

3. Design facilitates manufacturing by controlling and simplifying production processes. It allows for conducting experiments to reduce product costs and minimize assembly time of components. This ease in manufacturing lowers costs, enabling faster delivery to customers. In the context of intense competition, short development cycles contribute significantly to the success of many companies that distinguish themselves by creatively designing products that address customer needs and desires.

4. Design plays a crucial role in satisfying customer needs and achieving superiority by incorporating customer feedback into the design process. This approach ensures that product designs meet customer requirements without the need for modifications during manufacturing.

5. The significance of design lies in environmental preservation. Efficient and effective design plays a critical role in preventing pollution, conserving resources, and producing environmentally friendly goods. This supports the organization's identity, as companies strive to build a distinguished reputation through continuous innovation in product design. Effective design thus enhances the organization's public image and strengthens its identity.

6. Product development contributes to increasing market share and attracting new customers by offering improved products that meet evolving customer expectations.

7. Flexible designs enable companies to quickly and effectively adapt to market changes, technological advancements, and shifts in customer requirements.

• **Stages of product design selection and development**

There are main stages in the process of selecting and designing a new product, which include (idea discovery, preliminary evaluation of ideas, initial product design, product selection and modification, preparation and analysis of economic feasibility, and commercial product introduction). Below is a brief explanation of each stage (Mourtzis & Angelopoulos,2024:56) ( Jindal, et al.,2016:23)**:**

1. Idea Discovery: At the beginning of the design process, it is essential to search for new and advanced design ideas. There are many sources for obtaining these ideas, including (the customer) through various methods such as questionnaires, small focus groups of customers, and analyzing purchasing patterns. Additionally, studying competitors' products can provide learning opportunities. There are also specialized research and development departments, as well as industry centers such as scientific centers and others in specific sectors like fashion houses and global fashion centers.

2. Idea Evaluation: The new ideas related to the product design must be examined and evaluated using established methods in this regard. There are many factors that help determine the evaluation, such as cost, future demand, available organizational capabilities, ease of manufacturing or assembly, target market, availability of materials required for production, and production efficiency level.

3. Preparation of the Initial Product Design: Initially, a prototype of the product is prepared for later selection and commercial presentation to the market. This preparation phase is typically conducted by research and development departments in large organizations or by outsourcing to specialized design organizations. In some cases, a few departments within the organization or the production and operations management might follow a design approach based on imitation, especially in organizations with limited capabilities.

4. Product Selection and Final Design: The goal of this stage is to ensure the product's performance and its ability to capitalize on production opportunities. Therefore, multiple options should be worked on based on the initial product design before preparing the final design and launching it commercially on a wide scale.

- **Tools used in product design and development**.(Schäper,et al.,2024:101)        (Mourtzis & Angelopoulos,2024:56) .( Dang, et al.,2024:120):

1. Value Analysis: The tools used in product design and development are numerous, with value analysis being one of the most important. This method relies on organizing work creatively and competitively, aiming primarily to meet user needs and desires through distinctive design and functions. The product is therefore multifunctional, economical, delivers high-quality performance, and does so at the lowest possible cost. When value analysis is correctly applied, costs can be reduced by 10% to 20%. The idea here is that product development is not a one-time activity but a continuous process to cope with the changing competition surrounding the organization. Creativity is the foundation of all the work undertaken by companies, and the best way to organize creativity is through value analysis.

2. Operations managers must prioritize environmental safety and industrial waste disposal at each production stage. Designing and producing environmentally safe products, known as green design, requires using clean and alternative energies and materials rationally. Respecting environmental and legal responsibilities enhances competitiveness and access to new markets, resulting in products that safeguard the environment.

3. Design and Technology: Technology is the production of knowledge through the application of technological designs aimed at improving processes and developing products. Design technology is one of the tools provided by information sciences that plays a role in designing products faster, better, and cheaper. Design technology includes many techniques and tools that contribute to the application of MCT technology, which is considered a reputation for modern factories and the introduction of many products that have an impact on the competitive environment which consists of the following:

a) Computer-Aided Design (CAD) refers to the use of computer capabilities for product design operations. It is a programmed system that includes various automated techniques, such as computer schematics, which aim to examine the visual properties of the product. Computer-Aided Manufacturing (CAM) involves using computers to control the production process.

b)  Virtual Reality Technology: It is one of the communication forms where perceptions replace reality, allowing users to actively respond to the simulated reality. The roots of this technology trace back to computer-aided design (CAD) when design information becomes digitally available for other uses. Many companies use this technology in design, aiming primarily to speed up product development, improve products, and reduce costs. The key benefit is the virtual visualization of the final product assembly as an image before actual assembly.

c) Design for Manufacturability and Assembly (DFMA): It is a technology and extension of the CAD system focusing on the impact of design on the product assembly process. DFMA is used in the preparation of documents, checklists, manuals, diagrams, schedules, and charts to assist designers in developing design plans. It works on breaking down the product into components, sub-assemblies, and assemblies, as well as evaluating production costs based on product design and development. This technology practically focuses on machinery and assembly to define design dimensions, orientations, shapes, and tolerances.

d) Quality Function Deployment (QFD) is an engineering system that translates consumer needs into products that conform to standards and achieve customer satisfaction. These requirements are understood in terms of the entire process flow. Product planning relies on customer requirements through the involvement of individuals across all company functions. The best definition of QFD is a scientific

approach shaped as a matrix that enables understanding customer demands, how to respond to these demands, and the degree to which customers will be satisfied. The goal of QFD is to satisfy the customer by translating their desires into targeted designs and ensuring that the final product designs meet customer needs and desires. It also involves producing designs that can be used in production phases and product delivery. Emphasis is placed on documenting efforts, supporting teamwork, and improving development processes.

**Field framework of the research**

**First: Describing and diagnosing the research variables**

This section presents an overview of the research variables based on the opinions of a sample of individuals working in a selected group of decoration companies. The program (SPSS V26) was used for data analysis, where percentages, frequencies, arithmetic means, and standard deviations were calculated. Correlation and impact relationships were analyzed, and statistical hypotheses were tested among the studied variables. It is noteworthy that (70) questionnaires were distributed, with (60) deemed valid for analysis. Details of the analysis results are explained below:

1.  **Testing the correlation coefficient between the research variables**
    The table (1) indicates the existence of a significant positive correlation between immersive marketing as the independent variable and product design and development as the dependent variable, with a total correlation coefficient of (*0.873). This explains the attention given by the surveyed companies to the use of immersive marketing techniques in product design and development.

**Table (1) analyzes the correlation between immersive marketing and product design, development, and overall improvement at the level of the companies studied**.

| independent   variable<br><br>Dependent variable | Immersive marketing |
|---|---|
| Product design and development | 0.873* |

**Source: Prepared by the researcher based on calculator results.**
**N = 60    P < 0.05**

The correlation relationships between immersive marketing and product design and development at the individual level, as shown in Table (2), indicate a significant positive correlation between the combined dimensions of immersive marketing and product design and development. The total correlation coefficient reached (0.827*). This result is consistent with the study by (Tushi, 2014,) which clarified that immersive marketing in its dimensions plays an important role in supporting product design and development.

**Table (2) Analyzes the correlation between immersive marketing, in terms of its dimensions, and product design, development, and improvement at the level of the companies studied.**

| independent variable | Immersive marketing | | | | Overall index |
|---|---|---|---|---|---|
| | virtual reality | Augmented Reality | Mixed reality | Motion tracking and sensing | |

| | | | | technologies | |
|---|---|---|---|---|---|
| **Dependent variable** | | | | | |
| **Product design and development** | *0.665 | *0.736 | *0.773 | *0.712 | *0.827 |

**Source: Prepared by the researcher based on calculator results.**
    **N = 60    P < 0.05**

The table (2) indicates a significant positive correlation between virtual reality technology, as one of the dimensions of the independent variable, and product design and development as the dependent variable, with a correlation value of (0.665*) at a significance level of (0.05). According to (Sinesio et al., 2019), virtual reality provides consumers with the opportunity to explore products and services in ways not possible through traditional methods. The same table also shows a significant correlation between augmented reality technology and product design and development. The correlation value of (0.736*) at a significance level of (0.05) indicates that augmented reality plays a role in ensuring that all employees within the company have sufficient awareness and expertise regarding the possibility of developing designs that better meet customer needs. According to (Carmigniani et al., 2011), augmented reality technology integrates the real world with layers of digital information to enhance and enrich the user experience of the surrounding environment in an interactive and information-rich manner. Table (2) shows a significant positive correlation between mixed reality technology and product design, with a correlation value of (0.773*) at a significance level of (0.05), consistent with (Uwaoma et al., 2023), which indicates that mixed reality aims to attract customers and establish long-term relationships with them, helping to gather their opinions on the possibility of product design and development. The same table also indicates a significant positive correlation between motion tracking and sensing technologies and product design and development, with a correlation value of (0.712*) at a significance level of (0.05). According to (Pandey & Tripathi, 2025:550), motion tracking and sensing technologies are vital tools for immersive and interactive marketing experiences that enhance the relationship between the brand and the consumer and contribute to product development.

Based on the above, the null hypothesis one was rejected and the alternative hypothesis was accepted, which states: "There is a statistically significant correlation between immersive marketing, as represented by its dimensions, and product design and development in the surveyed companies.

**2. Impact analysis of the two research variables at the level of the companies studied.**

The results of the analysis indicate a significant positive effect (of immersive marketing), which represents the independent variable, on (product design, development, and improvement), which represents the dependent variable, at the level of the companies studied, as shown in Table (3) as follows:

**Table (3) Analysis of the overall impact of immersive marketing on product design and development at the level of the companies studied**

| independent variable / Dependent variable | Immersive marketing | | $R^2$ | F | |
|---|---|---|---|---|---|
| | $B_0$ | $B_1$ | | Calculated | The schedule |
| **Product design and development** | 0.828 | 0.835 (13.42) | 0.698 | 207.3 | 3.920 |

Source: Prepared by the researcher based on the results of the electronic calculator (SPSS).
( ) indicates the calculated t value N = 60 P < 0.05 df (1.58)

Table (3) shows the results of regression analysis indicating a significant effect of the combined dimensions of immersive marketing on the combined dimensions of product design and development. The calculated F value was (207.3), which is higher than the tabulated value of (3.920) at degrees of freedom (1,58). The coefficient of determination ($R^2$) was (0.698), meaning that 69.7% of the variations in product design and development dimensions are explained by immersive marketing dimensions, while the remaining variations are due to random variables beyond control or not included in the regression model.by tracking the (B) coefficients and testing (T), it was found that the calculated (T) value is (13.42), which is significant and greater than its tabulated value of (1.658) at a significance level of (0.05) and degrees of freedom (1,58). This result aligns with the study by (Maheswari & Balakrishnan, 2025), which showed that immersive marketing in its dimensions positively affects improving product design and development. To clarify the influence relationships between each dimension of immersive marketing and the combined dimensions of product design and development at the surveyed companies' level, as shown in Table (4).

**Table (4) Analysis of the impact of immersive marketing in terms of its dimensions on product design and development at the level of the companies studied.**

| Dependent variable / independent variable | Product design and development | | R2 | F | |
|---|---|---|---|---|---|
| | Bo | B1 | | المحسوبة | الجدولية |
| **Immersive marketing** — virtual reality | 0.668 | 0.748 (10.69) | 0.558 | 114.16 | 2.447 |
| **Immersive marketing** — Augmented Reality | 0.595 | 0.701 (9.331) | 0.482 | 87.10 | |
| **Immersive marketing** — Mixed reality | 0.639 | 0.762 (11.16) | 0.581 | 124.3 | |
| **Immersive marketing** — Motion tracking and sensing technologies | 0.570 | 0.686 (8.927) | 0.471 | 79.86 | |

Source: Prepared by the researcher based on the results of the electronic calculator (SPSS).
( ) indicates the calculated value of t          N = 60          P < 0.05          df (4.55)

Table (4) shows a significant impact of virtual reality on the combined dimensions of product design and development, with a calculated F value of (79.86), which is higher than the tabulated value of (2.447) at degrees of freedom (4,55). Tracking the coefficient of determination and the T-test revealed that mixed reality had the highest impact on product design and development, indicated by a calculated T value of (11.16), which exceeds its
taulated value of (1.658) at a significance level of (0.05) and degrees of freedom (4,55). The coefficient of determination reached (0.581), indicating that 58% of the effects on product design and development are explained by the mixed reality dimension, while the rest is due to other dimensions. The virtual reality dimension came second in terms of impact on product design and development, with a coefficient of determination of (0.558), meaning that 55% of the effects on product design and development are explained by the virtual reality dimension, with the remainder due to other variables. Regarding the (T) test, its value reached (10.69), which is higher than its tabulated value (1.658) at a significance level of (0.05) and degrees of freedom (4,55). The augmented reality dimension ranked third in terms of impact on product design and development, confirmed by a coefficient of determination of (0.482). this indicates that 49% of the effects directed towards product design and development are

explained by this dimension, while the rest is due to the effects of other variables and dimensions. Regarding the value of the (T) test for this dimension, it reached (9.331), which is higher than its tabulated value (1.658) at a significance level of (0.05) and degrees of freedom (4,55). As for the sensing and motion tracking dimension, it came last in terms of its impact on product design and development, with the coefficient of determination for this dimension being lower compared to other dimensions, at (0.471). This means that 47% of the changes in product design and development are explained by this dimension, while the rest is attributed to other dimensions and variables. The (T) test value for this dimension reached (8.927), which is higher than the tabulated value (1.658) at a significance level of (0.05) and degrees of freedom (4,55).

In accordance with the above, the first sub-null hypothesis of the second main hypothesis was rejected, and the alternative hypothesis was accepted, which states that (there is a statistically significant effect of immersive marketing in terms of its dimensions on product design and development in the companies studied).

## Conclusions and Recommendations

**First: Conclusions**

1. The concept of immersive marketing represents a fundamental pillar in the field of marketing, as it fulfills many contemporary environmental needs while relying on satisfying the customer's desires in the marketing domain. It functions as a philosophy aimed at achieving competitive capabilities, including product design and development, by maximizing marketing efforts directed toward these goals.

2. Product design and development represent a vital and important concept with significant reflections on improving the reputation of companies offering goods or services. It helps these companies remain in the market for the longest possible time, striving to reach the ranks of leading global companies in the same field.

3. Based on correlation analysis, there is a significant and high correlation between the research variables (immersive marketing and product design and development). This indicates that immersive marketing plays a prominent role in improving product design and development in the surveyed companies.

4. Virtual reality achieved the first rank with the highest correlation value with product design and development in all its dimensions combined. This is because the surveyed companies strive to integrate all their marketing decisions to achieve the set goals, in addition to involving the opinions of their employees when planning to present their products, motivating, and encouraging them to solve the problems they face.

5. It appears that there is a significant and high impact of the dimensions of immersive marketing and product design and development. This indicates that the surveyed companies are aware that applying immersive marketing will positively affect the design of their products.

6. Dimension (mixed reality) achieved the highest impact in product design and development in its combined dimensions. This is due to the aim of mixed reality technology to gain customers and establish long-term relationships with them, which helps in obtaining their opinions about product design and development and consequently improving it.

**Second: Proposals**

1- There is a necessity to increase the attention of the surveyed companies to field research by using modern techniques alongside the traditional ones employed in market research. This should be done through collecting accurate data and information about customers and competitors by forming a dedicated research team to

conduct this task. This approach helps companies gain deep, precise insights into the market environment to make informed strategic decisions.

2- Affirming to the managers of the surveyed companies the adoption of marketing practices that influence the customer and improve the relationship with them, including immersive marketing, by improving the relationship between the internal customer within the company and the external customer and achieving integration between them. Companies should also be provided with new promotional ideas and modern marketing methods that help enhance their marketing efficiency, as well as employing and training competent employees who possess superior abilities and skills to deal with customers and understand their needs through focusing on augmented reality.

3- It is essential for the surveyed companies to focus on improving the design of their current products in accordance with customer requirements. This should be done by paying attention to defining product design and development standards in the surveyed companies according to international specifications.

4- Emphasizing to the managers of the surveyed companies the adoption of marketing practices that influence the customer and improve the relationship with them, including immersive marketing, by improving the relationship between the internal customer in the company and the external customer and achieving integration between them. Companies should be provided with new promotional ideas and modern marketing methods that help enhance their marketing efficiency. Additionally, employing and training competent employees who possess superior skills and capabilities to deal with customers and understand their needs is essential, with a focus on augmented reality.

**Sources:**
1.      Alfaro, L., Rivera, C., Luna-Urquizo, J., Zuniga, J. C., Portocarrero, A., & Raposo, A. B. (2019). Immersive technologies in marketing: state of the art and a software architecture proposal. International Journal of Advanced Computer Science and Applications, 10(10), 482-490.
2.      Yadav, M., Pandey, A., Sharma, P., & Hung, T. H. (2025). Building brand experiences in the metaverse: Creating immersive brand experiences that align with agile marketing principles. In Digital Transformation Initiatives for Agile Marketing (pp. 435-454). IGI Global.
3.      Tung, T. M. (2024). Immersive Marketing and Advertising Information Systems. In Metaverse Driven Intelligent Information Systems: Emerging Trends and Future Directions (pp. 15-28). Cham: Springer Nature Switzerland.
4.      Colamatteo, A., Sansone, M., Pagnanelli, M. A., & Bruni, R. (2024). The role of immersive technologies in cultural contexts: future challenges from the literature. Italian Journal of Marketing, 2024(1), 113-142.
5.      Maheswari, P., & Balakrishnan, S. (2025). Immersive marketing: Exploring the impact of virtual and augmented reality on consumer behavior and brand engagement. European Economic Letters, 15(2).
6.      Artyukhova, N., & Dluhopolskyi, O. (2025). Immersive marketing for universities as a tool to promote education product. Studia Commercialia Bratislavensia, 18(62).
7.      Michele, D. D. (2025). The impact of immersive technologies on customer experience: a multi-method investigation on the effects of virtual reality marketing on consumers' cognitive, affective, and behavioral reactions.
8.      Wang, R., Bush-Evans, R., McAlaney, J., Bolat, E., Arden-Close, E., Hodge, S., ... & Thomas, S. (2020). Transparency in Persuasive Technology, Immersive Technology and Online Marketing: A Narrative Review. EROGamb 2 Narrative Review.

9.      Sinesio, F., Moneta, E., Porcherot, C., Abbà, S., Dreyfuss, L., Guillamet, K., ... & McEwan, J. A. (2019). Do immersive techniques help to capture consumer reality?. Food Quality and Preference, 77, 123-134

10.     Klico, A., & Muhić, N. M. (2022, November). The role of immersive technologies in value creation in marketing. In BH ekonomski forum (Vol. 16, No. 1, pp. 79-93).

11.     Carmigniani, J., Furht, B., Anisetti, M., Ceravolo, P., Damiani, E., & Ivkovic, M. (2011). Augmented reality technologies, systems and applications. Multimedia tools and applications, 51(1), 341-377.⟩

12.     Lampropoulos, G. (2025). Intelligent virtual reality and augmented reality technologies: an overview. Future Internet, 17(2), 58

13.     Uwaoma, P. U., Eboigbe, E. O., Eyo-Udo, N. L., Ijiga, A. C., Kaggwa, S., & Daraojimba, A. I. (2023). Mixed reality in US retail: A review: Analyzing the immersive shopping experiences, customer engagement, and potential economic implications. World Journal of Advanced Research and Reviews, 20(3), 966-981.

14.     Ulrich, K. T., Eppinger, S. D., & Yang, M. C. (1995). Product design and development (Vol. 384). New York: McGraw-hill.

15.     Demirbilek, O., & Sener, B. (2003). Product design, semantics and emotional response. Ergonomics, 46(13-14), 1346-1360.

16.     Sun, X., Huang, R., Jiang, Z., Lu, J., & Yang, S. (2025). On tacit knowledge management in product design: status, challenges, and trends. Journal of Engineering Design, 36(10), 1673-1710.

17.     Lo, C. K., Chen, C. H., & Zhong, R. Y. (2021). A review of digital twin in product design and development. Advanced Engineering Informatics, 48, 101297.

18.     Pandey, V., & Tripathi, V. (2025). Four decades of sensory marketing: a hybrid review and future research agenda. International Journal of Consumer Studies, 49(1), e70007.

19.     Marion, T. J., & Fixson, S. K. (2021). The transformation of the innovation process: How digital tools are changing work, collaboration, and organizations in new product development. Journal of Product Innovation Management, 38(1), 192-215.

20.     Dang, C., Cao, Y., Nie, H., Lang, W., Zhang, J., Xu, G., & Zhu, M. (2024). Structure integration and architecture of solar-driven interfacial desalination from miniaturization designs to industrial applications. Nature Water, 2(2), 115-126.

21.     Mourtzis, D., & Angelopoulos, J. (2024). Challenges and opportunities for the design and development of intelligent, sustainable and resilient personalized product-service systems towards Industry 5.0. Data-Driven Decision Making for Product Service Systems, 27-62.21 .

22.     Schäper, T., Foege, J. N., & Nüesch, S. (2024). Toolkits for innovation: how digital technologies empower users in new product development. R&DManagement, 54(1),95-117.

23.     Jindal, R. P., Sarangee, K. R., Echambadi, R., & Lee, S. (2016). Designed to succeed: Dimensions of product design and their impact on market share. Journal of Marketing, 80(4), 23.