

ORIGINAL ARTICLE**Simulating the Impact of Emerging Technologies on Customer Attraction in Selected Phygital Sports Stores: A Case Study of Kish Free Zone Theory**

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EXTENDED ABSTRACT**Introduction**

Technological advancements in recent years have led to a fundamental transformation in the structure of retail, particularly within the sports industry. Innovative technologies have created a new platform for enhancing the customer experience and enabling the emergence of phygital stores (Mehra et al., 2023). Phygital stores are a fusion of physical and digital spaces designed to create a seamless and multidimensional experience for customers (Singh & Kaunert, 2024). This approach provides simultaneous access to the benefits of tangible, in-person product experience in sports stores, as well as digital capabilities such as augmented reality for product trials or artificial intelligence for personalized recommendations (Mohammad et al., 2024). A review of previous research and studies in marketing and innovative technologies indicates that a significant portion of the literature has focused on examining the impact of a single technology, such as AI in customer data analysis, AR in improving the shopping experience, or the Metaverse in developing interactive environments. However, our review reveals that a comprehensive and integrated study exploring a set of innovative technologies simultaneously and in interaction with each other on customer attraction in sports stores has not yet been conducted. This is despite the fact that the true impact of any technology is revealed not in isolation, but through its dynamic interactions with other technologies and environmental conditions. Furthermore, in prior studies, the customer acquisition process has generally been examined as a static system using classical statistical approaches. These types of analyses are based on the assumption of structural stability over time and are unable to represent the dynamics and complex relationships between factors. In contrast, consumer behavior in the face of innovative technologies is a multidimensional, dynamic, and interactive phenomenon that requires a model capable of considering the system's internal dynamics, feedback loops, and

interactions. In this context, the use of simulation-based modeling not only allows for the simultaneous and dynamic examination of impacts but also creates conditions for testing various scenarios and predicting customer reactions in complex real-world environments. Accordingly, given the issues raised, the significant potential and capacities of the Kish Free Zone in this matter, and the necessity of entering this field due to its high value creation and revenue generation, the present study adopts an innovative approach using simulation modeling. It seeks to provide a comprehensive model for analyzing and predicting the effect of innovative technologies on customer attraction in selected phygital sports stores in the Kish Free and Industrial Zone. By considering the complex interactions between technologies and customer behavior, this model takes a fundamental step toward filling the theoretical gaps in the literature on technology-driven marketing. On a practical level, it can serve as a valuable decision-making tool for managers of phygital sports stores and commercial policymakers.

Methodology

The present study employed a mixed-methods approach (qualitative and quantitative), which was applied in objective and descriptive-analytical in nature. The statistical population for the qualitative section included university professors, experts from the Kish Free Zone, and managers of selected sports stores, while the quantitative section comprised professors with academic and practical experience in this field. In the qualitative section, snowball sampling was used until theoretical saturation was reached (N=14), and in the quantitative section, judgmental sampling was performed (N=33). Data collection instruments were a semi-structured interview for the qualitative phase and a questionnaire for the quantitative phase. In the qualitative phase, thematic analysis was used to identify the main and sub-categories of innovative technologies for phygital sports stores. Subsequently, in the quantitative phase, the identified factors were prioritized using the Fuzzy Delphi method. The Taguchi experimental design method was then employed to extract the scenarios, and the optimal scenario was ultimately simulated using a combination of System Dynamics and Agent-Based Modeling.

Findings

Based on the research findings, six main themes were identified: Internet of Things (IoT), Artificial Intelligence (AI), Augmented Reality (AR), Virtual Reality (VR), the Metaverse, and new financial technologies. The Internet of Things (IoT) was recognized as the most influential new technology. The simulation results also showed that implementing the optimal scenario would increase customer attraction to selected phygital sports stores in the Kish Free Zone by up to 75%.

Discussion and Conclusion

Based on the aforementioned discussions, it can be concluded that all six identified technologies, although with varying degrees of importance, play a role in attracting customers to selected phygital sports stores in the Kish Free Zone. The prioritization of these new technologies reflects a more precise understanding of the most influential elements in this domain. Furthermore, the findings from the simulations and analyses showed that by the end of the simulation period, the number of customers of selected phygital sports stores in the Kish Free Zone will increase to approximately 1.241 million people, and the future rate of customer attraction development will reach about 75%. These figures indicate the high capacity of sports stores to capitalize on the opportunities embedded in the fusion of physical and digital spaces for customer attraction.

Accordingly, it can be concluded that the application of the identified innovative technologies has the potential for a significant impact on the customer attraction development process in selected phygital sports stores in the Kish Free Zone and can be used in the strategic policies and actions of stakeholders in this field. However, it should be noted that relying solely on these factors will not be

sufficient to achieve comprehensive and sustainable customer attraction development. Therefore, a root-cause analysis of the issue and the consideration of other key variables outside the current model's framework is an unavoidable necessity.

Furthermore, in light of the simulation results, it is suggested that managers of selected phygital sports stores in the Kish Free Zone, as a macro-approach, should proceed with the implementation of the present study's model. This means that the model should be executed over a specified time frame, and its efficiency in enhancing the effectiveness of customer attraction development should be measured. If the practical findings demonstrate the model's success, its continued use in future periods can be adopted as a sustainable policy.

One of the strengths and innovative aspects of the present study was that it was the first to use two-dimensional simulations for developing customer attraction in selected phygital sports stores in the Kish Free Zone; an innovative approach that had not been previously considered in any domestic or foreign studies. However, despite providing an innovative model for simulating the development of customer attraction in selected phygital sports stores in the Kish Free Zone, this research faced some limitations. First, the data used was primarily based on expert opinions and qualitative interviews, which may be subject to subjective biases and lack sufficient accuracy. Additionally, this study was conducted within a specific time frame and geographical area of the Kish Free Zone and selected sports stores, which may have influenced the results due to specific economic, cultural, and social conditions of that period and could challenge its generalizability. Moreover, while Agent-Based and System Dynamics simulation models have the capability to analyze complex scenarios, they may not be able to fully model all interactions between factors. To address these limitations, it is recommended that future research use more advanced and complementary methods such as machine learning, intelligent algorithms, and artificial neural networks to increase the accuracy of the modeling.

Given that an appropriate mapping should be established between the research recommendations and findings, based on the data and results obtained, some practical recommendations have been provided to offer new approaches in this field to managers of phygital sports stores in the Kish Free Zone. It is suggested to:

Design an integrated analytical platform based on the Internet of Things to monitor and analyze customer behavioral data, so that marketing and managerial decisions in stores are data-driven and based on accurate predictions.

Launch multilingual chatbots in the physical store and the application for 24-hour support, feedback collection, and customer sentiment analysis.

Develop Augmented Reality as an interactive and experience-based marketing tool. Designing AR mirrors for virtual try-ons of athletic shoes and apparel, developing AR-based in-store navigation applications to quickly guide customers to desired products, and creating gamified advertising campaigns can help increase the store environment's appeal.

Invest in designing Virtual Reality interactive spaces so customers can test product performance in a simulated environment before making a purchase. The development of virtual store tours can also be a great help in attracting international sports tourists who wish to familiarize themselves with the destination before their trip.

KEYWORDS

Emerging Technologies, Sports Stores, Phygital, Simulation, Kish.

