

Chapter 3

Building Smart Marketing Infrastructures With IoE

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ABSTRACT

This study examines the role of the Internet of Everything (IoE) in the evolution of intelligent marketing. Using IoE, brands are able to collect and analyze real-time data from connected devices and can create personalized and dynamic marketing experiences for their customers. By reviewing the basic concepts, designing intelligent marketing infrastructures, and providing case studies from various industries, this study examines the practical applications of this technology and analyzes the challenges and solutions associated with its implementation. The findings show that IoE can improve marketing efficiency and effectiveness.

1- INTRODUCTION

The rapid developments in information and communication technology in recent decades have led to the emergence of a more comprehensive and complex concept than the Internet of Things (IoT), called the Internet of Everything (IoE). Unlike IoT, which focuses only on connecting devices to the Internet and communicating with each other, IoE integrates four basic elements: people, objects, data, and processes, creating a dynamic and intelligent network in which all elements interact seamlessly with each other (Aliahmadi & Nozari, 2023). This concept allows brands

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to analyze and improve customer experience, optimize marketing processes, and increase operational efficiency.

Marketing, as one of the main areas affected by IoE, has witnessed a profound transformation in the ways of interacting with customers and managing advertising campaigns. In the past, marketing was mainly based on one-way and general communications, but with the advent of IoE, brands have been able to collect real-time data from customers and analyze this data to provide personalized offers (Najafi, Nozari, & Edalatpanah, 2022). Data collected from connected devices, including mobile phones, wearables, sensors, and smart cameras, allows brands to more accurately identify customer needs and preferences and create unique marketing experiences for them.

For example, in the retail industry, smart stores use sensors and wearables to track and analyze customer behavior in stores. This data allows brands to provide personalized offers to each customer and automatically optimize inventory management (Nozari, Abdi, & Rafiei, 2025). Similarly, in the hospitality industry, the use of IoE devices, such as smart temperature, lighting, and music control systems in hotel rooms, improves the guest experience and provides personalized services to them (Nozari, Fallah, Szmelter-Jarosz, & Krzemiński, 2021). In the automotive industry, IoE allows manufacturers to collect real-time data on vehicle performance and use this data to provide preventive services and improve vehicle quality (Nozari, Szmelter-Jarosz, & Ghahremani-Nahr, 2022).

But the use of IoE in marketing is not limited to improving the customer experience. This technology also allows for the optimization of marketing processes and increased operational efficiency. Brands can use the collected data to predict consumer behavior and dynamically adjust their marketing strategies. For example, machine learning and artificial intelligence algorithms can analyze IoE data to identify customer behavior patterns and automatically send them promotional offers (Aliahmadi, Nozari, Ghahremani-Nahr, & Szmelter-Jarosz, 2022). In addition, content management platforms (CMS) and customer management systems (CRM) allow brands to improve the customer experience in a personalized and continuous manner (Rahmaty & Nozari, 2023).

However, the use of IoE in marketing also comes with several challenges. One of the most important challenges is protecting the privacy and security of consumers' data. As the number of connected devices and the volume of data collected increase, the risk of data theft and privacy breaches also increases significantly. Brands should use security standards such as data encryption, multi-factor authentication, and the use of advanced security protocols to protect users' information (Nozari, Fallah, Kazemipoor, & Najafi, 2021). Also, establishing transparent policies for data collection and use and educating consumers about their rights can help build customer trust (Movahed, Movahed, & Nozari, 2024).

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