

Chapter 10

Digital Transformation of the Retail Point of Sale in the Artificial Intelligence Era

Victor Santos

Polytechnic of Coimbra, Portugal

Lara Mendes Bacalhau

 <https://orcid.org/0000-0001-9674-4167>

Polytechnic of Coimbra, Portugal

ABSTRACT

Digital transformation in the retail industry has led to significant changes in the way that point-of-sale (POS) systems operate. In the artificial intelligence (AI) era, POS systems have become increasingly intelligent and sophisticated helping retailers to improve efficiency, increase customer satisfaction, and boost sales. AI-powered POS systems use machine learning algorithms to analyze customer data and make intelligent recommendations about products and services. An AI-powered POS system might be able to analyze a customer's purchase history and suggest related products that the customer might be interested in. Another aspect of digital transformation in the retail industry has been the integration of POS systems with other technologies, such as mobile devices, the internet of things (IoT), and augmented reality technology (ART). This has enabled retailers to create an efficient shopping experience and provide access to a wider range of products and services.

INTRODUCTION

Digital transformation in the retail industry has led to significant changes in the way that point-of-sale (POS) systems operate. In the AI era, POS systems have become increasingly intelligent and sophisticated, incorporating a range of advanced technologies that can help retailers to improve efficiency, increase customer satisfaction, and boost sales.

DOI: 10.4018/978-1-6684-8574-3.ch010

Digital Transformation of the Retail Point of Sale

Artificial intelligence POS systems can be the intelligence front system to eliminate losses by accurately tracking inventory and ordering based on sales and up-to-date supply levels. They can even use this information to optimize stock orders and apply auto-restock capabilities, meaning less time on operations from supply to the final client.

One key aspect of digital transformation in the retail industry has been the adoption of AI-powered POS systems. These systems use machine learning algorithms to analyze customer data and make intelligent recommendations about products and services. For example, an AI-powered POS system might be able to analyze a customer's purchase history and suggest related products that the customer might be interested in. This can help retailers to increase sales and improve customer loyalty.

Retailers can benefit from educating consumers about emotional targeting and personalization at the POS as it can help to build trust and increase acceptance of these techniques. Consumers' acceptance of personalization depends on their perception of its usefulness and justification, and by providing clear explanations of how personalization works and how it benefits the consumer, retailers can enhance consumer acceptance. It is important to ensure that emotional targeting and personalization are used ethically and transparently and that consumers have control over the information that is collected and used to personalize their shopping experience.

Another aspect of digital transformation in the retail industry has been the integration of POS systems with other technologies, such as mobile devices and the Internet of Things (IoT), and Augmented Reality Technology (ART). This has enabled retailers to create a more seamless and efficient shopping experience for customers, as well as providing them with access to a wider range of products and services.

Overall, the digital transformation of the retail POS in the AI era has led to significant improvements in the way that retailers operate and has helped to drive innovation and growth in the industry. This chapter compiles the most innovative technologies with an ethical and responsible way of using AI-powered POS systems to analyze, adapt and improve customer shopping emotional experience.

EVOLUTION AND TECHNOLOGIES

Four industrial revolutions have occurred since the first one in 1760, each leading to improvements in manufacturing and enhancing human lifestyle in various ways. During the first revolution, steam engines reduced the need for human labor, resulting in higher efficiency and lower costs. The second revolution saw the rise of mass production assembly lines and electrification, enabling the production of high-quality products at lower prices. The third revolution was characterized by the rise of electronics, telecommunications, and computers, leading to online shopping and globalization. The fourth revolution, also known as Industry 4.0, focused on integrating physical objects with people through the Internet, resulting in significant changes in the retail industry (Reagan & Singh, 2020).

Retail 1.0 and 2.0 saw the emergence of department stores and shopping malls, respectively, providing consumers with low-cost products. The advent of online shopping in Retail 3.0 allowed customers to purchase anything without leaving their homes, leading to a change in purchasing behavior. Retail 4.0 technologies, such as AI, IoT, Cloud Computing, Big Data Analytics (BDA), and Augmented Reality (AR), have further enhanced and simplified the shopping experience for consumers. AI can replace employees in routine jobs, while IoT can manage home and office applications via mobile apps. Retail 4.0 technologies have also been applied to agri-food retailing to improve sustainability.

15 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:
www.igi-global.com/chapter/digital-transformation-of-the-retail-point-of-sale-in-the-artificial-intelligence-era/327418

Related Content

Implementing and Managing an Information Strategy Project: The Case of a Real Estate Broker Organization

Sérgio Maravilhas Lopes (2015). *Handbook of Research on Effective Project Management through the Integration of Knowledge and Innovation* (pp. 19-43).

www.irma-international.org/chapter/implementing-and-managing-an-information-strategy-project/124709

Antecedent Variable of Job Satisfaction and Family Satisfaction and Its Effect on the Intention to Quit

M. Al Musadieq (2019). *International Journal of Applied Management Theory and Research* (pp. 42-59).

www.irma-international.org/article/antecedent-variable-of-job-satisfaction-and-family-satisfaction-and-its-effect-on-the-intention-to-quit/232712

Marketing to Develop Environmental Sustainability, Awareness, and Action

Sangeeta Trott (2019). *Responsible, Sustainable, and Globally Aware Management in the Fourth Industrial Revolution* (pp. 106-123).

www.irma-international.org/chapter/marketing-to-develop-environmental-sustainability-awareness-and-action/227819

The Effect of Business Strategy and Stock Market Listing on the Use of Risk Assessment Tools

(2018). *Management Control Systems in Complex Settings: Emerging Research and Opportunities* (pp. 145-168).

www.irma-international.org/chapter/the-effect-of-business-strategy-and-stock-market-listing-on-the-use-of-risk-assessment-tools/193129

Processed Food Trade of Greece with EU and Non-EU Countries: An Empirical Analysis

Pascal L. Ghazalian (2016). *International Journal of Food and Beverage Manufacturing and Business Models* (pp. 15-30).

www.irma-international.org/article/processed-food-trade-of-greece-with-eu-and-non-eu-countries/163273