Proceedings of the 2023 International Conference on Management Research and Economic Development
DOI: 10.54254/2754-1169/18/20230090

Digital Transformation and Innovation Strategies for Traditional Retail Stores

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Abstract: Due to the global pandemic and world economy recession, the passenger flow of the retail industry is still relatively weak. Many countries have strengthened measures to prevent and control the epidemic, and then temporarily closed their stores. This reminds businesses that COVID-19 is still an ongoing challenge. This paper aims to identify the possible digital solutions for traditional offline retail stores to embrace digital innovation to become more smart and efficient. This research theme is to explore the feasibility of introducing a digitized business model into traditional retail stores using JD sports as the case. Business Model Canvas is used to identify the existing business model of JD retail shops, while Innovation Ambition Matrix is designed for making the innovation plan. The latest business model is presented with the help of the Customer Journey Map. By implementing the model, JD's traditional retail shop will reduce labour costs and increase operational efficiency, strengthening its competitive advantages.

Keywords: digital transformation, smart unmanned shop, JD sports, drivers of transformation, Innovation Ambitions Matrix, customer journey map

1. Introduction

Digital Business Transformation itself is a self-innovation process within the company. These innovations are taking place in businesses of all sizes and across all industries. However, they all have one thing in common: the capacity to revolutionize processes and business models, empower worker efficiency and creativity, and personalize customer/citizen experiences [1] Digital transformation is driven by a flood of software technologies. Embedded electronics such as micro-devices with sensors and actuators connected through the IT facilitate ubiquity [2].

With the outbreak of COVID-19, people have been rushing to buy the goods they think are essential. With the continuous surge of online sales, non-essential goods and retail stores have fallen into recession, and the world is still suffering from the impact of COVID-19. Online shopping has brought a new era. People can easily buy what they want from comfortable homes without going to offline stores for fear of epidemic. Although consumer behavior may be different, and people may not want to go out of their home, most consumers prefer to go to the store to experience in person to test the materials of products they are willing to buy. Although there will be challenges in attracting and retaining customers, positive experiments are no longer an option; Considering that it is essential to adapt to the dramatic changes in consumer behavior, retailers must adapt to these new changes sensitively to make the consumer experience valuable. As customer focus more on

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shopping experience instead of the products, applying digital technology to traditional shops may not only improve the experience but also make it more efficient and competitive in the future.

In this paper, a new digitized innovation plan will be designed for JD sports to digitalize costumer engagement with technologies. It is also an example to test whether it is suitable for all retail businesses and to show the process of designing. Business Model Canvas and Innovation Ambition Matrix are designed for researching the current business model. Then this paper extends the existing customer journery map with digital solutions, which are used to design the digital transformation model for JD.

2. Analysis of Current Performance and Trends Regarding JD Sports

JD Sports is a British sports-fashion retail company that was established by John Wardle and David Makin, trading from a single shop in Bury, Greater Manchester, in 1981. It is one of the most popular retail sporst shops in the UK with a global estate of over 3,300 stores.

Strong consumer connection and excellence in physical retail are two major strategies and goals that need to be achieved. The JD Group continuously sets the global standard for retail experience through best-in-class operations, connected consumer experiences and the unique delivery of the world's most authentic brands to the market [3].

2.1. Business Analysis

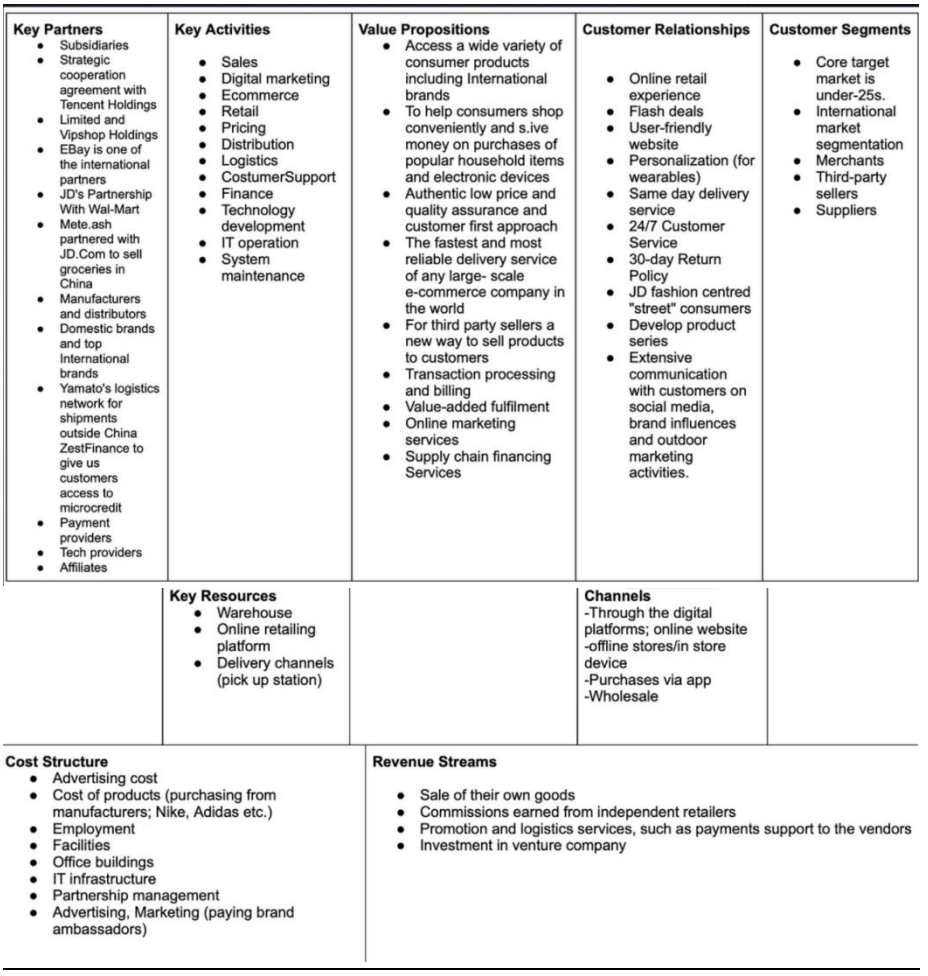

Figure 1: Business model analysis.

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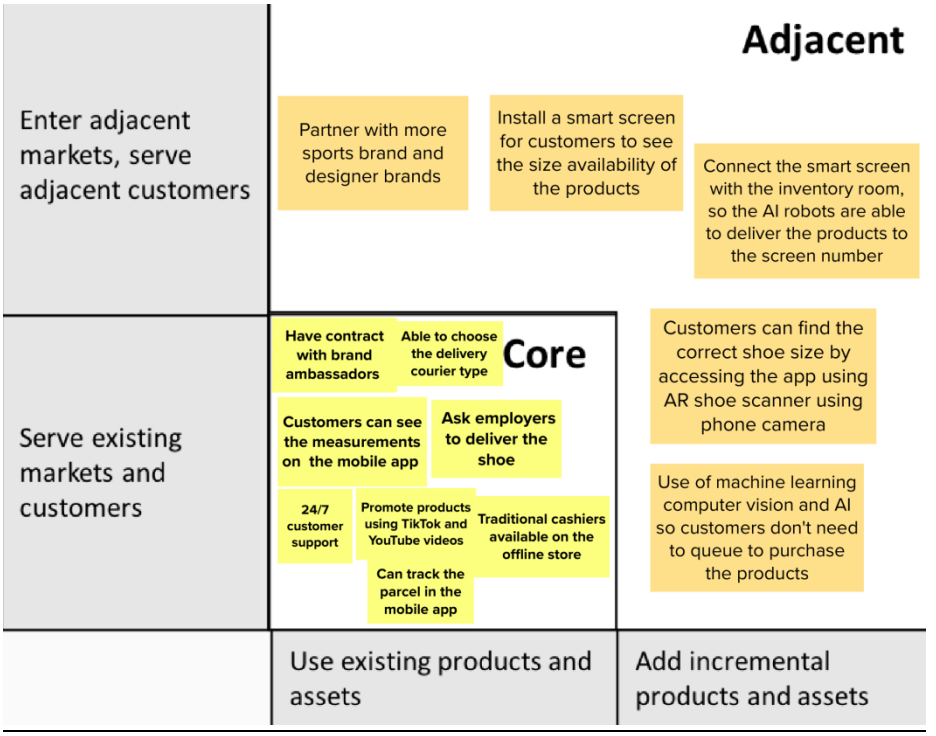

Figure 2: Innovation Ambition Matrix.

This paper first analyses the current business model of JD sports in figure 1. The Innovation Ambition Matrix model is shown in Figures 2, and it guides the design of the digital innovation model.

Generally speaking, the current customer journey map for JD sport is separated into two parts. One is traditional offline shops(e.g. JD Oxford Street), and the other is online shops(e.g. websites, mobile apps). Traditional shops offline allow the customer to try the clothes and shoes physically, whereas the online website and mobile apps may enable customers to purchase online conveniently with the help of delivering services.

Regarding the enhanced customer journey proposal, we mainly focus on transforming the traditional approach into a 'smart' conventional shop. The purpose of this digital transformation is to improve customer's shopping experience as well as management efficiency. The idea of turning convenience stores into smart ones involves replacing more employees with AI machines. Here are several digital initiatives.

The apps and website for JD Sports are comparatively flawless. Customers can compare various goods, read reviews left by other customers, use promotion codes, and support a wide range of common payment options. Most importantly, it is feasible for customers to use the applications to monitor the delivery process. The customer already had a fantastic online shopping experience thanks to the entire procedure. However, there is one innovation that we wish to add to solve the big issue of fashion retailers, the sizing of the products ..Our group believes JD could attract potential buyers by inserting AR and AI to scan feet and bodies scanners in their mobile-app as customers will be able to find a perfect fitting for the products they are willing to purchase.

First and foremost, we will introduce an intelligent touchscreen linked with a storage room to allow customers to check the availability by searching the detailed product information instead of asking the staff to look for it in the storage room. That may reduce the employee cost and also save customer's time if the size of the products is not available in the inventory. Secondly, we would like to introduce AI robots that help to deliver shoes from the inventory room to the location of the

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screen. The AI reports will receive the touchscreen command, pick the shoes from the storage room, and send it to the customer to finish the order. Lastly, using machine learning computer vision and AI to eradicate queues and checkouts at the checkout stage. For instance, there is no checkout point for Amazon Go. People walk in with a QR code and directly leave after shopping; the AI will calculate the product you purchased and deduct it from your bank account.

2.2. Key Challenges for JD sports

The first key challenge is High Labour Costs. The total expenses on staff are 289.7m and 205.7m pounds in 2022 and 2021, respectively, which account for 41.0% and 43.0% of the administrative cost [4]. The cost of paying personnel still occupies a larger proportion, given that the high distribution and renting cost has already been considered. As the reopening policies commenced, queuing and long-waiting time problems started to emerge as well [5]. Therefore, there is enormous demand for reducing the cost of labour and increasing productivity.

Another challenge is the new customer behaviour of Gen Z, which describes teenagers born during the late 1990s and early 2000s. the main future consumers. Technology that provides value, convenience, and individualised shopping experience are their demands [6].

Besides, COVID-19 will still be a continuous and persistent challenge, although the possibility of commencing Covid restrictions is low due to its low death rate and low impact on economies. Since there is still a need to implement appropriate limits when necessary [7].

3. Digital Innovation Solutions

As the challenge mentioned above, traditional offline shops have relatively high labour costs during the pandemic. It is a fixed cost as the staff has to be paid during the pandemic even though there are few customers. In addition, shops with fewer employees will be safer during the pandemic, according to government policy. Therefore, the idea of building unmanned shops was generated. As we drew from the consumer journey, the shops need to be more digitized to accomplish this idea. Several digitized transformations are required to make the unmanned shop achievable.

3.1. Benefits to the Organization and/or Wider Partners of New Digital Initiative

Compared with the traditional retail pattern, the biggest feature of unmanned retail stores is that they save most of the labor costs [8]. According to JD's annual report, there was a surge increase in labor cost from 2021 to 2022 (47.6%). The revenue of JD sports for 2021 and 2022 is 6167.3m and 8563.0m respectively, with the cost of labour occupying 11.3% of the total revenue averagely. However, according to DETEGO retail shop as an example, the application of smart unmanned platforms and stores can reduce labor costs by at least 20%. Moreover, the replacement of labour by technology on stock management also improves the efficiency of JD financially and operationally. Depending on retailers and categories, managing inventory and replenishing sold items can consume staff time significantly. With in store mobile applications that provide accurate and timely replenishment advice, shelf management becomes easier for JD.

The pandemic positively grows e-commerce in Europe. According to research data, 62% of consumers shop online more now than before the pandemic [9]. JD has 3402 offline stores. Although online sales are increasing, offline store sales are particularly important. The unmanned store allows JD to achieve the goal of increasing revenue by maximizing the operating hours at a low cost. Choosing to turn some stores into intelligent unmanned retail stores can not only maintain the original offline revenue but also provide consumers with 24-hour services every day, which will become a new consumption habit.

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As there is no salesperson or shopping guide in the store, the customer's user experience comes from the fun of self-service consumption. The shopping process is simple and fast, which can reduce the queuing time, pass quickly and improve the shopping efficiency. For example, faster checkouts and self-checkouts. The implementation of technology at PoS which makes checkout faster, improves both the efficiency of the customer and the store [10]. In addition, the personnel uncertainty caused by the closure and control of the epidemic can also be avoided during the epidemic. Moreover, the replacement of labour by technology in stock management also improves the efficiency of JD financially and operationally [11]. Depending on retailers and categories, managing inventory and replenishing sold items can consume staff time significantly. With in-store mobile applications that provide accurate and timely replenishment advice, shelf management becomes easier for JD.

3.2. Detailed Implication Model

Here is the model of JD's smart retail shop after the implementation of digital technology. There are three areas-sales floor, fitting floor and backs tore.

Figure 3: Model for "Smart Shops".

The security system is linked with the alarm system with the help of 24 hours CCTV to provide reliable security for JD's products.

An intelligent touchscreen linked with a storage room may allow customers to check the availability by searching the detailed product information instead of asking the staff to look for it in the storage room. Several sports brands have already applied AI body scanners in practice, which allows customers to try clothes visually online. JD smart fitting rooms may use similar ideas that enable customers to try different styles of products with the highest efficiency in a smart display room with the help of an AI projector. That may reduce the employee cost and also save customers time if the size of the products is not available in the inventory.

AI robots that help to deliver shoes from the back store storage room to the location of the screen. The AI reports will receive the touchscreen command, pick the shoes from the back store, and send it to the customer to finish the order. The back store system is linked with the JD inventory system; when there is a lack of products, then urgently transfer the goods from JD's warehouse to refill the shortage. The stock take is linked with the back store, only staff can access it, and they refill and relocate the product after the shop closes. This ensures that customers can buy JD products in retail shops as far as possible, which helps to improve customer satisfaction.

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An Auto Check-out System using machine learning computer vision and AI to eradicate queues and checkouts at the checkout stage. For instance, there is no checkout point for Amazon Go. People walk in with a QR code and directly leave after shopping; the AI will calculate the product you purchased and deduct it from your bank account. It saves customer time by eliminating the queueing time

Lastly, If a customer wishes to deliver the product to their home address, they can go to the delivery point near the exit door to fill the table and pay the delivery fee; later, the delivery man may come to pick up the product. This service ensures that the rest of the shopping experience is uninterrupted.

4. Conclusion

This paper aims to identify the possible digital solutions for traditional offline retail stores to embrace the digital innovation to become smarter and more efficient. Using JD sports' traditional offline model as an example, it found that digital changes to build an unmanned shop model could be a good solution for staff costs and more efficient operations. However, the model in this thesis is only constructed in an ideal situation, and its practicality and universality need to be further demonstrated by real applications.

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