

Advantages of Industry 4.0: Case of Pashion Footwear

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Abstract

Industry 4.0 expands upon the advancements of the Third Industrial Revolution by integrating many innovations from the digital, tangible, and biological realms. Industry 4.0 is an all-encompassing idea that signifies the trajectory towards which manufacturing and industrial production are progressing. Several businesses are inadvertently moving towards Industry 4.0 by integrating specific components of its concepts into their operations. The article aims to emphasise several opportunities and consequences that have emerged since the inception of Industry 4.0. Moreover, it seeks to illustrate the ways in which certain companies have been adjusting to these novel circumstances. The essay is structured into various sections, including a thorough examination of existing literature, emphasising the most noteworthy contributions to this topic. The subsequent section delineates the methods utilised in the investigation. The fourth segment validates the outcomes of the study through the presentation of a case study, while the concluding section offers a concise overview of the findings.

Key words: Industry 4.0, innovation, business, adaptability, technology

J.E.L. classification: M1

1. Introduction

Schwab (2016) states that the Fourth Industrial Revolution builds upon the Third Industrial Revolution by combining multiple innovations from the online, physical, and biological domains. The steam engine was invented in the First Industrial Revolution, which came before the internal combustion engine was discovered in the Second Industrial Revolution (Cornescu *et al*, 2004). The onset of the First Industrial Revolution occurred in the 1780s, facilitated by the utilisation of steam power, which led to a significant enhancement in human efficiency (Erboz, 2017).

The beginning of the Second Industrial Revolution occurred in the 1870s, marked by the advent of electrical energy and the use of mass manufacturing techniques (Marinescu *et al*, 2015). The Fourth Industrial Revolution is seen as the advent of "cyber-physical systems," which encompass novel capabilities for humans as well as machines (Toma *et al*, 2018a). Industry 4.0 signifies the integration of technology into society and our physical beings. These enhanced functionalities rely on the architecture and technology developed from the onset of the Third Industrial Revolution in the early 1970s.

The concept was based on the idea of automating industrial processes through the utilisation of data and electronics technologies. It combines a wide range of physical, online, and biological technologies in the age of globalisation (Toma, 2005). The initial three industrial revolutions established the foundation for Industry 4.0, which is not an innovative concept. The Fourth Industrial Revolution has sparked a debate regarding its potential to jeopardise employment opportunities and traditional methods of operation. The key principle of this industrial revolution is the incorporation of internet technologies into the enterprise. Industry 4.0 is a comprehensive concept that represents the direction in which manufacturing and industrial production are heading. Several organisations are currently unintentionally progressing towards Industry 4.0 by incorporating specific elements of its concepts in their operations (Nwosu *et al*, 2023).

This article aims to examine the impacts and possibilities that have arisen from the most recent Industrial Revolution. In order to achieve this, the authors commence by emphasising certain attributes of the Fourth Industrial Revolution and examining a contemporary organisation that adheres to these principles. This paper is organised according to the following structure. The following section includes a literature review, which presents a comprehensive summary of the existing literature on the issue. The third section outlines the research methods utilised in this study. The authors provide a summary of the study's findings and observations in the fourth section, focusing on the business model of a company. The final section then presents the conclusions.

2. Literature review

The Fourth Industrial Revolution, economic expansion, technological advancements, and innovation are marked by numerous characteristics within the context of globalisation (Toma, 2013). The mentioned concepts encompass the new social contract, social conversation, human capital industry, and corporate governance. The concept of the new social contract encompasses the integration of human capital and technology for the holistic well-being of society. It involves utilising advanced and intricate technology to achieve beneficial outcomes (Muhammad *et al.*, 2023).

The advantages of Industry 4.0 encompass enhanced profitability, heightened flexibility and agility, and enhanced production and efficiency. Upon closer examination of each individual component, it becomes evident that Industry 4.0 technology typically facilitates achieving greater output with fewer resources through enhanced productivity. It facilitates the enhancement of productivity and velocity while optimising resource allocation in a more efficient and cost-effective manner (Subramaniam *et al.*, 2009).

Another hallmark of the industrial revolution is heightened efficiency. Industry 4.0 enhances the precision of various aspects of the manufacturing process. The benefits of reduced machine downtime and increased production speed have already been discussed. Some examples of enhanced efficiency are expedited batch modifications and automated reporting. Additional business actions, such as the launch of new products, take effect (Haque *et al.*, 2004).

Additionally, it is important to consider the aspect of adaptability. An advantage of Industry 4.0 is the enhanced ability to quickly and effectively respond to changes and adjust accordingly. For example, adjusting the output to a larger or smaller scale is easier. The process of incorporating new items into the production line is streamlined, allowing for the possibility of one-time manufacturing runs and other options (Arruñada *et al.*, 2006).

Another crucial facet of the Fourth Industrial Revolution is its ability to provide an enhanced consumer experience. Industry 4.0 presents prospects for improving customer service and elevating the buying experience. The automatic track and trace features enable swift resolution of issues. Moreover, there will be a decrease in concerns related to the availability of a product, leading to an enhancement in its quality (Haller *et al.*, 2009).

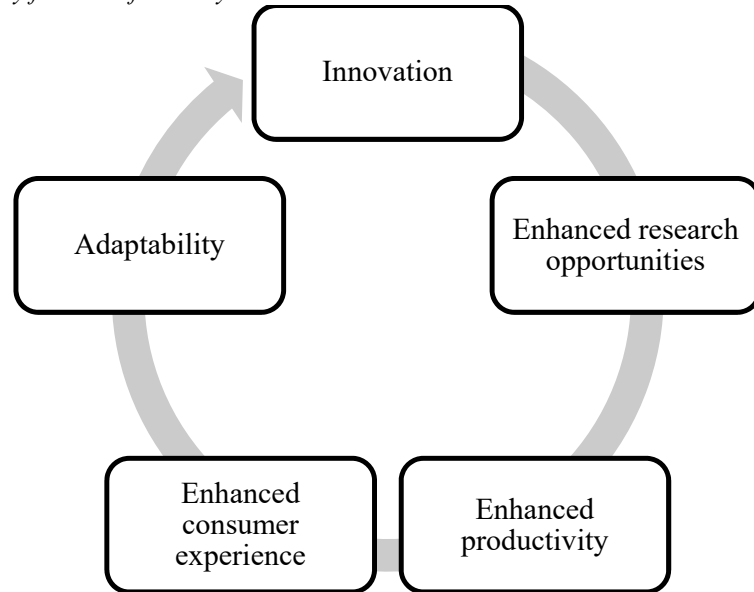
Furthermore, there are enhanced research prospects. Industry 4.0 technology enables individuals to have a deeper understanding of their supply networks, distribution systems, and the products they create (Hofmann *et al.*, 2017). This raises opportunities for innovation, such as modifying a firm technique, developing a distinctive product, and optimising a supply chain. Innovation has consistently been a key attribute of an industrial revolution, serving as the primary spark that propels its fundamental factors: the speed of transformation, breadth of influence, and organised consequences (Andrişan *et al.*, 2022).

As a result, this leads to increased profitability. This benefit of Industry 4.0 will be achieved, in part, due to the aforementioned characteristics, such as increased revenues and reduced expenses. Furthermore, the implementation of Industry 4.0 technology enables the production of items with increased profit margins, more unique designs, or both. Industry 4.0 technologies enable enterprises to maintain mass manufacturing methods while still providing customers with personalised products (Butt, 2020). In essence, successful companies which are competing in a turbulent environment (Toma *et al.*, 2015) specific to the Fourth Industrial Revolution prove to be strategic oriented (Toma *et al.*, 2013a; Toma *et al.*, 2016b), to think both strategically (Toma *et al.*, 2016a), innovatively (Tohănean *et al.*, 2018) and creatively (Toma *et al.*, 2018b), to implement green and innovative business models (Toma *et al.*, 2013b; Toma *et al.*, 2019), to have an entrepreneurial mindset (Catană

et al., 2020; Zainea *et al.*, 2020), to use various methods and techniques such as Six Sigma (Toma, 2008a), marketing mix (Marinescu *et al.*, 2010a; Catană *et al.*, 2021), lean management (Naruo *et al.*, 2007; Marinescu *et al.*, 2008) or balanced scorecard (Toma *et al.*, 2010), and to behave in a socially responsible manner (Toma, 2006; Toma, 2008b; Marinescu *et al.*, 2010b)

The information described above is presented in a condensed form in Figure 1.

Figure no. 1: Key features of Industry 4.0



Source: Authors' contribution

3. Research methodology

The current study employs qualitative research approaches, obtaining and reviewing secondary data on the topic from previously released reports, and academic articles. The writers begin by briefly discussing the historical context of the Fourth Industrial Revolution alongside a few of its defining traits. Thus, this technique employed various pertinent elements such as adaptability, innovation, opportunities, and technology improvements.

The inquiry began with a summary and discussion of the concepts, which were afterwards implemented in and illustrated via the utilisation of a case study, so as to fulfil the stated purpose of the current study. This paper's standpoint is derived on noteworthy research undertaken over the preceding two decades by a number of eminent experts in the same scholarly subject.

4. Findings and case study

Through a comprehensive review of existing literature, the authors have chosen to highlight the key attributes of Industry 4.0 by analysing the business model of one particular business named Pashion Footwear. It is crucial to understand that a key aspect of this industrial revolution is the potential it offers to those who are open to experimenting with novel concepts.

Developing a fresh business model can be facilitated by embracing innovation. Pashion Footwear was founded in 2016 by Haley Pavone, a 23-year-old CEO and entrepreneur. Pavone started the firm while she was a student at Cal Poly San Luis Obispo, operating it from her dorm room. The sequence of events started with a social outing while dancing with friends, during which she suddenly had a sharp and uncomfortable sensation in her foot. The woman's feet, adorned with high-heeled shoes, started to experience pain. She followed the standard practice of removing her shoes, but unfortunately, she was pierced in her foot by her friend's heel. Eventually, she developed the first high-heeled shoe that could be fully converted (Feldman, 2019).

Haley's meticulous research has enabled her to navigate the world of business and determine the necessary requirements for designing and producing her idea. Pashion Footwear's goal is to enable ladies worldwide to personalise their shoes in accordance to their own lifestyle. The company designs exquisite and multifunctional products that effortlessly accommodate the many needs of their consumers, whether for professional or social engagements throughout the day. Their mission is around the long-standing dilemma faced by women, who have had to make a choice between elegance and comfort for many years. Pashion Footwear provides a product that eliminates the need for customers to make a decision, since the shoes have the ability to transform from a high heel to a flat shoe through the use of their advanced technology. The footwear operates by utilising their proprietary detachable Stelo™ sole support, which offers the necessary stability for walking in heels with assurance. Their heel button provides additional security while also serving as an attractive accent. The device effectively maintains a firm grip on the heels until the individual is prepared to alter or personalise them. Additionally, this product provides a high level of comfort. Pashions, as the CEO refers to her creations, are extraordinarily comfortable as both heels and flats due to their cushioned sole that effectively absorbs impact, similar to that of an athletic shoe. The adaptable sole conforms to and provides support for the foot's arch, ensuring lasting comfort whether worn as a heel or a flat. The conversion is expedited and executed with efficiency. Transitioning from heels to flats is a simple and versatile way to accommodate any situation Pashion heels undergo rigorous testing using Heeluxe's industry-leading procedures, comprising force plate examination, endurance testing, fit evaluations, and customised testing specific to their mechanisms, to determine the most efficient solution for their line of footwear. Heeluxe is a globally respected collaborator, with extensive experience working with numerous prestigious footwear manufacturers. This allows the organisation to do research and implement the most effective manufacturing techniques in order to produce its goods on a large scale at a fast pace (Pashion Footwear, 2024b).

Pashion Footwear provides an enhanced experience for customers by facilitating more direct engagement. The CEO regularly utilises social media platforms to provide information about new goods and company updates, resolve customer issues, and maintain ongoing relationships with consumers. This is another instance illustrating the additional benefits that the Fourth Industrial Revolution has bestowed onto the world of business (Pashion Footwear, 2024a).

5. Conclusions

In the previous section, the authors provided an example of a footwear company called Pashion Footwear to demonstrate several aspects of Industry 4.0. This company was founded based on a pioneering concept that was thoroughly researched by the current CEO, who identified a market demand for her product. She has utilised contemporary technology to conduct suitable testing and optimise production, resulting in the successful establishment of her business. One of her main strengths was her use of social media, which enabled her to swiftly adapt and immediately meet the expectations of her clients, resulting in an improved experience.

In the end, the authors have successfully illustrated a few implications and opportunities that have arisen as a result of the Fourth Industrial Revolution. To do this, the contributors have highlighted specific characteristics of the Fourth Industrial Revolution and have analysed a modern organisation that follows these principles. The primary constraint of this study is the exclusive utilisation of a single company in the aforementioned case study. Nevertheless, this is an opportunity to do future research on various organisations that are in a comparable position, with the aim of comprehending the benefits that Industry 4.0 has brought to the business realm.

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