

Tokopedia E-Commerce Retail Business Innovation in the Transformation Retail Industrial Era 4.0

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Abstract - Tokopedia's strategy in the world of retail 4.0 will be explained in this paper. The transformation of the retail world occurred from the 1.0 era to the 4.0 era and each has its characteristics. Tokopedia was born when it was in the retail 3.0 era and began to grow in the 4.0 era. A business model innovation strategy is very necessary for the business to survive in the online marketplace. Many innovations have been carried out, including (1) store management facilities (2) Shopping by type category of goods sold and business processes are very easy to learn (3) For easy access to online shops, sellers receive their accounts created during initial registration (4) Collaboration with various transportation services facilitates delivery of goods to consumers (5) simple payments and safe. The method used is to collect some literature to further identify whether it is by the topic to be discussed and make important points related to Tokopedia's strategy in the 4.0 era. In the era of retail transformation 4.0, Tokopedia also realizes the importance of a connected and integrated digital shopping experience. With easy-to-use mobile applications and online platforms, consumers can shop conveniently anywhere, anytime. Tokopedia has successfully adapted to the changes in Retail 4.0 as an e-commerce innovator in Indonesia.

Keywords: Retail 4.0, Tokopedia, Innovation Strategy, marketplace

1. Introduction

Since the first industrial revolution, which occurred around 1760, there have been a total of four industrial revolutions in human history. Every industrial revolution brought improvements in manufacturing and improved the way of life of people in every way (Reagan and Singh, 2020). The driving force behind the industrial revolution was the scientific revolution in the 16th century, when scientists such as Francis Bacon, and Rene Descartes emerged. In addition, the establishment of research institutions such as The Royal Improving Knowledge, The Royal Society of England, and The French Academy of Science (Dewa and Setyohadi, 2017).

The Retail Industry Revolution 4.0 is often referred to by the public as a cyber-physical system. The focus of this revolution is on collaboration and automation with cyber technologies. One of the most important features of this retail revolution is the rapid adoption of information and communication technology, which has caused changes in various industries. When the retail industrial revolution first occurred, it required a lot of manpower, but now it can be replaced by man-made machines (Purba, Yahya, and Nurbaiti (2021).

Industry 4.0 started in 2010, but "Retail 4.0" is a new term for retailers worldwide. Therefore, acceptance of Retail 4.0 technology in developing countries including Indonesia is still low, this is even worse in less developed countries. However, the COVID-19 pandemic has helped accelerate the

adoption of this technology (Ernst & Young, 2020). Retail 4.0 can set new standards that require less interaction with other people, and this is crucial for retailers. The Industrial Revolution 4.0 made everything more efficient and simple and minimized waste. For example, in food production, where human labor is required for management and manufacturing, advanced production technologies can now be used.

This journal will discuss the role of information systems in the e-commerce retail industry in the industrial revolution era 4.0. The e-commerce retail business is the activity of selling goods and services directly to the final consumer. The e-commerce retail business in Indonesia is experiencing a swift industrial revolution. In the industrial retail era 4.0, e-commerce retail businesses have the opportunity to provide an experience to consumers that is different from before. In this all-digital era, the speed of renewal of e-commerce retail business is increasingly determining the strength of competitiveness in the market. This is what causes the e-commerce retail business information system to quickly adapt to changes in its environment.

In this millennial era, digital trade transformation can help e-retailers innovate to create extraordinary moments with consumers. As we know, digital transformation widens the gap between market leaders and those who are slow to adapt to change.

In Indonesia, the growth of e-commerce is very rapid, especially in the last 4 years, its growth has reached 500 percent. The results of Google's research included in the 2018 SEA Economic Report



also show that Indonesian e-commerce transactions have reached 27 billion US dollars or the equivalent of 391 trillion (Hendarsyah, 2019). With a 49% share, Indonesia is the first in Southeast Asia for digital economic transactions, Tokopedia is one of Indonesia's online stores, which is growing very rapidly in the industrial era 4.0.

Tokopedia is an online marketplace that offers an opportunity for everyone who owns products in Indonesia, both individuals and companies, to open and manage their online store easily and at affordable prices as well as provide a comfortable and safe user experience in our country with the vision of "Building a Better Indonesia Through the Internet". This startup company that focuses on the online buying and selling industry is headquartered in Jakarta and is an online shopping center that is in great demand. The application makes it easy for us to transact anywhere, both sellers and buyers serve buyers from all over Indonesia, and most of the products sold are new products. In addition, this startup company has also implemented relationship management strategies to maintain good customer relationships for each merchant that complies with applicable regulations.

2. Research Methods

This study used a qualitative descriptive method based on information obtained through a literature search, followed by a more in-depth analysis, this research is descriptive.

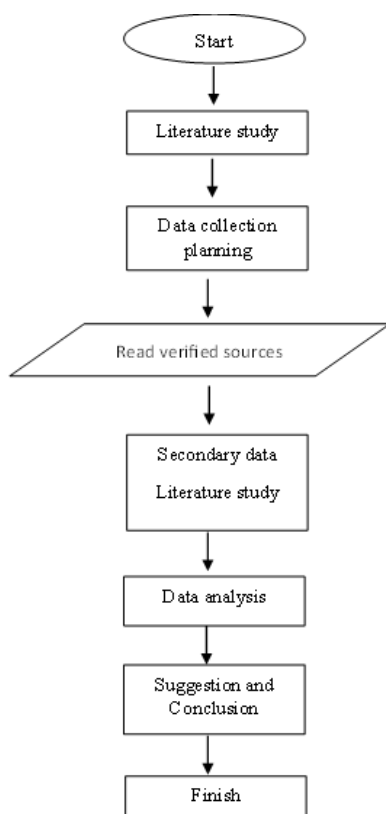


Figure 1. Research flow chart

This research was conducted to determine the

value of an independent variable, either one or more (independent) without comparison or related to other variables. This study explains the changes in the Tokopedia marketplace due to the Industrial Revolution 4.0. Research statements are taken from a collection of expert opinions and combined into one

1. Gather available sources of information, literature, books, the internet, existing articles, personal experiences, and other materials on the subject
2. Read verified sources
3. Check the information you read and whether it is relevant to the topic being discussed.
4. Summarize the main points of each relevant article
5. Write and arrange the important points you have learned systematically on paper

3. Results and Discussion

3.1 Retail Transformation 1.0 to 4.0

The retail world must adapt to the revolution to achieve its desired goals. As we know, the industrial revolution caused global changes that succeeded in affecting many aspects of life. The process of producing goods or services that were initially unhealthy took a long time, and the very expensive costs were reduced. The first industrial revolution occurred around 1760. So far, four retail industry revolutions. Every industrial retail revolution is certainly capable of bringing about improvements in production and improvements in people's lifestyles in all aspects. The industrial retail revolution brought significant changes to the retail industry.

The influence of the retail industry is growing very strongly. We can trace this change from the retail industry 1.0 related to several steam engines that were created to mass-produce goods and large shops that also started to appear. This caused consumers to enjoy cheaper products during the Industrial Revolution 2.0 and caused more and more shopping centers to open. In contrast, in the Industrial Revolution 3.0, consumers can shop online all over the world via the Internet, changing shopping behavior because now we can buy anything without having to leave the house. This is proof that the Industrial Retail Revolution 4.0 will simplify and improve our lives.

The Retail Industry Revolution 4.0 began in 2010. This resulted in the low adoption of Retail 4.0 technology in Indonesia. This is also the case in less developed countries. The presence of the COVID-19 pandemic could accelerate the adoption of this technology. In the era of COVID-19, many Indonesians are shopping online, demonstrating that Retail 4.0 offers an engaging and safe shopping experience. Therefore, retailers have no choice but to use this technology as well (Mauldy and Saefurrahman, 2020). From the above discussion, we can conclude that the Retail 4.0 industry can create

new standards that minimize direct human contact. So its implementation is important for retailers.

3.2 Retail Industry 1.0

Retail 1.0 is also known as automation. This industry began in the mid-18th century and ended in the mid-19th century. The late 18th century saw the emergence of factories using steam-powered machinery for mass production and the migration of people to cities. In the late 19th century, department stores dominated retail; They offer comprehensive services to customers such as loans, repairs, and personal support advising customers about product details and benefits. All businesses must pay in cash, and merchants must physically deposit cash in order to continue operating. As technology developed during the Industrial Revolution, the availability of affordable, high-quality goods increased significantly (Laudon, et al, 2014). However, technological advances during the Industrial Revolution led to a significant increase in the availability of affordable and high-quality goods (Lumen, 2020). The weaknesses of retail Industry 1.0 are limited operating hours due to physical stores, limited product choices, limited price comparisons, and lack of ease of shopping.

3.3 Retail Industry 2.0

The Retail Industrial Revolution 2.0 or mass production is the existence of products that are produced on a large scale so that production costs are low and this provides good opportunities for the automotive industry to grow rapidly. In the era of Retail 2.0, people focused on researching customer mindsets and motivations. Retail 2.0 began in the 20th century and ended with mechanization at the end of the 20th century. The weaknesses in the retail industry 2.0 are information imbalances between buyers and sellers, limited time and accessibility, lack of personal interaction and involvement, and data security vulnerabilities.

3.4 Retail Industry 3.0

Online shopping has started to penetrate retail 3.0. A store's location and opening hours do not limit consumer purchases, because the Internet can attract connected producers and consumers to view the 4 P's combination (product, price, place, and promotion). In the era of Retail 3.0, several online stores have sprung up such as eBay and Alibaba. The emergence of digital competitors - platform players such as eBay, Taobao, Amazon, and Alibaba - is turning traditional companies upside down in almost every industry (Apigee, 2013). Thanks to technological innovation and Internet banking, consumers have access to a variety of goods from international retailers, often at lower prices than in local stores (Steel, et al, 2013). Online consumers get cheaper prices than local prices. Thanks to technological innovation, consumers can buy products from abroad at lower

prices than stores in Indonesia. Retail Industry 4.0 started in 2000 when Retail 3.0 ended and the era of digital Retail 4.0 began. The weaknesses of retail Industry 3.0 are the lack of in-depth consumer information, information asymmetry, limited consumer involvement, and slow delivery processes.

3.5 Retail Industry 4.0

Retail Industry 4.0 is the last change compared to Retail Industry 4.0. Several related technologies such as Artificial Intelligence (AI), Internet of Things (IoT), Cloud Computing, Big Data Analytics (BDA), and Augmented Reality (AR) (Ong, Sutawijaya, and Saluy, 2020). Retail 4.0 transforms supply chains into customer-centric organizations by enabling the rapid flow of goods and merchandise cross-channel information offering highly personalized service to customers. marketing intelligence is obtained in Retail 4.0 by collecting and analyzing user data to obtain relevant and valuable information on user behavior and buying behavior for marketing purposes (Zamil, et al, 2020). Retail 4.0 is characterized by integration from the supply chain to customer loyalty. This dynamic change in buying behavior has also alerted retailers that Retail 4.0 technology can help improve store performance and customer experience so that they remain competitive (Sakrabani and Treoh, 2020). Customers can seamlessly switch between channels and get one-stop, unified services, and uniform services regardless of channel (classic shop, online, or mobile) (Piotrowicz & Cuthbertson, 2014). In addition, Retail 4.0 is investing even more in digital marketing and social media, while managing customer data to offer a more personal experience (Jayaram,2017). Among the technologies driving Retail Industry 4.0 is the Internet of Things, where sensors and devices collect data about customer behavior, stock levels, and storage conditions. Artificial intelligence is used to analyze data and provide personalized recommendations to customers, as well as to optimize supply chain operations and inventory management. Augmented reality will be used to create engaging shopping experiences that allow customers to try products virtually before they buy, and robotics and automation will be used to speed up processes such as order picking and packing, and in-store customer service and support. Retail 4.0 transforms retail into a more personalized, efficient, and convenient shopping experience for customers while increasing operational efficiency and profitability. The weakness of the retail industry 4.0 is an imbalance of consumer information, time and space restrictions, increased engagement and interaction, and increased operational efficiency.

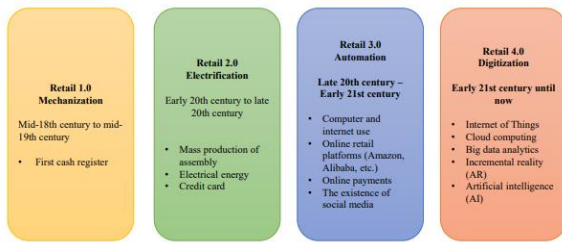


Figure 2 Transformation of the Retail Industry (Har, L et al, 2022)

3.6 Tokopedia and The Retail Industry Era 4.0

Tokopedia Profile

William Taniwijaya and Leonntinus Alpha Edison founded Tokopedia on February 6th, 2009, and officially launched on August 17, 2009. Tokopedia received \$2.5 billion from PT Indonusa Dwitama, an investment firm specializing in bauxite mining, oil palm cultivation, online shopping, the oil and energy sector, and financial services. Tokopedia received additional investment funds from Singapore-based East Ventures, which focuses on investing in Internet business development. Tokopedia is an e-commerce that can be used by everyone, both buyers and sellers. Tokopedia's vision is "to build a better Indonesia through the Internet". The company's head office is in Jakarta (Rahman, 2021).

Tokopedia here is an innovative online store whose idea is to invite users to sell their products. Tokopedia as a third-party provider guarantees the security of all online buying and selling activities and all transactions that occur. In addition, the Tokopedia concept aims to create an online store that can collaborate with several online stores (Marixon, 2019).

Tokopedia conducts many types of transactions, namely business-to-business (B2B), business-to-business (B2C), business-to-consumer (B2B2C), and consumer-to-consumer transactions (C2B), intra-company transactions (EC), business-to-business transactions (B2E), consumer-to-consumer transactions (C2C), collaboration and e-government. Meanwhile, Laudon et al. (2014) suggest that e-commerce is divided into 3, namely social e-commerce, mobile e-commerce, and local e-commerce (Turban, Ephraim, et al, 2015).

Parties Transacting On Tokopedia

Tokopedia website domain owner (Market Place Provider)

1. Tokopedia domain owner is a person who has the right to the domain name of each Tokopedia that provides a marketplace as a place to meet sellers and buyers in the internet world, as a data provider responsible for the confidentiality of the data of people registered as users on the Tokopedia site

2. Seller

Sellers must register as users first to sell goods on the site page on Tokopedia.

3. Buyer

Buyers are parties who want to make product purchases through web media to be able to buy on the Tokopedia web, buyers must register as users first.

Tokopedia's Strategy In Retail 4.0

When talking about an innovation strategy, the first thing to do is figure out what business model to use. In the retail business model, we can use the retail business model introduced by BCG (Boston Consulting Group) (Ong, Sutawijaya, and Saluy, 2020). The retail business model illustrates the value proposition of retail support in addition to total retail operations. A value proposition is one of the special offers that a company offers to its customers. The elements of the value proposition are:

- 1) Products or services, including product variations and product quality
- 2) The shopping experience, including the design of the store and the appearance of the goods being sold
- 3) Pricing, including the strategy for determining the cost of goods sold and the strategy for determining the selling price.

Based on the author's observations, the revolution in the retail era of business model 4.0 brought many surprises and fast service to consumers. If we look back, several e-commerce companies such as Google, Facebook, Instagram, and Twitter offer the phenomenon of offering services without payment (free) and even subdivisions, so that the services offered are cheaper than the market.

Global retailing is the process of marketing products to end users with global consumer coverage around the world. Global retailers can explore e-commerce processes including Tokopedia. Its success even impacted the traditional retail business, therefore this is the main reason why Tokopedia was able to enable the implementation of Industrial Revolution 4.0 IT as below.

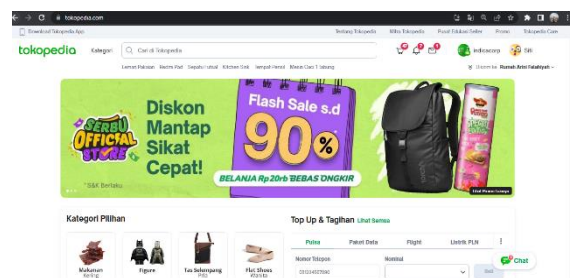


Figure 3 Tokopedia dashboard

Tokopedia is a new innovative online shopping site that carries the concept of a place for many online shops in Indonesia. All buying and selling functions and transaction processes are guaranteed to be safe through this platform. Becoming a Tokopedia seller is not difficult and that is one of Tokopedia's advantages. In addition, sellers get several features and functions that support business convenience, such as B. Store management mode, product classification, and transaction processing. The seller gets an account to sell in the online store. Tokopedia has also partnered with package delivery services such as JNE, sicepat, J&T, etc. to make it easier for the seller to deliver the package to the buyer. Can be done with a collection order, as long as the buyer has entered the dimensions in online stores. The payment process is also safe. The Tokopedia system sends payment to the seller when the buyer has confirmed receipt of the goods. Meanwhile, consumers who want to buy products from Tokopedia can enter the search box or browse for the desired product category. All product searches in online stores until the seller sends goods to consumers are carried out through an integrated system. In addition, Tokopedia has an account manager for each seller who has met the applicable requirements to receive special attention in the marketing process.

4. Conclusion

Based on the results of the above discussion, we can conclude that the challenges of Business Era 4.0 in the world of e-commerce are enormous. Digital transformation has changed the way society and the industry are viewed and has had a major impact on the development of e-commerce in Indonesia, especially Tokopedia. Tokopedia, one of the largest e-commerce platforms in Indonesia, is taking significant steps to introduce business innovations in the Retail Transformation 4.0 era, successfully offering consumers a more personalized, efficient, and connected shopping experience.

Tokopedia's business innovation in e-commerce can also be seen in the use of technology to make operations more efficient. They automate their logistics, packaging, and shipping processes to reduce order delivery times and increase customer satisfaction. In the era of retail transformation 4.0, Tokopedia also realizes the importance of a connected and integrated digital shopping experience. With easy-to-use mobile applications and online platforms, consumers can shop conveniently anywhere, anytime. Tokopedia has successfully adapted to the changes in Retail 4.0 as an e-commerce innovator in Indonesia. Using advanced technology, they have improved personalization, operational efficiency, connectivity, and the consumer shopping experience. In the era of retail transformation 4.0, Tokopedia continues to innovate to meet the needs and expectations of consumers in the ever-evolving

world of e-commerce.

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