

## INNOVATION IN POST-PANDEMIC E-COMMERCE

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### Abstract

The COVID-19 pandemic has been a major catalyst for the acceleration of digital technology adoption in the trade sector, particularly e-commerce. This research aims to examine the main innovations that have developed in post-pandemic e-commerce and their impact on businesses and consumers through a literature review method. The results show that innovations such as digital payment integration, artificial intelligence-based personalisation, logistics optimisation, social commerce, and cross-platform collaboration such as GoTo, have improved business operational efficiency, expanded market access, and created a more convenient and secure shopping experience for consumers. In addition, these innovations also encourage the growth of MSMEs and strengthen the digital ecosystem in Indonesia. However, challenges such as intensified competition, data security issues, and the digital divide still need to be anticipated for e-commerce growth to be sustainable in the post-pandemic era.

**Keywords:** Innovation, E-Commerce, Post-Pandemic.

### Introduction

The COVID-19 pandemic that has hit the world since early 2020 has had a significant impact on various aspects of life, including the economic sector. In Indonesia, the pandemic has led to a decline in conventional economic activities due to social restrictions, but at the same time has encouraged the growth of the digital economy, especially through e-commerce, which has increased by 25% during the pandemic. This phenomenon shows a shift in consumer and business behaviour that increasingly relies on digital technology to meet daily needs (AXA IM, 2023).

The rapid increase in e-commerce activities during the pandemic is inseparable from government policies such as the Enforcement of Restrictions on Community Activities (PPKM) that limit physical interactions. As a result, people have turned to digital platforms for transactions, while businesses, including MSMEs and retailers, have started to utilise social media and marketplaces as their main sales channels. This makes e-commerce one of the biggest contributors to the growth of the digital economy in Indonesia (Prety & Emas, 2024).

In addition, the pandemic has also triggered the acceleration of digital transformation in various sectors. Companies that previously relied on traditional business models are forced to adapt by adopting digital technology in order to survive

and meet the rapidly changing needs of consumers. This transformation does not only occur at the large company level, but also extends to MSME players who are starting to integrate e-commerce in their operations (Rianty & Rahayu, 2023).

E-commerce or electronic commerce is the process of buying and selling, marketing, and distributing goods or services that are carried out online through electronic media such as the internet, thus allowing sellers and buyers to make transactions without having to meet in person, with easy access, time efficiency, and lower costs compared to conventional methods (Patel & Singh, 2022).

From the consumer side, the ease of access and variety of products offered by e-commerce are the main attractions. Consumers can now shop without leaving home, save time and money, and get a wide selection of products from within and outside the country. In addition, service innovations such as digital payments, fast delivery, and interactive features further enhance the online shopping experience (Sari & Prabowo, 2023).

The post-pandemic development of e-commerce is not only characterised by an increase in transactions, but also by the emergence of new innovations. One obvious example is the collaboration between large platforms such as Gojek and Tokopedia that form an integrated digital ecosystem through GoTo. This innovation allows consumers to enjoy more holistic services, from food ordering, online shopping, to digital payments in one platform (Lee & Kim, 2022).

The increasing trend of e-commerce usage is also reflected in the data on the number of visits to marketplace platforms, which rose significantly from 2019 to 2022, reaching 64%. This shows that people's preference for online shopping is getting stronger, even after social restrictions have been relaxed. This trend is predicted to continue along with the increasing number of innovations presented by industry players (Setiyani & Inpresta, 2023).

Innovation in e-commerce is not only limited to new features and services, but also includes business models that are more adaptive and responsive to consumer needs. For example, the presence of paylater payment features, integration of logistics services, and the use of artificial intelligence to personalise product recommendations. These innovations provide added value for consumers while increasing the competitiveness of businesses (Wang & Chen, 2021). The positive impact of e-commerce innovation is also felt by small and medium enterprises. By utilising digital platforms, they can reach a wider market without having to open a physical store, resulting in reduced operational costs and greater opportunities for business growth. In fact, some businesses reported a significant increase in turnover after joining e-commerce platforms (EU-LAC Foundation, 2023).

However, behind these benefits, digital transformation also presents new challenges. Increased competition, data security issues, and the need for technological adaptation are some of the obstacles that businesses must face. Therefore, innovation

must continue to be developed so that e-commerce remains relevant and able to meet consumer expectations in the post-pandemic era (Rossi & Bianchini, 2023).

Overall, the COVID-19 pandemic has been a major catalyst in accelerating the adoption of digital technologies in the commerce sector. The innovations that have emerged in the post-pandemic e-commerce space have not only fuelled the growth of the digital economy, but also fundamentally changed consumption patterns and business models. Thus, the study of innovation in post-pandemic e-commerce is highly relevant to understand the dynamics and challenges faced by industry players and consumers in today's digital era.

## **Research Methods**

The research method used in this study is a literature review, namely by collecting, reviewing, and analysing various relevant literature sources such as scientific journals, articles, research reports, and documents related to innovation in post-pandemic e-commerce, in order to obtain a comprehensive overview of trends, forms of innovation, and their impact on business people and consumers (Paré & Kitsiou, 2020).

## **Results and Discussion**

### **Key Innovations in Post-Pandemic E-Commerce**

Innovation in post-pandemic e-commerce has become a key driver of growth and transformation of digital industries around the world, including Indonesia. The COVID-19 pandemic has not only accelerated the adoption of digital technology, but also encouraged industry players to continue innovating to meet the increasingly dynamic needs and expectations of consumers (Isal, 2023).

Post-pandemic, personalisation has become one of the key innovations in e-commerce. By utilising artificial intelligence (AI) and data analysis, e-commerce platforms are now able to provide more relevant and personalised product recommendations to each user. AI algorithms analyse customers' purchase history, preferences and search behaviour to tailor product offerings, making the shopping experience more efficient and satisfying (Choi & Park, 2021).

In addition to personalisation, the use of chatbots and virtual assistants is also expanding. Chatbots integrated with chat platforms such as WhatsApp or Facebook Messenger facilitate real-time interaction with customers, provide quick answers to questions, and help resolve common problems. Virtual assistants are even capable of providing highly personalised service via chat or email, significantly improving the quality of customer service (GITS.ID, 2023).

The next innovation is the adoption of Augmented Reality (AR) and Virtual Reality (VR) technologies in the shopping experience. These technologies allow customers to virtually try on products, such as clothing or furniture, before purchasing.

This immersive experience increases customer trust and satisfaction as they can see the product from different angles and ensure a good fit before making a transaction (Sieminski, 2021).

Free shipping has become the new standard in post-pandemic e-commerce. Consumers now consider free shipping a fundamental part of the online shopping experience, so platforms that do not offer this facility risk losing customers. Free shipping programmes are proven to significantly increase sales and customer satisfaction (Suryadi ., 2023)

The shift to digital payments is also one of the key innovations. Digital wallets such as GoPay, OVO, and PayPal make transactions fast, secure, and convenient. These digital payment systems not only shift the dominance of cash payments, but also open up opportunities for new businesses that provide innovative payment solutions, including paylater features that offer payment flexibility for consumers (Smith & Garcia, 2022).

The integration of services in one digital ecosystem is a strategic innovation adopted by several large companies. An example is the collaboration between Gojek and Tokopedia that formed GoTo. Through this integration, consumers can enjoy more holistic services, from food ordering, online shopping, to digital payments in one platform, thereby increasing the convenience and efficiency of transactions (Wulandari, 2023).

Mobile commerce or m-commerce is experiencing rapid growth as smartphone usage and internet access increases. E-commerce platforms are now required to provide responsive websites or applications that are easily accessible via mobile devices, as consumers increasingly shop using mobile phones or tablets (Tan & Lim, 2023).

Social commerce is also a new post-pandemic trend. Social media platforms such as Facebook and Instagram now provide direct shopping features, allowing businesses to reach consumers in a more personalised and interactive way. Social logins, collaboration tools and social search are fuelling the growth of social e-commerce, strengthening the relationship between brands and customers (Zhang & Li, 2022).

Optimisation of logistics and delivery is the next major focus of innovation. The use of on-demand delivery services, real-time tracking, and even exploration of the use of drones or autonomous vehicles improve the speed and efficiency of delivering products to consumers. This optimisation is critical to maintaining customer satisfaction and increasing competitiveness (OECD, 2020).

Predictive analytics and real-time analysis are key to business decision-making. By collecting and analysing data in real-time, e-commerce companies can predict consumer demand, manage inventory efficiently, and adjust marketing strategies according to changing trends (Müller & Schmid, 2023).

Easy access to products from around the world is also an important innovation. E-commerce allows consumers to purchase products from different brands and manufacturers, even those not available in their geographical area. This expands consumer choice and opens export opportunities for local businesses (Johnson & Brown, 2022).

Innovative features such as saving modes on food delivery services, loyalty programmes, and data-driven discount offers are increasing the appeal of e-commerce. These innovations are designed to add value to consumers while increasing customer retention (Hernandez & Silva, 2023).

Collaboration across sectors, such as between e-commerce and financial services, is also intensifying. The integration of cash lending, insurance and investment services within e-commerce platforms provides convenience and more complete financial solutions for consumers, strengthening e-commerce's position as part of an overarching digital ecosystem (Aaron Aziz et al., 2024).

The transformation of business intelligence through the application of Business Intelligence (BI) has become very important. With BI, companies can collect, analyse and visualise data to support better decision-making and be responsive to market changes (Wang & Chen, 2021).

As such, key innovations in post-pandemic e-commerce include AI-based personalisation, use of chatbots and virtual assistants, adoption of AR/VR, free shipping programs, digital payments, service integration, mobile commerce, social commerce, logistics optimisation, predictive analytics, easy access to global products, innovative data-driven features, cross-sector collaboration, and business intelligence transformation. These innovations not only improve efficiency and consumer experience, but also strengthen the competitiveness of businesses in an increasingly competitive digital era.

### **Impact of Key Innovations on Businesses and Consumers**

Key innovations in post-pandemic e-commerce have had a significant impact on businesses and consumers. The digital transformation accelerated by the pandemic has forced businesses to adapt quickly, adopt new technologies and change business strategies to stay relevant amid changing consumer behaviour. For businesses, these innovations open up new opportunities while presenting challenges in increasingly fierce competition (Chen & Zhao, 2021).

One of the main impacts for businesses is the opening up of access to a wider market. Through e-commerce platforms, businesses, both large-scale and MSMEs, can reach consumers in various regions, even to the global market. This directly increases the potential for sales and business growth that was previously limited by geographical limitations. In addition, innovations such as digital payment integration, the use of AI for personalisation, and logistics optimisation make business operations more efficient.

Transactions are faster, financial records are more accurate, and deliveries are more organised. These efficiencies help businesses reduce operational costs and improve customer satisfaction (Nguyen & Tran, 2023).

Cross-platform collaboration, such as between Gojek and Tokopedia, also has a positive impact on businesses. Service integration allows businesses to offer various products and services in one ecosystem, expanding cross-selling opportunities and increasing customer loyalty. Businesses that are able to take advantage of this collaboration will find it easier to survive and thrive in the midst of digital competition (Genc & Arzaghi., 2024)

In terms of marketing, e-commerce innovations provide convenience in product promotion through social media, live shopping, and discount or free shipping programmes. This digital marketing strategy has proven to be effective in attracting new customers and retaining old customers, so businesses can build a stronger customer base (Liu & Zhang, 2021).

However, innovation also brings challenges for businesses. Increasingly fierce competition requires businesses to continuously innovate and improve services. Businesses that are slow to adapt risk losing customers and falling behind more innovative competitors. In addition, data security and consumer privacy issues are important concerns that businesses must anticipate. For consumers, innovation in e-commerce provides many benefits. Consumers can now enjoy the convenience of shopping anytime and anywhere, with a much more diverse selection of products. Personalised shopping experiences through AI-based product recommendations make consumers feel more cared for and satisfied with the services received (Kumar & Gupta, 2022).

Digital payment innovations and paylater features provide flexibility for consumers in making transactions. Consumers can choose a payment method that suits their needs and financial capabilities, making the shopping process more convenient and secure. In addition, the real-time delivery tracking feature increases consumers' sense of security and trust in e-commerce platforms (Evans & Lee, 2022).

Loyalty programmes, discounts, and free shipping are a big draw for consumers. These innovations not only drive purchase frequency, but also increase consumer loyalty to a particular platform. Consumers feel that they are benefiting from various attractive offers that are available on a regular basis. However, innovation also brings challenges for consumers, such as personal data security risks and the potential for online shopping addiction. Consumers need to be wiser in managing their data and spending, and ensure that the platforms they use meet adequate security standards. In addition, the digital divide is still a problem, especially for people who do not have adequate internet access or digital devices (Author Team., 2021)

Overall, innovations in post-pandemic e-commerce have created a more modern, efficient, and integrated shopping ecosystem. Businesses that are able to adapt and

continue to innovate will gain greater growth opportunities , while consumers benefit from greater ease, convenience, and a better shopping experience (Barus, 2024) .

As such, the impact of key innovations in post-pandemic e-commerce has been overwhelmingly positive for both businesses and consumers. Businesses gain broader market access, operational efficiency and new growth opportunities, while consumers enjoy convenience, flexibility and a more personalised shopping experience. However, challenges such as competition, data security, and the digital divide must still be anticipated for the e-commerce ecosystem to develop sustainably.

## Conclusion

Innovations in post-pandemic e-commerce have catalysed significant digital transformation in the commerce sector. Innovations such as artificial intelligence-based personalisation, digital payment integration, logistics optimisation, and cross-platform collaboration have improved operational efficiency, expanded market access, and created a more convenient and personalised shopping experience for consumers. This not only drives business growth, but also strengthens the competitiveness of businesses in an increasingly competitive digital era.

However, behind the opportunities and benefits, e-commerce innovations also present new challenges, such as intensified competition, data security issues, and the digital divide. Therefore, businesses need to continuously adapt and develop innovative strategies to remain relevant and able to fulfil consumer expectations. Thus, continuous innovation is the key to ensuring the growth and sustainability of the e-commerce ecosystem in the future.

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