

Digital Adaptation of Traditional Market Traders to E-Commerce: Evidence from Central Bolu Market, North Toraja Regency

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ABSTRACT

The growth of e-commerce has caused a decline in offline sales for traditional market traders, necessitating digital adaptation strategies for business survival. This study analyzes the effectiveness of digital adaptation strategies implemented by fashion traders at Bolu Central Market, North Toraja Regency, in facing e-commerce competition, and identifies the challenges encountered. Using a descriptive qualitative method with in-depth interviews of six fashion traders, one market manager, and three consumers, findings show that only two of six traders have adopted digital strategies through social media (Instagram and Facebook), while four others rely on conventional methods. Traders who adopted digital strategies demonstrated better sales resilience with lower estimated decline. Notably, a Toraja traditional clothing trader combining digital strategy with local culture-based product differentiation experienced only a 15% decline, significantly lower than conventional traders at 20-35%. Key challenges include limited digital literacy, lack of mentoring, minimal digital infrastructure at the market, and trader concerns about online fraud risks. The study recommends integrated MSME digitalization programs combined with strengthening local Toraja cultural products.

Keywords: Digital Adaptation, Traditional Market Traders, E-commerce, Effectiveness, North Toraja

INTRODUCTION

The rapid growth of e-commerce in Indonesia over the past few years has fundamentally transformed the country's commercial landscape by reshaping transaction patterns, consumer behavior, and the distribution systems for goods and services. Advances in digital technology, supported by increasing internet penetration, widespread smartphone adoption, and easier access to digital payment services, have accelerated the transition from conventional trading practices to digital platform-based commerce. The emergence of various online marketplaces, including Shopee, TikTok Shop, Tokopedia, and Lazada, together with the growing use of social media as a marketing and transactional channel, has created new distribution networks that offer greater convenience, operational efficiency, broader market reach, and a wide range of consumer incentives, such as promotional discounts, shipping subsidies, and flexible payment options. These developments have placed traditional markets under increasing

competitive pressure, as they are required to compete with digital business models that are more responsive to technological innovation and the evolving preferences of modern consumers.

For traders operating in traditional markets, whose businesses have long relied on face-to-face transactions, personal relationships with customers, and market reach confined to local communities, this digital transformation presents significant challenges. The shift in consumer behavior toward greater emphasis on convenience, speed, accessibility, price transparency, and shopping flexibility has encouraged an increasing number of consumers to migrate to digital platforms. Consequently, many traditional market traders have experienced a decline in customer traffic and sales volume when they are unable to adapt to these technological developments. In this context, digital adaptation can no longer be regarded as an optional strategy; rather, it has become a strategic necessity for ensuring business continuity, enhancing competitiveness, expanding market reach, and creating new economic opportunities amid the intensifying competition between conventional and electronic commerce. Therefore, the ability of traditional market traders to adopt and effectively utilize digital technologies has become a critical determinant of their business resilience and long-term sustainability in the digital economy.

Central Bolu Market is the largest traditional market in North Toraja Regency, Indonesia, serving as one of the region's primary economic hubs and providing a livelihood for hundreds of traders across various business sectors, particularly fashion retailers. As a major regional trading center, the market not only meets the daily needs of local communities but also attracts domestic and international tourists visiting the Toraja region, making it an important commercial destination. Despite its strategic role in the local economy, Central Bolu Market has not been immune to the effects of digital transformation, which has fundamentally reshaped consumer purchasing patterns. The increasing accessibility of e-commerce platforms and social media as channels for marketing and commercial transactions has encouraged a growing number of consumers to shift from shopping in traditional markets to purchasing products online, which is perceived as more convenient, faster, and capable of offering a wider selection of products at competitive prices.

Based on preliminary observations and exploratory interviews with fashion traders at Central Bolu Market, most participants reported that their sales had declined by approximately 15% to 35% over the past few years. According to the participants, this decline was primarily associated with the growing consumer preference for online shopping through various e-commerce marketplaces and social media platforms. This

trend has had a direct impact on traders' income, business cash flow, and the sustainability of their enterprises, particularly for those who continue to rely exclusively on conventional face-to-face transactions. The intensifying competition between traditional and digital commerce has therefore compelled traders to seek new business strategies to retain their customers and maintain their competitiveness in an increasingly digital marketplace.

Nevertheless, traders have responded differently to the competitive pressures arising from the rapid expansion of e-commerce. While some have embraced digital adaptation by utilizing social media and online marketplaces as promotional and sales channels to expand their market reach, many others continue to rely on conventional trading practices due to limited digital literacy, technological capabilities, access to digital training, and financial resources. These varying levels of digital adaptation suggest that digital transformation cannot be uniformly implemented across all traditional market traders. Therefore, it is essential to examine the extent to which digital adaptation strategies contribute to sustaining the sales performance of fashion traders at Central Bolu Market, while also identifying the key challenges that hinder the adoption of digital technologies. Such an investigation is expected to provide an empirical basis for developing more effective and sustainable strategies to empower traditional market traders in the digital era.

Traders' adaptation strategies can be understood through Suharto's (2009) livelihood survival strategy theory, which classifies survival strategies into three categories: active strategies, which involve optimizing business capabilities, including the adoption of technology; passive strategies, which focus on reducing expenditures and adjusting prices; and network strategies, which emphasize the use of social relationships to support marketing activities. In the context of digital adaptation, active strategies are particularly relevant because they encompass the utilization of social media, online marketplaces, and other digital platforms as channels for marketing and sales. Furthermore, Kotler and Keller's (2016) product innovation theory argues that businesses capable of continuous innovation and creating added value for their products are more likely to maintain their competitiveness and achieve long-term sustainability in an increasingly dynamic market environment.

Several previous studies have examined the impact of e-commerce on traditional market traders. Syahfitri et al. (2024) found that the growing dominance of online stores has significantly reduced the revenue of offline retailers. Similarly, Rafanda, Kurniawati, and Awali reported that the expansion of e-commerce has led to customer migration from physical stores, as consumers increasingly prefer purchasing fashion products through online platforms. Likewise, Siagian et al. (2023) observed a decline in the number of

visitors to traditional markets following the rapid growth of digital marketplaces. However, despite these findings, studies specifically investigating the effectiveness of digital adaptation strategies adopted by traditional market traders remain limited, particularly in regions with strong local cultural characteristics, such as North Toraja.

Building upon this research gap, this study aims to: (1) analyze the types of digital adaptation strategies adopted by fashion traders at Central Bolu Market; (2) evaluate the effectiveness of digital adaptation strategies compared with conventional business practices in sustaining sales performance; and (3) identify the challenges faced by traders in adopting digital adaptation strategies. The findings are expected to enrich the existing literature on digital transformation in the traditional retail sector while providing empirical evidence and practical recommendations for local governments, market authorities, and business practitioners in designing policies and empowerment strategies that enhance the competitiveness and long-term sustainability of traditional market traders in the digital economy.

RESEARCH METHODS

This study employed a qualitative approach using a descriptive qualitative research design. The research was conducted at Central Bolu Market, North Toraja Regency, South Sulawesi Province, Indonesia. Data were collected between March and April 2026. Participants were selected through purposive sampling and consisted of three groups: six fashion traders as the primary informants, coded as FT1–FT6 (Fashion Trader 1–6), one market manager as the key informant, coded as MM1 (Market Manager 1), and three consumers as supporting informants, coded as C1–C3 (Consumer 1–3). These codes were used throughout the study to ensure participant anonymity.

Data were collected through in-depth, semi-structured interviews focusing on the strategies employed by traders to cope with declining sales, their use of digital technologies, and the challenges encountered during the digital adaptation process. In addition, direct observations of trading activities and document analysis were conducted to complement the interview data. Data were analyzed using the interactive model developed by Miles, Huberman, and Saldana (2014), which consists of three stages: data condensation, data display, and conclusion drawing and verification. To ensure the trustworthiness of the findings, source triangulation was employed by comparing information obtained from fashion traders, the market manager, and consumers.

RESULTS AND DISCUSSION

Traders' Profiles and Digital Adaptation Strategies

Based on in-depth interviews with six fashion traders at Central Bolu Market, two distinct groups of traders were identified according to the adaptation strategies they adopted. A comparison of the strategies employed and their respective impacts is

presented in Table 1.

Table 1. Profile of Fashion Traders and Their Digital Adaptation Strategies

No.	Informant	Business Type	Adaptation Strategy	Strategy Category	Estimated Sales Decline	Monthly Revenue (IDR)
1	FT1	Toraja clothing	Promoted products through Instagram and Facebook, uploaded customer photos, and sold products online	Digital + Product Differentiation	15%	3,500,000
2	FT2	Children's and women's clothing	Promoted products through Facebook and offered competitive prices	Digital	35%	4,500,000
3	FT3	Mixed clothing	Provided friendly customer service, offered diverse product varieties, and discounts for loyal customers	Conventional	25%	2,500,000
4	FT4	Fashion bags	Arranged product displays attractively, offered discounts, and bundled sales packages	Conventional	30%	2,000,000
5	FT5	Footwear	Negotiated directly with customers, maintained good customer relationships, and focused on best-selling products	Conventional	25%	3,000,000
6	FT6	Men's and women's clothing	Organized attractive product displays, followed fashion trends, and continuously sourced new products	Conventional	20%	2,800,000

Source: Processed Primary Data (2026).

As presented in Table 1, only two of the six fashion traders had adopted digital adaptation strategies. FT1 utilized Instagram and Facebook to upload customer photos, promote Toraja clothing, and receive orders through social media. According to FT1, *"When sales decline, I try to sell my products online and promote them through social media. I also upload customer testimonials, such as photos of customers shopping at my store, on Instagram and Facebook to attract potential buyers"* (Interview, March 26, 2026). Similarly, FT2 relied on Facebook to expand market reach and increase product visibility, stating, *"Whenever sales decrease, I usually promote my products through social media, especially Facebook, so that more people can see the items I sell"* (Interview, March 25, 2026). These findings indicate that although digital adoption among fashion traders at Central Bolu Market remains limited, those who have embraced social media view it as an effective marketing channel for reaching a broader customer base and mitigating the impact of declining sales.

The remaining four fashion traders continued to rely on conventional business strategies, including providing friendly customer service, arranging product displays attractively, adjusting prices to market conditions, offering discounts, engaging in direct communication with customers, and maintaining good relationships with loyal buyers. FT3, for example, explained: *"To attract customers, I adjust my prices according to market conditions and consumers' purchasing power. In addition, I rely on direct communication with customers and always try to provide good service"* (Interview, March 17, 2026). These findings suggest that traders who have not adopted digital technologies continue to depend on interpersonal interactions and service quality as their primary means of maintaining customer loyalty and sustaining sales performance.

Effectiveness of Digital and Conventional Adaptation Strategies

The comparison presented in Table 1 reveals a notable pattern regarding the effectiveness of the adaptation strategies adopted by fashion traders. FT1, who combined digital adaptation with product differentiation based on local cultural identity by selling Toraja clothing, experienced the smallest decline in sales, at only 15%. As FT1 explained, *"Business competition is not particularly intense because Toraja clothing has its own distinctive characteristics,"* and *"Some customers still prefer to examine the products in person, especially when purchasing clothing for traditional ceremonial events"* (Interview, March 26, 2026). These findings suggest that integrating digital marketing with the differentiation of culturally distinctive local products represents the most effective strategy for maintaining sales performance amid the growing competition from e-commerce.

In contrast, FT2, who adopted a digital strategy by promoting products through Facebook but sold conventional fashion products, experienced the largest decline in sales, reaching 35%. This finding indicates that digital adaptation alone is insufficient to sustain sales performance when the products offered are widely available and easily substituted on online marketplaces. As FT2 acknowledged, "Since online shopping became more popular, my store's sales have declined because online platforms offer many promotions and the latest fashion trends" (Interview, March 25, 2026). These findings suggest that the effectiveness of digital adaptation depends not only on the use of digital platforms but also on the uniqueness and competitiveness of the products being marketed.

Among the traders who continued to rely on conventional business strategies, sales declined by between 20% and 30%, with an average decline of 25%. FT6 recorded the smallest decline within this group, at 20%, by consistently following emerging fashion trends and continuously sourcing new products that matched consumer preferences. According to FT6, regularly updating product offerings helped maintain customer interest and encouraged repeat purchases despite increasing competition from online retailers. This finding suggests that responsiveness to changing market trends and consumer demand can play an important role in sustaining sales performance, even in the absence of digital adaptation strategies. Nevertheless, compared with traders who successfully combined digital marketing with product differentiation, conventional strategies alone appeared to provide only limited protection against the competitive pressures created by the rapid expansion of e-commerce.

Challenges to Digital Adaptation

The interview findings identified four major challenges that hindered fashion traders from adopting digital adaptation strategies.

The first challenge was limited digital literacy. Four of the six traders reported having insufficient knowledge and skills to effectively use digital platforms for marketing and sales. FT4 (59 years old) explained that she was unfamiliar with using social media as a sales channel and therefore continued to rely on conventional business practices. This finding suggests that age may constitute a significant barrier to digital adoption, as older traders tend to have lower levels of confidence and digital competence in utilizing technology for business purposes.

The second challenge was the absence of digital assistance and capacity-building programs. MM1, the market manager, confirmed that existing initiatives were still primarily focused on improving the market's physical infrastructure rather than supporting traders' digital transformation. As MM1 explained, "*We have been implementing programs such as the Healthy Market initiative and improving supporting facilities. However, we do not yet have any specific programs to help traders cope with*

the challenges posed by online shopping" (Interview, April 8, 2026). Consequently, neither the market management nor the local government has provided structured training on e-commerce or digital marketing assistance, limiting traders' opportunities to develop the digital competencies required to compete effectively in an increasingly digital marketplace.

The third challenge was the limited digital infrastructure available within the market. Central Bolu Market has not yet been equipped with essential digital facilities, such as public Wi-Fi, digital co-working spaces, or integrated electronic payment systems. As a result, traders who wish to utilize social media or other digital platforms for business purposes must rely on their own mobile internet access, which may increase operational costs and limit the consistency of their online marketing activities.

The fourth challenge concerned concerns over fraud and product mismatch in online transactions. Several traders expressed apprehension that online selling could expose them to fraudulent transactions or customer dissatisfaction arising from discrepancies between the products displayed online and those received by buyers. This concern was also echoed by C1, who stated, "I sometimes shop online because it is more convenient, even though the products shown online are often different from what I actually receive" (Interview, March 18, 2026). These findings indicate that issues of trust and perceived transaction risk remain important barriers to the wider adoption of digital commerce by both traders and consumers.

Discussion

The findings of this study reveal several important patterns regarding the effectiveness and challenges of digital adaptation among traditional market traders, which can be interpreted through relevant theoretical perspectives.

First, from the perspective of Suharto's (2009) livelihood survival strategy theory, traders at Central Bolu Market adopted the three categories of survival strategies to varying degrees. Active strategies, represented by the use of social media and other digital platforms, were implemented by only two of the six traders (33%), indicating that the adoption of technology-based active strategies remains relatively low. Most traders continued to rely on passive strategies, such as adjusting prices and reducing inventory, as well as network strategies, including maintaining relationships with loyal customers and engaging in direct communication. These findings suggest that despite the growing competitive pressure exerted by e-commerce, the level of digital adaptation among traditional market traders has not kept pace with the magnitude of the challenges they face.

Second, the findings demonstrate that the effectiveness of digital adaptation depends on its integration with other competitive advantages rather than on the adoption

of digital technology alone. The most notable case was FT1, who combined digital marketing through social media with product differentiation by selling traditional Toraja clothing that possesses strong cultural value and is widely used during customary ceremonies. This combination resulted in the lowest sales decline (15%) among all participants. These findings support the product innovation theory proposed by Kotler and Keller (2016), which argues that products offering uniqueness and added value are more likely to maintain their market position under competitive conditions. In this context, Toraja clothing is driven not only by price considerations but also by cultural and ceremonial needs that cannot easily be substituted by products offered through online marketplaces.

In contrast, the experience of FT2 illustrates that digital adaptation without product differentiation is insufficient to maintain business performance. Although FT2 promoted products through Facebook, the business experienced the highest sales decline (35%) because the products sold, namely children's and women's clothing, were highly standardized and widely available on e-commerce platforms at lower prices and with more attractive promotional offers. This finding is consistent with the study conducted by Rafanda, Kurniawati, and Awali, which reported that consumers increasingly prefer purchasing fashion products online because of greater convenience, lower prices, and a wider variety of choices. Therefore, when traders offer generic products, digital marketing alone cannot offset the competitive advantages of large e-commerce platforms.

These findings extend the existing literature on digital adaptation by demonstrating that digital transformation should not be viewed as a standalone business strategy. Rather, its effectiveness is highly dependent on the ability of traders to integrate digital marketing with product differentiation and locally embedded competitive advantages. In other words, digital technologies function as complementary instruments that amplify the value of distinctive products rather than replacing conventional sources of competitive advantage. This perspective contributes to the growing body of literature on digital transformation by emphasizing that technological adoption is context-dependent and influenced by the characteristics of the products and markets in which businesses operate.

Third, the challenges identified in this study reflect the existence of a substantial digital divide among traditional market traders. Limited digital literacy, the absence of structured digital assistance programs, and inadequate digital infrastructure represent structural barriers that cannot be addressed solely through individual efforts. The digital divide identified in this study extends beyond unequal access to technology; it also encompasses disparities in digital competencies, institutional support, and the capacity of traders to integrate digital technologies into everyday business practices. These findings are consistent with Siagian et al. (2023), who argued that the decline of traditional market

traders is driven not only by the rapid expansion of e-commerce but also by their limited capacity to adapt to technological change. Similarly, Indriani Safira and Rezki Fani emphasized that conventional traders must prepare for digital transformation by developing marketing strategies that correspond to evolving consumer preferences and shopping behavior.

Fourth, the role of local cultural values in strengthening traders' economic resilience represents one of the principal contributions of this study. The traditional Toraja market-day system, which operates every six days, together with the continuing demand for products used in *Rambu Solo'* and *Rambu Tuka'* ceremonies, creates a distinctive local economic ecosystem that cannot be fully replaced by e-commerce. This finding supports the consumer behavior theory of Kotler and Armstrong (2008), which identifies culture as one of the most fundamental determinants of purchasing behavior. In the context of North Toraja, local cultural traditions function as a unique economic buffer that sustains the competitiveness of traditional markets, a phenomenon that has received limited attention in previous studies. These findings further indicate that business resilience among traditional market traders is determined not only by their ability to adopt digital technologies but also by their capacity to integrate technological innovation with local cultural assets and distinctive products that are difficult to replicate in digital marketplaces.

Based on these findings, this study proposes an integrated digital adaptation model for traditional market traders that combines three complementary elements: digital marketing, local product differentiation, and the utilization of local cultural values. Compared with digital adaptation alone or conventional business strategies alone, this integrated model appears to provide greater resilience against the competitive pressures generated by e-commerce. Consequently, policy interventions should extend beyond improving physical market infrastructure to include structured digital literacy programs, social media marketing training, marketplace onboarding, digital payment adoption, and continuous business mentoring for traditional market traders. In addition, local governments should strengthen the protection and promotion of culturally distinctive local products through Intellectual Property Rights (IPR) mechanisms and regional branding initiatives to reinforce the competitive advantages of traditional markets in the digital economy.

Despite these contributions, this study has several limitations. The findings are based on a relatively small number of participants from a single traditional market and therefore cannot be generalized to all traditional markets in Indonesia. Furthermore, the analysis focuses exclusively on fashion traders, whose digital adaptation strategies may

differ from those of traders operating in other business sectors. Future studies are encouraged to employ comparative or mixed-method approaches involving multiple traditional markets and diverse business sectors to further validate and refine the digital adaptation model proposed in this study.

CONCLUSION

This study draws three main conclusions. First, only two of the six fashion traders at Central Bolu Market (33%) had adopted digital adaptation strategies through social media, while the remaining traders continued to rely on conventional business practices. Second, digital adaptation was found to be most effective when combined with local product differentiation, as demonstrated by FT1, whose traditional Toraja clothing business experienced the lowest sales decline (15%). In contrast, digital marketing alone was insufficient to maintain competitiveness when applied to generic fashion products. Third, the main barriers to digital adaptation include limited digital literacy, the absence of structured digital assistance programs, inadequate digital infrastructure, and concerns about online fraud. These findings suggest that strengthening the competitiveness of traditional market traders requires an integrated approach that combines digital marketing, local product differentiation, and cultural value. Therefore, local governments and market authorities should promote digital capacity-building programs, improve digital infrastructure, and support the protection of Toraja's distinctive local products through Geographical Indication (GI) and other intellectual property mechanisms.

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