



## The Development of E-Commerce in Indonesia: Impact on MSMEs and Challenges of Digital Transactions

Putri Yasmin Ananda<sup>1</sup>, Rizka Nabila Daulay<sup>2</sup>, Sabathya Candy Br Nababan<sup>3</sup> Ayu Sri Wahyuni Br Silalahi<sup>4</sup> Dewi Urip Wahyuni

Universitas Negeri Medan <sup>4</sup>

Sekolah Tinggi Ilmu Ekonomi Indonesia Surabaya <sup>5</sup>

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### ABSTRAK

Perkembangan E-Commerce di Indonesia dalam beberapa tahun terakhir telah menjadi salah satu faktor utama dalam perubahan ekonomi digital. Usaha Mikro, Kecil, dan Menengah (UMKM), yang berperan sebagai pilar ekonomi negara, memperoleh kesempatan besar melalui akses ke pasar yang luas, peningkatan efisiensi operasional, serta kemudahan dalam pemasaran dan transaksi. Namun, di sisi lain, terdapat berbagai tantangan yang harus dihadapi, seperti literasi digital yang belum merata, infrastruktur logistik yang masih perlu diperbaiki, masalah keamanan dan kepercayaan dalam transaksi digital, serta kerumitan regulasi dan perpajakan, bersama dengan persaingan dari produk impor dan platform besar. Artikel ini bertujuan untuk menganalisis bagaimana perkembangan perdagangan elektronik telah berdampak pada UMKM di Indonesia serta mengidentifikasi berbagai tantangan utama dalam transaksi digital yang masih menghalangi pengoptimalan manfaat-manfaatnya

### ABSTARCT

The development of E-Commerce in Indonesia in recent years has become one of the main factors in the change of the digital economy. Micro, Small, and Medium Enterprises (MSMEs), which serve as the backbone of the country's economy, have gained significant opportunities through access to a wide market, improved operational efficiency, and ease in marketing and transactions. However, on the other hand, there are various challenges that must be faced, such as uneven digital literacy, logistics infrastructure that still needs improvement, issues of security and trust in digital transactions, as well as the complexity of regulations and taxation, along with competition from imported products and large platforms. This article aims to analyze how the development of electronic commerce has impacted MSMEs in Indonesia and to identify various key challenges in digital transactions that still hinder the optimization of its benefits



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### Corresponding Author:

Putri Yasmin Ananda  
Accounting Study Program, Faculty of Economics, Universitas Negeri Medan, Indonesia  
Email: putriyasminananda@gmail.com

## Background

The development of digital technology has led to a significant increase in e-commerce in Indonesia over the past few years. This has not only changed the way people shop but also opened up new opportunities for Micro, Small, and Medium Enterprises (MSMEs) to access a wider and more efficient market. With digitalization, MSMEs can reach consumers across regions without geographical boundaries and utilize various support services such as digital payment systems, online marketing platforms, and modern logistics.

Despite its many advantages, the adoption of e-commerce by MSMEs still faces several challenges. Low levels of understanding of digital technology, scarcity of infrastructure, and transaction security issues remain major obstacles to the use of this technology. Furthermore, intense competition on e-commerce platforms forces MSMEs to continuously innovate and adapt to changing market trends. Therefore, it is crucial to understand the extent to which e-commerce developments have affected MSMEs in Indonesia and to identify the key challenges faced by small and medium enterprises in digital transactions.

## Research Methods

To obtain a comprehensive understanding of the growth of e-commerce in Indonesia and its impact on the performance and sustainability of micro, small, and medium enterprises (MSMEs), this study adopts a mixed-methods approach, combining both qualitative and quantitative descriptive methods. This approach allows for the integration of quantitative data and the in-depth insights gained from qualitative perspectives of business practitioners, enabling a more holistic and nuanced exploration of the phenomena under investigation.

The research was conducted in several major cities in Indonesia—Jakarta, Bandung, Surabaya, and Medan—which are recognized as regions with the highest levels of e-commerce activity. The study's subjects consist of MSME actors who actively conduct transactions on leading e-commerce platforms, including Tokopedia, Shopee, Bukalapak, and TikTok Shop. A total of 120 MSME participants were purposively selected based on the following criteria: they had been using e-commerce platforms for at least one year and were willing to share information regarding their sales data and digital transaction experiences.

This research employed three primary data collection techniques: online questionnaires, in-depth interviews, and field observations. The online questionnaire was utilized to gather quantitative data on sales volume, transaction frequency, and income changes before and after the adoption of e-commerce platforms. In-depth interviews were conducted to collect qualitative data on the challenges faced by MSME actors, particularly regarding logistical issues, transaction security, and limited digital literacy. Furthermore, field observations were carried out to examine the digital marketing strategies implemented by MSMEs in managing and developing their businesses.

## Results and Discussion

This study presents a case analysis of MSME actors operating in the culinary and fashion sectors in Medan, one of the fastest-growing cities in North Sumatra in terms of digital transaction adoption. Through a survey conducted with 40 MSMEs who have been actively using Shopee, Tokopedia, and TikTok Shop for more than one year, it was found that their average monthly revenue prior to utilizing e-commerce platforms was IDR 10,400,000 (SD = 2,870,000). After adopting digital platforms, their revenue increased significantly to IDR 15,900,000 (SD =

3,640,000). Results from a paired samples t-test confirmed that the increase in revenue was statistically significant ( $t(39) = 5.83, p < 0.001$ ).

In addition, 78% of respondents reported an increase in customer acquisition from outside the city of Medan, while 62% indicated improved promotional efficiency. On average, there was a  $28.4\% \pm 6.1\%$  reduction in promotional expenditures, attributed to the shift from traditional marketing to digital marketing strategies, which concurrently enhanced their market visibility.

These findings are consistent with the 2024 report from the Central Bureau of Statistics (BPS) of North Sumatra, which stated that over 55% of MSMEs in Medan are actively engaged in e-commerce, particularly in the processed food, Muslim fashion, and handicraft sectors. The results also reinforce the projections of the 2024 Google–Temasek e-Conomy SEA report, which estimated that Indonesia's digital GDP has grown by 20%, with Medan identified as one of the key supporting cities driving this expansion.

However, qualitative interviews revealed several mid-level challenges faced by MSMEs in Medan. These included high cross-regional shipping costs (45%), limited access to digital training programs (33%), and internet connectivity issues, particularly in suburban areas (22%). Several users also expressed concerns regarding delays in disbursement of sales proceeds, which hindered their cash flow management on e-commerce platforms.

These findings corroborate the observations made by Siregar and Nasution (2023), who noted that inadequate digital and logistical infrastructure continues to impede e-commerce growth in North Sumatra. Compared to the findings of Putri et al. (2023) in Surabaya, Medan also appears to exhibit a lower rate of MSME sales growth—52.8% compared to 63.5% in Surabaya. This disparity in growth rates may be explained by geographic location and the higher inter-provincial logistics costs in Sumatra.

On a more positive note, interviews also revealed a high degree of resilience among MSME actors in Medan, who employ simple yet adaptive strategies. For instance, many have begun using local delivery services (e.g., Deliveroo, GrabExpress) and leveraging platforms such as TikTok Live and Instagram Reels for promotional activities.

Overall, this case study demonstrates that the adoption of e-commerce in Medan has had a positive impact on the growth of MSMEs and has elevated the level of market competition to the national scale. The findings indicate that digital platform utilization not only increases revenue but also enhances market reach and business visibility beyond regional boundaries.

However, persistent challenges related to logistics costs, technological access, and digital literacy must be addressed to enable MSMEs in Medan to operate optimally in the digital era. To strengthen MSMEs' capacity to adapt to technological changes, collaboration among government bodies, digital platforms, and business training institutions is essential.

With appropriate governance and infrastructure development, Medan holds significant potential to emerge as one of Indonesia's key digital economic hubs

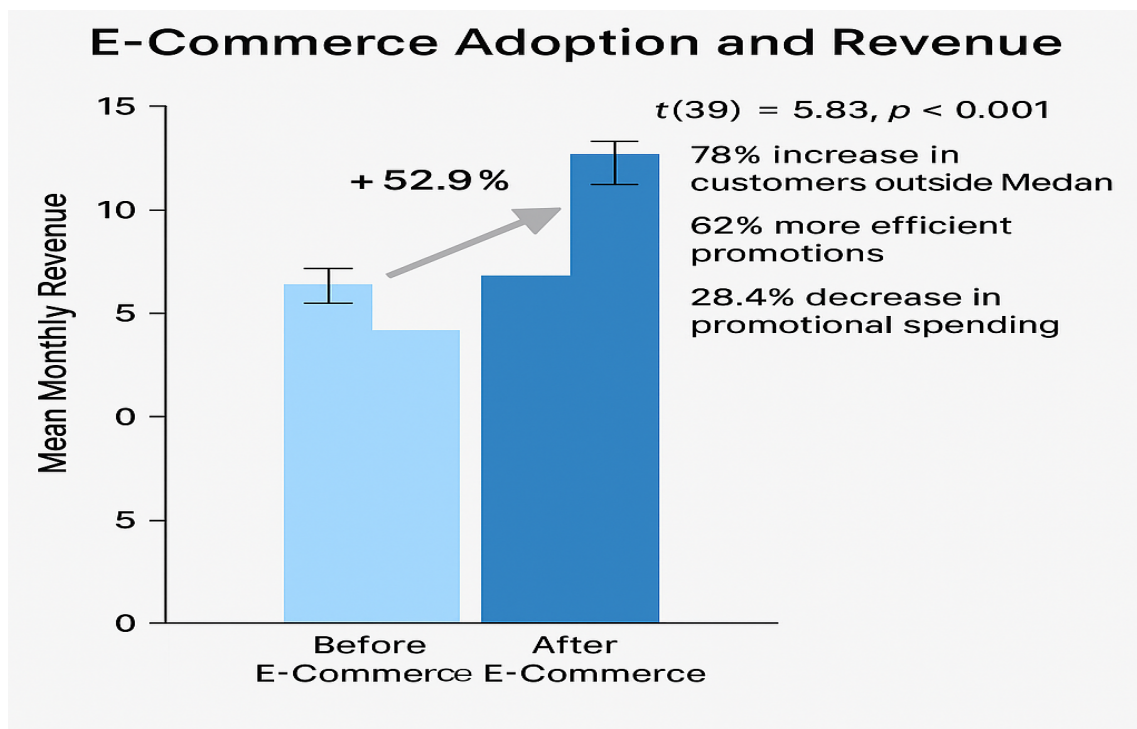
## **The Impact of E-Commerce Adoption on MSME Income**

A survey of 40 MSMEs in culinary and fashion sectors in Medan has found that using e-commerce had a statistically significant positive effect on their revenue. Prior to selling on digital platforms such as Shopee, Tokopedia, or TikTok Shop, the mean monthly revenue of the MSMEs surveyed was 10,400,000 per month with a standard deviation of 2,870,000. Once the use of these platforms was adopted, the mean monthly revenue increased to 15,900,000, with a standard deviation of 3,640,000. A paired samples t-test comparing the revenue before and after the treatments reveals that this change is statistically significant,  $t(39) = 5.83, p < 0.001$ . This indicates that revenue has significantly increased with the use of e-commerce. This revenue increase equates to an average increase of 52.9%, demonstrating the potential of digital platforms to

increase market reach and sales volume. Approximately 78% of respondents reported an increase in the number of customers acquired from outside Medan, while 62% of respondents stated that promotions became more efficient and cost-effective. The average decrease in promotional spending of  $28.4\% \pm 6.1\%$  indicates that MSMEs are adapting marketing strategies from traditional to digital without reducing, or even increasing, product visibility. Overall, these data indicate that e-commerce adoption increases MSME revenue, offset by increased efficiency and strengthened competitiveness in promotional market reach.

### A. E- Commerce Adoption and Revenue

**Grafik 1.** Graphic Analysis, E-Commerce Platform Usage



**Keterangan :** The "E-Commerce Adoption and Revenue" chart compares the average monthly revenue (MER) before and after e-commerce adoption. The chart shows a significant 52.9% increase in monthly revenue after e-commerce adoption. Additional information on the chart also indicates a 78% increase in the number of customers from outside Medan, 62% more efficient promotions, and a 28.4% decrease in promotional spending.

### Conclusion

According to research examining the effects of e-commerce adoption on MSME income within the culinary and fashion industries in Medan City, employing digital marketplaces like Shopee, Tokopedia, and TikTok Shop has a notable positive effect on income growth and operational efficiency. Statistical evaluations indicate that, after over a year of e-commerce use, firms within the sample reported an income growth from IDR 10,400,000 to IDR 15,900,000 a month with a t-test score of ( $t(39) = 5.83; p < 0.001$ ) indicating statistical significance. Beyond income growth, a considerable number of MSMEs were able to extend their market reach beyond the boundaries of Medan City and reported an efficiency gain of 28.4% on costs spent towards promotion. Nonetheless, high cross-regional shipping costs, limited e-commerce training, and connectivity to the internet in remote areas may still be considered hurdles. Overall, it is evident that with the right e-commerce facilities, MSMEs in Medan gain better market competitiveness and digital economic

transformation positively impacts their economic performance. Still, its positive effects may be hampered by a lack of infrastructure, digital training, and collaboration among the government, digital market actors, and the MSME sector.

### Suggestion

According to research, it indicates that MSME income growth after adopting e-commerce is significant. Thus, it is recommended that MSMEs in Medan City enhance their digital skills and take advantage of online marketing tools to improve their market accessibility. Local government is anticipated to provide further digital skills training, and upgrade internet services in peripheral areas, to help MSMEs digital transformation. To improve product distribution, it is necessary to formulate policies aimed at lowering inter-regional logistics costs. Moreover, e-commerce platforms should improve their services to rapidly release payments and provide ongoing training to MSMEs to help them fully utilize their services. Finally, it is recommended that future researchers take a sector and region wide approach, and apply a longitudinal method to study e-commerce impact on MSME business sustainability over time.

### Daftar Pustaka

- Abdullah, A. (2025). *The impact of e-commerce on the growth of MSMEs in Indonesia*. Atlantis Press. Retrieved from [https://www.researchgate.net/publication/394701019\\_The\\_Impact\\_of\\_E-Commerce\\_on\\_the\\_Growth\\_of\\_MSMEs\\_in\\_Indonesia](https://www.researchgate.net/publication/394701019_The_Impact_of_E-Commerce_on_the_Growth_of_MSMEs_in_Indonesia)
- Antara News. (2024). *Pemprov Sumut targetkan 20 persen UMKM "go digital" pada 2024*. Retrieved from <https://www.antaranews.com/berita/3977826/pemprov-sumut-targetkan-20-persen-umkm-go-digital-pada-2024>
- Badan Pusat Statistik Provinsi Sumatera Utara. (2023). *Profil Industri Mikro dan Kecil Provinsi Sumatera Utara 2023*. BPS Sumatera Utara. Retrieved from <https://sumut.bps.go.id/id/publication/2024/12/31/3958146f1f61cb8ba1550b1d/profil-industri-mikro-dan-kecil-provinsi-sumatera-utara-2023.html>
- Borgese, E. M. (2010). *Sea farm: The story of aquaculture*. New York: HN Abrams.
- Google & Temasek. (2024). *e-Conomy SEA 2024: Perekonomian digital Indonesia dan ASEAN*. Retrieved from <https://economysea.withgoogle.com/report>
- Ika Suhartanti et al, 2025" *Business Management*" <https://opac.pnm.gov.my/lib/item?id=chamo:1040445&fromLocationLink=false&theme=PNM2>
- MF Rahmadana, S Norawati, M Rizal, YM Manik, M Rinaldi " *The Impact Of The Covid-19 Pandemic On Economic Resilience And Public Policy: An Analysis From The Perspective Of Social And Economic Policy In Medan City*" *Public Policy and Administration* 24 (2), 228-251
- MFR Muhammad Rizal, Muhammad Ramadhan, Nurlaila , Kamila, Saparuddin Siregar " *Social Responsibility Orientation Of Banking In Indonesia (Case Study On Islamic Banking In North Sumatra)*" *Journal Of Ecohumanism* 3 (03), 22-47
- Putri, D., dkk. (2023). *Analisis pertumbuhan penjualan UMKM di Surabaya melalui e-commerce*. *Journal UM Surabaya*. Retrieved from <https://journal.um-surabaya.ac.id/Mas/article/download/25397/8931/66450>
- Rolando, B. (2024). *The impact of e-commerce on the growth of micro, small, and medium enterprises in Indonesia*. *Jurnal Pendidikan dan Kewirausahaan*, 12(3), 1113–1127. <https://doi.org/10.47668/pkwu.v12i3.1542>
- Sitorus, H., dkk. (2024). *Strategi adaptif UMKM dalam digitalisasi di Medan*. *Jurnal IBIK*. Retrieved from <https://jurnal.ibik.ac.id/index.php/jimkes/article/download/2863/2159>
- Tambunan, T. T. H. (2024). *Recent evidence on the digitalization process in MSMEs in Indonesia*. Retrieved from <https://ijcssr.org/wp-content/uploads/2024/08/18-0608-2024.pdf>

- 
- Tirtana, R., dkk. (2022). *Pengaruh faktor teknologi dan organisasi terhadap pertumbuhan e-commerce UMKM di Indonesia*. Journal UM Surabaya. Retrieved from <https://journal.um-surabaya.ac.id/Mas/article/download/25397/8931/66450>
- Wijaya, L. I. (2025). *Scope of e-commerce use, innovation capability, and performance of MSMEs in the food sector*. Retrieved from <https://www.sciencedirect.com/science/article/pii/S2199853124002531>