



FOSTERING OPPORTUNITIES FOR E-COMMERCE GROWTH IN YEMEN

By Aylin Junga

EXECUTIVE SUMMARY

Yemen's e-commerce sector holds significant potential to drive economic growth and financial inclusion, particularly for women and rural communities, but faces major challenges, including poor internet connectivity, limited digital payment systems, and the absence of legal and regulatory frameworks. The country remains heavily cash-based, with minimal access to formal banking and fragmented oversight, exposing consumers and providers to fraud and limiting sector development. Internet infrastructure is among the worst globally, with only 17.7 percent of the population online in 2024, though the recent introduction of Starlink offers hope for improved connectivity. Conflict-related damage to transportation networks further hinders delivery services. Despite these obstacles, some businesses have found success, especially in urban areas, by adapting to logistical constraints. Yemen's youthful, increasingly smartphone-connected population, along with emerging technologies and business models, offers promising opportunities for inclusive e-commerce growth—provided that policymakers invest in digital infrastructure, enact protective regulations, and create a supportive environment for online enterprise.

Select Recommendations

- International organizations should focus on investing in satellite services like Starlink, and the government should focus its efforts on a successful rollout.
- International development institutions should support a more cohesive regulatory framework with significant oversight and enforcement capabilities.
- The Central Bank in Aden should strengthen its governance and improve regulatory gaps, such as e-commerce regulation.
- The government and international organizations should aim to raise digital literacy and consumer awareness, especially of vulnerable and disenfranchised populations.
- International donors and NGOs should support cybersecurity measures to improve trust in digital spaces and foster e-commerce growth.
- Government entities should collaborate with the private sector to improve infrastructure, educate consumers, and incentivize digital payments.
- The Ministry of Water and Environment should include environmental protections as part of the regulatory framework for e-commerce.

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INTRODUCTION

Through digital adoption, electronic commerce (e-commerce), i.e., the buying and selling of goods over the internet, is becoming more common in developing countries and rural areas. E-commerce holds promise for fostering economic growth, creating varied employment opportunities, and improving financial inclusion, especially for marginalized groups such as women or rural populations. By directly linking sellers with buyers, it lets small businesses promote and sell their products on a more equal footing and lowers transaction costs. E-commerce has seen success in unexpected contexts, as detailed by the World Bank,^[1] and is projected to continue growing in the Middle East.^[2] However, many of the conditions necessary to support beneficial outcomes are underexplored – prerequisites include access to the Internet and digital technology, logistics and transport infrastructure, and regulation to ensure a level playing field and consumer protection.

In Yemen, e-commerce is still in its nascent stages. Most adoption occurs through informal channels, such as social media platforms like Facebook and WhatsApp. Due to limited trust in digital platforms and infrastructure challenges – such as poor roads, especially in rural areas, steep transportation costs,^[3] and no rail network – many Yemenis rely on word-of-mouth recommendations and personal networks for online purchases. Yemen presents a unique context for e-commerce, not only due to the ongoing war and humanitarian crisis, but also because of its singularity among its neighbors. Yemen is the only republic on the Arabian Peninsula, the second largest but poorest country, and has been aggrieved by a history of conflict, foreign interference, limited resources, and a lack of political and social cohesion, leading to comparatively low levels of economic development and stability.

Few studies have been concerned with the state of Yemen's e-commerce. The decade-long conflict and ensuing humanitarian and economic crises have further hindered what was already an underdeveloped sector facing numerous challenges. This paper will explore the primary challenges hindering the growth of the e-commerce sector in Yemen, present a case study of an existing e-commerce business, and propose recommendations for policymakers and stakeholders. It was partly informed by discussions at the 11th Development Champions Forum (DCF), held from June 2-4, 2024, in Amman, Jordan, as part of the Rethinking Yemen's Economy Initiative.

[1] "E-commerce Development: Experience from China," The World Bank and Alibaba Group, 2019, <https://documents1.worldbank.org/curated/en/552791574361533437/pdf/E-commerce-Development-Experience-from-China.pdf>. Accessed April 21, 2025.

[2] Ahmed Hezzah, "The thriving e-commerce landscape in the Middle East," Deloitte, July 24, 2023, <https://www.statista.com/statistics/1201946/gcc-forecasted-e-commerce-market-size-covid-19/>. Accessed May 12, 2025.

[3] Ghadeer al-Maqhafi, "Supporting the Construction Contracting Sector in Yemen for Stabilization and Recovery," Rethinking Yemen's Economy Policy Brief, Sana'a Center for Strategic Studies, DeepRoot Consulting, and CARPO, 2025, https://devchampions.org/publications/policy-brief/Supporting_the_construction_contracting_sector_in_Yemen/. Accessed May 12, 2025

THE YEMENI CONTEXT

Political and Economic Environment

Before the conflict, Yemen's e-commerce sector had shown promise. While still underdeveloped, increasing penetration and emerging online businesses offered the potential for greater adoption.^[4] While limited awareness and infrastructural weaknesses posed challenges, e-commerce businesses in Yemen received orders from an estimated 5 percent of internet users in 2013.^[5]

The conflict, starting in 2014 and internationalized in 2015, has significantly disrupted the sector, exacerbating existing challenges such as infrastructure limitations, security concerns, insufficient regulation, and economic instability. The conflict has also increased costs and eroded trust in digital systems. Due to the significant number of internally displaced persons (IDPs), e-commerce businesses struggle with a fluctuating and mobile customer base, making long-term planning more difficult.^[6] The conflict has also complicated the regulatory environment. The fracturing of crucial economic institutions like the Central Bank of Yemen (CBY) has led to wildly fluctuating exchange rates, undermining the already precarious trust of Yemeni citizens in digital commerce and creating a barrier to digital financial transactions across the lines of control. The resulting economic and currency crises have stifled Yemenis' purchasing power, as has the postponement and suspension of salary payments to public sector employees. A continuing Houthi embargo on oil exports led government revenues to fall by 42 percent in the first half of 2024, after falling 50 percent the year prior.^[7] Stalled peace negotiations, US sanctions, and ongoing airstrikes paint a grim picture for the country's economic stability and humanitarian situation.

[4] Al-Falah and Al-Nasheri, "E-Commerce in Yemen," International Journal of Science, Engineering and Technology, May 15, 2022, https://www.ijset.in/wp-content/uploads/IJSET_V10_issue3_251.pdf. Accessed June 9, 2025.

[5] "E-Commerce in Yemen – Final Report," Internet Society Yemen Chapter, March, 2016, pp. 4-5, https://www.internetsociety.org/wp-content/uploads/2017/08/Ecommerce20in20Yemen-Final20Report_V1.0.pdf. Accessed April 21, 2025.

[6] Interview with Hadi al-Haj, Digital Marketing and Social Media Management Specialist, December 5, 2024.

[7] Omar al-Agel, "Appraisal Project Information Document (PID) (English)," World Bank Group, January 14, 2025, <http://documents.worldbank.org/curated/en/099011425025537568>. Accessed April 21, 2025.

Digital Payments Infrastructure

E-commerce is the buying and selling of goods and services through electronic transactions over the internet.^[8] As such, it relies on a vast and mostly invisible infrastructure to function. Much of the lack of e-commerce development in Yemen can be explained by the weakness of financial and digital services, which has been exacerbated by ongoing conflict and fragmentation. Electronic transactions remain a challenge.

Yemen has a heavily cash-based economy and a severely undeveloped financial sector whose operations are concentrated in urban areas. This has substantially limited the growth of financial inclusion and digital commerce. At the outbreak of Yemen's civil war in 2014, only six percent of the population over the age of 15 held any type of financial account, and only three percent could receive money via digital payment methods.^[9] According to the latest World Bank Findex data, 12 percent of Yemenis held bank accounts in 2022, significantly lower than the average in the Middle East (48 percent) or low-income countries (62 percent).^[10] Most Yemenis utilize informal payment channels such as *hawala*, which allows the cash payment to an agent who will instruct a remote associate to pay the final recipient. The reliance on cash payments has increased as the economy and living conditions have deteriorated.

However, the potential for digital payments is evident in the widespread adoption of mobile phones. Digital payments can play a vital role in e-commerce by facilitating transactions and enabling businesses to reach wider audiences in a convenient, fast, and safe manner. According to a Ministry of Communications and Information Technology report, the number of mobile phone users reached 18.6 million in 2019, roughly 63 percent of the Yemeni population.^[11] With a stable internet connection, mobile phone users could be readily exposed to online sales platforms, providing an opportunity for large-scale e-commerce adoption.

Electronic money (e-money), broadly defined as a means to store monetary value in an electronic medium and use it as payment, offers a promising step towards digital payments and financial inclusion. E-money can be held in so-called e-wallets on mobile phones and offers digital payment solutions even for those without a bank account. According to the Institute of Banking Studies, the number of accounts in e-wallets in Yemen reached 807,919 in December 2019, an increase of 199 percent from 2018.^[12] Ninety-one percent of new accounts were opened in urban areas. However, many were temporary, created following the Houthi authorities' ban on the circulation of new

[8] "Glossary: E-commerce," Eurostat, n.d., <https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:E-commerce>. Accessed April 21, 2025.

[9] The Sana'a Center Economic Unit, "Challenges and Prospects for Electronic Money and Payment Systems in Yemen," Rethinking Yemen's Economy Policy Brief, Sana'a Center for Strategic Studies, DeepRoot Consulting, and CARPO, March 2022, p. 7, https://devchampions.org/files/Rethinking_Yemens_Economy_No10_En-1.pdf. Accessed April 21, 2025.

[10] "Global Financial Inclusion (Global Findex) Database 2021: Yemen, Rep., 2022 – 2023," World Bank Group, June 8, 2023, https://microdata.worldbank.org/index.php/catalog/5862/data-dictionary/F1?file_name=micro_yem.dta. Accessed April 21, 2025.

[11] Abdulghani M. Alsamawi et al., "Electronic Payment Services in Yemen: Challenges and Opportunities for Success," Institute of Banking Studies, October 2020, <https://www.findevgateway.org/sites/default/files/publications/submissions/78206/%D8%A7%D9%86%D8%AC%D9%84%D9%8A%D8%B2%D9%8A%20%D8%A8%D8%B9%D8%AF%20%D8%A7%D9%84%D8%AA%D8%B9%D8%AF%D9%8A%D9%842.pdf>. Accessed April 21, 2025.

[12] Ibid.

rial banknotes in December 2019, requiring new rial banknotes to be deposited into electronic accounts opened with listed e-money financial service providers in exchange for physical old rial notes.^[13] While e-rial accounts and mobile wallets have been opened to receive salaries and humanitarian cash transfers, their usage remains rare due to low banking penetration and public skepticism about digital security.^[14]

Husam Abdullah, who has worked as a freelancer and logistics assistant in development and e-store management in Taiz, said that “digital payment systems [necessary for e-commerce transactions] are currently under development, with the spread of digital wallets, but cash payment is still the most common option for purchases.”^[15] The majority of transactions are still made in cash, including 61.9 percent of those made online.^[16] Cash-on-delivery options are popular for e-commerce in Yemen, as they were in the early stages of e-commerce markets in many parts of the Middle East, and are used to circumvent fraudulent activities or problems associated with insufficient access to credit and the general mistrust of digital payment systems.

For business transactions, cash also continues to be the dominant form of payment, with 97.2 percent of companies paying their employees’ salaries in cash and only 2.1 percent using the formal banking system.^[17] Sixty-eight point one percent of suppliers receive cash payments, and 20.6 percent are paid through cash transfers facilitated by money exchange companies.^[18] Formal banking channels make up only 7.6 percent of payments to suppliers.^[19] According to a World Bank survey of 141 companies, less than 50 percent of large enterprises, 18.5 percent of medium-sized businesses, and 6.1 percent of small firms reported having access to a functioning bank branch in 2018.^[20] In 2021, 96.2 percent of surveyed individuals reported not having used a phone to pay for a purchase in-store in the past 12 months, and 98.9 percent stated they did not make a digital payment to a merchant.^[21]

Despite the increase in the adoption of e-money accounts in 2019, mostly for the purpose of obtaining old rial notes in Houthi areas, the absence of a Fast Payments System (FPS), Real-Time Gross Settlement System (RTGS), and core payments infrastructure significantly minimizes digital payment adoption. Moreover, adoption is geographically limited: 93.8 percent of e-wallets are in cities,^[22] and rural areas are only serviced by two of the country’s licensed banks.

[13] Sana’a Center Economic Unit, “Challenges and Prospects for Electronic Money and Payment Systems in Yemen,” Rethinking Yemen’s Economy Policy Brief, Sana’a Center for Strategic Studies, DeepRoot Consulting, and CARPO, March 2022, p.25, https://devchampions.org/files/Rethinking_Yemens_Economy_No10_En-1.pdf. Accessed April 21, 2025.

[14] Interview with Hadi al-Haj, Digital Marketing and Social Media Management Specialist, December 5, 2024.

[15] Interview with Husam Abdullah, Volunteer Logistics Assistant and E-Store Management Expert, December 10, 2024.

[16] “Global Financial Inclusion (Global Findex) Database 2021: Yemen, Rep., 2022 – 2023,” World Bank Group, June 8, 2023. Note: the data pool for this statistic (fin14c) is comprised of only 979 cases with only 21 valid responses in total.

[17] Al-Aqel, “Appraisal Project Information Document,” World Bank Group, January 14, 2025.

[18] Ibid.

[19] Ibid.

[20] Ibid.

[21] “Global Financial Inclusion (Global Findex) Database 2021: Yemen, Rep., 2022 – 2023,” World Bank Group, June 8, 2023.

[22] Alsamawi et al., “Electronic Payment Services in Yemen: Challenges and Opportunities for Success,” Institute of Banking Studies, October 2020, p. 55. Note: Average concentration over the years 2016, 2017, 2018, and 2019.

Existing Legal Frameworks and Policies

Much of the growth in e-money services has been due to their promotion by Yemen's government and central bank, which tried to encourage their use through regulation. However, efforts to launch new e-money services and introduce the necessary digital infrastructure have been hindered by the 2016 fracture of the central bank into competing branches in Sana'a and Aden. Two distinct economic zones and monetary policies have since emerged across the frontlines. The branch in Sana'a (CBY-Sana'a) has been dominant domestically, as Yemen's financial sector was concentrated there until mid-2025. The military and economic power wielded by the Houthis contributes to this dominance. However, the branch in Aden (CBY-Aden), the government's interim capital, retains international recognition and connection to international monetary systems such as SWIFT. On March 4, 2025, the United States redesignated the Houthis as a Foreign Terrorist Organization (FTO). This has forced banks in Houthi-controlled areas to relocate their headquarters to government-controlled areas to avoid US sanctions and international compliance violations. While this environment makes the adoption of new digital payment services much more complicated, there are some regulations in place that could be building blocks for further development.

In 2006, the Law on Electronic Payment Systems and Financial and Banking Operations No. (40) was issued as a first step in regulating electronic transactions. In 2014, Circular No. 11 added statutes for providing electronic money services via mobile phone. While this allowed banks to issue and manage e-money and facilitate the opening of e-money accounts, only clients with a bank account could use these services, which included e-payments, balance inquiries, and transfers between accounts.^[23] This model had a clear downside in that it failed to extend services to the majority of the population, including those most disenfranchised, and adoption was therefore slow and limited. To achieve greater financial inclusion, the Houthi-controlled CBY-Sana'a revised these rules in 2020 through Decision No. (1), which allowed non-bank financial institutions to provide electronic payment services via mobile phones and allowed more types of financial service providers to offer e-rial services.^[24] For example, Hayel Saeed Anam (HSA) Group's mobile money system, One Cash,^[25] received a license from the CBY-Sana'a in early 2022.^[26] According to Forbes Fintech Middle East, One Cash has 200,000 active customers and a network of more than 14,000 retail outlets; 800 corporations reportedly use the mobile service to accept payment.^[27] One Cash facilitated 3.2

[23] Sana'a Center Economic Unit, "Challenges and Prospects for Electronic Money and Payment Systems in Yemen," Rethinking Yemen's Economy Policy Brief, Sana'a Center for Strategic Studies, DeepRoot Consulting, and CARPO, March 2022, https://devchampions.org/files/Rethinking_Yemens_Economy_No10_En-1.pdf. Accessed April 21, 2025; "Global Financial Inclusion (Global Findex) Database 2021: Yemen, Rep., 2022 – 2023," World Bank Group, June 8, 2023.

[24] Alsamawi et al., "Electronic Payment Services in Yemen: Challenges and Opportunities for Success," Institute of Banking Studies, October 2020.

[25] "About One Cash," <https://onecashye.com/en/about-one/what-is-one-cash/>. Accessed May 12, 2025. Note: An "easy-to-use mobile cash platform" offering an alternative to cash payments. Users can get cash, pay bills, pay merchants, send money to other One Cash customers, send vouchers to none-One Cash customers, and buy network "airtime".

[26] Sana'a Center Economic Unit, "Challenges and Prospects for Electronic Money and Payment Systems in Yemen," Rethinking Yemen's Economy Policy Brief, Sana'a Center for Strategic Studies, DeepRoot Consulting, and CARPO, March 2022, https://devchampions.org/files/Rethinking_Yemens_Economy_No10_En-1.pdf. Accessed April 21, 2025; "Global Financial Inclusion (Global Findex) Database 2021: Yemen, Rep., 2022 – 2023," World Bank Group, June 8, 2023.

[27] "The Middle East's Fintech 50: 21. One Cash," Forbes Middle East, March 17, 2025, <https://www.forbesmiddleeast.com/lists/the-middle-east-fintech-50/one-cash/>. Accessed April 21, 2025.

million transactions worth US\$1.6 billion and had been downloaded over 600,000 times as of December 2023.^[28] However, the CBY-Aden challenged the legality of the new directive, raising concerns that the inclusion of less-regulated non-bank actors, such as money exchange companies, could have serious repercussions. The lack of a maximum limit on the amount of e-money one financial institution could issue in the 2020 decree also overrides previous regulations, which state that a bank can only issue e-money up to 15 percent of its capital and statutory reserves.^[29] The dispute over the 2020 decision resulted in two separate models emerging from the two competing central bank branches: the non-bank model in Houthi-controlled areas and the bank-led model in government-controlled areas.

Although the adoption of digital payment solutions is promising, it is still very limited in scope. For e-commerce businesses operating in Yemen, a unified payment gateway (UPG), consolidating various digital payment methods into a single platform, would make transactions significantly easier, according to a digital transformation strategist and manager at a mobile network operator in Yemen.^[30]

Neither central bank currently regulates commercial activities taking place digitally. As sales and purchases fall under general trading regulations, e-commerce stakeholders, including sellers and consumers, are not sufficiently protected online. While current regulations and legislation do not promote or support e-commerce development directly, increasing the availability and functionality of digital payment methods would be beneficial for e-commerce growth. Although most existing e-commerce businesses accept cash payments, electronic payments would significantly improve the cost and ease of transactions. The high levels of mobile phone usage and the young population present significant opportunities for growth in e-commerce. Mobile networks play a crucial role, given the lack of fixed broadband. With about 50-60 percent of the population actively using mobile cellular connections,^[31] e-wallets especially show significant promise. Beyond this, introducing tax incentives for e-commerce businesses and policies to regulate online trade could encourage growth in the sector.

[28] Ibid.

[29] The Sana'a Center Economic Unit, "Challenges and Prospects for Electronic Money and Payment Systems in Yemen," Rethinking Yemen's Economy Policy Brief, Sana'a Center for Strategic Studies, DeepRoot Consulting, and CARPO, March 2022, p.19, https://devchampions.org/files/Rethinking_Yemens_Economy_No10_En-1.pdf. Accessed April 21, 2025.

[30] Interview with a digital transformation strategist and manager at a mobile network operator in Yemen, January 6, 2025.

[31] Ibid.

Internet Services

With digital payment methods still developing and not readily available to most Yemenis, existing e-commerce businesses still rely on cash payments. They face other hurdles too, namely unreliable internet access and frequent electricity outages. Reliable and available internet access is essential for connecting buyers with sellers and providing services.

According to a report by the International Growth Centre (IGC), even before the conflict, the information and communications technology sector in Yemen was underdeveloped. Only 27 percent of the population had access to the internet in 2017, significantly less than the regional average of 65 percent.^[32] As of January 2024, internet access was estimated to be even lower, at around 17.7 percent of the population.^[33] In terms of internet speeds, Yemen scores among the worst globally, and bandwidth is severely limited. In May 2023, Yemen's mobile data speeds were clocked as the slowest in the world, with an average download speed of only 3.98 megabits per second (Mbps). Broadband speeds are also slow, with a fixed download speed of around 10 Mbps in early 2025.^[34] High costs have also limited access. In 2021, a data-only mobile broadband package accounted for 10 percent of the monthly gross national income (GNI) per capita, scoring far above the UN affordability target of 2 percent for entry-level broadband services.^[35] Due to the ongoing conflict and economic deterioration, the cost of the Minimum Food Basket (MFB) is up 33 percent compared to the three-year average in government-controlled areas,^[36] and Yemen has high rates of malnutrition among children.^[37] Much of the country must choose between mobile internet access and basic necessities.

Yemen's internet infrastructure is centralized and limited, which has made it vulnerable to disruption. In 2020, the underwater FALCON cable was damaged, leading to a temporary shutdown of 80 percent of Yemen's internet capacity.^[38] While the Aden-Djibouti submarine cable, introduced by the government in late 2022, was an attempt to limit the reliance on the Hudaydah cable, it, too, suffered outages.^[39] On January 21, 2022, a Saudi-led coalition airstrike on a telecommunications building in Hudaydah cut off power to the country's primary internet access point, leading to a

[32] Saleh Fadhl and Camilla Sacchetto, "Reforming Yemen's Telecommunications Sector," International Growth Centre, February 2023, https://www.theigc.org/sites/default/files/2023-08/Fadhl%20and%20Sacchetto%20Final%20report%20February%202023_EN_0.pdf. Accessed April 21, 2025.

[33] Marcin Frackiewicz, "Internet Access in Yemen: Overview and Key Aspects," TS2, February 24, 2025, <https://ts2.tech/en/internet-access-in-yemen-overview-and-key-aspects/>. Accessed April 21, 2025.

[34] Ibid.

[35] Fadhl and Sacchetto, "Reforming Yemen's Telecommunications Sector," International Growth Centre, February 2023, p. 3.

[36] "Market & Trade Bulletin, Yemen - Issued on 16 January 2025," UN Food and Agriculture Organization, January 16, 2025, <https://reliefweb.int/report/yemen/yemen-market-trade-bulletin-issued-16-january-2025#:~:text=The%20value%20of%20the%20US,areas%20than%20in%20GoY%20areas>. Accessed April 21, 2025.

[37] "Yemen's Rising Tide of Malnutrition: Seasonal Trends 2022-2024," Médecins Sans Frontières (MSF), March 19, 2025, <https://reliefweb.int/report/yemen/yemens-rising-tide-malnutrition-seasonal-trends-2022-2024-msf-report-march-2025-enar>. Accessed April 21, 2025.

[38] Frackiewicz, "Internet Access in Yemen: Overview and Key Aspects," TS2, February 24, 2025.

[39] Ibid.

four-day loss of connectivity.^[40] On March 31, 2025, US airstrikes severely damaged telecommunications stations, disrupting internet access and other services in several areas across the country.^[41] Frequent and extended power outages have also disrupted basic service provision, especially in areas under government control. Aden is particularly affected due to decaying infrastructure, inefficiency, and corruption in the energy sector, along with ongoing fuel shortages.^[42]

The existing internet infrastructure in Yemen is largely out of date. Signals are transmitted via microwave relays, and fiber infrastructure is very limited, with fixed-line broadband still largely delivered via DSL over copper telephone lines. During the conflict, this network has not had any significant upgrades, resulting in very low bandwidth and poor reliability.^[43] Mobile network operators pushed to upgrade their networks to 3G/4G services in 2020, competing for licenses to capture the promising market of mobile broadband services. The conflict, along with competing and politicized regulatory authorities, has made a meaningful transformation of Yemen's internet capacity even more complex. Both conflict parties operate the telecoms sectors under their respective control as monopolies, and the licensing of new providers or technologies is highly politicized. Until 2018, only one internet service provider (ISP) was allowed to operate.^[44] In September 2020, Sabafon, a privately owned telecommunications company, relocated its headquarters from Sana'a to Aden with a plan to launch 4G and 5G mobile phone services with support from the Aden-based Ministry of Telecommunications and Information Technology. The relocation was reportedly in response to Houthi authorities employing lawsuits and legal verdicts to extract substantial fees, including allegedly unpaid taxes.^[45] The company has reportedly introduced limited 4G services through SIM cards^[46] and was testing broader coverage through the latter half of 2024.^[47] In early January 2022, state mobile network operator Yemen Mobile Company, based in Sana'a, launched its own 4G service.^[48]

[40] The Sana'a Center Economic Unit, "Challenges and Prospects for Electronic Money and Payment Systems in Yemen," March 2022, p. 33.

[41] "Houthis: US strikes completely destroyed communications and internet stations [AR]," Belqees, March 31, 2025, <https://belqees.net/locals/الخوئيون-الحوثيون-الامريكية-دمرت-محطات-الاتصالات-والانترنت-بشكل-كامل>. Accessed April 21, 2025.

[42] The Sana'a Center Economic Unit, "The Yemen Review Quarterly: October - December 2024, The Economy," Sana'a Center for Strategic Studies, February 4, 2025, <https://sanaacenter.org/the-yemen-review/oct-dec-2024/24105>. Accessed April 21, 2025.

[43] Frackiewicz, "Internet Access in Yemen: Overview and Key Aspects," TS2, February 24, 2025.

[44] Ibid.

[45] The Sana'a Center Economic Unit, "Challenges and Prospects for Electronic Money and Payment Systems in Yemen," Rethinking Yemen's Economy Policy Brief, Sana'a Center for Strategic Studies, DeepRoot Consulting, and CARPO, March 2022, p. 25, https://devchampions.org/files/Rethinking_Yemens_Economy_No10_En-1.pdf. Accessed April 21, 2025.

[46] Saleh al-Mahoory, "Telecommunications and Internet in Aden," Khuyut, May 29, 2024, <https://www.khuyut.com/article/telecom-internet-aden>. Accessed April 21, 2025.

[47] "The Minister of Communications reviews the activities of Sabafon in Aden," Yemen TV, September 22, 2024, <https://en.yementv.tv/the-minister-of-communications-reviews-the-activities-of-sabafon-in-aden.html>. Accessed April 21, 2025.

[48] The Sana'a Center Economic Unit, "Challenges and Prospects for Electronic Money and Payment Systems in Yemen," Rethinking Yemen's Economy Policy Brief, Sana'a Center for Strategic Studies, DeepRoot Consulting, and CARPO, March 2022, https://devchampions.org/files/Rethinking_Yemens_Economy_No10_En-1.pdf. Accessed April 21, 2025.

Internet connectivity has also been affected by censorship and political interference. Houthi-run YemenNet has blocked websites and social media sites considered critical of Houthi authorities, including over 200 local and external news websites since 2015.^[49] Social media sites have been blocked intermittently, and internet access has been shut off entirely on occasion.^[50] While the internationally recognized government stated it would allow for freedom of expression upon the launch of AdenNet in mid-2018, only blocking violent content and pornography, it has been criticized for the lack of robust legal protections for free speech, especially given the significant political influence of Saudi Arabia and the UAE, countries known for internet censorship.

Areas under government control have struggled with unreliable networks, in part due to frequent electricity outages. The 2024 introduction of Starlink, Elon Musk's Low Earth Orbit (LEO) Satellite Internet Service, promised to improve the poor connectivity in government areas. According to communications and digital marketing specialist Hadi al-Haj, "Starlink internet service holds potential to improve connectivity in underserved areas, fostering e-commerce activity."^[51] Testing began in Aden in early 2023, showing download speeds surging from 10-12 Mbps on existing networks to over 140 Mbps using Starlink.^[52] The official launch took place in September 2024,^[53] making Yemen the first country in the Middle East to offer its complete services. The state-run Public Telecommunications Corporation (PTC) now sells Starlink subscriptions to users in government areas.

However, access to Starlink is hindered by both political and logistical constraints. In Houthi-controlled areas, access to Starlink is banned, and the authorities have declared Starlink devices illegal and detained people across Sana'a for using its services, fearing the service could facilitate foreign espionage.^[54] In government-controlled areas, access to Starlink services is difficult because the official retail cost for the hardware is US\$389, a high upfront expense for Yemenis.^[55] Despite this, orders have been stalled because the Public Telecommunications Corporation - the only officially authorized seller - does not have enough stock of Starlink user kits to meet demand.

[49] "Blocking News Websites in Yemen and Digital Rights Violations," SAM Organization for Rights and Liberties, June, 2022, <https://dg.samrl.org/?l=e/10/34/c/1/91/87/4490/A-report-highlighting-the-policy-of-blocking-news-websites-in-Yemendigital-rights#print>. Accessed June 19, 2025

[50] Frackiewicz, "Internet Access in Yemen: Overview and Key Aspects," TS2, February 24, 2025.

[51] Interview with Hadi al-Haj, Digital Marketing and Social Media Management Specialist, December 5, 2024.

[52] Frackiewicz, "Internet Access in Yemen: Overview and Key Aspects," TS2, February 24, 2025.

[53] Joyce Abaño "Elon Musk's Starlink Launches In Yemen, Challenging Houthi Internet Monopoly," Forbes Middle East, September 19, 2024. <https://www.forbesmiddleeast.com/industry/telecommunications/starlink-launches-in-yemen-ending-houthi-militias-internet-monopoly-in-the-country>. Accessed April 21, 2025.

[54] The Sana'a Center Economic Unit, "The Yemen Review Quarterly: July - September 2024, The Economy," Sana'a Center for Strategic Studies, October 16, 2024, <https://sanaacenter.org/the-yemen-review/july-sept-2024>. Accessed August 1, 2025.

[55] "Residential: Yemen," Starlink, 2025, <https://www.starlink.com/ye/residential>. Accessed August 1, 2025.

Logistics and Delivery Infrastructure

Another significant challenge to e-commerce is Yemen's delivery infrastructure. Transportation infrastructure throughout the country is underdeveloped, and delivery systems are constrained by damaged roads and fuel shortages. While urban centers like Sana'a and Aden fare better, they are still limited by logistics.^[56] The conflict has damaged urban roads, preventing not only trade but mobility and access to services.^[57] The country's weak economy, sectoral corruption, and mismanagement, as well as limited international funding, have compounded the issue. Recent Israeli, US, and UK airstrikes have damaged key infrastructure. Israeli strikes carried out in December 2024 hit critical port facilities, including fuel tanks and tugboats necessary for shipping operations at the ports of Hudaydah, al-Saleef, and Ras Issa oil facilities. Power plants and other critical infrastructure have also been hit.^[58] In March 2025, the US launched large-scale strikes against the Houthis, targeting Red Sea port facilities, command and control facilities, and weapons storage locations. The strikes resulted in hundreds of casualties and significant damage to fuel storage facilities in Ras Issa,^[59] leading to the onset of a fuel crisis in Houthi-controlled areas.^[60] In early May 2025, Israeli strikes targeted vital economic sites, including the port of Hudaydah and Sana'a International Airport, in retaliation for the Houthis' attack on Ben Gurion International Airport on May 4. The strikes damaged 70 percent of the port's five docks^[61] and caused an estimated US\$500 million worth of damage at Sana'a Airport.^[62]

The conflict has disrupted infrastructure, increased costs, and undermined trust in digital systems, which are seen as unreliable and potentially as tools for misinformation and control. It has also displaced populations, creating challenges for logistical services as customers' whereabouts lack consistency.^[63] According to a source from Yemen's largest e-commerce business, Bazzarry, the absence of a sophisticated and unified logistics system makes storage, transportation, and delivery a daily challenge for e-commerce companies.^[64]

[56] Interview with Hadi al-Haj, Digital Marketing and Social Media Management Specialist, December 5, 2024.

[57] "Restoring access to critical infrastructure in Yemen," United Nations Office for Project Services, September 19, 2023, <https://www.unops.org/news-and-stories/news/restoring-access-to-critical-infrastructure-in-yemen>. Accessed April 21, 2025.

[58] Famine Early Warning System (FEWS NET), "Yemen Key Message Update: Damage to critical infrastructure reduces Red Sea ports' operational capacity, December 2024," FEWS NET, January 18, 2025. <https://reliefweb.int/report/yemen/yemen-key-message-update-damage-critical-infrastructure-reduces-red-sea-ports-operational-capacity-december-2024>. Accessed April 21, 2025.

[59] David Gritten and Yang Tian, "US strikes on Yemen oil terminal kill at least 74, Houthis say," BBC News, April 18, 2025. <https://www.bbc.co.uk/news/articles/clywg335680o>. Accessed May 12, 2025.

[60] "The Houthi militia announces that fuel stocks are running out in areas under its control [AR]," Al-Omana. Net., May 1, 2025. <https://al-omana.net/news242345.html>. Accessed May 12, 2025.

[61] Mohammed Ghobari et al, "Israel strikes Yemen's Hodeidah Port after Houthi attack on Israeli airport," Reuters, May 6, 2025. <https://www.reuters.com/world/middle-east/strikes-target-yemens-hodeidah-houthi-affiliated-tv-says-blaming-israel-us-2025-05-05/>. Accessed May 12, 2025.

[62] "Yemenis wake up to the complete destruction of Sanaa airport and energy facilities [AR]," Aawsat, May 7, 2025, www.aawsat.com/-/اليمنيون-يقفون-على-دمار-كامل-لمطار-صنعاء-ومشآت-الطاقة. Accessed May 12, 2025.

[63] Interview with Hadi al-Haj, Digital Marketing and Social Media Management Specialist, December 5, 2024.

[64] Interview with an e-commerce expert at Bazzarry, April 27, 2025.

Emerging Stakeholders and Customer Base

A few e-commerce businesses and models have emerged in Yemen. From smaller sellers, such as Rose Marine Bakery, selling baked goods via a Facebook page,^[65] to more specialized e-commerce platforms like Bazzarry and Jeeey, the appeal of launching businesses at a low cost amid the economic crisis and ongoing conflict has become increasingly popular among Yemen's younger population.^[66] Everything from clothing and cosmetics to baked goods is advertised on social media sites like Facebook or Instagram. E-commerce businesses, large and small, have created employment opportunities across sales, delivery, and technical support.

The low operational cost and heightened personal security from not having to open and run physical stores are especially beneficial to women, who view e-commerce as an opportunity to establish a business and make a living. However, women also face additional barriers due to cultural norms and limited access to technology. According to Mohammed Yousef from the Reef Foundation for Human Development, while women in urban areas are among the most engaged in e-commerce as sellers and buyers,^[67] in rural areas, the lack of digital literacy and access to the internet continues to hinder their economic empowerment.^[68] Additional challenges include the lack of sector-specific regulation, which exposes customers and sellers to fraud. Entrepreneurs selling on international platforms have also struggled with the fluctuation in the exchange rate amid an ongoing currency crisis in government areas. The Yemeni rial's weakness against foreign currencies, such as the Saudi riyal, has meant that purchasing products in foreign currencies, as mandated by certain e-commerce platforms, is increasingly unaffordable for many Yemenis, significantly cutting down on the customer base.^[69]

E-commerce customers are concentrated in urban areas, including Sana'a, Taiz, Ibb, and Aden, where access to technology and internet services is more attainable.^[70] But the economic situation presents challenges for consumers. The conflict has interrupted or suspended many salary payments, leading to a decline in purchasing power. Economic contraction, currency depreciation, and the existing monetary divide have increased prices and decreased disposable income, further stifling e-commerce activity.

However, due to the deteriorating security situation in Yemen, customers may prefer viewing and accessing products online instead of visiting physical stores. Strategically adapting to the challenges presented in this paper has allowed some e-commerce platforms to gain a customer base.

[65] Rose Marine Bakery Facebook Account, https://www.facebook.com/people/%D8%B1%D9%88%D9%88%D8%B2-%D9%85%D8%A7%D8%B1%D9%8A%D9%86/pfbid0nVC3jbzd16D7oGXuYrgvWwwKJKrViS2wn1VRerwZU8jEQy2pj2e4bwS7sGxpKLAL/?rddid=jAiXq3Zekifpg7AD&share_url=https%3A%2F%2Fwww.facebook.com%2Fshare%2F1BDVRYHHS3%2F. Accessed April 21, 2025.

[66] Reem Al-Fadhli, "E-commerce in Yemen: Individual Successes and Collective Challenges," South24, April 15, 2025. <https://south24.net/news/newse.php?nid=4590>. Accessed April 21, 2025.

[67] Interview with Husam Abdullah, Volunteer Logistics Assistant and E-Store Management Expert, December 10, 2024.

[68] Interview with Mohammed Yousef, Executive Manager of Reef Foundation for Human Development, February 5, 2025.

[69] Reem Al-Fadhli, "E-commerce in Yemen: Individual Successes and Collective Challenges," South24, April 15, 2025. <https://south24.net/news/newse.php?nid=4590>. Accessed April 21, 2025.

[70] Interview with Husam Abdullah, Volunteer Logistics Assistant and E-Store Management Expert, December 10, 2024.

Bazzarry Case Study

As Yemen's largest and most established e-commerce business, Bazzarry offers an interesting example of how e-commerce providers have adapted to the challenges of the current environment. It employs over 250 workers in Aden and Sana'a and offers over 50,000 products, including electronics, home appliances, fashion, and health and beauty supplies.^[71]

From July to August 2023, Bazzarry grew by more than 120 percent, with over 25,000 registered users and US\$750,000 in secured funding.^[72] It has continued to grow its customer base, especially in urban areas. According to a Bazzarry representative, the business has more than doubled the number of products on offer over the last two years, crediting increased awareness among local sellers, newly developed technical solutions, and the expansion of its team.^[73] To circumvent some of the logistical challenges detailed above, Bazzarry uses flexible storage solutions, including storing items in local warehouses and express transportation from manufacturers or distant storage, as needed. In Aden and Sana'a, a transportation fleet managed by Bazzarry delivers orders to customers directly, or customers can pick up their orders themselves. To ensure quality and better oversight of operations, it does not use external logistics companies. As the adoption of digital payment methods remains limited, customers can choose between paying cash on delivery or via a number of locally available e-wallets and ATMs.^[74]

However, the limitations of existing digital infrastructure, the lack of e-commerce legislation, and underdeveloped electronic payment systems limit the expansion of Bazzarry's customer base.^[75] Some governorates are currently cut off from efficient transportation networks. According to a representative from Bazzarry, the government and private sector must combine their efforts to build an investment environment that encourages and supports digital transformation, or the available opportunities will remain underutilized. The next phase of Bazzarry's growth will require significant investments in infrastructure development, capacity building for local talent, and the creation of local and international partnerships capable of driving the growth of the e-commerce ecosystem in an integrated and sustainable manner.^[76]

[71] Interview with an e-commerce expert at Bazzarry, April 26, 2025.

[72] "Forbes 30 under 20 2023," Forbes Middle East, <https://www.forbesmiddleeast.com/lists/30-under-30-2023/abdullah-alhebsi/>. Accessed April 28, 2025.

[73] Interview with an e-commerce expert at Bazzarry, April 26, 2025.

[74] Ibid.

[75] Ibid.

[76] Ibid.

RECOMMENDATIONS

While challenges such as poor road infrastructure, high transportation costs, and limited warehousing solutions affect businesses, economic instability reduces consumer spending, creating difficulties for long-term planning. Poor internet connectivity and inadequate payment processing facilities are primary barriers to e-commerce development. Yemen's poor internet infrastructure makes its service among the slowest, least accessible, and most expensive in the world. Furthermore, the absence of policies around digital transactions and intellectual property creates uncertainty, deterring investment in the sector.^[77]

But opportunities also exist: a young population with increased smartphone adoption and the introduction of Starlink internet service in government-controlled areas provide potential for growth. E-commerce businesses have emerged and gained a customer base despite the existing limitations. The opportunities for Yemen's young population, especially female entrepreneurs, are significant. To develop e-commerce in Yemen, policy interventions are needed to improve digital infrastructure, streamline regulations, and create a conducive and protected business environment.

1) Investing in Digital Infrastructure

International organizations and donors interested in building capacity and resilience in government-controlled areas should consider investing in LEO satellite services like Starlink. They are the most promising solution to increase internet availability, especially as overhauling destroyed infrastructure and laying fiber is risky and impractical in the context of the ongoing conflict. If the rollout of Starlink continues successfully, it will lead to unprecedented access and internet speeds in Yemen. Moreover, a successful rollout could entice other regional satellite ISPs to offer their services in Yemen, improving competition and lowering prices. The international community should also engage in awareness-raising efforts to promote the introduction of competing LEO satellite providers in Yemen.

The government should focus on continuing to expand Starlink coverage, especially in rural areas and underserved communities. The Ministry of Planning and International Cooperation, the Ministry of Communications and Information Technology, and the Ministry of Finance should coordinate efforts to ensure the successful rollout of Starlink and maintain transparency and accountability regarding the provision of information infrastructure.

^[77] Interview with Hadi al-Haj, Digital Marketing and Social Media Management Specialist, December 5, 2024.

2) Streamlining Regulations and Creating a Conducive Business Environment

Beyond a long-term strategy to stabilize Yemen's economy and financial systems, more cohesive and expansive regulation should be pursued. Overcoming the competing regulatory frameworks governing e-money and monetary policies has become even more challenging with the introduction of US sanctions on the Houthis. Facilitating adherence to international standards and preventing Yemen's banking system from being subjected to further isolation and deterioration is crucial. The Central Bank of Yemen in Aden must be supported through capacity building and technical assistance to encourage coordination among Yemeni banks.

The CBY-Aden should make use of technical assistance to strengthen its governance and improve regulatory gaps. Digital trade and e-commerce should be regulated sector-specifically, introducing customer protections and fair play legislation.

The CBY-Sana'a should refrain from further dividing the regulatory environment through the introduction of unilateral directives. It should improve adherence to international standards and introduce better oversight over digital trade, including anti-fraud protections.

External donors and international development institutions should ensure that their activities support a more cohesive regulatory framework with significant oversight and enforcement capabilities.

Subsidies for startups, training programs for young entrepreneurs, and partnerships with international donors can also help expand e-commerce.

3) Promoting Digital Literacy and Consumer Awareness

Many Yemenis remain unfamiliar with how e-commerce functions. Mistrust in online platforms and the fear of fraud and privacy breaches prevent increased adoption of specialized e-commerce providers over familiar informal channels. Establishing consumer protective measures, raising awareness, and building trust will be critical for growth. The widespread use of social media can be leveraged for consumer awareness. Digital literacy programs, especially in rural areas, would enhance safety and confidence, fostering e-commerce growth.

International organizations should strengthen collaboration with local partners like the Reef Foundation, especially in rural communities, and invest in digital literacy programs.

The government should leverage social and traditional media to improve customer awareness of e-commerce and digital safety.

4) Strengthening Cybersecurity Measures and Preventing Censorship

The government should implement cybersecurity measures to prevent fraud, theft of sensitive information, and other illicit activities. Cloud and satellite services hosted in Yemen could be introduced as a first step to appease security concerns over foreign interference. However, it is also crucial that government and regulatory authorities do not impede access or maintain a monopoly on internet provision. Yemen's internet freedom is already limited due to censorship and the possible dangers of expressing oneself online amid an ongoing conflict. Cybersecurity measures could be supported by international donors and NGOs, and oversight by a neutral entity could help balance political manipulation. To improve trust in digital spaces and therefore foster e-commerce growth, users should not be deterred by fear of interference, coercion, or retaliation.

5) Fostering Public-Private Partnerships

Yemen's private sector can play an important role in e-commerce development. Businesses can invest in logistics, create localized platforms, and partner with global payment providers to ease digital transactions. The private sector can also drive initiatives to improve logistics, build trust in digital payments, and enhance consumer awareness about e-commerce. The private sector should be supported through capacity building and collaboration with international organizations such as UNDP or entities like the EU.

Government entities, such as the Ministry of Industry and Trade and the Ministry of Communications and Information Technology, should collaborate with the private sector to improve infrastructure, educate consumers, incentivize digital payments, and create training programs for entrepreneurs. Tax breaks or grants for tech startups, training programs, and investment in digital literacy programs in partnership with international donors could help stimulate growth.

6) Providing Targeted Programs for Marginalized Communities

As women face cultural barriers and limited access to education and technology, their participation in e-commerce must be actively promoted and incentivized. Businesses must address cultural sensitivities, especially for marginalized communities. Women face restricted mobility, making it harder for them to participate in e-commerce. For international organizations, working with local partners, such as NGOs or government-affiliated organizations like the Women's

National Committee of Yemen, to invest in and create targeted training programs, mentorship initiatives, and online platforms tailored for women, could enhance their participation. For merchants, providing safe payment methods and delivery options could address safety concerns.^[78]

7) Including Environmental Protections

Lastly, considering Yemen's limited resources, sustainable practices in its e-commerce sector development will be vital. The integration of environmentally friendly logistics, recyclable packaging, and energy-efficient technologies should be promoted. The Ministry of Water and Environment should be involved in regulatory and awareness-raising efforts. Moreover, limited water and energy resources mean logistics and operations must be efficient. Sellers should receive incentives for more sustainable operations. Environmental protections should be part of the regulatory advancements and investments in infrastructure.

^[78] Interview with Hadi al-Haj, Digital Marketing and Social Media Management Specialist, December 5, 2024.

RETHINKING YEMEN'S ECONOMY

The Rethinking Yemen's Economy (RYE) Initiative and its associated Development Champions Forum aim to contribute to and support the advancement towards inclusive and sustainable development and peace by seeking to achieve the following: **a)** the enabled inclusive engagement of Yemenis in economic peacebuilding; **b)** an improved understanding of crucial policy areas related to economic peacebuilding and development in Yemen. The RYE initiative is implemented by DeepRoot Consulting, the Sana'a Center for Strategic Studies and CARPO – It is funded by the European Union.

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Implementing Partners

The project is implemented by a consortium of the following three partners:



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