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Empirical Study of the determinants of E-Commerce Adoption Challenges and Opportunities in Mogadishu, Somalia

Abdirahman Hassan Hersi
hersi@salaam.edu.so
Salaam University
Halima Dahir Ali
Salaam University
Abdirahman Mohamed Mohamud
Salaam University

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Abstract

This empirical study examines the determinants of e-commerce adoption in the post-conflict economy of Somalia, Mogadishu. It examines the survey data of 201 respondents on usage pattern, perceived barriers, major challenges, motivators and prospects. Ordered logistic regression was used to compute both crude (bivariate) and adjusted (multivariate) odds ratios, thus revealing independent determinants of adoption levels. Findings show that prior e-commerce experience significantly predicts increased adoption (aOR = 9.60; 95% CI: 3.17–29.09, $p < 0.001$). Occupational status is important as students show significantly higher adoption rates compared to unemployed individuals (aOR = 0.13; $p = 0.017$) or general consumer population (aOR = 0.11; $p = 0.019$). Prolonged residency of more than ten years had a significant negative impact (aOR = 0.10; $p = 0.003$). Disagreement regarding logistics as an impediment significantly enhances the likelihood of adoption (aOR = 14.5; $p = 0.008$), although neutral views on trust-related barriers continue to exert influence (aOR = 7.40; $p = 0.011$). The recognition of e-commerce as a catalyst for employment development among youth and women is identified as the most significant factor (aOR = 12.1 for “agree” and 84.4 for “strongly agree”; both $p \leq 0.010$). The findings highlight the criticality of experience components, occupational environment, logistical dependability, calibrated trust and opportunity perception, particularly in job creation, in shaping e-commerce trajectories. The findings offer practical guidance for commerce regulators to enhance infrastructure and regulatory reforms, for industry professionals to develop focused mobile-money platforms and awareness campaigns, and for researchers to conduct longitudinal and comparative studies in analogous fragile environments.

1. Introduction

The introduction of electronic commerce (e-commerce) has changed the world of business by removing geographical barriers and allowing easy transactions across borders [1]. Web-enabled businesses as argued need to understand and address a variety of international economic, technological, social and legal challenges before entering international e-commerce, as the platform-independent nature of the Internet opens up new distribution channels and communities of buyers and sellers [17]. Researchers belief that e-commerce transforms economies from production to information-based economies, and thus, needs robust decision support systems and one-to-many networked business models that integrate technology and strategic operational considerations [18]. Despite the transformational potential of e-commerce, adoptation face limitation across developing countries either due to sociopolitical and economic challenges or challenges posed by bureaucratic hurdles and the absence of appropriate infrastructure [12].

About two decades ago, reseachers pointed out that there are eleven crucial processes that make or break the success of e-commerce including order fulfillment, revenue generation, IT integration and consumer behavior [3]. The authors have also emphasized the need for process-level alignment, particularly during rapid technological changes. Moreover, observers on African E-commerce though argued that e-commerce can enhance GDP growth, they however concluded that there are persistent challenges in closing the digital divide in Africa such as inadequate ICT infrastructure, low levels of basic digital literacy and high levels of cybercrime that affect both domestic and international trade [16]. These challenges are manifested in low teledensity, unstable power supplies, poor payment systems and logistics problems, which are similar to trends in developing countries [17]. Limited adoption is aggravated by perceived challenges such as lack of trust, unclear legal frameworks, and lack of skills. Businesses tend to favor established platforms over complex e-market places because of perceived uncertainty and/or risks that involve [11]. Taken together, these studies highlight that the key obstacles to e-commerce growth in places such as Mogadishu are interrelated infrastructural, institutional and behavioral factors. This calls for an analytical approach, which is context specific.

In addition, changing market needs and technological innovation are the driving forces of e-commerce development and adoption in developing countries. Some of these market changes are caused by crisis, for instance, Covid 19 crisis have proved the usefulness of c-commerce, helping countries like China to sidestep economic disruptions of pandemic while leading to a record of trade surpluses and foreign direct investment that boosted China’s economic resilience [22]. This underlines the role of the digital platforms in the economic growth even during the global crisis. E-commerce improves customer engagement, marketing and logistics through blockchain technology and live streaming [19]. These changes influence consumer preferences in emerging economies. Likewise, researchers who performed extensive investigation in cross-border e-commerce of China found policy-led urbanisation, fast customs procedures and digital payment technology that opens up access to markets and facilitates transactions [13]. Such opportunities encourage E-commerce.

More importantly, earlier studies suggest that E-commerce creates entrepreneurial opportunities with virtual enterprises and supply chain integration [18]. This means that E-commerce adoption in Mogadishu mainly depends on the perception of these opportunities (e.g., cost savings, increased market access, and skill development). These factors combined indicate how local E-commerce platforms can convert challenges into opportunities for sustainable growth. Many other factors influence the adoption of E-commerce including technological readiness, organizational proficiencies and perceptual factors influence patterns of use and recognition of prospects. In practice, it is inevitable to incorporate e-commerce knowledge components like database connectivity, ERP integration, and customer analytics into business programs to equip graduates with the critical skills for successful implementation, thereby underscoring a persistent skills deficit in many developing settings [11]. Nevertheless, researchers have identified e-commerce as the core element of new business opportunities such as pre-sale, post-sale, market research, and diffusion of knowledge, which ultimately influence stakeholders' perceptions of viability [1].

Empirical evidences suggest that perceived limitations are addressable considering the positive perceptions of opportunities like revenue diversification and access to global markets, and through adapted business models [12, 16]. These are examined in relation to local consumption preferences (e.g. mobile first platforms for consumer goods), and significant challenges (e.g. regulatory vacuum) in the post-conflict context of Mogadishu. This in turn raises a detailed discussion on the opportunities of investing in digital infrastructure and metaverse-based innovations for development [19, 13]. This approach will undoubtedly blend global theoretical frameworks with local reality. This study, however, addresses a large empirical research gap in fragile post-conflict economies by investigating the adoption of e-commerce in Mogadishu, including the use of platforms, selection of products, perceived barriers to E-commerce adoption, main barriers to growth, drivers and opportunities for expansion, key opportunities for advancement, factors influencing adoption, and stakeholders' views on opportunities.

This empirical study aims to find out the factors that affect the adoption of e-commerce in Mogadishu. The analysis cover patterns with a focus on platform and product preferences and perceived barriers to adoption. The research analysis include key challenges that are preventing growth, key drivers and opportunities for growth of e-commerce, and key prospects for growth. It takes into consideration to find out stakeholders' views on the opportunities available. Thus, this paper offers practical insights to policymakers, business leaders, and educators working in economically vulnerable settings. The remainder of this paper is organized as follows. Section 2 examines the evolution and adaptation of e-commerce in Mogadishu. Section 3 presents the research methodology and data. Section 4 contains the empirical results and its analysis. The results are presented in section 5. The paper concludes along with a recommendation for further research.

2. Evolution and Adoptation of E-Commerce in Mogadishu

Mogadishu's e-commerce boom is an indication of Somalia's post-conflict recovery and digital leapfrogging, made possible by the exponential growth of telecommunication networks, cheap mobile data, and ubiquitous mobile money platforms. The industry has grown at an unprecedented rate during the COVID-19 pandemic as restrictions on physical mobility have forced consumers and businesses to turn to online retail and delivery services [20]. This translated into an increased government attention to develop ICT policy, legal framework, human capacity, and infrastrucure development. Mobile money has been an important tool in developing trust in transactions in unbanked areas [14]. There is also the adaptation of local platforms and competitive internet prices, the lowest on the continent. Likewise, in Mogadishu, SMEs are transitioning from informal markets to digital platforms, hence broadening their market despite infrastructure constraints, which is similar to broader patterns in the East African digital economy [4]. The rise from a low base is indicative of the capital's entrepreneurial dynamism.

The convenience, social pressure, and targeted marketing are influencing Mogadishu consumers to turn to e-commerce, in particular mobile apps for shopping, payments, and deliveries. The youth in cities are increasingly adopting the use of the internet. Grocery markets and consumer goods are becoming dynamic [8]. Recenty findings indicate that positive consumer attitude and trust associated their perception of E-commerce accessability, usefullness, and ease of use [6]. Furthermore, familiarity issues moderated these relationships. Opportunities and Challenges of E-commerce Experience Users appreciate the time saved and the range of products but point out inconsistency in usability and service delivery. Positive experiences encourage continued use, which leads to an iterative learning process driven by Somalia's mobile-first environment (Ibrahim, 2024). The extended TAM models show that attitudes are formed through trial and feedback, which is consistent with the global trend but at a faster pace locally [6, 14]. Somalis use it in some digitally literate circles with slow growth rate.

Post-conflict Mogadishu's e-commerce offers many opportunities for youth and SMEs in digital skills, logistics, platform operations, customer service, and entrepreneurship [4]. Platforms are vital to enable small businesses to scale-up, formalize their operations and access a wider market leading to increased revenues and job creation in delivery and technical support [20]. The reliability of the logistics remains uncertain. Mobile money allows for efficient payments, but the delivery faces infrastructure gaps, congestion in the cities and security concerns in parts of the city. The new network based local services is making urban orders more reliable but rural linkages and inventory management are weak [7]. This is evident in the employment multiplier effect for inclusive economic growth in the trend of skill development and business innovation. Additional investments in infrastructure and targeted training to improve logistics could magnify these benefits even further, turning bottlenecks into assets for Mogadishu's digital economy [4, 20].

The challenges of e-commerce in Mogadishu include lack of ICT skills, inadequate infrastructure, security and privacy issues, lack of awareness and incomplete regulatory frameworks [21]. Some of these factors exacerbate the risk and slow trust development in periods of historical instability. But enablers include evidence of convenience, market access, cost efficiencies, integration with mobile money and policy support for digital transformation [14, 7]. The outlook is positive, Somalia could become a regional e-commerce player while macroeconomic and infrastructure investments, digital literacy; fintech and innovation platforms are still underway [4, 20]. Significant growth, job creation and increased resilience can be unlocked through digital skill training, improvements in cybersecurity and comprehensive regulation [21;6]. Through partnership, the government, the private sector and consumers can harness Somalia's youthful population and high mobile penetration to build a resilient, trusted digital ecosystem [7].

3. Methodology

3.1 Research Design and Study Setting

The present study adopts a quantitative, cross-sectional research design to empirically investigate the determinants influencing e-commerce adoption within an urban developing context. The research was conducted in Mogadishu, Somalia, a city currently undergoing a significant digital transition characterized by rapid mobile technology penetration despite persistent infrastructure challenges. This empirical approach allows for the examination of both inhibitors, such as security and logistical risks, and drivers, such as mobile money integration and diaspora networks, providing a comprehensive view of the digital marketplace.

3.2 Sampling and Data Collection

Primary data were gathered from a sample of 201 respondents utilizing a structured electronic survey instrument. The target population comprised active internet users, local entrepreneurs, and consumers within Mogadishu, as well as members of the Somali diaspora engaged with local businesses. To ensure the integrity of the data and protect respondent privacy, all participation was voluntary and conducted under conditions of anonymity. The survey instrument was designed to capture a wide array of factors, ranging from basic socio-demographic characteristics to complex perceptions of digital barriers and economic opportunities.

3.3 Variable Measurement and Construction of the Composite Index

The central focus of this manuscript is the measurement of "E-commerce Adoption," which was conceptualized as a multi-dimensional construct rather than a simple binary choice. Following the logic of behavioral adoption models, a composite E-commerce Adoption Index was developed by aggregating three distinct metrics: behavioral usage frequency, functional perceived usefulness, and attitudinal likelihood to recommend the service. A reliability analysis was performed on these components, yielding a Cronbach's Alpha coefficient of 0.5084. While this indicates a moderate level of internal consistency, it suggested that the underlying items possessed sufficient variance to warrant a categorical approach. Consequently, to ensure statistical robustness and practical interpretability in the regression models, the continuous 0–100 index was collapsed into a three-level ordinal dependent variable, representing "Low," "Moderate," and "High" adoption levels. The independent variables, including infrastructure reliability, trust, and security concerns, were measured using standardized 5-point Likert scales, which were subsequently encoded into numeric values to facilitate econometric analysis.

3.4 Statistical Analysis and Econometric Modeling

Data processing and analysis were performed using Stata software, employing a multi-stage analytical framework. Initially, descriptive statistics were used to establish the demographic and usage profile of the cohort. In the inferential phase, the study utilized Ordered Logistic Regression to determine the factors influencing the movement between adoption tiers. The analysis was conducted in two parts: a bivariate analysis to calculate Crude Odds Ratios (cOR) for each predictor, followed by a multivariate analysis to determine Adjusted Odds Ratios (aOR). The multivariate model allowed for the control of potential socio-demographic confounders, isolating the independent effect of each challenge and opportunity on the adoption index. To ensure the validity of the findings, diagnostic tests were performed, including the assessment of multicollinearity. The resulting mean Variance Inflation Factor (VIF) of 1.72 confirms that the model is free from significant multicollinearity, supporting the empirical reliability of the determinants identified in the results section of this manuscript.

4. Results

4.1 Demographic and Background Characteristics of Respondents

The study analyzed data from a total of 201 respondents in Mogadishu. The demographic profile, summarized in Table 1, indicates a nearly equal gender distribution, with 50.75% (n = 102) males and 49.25% (n = 99) females. The sample was predominantly composed of a younger demographic, with 60.20% (n = 121) falling within the 18–24 age bracket, followed by those aged 25–34 (23.88%).

In terms of educational attainment, the cohort was highly educated; 63.68% (n = 128) held university degrees, while 7.46% possessed postgraduate qualifications. Regarding primary occupation, students represented the largest segment (44.78%), followed by entrepreneurs (25.37%), suggesting that the digital economy in Mogadishu is largely driven by the youth and the private business sector.

Table 1
Demographic and Background Characteristics of Respondents

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	102	50.75
	Female	99	49.25
Age Group	Under 18	17	8.46
	18–24	121	60.20
	25–34	48	23.88
	35–44	9	4.48
	45+	6	2.99
Education Level	No Formal / Primary	25	12.44
	Secondary	25	12.44
	University	128	63.68
	Postgraduate	15	7.46
Primary Occupation	Student	90	44.78
	Entrepreneur	51	25.37
	E-comm Employee	32	15.92
	Unemployed/Other	28	13.93

4.2 Status of E-commerce Adoption Levels

The extent of e-commerce adoption was categorized into three levels: Low, Moderate, and High. As illustrated in Fig. 1, the majority of respondents (48.3%) demonstrated a moderate level of adoption. Notably, 36.3% of the participants were identified as high

adopters, while only 15.4% remained in the low adoption category. This distribution suggests a robust transition toward digital commerce within the urban Mogadishu context.

4.3 E-commerce Usage Patterns: Platforms and Product Preferences

The analysis of usage behavior (Fig. 2) reveals that social media is the primary gateway for e-commerce in Mogadishu, utilized by 67.2% of the sample. Mobile money followed as a significant facilitator (37.8%), while local and international dedicated e-commerce sites saw lower utilization rates (13.9% and 10.9%, respectively). Regarding product categories, consumer electronics and gadgets were the most frequently purchased or sold items (46.8%), followed by clothing and accessories (32.3%). Essential goods, such as food and groceries, accounted for 24.9% of transactions. Interestingly, niche sectors like remittances (9.0%) and livestock/fisheries (7.0%) are also beginning to emerge within the digital marketplace.

4.4 Perceived Barriers to E-commerce Adoption

Table 2 and Fig. 3 detail the systemic challenges hindering e-commerce growth. The most significant barriers identified by respondents (Agree/Strongly Agree) include payment risks and limited banking infrastructure (51.24%), security concerns related to fraud (50.25%), and logistical/delivery issues (48.76%). When asked to identify the "Greatest Challenge," security/fraud (31.3%) and infrastructure (28.9%) were prioritized (Fig. 3). While trust in transactions remains a concern for 48.76% of respondents, the cost of internet data (44.28%) and regulatory gaps (45.77%) also represent substantial institutional hurdles.

Table 2
Barriers and Challenges to E-commerce Adoption

Barrier Item	Strongly Disagree/Disagree (%)	Neutral (%)	Agree/Strongly Agree (%)
Unreliable Electricity/Internet	37.81	20.90	41.29
High Cost of Internet Data	31.84	23.88	44.28
Lack of Digital Literacy	29.35	24.88	45.77
Security Concerns (Fraud)	27.37	22.39	50.25
Payment Risks/Limited Banking	25.88	22.89	51.24
Logistical/Delivery Issues	27.86	23.38	48.76
Regulatory Gaps/Customs	28.86	25.37	45.77
Low Trust in Transactions	31.35	19.90	48.76

4.5 Drivers and Opportunities for Growth

Despite the challenges, respondents expressed high optimism regarding the drivers of e-commerce. As shown in **Table 3**, the primary perceived benefits include improved social media engagement (57.22%), resilience during crises (56.71%), and increased sales/revenue (56.22%).

Furthermore, 55.7% of respondents identified mobile technology as the single greatest opportunity for future growth (Fig. 4), far outweighing regional trade (17.4%) or government support (12.9%). This underscores the mobile-centric nature of the Somali digital ecosystem.

Table 2
Opportunities and Drivers for E-commerce Growth

Opportunity Item	Strongly Disagree/Disagree (%)	Neutral (%)	Agree/Strongly Agree (%)
Access to Diaspora Networks	37.32	17.41	45.28
Job Creation (Youth/Women)	26.37	19.90	53.73
Cost Savings (Mobile Money)	30.35	18.91	50.75
Increased Sales/Revenue	24.88	18.91	56.22
Improved Social Media Engagement	25.38	17.41	57.22
Potential for Export Growth	27.87	18.91	53.24
Resilience during Crises	22.89	20.40	56.71

4.6 Determinants of E-commerce Adoption: Inferential Analysis

To identify the factors influencing adoption levels, an Ordered Logistic Regression was performed. Both Crude Odds Ratios (COR) and Adjusted Odds Ratios (AOR) are reported in Table 4.

4.6.1 Bivariate Analysis (Crude Odds Ratios)

The bivariate analysis, represented by the Crude Odds Ratio (cOR), was conducted to examine the unadjusted association between each independent variable and the level of e-commerce adoption.

In terms of socio-demographic factors, age, gender, and occupation did not yield statistically significant associations at the bivariate level. However, residency duration showed a noteworthy trend, though not statistically significant, where those living in Mogadishu for over 10 years showed lower odds of high adoption compared to those with less than a year of residency (cOR = 0.55; 95% CI: 0.26–1.17, p = 0.118).

Behavioral factors and perceptions of barriers showed strong associations. Prior experience was a major factor; individuals who had previously used e-commerce were significantly more likely to report higher adoption levels (cOR = 3.22; 95% CI: 1.73–6.01, p < 0.001). Regarding barriers, respondents who agreed that logistics were an issue (cOR = 2.94; 95% CI: 1.38–6.27, p = 0.005) and those who expressed trust-related barriers at "Neutral" (cOR = 3.78; 95% CI: 1.58–9.07, p = 0.003), "Agree" (cOR = 4.46; 95% CI: 2.02–9.82, p < 0.001), and "Strongly Agree" (cOR = 6.16; 95% CI: 2.41–15.76, p < 0.001) levels all showed significantly higher odds of being in a higher adoption category compared to the reference groups.

Perceived opportunities were also potent predictors in the crude model. Significant associations with higher adoption were found for those who agreed on the importance of Diaspora Networks (cOR = 3.25; 95% CI: 1.56–6.78, p = 0.002), Job Creation (cOR = 9.95; 95% CI: 3.95–25.07, p < 0.001), Cost Savings through Mobile Money (cOR = 4.17; 95% CI: 1.88–9.27, p < 0.001), Revenue Growth (cOR = 4.34; 95% CI: 1.45–12.98, p = 0.009), Social Media Engagement (cOR = 5.77; 95% CI: 2.17–15.37, p < 0.001), and Resilience during Crises (cOR = 4.05; 95% CI: 1.62–10.15, p = 0.003).

4.6.2 Multivariate Analysis (Adjusted Odds Ratios)

The multivariate analysis, using Adjusted Odds Ratios (aOR), controlled for potential confounders to identify the independent determinants of e-commerce adoption. After adjustment, several factors emerged as highly significant drivers or inhibitors.

Socio-Demographic Determinants:

Occupation emerged as a critical factor; compared to students, both unemployed individuals (aOR = 0.13; 95% CI: 0.02–0.69, p = 0.017) and general consumers (aOR = 0.11; 95% CI: 0.02–0.69, p = 0.019) were significantly less likely to adopt e-commerce at high levels. Furthermore, residency duration became a significant negative predictor, with long-term residents (> 10 years) having 90% lower odds of high adoption compared to newcomers (aOR = 0.10; 95% CI: 0.02–0.47, p = 0.003).

Behavioral and Experience-Based Determinants:

Prior usage remained a powerful independent determinant. Respondents who had "Ever Used E-commerce" were nearly ten times more likely to occupy a higher adoption tier (aOR = 9.60; 95% CI: 3.17–29.09, $p < 0.001$) than those who had not.

Perception of Barriers:

The adjustment revealed a striking finding regarding logistics: those who disagreed that logistics were a barrier had significantly higher odds of high adoption (aOR = 14.5; 95% CI: 1.99–106.1, $p = 0.008$) compared to the reference group. Trust also remained significant, specifically for those who held a neutral stance (aOR = 7.40; 95% CI: 1.57–34.89, $p = 0.011$), whereas those who "Agreed" that trust was a barrier lost statistical significance in the adjusted model ($p = 0.899$).

Perception of Opportunities:

Among the various opportunities, the perception of "Job Creation" for youth and women was the most influential determinant of adoption in the entire study. Respondents who "Agreed" with this potential were 12.1 times more likely to be high adopters (aOR = 12.1; 95% CI: 1.80–81.29, $p = 0.010$), while those who "Strongly Agreed" showed an extraordinary association with higher adoption levels (aOR = 84.4; 95% CI: 5.50–1294.5, $p = 0.001$).

Interestingly, while many factors like Diaspora Networks, Savings, and Social Media Opportunity were significant in the bivariate analysis, they did not retain significance in the multivariate model (all $p > 0.05$). This suggests that their influence on adoption is mediated by other factors such as occupation and prior experience. Finally, perceived advantages in mobile technology did not significantly influence adoption in the final model (aOR = 2.99; 95% CI: 0.84–10.61, $p = 0.091$).

Table 4
Bivariate and Multivariable Analysis of Determinants of E-commerce Adoption

Variable	Category	COR (95% CI)	p-value	AOR (95% CI)	p-value
Age Group	Under 18	1.00 (Ref)		1.00 (Ref)	
	18–24	0.66 (0.26–1.69)	0.386	0.88 (0.16–4.78)	0.884
	45+	2.67 (0.41–17.57)	0.306	20.0 (0.57–699.7)	0.098
Gender	Male	1.00 (Ref)		1.00 (Ref)	
	Female	0.75 (0.44–1.27)	0.283	0.62 (0.25–1.55)	0.311
Occupation	Student	1.00 (Ref)		1.00 (Ref)	
	Unemployed	0.44 (0.15–1.26)	0.124	0.13 (0.02–0.69)	0.017*
	Consumer	0.97 (0.32–2.89)	0.954	0.11 (0.02–0.69)	0.019*
Residency	< 1 Year	1.00 (Ref)		1.00 (Ref)	
	6–10 Years	0.88 (0.37–2.13)	0.783	0.16 (0.03–0.79)	0.024*
	> 10 Years	0.55 (0.26–1.17)	0.118	0.10 (0.02–0.47)	**0.003** **
Ever Used E-comm	No	1.00 (Ref)		1.00 (Ref)	
	Yes	3.22 (1.73–6.01)	**< 0.001*** ***	9.60 (3.17–29.09)	**< 0.001*** ***
Logistics Issues	Disagree	2.00 (0.72–5.61)	0.185	14.5 (1.99–106.1)	**0.008** **
	Agree	2.94 (1.38–6.27)	**0.005** **	1.88 (0.28–12.68)	0.517
Trust Barrier	Strongly Disag.	1.00 (Ref)		1.00 (Ref)	
	Neutral	3.78 (1.58–9.07)	**0.003** **	7.40 (1.57–34.89)	0.011*
	Agree	4.46 (2.02–9.82)	**< 0.001*** ***	1.13 (0.18–7.21)	0.899
	Strongly Agree	6.16 (2.41–15.76)	**< 0.001*** ***	4.01 (0.61–26.34)	0.149
Diaspora Net.	Agree	3.25 (1.56–6.78)	**0.002** **	0.53 (0.10–2.79)	0.453
	Strongly Agree	5.40 (2.06–14.16)	**0.001*** ***	0.97 (0.14–6.95)	0.976
Job Creation Opp	Disagree (Ref)	1.00 (Ref)		1.00 (Ref)	
	Agree	9.95 (3.95–25.07)	**< 0.001*** ***	12.1 (1.80–81.29)	**0.010** **
	Strongly Agree	19.6 (6.32–60.92)	**< 0.001*** ***	84.4 (5.50–1294.5)	**0.001*** ***
Savings Opp	Agree	4.17 (1.88–9.27)	**< 0.001*** ***	1.02 (0.14–7.22)	0.982
Revenue Growth	Strongly Agree	4.34 (1.45–12.98)	**0.009** **	0.70 (0.05–9.38)	0.787
Social Media Opp	Strongly Agree	5.77 (2.17–15.37)	**< 0.001*** ***	5.39 (0.72–40.55)	0.102
Export Growth	Agree	3.62 (1.49–8.75)	**0.004** **	1.98 (0.25–15.93)	0.519
	Strongly Agree	3.92 (1.43–10.76)	**0.008** **	2.99 (0.37–24.34)	0.307
Resilience Opp	Agree	4.05 (1.62–10.15)	**0.003** **	0.36 (0.05–2.50)	0.305
Mobile Tech Adv.	Yes	1.35 (0.60–3.00)	0.468	2.99 (0.84–10.61)	0.091

notes: COR = Crude Odds Ratio; AOR = Adjusted Odds Ratio; CI = Confidence Interval; Ref = Reference category. Significance levels: * p less than 0.05, ** p less than 0.01, *** p less than 0.001. *Dependent Variable: Ordinal Adoption Level; Method: Ordered Logistic Regression*

5. Discussion

This study found that the major entry point to e-commerce in Mogadishu is the social media (67.2% of the sample), followed by mobile money as another important entry point (37.8%). Particular local and international specific platforms are less common (13.9 and 10.9%, respectively). Transactions were led by consumer electronics and gadgets at 46.8%, followed by clothing and accessories at 32.3%. New niches include remittances and livestock. The most common barriers to adoptations are payment risk and lack of banking infrastructure (51.24%), security concerns related to fraud (50.25%) and logistical/delivery issues (48.76%). Despite the challenges, the respondents are optimistic about the drivers such as improved social media engagement (57.22%), resilience in crisis (56.71%) and mobile technology as the main growth opportunity (55.7%). Inferential analysis identified prior experience (aOR = 9.60) and perceptions of job creation (aOR up to 84.4 for strong agreement) as strong determinants, along with occupation and duration of residency.

Other than these patterns, the results closely mirror broader Sub-Saharan African contexts. In countries like Nigeria, Kenya and Ghana, social commerce through platforms such as WhatsApp and Facebook drives adoption, similar to Somalia's heavy dependence on mobile money [5, 15]. The region still faces challenges aligned with the findings from African e-commerce ecosystems [15] including infrastructure gaps, fraud issues, and logistical hurdles. Informal digital channels are more significant to Somalia's ecosystem than they are to developed markets. Furthermore, the role of the past perception of experiences and opportunities in, particularly, creating jobs for young people and women is consistent with trajectories observed in other fragile post-conflict settings where e-commerce promotes economic inclusion and resilience [6, 4].

In general, similar evidence is also found in Asian emerging economies such as Indonesia and the Philippines. In these countries, social media is a huge gateway. The growth is driven by mobile penetration despite the infrastructure not being well developed [10;9]. For example, the social media usage rate of Mogadishu is 67.2%. Like other Southeast Asian SMEs, they are facing the same challenges to grow their online presence. Common hurdles include trust, payments and logistics [9, 2]. However, this study mainly focuses on Somali crisis resilience and opportunities, which are characterized by the unique contextual factors that are less common in Asian contexts. Given Somalia's lower infrastructure base, mobile money and social platforms may be relatively more important than dedicated e-commerce sites, which are more common in China or Malaysia [22, 13].

More importanly, results from multivariable analysis reveal that job creation opportunities perceptions are significant predictors of adoption. Those who perceive opportunities for job creation are significantly more likely to adopt (aOR = 12.1–84.4) even after controlling for previous platform use. The adoption behaviour is expected to bring economic gains to people. Studies from Sub-Saharan Africa report economic empowerment as one of the main reasons for accessing digital platforms and similar findings are reported [15;5]. However, the finding contradicts the evidence from many Asian countries where adoption is more influenced by the existing logistics system and supportive government policies [10;9]. Moreover, the much lower odds of adoption among long-term residents (aOR = 0.10) suggest that the newer residents are more adaptable and entrepreneurial, an observation that has been relatively less noted in research in the Philippines and Indonesia. Our study contributes to the existing literature by highlighting these relationships and showing that behavioural factors are important channels through which socio-demographic characteristics affect adoption decisions. It aligns with previous findings in economic informality and fragile context [6].

In essence, these findings also carry important policy implications for Somalia and similar contexts. If constraints are removed including security, logistics, regulation, then developing markets of Africa and Asia can unlock subtantial growth [15, 5, 9]. Furthermore, the respondents' emphasis on mobile technology and social media provides a plausible route consistent with successful Asian models, harnessing local strengths such as mobile money. The study thus contributes to the literature by combining Somalia-specific data with comparative evidence and highlighting common barriers and context-specific opportunities for inclusive digital commerce.

6. Conclusion

The main drivers for e-commerce adoption in Mogadishu were identified as mobile money and social media platforms. The most popular products are electronic products and clothing. There are still big challenges, like security issues, a lack of payment infrastructure and logistics. The results also confirm trends observed in other Sub-Saharan African countries (e.g., Nigeria and Kenya) and Asian emerging markets (e.g., Indonesia, the Philippines, and Malaysia). They also emphasise the unique contribution of prior experience (aOR = 9.60), occupational status that favours students, shorter residency duration, and, particularly, the perception of job creation opportunities for youth and women (aOR of up to 84.4) as powerful determinants. It is crucial to note that these

results both confirm and expand the existing literature by demonstrating the mediation of adoption by behavioural factors and opportunity perceptions in a post-conflict, low-trust context, as opposed to a more policy-orientated Asian setting. This finding is consistent with resilience themes in fragile economies more generally, however, future researchers should examine the impacts and benefits of e-commerce on sustainability, trade, consumer behavior, agriculture, and economic development.

The implications of these findings are, therefore, profound for policymakers, practitioners and researchers. Closing infrastructure, security and regulatory gaps and tapping into mobile technology and social media could help unlock inclusive growth in Somalia and similar contexts. We recommend targeted interventions such as awareness campaigns and mobile-money innovations to build on existing strengths. This paper also contributes to the broader literature on e-commerce by providing empirical evidence from a post-conflict context. These dynamics may be validated and scalable strategies for digital economic transformation in challenging environments may be informed by additional longitudinal and comparative research in sub-Saharan Africa and Asia.

Declarations

Ethical Approval

The study received ethical approval from the Human Research Ethics Review Committee of Salaam University (Ref: 2026/SU-REC/AMSHS/P0387). The study was conducted in full compliance with the ethical standards outlined in the Economic and Social Research Council Framework for Research Ethics.

Consent to participate

Informed consent was obtained from all participants prior to their participation in the survey.

Conflict of Interest

The authors report no conflicts of interest in relation to this work.

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ORCID: Abdirahman Hassan Hersi. https://orcid.org/0000-0003-0210-6186

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Notes on contributors

Abdirahman Hassan Hersi (hersi@salaam.edu.so) is a research associate, doing research about new technologies, digital economy, regulation, and governance. He teaches in the Faculty of Economics and Management Sciences at Salaam University. He currently serves as the Director of the Research and Development Department, where he oversees the University's research and development initiatives.

Halima Dahir Ali (halima@salaam.edu.so) is a former intern and secretary to the Director of Research and Devolopment at Salaam University. She currently serves as the Research Coordinator, where she coordinates research activities within the University's Research Department. Her areas of expertise include information technology, the Internet of Things (IoT), digital business, and information and communication technology (ICT).

Abdirahman Mohamed Mohamud (abdirahman@salaam.edu.so) is a former Assistant Lecturer and Laboratory Technician at Salaam University. He currently serves as an ICT Officer in the University's ICT Department. His areas of expertise include information technology, digital business, the Internet of Things (IoT), and information and communication technology (ICT).

Author Contribution

Authors' contribution CRediT: 1. Abdirahman Hassan Hersi: Conceptualization, Data curation, Formal analysis, Methodology, Supervision, Writing – review & editing;2. Halima Dahir Ali: Conceptualization, Data curation, Formal analysis, Methodology, Writing – original draft;3. Abdirahman Mohamed Mohamud: Conceptualization, Data curation, Formal analysis, Methodology, Writing – original draft.

Data Availability

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Figures

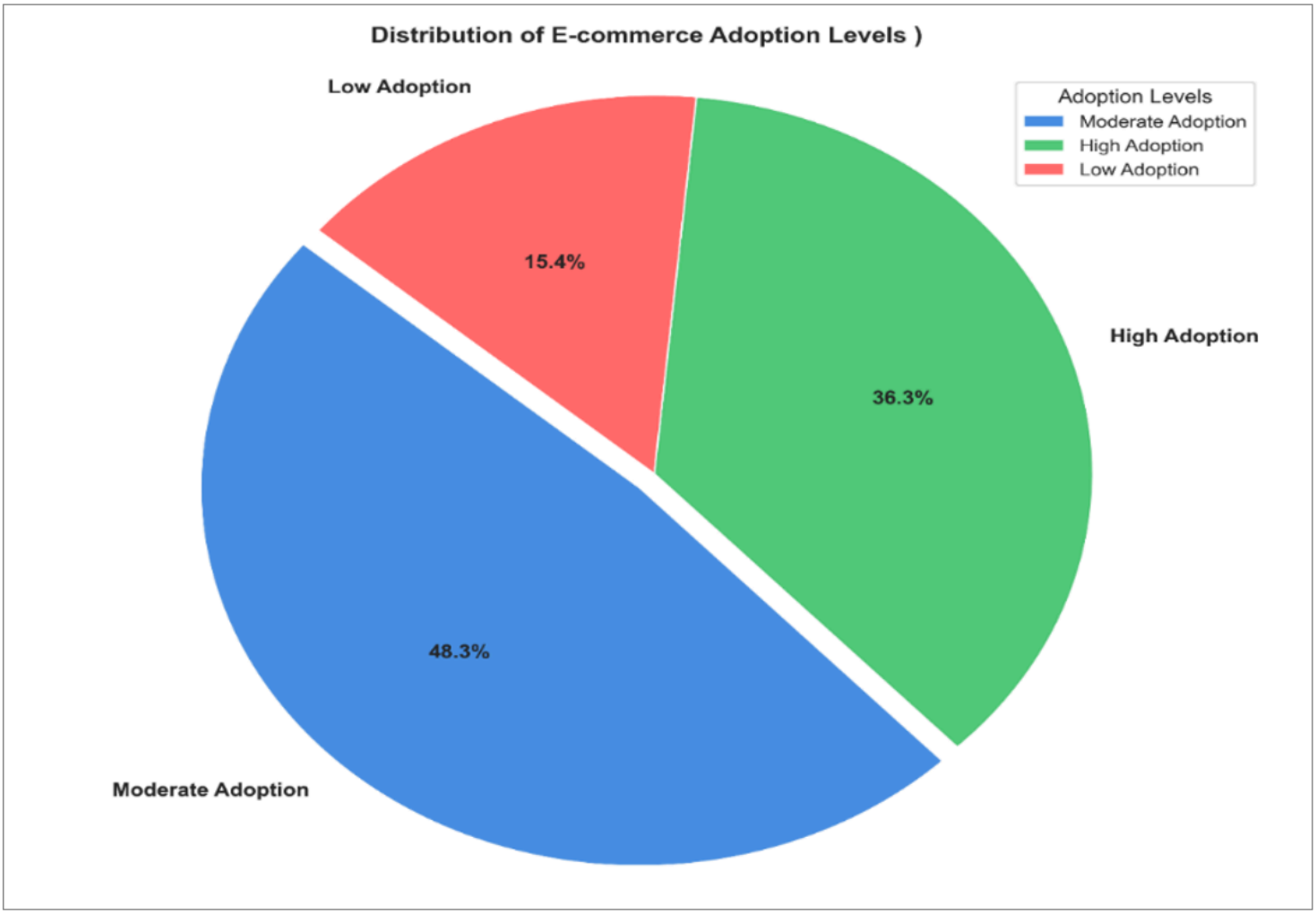


Figure 1

Distribution of E-commerce Adoption Levels among Respondents

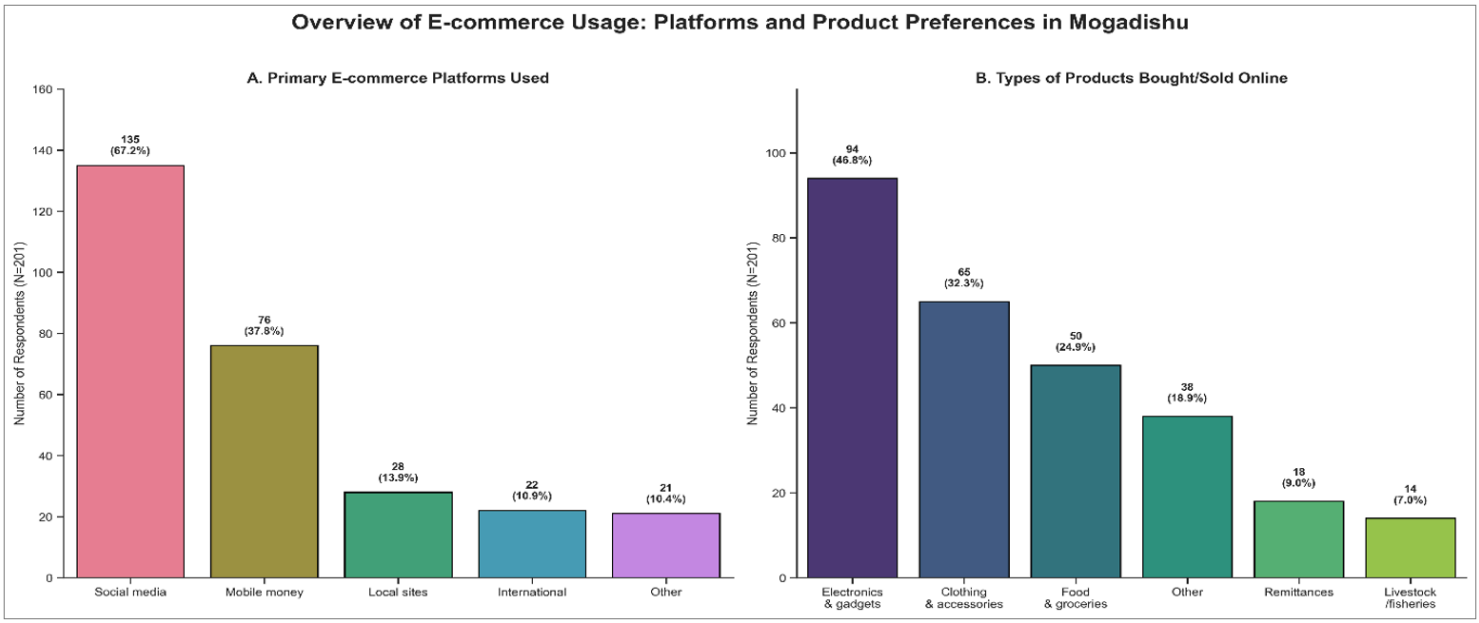


Figure 2

Overview of E-commerce Usage: Primary Platforms and Product Preferences

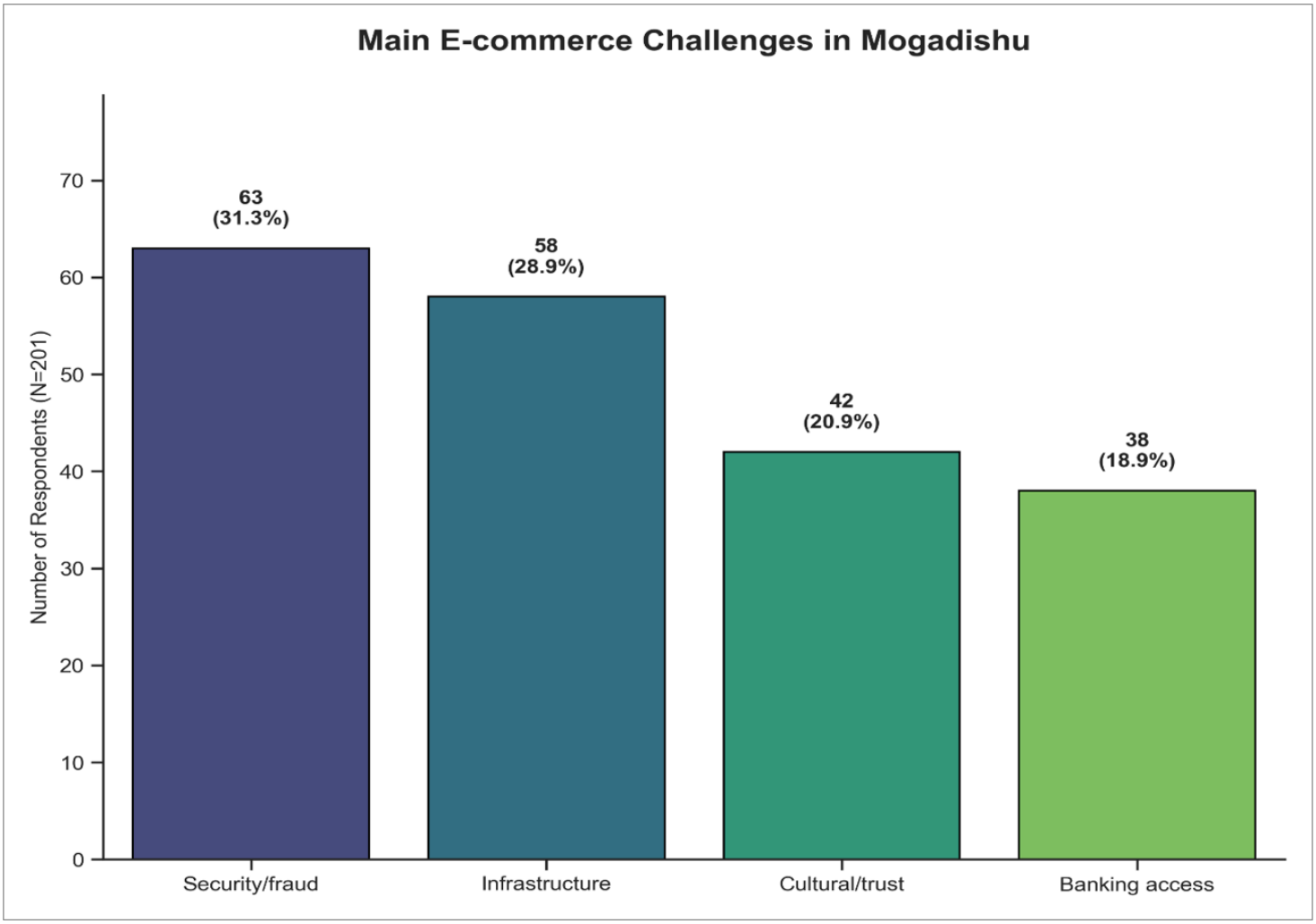


Figure 3

Principal Challenges to E-commerce Growth in Mogadishu

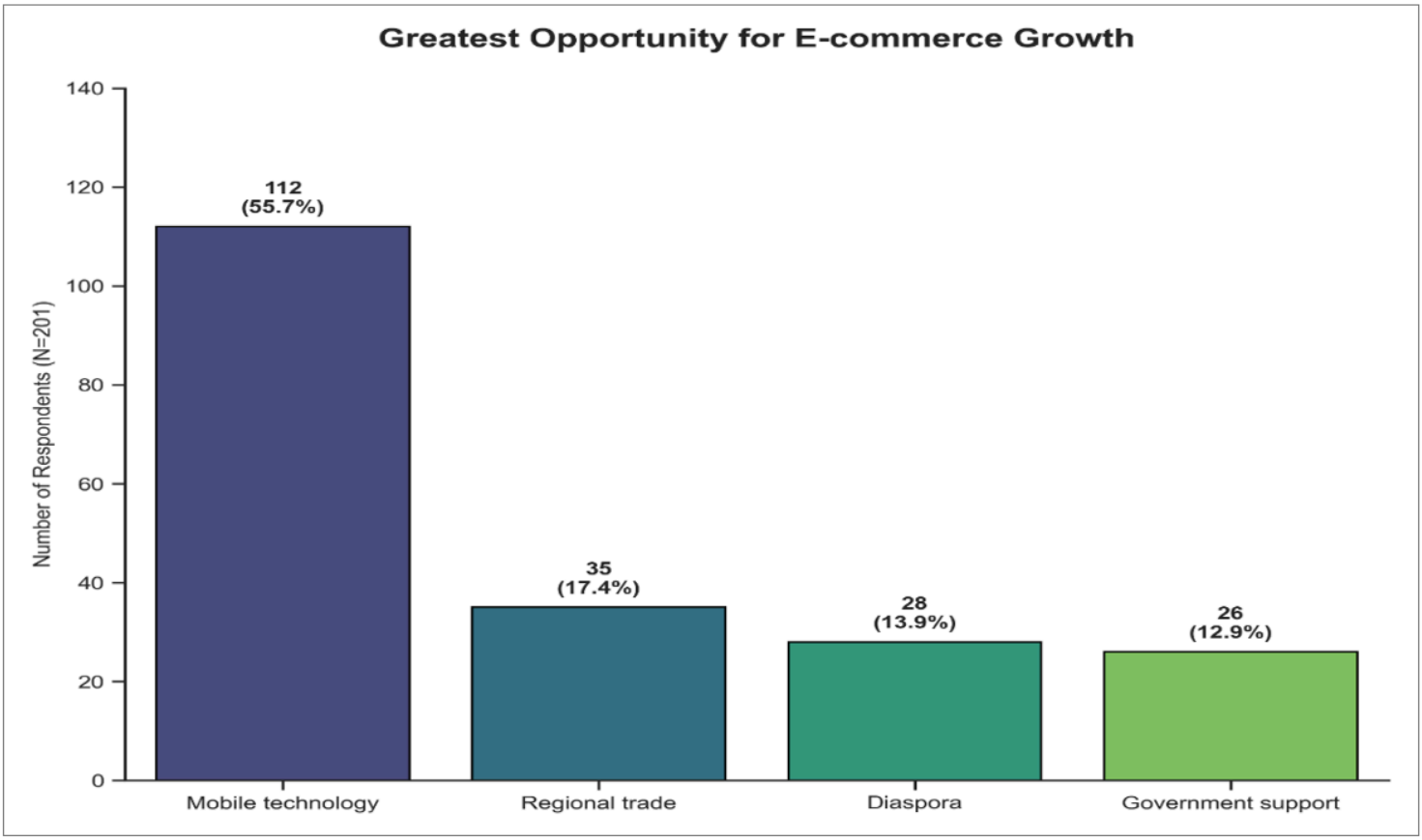


Figure 4

Key Opportunities for the Advancement of E-commerce