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Fueling Sustainable Digital Future for Intra-African Trade: Using Mobile Money Interoperability to Increase the Trade Prospects of the African Continental Free Trade Area

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Globally, finance is the lifeblood of any trade activity. As such, active economic agents require the necessary banking infrastructures to gain access to convenient and affordable finance for trade. However, most regions of Africa lack the adequate infrastructure to offer access to suitable finance for trade. Digital interoperability creates a remote settlement and clearing hub between the mobile wallets of mobile money subscribers and banks that strike a balance to meet instant demand and supply of money for trade. This enables the traders to gain access to appropriate finance to drive trade prospects of the African Continental Free Trade Area (AfCFTA).

INTRODUCTION

While the latest World Bank Global Findex 2025 Survey Database shows that an additional 5 percent of adults globally benefitted from access to financial services between 2021 and 2024, most individuals, especially in Sub-Saharan Africa (20 percent) still remain without access to finance for economic exchange because of price and non-price barriers (Klapper, Singer, Starita, & Norris, 2025; World Bank, 2025a). Particularly, barriers such as costs, distance, and documentation requirements have led to lack of access to finance among the geographically dispersed economic agents in Africa. Yet proponents of the African Continental Free Trade Area (AfCFTA) have argued that the removal of barriers that limit trade activities can increase exchange of goods and services to spur economic integration within and across the continent.

The Global System for Mobile Communications Association (GSMA, 2024) suggests that the use of mobile phones, computers, and other digital technologies with internet connectivity, can remove access and usage barriers such as costs, distance, and documentation requirements that increase availability of finance for trade. More specifically, digital interoperability between the mobile money networks and digital payments system can allow traders to remotely gain access to timely finances to facilitate trade, especially in rural areas in Africa, where physical formal banks are absent (Okello Candiya Bongomin, Akol Malinga, Manzi, & Balinda, 2024). Mobile money networks and digital payments' systems interoperability can offer better access to and usage of financial services to facilitate trade than the conventional banking system because of its wider coverage (Demirgüç-Kunt, Klapper, Singer, & Ansar, 2022;

Okello Candiya Bongomin, Akol Malinga, Amani Manzi, & Balinda, 2023).

The existence of wider mobile money agent networks in most parts of Africa can also increase delivery of financial services to the geographically dispersed unbanked traders to conduct trade (Demirgüç-Kunt et al., 2022). Moreover, most small shops ("the dukas") in rural parts of Africa that act as point-of-sale, have provided convenient platforms for mobile money transactions and digital payments to crowd-in more unbanked traders into the formal financial system. Kere and Zongo (2023) contend that digital payments through internet banking that reduce trade costs can stimulate trade growth prospects of AfCFTA by increasing exports among Intra-African traders.

Whereas mobile money and digital payments can allow the unbanked traders to access and use financial services remotely in the absence of banking infrastructures, there is need for interconnectivity between the mobile money networks and digital payments' systems through account-to-account interoperability. Digital interoperability creates an intertwined settlement and clearing hub that promotes efficiency of digital transactions within the FinTech and National Payments' ecosystems. This facilitates instant account-to-account and mobile wallet interactions and transfers to enable remote and convenient payments for goods and services by traders who do not have access to the physical formal banks.

Against this backdrop, there is need to advocate for digital interoperability to ensure on-time complete transaction cycle within the FinTech and National Payments' ecosystems to make finance readily available to drive trade prospects in Africa. This article offers direction to trade policy in Africa to create a single unified digital market and

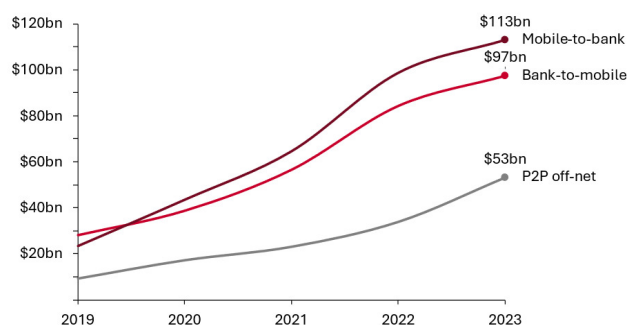


Figure 1. Global transaction values of digital interoperability

Source: GSMA Global Adoption Survey and estimates (2024)

favourable enabling environment for efficient functionality of digital interoperability within the FinTech and National Payments' ecosystems in different countries in Africa to increase access to finance for trade to accelerate economic integration within and across the continent.

GLOBAL TRENDS IN DIGITAL INTEROPERABILITY

According to the Global System for Mobile Communications Association (GSMA, 2024), mobile money networks and digital payments' systems interoperability is when users of one mobile money service can transfer or make payments to another mobile money provider domestically or across borders between mobile money services and banks.

The interaction between the mobile money system and banks creates a transaction settlement and clearing platform that helps to strike a balance between the demand and supply of money. This determines the amount of money received and transferred between mobile money and bank accounts-to-accounts inter network transfers to instantly meet the demand and supply of money for trade.

Notably, the vertical and horizontal interoperability that link the mobile money operators' networks, platforms, agents, merchants, and data, can promote instant access to financial services domestically and internationally through account-to-account (A2A) transfers at reduced costs due to seamless and effective interconnectivity (GSMA, 2024).

The global (Africa inclusive) digital interoperability transaction values between mobile money financial services and banks grew to over \$113bn in mobile-to-bank transfers with more than \$97bn in bank-to-mobile transfers and about \$53bn in P2P (Person-to-Person) off-net transfers in the periods 2019 to 2023 as shown in [Figure 1](#).

FINANCIAL INCLUSION AND TRADE IN AFRICA

An inclusive financial system facilitates efficient allocation of productive resources that can potentially reduce the cost of capital for trade (Cama & Emara, 2022). The availability of a wide range of financial services is very vital for the economic well-being of individuals (World Bank, 2024).

Financial inclusion means the ability by individuals and businesses to have access to useful and affordable financial products and services such as savings, credit, payments, and insurance that are relevant and suitable to them (World Bank, 2025b). Access to affordable and timely financial services helps economically active agents to generate income through trade (Okello Candiya Bongomin, Chrysostome, Nkongolo-Bakenda, & Yourougou, 2024). Universal financial inclusion enhances efficiency and welfare by providing avenues for secure and safe saving practices to accumulate money for trade.

The main goal of the AfCFTA is to increase trade and economic integration by removing trade barriers to promote free movement of people, capital, and investments through creating a single market for goods and services across Africa and beyond. Nevertheless, the micro, small and medium enterprises engaged in trade in Africa and other emerging markets experience over a \$1.1 trillion financing gap yearly because of absence of suitable banking infrastructures (Beck, 2023; World Bank, 2024). This has greatly affected local and cross border trade, especially in Africa.

By leveraging on digital interoperability, traders in Africa and beyond can use mobile money and digital payments over the internet to gain access to convenient and affordable finance to pay for goods and services. On the other hand, while this is possible, digital interoperability functionality could be limited by a high tax burden on businesses, gender bias, urban and rural divide, lack of identification documentation for SIM card registration, high interest rates on digital loans, difficulties in verifying credit worthiness of digital borrowers, difficulties in monitoring and enforcing digital loan repayments, lack of standardized digital protocol and compatibility of digital regulations and laws, limited digital skills, and limited financial knowledge and skills, among others. These limitations have affected digital interoperability functionality as highlighted in [Table 1](#).

DIGITAL INTEROPERABILITY AND AFCFTA TRADE PROSPECTS

According to Coye and Loftesness (2013), digital interoperability refers to account-to-account (A2A) transfers between customer accounts at different mobile money schemes and between accounts at mobile money schemes and accounts at banks.

The African Union Commission defines the African Continental Free Trade Area (AfCFTA) as a free trade agreement that covers most of Africa aimed at removing barriers to trade and eliminating tariffs on goods and services to increase socio-economic development, reduce poverty, and make Africa more competitive in the global market. The AfCFTA advocates for removal of trade barriers to promote exchange of goods and services within and beyond Africa through formation of a single market regime. Whilst the formation of AfCFTA is a landmark initiative towards boosting intra-Africa trade volumes, there were no defined banking infrastructures available to meet the financial

Table 1. Mobile money and digital payments interoperability limitations

Characteristics	Challenges
Costs	High tax burden on businesses
Inclusive access and use	- Gender bias - Urban and rural divide
Account/SIM registration	Lack of identification documentation
Digital lending	- High interest rates on digital loans - Difficulties in verifying credit worthiness of digital borrowers - Difficulties in monitoring and enforcing digital loan repayments
Regulations and laws	Lack of standardized digital protocol and compatibility of digital regulations and laws
Digital and financial literacy	- Limited digital skills - Limited financial knowledge and skills

Source: Authors' own creation

needs of the unbanked traders at the inception of this noble trade initiative.

Digital interoperability can offer the channel through which traders can gain access to and usage of financial services. Digital interoperability ensures that the mobile money providers' bank accounts have money readily available that is remitted into the mobile wallets of traders to meet on-time electronic money requests and transfers to enable them to conduct trade. This is driven by instant information exchange and coupling grounded in the formal theory of interoperability of systems supported by a harmonized single digital market regime and legal framework (Diallo, Herencia-Zapana, Padilla, & Tolk, 2011).

Mobile money networks and digital payments' systems interoperability that ensure customer data protection can offer convenient, secure, private, and affordable access to financial services through registered Subscriber Identity Module (SIM) and Personal Identification Number (PIN) not readily available from the traditional banks for trade (Okello Candiya Bongomin, Akol Malinga, et al., 2024). The A2A interoperability can also increase access to and usage of financial services by unbanked traders to perform transactions because it is faster due to high-speed broadband and wider coverage (Suri et al., 2023). The bulky transfers of money electronically through digital interoperability can enable unbanked traders to easily access finance to make timely payments for goods and services from suppliers. This can sustain good trade relationships between the traders and suppliers (Domingo, Arnold, & Apiko, 2023).

Mobile money networks and digital payments' systems interoperability can further help traders to easily access loans to pay for goods and services. The quick digital loan approval process based on the digital credit history and transaction trails of traders backed by strong credit bureau customer data sharing can make money instantly available for trade (Björkegren, Blumenstock, & Folajimi-Senjobi, 2022). Mobile money networks and digital payments' systems interoperability through unified digital platforms can also allow traders to raise funds through peer-to-peer lending and online crowdfunding for trade (Halim, 2024). The use of online platforms to source financing makes funds

available to pay for goods and services to sustain trade (Okello Candiya Bongomin, Yourougou, & Munene, 2020).

The existence of an efficient digital interoperability system that ensures on-time availability of finance can allow traders to easily transact in the market in Africa and beyond. This can promote and sustain trade to accelerate economic integration among African countries.

POLICY IMPLICATIONS

This article articulates how mobile money networks and digital payments' systems interoperability grounded in the Formal Theory of Interoperability of Systems can offer on-time availability of finance to facilitate trade in Africa. Accordingly, the highlighted recommendations in the [Table 2](#) could be useful for progress of trade prospects of the African Continental Free Trade Area.

CONCLUSION

Digital transformation through digital interoperability has potential to foster sustainable development by enhancing regional connectivity and a unified single digital market that could redefine Africa's future trajectory and role in the global economy through increasing trade.

Digital interoperability is more convenient for traders because it allows access to customers outside the digital providers' networks. Specifically, mobile money and digital payments can lead to more inclusive digital economies by expanding access to account-to-account payment systems that make funds more available, secure, and traceable to support progressive trade activities.

The use of digital interoperability can allow more funds to enter into the digital financial ecosystem to facilitate trade. This helps traders to have enough funds that are digitally remitted to pay for goods and services rather than using cash that may delay distant transactions. In a nutshell, digital cash can efficiently facilitate both local and cross-border exchanges more than physical cash.

Table 2. Policy implications

Issues	Stakeholders	Recommendations
High tax burden on businesses	Ministry of Finance, Planning and Economic Development; Central Banks; Revenue Authorities; Telecoms	Investigate origin of costs on access and use of digital financial services and mitigate the high costs by revising and reducing tax burdens on businesses.
Gender bias and digital divide	Ministry of Information Technology and Communications; Communications Commissions; Central Banks; Telecoms; Private Entities; Postal Services; Advocates of DFS (International Telecommunications Union, GSMA, UNCDF, UN Universal Postal Union; Centre for Financial Inclusion; CGAP etc.)	Work with the private sector through Public Private Partnership to develop and extend Digital Public Infrastructures to offer access to gender inclusive and affordable local community digital switchboards and call centres.
Lack of identification documentation	National Identification and Registration Authorities; National Registration Bureaus; Central Banks/Credit Reference Bureaus; Traders' and Manufacturers' Associations/Unions; Telecoms; Business Registration Bureaus; Financial Intelligence Authorities; World Bank's Identification for Development (ID4D)	Strengthen national identification systems and adopt a National Biometrics Identification System to offer a unified and interlinked digital identification platform and interface for controlled digital data sharing.
- High interest rates on digital loans - Difficulties in verifying credit worthiness of digital borrowers - Difficulties in monitoring and enforcing digital loan repayments	Central Banks; Credit Reference Bureaus; Financial Intelligence Authorities; Telecoms; Digital lending companies; FinTech companies; Microfinance Information Exchange (MIX)	Monitor interest rates on digital lending, centralize data sharing, and advocate for formation of a unified single digital market regime for digital lending.
Lack of standardized digital protocol and compatibility of digital regulations and laws	Legal Ministries/ Authorities; Regional Corporation Ministries; DFS/FinTech Regulatory Authorities; Central Banks; Communications Commissions; Telecoms; Advocates of DFS (G20-Global Partnership for Financial Inclusion; International Telecommunications Union, GSMA, UNCDF, UN Universal Postal Union; Centre for Financial Inclusion; CGAP etc.)	Adopt a single digital regime and legal framework with strong regulations and laws to support inter-regional digital operations for intra-African and cross border digital functionality.
- Limited digital skills - Limited financial knowledge and skills	Central Banks; Ministry of Education/National Curriculum Development Centres; Academic Training Institutions; Telecoms; Advocates of digital and financial literacy (OECD; G20; Financial Action Task Force; United Nations Guideline on Consumer Protection; International Telecommunications Union, GSMA, UNCDF; CGAP etc.)	Develop gender inclusive and integrated digital and financial literacy curriculum/modules and conduct trainings in digital and financial literacy through inclusive financial education programmes based on Practice Learning Approach.

Source: Authors' own creation

Nonetheless, while the importance of digital interoperability cannot be overemphasised, system redundancy and outages during operation may affect the efficiency of mobile money and digital payments. More so, while some governments have revised the taxes on digital financial transactions, most subscribers still find it expensive. Similarly, high interest rates on digital loans remain an obstacle in digital borrowing among many prospective traders.

Finally, culture as a strong contextual factor has resulted in persistent digital divide in the digital age. This has affected widespread mobile phones and SIM ownership in Africa, especially by women. Future studies are inevitable to further investigate how these factors could influence digital interoperability and trade prospects in Africa with reference to the novel AfCFTA initiative.

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REFERENCES

- Beck, T. 2023. Access to finance: adaptability and resilience during a global pandemic. *Accounting and Business Research*, 53(5): 565–579.
- Björkegren, D., Blumenstock, J. E., & Folajimi-Senjobi, O. 2022. *Instant Loans Can Lift Subjective Well-Being: A Randomized Evaluation of Digital Credit*.
- Cama, F. A. R., & Emara, N. 2022. Financial inclusion and gross capital formation: A sectoral analysis approach for the MENA region and EMs. *International Review of Financial Analysis*, 79(2022): 101993.
- Coye, C. B. & Loftesness. 2013. *Interoperability in Electronic Payments: Lessons and Opportunities*. CGAP Paper, CGAP Publications, Washington D.C. <https://www.cgap.org/research/publication/interoperability-in-electronic-payments-lessons-and-opportunities>.
- Demirgüç-Kunt, A., Klapper, L., Singer, D., & Ansar, S. 2022. *The Global Findex Database 2021: Financial Inclusion, Digital Payments, and Resilience in the Age of COVID-19*. World Bank Report, The World Bank Publication, Washington DC. <https://dx.doi.org/0.1596/978-1-4648-1897-4>.
- Diallo, S. Y., Herencia-Zapana, H., Padilla, J. J., & Tolk, A. 2011. Understanding interoperability. *Proceedings of the 2011 Emerging M&S Applications in Industry and Academia Symposium. EAIA*, 11(2011): 84–91.
- Domingo, E., Arnold, S., & Apiko, P. 2023. *Interoperability of digital payment systems: Lessons from the East African Community*. ECDPM Discussion Paper no. 357. <https://ecdpm.org/application/files/1616/9657/9822/Interoperability-digital-payment-systems-Lessons-from-East-African-Community-ECDPM-Discussion-Paper-357-2023.pdf>.
- Global System for Mobile Communications Association (GSMA). 2024. *Understanding mobile money interoperability, its evolution and path to a sustainable future*. Annual Report, London, UK: The GSMA Publications.
- Halim, M. A. 2024. Does crowdfunding contribute to digital financial inclusion? *Research in Globalization*, 9(2024): 100238.
- Kere, S., & Zongo, A. 2023. Digital technologies and intra-African trade. *International Economics*, 173(2023): 359–383.
- Klapper, L., Singer, D., Starita, L., & Norris, A. 2025. *The Global Findex Database 2025: Connectivity and Financial Inclusion in the Digital Economy*. Washington, DC: World Bank. <https://doi.org/10.1596/978-1-4648-2204-9>.
- Okello Candiya Bongomin, G., Akol Malinga, C., Amani Manzi, A., & Balinda, R. 2023. Agent liquidity: A catalyst for mobile money banking among the unbanked poor population in rural sub-Saharan Africa. *Cogent Economics & Finance*, 11(1): 2203435.
- Okello Candiya Bongomin, G., Akol Malinga, C., Manzi, A. A., & Balinda, R. 2024. Recalibrating the scope of financial inclusion through financial technologies in the digital age: the role of digital literacy as a moderator in rural Uganda. *Information Technology & People*, ahead-of-print(ahead-of-print).
- Okello Candiya Bongomin, G., Chrysostome, E., Nkongolo-Bakenda, J. M., & Yourougou, P. 2024. Kinship networks and financial inclusion nexus: the mediating effect of extended social cohesion among poor microentrepreneurs post COVID-19. *Journal of Small Business & Entrepreneurship*, 37(3): 525–555.
- Okello Candiya Bongomin, G., Yourougou, P., & Munene, J. C. 2020. Digital financial innovations in the twenty-first century: Do transaction tax exemptions promote mobile money services for financial inclusion in developing countries? *Journal of Economic and Administrative Sciences*, 36(3): 185–203.
- Suri, T., Aker, J., Batista, C., Callen, M., Ghani, T., et al. 2023. Mobile Money. *VoxDevLit*, 2(2): 1–32.
- World Bank. 2024. Digital Transformation Drives Development in Africa. *Monthly Bulletin, The World Bank Publication*. Washington D.C. <https://www.worldbank.org/en/results/2024/01/18/digital-transformation-drives-development-in-afe-afw-africa>.
- World Bank. 2025a. *The Global Findex Database 2025: Data Download and Documentation*. <http://globalfindex.worldbank.org>.
- World Bank. 2025b. Financial Inclusion: Financial inclusion is a key enabler to reducing poverty and boosting prosperity. *Monthly Bulletin, the World Bank Publication*. Washington D.C. <https://www.worldbank.org/en/topic/financialinclusion/overview>.