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European Bank
for Reconstruction and Development

The potential of mobile, digital, and blockchain-based financial services to support displaced businesses.

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Executive Summary

Displacement and suffering due to conflict, persecution, and other crises affect millions of people globally. The United Nations High Commissioner for Refugees (UNHCR) estimates that, as of 2023, 117.2 million people globally have been forcibly displaced or been made stateless.¹ This is further exacerbated by climate change, which has displaced more than 376 million since 2008.² Over 75% of adults living in countries with humanitarian crises remain outside of the formal financial system and struggle to cope financially with shocks and emergencies.³

The financial exclusion of displaced populations has long been recognised as a particularly complex issue for policy makers to address.⁴ Challenges compound, including damaged (or non-existent) physical and digital infrastructure, low levels of financial and digital literacy, and a lack of assets to use as collateral for loans to facilitate resumption of business. Additionally, displaced communities are often perceived as high-risk customers because of the difficulty in satisfying Know Your Customer (KYC) and Anti-Money Laundering (AML) requirements, sometimes due to a lack of government-issued identity documents—but also due to unpredictability of incomes or earnings. This lack of access to financial products and services exacerbates other displacement challenges. It makes it difficult for individuals to rebuild their lives and destroys previously thriving businesses that do not have the documentation, or the data needed, to prove their creditworthiness.

During times of diaspora and displacement, ethnically concentrated communities in host countries act as support networks, offering economic opportunities and social stability for those starting anew in a different country or city.⁵ Within these communities, micro, small and medium-sized enterprises (MSMEs) become key channels for displaced people to access safe spaces, employment and economic opportunities.

In emerging markets and developing economies (EMDEs), MSMEs account on average for some 78% of employment.⁶ Displaced populations being unable to continue their businesses is detrimental to local and national economies; the lack of opportunity for employment can hinder migrant integration and contribute to other local social problems such as homelessness.

While, in general terms, access to financial services including payments and lending via mobile and digital technologies has grown in recent years, availability varies by country and can, in emerging economies, often rely on legacy infrastructures which can be difficult to access and prone to disruption.

¹ [UNCHR data, 2023](#)

² [The concept of 'climate refugee' Towards a possible definition](#), European Parliament Research Service, 2023

³ [The role of financial services in humanitarian crises](#), CGAP, 2017

⁴ [Forcible Displacement, Financial Inclusion and Consequences](#), B. Vimala and Dr. K. Alamelu, International Journal of Advance and Innovative Research, 2021

⁵ Legacies: The Story of the Immigrant Second Generation, Portes, A., & Rumbaut, R. G. (2001)

⁶ World Bank, [Micro, Small and Medium Enterprises - Economic Indicators \(MSME -EI\) Analysis Note](#), 2019

Innovative blockchain-based solutions, including digital assets like Bitcoin and stablecoins, can alleviate these difficulties because they do not rely on legacy financial market infrastructure. Solutions built on novel distributed ledger technology allow them to offer more reliable, affordable, and accessible solutions for displaced entrepreneurs. In the digital assets space, self-custody (i.e. through self-hosted wallets) enables safe cross-border storage and access to assets, empowering individuals and MSMEs to control their funds during conflicts or emergencies without needing physical banks or cash.⁷ The widely reported use of some of these solutions following Russia's invasion of Ukraine demonstrates their utility during a real-life crisis scenario.⁸

These solutions have the potential to improve economic security, inclusion, mobility and empowerment for displaced communities and their businesses globally. However, some of the barriers to further take-up of these technologies include regulatory issues, financial education, and connectivity. To that end, public-private partnerships can help these technologies be more widely deployed by helping address some of the barriers to their broader use. Initiatives for further consideration include:

- improving financial and digital literacy to increase understanding and trust in emerging technology solutions and services;
- supporting the further development of digital financial infrastructure including broadband internet, mobile telecommunications networks, data centres and computer networks;
- expanding the availability of technology and technological expertise to MSMEs by developing digital hubs and facilitating training; and,
- ensuring that appropriate regulatory frameworks are in place.

⁷ [Ukrainian refugee flees to Poland with \\$2,000 in bitcoin on USB drive \(cnbc.com\)](#)

⁸ World Economic Forum, [Why the role of crypto is huge in the Ukraine war](#), March 16, 2023

Introduction

This report, commissioned by the [European Bank for Reconstruction and Development](#) (EBRD) and [Block, inc. \(Block\)](#), explores the role that innovative technologies can play in supporting MSMEs in displaced populations. It builds on the role that these solutions have played in the context of the Ukrainian conflict, illustrating how they could be used more broadly to support displaced MSMEs across other geographies, in particular emerging markets, in current and future crises. To this end the report includes potential next steps for action to increase the use and adoption of these technologies.

MSMEs constitute the foundation of the global economy, but particularly so in EMDEs. In these regions,⁹ they are responsible for generating 4 out of 5 new job positions created,¹⁰ while contributing around 40% of GDP, making them a major driver of economic growth and prosperity. There is not, however, a single, globally agreed definition for a MSME, which ranges from sole proprietors to 10 employees per the EU's definition.^{11 12}

Finding ways to connect displaced MSMEs with blockchain-based financial services will not only help protect livelihoods but can also provide a solid foundation for economic recovery, growth, and development including as and when it is safe for entrepreneurs to return to their homelands.

The combination of the EBRD's expertise in working with the private sector, governments, international organisations, and Block's technical expertise on innovative payment services provides an example of how a public-private collaboration can help drive progress in this space.

This report is structured as follows:

- First, it sets out the challenges **faced by MSMEs in displaced communities**, including an overview of why existing solutions still often fail to support those most in need.
- It then recaps **the range of established mobile and digital financial services** globally, before highlighting some of the more recent **innovative solutions** including digital assets (Bitcoin and stablecoins) and blockchain infrastructure, and how these have been used by Ukrainian citizens and MSMEs following the Russian invasion.
- It includes case studies illustrating additional, specific solutions with utility in crisis situations where access to the mainstream financial infrastructure is limited.
- Concludes with an assessment of **the key challenges to the deployment of such solutions at scale**, alongside next steps and potential pilot projects.

⁹ [The crucial role of Micro, Small and Medium Scale Enterprises \(MSME's\) in Emerging Markets](#), Maastricht University, 2023

¹⁰ [Global symposium on the Role of Micro, Small and Medium Enterprises \(MSMEs\) in the achievement of the Sustainable Development Goals \(SDGs\)](#), United Nations, June 2018

¹¹ Kumar, Pranav; Skilling, David Graham; Tewari, Parth Shri; Wu, Zack. [Competitive small and medium enterprises : a diagnostic to help design smart SME policy](#), World Bank, 2013

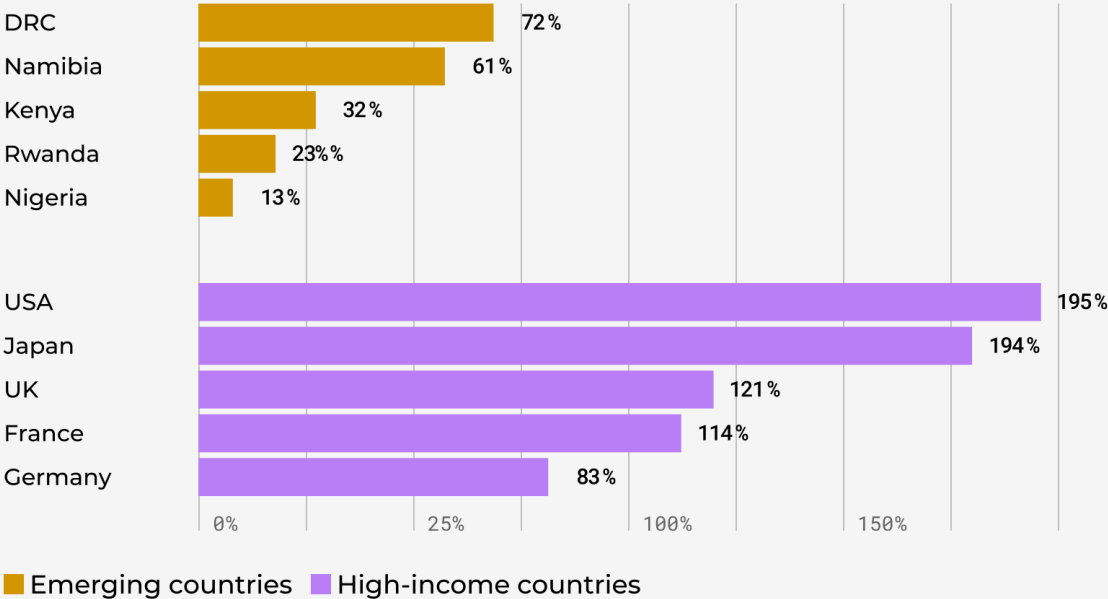
¹² [SME definition - European Commission \(europa.eu\)](#).

Challenges faced by displaced MSMEs

Participation in traditional payment and credit services relies on a number of core requirements: access to a bank account, the ability to confirm one's identity, assets to use as collateral for lending, a credit history, and a permanent physical location of residence or business. Access to financial services in particular has long been recognised by the United Nations (UN) as a key barrier to economic development in emerging economies.¹³ This is also confirmed by data from the World Bank's Findex database, showing that 89% of adults in advanced economies have a bank account, compared to some emerging countries where we see great variations (6% in South Sudan, 21% in Pakistan and 66% in Uganda).¹⁴ Access to accounts and services has also declined in many markets as a result of problems in the correspondent banking system.¹⁵

Businesses and individuals in emerging countries have less access to loans and credit compared to those in high-income nations

Share of domestic credit to the private sector as a percentage of a country's Gross Domestic Product (GDP) in selected countries in 2024



Notes: DRC - Domestic Republic of Congo

Source: World Bank Group. Domestic credit to private sector (% of GDP).

¹³ Based on the targets of the [Sustainable Development Goal number 8](#), United Nations

¹⁴ [Global Findex Database](#), World Bank, 2021

¹⁵ ['On the Retreat of Global Correspondent Banks'](#), *BIS Quarterly Review*, March 2020

These barriers to entry hinder the growth and potential of MSMEs. According to the Organisation for Economic Co-operation and Development (OECD) and the G20, the share of credit to the private sector in relation to GDP is significantly lower in emerging countries than the average in high-income countries (see Figure 1).¹⁶ MSME loans also constitute a smaller portion of business credit in these nations. In Africa, 40% of MSMEs classify access to finance as their top constraining factor for growth.¹⁷ Financial exclusion of MSMEs remains high in many EMDEs meaning businesses do not have reasonable and affordable access to capital and resources, and are instead forced to rely on their own funds, or cash from friends and family to launch and sustain their businesses.¹⁸ This severely undermines the potential contributions that these MSMEs can make to local communities and the broader economy.

Displacement is on the rise as a result of various factors¹⁹ including climate events, natural disasters, poverty, ongoing conflicts and violence, and political instability. Figures from UNHCR show that 117.2 million people globally have been forcibly displaced or were stateless in 2023 alone.²⁰ Climate change might further exacerbate these figures in the future, as around 1.2 billion people are expected to be displaced by 2050 due to natural disasters and other ecological threats.²¹ Displacement directly impacts access to basic financial services – a study by Consultative Group to Assist the Poor (CGAP) identifies that over 75% of adults living in countries with humanitarian crises remain outside of the formal financial system and struggle to cope with shocks and emergencies.²²

Pre-existing challenges around financial exclusion are compounded in crisis situations in these markets by disruptions to traditional financial services providers (FSPs), physical and financial infrastructure, and other legal barriers such as lack of documentation that make it difficult for MSMEs to access finance through traditional channels. Access to core services for businesses, such as payments processing or access to credit is likely to be limited or unreliable.

Furthermore, traditional banks in these markets typically respond to crises by tightening lending criteria or reducing their geographical reach, especially in times of economic uncertainty. This deepens financial exclusion for MSMEs, hindering their capacity to flourish and adjust to evolving market conditions. For example, the destruction caused by the 2010 Haiti earthquake rendered traditional banking infrastructure inoperable, making it nearly impossible for affected individuals and communities, including MSMEs, to access much-needed financial assistance. As a result, microfinance institutions had to collaborate with the US military to deliver financial assistance in cash by helicopter,²³ raising numerous risks, including security. The experience of the Haiti earthquake underscores the critical

¹⁶ [High-Level Principles on SME Financing](#), G20/OECD, 2022

¹⁷ [The challenges and opportunities of SME financing in Africa](#), Africa Advisory Group, London Stock Exchange, 2018 Group

¹⁸ [Fintech and SME Finance: Expanding Responsible Access](#), World Bank, 2022

¹⁹ [Making and Unmaking Refugees: Geopolitics of Social Ordering and Struggle within the Global Refugee Regime](#), Orhon Myadar, Kara E. Dempsey, Geopolitics, 2021

²⁰ [Global Planning](#), UNCHR data, 2023

²¹ [The concept of 'climate refugee' Towards a possible definition](#), European Parliament Research Service, 2023

²² [The role of financial services in humanitarian crises](#), CGAP, 2017

²³ *Ibid.*

importance of developing resilient and adaptable financial infrastructures capable of withstanding the shocks of natural disasters and other crises.

Established and widely used mobile and fintech solutions have begun to address many of the underlying financial exclusion and economic development challenges in EMDEs. The functionality of many of these, however, remains dependent on traditional banking rails that are susceptible to failure and disruption in crises. Further technological innovation has led to the emergence of new products and services that allow individuals and MSMEs greater access to the services they need to continue to provide economic growth and opportunity in their communities, even in crises. For instance, digital assets have proven helpful during the war in Ukraine, as discussed later in this report. These have enabled Ukrainians to access and transport their savings when traditional financial rails were inaccessible due to Russian attacks.^{24 25}

Despite the growth of these solutions, challenges remain. Primary among these is the provision of sufficient and well-functioning digital infrastructure, which is a key enabler for the adoption of such technologies and solutions. A shortage of reliable internet connectivity and mobile network coverage can make it difficult for MSMEs to use mobile payment systems and cause transactions to be delayed or unreliable. According to a Future of Fintech in Africa report, only 40% of Africans have internet connectivity and over 600 million do not have access to reliable electricity, especially those in rural areas where power outages are a common occurrence.^{26 27} Globally, refugees are 50% less likely to have an internet-capable mobile phone compared to the general population.²⁸

Enhanced digital infrastructure and its further development should not be neglected. This is essential to the deployment of newer, innovative digital financial services across EMDE geographies.²⁹ In Africa, internet connectivity varies based on each region, with few countries, such as Morocco, Egypt, South Africa and Nigeria being more advanced, while other countries lag far behind.³⁰

²⁴ [War in the time of crypto](#), Emily Stewart and Rebecca Heilweil, 2022, Vox

²⁵ [Crypto Boosts Ukraine – and Russia - CEPA](#)

²⁶ Population of global offline continues steady decline to 2.6 billion people in 2023, [Press release \(itu.int\)](#)

²⁷ [The future of Fintech in Africa report](#), Lucidity Insights Research Team, 2023

²⁸ [Connectivity for everyone. The UN Refugee Agency](#), 2024

²⁹ [The Limits of Defi for Financial Inclusion: Lessons from ASEAN](#), OECD, 14 March 2024

³⁰ [Digital Infrastructure in Africa](#), United Nations. Economic Commission for Africa, February 2024

Mobile and digital services

The growth of digital and mobile payments has already helped improve access to finance for entrepreneurs and MSMEs. Princeton University studied the causal effect of in-person cashless payments flow on credit provisions in China.³¹ The authors found that the adoption of cashless payments increased credit access by 56.3% and a 1% rise in payment flow increased credit line by 0.41% because of the useful credit evaluation information provided by the payment flow data.³² In addition, companies adopting new payment technologies can improve their sales. According to a study looking at mobile money using data from firms in 643 districts in India, sales for companies adopting mobile money increased by about 26% compared to those that did not.^{33 34}

EMDEs were the first to see widespread use of mobile applications in financial services, which has helped them leapfrog some of the physical infrastructure restrictions seen in some more developed countries. One of the first services was M-Pesa, launched in Kenya in 2007.³⁵ M-Pesa is a mobile phone-based money transfer service that was launched by Vodafone and Safaricom, the largest mobile network operators in Kenya.³⁶ Advantages include 24/7 access to payments which are quick, secure, and do not require a bank account. Customers can also transfer funds between their bank and M-Pesa accounts, usually through ATMs. M-Pesa allows customers to make personal transfers, ATM withdrawals, pay bills, point-of-sale purchases (e.g. grocery shopping), on-line payments and top-ups to mobile phone accounts.³⁷

In India, the instant mobile payment system - Unified Payments Interface (UPI) - allows users to transfer money between bank accounts securely using their phones.³⁸ Developed by the National Payments Corporation of India (NPCI) and regulated by the Reserve Bank of India (RBI), UPI eliminates the need to enter bank details or other sensitive information each time a customer initiates a transaction, instead working through unique UPI IDs or Virtual Payment Addresses (VPAs).³⁹ Within five years of its launch, more than 260 million Indians have made a UPI enabled transaction and UPI supports more than 350 partner banks and third-party payment apps such as PhonePe, Google Pay and Paytm.⁴⁰ UPI has increased financial inclusion and access to banking for Indians across the country.⁴¹ Many other countries are looking to adopt a UPI model; countries such as Singapore, UAE, Bhutan, France, Nepal and

³¹ [Cashless Payment and Financial Inclusion](#), Shumiao Ouyang, Princeton University, 2022

³² *Ibid.*

³³ [Effect of QR code and mobile money on performance of SMEs in developing countries. The role of dynamic capabilities](#), Ledi, Klenam & Ameza-Xemalordzo, Enya & Amoako, George & Asamoah, Bernice. Cogent Business & Management, 2023

³⁴ [The real effects of mobile money: Evidence from a large-scale fintech expansion](#), Patnam, M., Yao, W., & Haksar, V. *IMF Working Papers*, 2020(138)

³⁵ [Fintech and Digital Finance for Financial Inclusion: Policy Brief](#), UN Economist Network, March 2023

³⁶ [M-Pesa](#), Vodafone website

³⁷ [Trends in Mobile Payments in Developing and Advanced Economies](#), Reserve Bank of Australia Quarterly Bulletin, March 2013

³⁸ [Your bank account and UPI: some common questions answered](#), The Times of India, 2024

³⁹ [Unified Payments Interface \(UPI\) product overview](#), National Payments Council of India, accessed March 2024

⁴⁰ [Unified Payments Interface: India's Digital Highway to Speedy Financial Inclusion](#), SC Johnson College of Business, Cornell University, 2023

⁴¹ [The India Stack is Revolutionizing Access to Finance - IMF Finance & Development](#), July 2021

Malaysia have moved toward integrating local payment interfaces with a UPI.⁴² However, UPI can only be used for cross-border transactions when there is an approved international payment gateway to link UPI accounts and act as a bridge between domestic and international payments. Cross-border payments are not possible where there has not been an agreed partnership between UPI and other payment gateways.

In Brazil, the central bank launched a fast payment service called Pix in November 2020.⁴³ Pix brings together over 700 banks and non-banks, offering clients real-time transfers through mobile phone interface relying on a QR code. Pix has lowered the cost of payments for both users and merchants. For example, for merchants, PIX payments have an average cost of just 0.01% compared with fees of 2.2% for credit cards and 1.1% for debit cards in Brazil.⁴⁴ Since its launch, it is estimated that 50 million Brazilians have made their first digital payment.⁴⁵ This has helped lower the cost of payments and facilitated more transactions, which benefits merchants and the local economy.

These three examples are government-driven initiatives. However, in each case, private-sector players have been able to build new applications and functionality on these platforms that individuals and MSMEs can use to access a range of other financial products, such as bank accounts or credit facilities. For example, India's UPI can be linked to credit cards, bank accounts, and digital wallets, such as Google Pay, PhonePe or Paytm. Each example above highlights a role for governments in providing core digital infrastructure, but also the potential for the private sector to innovate and deliver new products and services tailored to changing consumer preferences.

⁴² [India's UPI success story](#), Cranai Infotech LLP, 2023

⁴³ [Digital Payments as a boon to financial inclusion](#), Alexandre Tombini, Bank of International Settlements, 2023

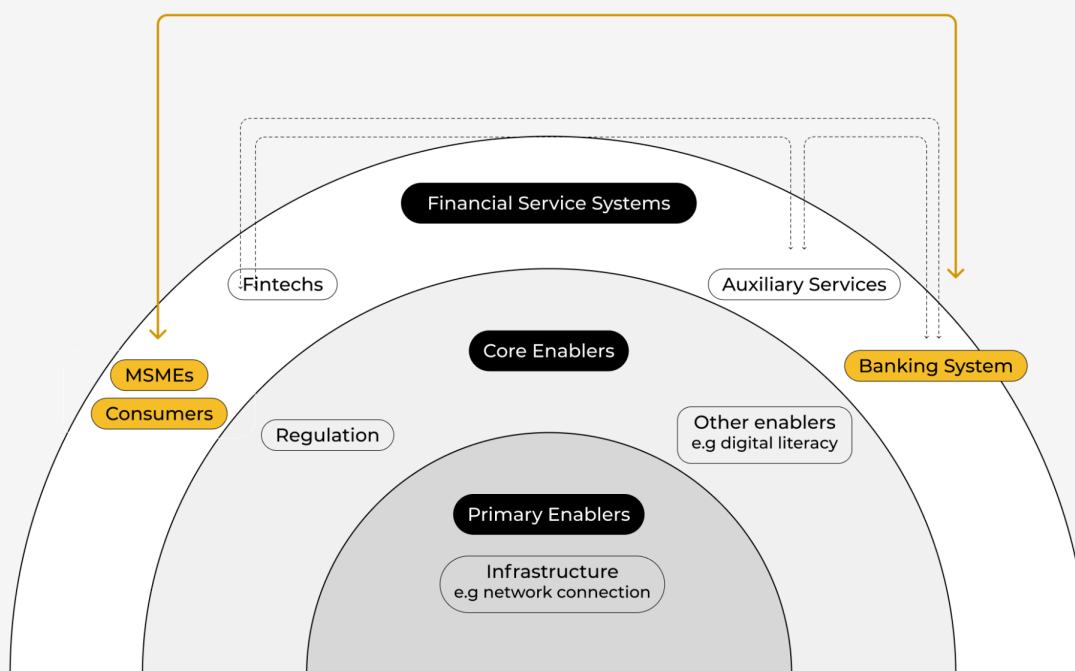
⁴⁴ *Ibid.*

⁴⁵ *Ibid.*

Figure 2 below shows how core digital financial services can play an important role in helping to connect both MSMEs and consumers to the banking system and alternative channels. By virtue of their nature, digital financial services are cheaper and easier to access – for example through mobile devices – once the appropriate core enablers, such as the regulatory framework, are set up and users have developed the skills to use them.

Digital financial services can play an important role in helping to connect both MSMEs and consumers to the banking system and other financial services

By virtue of their nature, digital financial services are cheaper and easier to access – for example through mobile devices – once the appropriate core enablers, such as the regulatory framework, are set up and users have developed the skills to use them.



Progress to date has partly been driven by increased technological connectivity. There has been a continued uptick in mobile internet connectivity globally, from 35% in 2015 to 57% in 2022,⁴⁶ which has helped make financial services more immediately accessible to customers as more people are reachable through digital channels; though this still varies globally, with African countries often behind. Of the 1.75 billion mobile money accounts currently registered, 800m were opened between 2013-17; the next 800 million accounts were opened between 2017-2022.⁴⁷ A 2019 report by EY, which interviewed more than 27,000 consumers in 27 markets, found that 75% of consumers were using a money transfer and payments fintech

⁴⁶ [State of Mobile Internet Connectivity Report](#), GSMA, 2023

⁴⁷ [State of the Industry Report on Mobile Money](#), GSMA, 2023

service, and that 56% of the MSMEs were using a combination of banking, payments and fintech services.⁴⁸

Tap-to-pay capability has allowed merchants to use their phone as a Point-of-Sale (POS) terminal. This allows customers to pay for goods and services by tapping their mobile phone on the back of the merchant's phone, where the NFC (Near Field Communication) chip is located, to make digital payments anywhere. NFC is a technology enabling devices to communicate with each other.⁴⁹ Users can pay via cards, mobile apps, or digital wallets acting as a virtual card, and biometric payments that use fingerprints or facial recognition as means of transaction authentication. This allows businesses to quickly and easily set up payment acceptance capabilities without the need to obtain standalone hardware devices that require separate internet connectivity. This is especially valuable in a resource-constrained environment, but also enables faster resumption of business for entrepreneurs that are displaced by conflict.

⁴⁸ [Global FinTech Adoption Index](#), EY, 2019

⁴⁹ [What Is NFC? All You Need to Know About Near Field Communication | Square \(squareup.com\)](#)

CASE STUDY

Square mobile contactless payments

In selected markets, Square mobile payment solutions enable Square Sellers to accept contactless payments directly through their smartphone. As a result of the NFC capability of smartphones, and the enablement of 'tap to pay', merchants no longer need a separate piece of hardware to accept payments.

Solution

- Square mobile payment solutions enable MSMEs to accept contactless payments directly through their smartphone. As a result of the NFC capability of smartphones, and the enablement of 'tap to pay' directly on Android and iOS phones, merchants no longer need a separate piece of hardware to accept payments.

Hypothetical Example

- A displaced merchant operating a small grocery store in a market where Square is available refugee settlement wants to offer contactless payment options.
- Traditional POS hardware, a device that is used to process transactions by retail customers, is unavailable or costly.
- The merchant successfully onboarded with downloads the Square and uses tap to pay to accept payments using the mobile phone's NFC technology securely and efficiently.

Benefits

- Cost-effective - MSMEs can accept contactless payments without investing in POS hardware, reducing upfront costs and operational expenses.
- Efficiency and convenience - The Square app streamlines the transaction process, allowing merchants to input transaction amounts quickly and securely, while customers can complete payments with a simple tap on their smartphones.

Innovative blockchain-based solutions

While the number of mobile payment solutions has increased over time, other digital financial services have also continued to develop. Blockchain-based solutions leveraging digital assets have become more sophisticated and more prominent.⁵⁰ These have made traditional services like payments, lending, money and remittance transfers, cheaper and more accessible due to wider distribution of these services through digital and mobile channels.⁵¹

Bitcoin and stablecoins are digital assets issued on a blockchain, a digital infrastructure that is used to deliver a broader range of decentralised applications.⁵² These applications, known as DeFi, differ from traditional financial services in that they remove the need for many intermediaries (and the associated fees) and run on independent, alternative rails.⁵³

The regulatory landscape around payments, digital assets, blockchain and DeFi is fragmented with a range of different approaches and outright gaps in some jurisdictions. International standard-setting bodies like the Financial Stability Board (FSB) and the Bank for International Settlements (BIS) are actively looking into ways to coordinate the regulation of digital assets and to enhance efficiency and address challenges. A few leading jurisdictions and the standard-setters are currently exploring how to first define and then regulate DeFi. While lacking in comprehensive legislation, some of the use cases of blockchain infrastructure and DeFi applications, are covered by existing legislation.

Blockchain-based financial services offer the following benefits:

- **Enhanced financial efficiency:** increased transparency for participants, with transactions recorded on an electronic ledger: a database held by all market participants, optimised to be widely accessible, synchronised, easily updatable, and tamper-proof.⁵⁴
- **Expanded market reach:** increased opportunities for access to finance, allowing MSMEs to develop scale.⁵⁵ For example, the global nature of some digital assets, in the context of displaced populations, makes it easier to transact online and offline fast, without the need to use the native currency of the host country or pay extremely high conversion or remittance fees.
- **Increased resilience:** the use of digital assets for transactions on the blockchain has the effect of minimising many of the risks associated with payments due to simultaneous exchange on a single ledger, such as those around currency exchange and liquidity management.⁵⁶

⁵⁰ [An overview on smart contracts: challenges, advances and platforms](#), Zheng, Z., Xie, S., Dai, H.N., Chen, W., Chen, X., Weng, J., et al., Future Gener. Comput. Syst. 105, 2020

⁵¹ [Disrupting the Finance world: How fintech is changing the game for business](#), Columbia Business School

⁵² [Decentralized Finance](#), Zetsche, Arner, Buckley, Journal of Financial Regulation, 2020

⁵³ [What Is Decentralized Finance \(DeFi\) and How Does It Work?](#), Investopedia.com, 2023

⁵⁴ [Technology Behind Crypto Can Also Improve Payments, Providing a Public Good](#), IMF Blogs, 2023

⁵⁵ [How can Blockchain ecosystems serve MSMEs?](#), OECD iLibrary, 2021

⁵⁶ [Technology Behind Crypto Can Also Improve Payments, Providing a Public Good](#), IMF Blogs, 2023

The value of these benefits increases in crisis situations where access to traditional financial service providers is disrupted and security risks around holding cash may be elevated. This utility is still not being realised in many different markets worldwide due to lack of digital financial literacy, infrastructure and coherent regulatory frameworks. The core proposition is that Bitcoin and stablecoins function as an alternative store of value and medium of exchange, that are used to provide fast, reliable and low-cost blockchain-based solutions.

Bitcoin and stablecoins

Bitcoin, created in 2009, operates on a blockchain. It serves various purposes, including as an investment, a form of payment, and a means of transferring money globally without relying on third parties like banks. Bitcoin possesses valuable properties such as acceptability, divisibility, durability, fungibility, portability, and scarcity.

Bitcoin's decentralisation means that it operates independently of traditional banking systems and involves significantly lower fees. The global average cross-border remittance fee is between 6-7%.⁵⁷ In some regions, foreign exchange bank fees can exceed 50% (for instance, sending funds from Türkiye to Bulgaria).⁵⁸ This amounts to billions of dollars a year spent globally on cross border remittance fees that could essentially be eliminated through the use of Bitcoin or stablecoins.⁵⁹ Some countries such as El Salvador and the Central African Republic have already adopted Bitcoin as legal tender, which has opened up foreign investment opportunities and created a micro-tourism industry based on Bitcoin.⁶⁰

Additional benefits of Bitcoin are relatively low barriers to entry.⁶¹ In the past, despite not having a regulatory framework in place and the central bank banning Bitcoin, Nigerians had the world's third-largest uptake in Bitcoin, underscoring the attractiveness of such options to EMDEs. Recently, in December 2023 the Nigerian Central Bank lifted its ban on Bitcoin and outlined new guidelines for Virtual Asset Service Providers.⁶² A recent survey by Block further demonstrates that participants with a lower income more often use Bitcoin to buy goods than participants with a higher income.⁶³

Stablecoins, introduced in 2014, provide a more reliable and faster interchange between fiat currencies and digital assets, being redeemable at 1:1 against USD or local currencies anytime

⁵⁷ [Remittance prices worldwide: An analysis of trends in cost of remittance services](#), World Bank, 2024

⁵⁸ [How training and advice can speed cross-border payments and cut costs](#), Kieran Murphy, IMF Blog, 2024

⁵⁹ Based on remittance data from KNOMAD, in 2023 around \$860 billion were sent in remittance across the globe. Taking into consideration the global average fee of approximately 6% for sending \$200, fees alone are estimated around \$51 billion. For more info see, Remittance data ([knomad.com](#)), and for the global average fee in remittances, see [Remittance prices worldwide: An analysis of trends in cost of remittance services](#), World Bank, 2024

⁶⁰ [Understanding Cross Border Transactions With Bitcoin](#), Mintlayer, 2023

⁶¹ [How Efficient is Decentralized Finance \(DeFi\)?](#), Paul P. Momtaz, Social Science Research Network, 2022

⁶² [Nigerian Central Bank Issues Circular Reversing 2021 Bitcoin Ban](#), Forbes, 2023

⁶³ [Bitcoin: Knowledge and Perceptions](#), Block report on Bitcoin, 2022

by users.⁶⁴ They hold stored value tied to real-world currencies like the U.S dollar,⁶⁵ offering more stability than other digital assets. These digital assets have gained traction globally, particularly in emerging economies, due to their enhanced security compared to cash, lower transaction costs, real-time payments, and reduced reliance on formal bank accounts.⁶⁶ Stablecoins are particularly effective in safeguarding savings and spending power in economies experiencing high inflation, where people traditionally exchange their money for U.S dollars to protect against inflation.

There is growing interest from merchants in accepting Bitcoin and stablecoins as a form of payment. Data from Deloitte reported that roughly 2000 US businesses accepted Bitcoin in late 2022 out of 15,000 worldwide- an increasing number of companies worldwide are using Bitcoin and other digital assets for a host of investment, operational and transactional purposes.⁶⁷ A survey conducted by PayPal and Deloitte on merchant adoption of digital currency payments, such as stablecoins, found that 93% of merchants that currently accept digital assets as a payment instrument have already seen a positive impact on their business' customer metrics and 87% of merchants see benefits such as immediate access to funds by accepting digital currency payments.⁶⁸ There also appears to be a (renewed) interest from payment companies, in accepting payments in digital assets, aligning with the abovementioned will of merchants to transact in digital assets with their clients.⁶⁹

Surveys of consumers suggest that people with below-average income more frequently use bitcoin to send money and buy goods and services than people with above-average incomes. The most common reason people have for buying Bitcoin is as a speculative investment, but if the reasons for purchase are broken down by income group, it appears that higher-income individuals drive this perception.⁷⁰ Countries with lower per-capita GDP and higher shares of income from remittances have greater rates of people citing purchasing goods and services and sending money as good reasons to buy Bitcoin.⁷¹

Digital assets can be securely stored and transferred independently of traditional banking rails via self-custodial wallets. Unlike custodial wallets, where a centralised third party (like a bank or a cryptocurrency exchange) hold the assets, self-custody puts control back in the hands of users by ensuring they own the 'keys' required to manage, move, and use their digital assets. These wallets can take various forms, including a browser extension wallet, a desktop application, a mobile application, or a hardware wallet. Self-custodial wallets offer a secure way to store the keys to the blockchain network, which need to be kept private. They are similar to password managers, securing, encrypting, and enabling user-friendly access to a multitude of complex passwords, whilst ensuring the user retains control and responsibility. Self-custody also reduces counterparty and segregation risks, as customers no longer have to rely on a third-party custodian, who often holds multiple assets in centralised storages, and may be vulnerable to risks such as financial crises, bad governance, bankruptcy, or hacks.

⁶⁴ [USDC | Digital dollars backed 1:1 with USD | Circle](#)

⁶⁵ [Holding Steady: The Rise of Stablecoins](#), Michael Zhao, Grayscale, 2023

⁶⁶ [Emerging Markets: driving the payments transformation](#), PWC, 2016

⁶⁷ [The use of cryptocurrency in business: why companies should consider using cryptocurrency](#), Deloitte, 2023

⁶⁸ [The Crypto Advantage for Retailers](#), Deloitte, sponsor content published in Wall Street Journal, 2022

⁶⁹ [Stripe Is Bringing Back Crypto Payments. Citing 'Real Utility'](#), Pymnts.com, 2024

⁷⁰ [Bitcoin: Knowledge and Perceptions](#), Block report on Bitcoin, 2022

⁷¹ *Ibid.*

Self-custodial wallets can also hold other documents, e.g., driver's license as a form of identification. This is often more secure than the physical equivalent, which can be stolen or cloned and often underpins identity theft. This functionality is also important for displaced entrepreneurs to provide an alternative means of identification when being onboarded by financial services providers, installing POS software, verifying a client's identity, etc.

CASE STUDY

Bitkey – a secure solution to directly access digital assets (Bitcoin) in hardware wallet.

Bitkey is built by Block, Inc., and is a hardware self-custody wallet that brings together software, hardware, and advanced security to modernise Bitcoin ownership. As a 2-of-3 multi-signature wallet, Bitkey has three private keys protecting the users' digital assets. Two out of three keys are required to sign a transaction, giving the user extra protection, and ensuring that users can always recover their funds if they lose a key.

Solution

- Bitkey offers a secure and convenient solution for displaced individuals to store and transport wealth. Being a 2-of-3 multi signature Bitcoin wallet and distributing private keys between the user's phone, a hardware device, and Bitkey's server, it ensures enhanced security and enables quick and easy access to funds when needed.

Example

- Displaced consumers and merchants, due to conflict in their region, need to quickly flee to safety but want to ensure they can continue their economic activities in the future.
- Carrying physical cash is risky, and accessing traditional banking services may be impossible in their current situation. They need a secure solution to store and transport their wealth.
- They can use Bitkey to securely store their funds, fostering financial resilience and enabling future economic activities despite the challenges of displacement.

Benefits

- Secure wealth storage - Bitkey provides a secure method for individuals and merchants to store their Bitcoin, safeguarding assets from loss or theft during times of displacement or crisis.
- Portable and accessible - With Bitkey, individuals and merchants can quickly access their funds and assets, ensuring financial stability and mobility even in emergency situations.
- Protection against economic instability - By holding value in Bitcoin, users mitigate the risks of hyperinflation or extreme currency volatility in their home regions, preserving purchasing power for future commerce and transactions.
- Financial independence - Bitkey empowers people to manage their finances independently, without reliance on traditional banking services or intermediaries. This fosters a sense of autonomy and resilience within displaced communities.

Lessons from Ukraine

Following the Russian invasion, an estimated eight million Ukrainians left the country, and further eight million were displaced within Ukraine.⁷² This has been caused by the Russian tactics of targeting residential areas and crucial civilian infrastructure, which also sharply limited access to the pre-existing financial infrastructure.^{73 74}

Ukraine was already relatively advanced on digitalisation and digital asset use – and so was quick to grasp the usefulness of such solutions in providing their citizens and entrepreneurs with alternatives to damaged or otherwise unavailable traditional infrastructure.⁷⁵ Prior to the Russian invasion, in 2019, the Ukrainian government launched an initiative called Diia, which provides a wide range of e-government services through a mobile app and web portal, including the world's first digital passport and access to 14 other digital documents along with 25 public services.⁷⁶ It is used by more than half the Ukrainian adult population.⁷⁷ The e-commerce sector in Ukraine was also growing steadily before the invasion, supported by the increasing adoption of digital payment systems. Various online payment platforms and digital wallets gained popularity, facilitating online shopping and transactions.⁷⁸

The Ukrainian government acted quickly to facilitate the use of digital assets after the invasion. In March 2022, President Volodymyr Zelenskyy signed a law officially legalising digital assets in Ukraine, establishing a regulatory framework [to ensure convenient and secure access to the global market for digital assets](#).⁷⁹ Given the various pressures on the fiat currency (hryvnia) as well as uncertain or intermittent access to bank accounts, many Ukrainians turned to digital assets like Bitcoin and stablecoins as a reliable store of value and medium of exchange.⁸⁰

There have been widespread reports of digital assets, such as Bitcoin, Ethereum and Tether being used by Ukrainians to access and transport their savings after the Russian attacks made access to traditional financial institutions difficult.^{81 82} These solutions notably also provided cross-border access to finance for refugees who would otherwise have had to try and set up bank accounts in their temporary foreign host countries (noting that an estimated 90% of displaced Ukrainians planned to return as soon as possible).⁸³ In that sense, gaining access to cross-border banking services can be seen as disproportionately costly and

⁷² [The Effect of Conflict on Ukrainian Refugees' Return and Integration, EBRD Working Paper \(number 289\)](#), January 2024

⁷³ [Russia targets Ukraine's energy infrastructure in major strike](#), The FT, March 2024

⁷⁴ [Russian-Ukraine armed conflict: Lessons learned on the digital ecosystem](#), Itzhak Aviv, Uri Ferri, International Journal of Critical Infrastructure Protection, Volume 43, 2023,

⁷⁵ [Digital Public Infrastructure in Ukraine: Harnessing Technology for the Public Good \(newamerica.org\)](#)

⁷⁶ [Ukraine's Diia platform sets the global gold standard for e-government](#), Atlantic Council blogpost, 30 May 2023

⁷⁷ *Ibid.*

⁷⁸ [Online payment methods in Ukraine 2022 | Statista](#)

⁷⁹ [War torn Ukraine embraces crypto](#), Economist Intelligence Unit, April 5, 2023

⁸⁰ [Why the role of crypto is huge in the Ukraine war](#), World Economic Forum, Financial and Monetary System, March 16, 2023

⁸¹ [War in the time of crypto](#), Emily Stewart and Rebecca Heilweil, 2022, Vox

⁸² [Crypto Boosts Ukraine – and Russia - CEPA](#)

⁸³ [The Effect of Conflict on Ukrainian Refugees' Return and Integration, EBRD Working Paper \(number 289\)](#), January 2024

burdensome if it is not going to be on a permanent basis. The ease of leaving Ukraine with one's savings in digital assets also eliminated the need to carry cash in a dangerous environment.⁸⁴ Mobile payments, Bitcoin and stablecoins made it substantially easier for refugees to receive and send money and for MSMEs to continue operating in their temporary host countries.

The UNHCR has notably partnered with the Stellar Development Foundation (SDF), alongside money transfer company MoneyGram, and Circle (issuer of the USDC stablecoin, which is pegged to the US dollar) to pilot a system for distributing aid directly to Ukrainian refugees on their phones.⁸⁵ In this case, the UNHCR delivers USDC via the Stellar network to a digital wallet that can be accessed via smartphone. The recipient can then exchange these stablecoins for fiat currency at any MoneyGram office in approximately 945 cities in Ukraine or any of their 350,000 locations worldwide. Pilots of this system have to date delivered aid to some 1500 individuals and disbursed more than \$1.1 million in essential aid.⁸⁶ The UNHCR is investigating the deployment of a similar system to assist those displaced by the economic crises in Venezuela and Argentina, and others see potential use cases in delivering aid in Türkiye or Syria.⁸⁷

While these solutions have clearly demonstrated their utility in the Ukrainian context, their uptake was highly context-specific with Ukraine having been quite advanced in relation to digitalisation and making the necessary regulatory changes swiftly. Much more needs to be done to tackle some of the barriers to their wider deployment, both in Ukraine and other conflict or crisis situations around the world. The following section looks at the remaining barriers including how to address these.

⁸⁴ [Ukrainian refugee flees to Poland with \\$2,000 in bitcoin on a USB drive](#), CNBC, March 23, 2022

⁸⁵ [In the Ukraine War, Stellar Aid Assist Is Using Crypto to Give Mass Aid](#), Coindesk, April 17, 2023

⁸⁶ [A Year of Impact and Innovation](#), Stellar Development Foundation, 20 December 2023

⁸⁷ [In Ukraine, Crypto finds a purpose](#), Wired, March 15, 2023

How to drive broader adoption

Innovative solutions based on digital assets and blockchain-based applications have great potential to support displaced MSMEs. Yet, a number of significant barriers remain to achieving wider adoption of such solutions across EMDEs globally. This includes but is not limited to:

- Low levels of digital and financial literacy needed to build understanding of and trust in such solutions;
- Inadequate digital financial infrastructure; and,
- The absence of supportive regulatory frameworks and legal certainty.

Digital and financial literacy

In Sub-Saharan Africa, two-thirds of the population are reported to be financially illiterate, while according to the World Bank's Global Findex, in emerging economies, about half of account owners who did have access to bank or mobile money accounts made no digital payments to merchants.^{88 89}

Recent work by the OECD has found that MSMEs can additionally benefit from blockchain technology in relation to investment needs and technological developments.⁹⁰ However, they also highlight that for full uptake of the available technological advancements covering digital assets, increased trust in, and understanding of, the available technology is needed. Trust is widely recognised as one of the main drivers of individuals' intention to take up and continue using such services.⁹¹

While low levels of financial literacy are well documented, there is a digital element to financial literacy that is also a prerequisite for the trust needed to increase the use of digital assets and blockchain-based solutions in EMDEs. According to the Alliance for Financial Inclusion (AFI), digital financial literacy, as a concept, encompasses the domains of financial literacy, financial capability, and digital literacy.⁹² These enable individuals to make informed financial decisions tailored to their economic and social situations, acting in their best financial interest.

The absence of digital financial skills and literacy significantly affects the adoption, usage, and promotion of digital financial services, subsequently impacting the financial inclusion and well-being of consumers and businesses.⁹³ Providing citizens with the information and tools they need will help them understand and rely on a wider range of digital providers and their

⁸⁸ [Financial Literacy as a Driver of Financial Inclusion in Kenya and Tanzania](#), Fanta and Mutsonziwa, Journal of Risk and Financial Management, 2021

⁸⁹ [Global Findex Database](#), World Bank, 2021

⁹⁰ [How can Blockchain ecosystems serve MSMEs?](#), OECD iLibrary, 2021

⁹¹ [Determinants of fintech adoption: evidence from MSMEs in Indonesia](#), Saadah and Setiawan, LBS Journal of Management & Research, 2023

⁹² [Digital Financial Literacy, Guideline Note No.45, Alliance for Financial Inclusion](#), 2021

⁹³ [The digital financial literacy toolkit: Addressing the gap in low- and middle-income countries](#), GSMA, 2023

offerings.⁹⁴ Further work needs to be undertaken to ensure that people in EMDEs, who have most to gain from new technologies and the growth of digital financial services, are supported to ensure that they have the digital financial skills that they need.

Adequate digital infrastructure

The digital infrastructure scene (telecommunication antennas, internet cables, ability to host data centres) is very fragmented, especially in EMDEs. On data centres for example, South Africa and Nigeria already have multiple data centres that are up and running (31 and 11 respectively)⁹⁵, while the Central African Republic has yet to set up a single national data centre.⁹⁶ When looking at more common digital infrastructure such as internet coverage some of the countries are far more advanced, while others remain far behind.⁹⁷

The examples in India, Kenya and Brazil where the government has invested in digital infrastructure, have demonstrated the potential of digital solutions in places with less developed banking structures. While these have been government funded initiatives, generally though, in relation to telecoms, most of the funding comes from the private sector. The policy debate tends to focus on the policy levers which might be used to boost this.

There are various public-private partnerships both in developed and emerging economies. For example, the EBRD has co-invested in infrastructure projects in Ukraine jointly with the International Finance Corporation (IFC), where they have co-financed a Ukrainian-founded global online language learning platform, to help bolster Ukraine's tech sector. EBRD also (co-)invests in projects to provide sustainable digital infrastructure, for example in mobile tower infrastructure in Western Balkans that will in turn support the further development of other digital technologies.⁹⁸ These partnerships bring public funding and private sector expertise together in designing and enhancing digital infrastructure.

Enabling regulatory frameworks/ legal certainty

The regulatory environment around digital assets is nascent and globally fragmented as regulators grapple with how to provide effective oversight without the presence of the centralised intermediaries that sit at the centre of the traditional financial system. While some authorities have concluded that certain types of decentralised activities should be covered by existing statutes, others may be in need of specialised new frameworks.⁹⁹

⁹⁴ [G20/OECD-INFE Report on supporting financial resilience and transformation through digital financial literacy](#), OECD, 2021

⁹⁵ Based on data provided by the UN: [Digital Infrastructure in Africa](#), United Nations. Economic Commission for Africa, February 2024

⁹⁶ National data centres are used to streamline computing resources, lower costs, and enhance service delivery. These centres provide crucial services such as cloud computing, data storage, disaster recovery, and security, helping governments and businesses efficiently manage and safeguard large volumes of data. As mentioned in the report on [Digital Infrastructure in Africa](#), United Nations. Economic Commission for Africa, February 2024

⁹⁷ *Ibid.*

⁹⁸ For more information, see [EBRD and IFC co-invest in Ukrainian-Founded EdTech Leader Preply](#), [EBRD invests in mobile tower infrastructure in Western Balkans](#)

⁹⁹ [DeFi's legal and regulatory challenges: navigating the grey areas](#) Finance Magnates

Globally, there is significant variability between the approaches and stages of developments in various jurisdictions. Some (like Ukraine before the Russian invasion) have not even legalised the use of digital assets, others (like the European Union) have complex new frameworks regulating markets of digital assets that are expected to be further amended and elaborated in the medium-term.

Some countries have some regulations in place covering digital assets, while in some other countries activities in such assets remain unregulated but legal. For instance, some European nations outside the EU, such as Albania or Serbia have had frameworks covering digital assets for some years now. Türkiye also introduced a draft bill in May 2024 on the regulation, licensing and supervision of activities in digital assets.^{100 101 102} At the other end of the spectrum, North Macedonia banned activities in digital assets in 2016. And while Kazakhstan is a big miner of digital assets (around 13% of global Bitcoin), everyday trading, circulation or payments in these assets are mostly banned.

Great disparities in laws and regulations on digital assets exist across Middle East and African countries as well. In Egypt there is no specific law covering digital assets and the Central Bank of Egypt has issued various warnings against them with the latest published in March 2023.¹⁰³ Other Islamic countries in North Africa such as Libya, Tunisia and Morocco have no regulation in place and the digital assets sector is very restricted.

A basic enabling framework remains an essential prerequisite for engaging users and businesses to increase digitalisation, the provision and take-up of blockchain-based solutions, and to build micro- and macro-economic resilience.

EBRD and Block can look to help address these issues through a series of potential next steps, set out below.

¹⁰⁰ [Albania ploughs ahead with crypto exchange regulation](#), Euractiv, October 2022

¹⁰¹ [Law 153/2020-3 on digital assets](#), Official Serbian Government Gazette, 2020

¹⁰² [Turkey takes crypto bill to Parliament, aims to bring crypto licensing to the country](#), Coindesk.com, May 2024

¹⁰³ [The Fourth \(4th\) Warning Statement on Cryptocurrencies](#), Central Bank of Egypt, 8 March 2023

Conclusions and potential next steps

Over recent years, mobile payment solutions such as tap-to-pay by Square have seen a broad increase globally.¹⁰⁴ Bitcoin and stablecoins have seen a significant uptake in adoption in particular by displaced individuals and entrepreneurs fleeing the Russian invasion of Ukraine. As shown in the case studies presented in this report, these new and innovative solutions have potential to improve access to finance for MSMEs in displaced communities.

Increased take up and new innovations have continued to demonstrate the impact that it could have on supporting MSMEs in EMDEs, including displaced communities. However, at its core, access to mobile payment solutions requires access to mobile phones. Despite rapid progress, evidence suggests that over 40% of the global population does not have mobile phone access, rising to around 75% in Sub-Saharan Africa.¹⁰⁵ Some of the groups that would most benefit from rapidly evolving digital financial services do not have access to them.

Further, despite the benefits of these technologies, challenges such as lack of understanding and trust, technical barriers, and legal uncertainty must be addressed to fully leverage their potential. Education and outreach efforts, government support and coherent regulation, and community building initiatives can all play a role in overcoming these challenges and fostering adoption of these technologies.

To fully leverage these technologies for the benefit of displaced populations globally, governments and private organisations must work together to create regulatory frameworks and develop solutions that facilitate safe and secure use. By doing so, they can unlock the full potential of these technologies to provide economic empowerment and promote financial inclusion for all those in need.

To realise the potential benefits of digital assets for society, a high-level working group made up of public sector officials, private sector participants and academics should review new technologies, with a specific focus on financial inclusion and MSME benefits. Such an international group should complement important work being done in the regulatory context by organisations including the Financial Stability Board (FSB), the Global Financial Innovation Network (GFIN), and International Organisation of Securities Commissions (IOSCO).

EBRD and Block will assess the conclusions and recommendation in this report with the view of considering potential pilot programmes to tackle some of the above-mentioned barriers. These programmes could include:

1. **Improve understanding and trust in digital and blockchain-based financial services** with a range of different tools to train and educate MSME owners and support them in accessing financial services, especially cross-border Bitcoin and

¹⁰⁴. [Mobile payment adoption in the time of the COVID-19 pandemic](#). Al-Qudah, A.A., Al-Okaily, M., Alqudah, G. et al: *Electronic Commerce Research* 24, 427–451 (2024).

¹⁰⁵ [State of Mobile Internet Connectivity Report 2023](#), GSMA

stablecoin-based services. Different options to consider and evaluate effectiveness could include:

- a. Easily accessible videos and presentations which explain how different digital financial services could support them. These could include short 60-90 second explainer guides to demonstrate how to easily make payments using mobile apps, that are directly accessible from the app itself.
 - b. Build a repository of websites for providing instructions and guidance on using digital financial services (e.g. Block's Cash App dedicated [webpage](#) outlining how to use their different services).
 - c. Compile a list of apps with additional prompts and instructions designed around digital financial services rather than traditional financial services.
2. **Expand the availability of technology and technological expertise to MSMEs to help them access financial services.** Different options could include:
- a. The development of local digital hubs, in collaboration with national or local governments, to raise awareness and inform communities about the available services and technologies.
 - b. Support for digital infrastructure that enables the technology (i.e., ability to access the internet, investment in computer networks, data centres, etc.), especially in regions that lag behind such as Sub-Saharan Africa.
3. In addition, EBRD and Block will further consider a range of options to best take forward work to tackle some of the barriers to increase access to digital and blockchain-based financial services. Through partnership, the organisations will bring their own specialist core competencies as follows:
- a. **EBRD should keep supporting the provision of adequate digital infrastructure as a key priority in promoting the growth and resilience of MSMEs.** This may include seeking out opportunities to invest in digital public infrastructure (DPIs) that is specifically focused on increasing mobile connectivity in under-connected areas, honing benefits for businesses and governments.¹⁰⁶
 - b. **Block will assist in improving regulatory and legal certainty** by providing experience and expertise as well as identifying barriers to policy makers and regulators in those key emerging markets where the potential for digital financial services to support MSMEs is strongest.

¹⁰⁶ As per the [Digital Progress and Trends Report 2023](#), World Bank, 2024