



TOPIC

How interoperability can solve and scale financial inclusion

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Summary

Globally 1.7 billion adults are unbanked, yet two-thirds of them own a mobile phone that could help them access financial services. This is not just an issue for developing nations—even in developed countries one uncovers wide disparity. For example, in the United States over 107 million Americans remain financially vulnerable.

The limited number of banks in rural areas, low financial literacy coupled with growing mobile literacy, a cash economy without the need or motivation for consumers to be banked, and the low incentives for commercial banks to support the financially excluded are among the main drivers for the number of unbanked. Within the most underrepresented segments in the developing and developed world, there are new programs and campaigns intended to drive inclusion. However, extending these programs across governments, technological infrastructures, and companies requires large-scale interoperability. And creating interoperability requires improving connectivity, facilitating discussions, and designing alignment among very different entities. This connectivity could bring together the power of multiple tech ecosystems, while integrating data, regulatory and financial ecosystems. Interoperability can also promote competition, increase the economic viability of service offerings by reducing fixed costs and unlocking economies of scale.

Such an initiative would lay out the potential to bring multitudes into the digital economy, thereby not only an individual's opportunities but also lifting entire societies and countries so everyone can thrive.



How financial exclusion limits businesses & societies

Earlier this year the impact of the COVID-19 pandemic brought the agriculture supply chain in Andhra Pradesh to a near standstill. The shutdown of local markets placed the agricultural ecosystem of farmers, partners and buyers at risk. Small farmers could not take advantage of larger markets due to a lack of information and access, leaving perishables such as mangos to deteriorate unsold. And the buyers lacked transparency into supplier information, such as availability, price, and produce quality.

There are hundreds of millions of farmers worldwide who are digitally disconnected and excluded from markets, critical services and mainstream financial solutions. Even pre-pandemic their exclusion from the digital economy severely limited their growth. The strain of the pandemic has laid bare just how fragile their businesses are. When these cash-only farmers cannot get their crops to market they must take whatever price they are offered by whoever happens to come to their farm gate.

This financial exclusion launches a domino effect. Farmers depend on middlemen who transport their harvest in exchange for a disproportionate share of profits and so transparency is an issue because the end sale is invisible, record-less. Then without a record of their income, farmers struggle to get access to working capital. With no credit they cannot invest in equipment to scale their business, nor protect it during times of drought, regional conflict and now, pandemics. This has a serious impact on the wider society. Food market shortages cause prices to spike due to panic buying and tight supplies.

Bringing rural farmers into the digital economy can help bring visibility and resilience to supply chains and significantly increase the sustainability of individual farming businesses. The technology is accessible to many countries, but not nearly enough to ensure the survival of all societies.

The Global Findex, considered to be the most comprehensive measurement of financial inclusion, is published every three years and in 2017 it reported that 1.7B adults are unbanked. This means 30 percent of the global population does not have access to an account with a financial institution, and so does not have ability to hold savings, credit, insurance or easily transfer money.¹



Sahana Arya is an entrepreneur living in Rajasthan, a rural area in India, where she designs and sells pashminas. Sahana's husband is the breadwinner and since it is a social taboo for women in India to work, she hides her business from her family. She is financially excluded, working only with cash, and she does not have the resilience—through credit or loans—to withstand any unexpected environmental, economic or social challenge.

¹ [Global Findex Report 2017](#), The World Bank, pp35

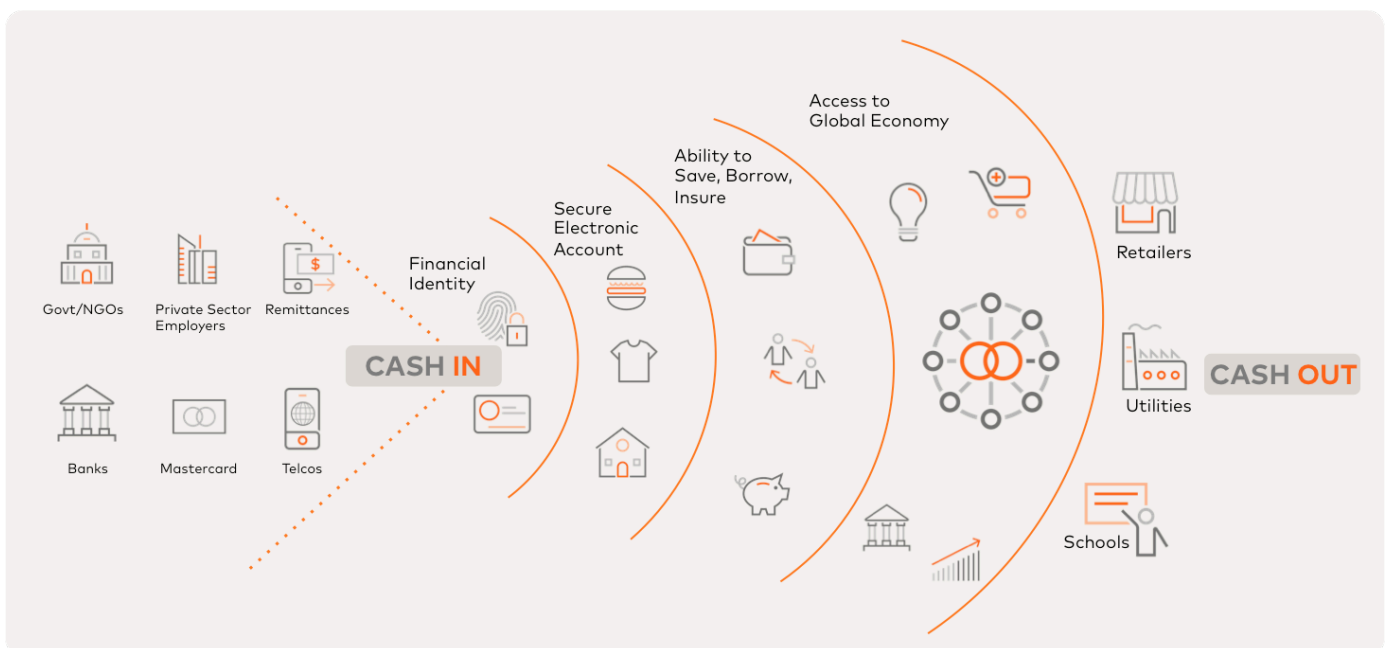




Martin Cooper drives for Uber in Los Angeles. Like many other gig workers, he is not fully salaried and receives no benefits. When Martin wants to purchase a nicer car to provide better service to his customers, he stumbles across barriers that make the investment difficult. Because he is not salaried, he has difficulties getting a loan. He doesn't own the apartment he lives in, so he also has limited collateralized wealth.

Financial inclusion is the effort to provide everyone—regardless of wealth—with access to financial services and security. It is critical in helping lift people out of poverty and getting them on a path to prosperity. Financial access, usage, and security has become a global priority. The World Bank and the G20 are committed to reach universal financial access for people worldwide. There is an opportunity to stabilize and support the world's population with useful, affordable, and sustainable financial products. However, challenges remain. How are they being solved today, and what still needs to be done?

There are five stages to achieve complete financial inclusion.



Source: Mastercard



"If there is no connectivity, there are no services to enable financial inclusion."

Femi Odunuga, Senior Vice President, Digital Future at Mastercard

The causes of financial exclusion and current solutions

The drivers that prevent individuals and small businesses from entering the digital economy can be broken into three categories: Infrastructure and access, education and usage, governments and regulation.

Infrastructure and access

This is likely one of the most foundational and impactful causes for financial exclusion: "If there is no connectivity, there are no services to enable financial inclusion," says Femi Odunuga, Senior Vice President, Digital Future at Mastercard. Often, there is insufficient access to internet and mobile networks. There are limited banking options in rural areas because banks are not incentivized to target lower income segments. And even where there are banks, many individuals lack sufficient initial deposits or cash flow, credit history, sufficient collateral, proper identity or employment credentials. We need accessible solutions for those segments and regions. They might include deploying a base station in the village, or a service that works on USSD, given the lack of data infrastructure.

New fintech companies like Ukhehse and RecargaPay offer mobile money accounts and blockchain-based services. In particular, RecargaPay's mobile wallet provides users with flexibility through digital inclusion, enabling digital top-ups and utility payments, even if they are unbanked. Ukheshe, on the other hand, drives digital payment adoption by micro and small enterprises, using payments as the gateway to broader services like lending and insurance. These new services can quickly and effectively bring individuals into financial accountability and enable access to capital. They address the needs of those who currently might not be included in the financial system.

"As people become more financially included, they have access to mobile money, and they have bank accounts. However, this doesn't necessarily translate to usage. So, access does not equal usage. And usage does not equal financial security."

Natasha Jamal, Director, Center for Inclusive Growth at Mastercard



Education and usage

Surprisingly most of the unbanked have not attempted to establish a financial record because they simply don't believe they need a bank account. Also, cultural reasons might prevent them from access to a bank account. They believe they have fared fine with cash and their own systems of documentation.

There are campaigns and non-profits, such as USAID, dedicated to educating individuals and entrepreneurs about the value of banking, showing how to set up a remote account, how it can improve their lives and how it can grow their incomes. These efforts not only benefit individuals, they help to build more self-reliant, resilient, and prosperous societies as a whole.

Governments and regulation

Governments and regulators want to proceed cautiously when it comes to data connectivity and interconnectivity. Solving for this requires very complex work, including new political agreements that will allow and even encourage interconnectivity between companies, non-profit organizations and the government. For example, the World Bank's Guinea – Mali Interconnection Project aims to increase electricity supply to the Eastern part of Guinea and can thus enable access for individuals in those areas.² Governments need to have a clear financial inclusion agenda, understanding the benefits and advantages of digitally engaged citizenry. This will then motivate them to establish a mandate to educate and support the engagement with banks, fintechs, as well as non-profits. That said, in general, a less informal economy enables greater transparency in financial transactions and increases regulatory oversight. It can help reduce corruption, discourage tax evasion and reduce administrative cost associated with cash payments.³

The blocker to scaling financial inclusion

We see from the above examples there are initiatives in place and progress is being made, but there remains a significant blocker to scaling financial inclusion. As technology becomes ever more complex and with new fintechs building their own closed systems, what emerges as a major hurdle to scaling solutions for financial inclusion is creating incentives for consumers to access loans, insurance or financial information, which requires interconnectivity and interoperability.

Interoperability is the ability for different systems to work together seamlessly. All the speed and optimization of the world wide web rests on the interoperability of technologies. We have witnessed this in the user interfaces, in email, in cloud services, in the Internet of Things. Any significant innovation within information technology has depended upon the capability of all kinds of applications connecting and speaking and transferring data between each other.

² [Guinea – Mali Interconnection Project](#), The World Bank - Projects & Operations

³ [Why Financial Inclusion Matters](#), Center for Financial Inclusion



The web changed the inter-relationships of banking, information technology and telecommunications, and in the last decade we have seen progress in providing more accessibility to move, protect and grow one's money. But the scaling of inclusion has been blocked by the new systems' inability or motivation to connect with existing legacy systems, nor remain open to new services still to come. This is not limited to technology but permeates across startups, banks, governments and geopolitical regulations.

We might have new successful financial inclusion solutions—like M-PESA or WeChat—but there are still limits. These services have limited interoperability - whether it is attributed to the lack of relevance across borders, regulatory limitations or lacking incentives for local stakeholders - and they are not all connected to banking systems. These applications offer newfound accessibility, but they lack large-scale interoperability. For example, a person might have an M-PESA account, but they cannot transfer money to someone who has a PayPal account. It is far easier to build stand-alone systems than try to connect dissimilar closed systems and this challenge stunts the scale of accessibility and usage.

It is time to make the next leap forward, to boost financial inclusion—through the capability of interoperability—so that new systems can share and exchange data with incumbent and future systems.

The solution of interoperability

Interoperable systems reward us with many positive outcomes. Tech companies, telecommunications companies and banks could see increases in efficiency, usage, cost-savings through shared infrastructure, economies of scale and innovation. The end users could receive the benefits of increased market competition, network effects and reduced transaction fees. And with a newfound 360-degree understanding of the consumer, informed by data sharing across environments, corporations can create products to more accurately meet their needs overall.

In Brazil efficiency through interoperability could save 0.7 percent of GDP per year, according to the World Bank. And the current experience of the payment processing companies, like VISA and Mastercard, has proven that interoperability dramatically improves the user experience of making payments and therefore contributes to a huge increase in transactions. Moody's Investor Service found that a 1 percent increase in credit card usage translated to an average GDP growth of 0.24 percent across more than 50 developed and emerging countries.⁴

Interoperability means going beyond those entities in finance and payments, to enabling all stakeholders to interact with each other. It involves bringing together the power of multiple technology ecosystems like Apple, Amazon, Google and more, in order to integrate data ecosystems, regulatory ecosystems as well as financial ecosystems. This would create transparency across various

⁴ [Digital Access: The Future of Financial Inclusion in Africa](#), IFC World Bank Group and Mastercard Foundation pp174



providers and allow individuals to build a history of preferences, reliability and connections, eventually simplifying transactions.

Consider this scenario: An individual with a great credit history in Malaysia moves to the United States and cannot open a bank account—because the countries will not share a history of credit. However, if the telco, Maxis were to share a bill payment history with an American bank, that could lift the person's credit quality.

WeChat, for example, has already announced that it will give credit ratings to all its users based on payment points. It can thus determine the credit- and trustworthiness of the individual user. If WeChat were to establish interoperability with banks across the globe, it could be in a position to enable individuals to establish a financial existence in a country other than the one they live.

Currently interoperability remains limited to: 1) different stakeholders within the same ecosystem, like telecommunications interoperability or financial system interoperability, or 2) stakeholders within complimentary ecosystems like telecommunications and financial institutions. But to ensure that financial inclusion is achieved a much larger practice of interoperability is key. This involves multiple players including governments, regulators, technology providers, entrepreneurial startups, financial institutions and potentially others. However, given conflicting incentives and the general spirit of competitiveness, these players have struggled to come together.



Tanzania, a success case

In September 2014 Tanzania became of the first countries in the world to achieve an industry-agreed interoperable market for digital financial services. The Bank of Tanzania noticed the steady increase of mobile money providers since 2008 and began discussions to build account-to-account interoperability. It started with a bilateral agreement between Tigo and Airtel, then Zantel joined, and two years later in 2016, Vodacom joined the interconnection. Following the initial use case, the industry negotiations continued, with the aim to reach agreement on cash-in and cash-out services, agent-to-agent or float rebalancing transactions, and bulk payments. There has been clear impact on the market. As of September 2017, the Bank of Tanzania reported that the number of interoperable transfers had grown exponentially, from 174,000 transactions in October 2014 to over 6.9 million transactions. In terms of value, these transfers have now reached over \$90 million per month. Interoperable P2P transactions now account for about 28 percent (almost a third) of all P2P transactions.⁵

⁵ [Digital Access: The Future of Financial Inclusion in Africa](#), IFC World Bank Group and Mastercard Foundation pp176



The challenges facing interoperability

Scaling interoperability across the globe might seem like a moonshot and for good reason, it faces significant challenges. Interoperability depends not only on the ability of complicated technology platforms to interact but there are associated contractual relationships that require negotiation.

Here are some key liabilities that hinder partnerships:

- **Complexity:** The entire ecosystem is growing more complex, and with that, there is a growing cost of detangling that complexity as well as integrating new features or even acquiring new entities and managing the entire configuration of interfaces. This is especially true for financial services, where legacy infrastructure exists and is in the way of the new systems.
- **Proprietary products:** Many companies might not want to share their innovative payment instruments via a central platform or use proprietary systems that are incompatible with a central infrastructure.
- **Competition:** In highly concentrated markets, with only one or a few dominant players, the short-term objectives to lock in customers might distract dominant participants from the longer-term benefits of a growing the overall market. Many companies are protective of their target segments and data privacy.
- **Nationalism:** Governments prefer to create their own systems. They want to avoid being reliant on global systems. China's country specific internet serves as an example.
- **Data sharing and data usage:** There are regulatory concerns around data sharing practices that need to be addressed.

"Although there are consistencies in the route to market across FMCG companies, the nuances can add significant challenges when planning large scale programs. We need to integrate payments with the specific ordering platforms of each FMCG partner, requiring significant degrees of customization, plus the additional market specific localization requirements."

Unette Spencer, Vice President Enterprise Partnerships at Mastercard



Framework for interoperability

Despite the challenges posed to achieving interoperability, it is worth the time and resources. Because the impact of large-scale interoperability should not be underestimated. The result is increases in productivity, cost and time savings, exchange of data and customer satisfaction. Consider the impact of the world wide web, hardware and software systems in healthcare, or public safety systems (i.e., law enforcement, fire and emergency services)—all exist because of interoperability. Additionally, the effectiveness of such services is proportional to the scale of the interoperable capabilities.

Achieving and nurturing sustainable interoperability is inherently very hard. It involves building services with components that are technologically different and are controlled by different organizations with their own rules, their own agenda, their own vision. At a high-level interoperability relies on negotiation, creativity and a driving motivation from all sides.

Once the commercial incentive for consumers, such as free health insurance or better access to government grants, has been established, there are three functional areas that must come together: Governance, infrastructure, and business relationships. Here we will dive into the key requirements from each area for interoperability to thrive.

Industry and Government Collaboration

With any process in the financial and data industries, the development of a solid set of rules and risk mitigation is essential. Consumer privacy needs to be held paramount. Managing the needs and desires of incumbents, new fintechs, non-profits, and ultimately the consumer is best served by a neutral party who can ensure that interests are balanced between cooperation and competition and who can intervene and perform dispute resolution. However, we need to be cautious about regulator-led interoperability processes. Industry and government may find their interests are in conflict and kicking off early with regulations might prevent engagement. The consensus among experts is that the best incentive for industry and governments to play well together is an economic motivation. And even better might be to have at least one industry or government champion with vision and persistence who can lead the industry (as opposed to the regulators) to initially design the rules.

Infrastructure

First and foremost, we need data connectivity in order to create interoperability. Without the ability to connect systems or application programs in order to enable communications and data transfer there can be no interoperability. Therefore, the development of accessible solutions for those segments that are not connected to infrastructure—like building a base station in a remote village—is a must.

A simple technical architecture is also crucial, so that support and operational teams can easily ramp-up and manage the solution. The level of development of these areas is often uneven across countries and makes cross-border interoperability difficult. It is worth highlighting that this includes the need



for very clear documentation, the importance of which cannot be underestimated. Clear communication in playbooks and guidelines reduces time to resolve issues and allows teams to transition with easy hand-over processes. Another key element for the technology architecture is a single point of accountability within the network of stakeholders in order to manage issues and growth. The inherent challenge in interoperability is the fact that there are many players, so ultimately it will only work if there is one leader who is accountable for owning it.

"Scale breeds interest. Once scale is created it's the incentive for other players to align to a common approach."

Sue Kelsey, Executive Vice President, Prepaid Products at Mastercard

Relationships

As mentioned earlier, interoperability cannot happen if the private companies involved are not motivated to invest the time and resources. The business model under the new system must be structured to provide commercial incentives for those incumbents and new entrants. The model needs to align strategic direction of the players such that they want to grow their customer base and diversify outside of their core business. For example, for telcos there is a higher likelihood of cooperation in an interoperable network if they are looking to diversify into enhanced services, create super applications and identify new sources of revenue. Aside from having the right parties involved in their specific roles, alignment on the technical language, terminology and familiarity with the ecosystem will minimize conflict.

Overall interoperability will need political will, stakeholder relationships, motivation and ability for every player within the ecosystem to feel empowered.



Conclusion

As the world becomes more and more interconnected, we have a chance of changing 1.7 billion people's lives for the better. With interoperability the opportunities are endless. Interoperability promotes competition, reduces fixed costs, allows for economies of scale and optimizes the user's experience. All of these advantages converge to create products and services that are not only profitable, not only increase individuals' growth capital but also allow societies to thrive. With convenient access to products that are right for them, those who are financially excluded can gain access to financial security. They can then better participate in the economy and consequently grow the economy at large. But interoperability is only possible when industry players, governments, and infrastructure work together. Ultimately, if everyone collaborates, financial inclusion can become reality and lead to a more resilient, stronger and more inclusive digital economy that benefits everyone.

