Visa
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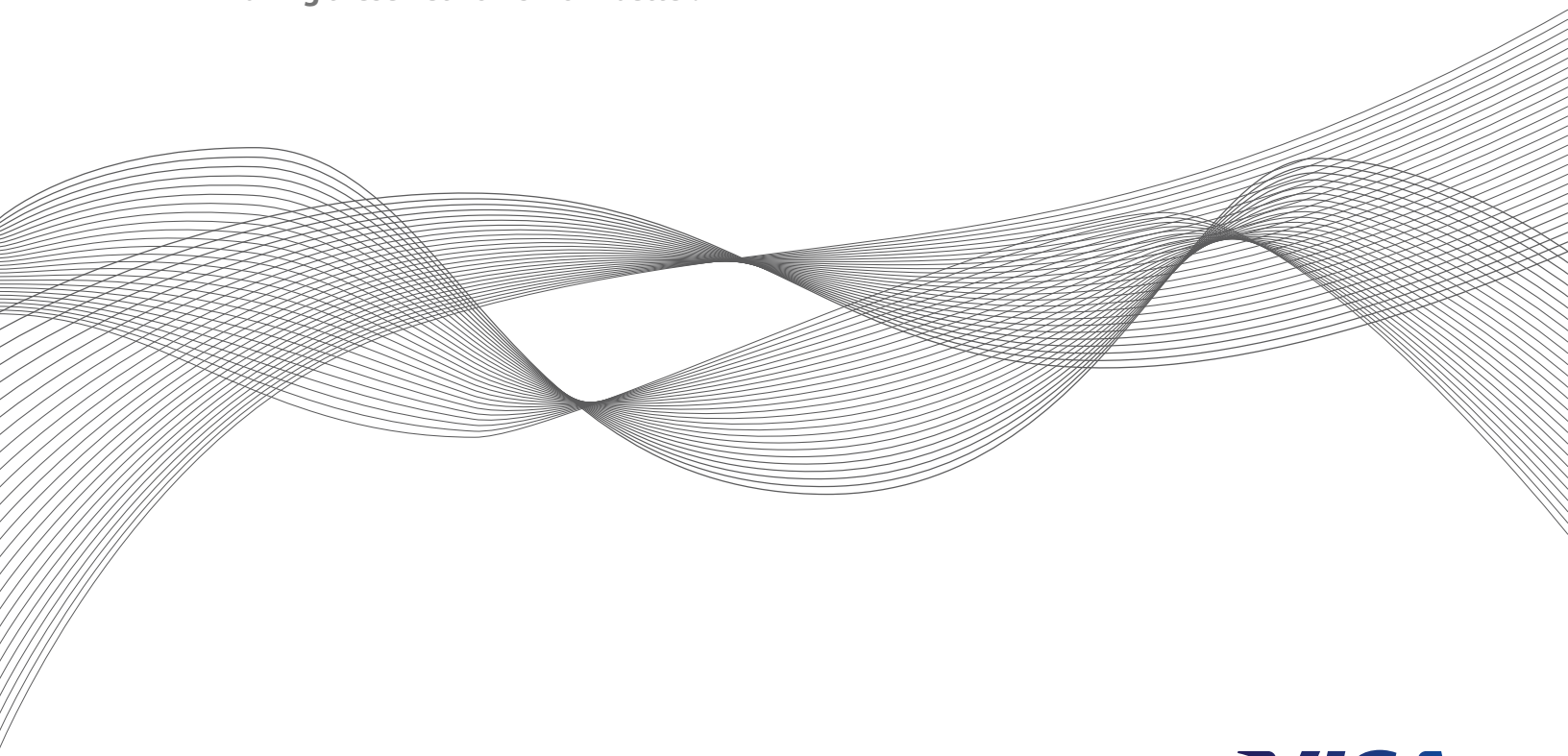
Unlocking Growth
Through Trade

Keeping global networks open:
Strategies to foster competition and development in the digital economy

Global networks bring together merchants and customers from around the world. They offer tremendous value in the form of new markets, efficient ecosystems, continuous innovation, improved cybersecurity, and — as shown by the COVID-19 pandemic response — resilience and responsiveness to local supply shocks. This paper makes a case for fostering openness in global networks and presents strategies for making these networks work better.



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Synopsis

In the digital era, the ability to buy and sell goods and services online has opened significant opportunities for micro, small and mid-size enterprises (MSMEs) to export and grow in a way that was not possible before. This has led to the growth of indigenous startups in developing markets that are increasingly playing an essential role in bringing previously disconnected parties together. From microfinance fintechs to online marketplaces to ride sharing apps and platforms facilitating telehealth services, these firms are becoming the backbone of the new economy, allowing the various parties to transact efficiently with each other.

In this paper we present five ways in which fostering networks that encourage digital trade provide value. These include: new markets; enhanced efficiency; continuous innovation; improved cybersecurity, and, as shown by COVID-19 response, resilience and responsiveness to local supply shocks

To help foster the development of these digital accelerators, and facilitate these gains to their private sector, we urge governments to create an enabling ecosystem by supporting the digitization and internationalization of their businesses and maintaining open policies to digital trade. By enabling their countries' firms and consumers to leverage global networks, policymakers in developing countries can not only help individual businesses thrive but facilitate a more innovative and robust private sector development.

We set out a number of recommendations to encourage openness and interoperability, which are key requirements for a successful international digital trade system as well as for how to strengthen international cooperation and consensus on digital governance to uphold these networks' ability to create value for companies across the globe.

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VISA

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About the Visa Economic Empowerment Institute

The VEEI is a non-partisan center of excellence for research and public-private dialogue established by Visa.

The VEEI's overarching mission is to promote public policies that empower individuals, small businesses, and economies. It produces research and insights that inform long-term policy within the global payments ecosystem. Visa established the VEEI as the next step in its ongoing work to remove barriers to economic empowerment and to create more inclusive, equitable economic opportunities for everyone, everywhere.

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Executive summary

The COVID-19 pandemic has laid bare the importance of digitization, enabling everything from ecommerce to telehealth and remote work. Firms that were born digital have generally shown resilience, but many others were forced to springboard to digital ways of doing business. In this paper we look at how firms, particularly small businesses in developing countries, can benefit from connecting with each other and to suppliers and customers in remote markets and how this can accelerate private sector development.

In the digital era, the ability to buy and sell goods and services online has opened significant opportunities for micro, small and mid-size enterprises (MSMEs) to export and grow in a way that was not possible before. This has led to the growth of indigenous startups in developing markets that are increasingly playing an essential role in bringing previously disconnected parties together. From microfinance fintechs to online marketplaces to ride sharing apps and platforms facilitating telehealth services, these firms are becoming the backbone of the new economy, allowing the various parties to transact efficiently with each other.

The pandemic has accelerated this trend. Over the next decade, the most successful startups are likely to be digitally enabled apps, platforms, marketplaces, and network-marketplaces. They provide easy access to innovation and security that would otherwise be difficult to obtain. The low entry costs of these platforms and their tremendous scalability means that even very small firms in remote areas can quickly become global exporters -- a phenomenon not seen before in human history. While the upfront costs of joining global networks is generally low, the economic gains are significant and increase with each new participant. Each new small business that joins offers new value to existing and potential customers, and this attractiveness enhances the value to all merchants.

Indigenous startups in developing markets are increasingly bringing previously disconnected parties together

In this paper we present five ways in which fostering networks that encourage digital trade provide value. These include: new markets; enhanced efficiency; continuous innovation; improved cybersecurity, and, as shown by COVID-19 response, resilience and responsiveness to local supply shocks.

To help foster the development of these digital accelerators, and facilitate these gains to their private sector, we urge governments to create an enabling ecosystem by supporting the digitization and internationalization of their businesses and maintaining open policies to digital trade. By enabling their countries' firms and consumers to leverage global networks, policymakers in developing countries can not only help individual businesses thrive but facilitate a more innovative and robust private sector development.

We set out a number of recommendations to encourage openness and interoperability, which are key requirements for a successful international digital trade system. And we make recommendations for how to strengthen international cooperation and consensus on digital governance to uphold these networks' ability to create value.

Five ways global networks benefit developing countries

Research shows that consumers and companies in developing countries that join global networks stand to gain significantly:

- **New markets.** Surveys confirm that small firms that sell online are 2 to 3 times likelier to export than firms that do not. While accessing a global marketplace helps a small firm reach its domestic customers during a pandemic, it can also serve as a springboard to accessing customers in distant markets. On average, 96 percent of sellers in developing countries that are on global marketplaces export. Some 90 percent of these firms export to more than 10 markets and derive 94 percent of their total platform sales from exports made in these online marketplaces.

- **Efficient ecosystems.** Global networks can help developing-country firms overcome inefficiencies such as cumbersome procedures, long lead times and the need for multiple documents. Burdensome, time-consuming documentation and procedures lead to a 20 to 30 percent surcharge on trade logistics. This burden represents $20 trillion annually in global merchandise trade. Global networks enable firms in developing countries to leapfrog their situation and overcome these inefficiencies by bringing previously disconnected parties together in vibrant and efficient ecosystems.

- **Continuous scalable innovation.** Perhaps the greatest value proposition of global networks is that they enable continuous innovation and improvements for network users and new beneficiaries. They do this, first and foremost, through the addition and automation of services and transactions on the existing networks. Second, global networks enable innovation by utilizing the data generated to inform better decision-making. Third, the network gets smarter as it grows, enabling better services. Fourth, global networks free developing country firms such as telecommunications companies, online merchants, manufacturers, and others to innovate rather than having to build replica technologies.

- **Improved cybersecurity.** Online fraud is a growing concern for companies, consumers and governments. In a recent survey, 61 percent of respondents at developing country banks, fintechs, and merchants agreed that new payment technologies make them more vulnerable to fraud (Forrester, 2019). Partnering with open, globalized networks is the most effective tool against fraudsters —precisely because these networks are vast and derive their information from massive global data collected in real-time.

- **Resilience and responsiveness to shocks.** Participation in global networks enhances responsiveness to shocks like Covid-19. A small, digitized business with an omnichannel model that uses global service providers to market to domestic and international shoppers online faces different prospects to recover than a brick and mortar that is just beginning to digitize.

Openness and interoperability foster effective and secure global networks

A successful international digital trade system helps companies across the globe access new markets safely, efficiently, and reliably. The two key success factors to achieving a system that will work for everyone are openness and interoperability.

Openness. Openness fosters new entrants and promotes competition at every layer of the digital value chain. For a seller in, say, Ghana, to use her laptop to provide consulting services to a firm in London, she must have access to a reliable, secure and resilient set of connections that allow her to send her report, be paid, and receive feedback from her client. Global networks are quintessentially connectors of data that bring together countless interactions and transactions among humans and machines by linking places as diverse as farms, factories, and cities. This data is most useful when viewed on a macro scale, with access to observations from many different sources.

Interoperability. To allow effective digital business across borders, national digital regulations need to interoperate. Interoperability is at play when the latest smartphone launched in, say, South Korea, is bought by a farmer in rural Kenya and operates seamlessly with African telecom networks. Interoperability is also in play when a startup in Vietnam can seamlessly use hyperscale cloud computing, with servers in Singapore, to perform daily analytics on its user data. Economic gains from interoperability are in the trillions of dollars and rising with the growth of machine-to-machine data flows fueling industrial machinery, robots, autonomous vehicles, 3D printers, smart homes, smart farms, and more. Interoperability requires compatible digital regulations and data standards that enable data sharing among and across ecosystems and nations.

How to harness the power of global networks

Increasingly, companies are faced with a "digital noodle bowl" of regulations and policies (Honey 2021). Governments and the international community have an important role to play in maintaining the ability for small firms across the globe to reap the benefits of connectivity. In particular, developing countries must focus on overcoming these three challenges:

- Foster open data policies and national treatment of digital services.
- Strengthen digital, logistics, and regulatory infrastructure and human capital to take full advantage of networks.
- Support interoperability of national digital regulations.

Developing-country governments can play an important role in strengthening the enablers of global networks: high-speed Internet connectivity, logistics networks, human capital, digital regulations that enable data sharing in ecosystems and across borders, and competition policy that levels the playing field between local and international providers.

Over the past few years, however, some governments have begun to adopt policies that curtail the potential for their own countries' firms and consumers to leverage global networks. In particular, a number of emerging markets have introduced laws to localize data in their countries entirely or in a specific sector, such as payments, financial services, or healthcare. As a result, local companies risk being cut out of using these springboards to greater prosperity.

The main stated objectives for data localization – increased security, prosperity and autonomy – are often, in fact, compromised by such measures and the economic costs can be significant. World Bank (2020) studies, for example, show that countries would gain on average about 4.5 percent in productivity if they removed their restrictive data policies, and would gain, on average, about 5 percent of productivity back by reducing data restrictions on trade in services. This is particularly compelling given the importance of digitization to the success and resiliency of small businesses during the pandemic (Harper 2020).

Such policies are stop signs, toll booths, and detours on the superhighways of data that global networks are and create new costs for the network provider. These costs risk being transferred to the users of the networks, such as local consumers and small businesses, and ultimately hurt the competitiveness of economies.

This may be the biggest opportunity of our time. Will economic historians look back at our era as one of tremendous technological progress and economic gains? Or a time in which technology's potential was stunted by protectionism? The policies implemented by governments today may well determine the answer.

Introduction

Throughout the course of history, humans have built networks for commerce and communication. In the pre-Columbian era, Mayan cities ran elaborate and efficient trade networks that circulated salt, cacao, fish, cotton and many other commodities across Mesoamerica. In the 19th century, telegraph networks helped political news, commodity and bond prices, and other valuable information travel among economic centers and across the Atlantic (Colburn, 2016). Around the same time, colonial India's new interstate railroad network boosted trade among Indian cities and states (Donaldson, 2018). In the 20th century, the U.S. interstate highway system promoted traffic and trade between American manufacturing centers such as Cincinnati, Birmingham, and Detroit and consumption hubs (Duranton, Morrow & Turner, 2014). Built for moving goods, people, and news, these and many other networks have also become conduits for new ideas and innovations within countries and around the world.

As policymakers design their digital policy frameworks, they should carefully consider how their domestic companies and customers can best participate in — and benefit from — global networks

Today's networks are scaling faster than ever before. While it took 75 years to connect 50 million people to the telephone network, ecommerce marketplace Amazon scaled to 300 million users in 20 years, and social media giant Facebook grew to 2 billion users in 13 years. The electronic payment network Visa has grown in 50 years to connect 3 billion account holders to 61 million merchants, 15,500 financial institutions across more than 200 countries and territories. The COVID-19 pandemic is underscoring the importance and accelerating the use of such cashless and contactless networks.

Today's intricate and multilateral global networks are made up of millions of nodes and billions of interactions and transactions —with the possibility of countless new connections. They are also highly accessible. In the 19th century, trans-Atlantic telegraph messages cost $10 per word. Today, the upfront costs of joining a network can be as low as the fees for mobile service; an internet subscription; a commission for a successful sale to a marketplace; or a pay-per-use fee for a ride, grocery delivery or cloud-based artificial intelligence (AI) and machine learning (ML) services (Colburn, 2016).

As policymakers design their digital policy frameworks, they should carefully consider how their domestic companies and customers can best participate in — and benefit from — global networks.

Five ways in which global networks benefit developing countries

Global networks provide five specific value propositions for developing nations: new markets, efficient ecosystems, continuous innovation, improved cybersecurity, and, as shown by COVID-19 response, resilience and responsiveness to local supply shocks.

New markets

Global commerce networks enabled by online marketplaces and cross-border payment networks are revolutionizing the patterns, players, and possibilities of international trade. They are opening entirely new trade opportunities especially for micro, small, and mid-size enterprises (MSMEs) that have traditionally struggled to export due to the high fixed costs of finding international customers and transacting across borders. This is especially true in developing countries, where the costs of trading across borders tend to be higher.

Global marketplaces enable MSMEs to be discovered by hundreds of millions of buyers: Alibaba reports over 693 million users, eBay over 180 million, and Mercado Libre over 270 million (Suominen et al, 2021). In 2018 alone, Amazon had some 2.6 billion monthly mobile and desktop visits (Anthony, 2020).

Global networks enable new markets in many ways:

- **They connect MSME sellers to larger, more affluent markets.** Surveys confirm that small firms that sell online are 2 to 3 times likelier to export than firms that do not sell or market online (Suominen 2018). Developing-country firms that use global marketplaces and payment networks are especially likely to use these networks to be discovered by developed country buyers, enabling them to export to significant markets. But 96 percent of developing-country sellers who are on global marketplaces export compared to fewer than a fifth of manufacturers and about 6 percent of all firms in developing countries. Ninety percent of these firms export to more than 10 markets and derive 94 percent of their total sales from exports made on global platforms (Suominen, 2018).

- **They help exporters diversify sales.** Global online marketplaces, fueled by global payment networks, are much like medieval town squares, bridging geographic distances and increasing visibility, trust and trade between buyers and sellers. They are a particularly powerful means for firms that already export to diversify their sales. In a study of firms on the Inter-American Development Bank's ConnectAmericas platform, a third of online seller-exporters had secured entirely new customers after starting to sell online, and an additional 45 percent scored sales online with a mix of existing and new customers (Carballo, Malagón, Rodríguez Chatruc & Volpe Martincus, 2019).

- **They support the cross-border sales of services.** Global networks also enable cross-border sales of services, a fast-growing area of international trade. Marketplaces such as Upwork, Freelancer, and Fiverr connect businesses and consumers around the world to providers of various digitally-deliverable services, including developing-country firms that produce high value-added knowledge-intensive business services.

- **They fuel new transactions in the local economy.** Global networks also enable new local transactions: Uber, Lyft, Taskrabbit, Airbnb, Rappi, and HelloTractor users can transact with each other locally to offer and access rides, services, stays, experiences, restaurant meals, and rentable tractors (Suominen et al, 2021).

Research shows that digitalization can spur greater trade openness, allowing firms to sell more products to more markets. The OECD (2019) estimates that a 10 percent increase in bilateral digital connectivity increases trade in services by more than 3 percent. This is good news for sellers in developing countries, who have traditionally had difficulty accessing global markets and integrating with global supply chains. It is also good news for buyers in developing countries who can benefit from a greater range of price and quality options.

Efficient ecosystems

Global networks enable disconnected parties to come together into vibrant ecosystems by helping the various parties transact efficiently with each other. Local companies that emerge can rapidly connect to these networks and take advantage of these existing efficiencies. Digitization has spurred the emergence of indigenous startups in developing markets that are increasingly helping to connect their economies to the global marketplace. From microfinance fintechs to online marketplaces to ride sharing apps and platforms facilitating telehealth services, these firms emerge as the backbone of the new economy, allowing other domestic companies to link and to enjoy the benefits of efficiency and connection.

Technology companies and many ecosystems are now built on technology "stacks" — sets of software, languages, and data and file storage brought together via their application programming interfaces (APIs) into a cohesive, relevant combination. Perhaps a simple analogy is building materials for a house: the construction company does not have to build each component itself but can simply purchase the various elements off-the-shelf from world-class providers, and combine them in a meaningful way to build a unique house. Similarly, a ride sharing company is an assembly of parts — a tech stack built with a geolocation API, mapping software API, payment API, and big data API, among others. Combining these to a meaningful whole, the rideshare company comes to life and births an entire ecosystem of seamlessly interacting riders and drivers.

Blockchain, open platforms, and APIs are key connectors that help scale ecosystems. Instead of constructing an entire value chain or negotiating connections one-by-one, parties can focus on one link in the chain, and plug into existing APIs or blockchain to join an ecosystem where they can access data and information with all other parties, accelerate and streamline their workflows, and complete transactions and payments (Visa, 2017).

APIs have long been a workhorse for interoperability and have become a powerful means for firms to create entirely new ecosystems, by solving intractable coordination problems. Blockchain is increasingly widely adopted for these purposes. For example, blockchain platforms are increasingly being used to help create interoperability among the many players in the global trade ecosystem.

The COVID-19 crisis has made the case for digital health solutions even more compelling. These are valuable precisely because they enable interoperability in the complex healthcare ecosystem. For example, in South Africa, Vodacom has created a monitoring process that connects players in the medical supply chain to ensure medicine is distributed where it is most needed (GSMA, 2017). Telehealth startups in Bangladesh provide much needed services to doctors in the United States and create employment at home (Noor 2021). Such digital networks can enable developing countries to leapfrog to interoperable healthcare ecosystems from the start, rather than replicating developed countries' siloed and fragmented IT systems (Bigirimana, 2019).

Today's developing country businesses can access thousands of APIs of local and global service providers and combine them with their own APIs to build entirely new business models and ecosystems — without having to spend time and resources to build all parts from scratch. In the process, they can become catalysts of local innovation: for example, both Uber and Grab, a Southeast Asian ride sharing and delivery service, have offered their own APIs for third parties to integrate into their service offerings (See Uber Engineering, 2014 and Yu 2018).

Continuous scalable innovation

Perhaps the greatest value proposition of global networks is that they enable continuous innovation and improvements for network users and new beneficiaries. There are many ways in which global networks are fueling innovation.

- **They automate services and transactions on existing networks.** For example, new technologies are today enabling and streamlining cross-border B2B payments and removing friction from global value chains. Visa's B2B Connect, for example, gives financial institutions the ability to quickly and securely process high-value business-to-business cross-border payments globally with minimal hand-offs between parties, because a network replaces the former bank-to-bank-to-bank travel path. There are a few of these "new multilateral networks" operating now. Some challenges, such as different regulations across jurisdictions, still need to be addressed

- **They provide new use cases for consumers.** In a recent survey (Visa, 2017), respondents were particularly enthusiastic about automated experiences such as networked home appliances to automatically order groceries and supplies; smart vehicles that pay for gas and order their own replacement parts; and smartphones that autopay public transport or parking meters. These and many other types of use cases of automated transactions in networks save users time and help them track their purchases.

- **They generate data that can be used to benefit users.** Data on users, places, postings, interactions, transactions, analyzed with artificial intelligence (AI) and machine learning (ML), help businesses create new products and services, and streamline processes and workflows. For example, Grab uses real-time data on the 1.5 million bookings and payments in its network to predict future demand patterns and correct operational problems in real-time. The company calculates that this has translated into 30-40 percent savings in manpower and operations, improved customer service, and lowered costs to customers (see Amazon Web Services, 2016).

- **They grow smarter and enable better services.** By interacting daily with millions of users worldwide, AI-powered voice assistants are learning human languages and providing users increasingly more nuanced experiences. Mapping and location apps gather massive amounts of real-time data from millions of routes around the world, becoming better with each trip at predicting optimal routes — and enabling urban planners to better see and undo traffic bottlenecks. Such applications can be especially useful in meeting developmental needs, for example to propel smart farming, telemedicine, and financial inclusion. In precision farming, for example, data from the network that provides much more robust predictions to every farm (Heckman, 2019). In the health-care sector, AI-powered online medical advisors can gather billions of data points via thousands of daily test consultations, providing diagnoses with a churn and accuracy unmatched by human doctors (Murgia, 2017).

- **They free local businesses to focus on innovation rather than building replica technologies.** Telecommunications companies, online merchants, manufacturers, and others can get world-class solutions off-the-shelf, from global B2B service providers, and integrate these services into their own platforms. Global technology providers with open networks free developing country firms to focus on their core business and specialize in what they are best at, which increases firms and economies' productivity.

Improved cybersecurity

With digitization of payments and services, online fraud has become a growing concern for companies, consumers and governments. In a 2019 survey, 61 percent of respondents at developing country banks, fintechs, and merchants agreed that new payment technologies make them more vulnerable to fraud (Forrester, 2019). Global businesses reported an average of 4,000 cyberattacks on average per day since COVID-19, representing a 400 percent increase from pre-pandemic levels (Rodriguez 2020). According to the 2021 Cyberwarfare report, if cybercrime were measured as an economy's gross domestic product (GDP), then, with a value of $6 trillion, cybercrime would be the third largest economy, after the US and China (Morgan, 2021).

Open, globalized networks are the most effective tool against fraudsters. Precisely because these networks are global and collect large amounts of data, they enable powerful machine learning and deep learning techniques for real-time detection and preventive models to defeat fraud before it even takes place. A simple analogy is a neighborhood watch: by harvesting data from across the neighborhood, ever home is better prepared.

The larger the set of transactions that are analyzed, the more accurate the analytics and resilient the ecosystem using it. The financial services industry cannot any longer address risk by looking at a single transaction in a single place. It needs to see the customer's identity and activity in their entirety. Global networks enable a holistic response. For example, Visa's global risk detection system assesses 379 million transactions on Visa's network daily to identify, using advanced AI and real-time scoring, financial institutions and merchants that hackers may be using to access account numbers, expiration dates and security codes through automated testing. This Visa Advanced Authorization risk-scoring considers 500 attributes in one millisecond and covered 127 billion transactions in 2019. With access to this vast global data set and the power of technology, Visa prevented $25 billion in fraud in 2019 alone (Visa 2019).

Resilience and responsiveness to shocks

The COVID-19 episode has underscored economies' vulnerability to external supply and demand shocks. The crisis initially interrupted manufacturing supply chains; the demand shock is undermining developing countries' exports and tax revenue. The shock to poor commodity producers will likely be extraordinarily severe.

Participation in global networks can move all critical functions — marketing, payments, distribution, and production — to digitized networks and enhance responsiveness to shocks such as COVID-19. Digitization was very important to small businesses around the world during the pandemic Harper (2021). A small business that has an omnichannel model today and uses global service providers to sell online at home or abroad has entirely different recovery prospects than a brick-and-mortar business that is only now digitizing. Platform providers have stepped up to assist both types of businesses by, for example, lowering or waiving fees for new users.

The COVID-19 crisis has also shown how global networks enable reconfiguration of production processes in response to local supply shocks. Applied around the world to make medical supplies, distributed manufacturing or "telefacturing" techniques have enhanced countries' resilience and responsiveness.

In a distributed manufacturing network, the "manufacturer" becomes an organizer of activities on a software-driven network of designers and engineers located anywhere in the world who develop products on demand. Local producers with 3D printers give designs physical form and assemble them. Cloud-based opensource designs are readily available as virtual inventories to be downloaded for free or for a small cost, and manufactured on site, even on a coffee table in a person's living room. 3D printing APIs enable just about anyone to access custom tools to support their 3D printing processes.

The supply chain may still be global, but the physical part can be as short as a laptop and 3D printer next to it. Distribution and decentralization, enabled by open networks, have proven themselves, heralding an era of broader-based adoption of additive and distributed manufacturing techniques.

The crisis has also opened the world's eyes to the potential of driverless delivery. Autonomous vehicles, from small last-mile bots and drones to sizable vans and trucks guided by cloud-based, networked navigation systems are delivering groceries, fresh vegetables, medicine, and frozen goods to populations in lockdown in major cities from Beijing to Los Angeles. Like manufacturing networks, these modern-day pack-mules too are enabled and guided by global services and networks where data travels seamlessly among actors within and across borders.

Diverging regulations and data protectionism: costs to the system

Global networks are quintessentially connectors of data that bring together countless interactions and transactions among humans and machines by linking places as diverse as farms, factories, and cities. The interactions allowed by this flow of data enable commerce, connections and collaboration.

However, there are two reasons for concern about developing countries' ability to use these networks as springboard to prosperity. First, overlapping and, often, divergent regulatory regimes are emerging throughout the world. Second, we observe an increasing trend towards data protectionism.

An unwieldy digital "noodle bowl"

As the global economy becomes increasingly digitized and automated, open and compatible legal frameworks are increasingly important to confront global risks, such as cybercrime and data breaches as well as to preserve societal interests related to privacy, competition, and algorithmic bias.

Governments have been moving to regulate digital trade and data regimes, but often in isolation from the private sector or other governments. The resulting fragmented international regulatory system – termed a ""digital noodle bowl" of regulations and policies" (Honey 2021) will not only stifle innovation but actually presents a threat to digitally-driven economies. A fragmented regulatory system for digital trade across the globe poses greater risk to developing countries that tend to be rule takers. This makes international cooperation to comprehensively assess and manage risks and to collaborate on best options ever more important.

The cost of data protectionism

Over the past few years, however, some governments have begun to adopt policies that curtail the potential for their own countries' firms and consumers to leverage global networks. In particular, a number of emerging markets have introduced laws to localize data in their countries entirely or in a specific sector, such as payments, financial services, or healthcare. Governments may be concerned about protecting their citizens' data or protecting their system against cybersecurity threats. They may be concerned about law enforcement agencies' ability to access data in the event of, say, payments fraud. And they may wish to shield domestic firms from foreign competition, in an effort to grow their private sector.

Governments have argued that data localization would better enable law enforcement to access data. Yet localization does not equal data security. Data security has little to do where data is stored — it has everything to do with how it is stored and governed. Cybersecurity risks are a danger for all countries, but are especially great if a country lacks the underpinnings to manage and secure data.

However, protectionism may lead their domestic companies to pay a premium – and may lead countries themselves to suffer losses in economic growth, innovation and security. Governments imposing data localization mandates risk blocking their own companies from the benefits of global networks. Most developing country markets are small and it may not be economically viable for global service providers to mount local data centers and infrastructure to comply with localization mandates.

One such type of company it the payment facilitators. Payments facilitators are a new breed of financial technology company that are solving distribution problems at the edge of existing payment ecosystems to include more businesses and people. Payment facilitators are third parties that contract with an acquirer on behalf of a business and settle transactions with the acquirer for the business.

In Mexico, for example, payment facilitators have become an increasingly significant component of the payments ecosystem. These companies offer customized solutions for small businesses and fill market needs so far left unaddressed by traditional banks, Payment facilitators leverage existing commercial networks and stores, bringing costs down and making it simpler, faster, and easier for a business owner to buy payment terminals, register, and get support (See Tirana 2021).

Payment facilitators are highly sensitive to localization requirements and other measures that increase the cost of doing business. Consider, for example, a bank in a developing country that requires all financial data to be stored locally and/or hosted by a domestic payment system. Having such requirements will lead the facilitator to move to the next market to do business. Without access to the payment facilitators or other innovators associated with larger networks, the bank and its customers may miss out on the benefits of the global cloud revolution.

Small markets with strict localization requirements risk cordoning themselves off from global networks and being left with closed-loop systems that deliver none of the gains that global networks' scale provides. Above all, the rising stars of developing economies are more likely to be able to access new, more affluent markets by plugging into global networks.

Measures limiting the cross-border scope of data undermine efficiencies in public services, such as data processing and machine learning for medical diagnoses and emergency preparedness. Innovative telehealth companies that rely on cross-border data for quick and reliable diagnoses and medical communications, for example, would be unable to provide the information necessary for public health authorities to react. For governments that want to catalyze ecommerce as a means for MSMEs to export, data localization does exactly the opposite: it imposes new costs on startups that could otherwise access digital services at cost. Surveys show that data privacy and localization policies are also typically among the top concerns of MSMEs seeking to engage in ecommerce (USITC, 2014).

Such measures also have a dampening effect on the development of the private sector, firms' abilities to export, and on overall economic growth. A recent ITIF paper (Cory and Dascoli, 2021) illustrates the growth of data localization measures, from 67 barriers in 2017 to 144 in 2021. The cost of these restrictions can be steep: the ITIF model finds that a 1 -point increase in data restrictiveness can reduce trade by 7 percent and slow productivity by nearly 3 percent.

Other studies tell a common story: data localization mandates act similarly to local production mandates, increasing local companies' operating cost and failing to bring about the desired welfare benefits.

Studies show, for example, that localization increases the cost of digital and financial services to local companies; arrests the competitiveness of local firms' exports; undermines productivity growth of manufacturing, communications, financial services, and many other sectors; limits trade in services that developing countries need to build smart manufacturing, agriculture and transport networks riding on high value-added services; discourages foreign direct investment; and dampens firms and governments' utilization of 5G connections and technologies such as AI and blockchain (Bauer, Ferracane & van der Marle, 2016, Ferracane, Kren & van der Marek, 2018, and Bedran & Tufail, 2019). A 2020 IIF study warns that data localization can weaken fraud prevention, derail services such as fast payments and lower-cost remittances and choke off innovation (IIF December 2020).

How to harness the power of global networks

Global networks provide a range of global public goods from healthcare and transportation to innovation and cybersecurity. They contrast starkly with siloed bilateral transactions, closed-loop systems and local networks that, cannot support commerce, cost-savings, cybersecurity, and knowledge at the scale global networks enable.

In conclusion, we set out a set of recommendations to help maintain an open system for fostering developing countries' digital development strategies.

1. **Support interoperability.** To allow effective digital business across borders, national digital regulations need to interoperate. Interoperability is at play when the latest smartphone launched in, say, South Korea, is bought by a farmer in rural Kenya and operates seamlessly with African telecom networks. Interoperability is also in play when a startup in Vietnam can seamlessly use hyperscale cloud computing, with servers in Singapore, to perform daily analytics on its user data. Economic gains from interoperability are in the trillions of dollars and rising with the growth of machine-to-machine data flows fueling industrial machinery, robots, autonomous vehicles, 3D printers, smart homes, smart farms, and more.

   But interoperability requires compatible digital regulations and data standards that enable data sharing among and across ecosystems and nations. As set out in Gallaher, Harper and Kotschwar (2021), regulatory interoperability is the ability to connect payment systems across different jurisdictions governed by differing regulatory requirements.

   Governments must come together to ensure that the global rules for digital trade are clear and allow for open, interoperable transactions. We welcome the G7's commitment to establish a Future Tech Forum to "mitigate the risk of regulatory fragmentation and to facilitate coherency of our emerging technology ecosystems." We urge the participants in this Forum to act quickly to set out principles and procedures that will mitigate or avoid overlapping, incongruent, or conflicting approaches to cross-border data governance. As they work to "facilitate regulatory and policy coherence, data connectivity, and commercial interoperability" policymakers should keep in mind the importance to developing country firms, especially small firms, or access to global networks. Future Tech Forum participants could look to the robust work already done by the G20 on establishing the "Osaka Track", broad-based international agreement to fuel cross-border transfer of data.

2. **Foster digital openness.** Policymakers should ensure open data policies and national treatment of digital services. Governments are starting to recognize the importance of such open data policies and are enshrining this recognition in their trade agreements. The recent joint U.S.-Singapore Statement on Financial Services Data Connectivity is a good example of governments coming together to promote a favorable environment for financial services data. While the statement is not a binding trade commitment, it signals the benefits of open data flows.

   More recently, the Singapore-Australia Digital Economy Agreement (DEA) explicitly prohibits data localization requirements and ensures cross-border data flows including—for the first time in any agreement in Asia—for financial services. Equally important is the recognition by the two governments that these commitments are respectful of, and sit alongside, appropriate domestic policies protecting privacy and citizens' personal data even when transferred to the other country.

   At the multilateral level, the WTO Joint Statement on E-Commerce Initiative is being led by Australia, Singapore, and Japan, and is addressing a range of important digital trade issues as well.

3. **Prioritize digital infrastructure.** We urge national governments to prioritize digital infrastructure, and international development institutions to direct resources and brainpower to enable this efficiently. Developing countries still have limited digital, logistics, and regulatory infrastructure and human capital to take full advantage of networks. Places in the world where firms have thrived on networks against the odds — such as rural and remote small businesses far from major markets — have met these preconditions. For example, 4,000 Chinese "Taobao Villages" have generated extraordinary amounts of outbound ecommerce sales from rural China. Their secret is not access to digital technologies — but also excellent internet connectivity, logistics connections, and educated, talented people able to leverage the technologies that connected them to a global network (Wang, 2019).

To take advantage of the power of global networks, developing country governments need to invest in the enablers of global networks — high-speed Internet connectivity, logistics networks, first-rate human capital, digital regulations that facilitate data sharing in ecosystems and across borders, and competition policy that levels the playing field between local and international providers. This is nothing less than the opportunity of our time.

In a hundred years, economic historians may look back to our era as one of tremendous technological progress whose gains were stunted by rigid policies and limited development. Today, governments have a chance to write a different history.

Sources

Amazon Web Services. (2016). *Grab Case Study.* https://aws.amazon.com/solutions/case-studies/grab/

Badran, M. & Tufail, R. (2019, March). *Economic Impact of Data Localization in 5 selected African Countries, an empirical study,* Working Paper.

Bauer, M., Ferracane, M & van der Marel E. (2016, May). *Tracing the Economic Impact of Regulations on the Free Flow of Data and Data Localization,* Global Commission on Internet Governance Paper Series 30.

Basu, A. (2020, January 10). *The Retreat of the Data Localization Brigade: India, Indonesia and Vietnam, The Diplomat,* https://thediplomat.com/2020/01/the-retreat-of-the-data-localization-brigade-india-indonesia-and-vietnam

Bigirimana, N. (2019, September 19). *Reduce costs, save lives: how healthcare data can help emerging economies, World Economic Forum Blog*. https://www.weforum.org/agenda/2019/09/emerging-economies-healthcare-data/

Carballo, J., Malagón, C., Rodríguez Chatruc, M. & Volpe Martincus, C. (2019). *Information and Exports: Firm-Level Evidence from an Online Business Platform,"* Inter-American Development Bank, Washington, DC. Unpublished.

Colburn, R. (2016, July 11). *First Successful Transatlantic Telegraph Cable Celebrates 150th Anniversary,"* The Institute of Electrical and Electronics Engineers. Cited by Suominen, K. (2019). *Revolutionizing World Trade: How Disruptive Technologies Open Opportunities for All. Stanford University Press.*

Cory, N. and Dascoli, L. (2021). *How Barriers to Cross-Border Data Flows Are Spreading Globally, What they Cost, and How to Address Them.* Information Technology & Innovation Foundation (ITIF). https://itif.org/publications/2021/07/19/how-barriers-cross-border-data-flows-are-spreading-globally-what-they-cost

Dawn-Hiscox, T. (2018, November 9). *Indonesia's data center industry protests data localization reform,"* Datacenterdynamics.com. https://www.datacenterdynamics.com/en/news/indonesias-data-center-industry-protests-data-localization-reform/

Donaldson, D. (2018). *Railroads of the Raj: Estimating the Impact of Transportation Infrastructure,* American Economic Review 108(405):899-934.

Duranton, G., Morrow, P. & Turner, M. (2014, April 23). *Roads and Trade: Evidence from the U.S.,* The Review of Economic Studies 81(2):681—724.

Ferracane, M., Kren, J. & van der Marel, E. (2019, October 25). *The cost of data protectionism,* Vox, https://voxeu.org/article/cost-data-protectionism

Forrester. (2019, July). *Understanding The Evolving Payments Landscape: Emerging Fraud Trends and Key Strategic Implications.* https://globalclient.visa.com/visa-risk-security-research

The GSM Association. (2017). *Scaling Digital Health in Developing Markets: Opportunities and recommendations for mobile operators and other stakeholders.* GSMA Intelligence.

Gallaher, M, Harper, C and Kotschwar, B. (2021). *What we talk about when we talk about interoperability.* Visa Economic Empowerment Institute. https://usa.visa.com/sites/visa-economic-empowerment-institute/digital-financial-inclusion/lets-talk-about-interoperability.html

Harper, C. (2021). *Small business in the digital age: recommendations for recovery and resilience.* Visa Economic Empowerment Institute. https://usa.visa.com/sites/visa-economic-empowerment-institute/digital-financial-inclusion/small-business-in-the-digital-age.html

Heckman, J. (2019, October 14). *USDA pilots data-driven smart farms powered by Internet of Things,"* Federal News Network. https://federalnewsnetwork.com/big-data/2019/10/usda-pilots-data-driven-smart-farms-powered-by-internet-of-things-ai/

IMDA Singapore (2016, November 28). "International Trade and Logistics," cited in Suominen, K. (2018). *Closing in on the Holy Grail of World Trade: Using Blockchain to Expand Southeast Asia's Trade,* International Centre for Trade and Sustainable Development Issue Paper.

IIF. 2020. *Data Localization: Costs, Tradeoffs, and Impacts Across the Economy.* Institute of International Finance: Washington DC. https://www.iif.com/Portals/0/Files/content/Innovation/12_22_2020_data_localization.pdf

Morgan, Steve. (2021, January 21). *Cybercrime Facts and Statistics: Cyberwarfare 2021 Report.* Cybercrime Magazine. https://1c7fab3im83f5gqiow2qqs2k-wpengine.netdna-ssl.com/wp-content/uploads/2021/01/Cyberwarfare-2021-Report.pdf

Murgia, M. (2017, January 12). *How Smartphones Are Transforming Healthcare,* Financial Times. https://www.ft.com/content/1efb95ba-d852-11e6-944b-e7eb37a6aa8e

Noor, W. (2021, August). *What's Next for Bangladesh's Fintech innovation?* Visa Economic Empowerment Institute. https://usa.visa.com/content/dam/VCOM/global/ms/documents/veei-whats-next-for-bangladesh.pdf

Organisation for Economic Cooperation and Development (OECD). 2019, March. *Trade in the Digital Era.* OECD. https://www.oecd.org/going-digital/trade-in-the-digital-era.pdf

Rodriguez, H. (2020, December). *Year in Review: Understanding Fraud Trends During COVID-19.* Visa Navigate CEMEA. https://navigate.visa.com/cemea/digital-security/understanding-fraud-trends-during-covid-19/

Suominen, K. (2018). *Closing in on the Holy Grail of World Trade: Using Blockchain to Expand Southeast Asia's Trade,* International Centre for Trade and Sustainable Development Issue Paper.

Suominen, K., Vambell, E., Furtek, M (2021, September). *Expanding MSMA Ecommerce in Developing Countries: Digital and Ecommerce Policy Index and Path Forward.* US Agency for International Development and eTrade Alliance. https://www.allianceforetradedevelopment.org/ecommerce-policy-report-index

The United States. Agency for International Development. (2018, July). *Expanding Developing Country Small Businesses' Use of Online Platforms for Trade,* https://pdf.usaid.gov/pdf_docs/PA00TM8V.pdf

— . (2019). *Revolutionizing World Trade: How Disruptive Technologies Open Opportunities for All.* Palo Alto: Stanford University Press.

Tirana, A, (2021, March). *Unlocking the benefits of digital payments for micro and small businesses: Insights from Mexico."* Visa Economic Empowerment Institute. https://usa.visa.com/sites/visa-economic-empowerment-institute/digital-financial-inclusion/unlocking-digital-benefits-mexico.html

Uber Developers. (2014, August 20). *Introducing the Uber API,* Uber Engineering. https://eng.uber.com/uber-api/?ref=stackshare

United States International Trade Commission (USITC). (2014, August). *Digital Trade in the U.S. and Global Economies, Part 2,* USITC Publication 4485.

Visa (2013). *VisaNet: The technology behind Visa,* https://usa.visa.com/dam/VCOM/download/corporate/media/visanet-technology/visa-net-booklet.pdf.

Visa (2017). *Innovations for a Cashless World: Consumer Desire and the Future of Payments,* https://usa.visa.com/dam/VCOM/global/visa-everywhere/documents/visa-innovations-for-a-cashless-world-2017-report.pdf.

Visa. (2019, June 17). *Visa Prevents Approximately $25 Billion in Fraud Using Artificial Intelligence,* Visa Press Release, https://usa.visa.com/about-visa/newsroom/press-releases.releaseId.16421.html.

Visa. (2020, April 6). *Visa is committed to tackling the challenges ahead,"* Visa Blog. https://usa.visa.com/visa-everywhere/blog/bdp/2020/04/03/visa-is-committed-1585927227688.html.

Wang, J. (2019, November 25). *Taobao Villages Driving "Inclusive Growth" in Rural China,* Alizila, https://www.alizila.com/taobao-villages-driving-inclusive-growth-rural-china/

World Bank (2020). *World Development Report 2020: Trading for Development in the Age of Global Value Chains*. Washington, DC: World Bank. © World Bank. https://openknowledge.worldbank.org/handle/10986/32437

Yu, E. (2018, July 10). *Grab offers APIs to drive new services on app,* ZDNet. https://www.zdnet.com/article/grab-offers-apis-to-drive-new-services-on-app/

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Visa Inc. (NYSE: V) is the world's leader in digital payments. Our mission is to connect the world through the most innovative, reliable and secure payment network — enabling individuals, businesses and economies to thrive. Our advanced global processing network, VisaNet, provides secure and reliable payments around the world, and is capable of handling more than 65,000 transaction messages a second. The company's relentless focus on innovation is a catalyst for the rapid growth of digital commerce on any device for everyone, everywhere. As the world moves from analog to digital, Visa is applying our brand, products, people, network and scale to reshape the future of commerce.

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