

KEY POINTS

- Digitalization can help address structural issues that increase the cost of trade and trade finance such as paper-based process inefficiency, costly regulatory compliance for anti-money laundering/ know-your-customer, and high-risk premiums on small borrowers.
- The use of digital technology in trade and trade finance has been constrained by a lack of legal frameworks, limited technical interoperability, and a digital divide.
- A globally concerted effort is needed to address such constraints by adopting the United Nations Model Law on Electronic Transferable Records or equivalent legislation and promoting common digital standards across the trade ecosystem.
- Small businesses lag behind in digitalization given their limited capacity and access to finance, which requires special attention to their skills development and accessible sustainable financing tools.

Driving Inclusive Digitalization
in Trade and Trade Finance

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INTRODUCTION

Amid the ongoing coronavirus disease (COVID-19) pandemic, risks from the Russian invasion of Ukraine, rising inflation, and tighter financial conditions are raising economic uncertainty while global growth and trade have yet to recover to pre-pandemic levels.

Nonetheless, the pandemic has hastened forces toward digitalization around the world that can help overcome challenges as COVID-19 wanes, including in trade and trade finance. At the same time, digital technologies can help the trade sector adopt measures to economic growth that is more inclusive and environmentally sustainable.

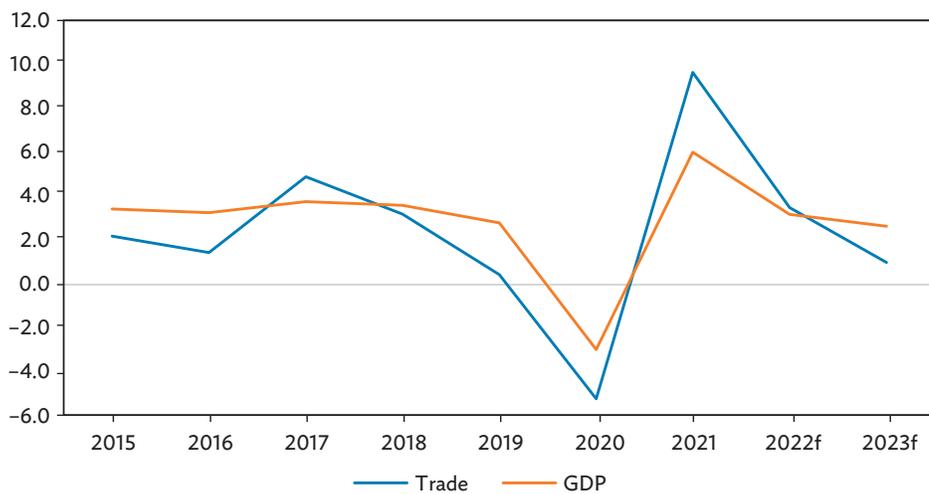
Global economic growth (up 6.0%) and merchandise trade volume (up 9.7%) both recovered in 2021 but are expected to moderate in 2022 and 2023. Gross domestic product (GDP) growth is expected to ease to 3.2% and 2.7% in those years, and trade to 3.5% and 1% (IMF 2022, WTO 2022) (Figure 1).

Likewise in developing Asia, GDP growth accelerated to 7.0% while merchandise trade volume grew 13.1% in 2021 but are expected to slow: growth to 4.3% in 2022 and 4.9% in 2023 and merchandise trade to 2.9% and 1.1% in the same period (ADB 2022a, WTO 2022).

Notes:

1. This brief draws from the discussion during *Parallel Session 2A: Driving Digitalization to Close Trade and Supply Chain Finance Gap at the Think 20 (T20) Summit* that took place in Bali, Indonesia on 4–6 September 2022; *Toward Inclusive Access to Trade Finance: Lessons from the Trade Finance Gaps, Growths and Jobs Survey* (ADB 2022a); and *Asia-Pacific Trade Facilitation Report 2019: Bridging Trade Finance Through Technology* (ADB and UNESCAP 2019).
2. The brief greatly benefited from comments by Steven Beck and Cyn-Young Park.
3. ADB recognizes “China” as the People’s Republic of China; and “Russia” as the Russian Federation.

Figure 1: Growth in Merchandise Trade Volume and Real GDP—World

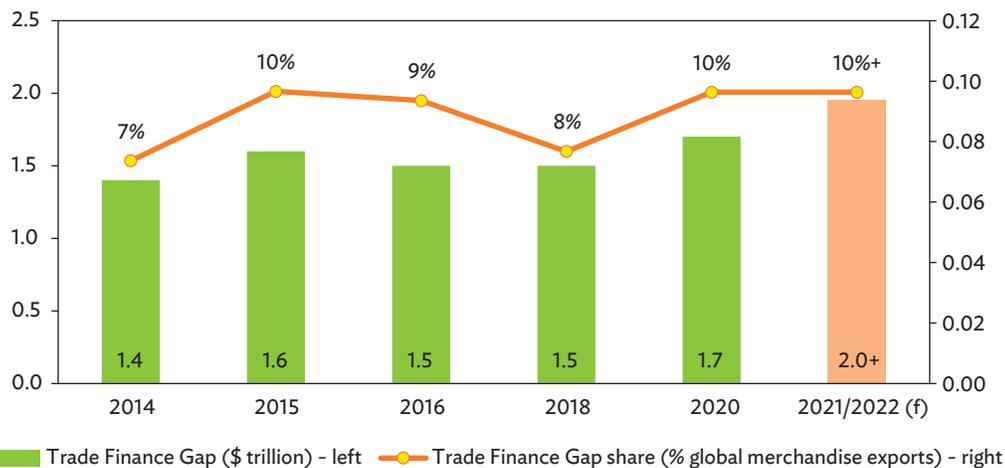


f = forecast, GDP = gross domestic product.

Note: Trade volume growth refers to the average of export and import volume growth.

Sources: International Monetary Fund. World Economic Outlook October 2022 Database. <https://www.imf.org/en/Publications/WEO/weo-database/2022/October> for GDP growth; World Trade Organization (WTO). WTO Stats. <https://stats.wto.org> for historical trade volume growth; and WTO. 2022. Trade Growth to Slow Sharply in 2023 as Global Economy Faces Strong Headwinds. Press release. 5 October. https://www.wto.org/english/news_e/pres22_e/pr909_e.htm (all accessed 3 November 2022).

Figure 2: Trend of the Trade Finance Gap



Source: Asian Development Bank. 2022a. *Toward Inclusive Access to Trade Finance: Lessons from the Trade Finance Gaps, Growths and Jobs Survey*. Manila. <https://www.adb.org/publications/inclusive-access-trade-finance>.

High inflation and rising economic and financial risks will likely worsen overall trade conditions by increasing trade costs, possibly hurting access to trade and supply chain finance by small and medium-sized enterprises (SMEs). Indeed, the trade finance gap, or rejected trade finance applications, has been persistently large for at least a decade and is estimated to have risen further to \$1.7 trillion

in 2020 from \$1.5 trillion in 2018, according to the Trade Finance Gaps, Growths, and Jobs Survey of the Asian Development Bank (ADB) (Figure 2).

About 40% of this originates from the Asia and Pacific region, which accounts for 35% of global goods trade. Trade finance

provision around the world also favors larger firms, while rejections in trade finance applications usually occur among SMEs. ADB estimates that the trade finance gap will rise to at least \$2 trillion in 2022 (ADB 2022a).

The challenges the world has confronted since 2020 have impelled digital transformation in production and cross-border trade. Many businesses were compelled to digitalize, as strong consumer pressures and the need to improve profitability, productivity, and upgrade value chains pushed firms to adopt technologies immediately. Yet, while technologies to enhance trade transactions are already in use, adoption remains limited as challenges in establishing common technical and legal standards still need to be addressed.

BACKGROUND

Major challenges in cross-border trade and trade finance transactions

Aside from lingering pandemic impact, inflation, and the rising cost of financing, cross-border trade and trade finance transactions have faced three long-standing challenges. These have existed for a reason but have led to higher trade costs, playing as barriers to trade, as the volume of global trade rapidly increases. They are also the cause of unmet demand for trade finance that has been persistently large for almost a decade.

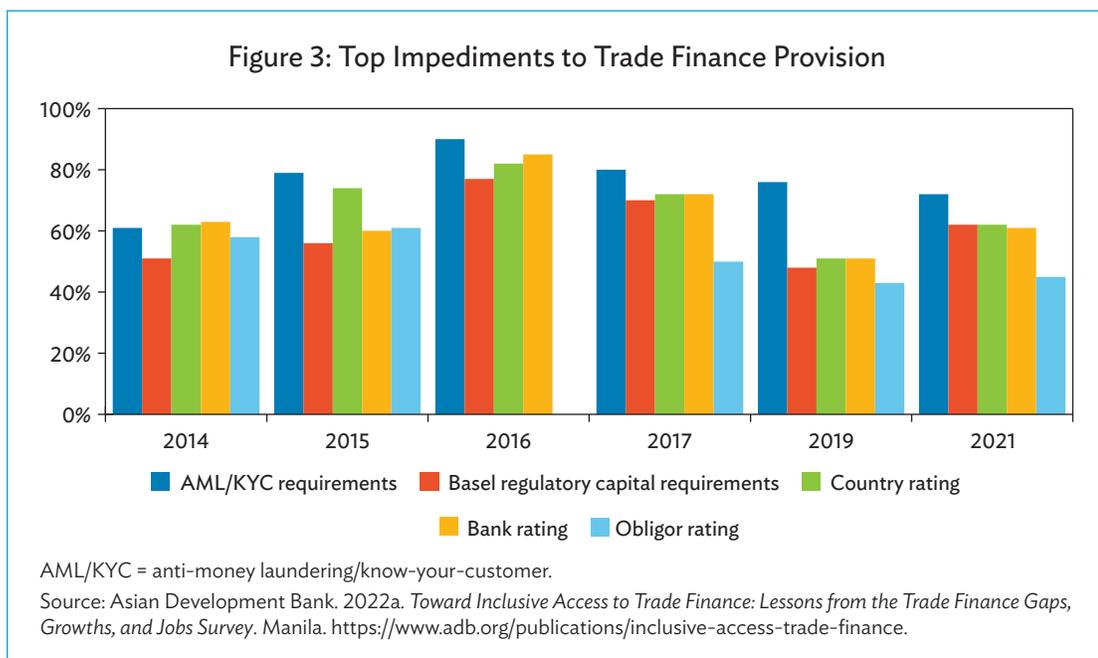
- Process inefficiency from paper-based transactions** significantly increases trade costs. The manual handling of paper is inefficient, expensive, and prone to error. Paper is still widely used, for example, in documentary transactions such as letters of credit, with operational costs accounting for 50%–60% of the price charged to clients (World Economic Forum and Bain & Company 2018). Processing letters of credit

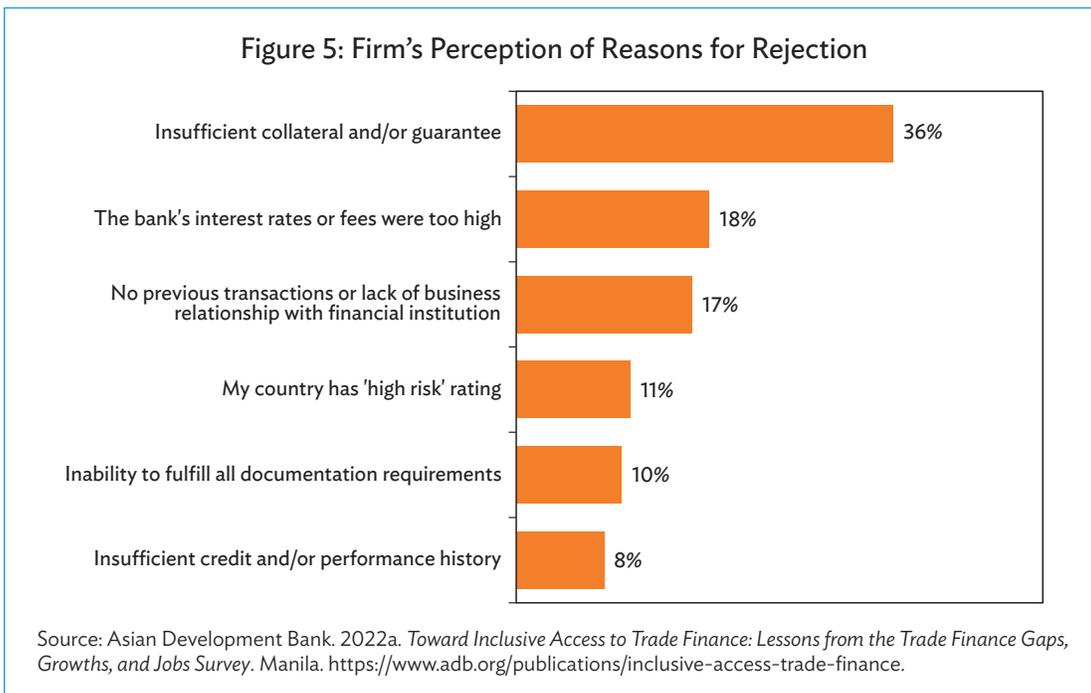
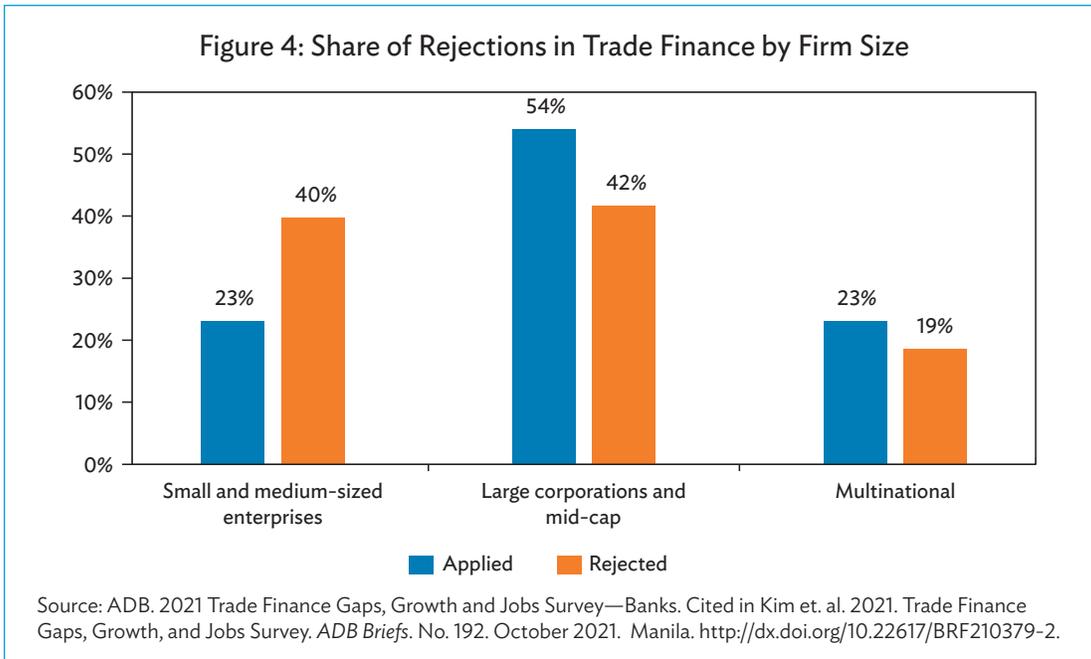
may involve more than 20 parties with more than 100 pages of documentation for verification and information exchange (BCG 2018). This also requires cumbersome wet signatures that slow the process.

- Regulatory requirements** such as know-your-customer (KYC) and anti-money-laundering (AML) compliance raise the cost for banks in providing loans and guarantees. While these are necessary tools to prevent trade-based fraudulent transactions, they also incentivize banks to reject less-bankable applications, especially from smaller firms. Basel capital requirements also limit trade finance provision. In 2021, more than 70% of banks considered AML/KYC requirements as the biggest hindrance to trade finance and around 60% noted Basel requirements (Kim et al. 2021) (Figure 3).
- Information asymmetry** further raises costs as bank charges to compensate unknown risks could discourage traders from accessing finance. As banks rely on previous banking relationships, financial statements, and collateral to screen borrowers, SMEs may not be able to meet any of these requirements, which could ultimately lead to failed transactions. High-risk assessment for developing economies as well as banks and borrowers in these economies requires high-risk premiums. It may in turn limit expansion of trade finance provision to where it is needed most (Figure 3).

Disproportionately high trade financing costs for SMEs

Applications by SMEs for trade finance are significantly more likely to be rejected than those by larger firms and thus face greater challenges in accessing trade finance. In 2020, SMEs accounted for 23% of demand for trade finance, but accounted for 40% of total trade finance rejections (Figure 4); large corporations made up 54% of trade finance applications and accounted for 42% of total rejections (Kim et al. 2021).





Smaller firms have difficulty fulfilling the requirements of collateral, cumbersome loan documentation, third-party guarantees, and credit and performance records (Figure 5). Conversely, banks enforce such requirements at higher rates due to the higher risk associated with smaller firms. This then crowds out smaller trading firms that may not have the

capacity to operate at scale. Moreover, firms with rejected applications have difficulty accessing alternative sources of finance. Once rejected, many of the firms tap into their internal funds or resort to informal financing channels such as business partners, family, and relatives. Otherwise, they are often unable to find alternative sources.

DIGITALIZATION: OPPORTUNITIES AND CHALLENGES

Compelling need for digitalization

During the pandemic, consumers have been able to remain connected to markets through electronic commerce and digital platforms enabled by e-payments, despite highly restricted physical contact and mobility. And the strong uptake in e-commerce is likely to continue.

Digitalization is also changing the nature of trade, enabling more cross-border trade in services such as financial services, information and communication technology, and other business services. In Asia and the Pacific, services trade increased more than threefold in the last 15 years, with the largest increase occurring in the last 5 years (ADB 2022b).

The current market environment is compelling businesses to adopt digitalization. Market competition and shrinking profit margins make a case for businesses to automate and upgrade their value chains to drive productivity and profit. And without digitalization and automation, it is increasingly difficult to sustain

operations amid complex supply chains while meeting increasing social and environmental requirements, which should be determined based on constant monitoring with less human intervention involved.

Benefits of digitalization

Digitalization can address the challenges of process inefficiency, regulatory compliance, and information asymmetry in trade and trade finance transactions. Process efficiency can improve through electronic trade documents and automation by speeding up transactions and reducing human error (Table). Technologies such as distributed ledger technology, artificial intelligence, and big data can help verify business identity and financial capacity, enabling banks to comply with regulatory requirements such as AML/KYC requirements at lower cost. This reduces fixed costs of operation to businesses and banks digitally connected with each other, which in turn can facilitate the participation of smaller firms and finance providers. Many banks are also poised to serve more SMEs through technology by facilitating KYC processing (79%), using data to map SME markets (73%), and potentially mitigating rejection rates in trade finance applications (46%), according to the ADB survey (Kim et al. 2019).

Table: Benefits of Trade Digitalization and Technology

Technology	Addressing Challenges of Trade Finance				
	Challenge 1: Process inefficiency		Challenge 2: Regulatory requirements		Challenge 3: Information asymmetry
	Decreased human errors	Improved speed of transactions	Improved flexibility to changes in market and/or regulatory requirements	Improved AML and KYC efforts	Improved credit scoring tools
Cloud-based invoicing solutions	✓	✓			✓
Optical character recognition	✓	✓		✓	
Electronic bills of lading	✓	✓			
Distributed ledger technology such as blockchain-based platforms	✓		✓	✓	✓
Artificial intelligence and big data	✓	✓	✓	✓	✓
Single window	✓	✓	✓		
Internet of Things and GPS	✓	✓			
Application programming interfaces	✓	✓	✓		

AML = anti-money laundering, GPS = global positioning system, KYC = know-your-customer.

Source: ADB and UNESCAP. 2019. *Asia-Pacific Trade Facilitation Report 2019: Bridging Trade Finance Gaps Through Technology*. Manila. <https://www.adb.org/publications/asia-pacific-trade-facilitation-report-2019>.

Digitalization improves transparency and traceability in supply chains, which is especially important during times of emergency like the pandemic when the supply of critical goods including personal protective equipment was inadequate at the onset. It also facilitates monitoring and verification of environmental standards in global trade and supply chains. Digitalization can make trade greener by reducing waiting time for vehicles at borders and better monitoring of emissions, for example, using the automatic identification system, which tracks vessel movement.

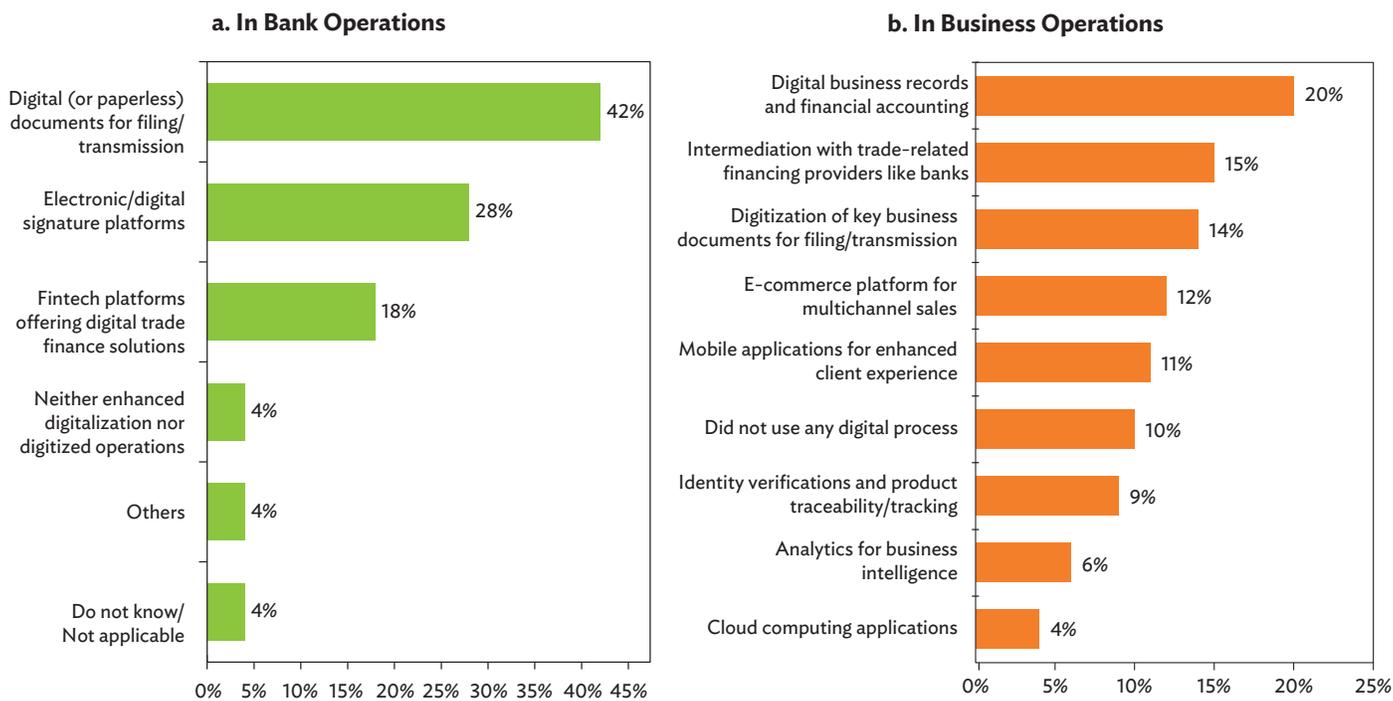
In addition to economic gains from paperless trade facilitation, worth \$600 billion of annual savings in trade costs, fully digitalized end-to-end trade transactions can save about 13 million tons of carbon dioxide in Asia and the Pacific annually, equivalent to carbon absorbed by 400 million trees (Sirimanne and Adhikari 2022). Scaling up to cover global trade, this is equivalent to planting more than 1 billion trees (Duval and Hardy 2021). Trade information portals, for example, can be a tool for reducing energy consumption. An electronic single window initiative in Vanuatu shows that carbon dioxide emissions have been reduced by nearly 6,000 kilograms by reducing paperwork in the sanitary and phytosanitary certificate application process as well as cargo clearance. This also reduced paperwork by 95% and physical trips needed to comply with these processes by 86%.

Snapshot of progress in digitalization

While current technologies are already being used and are known for their huge benefits in trade, utilization remains low. Digitalization is potentially useful in transforming various trade finance documents in electronic form, such as letters of credit, bills of lading, and warehouse receipts. Most processes in trade, however, are still paper-based, which makes verification cumbersome and carries more compliance risk. Electronic bills of lading, for instance, have a very low adoption rate: about 0.3% and 1.2% of bills of lading were in electronic form in 2020 and 2021, respectively, attributed to the lack of legislation and technical interoperability that enables cross-border recognition (Bagge n.d.). Limited scope of utilization in digital technology solutions is also observed. Banks tend to use technologies mainly for digital filing and transmission as well as electronic signatures, while firms use these for digital record keeping and accounting (Figure 6).

To promote seamless international trade, many countries have agreed to implement the World Trade Organization (WTO) Trade Facilitation Agreement in effect since 2017. This covers reforms in various aspects of trade facilitation to enhance transparency, formalities, institutional coordination, transit facilitation, and paperless trade. Although significant improvement has been made

Figure 6: Areas of Operations Where Digital Solutions Are Utilized



Source: ADB. 2021 Trade Finance Gaps, Growth and Jobs Survey—Banks and Companies. Cited in Kim, et. al. 2021. Trade Finance Gaps, Growth, and Jobs Survey. ADB Briefs. No. 192. October 2021. Manila. <http://dx.doi.org/10.22617/BRF210379-2>.

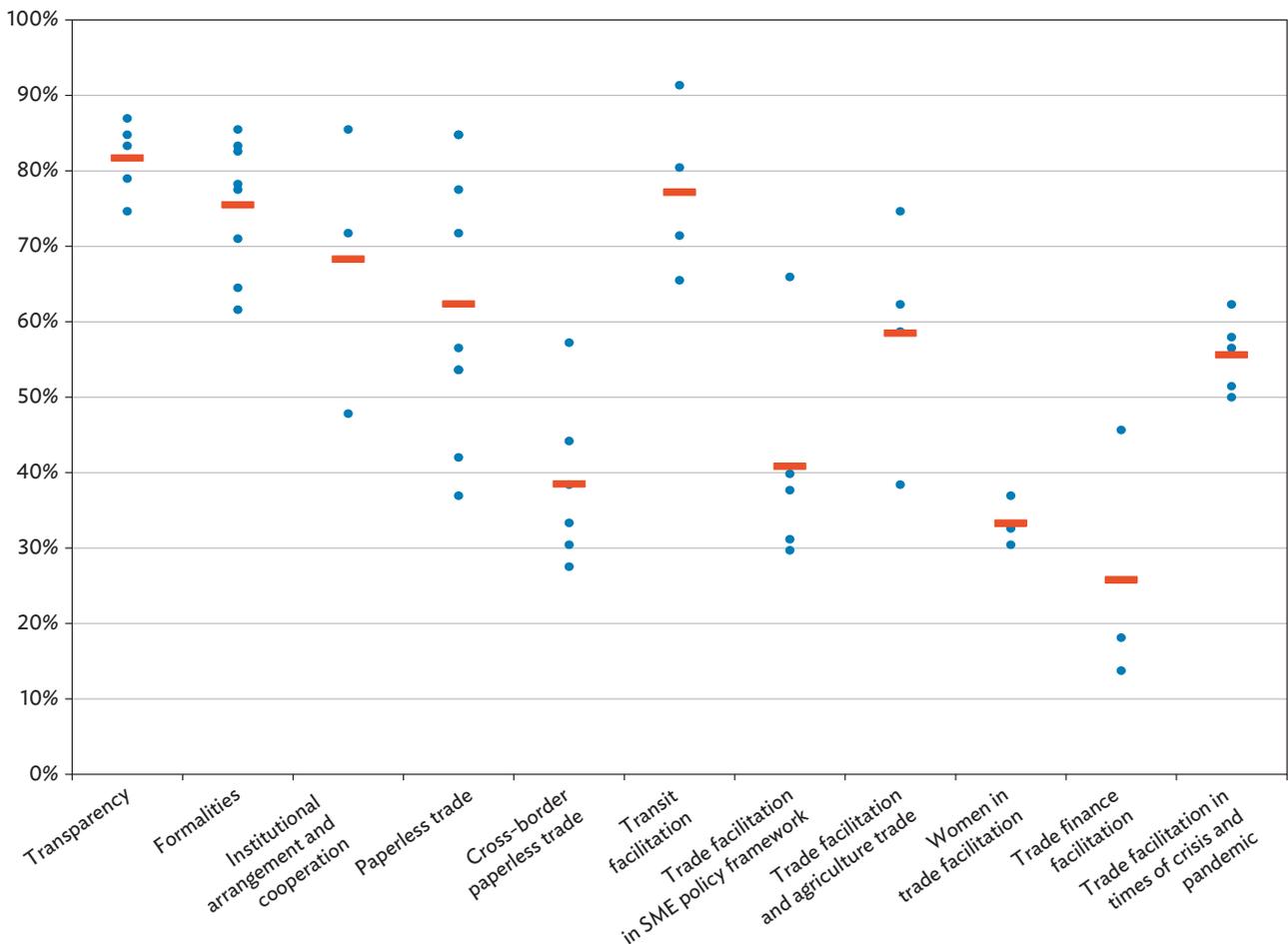
overall, much work is needed, particularly in cross-border paperless trade, which shows one of the lowest implementation rates, alongside trade finance facilitation, according to the UN Global Survey on Digital and Sustainable Trade Facilitation (Figure 7).¹

While the pandemic has catalyzed digitalization in the private sector, government initiatives also play a key role in interconnecting domestic and cross-border banks, firms, and consumers. Digitalization in trade requires international cooperation to adopt and implement common standards facilitated by legislative measures and a harmonized integrated system. These are often manifested through regional initiatives and agreements, such as for the Association of Southeast Asian Nations (ASEAN) (Box).

Constraints and challenges

Technical challenges. General concern exists about the high cost of technology, lack of globally established standards and rules for digital finance, lack of expertise, and system interoperability, as made clear in banks’ responses to the 2021 ADB survey (Figure 8). This indicates banks’ cautious approach in technology investments given the rapid pace of technological change, and a wait-and-see attitude unless other banks do so as well. For instance, there was perceived high cost of technology adoption in bank payment obligations, a trade finance platform which enables electronic exchange and validation of transaction information, as it required an overhaul of a well-integrated and long-standing system (ADB and UNESCAP 2019). Limited interoperability would create “digital islands”, resulting in lost opportunities for trade and development.

Figure 7: Implementation of Groups of Trade Facilitation Measures, Asia and Pacific Average



SME = small and medium-sized enterprise.

Note: Blue dots represent country scores (100% = full implementation); red lines are group averages.

Source: UN Global Survey on Digital and Sustainable Trade Facilitation. 2021. <https://www.untfsurvey.org>.

¹ Cross-border paperless trade in the survey measures the degree of implementation of electronic exchange of trade documents, such as certificate of origin and sanitary and phytosanitary certificates, and the presence of laws and regulations to facilitate electronic transactions.

Box: Digital Economy in the Association of Southeast Asian Nations

The current crises have accelerated digitalization initiatives in the Association of Southeast Asian Nations (ASEAN). Google, Temasek, and Bain (2021) note investment in the region’s internet economy was at an all-time high in 2021, with investment deals in the first semester reaching \$11.5 billion, almost the full value of 2020 (\$11.6 billion).

In the study, 35% of digital merchants identified digitalization as the main factor for business continuity during the pandemic, while more than 80% associated digitalization with more jobs, sustained revenue, and more opportunities. Among digital merchants, about 67% planned to use supply chain financing and 65% planned to use consumer financing through digital platforms in the next 2 years. Digital lending is also forecast to grow 31% from 2021 to 2025. Notably, however, one in three digital merchants regarded digital platforms as “too expensive” to adopt, urging that platforms should offer discounts and lower fees for sellers.

ASEAN member states are enabling digital banking services that could give support for previously unbanked small and medium-sized enterprises (SMEs). For example, Bank Negara Malaysia has granted five licenses to operate digital banks and the Monetary Authority of Singapore has granted two licenses (BNM 2022, MAS 2020). The Bank of Thailand is also working on a framework on digital financial ecosystem with working principles in open competition, risk management, equal access to data and infrastructure for stakeholders, and the role of financial institutions in attaining environmental sustainability and other standards (BOT 2022).

ASEAN is working on several initiatives for digital economy. The ASEAN Framework on Digital Data Governance facilitates

harmonization of data regulations across borders and industries, enhances data management, and promotes data sharing among member governments.

For cross-border paperless trade, all 10 member governments are now digitally connected via the ASEAN Single Window, aiming further to integrate more complex digital documents and to facilitate the exchange of trade documents with major trading partners including the People’s Republic of China, the Republic of Korea, and the United States.

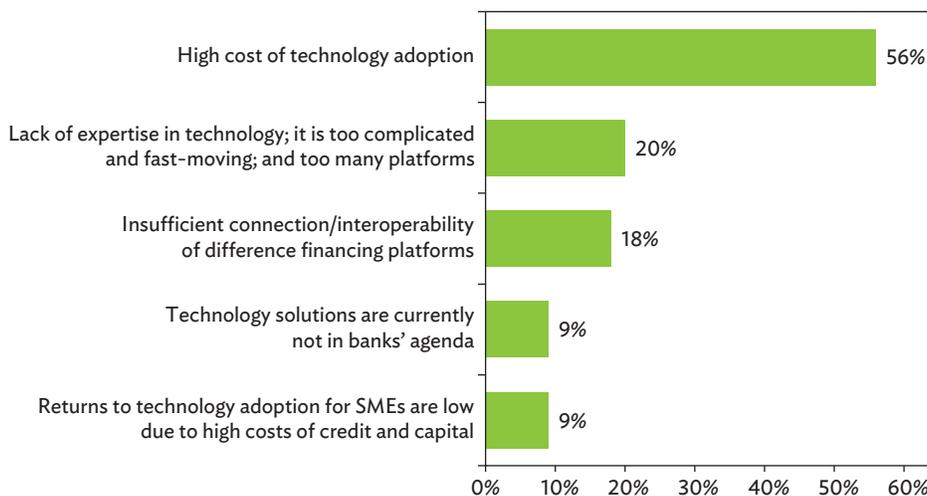
ASEAN also promotes legal recognition of electronic documents and a regionally comparable and recognized digital business identity system. This will drive down overall trade costs and SMEs will benefit from easier and speedy know-your-customer checks that enable access to finance at a lower cost.

Moreover, under the ASEAN Payments Policy Framework enacted in 2019, the region is working to establish a cross-border e-payment ecosystem. About \$1.2 trillion gross transaction value in digital payments is expected to move across the e-payment networks in the region by 2025. Indonesia and Singapore have initiated an agreement on the use of QR codes for cross-border payments, which is targeted for launch in 2023. This is expected to facilitate micro, small, and medium-sized enterprise involvement in cross-border trade, and to support tourism.

ASEAN also aims to strengthen microfinancing and increase involvement of the private sector in cross-border paperless documentation such as invoices and warehouse receipts.

Sources: Bank Negara Malaysia (2022); Bank of Thailand (2022); Dickinson and Zemaityte (2021); Google, Temasek, and Bain (2021); Monetary Authority of Singapore (2022).

Figure 8: Banks’ Major Areas of Concern regarding Technology



SMEs = small and medium-sized enterprises.

Source: ADB. 2021 Trade Finance Gaps, Growth and Jobs Survey—Banks and Companies. Cited in Kim, et. al. 2021. Trade Finance Gaps, Growth, and Jobs Survey. *ADB Briefs*. No. 192. October 2021. Manila. <http://dx.doi.org/10.22617/BRF210379-2>.

Lack of legal environment. To a large extent, the lack of a legal framework is a critical constraint. The reliance on physical documentation is associated with the absence of laws that recognize electronic signatures in many countries. About 70 countries thus far have legislation that recognizes electronic signatures and documents, where e-signatures carry the same validity as wet signatures in contracts and documents (Determann 2021). Another aspect is adopting common legal standards in electronic data exchange. The United Nations Commission on International Trade Law (UNCITRAL) adopted the Model Law on Electronic Transferable Records (MLETR) in 2017 to facilitate cross-border trade through legal recognition of electronic transferable records. UNCITRAL (2017) notes that the MLETR “builds on the principles of non-discrimination against the use of electronic means, functional equivalence and technology neutrality underpinning all UNCITRAL texts on electronic commerce.” Thus far, only seven jurisdictions have adopted the MLETR: Bahrain (adopted in 2018), Belize (2021), Paraguay (2021), Abu Dhabi Global Market (2021); and Kiribati (2021), Papua New Guinea (2022), and Singapore (2021) in Asia and the Pacific.²

Digital divide. A broader digital divide that separates advanced from developing economies and large from small businesses is also a major constraint. Implementation of trade facilitation reforms, including paperless trade, is more significant in advanced countries than in developing countries. In trade finance, the rate of digitalization remains low among banks in developing economies, while many smaller firms lack technical expertise, funds, and awareness of digital finance. In contrast, large companies including suppliers and logistics firms usually have the means to tap into global networks.

The high costs of digital adaptation for SMEs, given their limited capacity to finance, increases the risk of exclusion from global value chains. This includes funds needed for investing in digital skills and development. Many SMEs lack managerial skills and competencies to collect and analyze technical data. SMEs are also constrained by inadequate human resources, advanced knowledge acquisition and dissemination, and digital innovation capability, with challenges more acute for such firms in developing economies.

Factoring in environmental, social, and governance aspects. About 80% of the world’s carbon emissions are estimated to come from global supply chains, and investments of \$100 trillion by 2050 will be needed to deliver net zero supply chains, with \$25 trillion to \$50 trillion requiring allocations to SMEs (BCG and HSBC 2021). A crucial factor is that climate targets are not being met despite emissions pledges by large corporates, requiring that aggressive investments be made now. SMEs will also be constrained in implementing environmental, social, and governance (ESG) standards compared to large corporates.

These can include costly requirements, for example, for carbon emissions (environment), fair labor practices and human rights (social), and management structure (governance). Requiring environmental disclosure could increase the cost of capital for SMEs (Gjergji et al. 2021). When such standards are implemented widely, this will have implications for the ability of smaller firms to participate in global value chains, exacerbating the digital divide.

POLICY CONSIDERATIONS

Adopt the Model Law on Electronic Transferable Records or equivalent legislation. The lack of legal framework is a key inhibitor in attaining digital solutions for trade. By creating a seamless environment for electronic exchange of documents, the adoption of MLETR or its equivalent legislation holds immense potential economic benefits. Economic analysis of legal reforms indicates that an extra \$1 trillion in trade can be realized by 2026 if Germany would align its framework with MLETR (ICC n.d.-a). For the United Kingdom, the additional trade generated from the MLETR alignment can translate into almost \$1 billion of additional trade finance for SMEs in 2024 (ICC n.d.-b). Moreover, digitalizing the bill of lading can save \$6.5 billion in direct costs and a further \$30 billion to \$40 billion in global trade (Casanova et al. 2022).

Make a concerted effort for enhanced interoperability. Each sector or country focusing on digitalizing its own processes has resulted in a fragmented ecosystem, creating several digital islands asserting their own sets of standards and rules. Such digital silos can stall digital transformation as they create independent data pockets unable to communicate with each other. Eliminating these separate pockets would thus be a huge step in achieving coherence in international standards. After all, no one country can digitalize trade by itself, as the progress of digital transformation also depends on a global consensus. The Digital Standards Initiative was launched by the International Chamber of Commerce, ADB, and Enterprise Singapore in 2020 to serve as a platform for global collaboration across sectors in accelerating digitalization and harmonizing digital standards among various stakeholders, including exporters, shippers, port authorities, customs, warehousing/logistics firms, financial institutions, and importers.

Promote green and inclusive trade through digitalization and environmental, social, and governance consideration. Policy makers must create accessible incentives and sustainable financing tools, especially for SMEs, that promote a more inclusive economy through digitalization in tandem with private sector efforts and innovative technologies (Tradesun 2022). Provisions on greenhouse gas emissions and labor market standards toward ESG implementation can also be included in trade agreements

² As of October 2022, the United Kingdom (UK) and the United States have recently introduced legislation as MLETR equivalent. In the UK, the Electronic Trade Documents Bill (2022), which aims to legally recognize digital trade documents, was already presented in Parliament, and will become law after passing the House of Lords and House of Commons. Similarly, 2022 Amendments to the Uniform Commercial Code of the United States (ULC 2022) were already approved and are now for enactment by state legislatures. Amendments stipulate rules for electronic negotiable instruments, which will allow the use of promissory notes and bills of exchange in electronic form, and update terminology to account for electronic signatures and digital documents, among others.

to make them more binding. Trade-offs may occur among ESG elements, which then requires a more balanced approach. Harding (2022) argues that world trade impacts the environment and social balance negatively, while its impact on governance is positive. This suggests that trade and trade finance markets should have put in place governance structures that minimize economic risks in the form of employment, economic growth, and provisions of basic health.

Bridge the digital divide. The digital divide, which cuts across geographies, threatens to leave developing economies even further behind and exacerbate existing income inequalities. SMEs, in particular, suffer disproportionately from the digital divide, due to a lack of access to platforms and expertise (UPS 2022). Large global companies usually have the finances, including big suppliers and logistics firms, that can tap into global networks, while global trade and trade finance platforms have established standards which can be interoperable with other platforms. The requisite technology is already present, but many countries still lack the hardware. Closing the digital disparity will also require greater effort for skills development and building capacities to acquire technologies. Initiatives of developing countries to reduce the gap must be complemented by support from international organizations. The G20 as well as multilateral institutions should become a driving force for global investment to build quality and affordable digital infrastructure.

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