



Paperless Trade 2.0

Quantifying the Commonwealth's
Trade Advantage



The Commonwealth
Connectivity Agenda

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Foreword



The Commonwealth's next trade advantage will not be built on paper. It will be built on trust: trusted digital systems, modern legal frameworks, secure data and the ability of our 56 member countries to move goods, services, finance and commercial information across borders with speed, certainty and confidence.

That is the central message of this report. Paperless trade is a practical route to lower costs, faster transactions, stronger competitiveness, greater transparency and more inclusive growth. For small businesses, least developed countries,

landlocked developing countries and small island developing states, it can make the difference between being locked out of markets and competing fully in them.

Paperless Trade 2.0: Quantifying the Commonwealth's Trade Advantage builds on the Commonwealth Secretariat's 2022 analysis and brings new data, deeper modelling, regional and income-group analysis and practical case studies from across our membership. It moves the case for paperless trade from broad principle to clear evidence and from evidence to action.

The findings are compelling. Implementation of cross-border paperless trade measures across Commonwealth countries has nearly doubled, rising from 23 per cent in 2019 to 45 per cent in 2025. Every one-point improvement in a country's Digital Trade Facilitation score is associated with an estimated one per cent rise in total exports. Sustained reform could increase Commonwealth exports by approximately US\$183 billion by 2030.

These figures represent faster border clearance, fewer errors, lower transaction costs, stronger supply chains and new opportunities for businesses, farmers, manufacturers, exporters, workers and consumers. They show the Commonwealth Trade Advantage being renewed for the digital age.

However, technology alone will not deliver trusted digital trade. Digital systems only work when businesses, banks, border agencies, logistics providers, regulators and courts have confidence that electronic documents carry the same legal effect as paper. Legal certainty is the foundation of digital trust. Without it, systems remain fragmented and underused. With it, they can become engines of trade, investment and development.

That is why legal reform must sit at the heart of this agenda. The *Commonwealth Model Law on Digital Trade* offers member countries a practical pathway to modernise national legal frameworks, align with international standards and enable the legal recognition of electronic trade documents, signatures, transferable records, digital identity and trust services. It complements international instruments, including the *UNCITRAL Model Law on Electronic Transferable Records*, while recognising the diversity of Commonwealth legal traditions and development priorities.

The report shows that the Commonwealth has a strong foundation on which to build. Member countries perform comparatively well in cybercrime and electronic transactions legislation. Yet gaps remain in privacy and data protection, consumer protection, digital infrastructure and the legal recognition of electronic

transferable records. Closing these gaps is essential to competitiveness, investment and participation in modern supply chains.

The practical evidence is clear. Fiji's paperless phytosanitary certification has reduced paperwork and improved processing times for agricultural traders. Singapore's use of electronic bills of lading shows how digital systems can reduce delays, lower costs and strengthen supply chain resilience. The United Kingdom's Electronic Trade Documents Act shows how legal clarity can unlock private sector adoption and accelerate commercial transactions.

The task now is to scale progress. Commonwealth member countries can advance legal reform, implement the *Commonwealth Model Law on Digital Trade*, build interoperable and secure digital systems, strengthen cybersecurity and support small businesses through simplified onboarding and practical capacity-building.

It is essential that this work is inclusive. Countries at earlier stages of digital readiness will need support to simplify processes, build institutional capacity, pilot high-impact reforms and access finance. Members at more advanced stages, development partners and the Commonwealth Secretariat have a vital role to play in sharing expertise, mobilising resources and ensuring that no country is left behind.

I commend this report to policy-makers, regulators, business leaders, development partners and all those committed to building a more connected, resilient and digitally enabled Commonwealth.

The opportunity is clear. By advancing legal reform and digital trade transformation together, the Commonwealth can shape a trading system that is more inclusive, more competitive and ready for the future.

Hon. Shirley Botchwey

Secretary-General of the Commonwealth

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Acronyms and abbreviations

ADB	Asian Development Bank
APEC	Asia-Pacific Economic Cooperation
ASEAN	Association for Southeast Asian Nations
ASW	ASEAN + 6 Single Window
AVE	ad valorem equivalent
CAGR	compound annual growth rate
CCA	Commonwealth Connectivity Agenda for Trade and Investment
CGE	computable general equilibrium
DTF	Digital Trade Facilitation
eBL	electronic bill of lading
ETDA	Electronic Trade Documents Act (United Kingdom)
ETR	electronic transferable record
FTA	free trade agreement
Gbps	Gigabits per second
GDP	gross domestic product
GeNS	Generic ePhyto National System
GTAP	Global Trade Analysis Project
HS	Harmonized System
ICT	information and communication technology
IMDA	Infocomm Media Development Authority (Singapore)
LDC	least developed country
LLDC	landlocked developing countries
Mbps	Megabits per second
MLETR	Model Law on Electronic Transferable Records
OECD	Organisation for Economic Co-operation and Development
PPML	Poisson Pseudo-Maximum Likelihood
SIDS	small island developing states
SMEs	small and medium-sized enterprises

SPS	sanitary and phytosanitary
TFA	Trade Facilitation Agreement
UK	United Kingdom
UN	United Nations
UNCITRAL	United Nations Commission on International Trade Law
UNCTAD	United Nations Trade and Development
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
WTO	World Trade Organization

Executive summary

The transition from paper-based to paperless trade offers a pathway to lower costs and greater efficiency and global trade participation for Commonwealth member countries. Paper-dependent systems impose delays, duplication and errors that disproportionately affects small and medium-sized enterprises (SMEs), least developed countries (LDCs), landlocked developing countries (LLDCs) and small island developing states (SIDS).

Previous studies suggest digital trade facilitation can **cut trade costs by 15–45 per cent and boost exports by up to 18 per cent**.

Evidence shows that digital trade facilitation can cut trade costs by 15–45 per cent and boost exports by up to 18 per cent. Beyond cost savings, paperless trade enhances resilience, transparency and compliance with sustainability standards, as demonstrated during the Covid-19 pandemic.

However, barriers remain, including fragmented regulations, cybersecurity risks and a lack of interoperability. Recognising these challenges, Commonwealth Trade Ministers established a Working Group on Legal Reform and Digitalisation to support countries in advancing reforms. To support paperless trade transition initiatives in the Commonwealth countries, this study provides a quantitative assessment of the economic impacts of paperless trade, highlighting opportunities to strengthen the 'Commonwealth advantage' through digitalisation.

A situational analysis shows the divergence in the implementation rates of initiatives supporting digital trade transitions across three key areas: cross-border paperless trade facilitation, digital infrastructure, and legal and regulatory frameworks.

Commonwealth countries have steadily advanced in terms of the implementation of cross-border

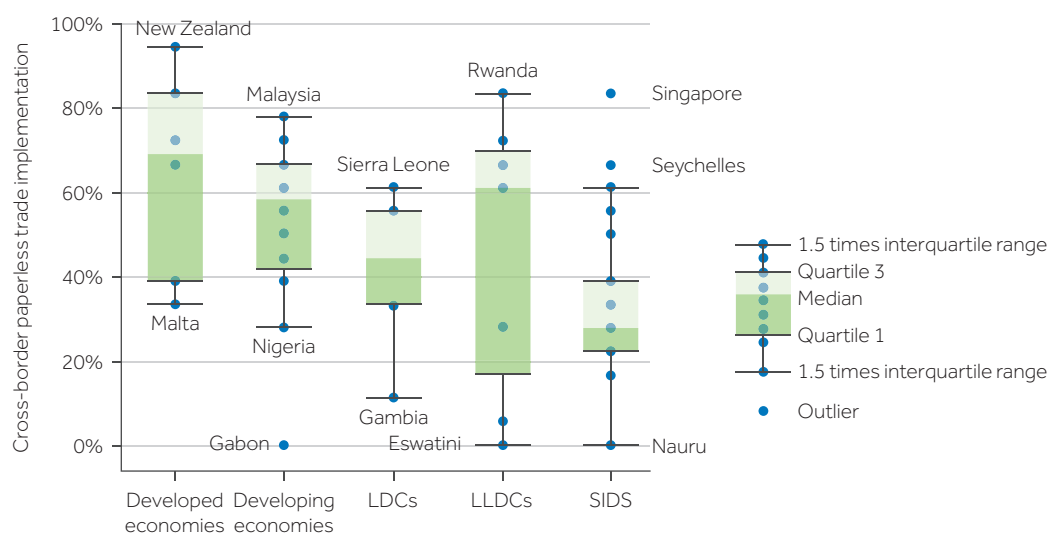
paperless trade measures,¹ although progress varies widely across income groups and regions, as indicated through the results of the UN Global Survey on Digital and Sustainable Trade Facilitation. The average implementation rate of cross-border paperless trade measures, allowing countries to handle trade processes electronically across borders, rose from 23 per cent in 2019 to 45 per cent in 2025.

Digital trade facilitation implementation rates across Commonwealth countries rose from **23 per cent in 2019 to 45 per cent in 2025**.

As shown in the boxplot in Figure ES1, illustrating cross-border paperless trade implementation rates in 2025, developed economies lead with an implementation rate median of 69 per cent, followed by LLDCs (61%) and developing countries (58%). LDCs, LLDCs and SIDS all had more than doubled their performance in 2025 when compared to 2019, with LLDCs having the strongest gains. However, disparities remain: New Zealand achieved 94 per cent implementation, while countries such as Eswatini, Gabon and Nauru have an implementation rate of 0 per cent. Regionally, Africa has the widest range of performance, while developed countries and Asia demonstrate better performance.

The development of digital infrastructure underpinning trade digitalisation shows mixed progress. Fixed broadband penetration in the Commonwealth rose from 11.8 per 100 inhabitants in 2018 to 13.4 in 2024, yet still lags behind global averages, with the gap widening from 3.7 to 9.1 points over the period. Developed economies enjoy higher access (40.2 subscriptions per 100 people), while LDCs and LLDCs remain far behind, at just 2.1

¹ There are six measures defined under cross-border paperless trade under the UN Global Survey on Digital and Sustainable Trade Facilitation: Laws and regulations for electronic transactions; Recognised certification authority; Electronic exchange of customs declaration; Electronic exchange of certificate of origin; Electronic exchange of sanitary and phytosanitary certificate; and Paperless collection of payment from letters of credit.

Figure ES1 Implementation rate of cross-border paperless trade facilitation measures, 2025²

and 1.7, respectively. Bandwidth capacity is less of a barrier: all members surpass minimum international thresholds, with speeds ranging from 9 Mbps in Lesotho to over 10 Gbps in Singapore. Still, the overall Commonwealth average fell below global levels in 2023, highlighting the need for renewed investment.

Legal frameworks to support digitalisation are comparatively more advanced across the Commonwealth than the average for the rest of the world. Cybercrime and electronic transaction laws are widely adopted, exceeding global averages, but gaps persist in privacy, data protection and consumer protection, where implementation rates fall below those of the rest of the world.

Legal frameworks to support digitalisation are comparatively more advanced across the Commonwealth than in the rest of the world.

Critically, adoption of the United Nations Commission on International Trade Law Model Law on Electronic Transferable Records (MLETR) remains limited: only 6 Commonwealth members have enacted regulations in line with the MLETR, with most others still at early stages of policy dialogue or drafting. This uneven uptake reflects challenges in aligning national e-commerce laws with international standards. Tools such as the *Commonwealth Model Law on Digital Trade and Guide to Enactment* have been developed to help Commonwealth member countries bridge this gap and align with international standards.

Table ES1. Comparison Table showing adoption of Legal Frameworks

	Commonwealth	Rest of world
Consumer protection	43	68
Cybercrime	95	88
Electronic transactions	95	88
Privacy and data protection	70	83

Note: Scores are averages, with 100 representing full adoption of a regulatory framework supporting the areas identified, while 0 represents no adoption of a regulatory framework.

Case studies from Fiji, Singapore and the UK demonstrate the transformative potential of paperless trade across diverse Commonwealth contexts. In Fiji, adoption of the ePhyto system for

² The boxplot shows how countries at different levels of development are performing in terms of the implementation of cross-border paperless trade measures. Each box represents the spread of implementation levels within a group of economies. The shaded box shows the middle 50 per cent of countries (the interquartile range) with the line inside marking the median. The whiskers show how far the values extend from most countries, while dots beyond the whiskers represent outliers – that is, countries performing significantly better or worse than their peers.

sanitary and phytosanitary (SPS) certification has significantly boosted SME productivity by reducing paperwork, cutting processing times by over half and strengthening export credibility, particularly in time-sensitive agricultural trade. Singapore's TradeTrust pilots showcase how blockchain-enabled electronic bills of lading can slash vessel berthing times, lower business costs and prove interoperability even in non-MLETR jurisdictions, thereby enhancing supply chain resilience. Meanwhile, the UK's Electronic Trade Documents Act provides a much-needed legal framework that grants digital documents equal status to paper, yielding measurable cost and efficiency gains across SMEs and large firms alike. Collectively, these experiences underline that successful paperless transitions require a combination of supportive legal frameworks, targeted digital measures and interoperable trust systems.

A 1 per cent improvement on the Digital Trade Facilitation index is associated with a 1 per cent rise in exports.

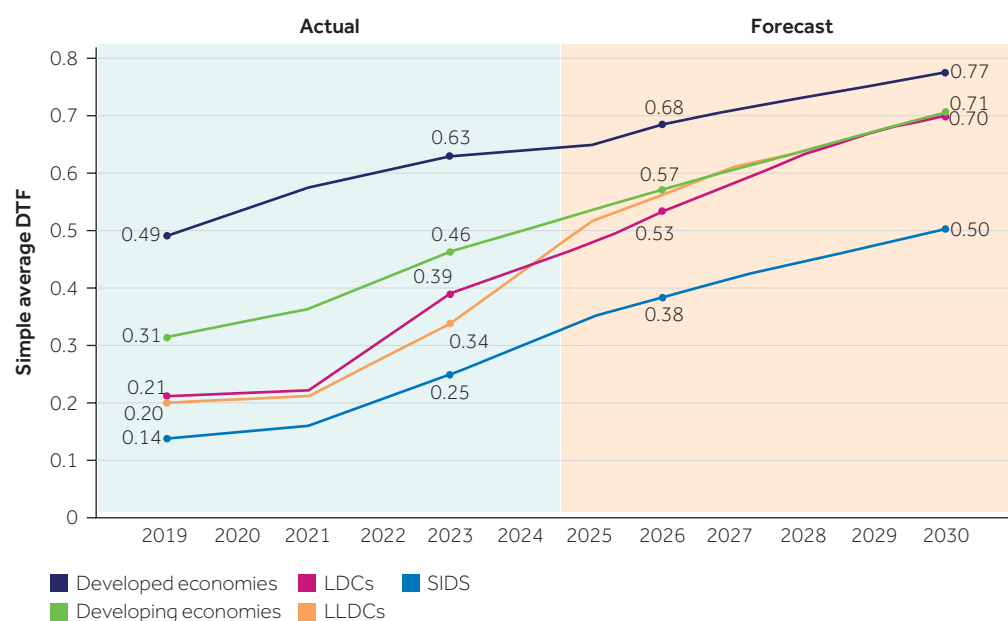
The quantitative analysis confirms that digital trade facilitation can generate substantial efficiency and growth gains across the Commonwealth, though impacts vary by sector, country and income group. The research in this study finds that digitalisation is an important driver in trade performance: every 1-point improvement in the Digital Trade Facilitation (DTF) score³ is associated with a 1 per cent rise in total exports. This effect is strongest for non-agriculture sectors, while for agriculture sectors the gain is more modest, with only a 0.2 per cent increase for each additional 1-point improvement in the DTF, reflecting additional sector-specific barriers such as perishability, logistics and SPS compliance having a far greater influence on trade flows.

Significantly, trade between Commonwealth members and countries with existing free trade agreements (FTAs) shows higher trade linkages. The model indicates an approximate increase of around 46 per cent in exports between partners with a trade agreement. An FTA between Commonwealth countries boosts the Commonwealth trade advantage by not only lowering tariffs and non-tariff barriers but also promoting digital and paperless trade frameworks, encouraging paperless trade adoption and building on their shared legal and institutional systems. Furthermore, improvements in agricultural digitalisation, such as electronic certification, online customs clearance and digital tracking of agricultural shipments, bring significant trade benefits, particularly for LDCs and LLDCs, which have agriculture as a major share of their exports. For these countries, a 10 per cent rise in the Digital Trade Facilitation Index increases agriculture exports by 3–4 per cent.

The study examines the impact of moving towards paperless trade across the Commonwealth, from 2025 to 2030. In order to do so, the study considers observed DTF values between 2019 and 2025 to predict future progress, giving more weight to recent years while still accounting for earlier trends. In essence, countries continue to perform based on prior efforts to digitalise trade documents and progress on a steady and data-driven trajectory of digital trade development, where progress continues gradually as countries build on their ongoing digitalisation reforms. The forecast of the realistic progress of countries is presented in Figure ES2, which shows the actual (2019 to 2025) and projected (2026 to 2030) DTF scores across different income groups. DTF scores rise steadily for all groups, underscoring the continuous progress in moving towards paperless trade. By 2030, Commonwealth developed economies are expected to maintain the highest scores, nearing 0.8, followed by developing countries, which are expected to continue to close the gap. LDCs and LLDCs follow similar upward trajectories, with their estimated DTF converging to nearly the same values in 2029 and 2030. SIDS are also expected to progress at a gradual rate, but their implementation rates by 2030 are expected

³ The DTF score of a country refers to its Cross-Border Paperless Trade Index from the UN Global Survey on Digital and Sustainable Trade Facilitation. It ranges from 0 (lowest score) to 100 (highest score).

Figure ES2 DTF projections in Commonwealth countries



to remain 20 per cent below LDCs and LLDCs and nearly 30 per cent below developed countries. Overall, there is expected to be convergence among all groups of countries.

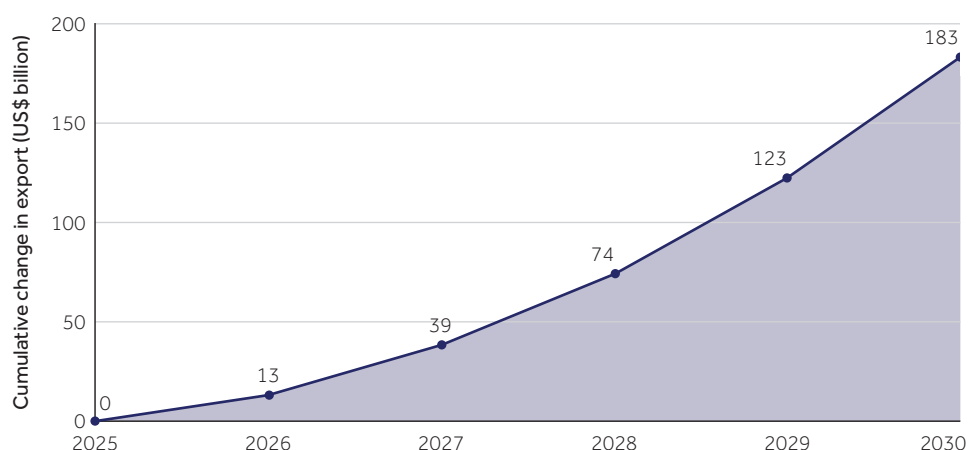
A general equilibrium model⁴ is used in the study and suggests substantial economy-wide benefits. Projecting to 2030 and assuming continued efforts to digitalise trade documents, smaller and mid-sized economies such as Malta, Mozambique and Namibia record GDP growth of 4–6 per cent over the baseline (assuming no change in digitalisation rates), while larger economies like Australia, Canada and the UK see more modest relative but still meaningful absolute gains due to their already high trade base.

Continued efforts by Commonwealth countries to implement paperless trade measures will add an estimated **US\$183 billion by 2030**.

Overall, Commonwealth exports are projected to increase by US\$183 billion between 2025 and 2030, compared to the baseline, with India (+\$45.8 billion), Malaysia (+\$31.2 billion), Canada (+\$29.1 billion) and the UK (+\$20.2 billion) making the largest absolute export gains. The Asian region drives the most significant absolute gains for any region, while African members such as South Africa (+\$6.1 billion) and Tanzania (+\$3.2 billion) also stand out. By income group, developing economies record the highest cumulative gains, while LDCs, LLDCs and SIDS show more minor absolute improvements but higher relative growth rates. Sectorally, manufacturing and industrial products gain the most, though agriculture also records modest gains, particularly in Australia, India and Pakistan.

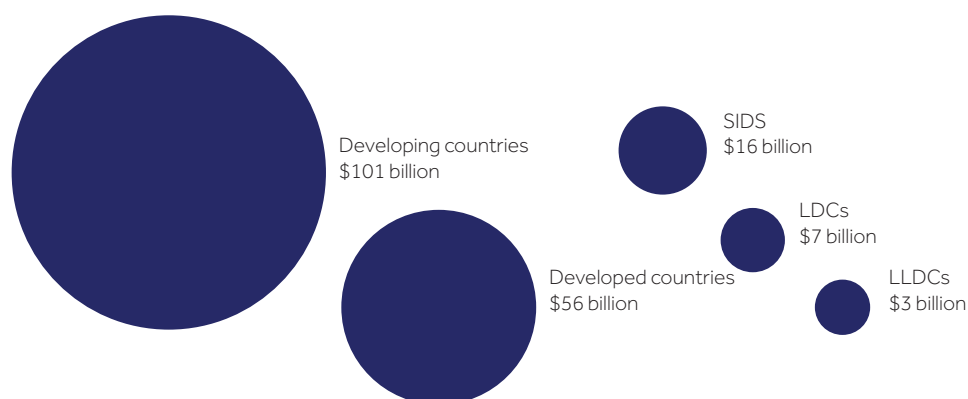
As this and other studies have pointed out, paperless trade can unlock efficiency and competitiveness gains, leading to greater resilience worldwide, including for Commonwealth states. To accelerate adoption, members should first establish **strong legal foundations** that align with international standards, such as the UNCITRAL MLETR, and invest in capacity-building for both

⁴ The CGE modelling is a quantitative economic approach that simulates how economies respond to policy changes, such as trade liberalisation or paperless trade adoption. It captures interactions between sectors, households and governments, providing a comprehensive assessment of economic impacts.

Figure ES3 Cumulative Change in Export Growth

regulators and traders. The Commonwealth Model on Digital Trade provides a framework and guidance for achieving this alignment. **Cross-border pilots** in areas like e-bills of lading and ePhyto certification will build business cases for scaling. At the same time, **interoperability frameworks** and **cybersecurity safeguards** are critical to ensure trusted, connected and resilient systems. Governments must also **streamline processes** before digitisation, while investing in officials' skills and peer learning. A strong focus on **SMEs**,

through simplified portals, re-engineering paper-based processes into seamless digital processes, onboarding support and financial incentives, will make paperless trade inclusive. Finally, **phased adoption with private sector partnerships** will crowd in investment. At the same time, more advanced members and the Commonwealth Secretariat should support less developed countries with shared experience, blended finance and technical assistance to ensure no country is left behind.

Figure ES4 Gains to be accrued through adoption of paperless trade

1. Introduction

1.1. The need for a transition to paperless trade

Transitioning from paper-based to paperless trade documentation has become increasingly important in the effort to drive efficiency in global commerce.

International trade transactions are by their nature complicated by the involvement of various parties and the need for a multitude of documents. One single trade transaction can take 2–3 months and involve 30 parties, 40 documents, 240 copies and 200 data elements (Baker and Le, 2024). The paper-based nature of the system has led to a great deal of delay, errors and costs that go on to represent constraints to international trade.

A paper-based system also makes data mining more difficult, with analytics becoming extremely costly and time-consuming. In the mass of trade-related documents, there are thousands of data fields that need to be filled. And some are to be found in multiple documents: it is estimated that 80 per cent of the data required in a trade transaction is often required more than once, appearing in different places in the documentation, expressed in the same or different ways (UNECE and UNESCAP, 2012). Maersk Line (2014) found that a simple shipment of refrigerated goods going from East Africa to Europe might have to go through nearly 30 people and organisations, with more than 200 different interactions and communications among them. The cost of time spent waiting for documents to be stamped and e-mail replies was equal to the cost of the actual shipment.

In trade finance, it is estimated that there are more than 20 players involved in each transaction, interacting with data fields captured in various documents (10–20 documents with more than 100 pages altogether) and generating approximately 5,000 data field interactions throughout an end-to-end process. These 5,000 data field interactions cover only around 60–80 unique data fields (dates, amounts, reference numbers and others), which

are repeated throughout all documents. This leads to discrepancies, errors and inefficiency (Ramachandran et al., 2017). To make the situation more complicated, each country has its own requirements regarding trade documents and the data elements they contain, as prescribed in national and relevant international regulations related to fields such as health, consumer protection, safety, tax, trade policy, environment and security. This adds to the documentation requirements and the trade costs for economic operators.

While estimates on the figures differ, the existing literature is in consensus that trade digitalisation reduces trade costs.

Estimates of costs savings range between 15 per cent and 45 per cent, depending on the stage an economy has reached in implementing paperless trade facilitation measures at the border (Duval, 2017; UNESCAP, 2014; WTO, 2015; Bajt and Duval, 2020). For example, the Organisation for Economic Co-operation and Development (OECD) (2025) finds that a 10 per cent improvement in bilateral performance in automating border procedures, combined with streamlined documentation and stronger co-operation among border agencies, could boost global goods exports by up to 18 per cent. Going paperless is also found to support greater visibility and resilience across supply chains, and improved compliance with international trade regulations and standards, including the increasingly adopted environmental and social sustainability requirements (Baker et al., 2024). Similarly, the Asian Development Bank (ADB) and United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) (2024) estimate that implementation of digital trade facilitation measures beyond the commitments stipulated in the World Trade Organization (WTO) Trade Facilitation Agreement (TFA) could yield a reduction of approximately 11 per cent in trade costs. Specifically in the area of e-certification, the OECD (2021) estimates that export values of selected agro-food product groups increase over time by between 17 per cent and 32 per cent as a result of implementing sanitary and phytosanitary (SPS) e-certificates. However, it is also noted that the

effects of SPS e-certification on trade flows do not materialise immediately: their implementation takes time and resources. This reduction in trade costs is particularly important for landlocked developing countries (LLDCs) and small island developing states (SIDS), where trade costs are disproportionately high (OECD and WTO, 2015). During the Covid-19 pandemic, digital tools and solutions also sustained global value chains, cross-border trade and transport networks by helping ensure business continuity while protecting the health of transport workers and border agents (UNCTAD, 2021).

As services trade becomes increasingly important in global trade, so too does the role of digitalisation. New digital technologies have played a crucial role in overcoming the traditional need for physical proximity in many services activities, allowing services sectors such as information and communication technology (ICT), finance, and business and professional services to reach remote markets, to innovate by processing more information and to bring positive spillovers to other sectors (IMF et al., 2023). Furthermore, digitalisation also acts as an engine of growth by reducing production costs, increasing productivity, fostering innovation and boosting trade. According to the WTO (2019), while the barriers to digitalisation remain high, trade costs in services fell by 9 per cent between 2000 and 2017 thanks to the spread of digital technologies, the lowering of policy hurdles and investment in infrastructure.

Overall, transitioning to paperless trade documentation represents a strategic imperative to enhance efficiency, reduce costs, foster inclusivity and support global value chain participation. This is critical, especially for LLDCs and SIDS as well as all least developed countries (LDCs) seeking deeper integration into the global economy. However, transitioning to paperless trade is challenging, given existing legal and administrative barriers, concerns over data security risks and a lack of interoperability between countries. Overcoming these challenges will require targeted law reforms, improved digital infrastructure and increased international co-operation.

1.2. Objectives of this study

Commonwealth member countries are committed to promoting the transition to paperless trade. In June 2023, Commonwealth Trade Ministers mandated the creation of a Working Group on Legal Reform and Digitalisation under the Commonwealth Connectivity Agenda for Trade and Investment (CCA).⁵ The Working Group pledges to offer resources, advocacy, technical assistance, information-sharing and policy recommendations to help Commonwealth countries navigate the legal reforms essential for a seamless shift from paper-based to digital trade. Recently, in June 2025, the Commonwealth Business Summit in Namibia brought together business leaders, policymakers and trade experts from across the Commonwealth to explore investment opportunities, digital transformation and the strengthening of supply chains. Key discussions on 'Paperless Trade as the Next Frontier in Trade Facilitation' explored how digitalisation of trade documents can reduce costs, improve efficiency and enhance transparency and examined the economic benefits of transitioning to paperless trade across the Commonwealth and the role of legal reform, interoperability of digital trade systems, blockchain and international best practices.

Against this backdrop, this report aims to provide a quantitative analysis, including the economic and business case, of the transition from paper-based to paperless trade documentation. The analysis focuses on the economic impact of legal reforms and digitalisation on trade competitiveness, barrier reduction and investment attraction. Additionally, the aim is to explore how adopting paperless trade can strengthen the 'Commonwealth advantage' by fostering trade and investment within national and regional economies, especially for LDCs, LLDCs and SIDS Commonwealth member countries across Africa, Asia, the Caribbean and the Pacific Islands.

⁵ The Commonwealth adopted the Declaration on the CCA at the 2018 Commonwealth Heads of Government Meeting.

2. Trade digitalisation in Commonwealth member countries

2.1. Status of trade digitalisation in Commonwealth countries

2.1.1. Intra-Commonwealth trade and global trade relations

Intra-Commonwealth trade has grown steadily over the years, though its share of total Commonwealth exports has remained broadly stable compared to trade with non-members.

Between 2018 and 2023, intra-Commonwealth exports rose from US\$429 billion to \$504 billion, with the share of intra-Commonwealth exports in total exports remaining between 17 per cent and 18 per cent over the period. Trade within the bloc dipped slightly in 2020 during the Covid-19 pandemic but rebounded considerably in 2021, reaching a high of \$527 billion in 2022 before falling back slightly to

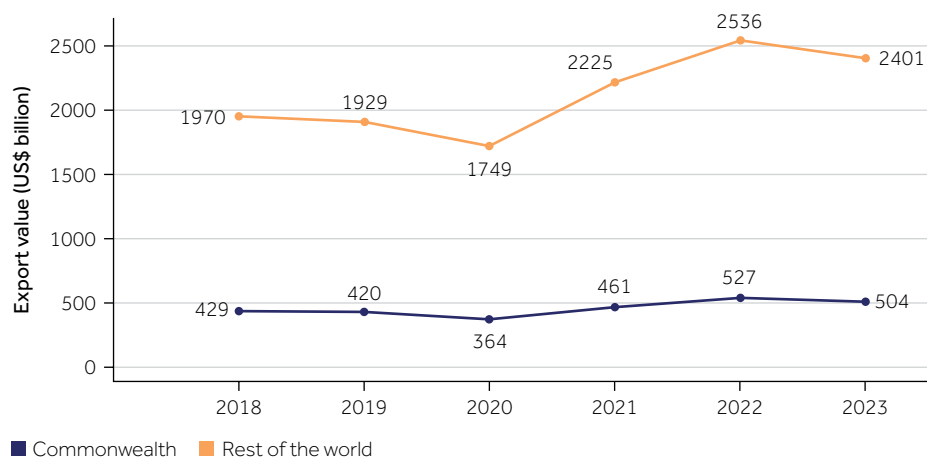
\$504 billion in 2023. Exports of the Commonwealth to non-member countries increased from \$1.97 trillion in 2018 to \$2.4 trillion in 2023, accounting for 82 per cent to 83 per cent of total Commonwealth exports throughout the period.

The intra-Commonwealth trade is driven mostly by developing economies among the different income groups.⁶ In 2023, developing

economies were the largest exporters within the Commonwealth, with exports of US\$255 billion to other Commonwealth countries, accounting for 51 per cent of total trade among members. Developed economies followed, with exports worth \$31 billion in 2023, accounting for 26 per cent of the total trade. SIDS contributed \$64 billion, representing 20 per cent of intra-Commonwealth exports. LDCs and LLDCs remained much smaller participants, with exports of around \$8 billion each, representing just 1.6 per cent from each.

In terms of destinations, developing economies exported the most to other developing members,

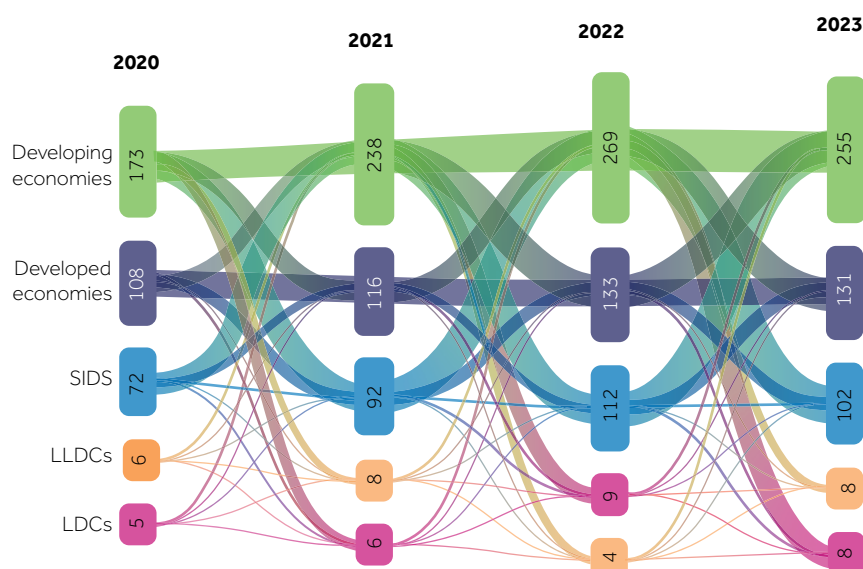
Figure 2.1. Exports of Commonwealth countries, 2018–2023 (US\$ billion)



Source: Authors' calculations based on UN Comtrade.

⁶ Income group classifications are based on United Nations definitions, and comprise developing economies, developed economies, LDCs, LLDCs and SIDS. Each country is assigned to only one income group, with SIDS and LLDCs taking precedence over other developing country groupings. Appendix B presents a country classification mapping.

Figure 2.2. Intra-Commonwealth exports by income group, 2020–2023 (US\$ billion)



Note: The figures shown inside the nodes represent the total exports of each income group for the year. The thickness of the links represents the export value of the reporter to the partner for the year.

Source: Authors' calculations based on UN Comtrade.

with flows reaching US\$75 billion, representing 29 per cent of their total exports within the Commonwealth. In this sense, the Commonwealth has been a success in promoting South–South trade. Developed economies also directed most of their exports towards developing partners, amounting to \$54 billion in 2023, or more than 40 per cent of their intra-Commonwealth exports. For SIDS, more than 60 per cent of their exports, amounting to \$64 billion, were directed towards developing economies. A similar pattern is seen among LDCs and LLDCs, which each exported around \$6 billion to developing economies, representing the majority of their trade, 75 per cent, within the Commonwealth.

2.1.2. Cross-border “paperless” trade facilitation performance

Assessing Commonwealth countries' progress in implementing cross-border paperless trade facilitation is essential to understanding the level of support provided to the paperless trade transition. For this purpose, data from the

UN Global Survey on Digital and Sustainable Trade Facilitation was examined, with particular attention to the indicator related to cross-border paperless trade facilitation.

The **Cross-Border Paperless Trade indicator** comprises six sub-measures:

1. Laws and regulations for electronic transactions, e.g. *national e-transactions acts or electronic communications acts that legally recognise e-documents and e-signatures for trade.*
2. Use of a recognised certification authority, e.g. *trusted digital identity or e-signature providers that issue secure digital certificates used for customs or trade document authentication.*
3. Electronic exchange of customs declarations, e.g. *automated data-sharing between customs systems of neighbouring countries.*

4. Electronic exchange of certificates of origin, *e.g. digital certificates issued and verified through systems.*
5. Electronic exchange of SPS certification, *e.g. paperless exchange of health and safety certificates via tools such as the International Plant Protection Convention ePhyto Hub for agricultural and food products.*
6. Paperless payment collection through documentary letters of credit, *e.g. digital trade finance platforms used by banks.*

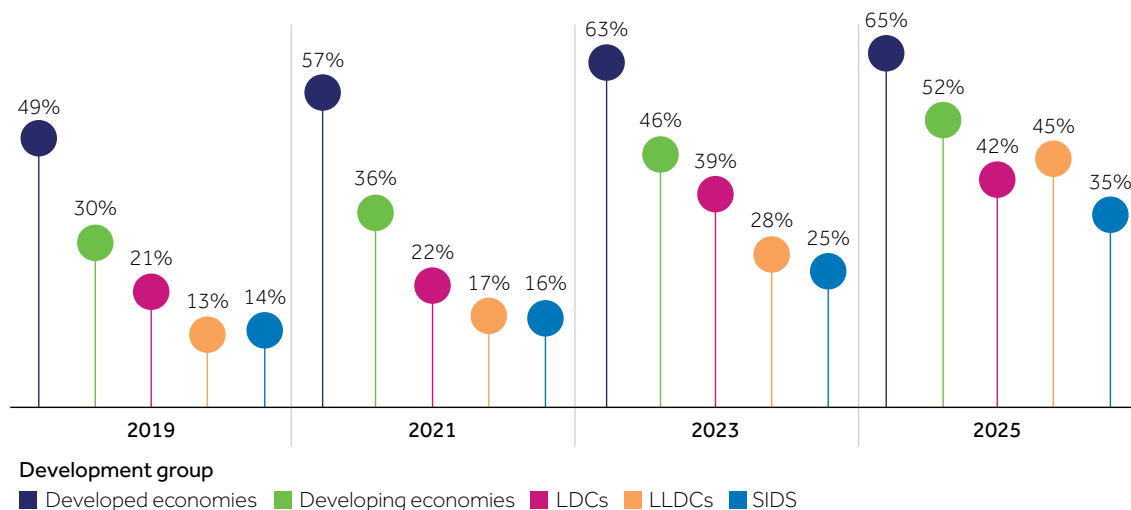
Source: UN (2023).

The rate of implementation of cross-border paperless trade facilitation measures has steadily increased across Commonwealth countries, from an average of 23 per cent of all measures in 2019 to 45 per cent in 2025. Developed members showed the greatest progress among income groups, with their implementation rates growing from 49 per cent to 65 per cent over the period. Developing economies followed, with implementation rates

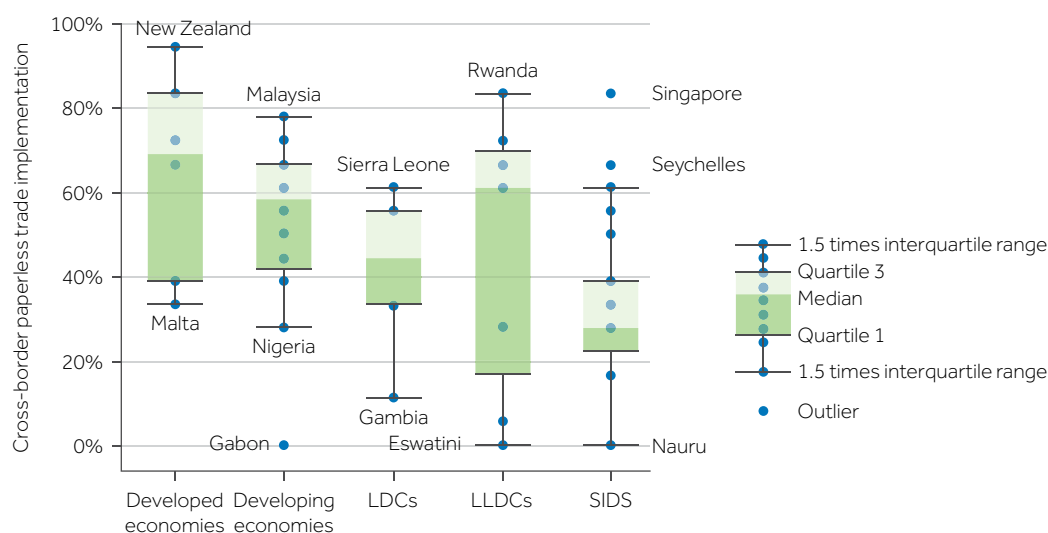
rising from 30 per cent average in 2019 to 52 per cent in 2025. Significant progress was evident among LDCs, LLDCs and SIDS over the same period, with all three groups at least doubling their implementation rates. The highest notable gains among the income groups were achieved by LLDCs, with a surge from 13 per cent in 2019 to 45 per cent in 2025, even surpassing the implementation rate of LDCs in 2025.

Rates of implementation of cross-border paperless trade facilitation measures also differ across Commonwealth countries. In 2025, New Zealand led all Commonwealth developed economies with the highest implementation rate, at 94 per cent. This was followed by Australia, Rwanda and Singapore, at 83 per cent, each representing different income groups (developed economies, LLDCs and SIDS, respectively). Within the developing countries, Gabon remains the only nation that has not yet started implementing cross-border paperless trade. Similarly, Eswatini (LDC) and Nauru (SIDS) have not yet initiated trade digitalisation efforts, according to the survey results. Overall, SIDS have the lowest average implementation rate, with most countries having implementation rates below 40 per cent.

Figure 2.3. Average implementation rate of cross-border paperless trade by income group, 2019–2025



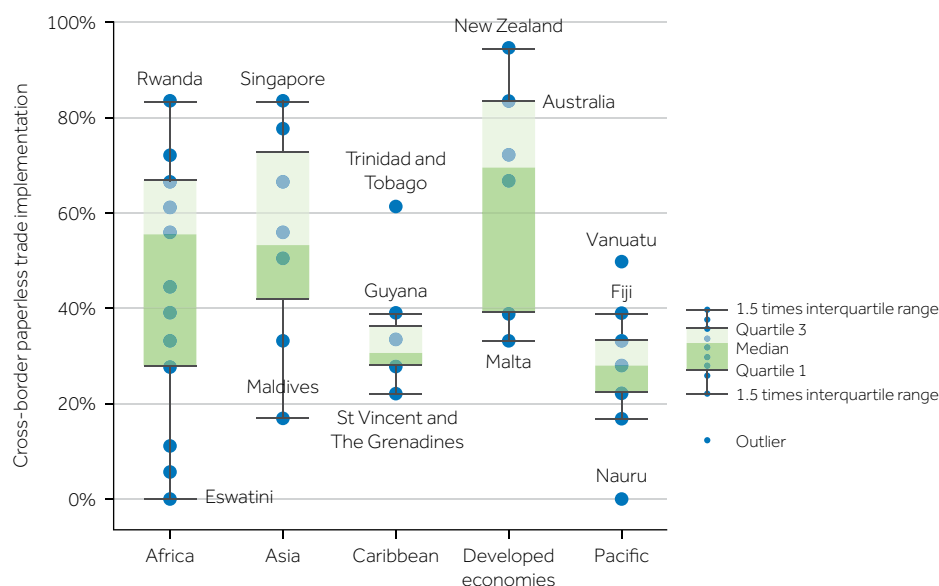
Source: Authors' calculations based on UN Global Survey on Digital and Sustainable Trade Facilitation.

Figure 2.4. Implementation rate of cross-border paperless trade facilitation measures, 2025

Source: Authors' calculations based on UN Global Survey on Digital and Sustainable Trade Facilitation.

Implementation of cross-border paperless trade in 2025 varied across Commonwealth regions. The Commonwealth African countries exhibited the widest range of implementation rates, varying from a high of 83 per cent for Rwanda to

as low as 0 per cent for Eswatini. Implementation rates in Asia and developed economies also varied significantly, reflecting differences in advancement across regions. Most developed countries had an implementation rate above 60 per cent, with New

Figure 2.5. Implementation rate of cross-border paperless trade by region, 2025

Source: Authors' calculations based on UN Global Survey on Digital and Sustainable Trade Facilitation.

Zealand achieving the highest implementation rate across all regions, at 94 per cent. In the Pacific, most Commonwealth countries had a relatively low implementation rate, generally below 40 per cent, with the exception of Vanuatu, which reported a higher rate, of 50 per cent. Similarly, most of the Caribbean Commonwealth countries had a low implementation rate – below 40 per cent – except for Trinidad and Tobago, at 61 per cent. These disparities suggest the need for targeted capacity-building initiatives and regional co-operation to accelerate progress for lagging countries in regions.

across Commonwealth countries has improved steadily over the years, as reflected in the rise of fixed broadband subscriptions per 100 inhabitants, as Figure 2.6 shows.

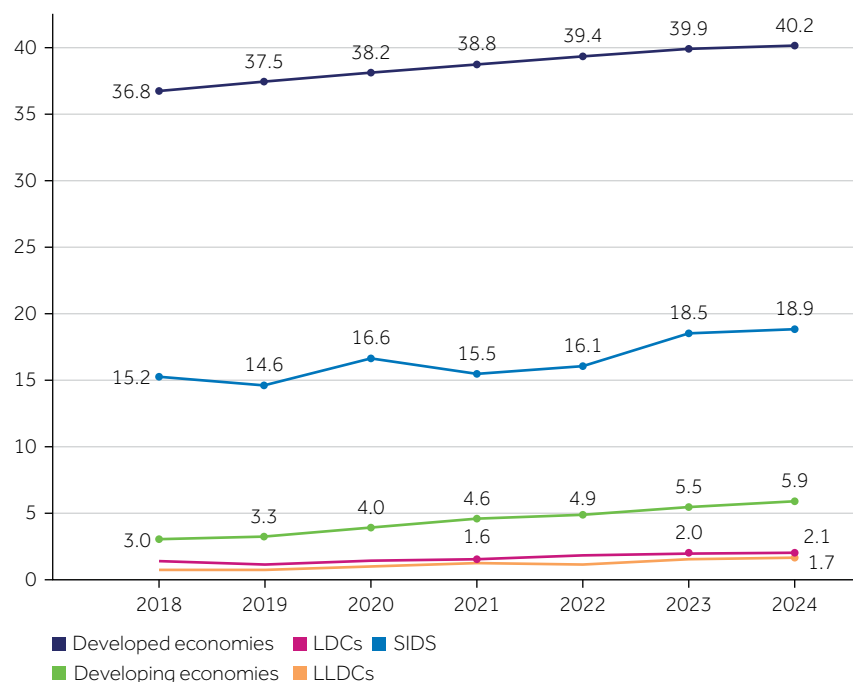
Internet penetration in Commonwealth countries was assessed using fixed broadband subscriptions. The transfer of digital trade documents is carried out primarily by businesses, which typically rely on fixed, stable broadband connections.

2.1.3. Digital infrastructure readiness

Digital infrastructure is a key enabler of the cross-border paperless trade transition as it provides the necessary technological foundation for generating, exchanging and managing trade-related information electronically, enabling efficient cross-border transactions. Digital infrastructure

Overall, internet penetration in Commonwealth countries has expanded over the years, though it remains relatively low compared to the global average. Average subscriptions per 100 inhabitants in Commonwealth countries grew from 11.8 in 2018 to 13.4 in 2024, indicating an increase in internet accessibility for residents. Penetration rates varied widely across income groups. Developed economies

Figure 2.6. Average fixed broadband subscriptions of Commonwealth countries, 2018–2024 (per 100 inhabitants)



Source: Authors' calculations based on World Bank Digital Infrastructure Indices.

had a higher level of internet penetration, with an average of 40.2 subscriptions per 100 inhabitants in 2024. SIDS followed with an average of 18.9, driven in part by their need to overcome geographic isolation. LDCs and LLDCs of the Commonwealth have shown smaller growth in internet penetration over recent years, with both having the lowest penetration rates, at 2.1 and 1.7, respectively, indicating the infrastructure challenges facing Commonwealth LDCs and LLDCs (Figure 2.6).

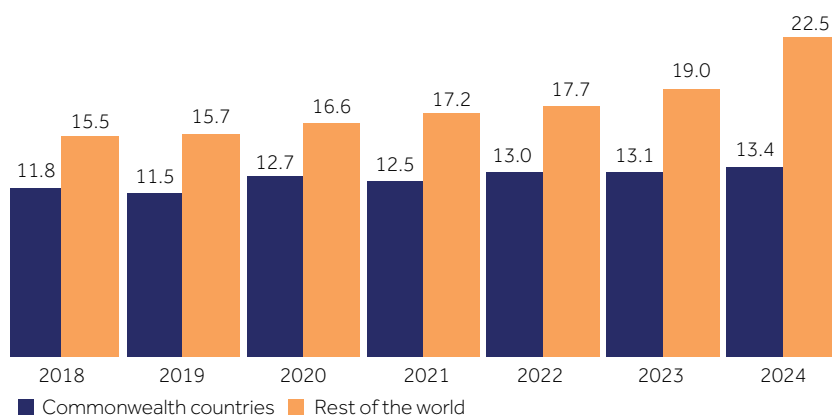
Furthermore, despite the increased penetration rates of fixed internet connections in Commonwealth countries between 2018 and 2024, the countries have, on average, a lower penetration rate when compared to the rest of the world. The gap between the two groups widened significantly between 2018 and 2024, increasing from 3.7 to 9.1 (Figure 2.7).

Since cross-border paperless trade relies on the flow of data, a high-quality, high-bandwidth connection is essential. Even with widespread internet access, low bandwidth can create bottlenecks that hinder businesses from fully implementing paperless trade. In recent years, the bandwidth of internet usage in Commonwealth countries has increased significantly, as Figure 2.8 shows. In 2018, speeds ranged from around

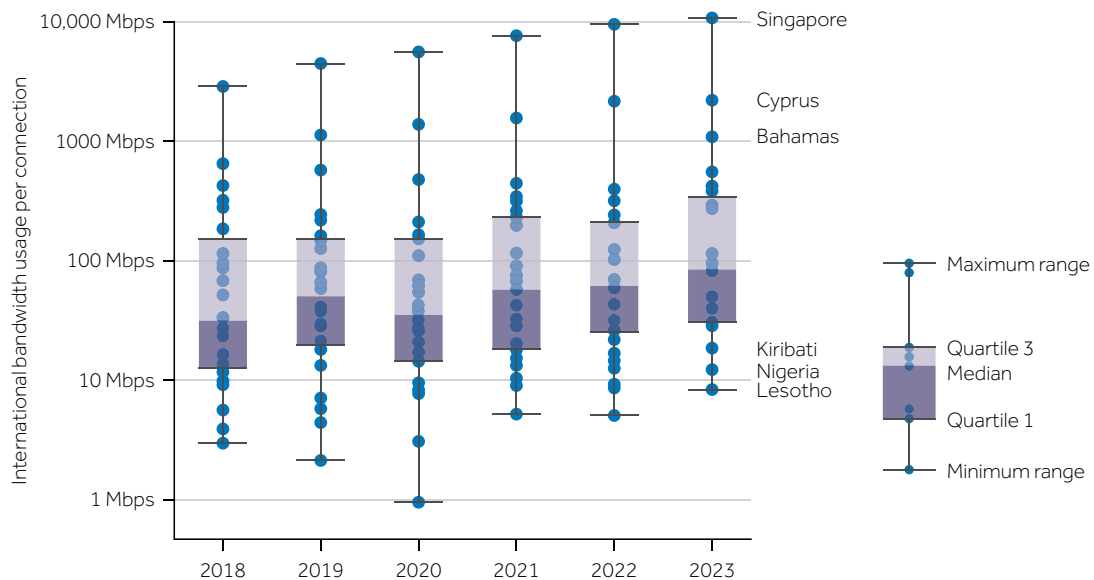
3 Megabits per second (Mbps) in the slowest countries (Cameroon) to 2.8 Gigabits per second (Gbps, ~1.024 Mbps) in the fastest (Singapore). In 2020, the lowest recorded country speed dropped to 1 Mbps, owing to the inclusion of St Vincent and the Grenadines in the dataset. By 2023, the speed had increased to between 9 Mbps (Lesotho) and 10.5 Gbps (Singapore). According to the European Commission's 2016 requirements for Trans-European Systems, a minimum network connection speed of 4 Mbps is necessary. All Commonwealth countries exceed this threshold, with all recording speeds above 9 Mbps in 2023. This indicates that, even in Commonwealth LDCs and LLDCs, where internet penetration remains comparatively low, the quality of international connectivity is generally sufficient to support cross-border paperless trade. Singapore has been the Commonwealth country with the highest internet bandwidth over the years (Figure 2.8).

Until 2023, the average internet bandwidth of Commonwealth countries was higher than that of the rest of the world. The trend shifted in 2023, when the rest of the world overtook the Commonwealth countries, reaching an average of 669 Mbps compared to 635 Mbps for the Commonwealth countries (Figure 2.9).

Figure 2.7. Average fixed broadband subscriptions of Commonwealth countries vs rest of the world, 2018–2024 (per 100 inhabitants)

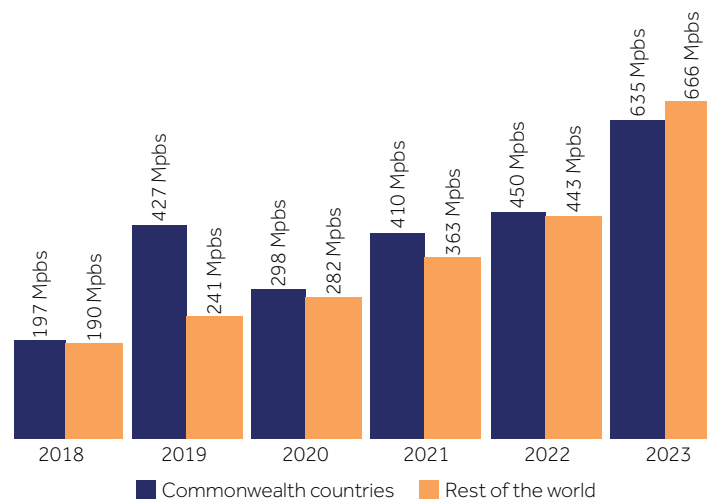


Source: Authors' calculations based on World Bank Digital Infrastructure Indices.

Figure 2.8. Evolution of Commonwealth countries' international internet bandwidth speed, 2018–2023

Note: The y-axis uses a logarithmic scale. Data for 2024 is not available.

Source: Authors' calculations based on World Bank Digital Infrastructure Indices.

Figure 2.9. International internet bandwidth speed in the Commonwealth vs rest of the world, 2018–2023

Source: Authors' calculations based on World Bank Digital Infrastructure Indices.

2.1.4. Legal and regulatory readiness

An equally critical enabler in cross-border paperless trade is a robust legal framework. The legal framework ensures digital documents have full legal recognition as transactional documents

while providing the necessary safeguards for economic operators and consumers in paperless trade transactions through cybersecurity and data protection measures. The first layer of this legal framework lies in national cyberlaws on

e-commerce. The second focuses on ensuring transferred digital records can perform the same legal functions as traditional paper-based instruments. By recognising electronic signatures, contracts and transactions as legitimate, these laws lay the foundation for cross-border paperless trade.

According to the United Nations Trade and Development (UNCTAD) Global Cyberlaw Tracker, all developed Commonwealth countries have adopted e-commerce cyberlaws, except in the area of consumer protection. Cybercrime legislation has been widely adopted, with most Commonwealth countries implementing relevant laws except for one developing economy (Namibia) and two SIDS (Solomon Islands and Tuvalu). Similarly, electronic transactions have been fully adopted in most countries across all income groups, except in LLDCs with 86 per cent and SIDS with 92 per cent. Among Commonwealth groups, only developed economies and LLDCs

have fully adopted privacy and data protection legislation, with LDCs lagging behind with the lowest implementation rate at just 50 per cent. Consumer protection remains the area with the lowest adoption rate across most Commonwealth income groups.

Compared to the rest of the world, Commonwealth countries demonstrate higher adoption rates regarding cybercrime and electronic transaction legislation.

Commonwealth countries recorded an adoption rate of 95 per cent for both cybercrime and electronic transactions compared to 88 per cent in the rest of the world. However, Commonwealth countries lag behind both on consumer protection and on privacy and data protection, with implementation rates of 43 per cent and 70 per cent, respectively, compared to 68 per cent and 83 per cent in the rest of the world. Like the Commonwealth, the rest of the world has the lowest implementation rates in cyberlaws related to consumer protection.

Table 2.1. Adoption rate of cyberlaw in Commonwealth countries, 2025

	Developed	Developing	LDCs	LLDCs	SIDS
Consumer protection	83	50	50	43	28
Cybercrime	100	92	100	100	92
Electronic transactions	100	100	100	86	92
Privacy and data protection	100	75	50	100	56

Note: The analysis includes only enacted legislation and not draft legislation.

Source: UNCTAD Cyberlaw Tracker.

Table 2.2. Adoption rate of cyberlaw in Commonwealth countries vs rest of the world, 2025

	Commonwealth	Rest of the world
Consumer protection	43	68
Cybercrime	95	88
Electronic transactions	95	88
Privacy and data protection	70	83

Note: The analysis includes only enacted legislation and not draft legislation.

Source: UNCTAD Cyberlaw Tracker.

Although general e-commerce legislation provides the foundational legal environment for digital trade by ensuring recognition of electronic contracts and signatures, such frameworks typically exclude transferable records. This

creates a barrier to the full digitalisation of key trade documents, which are essential for cross-border transactions. The United Nations Commission on International Trade Law (UNCITRAL) specifically addressed this gap by establishing the Model Law on Electronic Transferable Records (MLETR) in 2017. The MLETR provides a legal framework for using electronic versions of transferable documents both within countries and internationally. It ensures digital

records can serve the same function as traditional paper-based instruments, which grant the holder the right to claim an obligation and transfer that right through possession.

As per the MLETR tracker, among the 56 Commonwealth countries, only 20 have at least conveyed and socialised the MLETR information with key policymakers. Six countries have officially enacted the legislation required to implement the MLETR – namely, Belize, Kiribati, Papua New Guinea, Singapore, the UK and Mauritius; with Tuvalu in the process of passing the relevant legislation. New Zealand has reached only Stage 2 despite being the

Figure 2.10. Stages of MLETR implementation in Commonwealth countries, 2025

	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7	Stage 8
United Kingdom								
Singapore								
Papua New Guinea								
Kiribati								
Belize								
Mauritius								
Tuvalu								
Australia								
Solomon Islands								
Canada								
Malaysia								
Fiji								
Togo								
Nigeria								
New Zealand								
India								
Cameroon								
Uganda								
Rwanda								
Bangladesh								
Other Commonwealth Countries								

Note: Stage 1 MLETR socialisation; Stage 2 political support; Stage 3 domestic analysis; Stage 4 readiness assessment; Stage 5 stakeholder consultation; Stage 6 legislative drafting; Stage 7 passage of legislation; Stage 8: entry into force.

Source: UNESCAP and ICC MLETR Tracker.

Commonwealth country with the highest level of cross-border paperless trade implementation, at 94 per cent. Evidence from the Asia-Pacific Economic Cooperation (APEC) in 2025 suggests that, while most economies already have the legal foundations for adopting the MLETR, differences in the scope and application of electronic commerce laws have slowed wider uptake. Commonwealth countries likely face comparable hurdles, where inconsistencies in functional equivalence provisions and uneven alignment with international standards create uncertainty. These challenges may help explain the slower pace of MLETR adoption across the Commonwealth, despite broader commitments to advancing paperless trade.

2.1.5. Overall readiness for the paperless trade transition

A comparison between Commonwealth countries and the rest of the world regarding overall readiness for the paperless trade transition shows a mixed picture. Commonwealth nations are generally stronger on establishing

legal frameworks than on developing digital infrastructure. Notably, Commonwealth countries are significantly ahead on adopting cybercrime and electronic transaction legislation. Specifically, Commonwealth SIDS have generally higher readiness scores and implementation rates than rest of the world counterparts. However, digital infrastructure is a key challenge in most countries in both the Commonwealth and the rest of the world. A significant gap persists between developed economies and other country groups, with Commonwealth developing economies, LDCs and LLDCs falling even further behind their global counterparts on digital infrastructure. Nevertheless, when it comes to cross-border paperless trade, Commonwealth countries consistently achieve slightly higher implementation rates than the rest of the world.

Similarly, regional comparison across Commonwealth countries reveals significant disparities regarding readiness for the paperless trade transition. Commonwealth countries show relatively strong performance

Table 2.3. Commonwealth vs rest of the world – paperless trade readiness

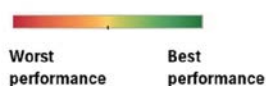
		Commonwealth countries					Rest of the World				
		Developed economies	Developing economies	LDCs	LLDCs	SIDS	Developed economies	Developing economies	LDCs	LLDCs	SIDS
Law	Consumer Protection										
	Cybercrime										
	Electronic Transactions										
	Privacy and Data Protection										
	Overall										
Digital Infrastructure	Fixed-broadband subscriptions per 100										
	International bandwidth usage per connection										
	Overall										
Trade Digitalisation	Cross-border Paperless Trade										

Worst performance **Best performance**

Source: UN Global Survey on Digital and Sustainable Trade Facilitation; UNCTAD Cyberlaw Tracker; World Bank Digital Infrastructure Indices.

Table 2.4. Paperless trade readiness by Commonwealth region

		Commonwealth regions				
		Africa	Asia	Caribbean	Developed	Pacific
Law	Consumer Protection					
	Cybercrime					
	Electronic Transactions					
	Privacy and Data Protection					
	Overall					
Digital Infrastructure	Fixed-broadband subscriptions per 100 inhabitants (ITU)					
	International bandwidth usage per connection					
	Overall					
Trade Digitalisation	Cross-border Paperless Trade					



Source: UN Global Survey on Digital and Sustainable Trade Facilitation; UNCTAD Cyberlaw Tracker; World Bank Digital Infrastructure Indices.

on **legal frameworks**, particularly on cybercrime and electronic transactions legislation, with high implementation rates. **Consumer protection** performance is uneven – highest in developed economies and lower across Africa, Asia, the Caribbean and the Pacific (the weakest). Privacy and data protection readiness is stronger in Africa, the Caribbean and developed members, with shortfalls concentrated in Asia and the Pacific.

Digital infrastructure is the main constraint. Africa shows the largest deficits, with the lowest fixed broadband penetration and international bandwidth usage, leaving overall readiness low. Asia also underperforms, particularly on bandwidth. The Caribbean and the Pacific record persistently low infrastructure scores, while developed Commonwealth members lead this pillar. Finally, regarding **implementation of cross-border paperless trade**, developed countries lead with high readiness, followed by Asia, while Africa, the Caribbean and the Pacific show lower implementation rates. Detailed matrices by regions and countries are available in Annex B.

2.2. Case studies on successful paperless trade adoption

To showcase the benefits of paperless trade adoption in the Commonwealth context, three

illustrative case studies were conducted to highlight the practical impacts of digital reforms across diverse economies. Each case highlights how paperless trade measures, when tailored to local conditions, can reduce transaction costs, expedite processing and enhance competitiveness, particularly for small and medium-sized enterprises (SMEs).

2.2.1. Fiji: Paperless SPS certification boosts private sector productivity and competitiveness

In 2023, Fiji completed its move to an entirely paperless export SPS certification system for agricultural products: the International Plant Protection Convention Generic ePhyto National System (GeNS) (BAF, 2023). This system, developed from 2020, allows the Biosecurity Authority of Fiji to issue plant health certificates for exports and to process import clearances entirely electronically (GFA, n.d.). Overall, GeNS is projected to cut processing times by 56 per cent and deliver cost savings of around US\$6 for every certificate issued (Global Alliance for Trade Facilitation, 2023).

The immediate time and cost savings from implementation of ePhyto have been important for exporters of fresh produce and small businesses.

Mahens Export, which exports fresh fruits and vegetables to New Zealand under five-day perishability constraints, highlights that GeNS has enabled the company to boost productivity. In particular, GeNS has removed the need for staff to travel and to request about 100 paper certificates annually for the firm's regular consignments to New Zealand (Global Alliance for Trade Facilitation, 2023).

'The ePhyto solution is a game changer for our export line. There is no more waiting time for the approval and issue of certificates. The GeNS allows exporters to be more efficient.' Ranitesh Kumar, General Manager of Mahens Export.

Source: Global Alliance for Trade Facilitation (2023).

Similarly, Lami Kava, a small business exporting dried kava, was able to free up three full-time staff of paperwork tasks for SPS certification. This represented substantial productivity gains for the company of 30 employees (Global Alliance for Trade Facilitation, n.d.). Both companies have noted increased customer satisfaction owing to improved turnaround times.

The adoption of ePhyto in Fiji provides a concrete example of how paperless trade can drive private sector productivity and competitiveness, particularly for smaller businesses. Beyond the time and cost gains for individual firms, GeNS has contributed to increased confidence in Fiji's exports by reducing errors and rejections, improving tracking and enhancing trust with international buyers.

2.2.2. Singapore: Improving supply chain resilience through electronic bills of lading

Developed by Infocomm Media Development Authority (IMDA), TradeTrust aims to overcome the inefficiencies of paper-based cross-border trade by applying international standards and frameworks and using blockchain technology to digitalise transferable documents into electronic transferable records (ETRs) (TradeTrust, n.d.). One key application of TradeTrust

is the use of electronic bills of lading (eBLs), which has significant potential to improve efficiency by streamlining and automating paper-based processes, resulting in reduced time and costs to trade.

In 2023, IMDA partnered with several industry partners to implement the world's first ETR cross-border trade transaction, including ExxonMobil as shipper, BunkerChain as technology provider and VLK as vessel owner for the shipment of liquid chemicals from Singapore to Thailand (MDA, 2023). Specifically, TradeTrust enabled electronic completion of the issuance, ownership transfer and surrender of the eBL between the different stakeholders involved in the transaction and across different systems. Using an eBL shortened the vessel's berthing time from three hours to only minutes, directly lowering ExxonMobil's terminal and vessel expenses (ICC UK, 2024).

'This pilot is part of ExxonMobil's efforts to increase our supply chain resiliency through digitalisation of business processes. We welcome frameworks like TradeTrust as an important part of our journey towards digitalisation. Such frameworks increase efficiency and cost savings while maintaining high standards and trust, and we hope that this successful trial will lead to increased interest from industry to adopt similar standards.' Low Say Lim, Asia Pacific Liquids Logistics & Distribution Manager, ExxonMobil Asia Pacific.

Source: IMDA (2023).

Another live digital trade transaction was carried out using a TradeTrust-enabled eBL on Beijing's AEOTradeChain platform for the shipment of canned food from China's COFCO Industrial Food to Singapore. It is estimated that this approach improved COFCO's document-processing efficiency by more than 80 per cent and reduced overall business operating costs by over 30 per cent, highlighting the tangible value of decentralised digital trade solutions (Gandharv, 2023).

Beyond the efficiency gains, the pilots demonstrated that the TradeTrust framework allowed interoperability across different systems without the need for intersystem connectivity protocols, and that digital and paper-based systems could operate together. Importantly, the transactions confirmed that an eBL issued under TradeTrust could be legally supported by statutory law alone and successfully used in a non-MLETR jurisdiction such as Thailand (UNESCAP, n.d.).

This case study highlights how paperless trade reforms can deliver tangible benefits for private firms by cutting time and costs in cross-border transactions. Equally significant, the pilots show that legal harmonisation and tailored contractual arrangements are not always prerequisites for the implementation of paperless trade.

2.2.3. UK: Enhancing efficiency through the Electronic Trade Documents Act

The UK Electronic Trade Documents Act (ETDA), enacted in 2023, imposes legal recognition on electronic trade documents, enabling traders to hold them in digital form and convert between electronic and paper documents by choice (Le et al., 2022). The ETDA, which is technology-neutral, is expected to significantly reduce transaction costs, increase efficiency and improve security, resulting in increased trade (Clyde & Co, 2023). Specifically, it is estimated that the ETDA will boost the UK economy by over £1 million over the next decade (GOV.UK, 2023a).

Since the enactment of the ETDA, several businesses are increasingly leveraging its advantages to streamline procedures and reduce costs. Melon & Co, a UK SME that imports fruit from Brazil, has attained a 10 per cent to 15 per cent increase in pre-tax profits by using eBLs. The digital transaction has also shortened the generation time for a Goods Vehicle Movement Service reference number from four hours to just four minutes, removing a key bottleneck in border processes (ICC UK, 2024). Such digitalisation of trade documents also enhances food safety and consumer

'This is a high risk, high turnover, high volume, low margin business. We're talking about short shelf-life products, and the longer they stay in port, the more money it costs. I need to move these goods around quickly and efficiently. I need to minimise food wastage. And I need to stop flying documents over from Brazil to satisfy bureaucracy.' Justin Symborski, Chief Executive Officer, Melon & Co.

Source: Wragg (2023).

confidence while reducing wastage and improving commercial efficiency.

For clothing and homeware retailer Matalan, the shift to digital trade documentation cut transaction times from the 25–30 days typically required for paper processes to only 2 hours, highlighting the scale of efficiency gains made possible under the ETDA (Sengupta et al., 2024). In 2023, UK manufacturer Fort Vale carried out a fully digitalised shipment of goods to Singapore under the ETDA and the UK–Singapore Digital Economy Agreement (GOV.UK, 2023b). The pilot delivered tangible efficiency gains, including the complete removal of logistics paperwork requirements, an 85 per cent decrease in required adjacent and associated paperwork, a 89 per cent reduction in processing time and an eight times reduction in data needed (ICC UK, 2024).

The experiences of Melon & Co, Matalan and Fort Vale demonstrate how the ETDA is already delivering measurable benefits to the private sector by cutting costs, reducing paperwork and accelerating border and shipping processes. However, scaling the benefits of the ETDA requires overcoming some key challenges. This includes raising awareness and capacity among SMEs, promoting interoperability of digital systems and addressing concerns related to cybersecurity and the reliability of trusted systems.

3. Quantifying the benefits of transitioning to paperless trade

3.1. Review of existing studies on paperless trade transitions

Trade costs (excluding tariff costs) remain high across the world: intra-regional trade costs are estimated to range from 42 per cent of the traded goods' value in European economies to 161 per cent in the South Asian Association for Regional Cooperation region in 2021, while region-to-region trade costs may amount to 427 per cent for the Pacific region, considering the remoteness of these island countries (ADB and UNESCAP, 2024). According to the World Bank (2021), the bulk of trade costs is incurred in transport and logistics, as well as cumbersome border and customs procedures (see also Ohnsorge and Quaglietti, 2023). In this context, while not being able to lower all trade barriers, paperless trade facilitation measures will support streamlining trade processes and customs clearance requirements, and lower the costs of compliance.

A number of empirical studies have explored the benefits of specific paperless trade initiatives. In order to disentangle the relationship between cross-border paperless trade reforms and either trade costs or trade outcomes, Shepherd (2014) employed a three-stage analysis: (i) estimating the relationship between paperless trade reforms (using UNESCAP's trade facilitation survey) and import/export times (using the World Bank's Doing Business survey), using an econometric model; (ii) simulating changes in trade times under different reform scenarios through counterfactual analysis; and (iii) translating these results into projected trade gains and cost savings to assess the overall economic impact of paperless trade reforms. Using this methodology, it was estimated that implementing one extra measure would be associated with a decrease in trade times of about 8 per cent. Should countries adopt paperless trade reform, the total direct savings across all sectors

would be approximately US\$1 billion annually for partial reform, and \$7 billion annually for full implementation. Translated into trade volume, partial implementation of cross-border paperless trade measures would be associated with an export increase of \$36 billion annually, while full region-wide implementation of cross-border paperless trade would generate an annual export gain of \$257 billion for the whole Asia-Pacific.

Using a similar approach with more updated data, ADB and UNESCAP (2024) find that a 1 per cent improvement in overall trade facilitation implementation results in a greater than 1.5 per cent increase in trade, on average. The impact of improved digital trade facilitation on trade is found to be higher compared to general trade facilitation measures: a 1 per cent improvement in digital trade facilitation is associated with an average increase of approximately 0.7 per cent in trade, compared to a 0.5 per cent improvement in trade from improving the implementation of general trade facilitation measures. Using counterfactual simulations, it is found that the implementation of digital trade facilitation measures beyond the commitments stipulated in the WTO Trade Facilitation Agreement (TFA) could yield a reduction of approximately 11 per cent in trade costs. Running a standard gravity model on OECD Trade Facilitation Indicators and cross-border data trade flows, OECD (2025) finds that a 10 per cent improvement in bilateral performance in automating border procedures, combined with streamlined documentation and stronger co-operation among border agencies, could boost global goods exports by up to 18%.

Using a Bayesian forecasting methodology in combination with Doing Business survey data, multilateral trade data and insights from 55 international banks, Harding (2022) estimates that digital trade facilitation across borders could support a reduction in Commonwealth exporters' cost base of around 75 per cent on average, thereby increasing trade across the Commonwealth by around US\$90 billion. If combined with measures to use ETRs in trade finance, the resulting multiplier

effect could enable a total of nearly \$1.2 trillion in additional trade across the Commonwealth by 2026.

By nature, trade costs related to agricultural goods are higher than those related to manufactured goods, as agricultural goods are perishable and require special containerisation (Utoktham et al., 2017). For example, Ohnsorge and Quaglietti (2023) find that the agriculture sector bears much higher trade costs – about four-fifths higher than in manufacturing. As developing countries trade relatively more in (time-sensitive) agricultural products and have relatively more small-scale exporters, they will have the largest room for improvements and gains to reap from reductions in trade transaction costs (Moisé and Le Bris, 2013). Therefore, it can also be expected that reducing trade costs through the paperless trade transition will generate specific benefits for developing countries and agricultural trade.

Running an econometric estimation of an agricultural trade cost model based on agricultural trade cost data from the UNESCAP–World Bank Trade Costs database and the UN Global Trade Facilitation and Paperless Trade Implementation Survey, Utoktham et al. (2017) find that implementation of trade facilitation measures specifically related to the agriculture sector is associated with an 8.9 per cent reduction in agricultural trade costs. Similarly, utilising a structural gravity model and data from the UN Global Survey on Digital and Sustainable Trade Facilitation, Duval and Utoktham (2025) find a positive relationship between the implementation of various trade facilitation measures and agricultural trade flows. On average, at the global level, 10 per cent increases in the implementation of trade digitalisation and agricultural trade facilitation measures are respectively associated with 4 per cent and 0.2 per cent increases in agricultural trade flows. The study also finds stronger benefits for developing countries in implementing trade facilitation measures: the average impact of agricultural trade facilitation measures on South–North trade is almost three times larger than that for North–North trade and approximately two times larger than for global

trade. Conducting quantitative analysis using an e-certification dummy in a structural gravity model, OECD (2021) estimates that the implementation of ePhyto certificates could increase the total value of exports for selected agro-food product groups over time by between 17 per cent and 32 per cent.

Specifically looking at the impact of implementing one measure, Suvannaphakdy and Neo (2022) find that implementation of the Association for Southeast Asian Nations (ASEAN) + 6 Single Window (ASW) could reduce the time required to export between 19 per cent and 98 per cent, while increasing ASEAN's exports by US\$102 billion to \$199 billion annually. The model estimates the impact of paperless trade reforms on trade times using an adapted gravity model, controlling for two key factors influencing trade times: the level of general paperless trade implementation and the effectiveness of other trade facilitation measures based on the results of the UN Global Survey on Digital and Sustainable Trade Facilitation.

Table 3.1 provides an overview of some of the key findings based on the meta-analysis conducted in this study.

Recent empirical work shows sizable but heterogeneous gains from paperless trade facilitation. Using structural gravity and economic estimations, studies typically find that improving implementation lowers time and monetary trade costs and raises trade volumes, with effects larger for digital measures than for general facilitation and particularly strong for developing countries and agriculture. Yet estimates vary widely, from single-digit per cent reductions in trade times to double-digit export gains, which reflect the differences in measures (overall facilitation, paperless trade facilitation or specific measures like single windows or ePhyto) and data sources.

Most studies capture only partial equilibrium trade responses, keeping most variables constant and seeing only how factors such as tariffs, costs and digitalisation affect trade flows. These approaches overlook the general equilibrium effects on the whole economy, such as resource (labour

Table 3.1. Summary of approach and findings in existing literature

Study topic	Method	Data source	Findings
Impact of cross-border paperless trade reforms on trade in Asia-Pacific (Shepherd, 2014)	Econometric analysis; counterfactual simulations	Trade flows; UNESCAP trade facilitation survey; World Bank Doing Business survey	+1 extra measure → ~8% ↓ in trade times.
Impact of digital trade facilitation implementation on trade costs (ADB and UNESCAP, 2024)	Econometric analysis; counterfactual simulations	Trade flows; UN Global Survey on Digital and Sustainable Trade Facilitation; UNESCAP–World Bank Trade Costs database	1% ↑ in overall implementation → >1.5% ↑ in trade (average) 1% ↑ in digital trade facilitation → ~0.7% ↑ in trade (vs ~0.5% for general trade facilitation). Implementing digital TF beyond WTO TFA → ~11% ↓ in trade costs.
Effect of automating border procedures (OECD, 2025)	Gravity model	OECD Trade Facilitation Indicators; bilateral goods trade flows	10% ↑ in bilateral performance (automation, streamlined documents, agency co-operation) → up to 18% ↑ in global goods exports.
Digital trade facilitation and ETRs in Commonwealth countries (Harding, 2022)	Bayesian forecasting combining multiple inputs	Doing Business data, multilateral trade data, semi-structured interviews	Cross-border digital TF could cut exporters' cost base by ~75% (average) → +~\$90 billion trade. With ETRs, the multiplier effect leads to +\$1.2 trillion additional trade by 2026.
Agricultural trade facilitation measures and trade costs (Utoktham et al., 2017)	Econometric estimation	UNESCAP–World Bank Trade Costs database; UN Global Survey on Trade Facilitation and Paperless Trade Implementation	Implementing agri-specific trade facilitation measures is associated with ~8.9% ↓ in agricultural trade costs.
Digitalisation and trade facilitation impacts on agricultural trade flows (Duval and Utoktham, 2025)	Gravity model	UN Global Survey on Digital and Sustainable Trade Facilitation; global agricultural trade data	10% ↑ in implementation → ~4% ↑ (trade digitalisation) and ~0.2% ↑ (agriculture trade facilitation measures) in agricultural trade flows. Stronger gains for developing countries
ePhyto certificates and agro-food exports (OECD, 2021)	Gravity model	Trade data for selected agro-food product groups	Implementing ePhyto could raise total export value for selected agro-food groups by ~17–32% over time.
ASW impact (Suvannaphakdy and Neo, 2022)	Gravity model	ASW implementation; UN Global Survey on Digital and Sustainable Trade Facilitation indicators	ASW implementation could reduce export time by ~19–98% and raise ASEAN exports by ~\$102–199 billion per year.

Source: Authors' compilation.

and capital) reallocation between sectors and economies, relative price changes, fiscal effects and cross-sector linkage spillovers across borders, etc.

To address these gaps, our approach combines (i) a gravity framework to estimate the direction and magnitude of trade responses to paperless adoption and (ii) a computable general equilibrium (CGE) model that maps the estimated trade cost shocks into economy-wide outcomes (output, prices, wages and welfare) while tracing cross-sector linkages and terms-of-trade effects. This integrated modelling strategy leverages the credibility and interpretability of gravity for trade elasticities, while combining with CGE power to evaluate broader macro-economic impacts, scenario comparisons (partial vs full implementation) and distributional consequences essential for projections of this nature.

3.2. Findings from the quantitative analysis

This analysis aims to measure the costs and benefits of paperless trade documentation, which contributes to making trade procedures faster and less complex. Our simulation framework uses, at first, Poisson Pseudo-Maximum Likelihood (PPML) to estimate the trade elasticities that capture how digitalisation influences bilateral trade flows for both agricultural (Harmonized System (HS) Chapters 1–24) and non-agricultural products under a standard gravity model. These estimated elasticities are then used to translate improvements in the Digital Trade Facilitation (DTF) indicator⁷ into ad valorem equivalent (AVE) reductions in trade costs. Based on these estimations, the resulting AVE shocks are incorporated into a CGE model to assess the wider economy-wide and sectoral impacts, projected from 2026 to 2030 against the baseline where paperless trade measures remain at the level of 2025.

Larger economies tend to trade more with each other, while distance between markets and other barriers reduce trade between

them. Gravity modelling, which builds on this intuitive relationship, is the standard methodology used in applied trade analysis as it provides robust estimates. In the presence of heteroskedasticity⁸ and in order to account for many zero trade flows commonly observed in disaggregated trade data, the PPML method is employed. PPML uses an estimator to model trade values directly, avoiding bias from variance instability and ensuring both small and large trade flows are appropriately weighted.

The estimation from the gravity model draws on a comprehensive dataset combining bilateral export values from UN Comtrade (aggregated from the HS6 level into agricultural and non-agricultural groups), the UN Global Survey on Digital and Sustainable Trade Facilitation and complementary information from the World Bank and the CEPII Gravity database.

The dependent variable used in the model is the bilateral export value at the commodity-group level. Key explanatory variables include geographic distance between trading partners, the gross domestic product (GDP) of both exporters and importers and the DTF score of the partner country. Additionally, the model controls for several structural and policy-related determinants, including binary indicators for Commonwealth membership, presence of a free trade agreement (FTA) and development status of the partner economy. Partner-group and year fixed effects are included to capture unobservable heterogeneity, while robust standard errors are clustered at the partner level.

The resulting dataset covers over 120,000 bilateral trade observations spanning four baseline years between 2018 and 2024. Table 3.2 shows global export values and shares of agricultural

⁸ Heteroskedasticity refers to a situation where the data points do not vary evenly – that is, some observations fluctuate a great deal while others vary only a little, making the pattern of errors uneven.

⁷ Ibid., 3

Table 3.2. Commonwealth exports, current prices (US\$ billion)

Year	Total exports	Agricultural exports		Non-agricultural exports	
		Exports	Share in total exports	Exports	Share in total exports
2018	16,727	1,485	9%	15,242	91%
2020	15,336	1,525	10%	13,811	90%
2022	20,768	1,900	9%	18,868	91%
2024	17,513	1,722	10%	15,792	90%

Source: UN Comtrade.

Notes: The sample includes countries for which all required variables are available, accounting for roughly 95% of global exports. Countries excluded are primarily small island states and territories, and are excluded because of missing explanatory variables.

and non-agricultural exports between 2018 and 2024. Appendix 4 presents the methodology of econometric specification, including model formulation and variable definitions.

The estimation results in Table 3.3 provide insights into the role of digitalisation in shaping trade patterns. The DTF score emerges as a particularly important driver of export performance. A 1-point increase in the DTF score is associated with a 0.97 per cent rise in exports. At the sector level, the effect is modest for the agriculture sector, with a 1-point increase in the DTF score for agriculture corresponding to an average rise of 0.17 per cent in agricultural exports (3.1).⁹ The results are significant at the 99 per cent confidence level. The results indicate the need for improvement on other trade facilitation measures (such as logistics, warehousing, expedited procedure, etc.) to address other challenging aspects of agricultural trade, but they also highlight the role that paperless trade and digitalising trade processes can play in trade flows. The results also show the higher trade linkage among Commonwealth member countries and countries with existing FTAs, with a 46 per cent increase in exports between the partners. This underscores the importance of negotiated market

access commitments in reducing barriers and stimulating cross-border trade: FTAs between Commonwealth countries strengthen the Commonwealth trade advantage not only by lowering tariffs and non-tariff barriers but also by fostering digital and paperless trade frameworks, encouraging paperless trade adoption and leveraging shared legal and institutional systems.

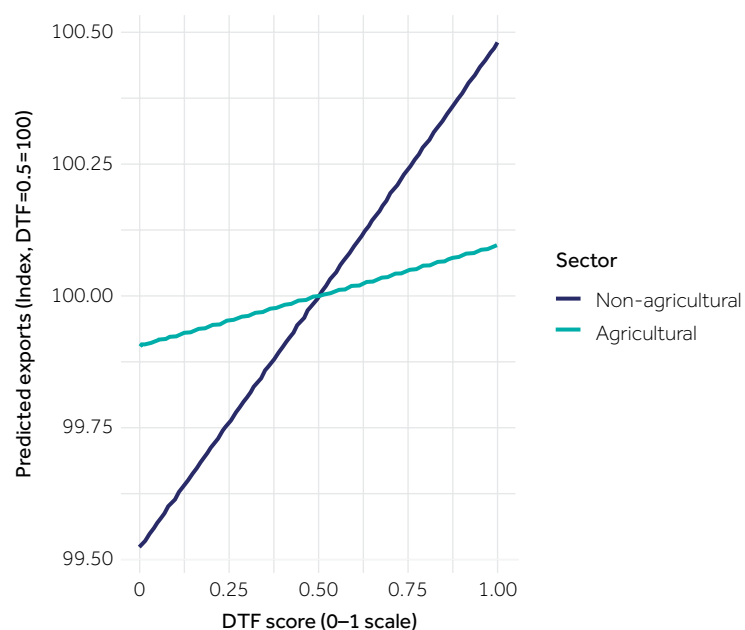
3.3. Wider economic results of paperless trade projected to 2030

Using a CGE model, improvements on the DTF indicator are translated into AVE reductions in trade costs, which are then applied within the framework of the Global Trade Analysis Project (GTAP) model. An *exponential smoothing forecast*, using observed values from 2019 to 2025 to project the annual increases in DTF between 2026 and 2030, was applied to capture different trajectories of DTF progress. Appendix D presents a detailed methodology. Figure 3.2 shows average improvements by income group, though for the CGE modelling framework individual values for countries were produced.

3.4. GDP gains for Commonwealth countries

In terms of GDP change by 2030 owing to digital trade facilitation measures, smaller and mid-sized Commonwealth economies experience the fastest percentage gains, while larger economies

⁹ The DTF effect for agricultural products equals $0.0097 - 0.008 = 0.0017$ – i.e., about 0.17% per 1 point increase in DTF score (1.7% for 10 points).

Figure 3.1. Estimated exports vs DTF score for agricultural and non-agricultural products

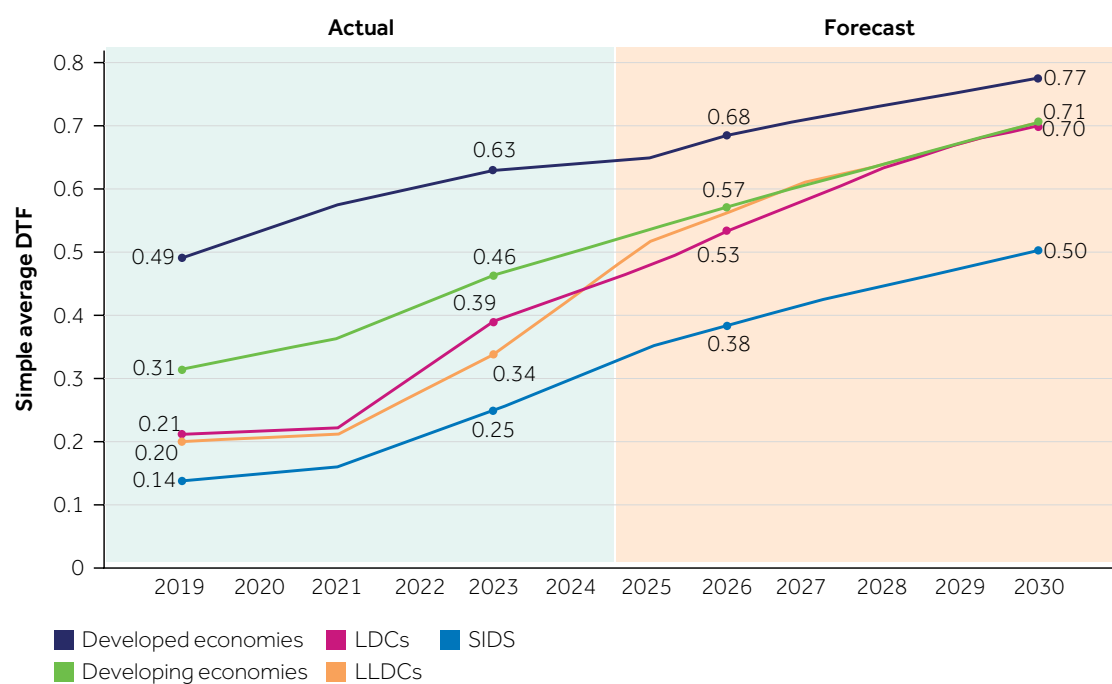
Source: International Economics Consulting Ltd gravity estimation.

Table 3.3. Gravity model estimation results

Variables	Estimate	Std. error	Significance
Geodesic distance	−0.7888	0.0547	***
GDP-importer	0.8131	0.0271	***
GDP-exporter	0.8576	0.0265	***
DTF score [1:100]	0.0097	0.0024	***
Agricultural product group (1=yes)	−2.1472	0.2678	***
Within Commonwealth trade (1=yes)	0.2527	0.1043	**
FTA (1=yes)	0.3753	0.1068	***
Agricultural product group* Developed country group	0.423	0.2326	*
Agricultural product group* Developing group	0.4107	0.2356	*
Agricultural product group* LDCs group	0.7389	0.2644	***
Agricultural product group* LLDCs group	0.5637	0.2609	**
Agricultural product group* DFT score	−0.008	0.0025	***
Fixed effects	Partner group, Year		
Observations	123,616		
Pseudo R ²	0.87		

Note: Standard errors clustered at the partner level. Significance levels: * p < 0.1; ** p < 0.05; *** p < 0.001.

Figure 3.2. DTF projections in Commonwealth countries



Source: Authors' forecasts based on UN Global Survey on Digital and Sustainable Trade Facilitation.

Table 3.4. Top 10 Commonwealth countries with the highest real GDP change 2026–2030

Country	Real GDP value in 2025 (US\$ billion)	Change in real GDP (%)				
		2026	2027	2028	2029	2030
Namibia	13.5	1.8	2.9	4.0	5.1	6.3
Malta	16.4	1.9	2.9	4.0	5.1	6.3
Mozambique	14.3	1.0	1.8	2.5	3.2	4.0
Trinidad and Tobago	21.6	0.5	1.2	2.0	2.7	3.5
Malaysia	384.7	0.5	1.2	1.9	2.6	3.4
Maldives	7.5	0.8	1.4	2.0	2.7	3.3
Tanzania	76.2	0.9	1.4	1.9	2.5	3.0
Malawi	10.6	0.1	0.7	1.3	2.0	2.6
Zambia	32.3	0.2	0.7	1.3	1.9	2.5
Togo	6.3	−0.1	0.5	1.1	1.7	2.4

Note: Change in real GDP owing to digital trade facilitation efforts against the baseline.

Source: International Economics Consulting Ltd CGE estimation.

such as Australia, Canada and the UK, despite their significant GDP size, have lower percentage growth. Malta and Namibia lead the group of Commonwealth members with the fastest GDP growth, each with growth of 6.3 per cent in real GDP, followed by Mozambique (4.0%) and Trinidad and Tobago (3.5%). Several emerging African Commonwealth members, including Tanzania (3.0%), Malawi (2.6%), Zambia (2.5%) and Togo (2.4%), also record good economic performances. In Asia, Malaysia and Maldives are also expected to see notable gains in GDP, adding to their sizable real GDP by 3.4% and 3.3% in 2030. Appendix F presents detailed real GDP percentages for Commonwealth countries.

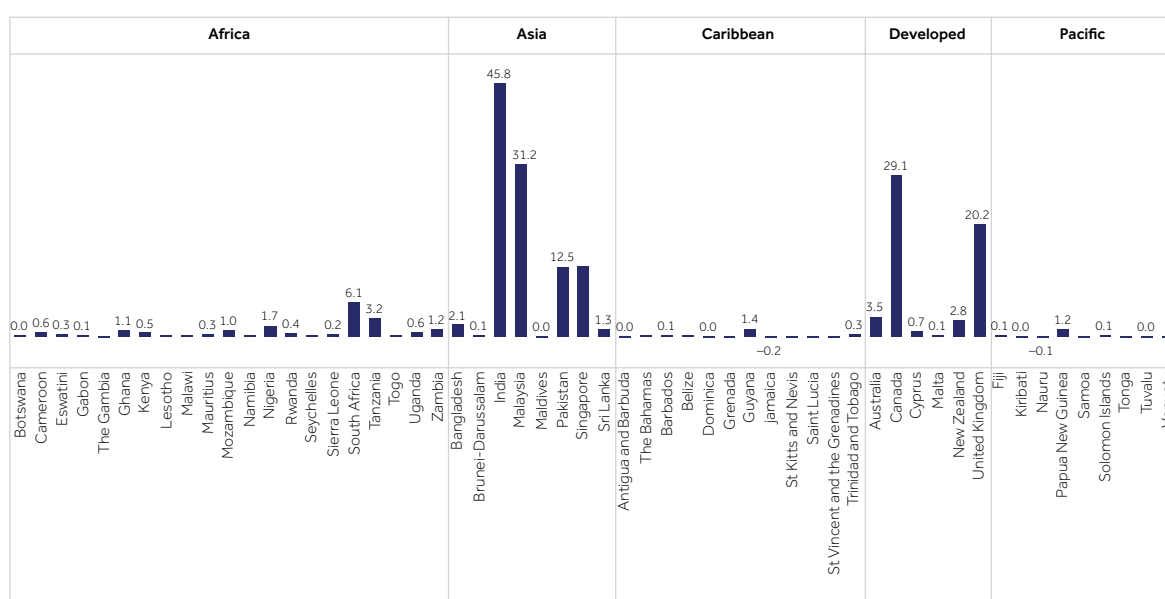
3.5. Export gains for Commonwealth countries

The GTAP simulation results show a steady increase in Commonwealth exports between 2025 and 2030,

rising from US\$3.4 trillion in the baseline to \$3.6 trillion in the case of progress on paperless trade. This represents a compound annual growth rate (CAGR) of 1.0 per cent over the period.

As Figure 3.3 illustrates, the Commonwealth countries in the Asian region are projected to experience the strongest impact from digital trade facilitation by 2030 compared to other regions. In absolute gain, India is expected to lead with an export gain of US\$45.8 billion, followed by Malaysia at \$31.2 billion, and Singapore and Pakistan with increases slightly above \$12 billion each. In Africa, South Africa stands out with a substantial gain, of \$6.1 billion, far ahead of its regional peers. Tanzania also records a notable increase, of \$3.2 billion, while most other African Commonwealth members achieve smaller but steady export gains of around \$2 billion. Among the developed Commonwealth economies, Canada emerges as the largest beneficiary, with a projected increase of \$29.1 billion

Figure 3.3. Change in exports of Commonwealth countries in 2030 (US\$ billion)



Note: Change in exports against the baseline of no improvements in paperless trade. Low or negative values reflect slower adoption rates of paperless trade initiatives, which lead to dynamic changes in competitiveness for some countries, and thus lower exports over baseline values.

Source: Authors' CGE estimations.

followed by the UK with a projected increase of \$20.2 billion. Other Commonwealth members in the Caribbean and Pacific region record relatively minor changes in exports.

3.6. Change in exports in Commonwealth countries by income group

The projected export growth in the Commonwealth varies across the different income groups between 2026 and 2030. Developing and developed economies capture the bulk of the benefits from the paperless trade transition, with the largest and most consistent export gains as compared to the other groups. This underscores the need for targeted support to ensure more inclusive benefits for the LDCs, LLDCs and SIDS. Developing economies are projected to outperform other income groups, with exports projected to rise by US\$7 billion in 2026 and \$101 billion in 2030. On the other hand, developed economies see steady but less pronounced growth, with exports increasing by \$4 billion in 2026 and rising further to \$56 billion in 2030.

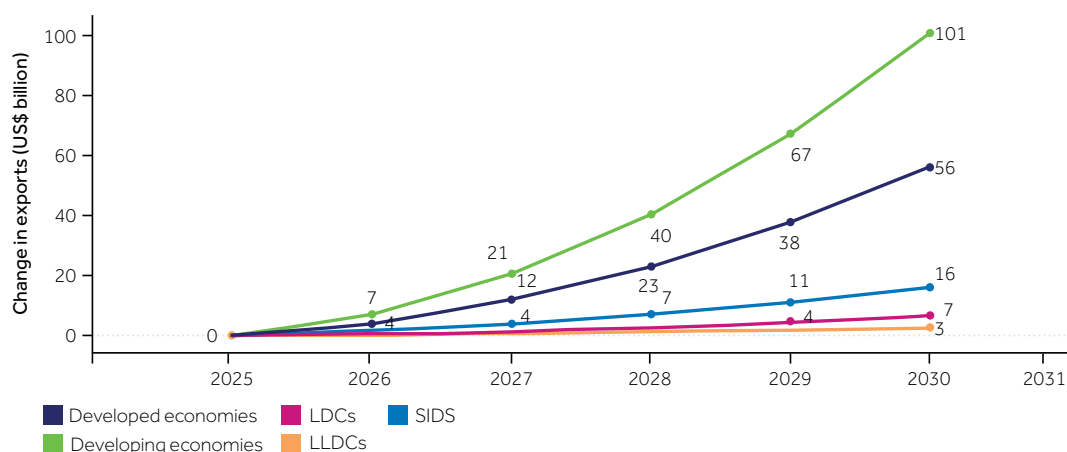
LDCs, LLDCs and SIDS are projected to see modest gains in exports. SIDS record an increase of about US\$1.6 billion in 2026, rising to around \$16 billion by 2030, while LDCs show slightly slower progress, with export gains expanding from \$0.5

billion in 2026 to \$7 billion by 2030. LLDCs are expected to benefit the least from the transition to paperless trade documentation when compared to the other income groups. Their exports are expected to increase by \$0.2 billion from 2025 to 2026, and by \$3 billion in 2030 against the baseline (Figure 3.4).

Overall, the simulation results highlight that, while digital trade facilitation is expected to boost exports broadly, the benefits are not evenly shared, pointing to the need for targeted support to address the vulnerabilities of Commonwealth countries like LLDCs.

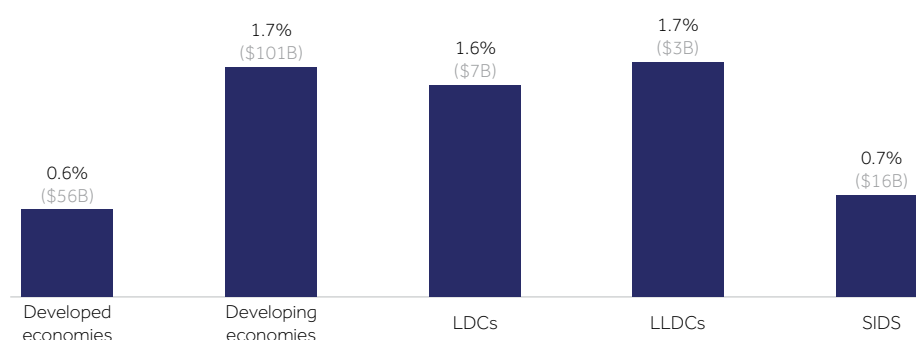
The projected export growth across Commonwealth members from 2025 to 2030 owing to digital trade facilitation efforts shows some differences between the Commonwealth income groups. Developing economies and LLDCs are forecast to achieve growth rates of 1.7 per cent each, with export increases of US\$101 billion and \$3 billion by 2030, respectively. LDCs are expected to grow at 1.6 per cent, with exports increasing by \$7 billion. Developed economies project more moderate growth, of 0.6 per cent, with exports increasing by \$56 billion. SIDS will see 0.7 per cent growth, with exports increasing by \$16 billion.

Figure 3.4. Change in Commonwealth exports by income group (US\$ billion)



Note: Change in exports owing to digital trade facilitation efforts against the baseline.

Source: International Economics Consulting Ltd CGE estimation.

Figure 3.5. Commonwealth export growth over baseline by income group, 2025–2030

Note: Figures in brackets indicate change in exports owing to digital trade facilitation efforts.

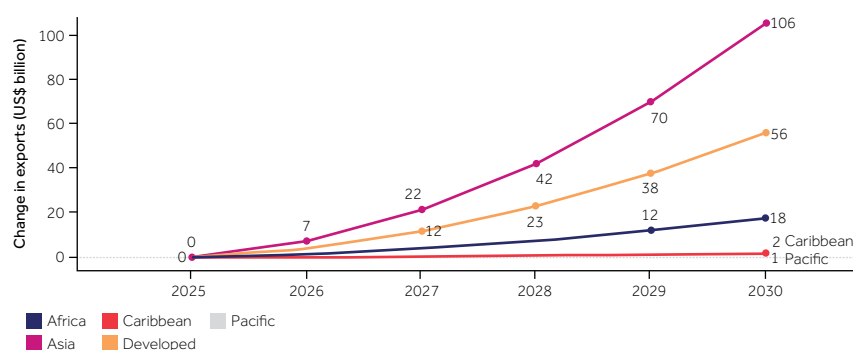
Source: Authors' CGE estimations.

3.7. Change in exports by Commonwealth region

Asian Commonwealth countries are expected to see the largest gains from paperless trade transition. The region's exports may gain US\$7 billion in 2026, rising to \$42 billion in 2028 and \$106 billion in 2030. Other regions are also expected to grow but at a slower rate. As Figure 3.6 shows, Commonwealth developed countries will see steady growth, with an increase of \$56 billion in exports by 2030. African Commonwealth countries will also see steady growth, of \$18 billion by 2030. Members in the Pacific, along with Caribbean countries, experience comparatively smaller gains. The regions have similar trends, with the same increase in exports till 2030.

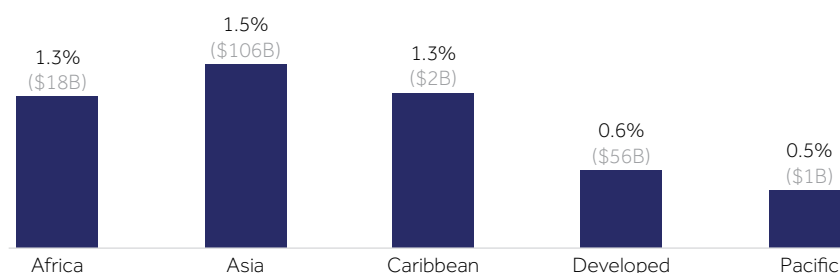
Between 2025 and 2030, Commonwealth regions are projected to experience different rates of export growth according to their implementation efforts regarding digital trade facilitation measures. Asia shows the highest increase, with exports expected to grow by 1.5 per cent, amounting to an increase of US\$106 billion by 2030. Africa and the Caribbean follow, with growth rates of 1.3 per cent, representing \$18 billion and \$2 billion increases, respectively. Commonwealth developed economies and the Pacific countries are projected to see more moderate growth, of 0.6 per cent and 0.5 per cent, respectively (Figure 3.7).

Estimation results show that the export gains in non-agriculture sectors vastly exceed the gains in agricultural exports for Commonwealth

Figure 3.6. Change in Commonwealth exports by region (US\$ billion)

Note: Change in exports owing to digital trade facilitation efforts against the baseline.

Source: Authors' CGE estimations.

Figure 3.7. CAGR in Commonwealth exports by region, 2025–2030

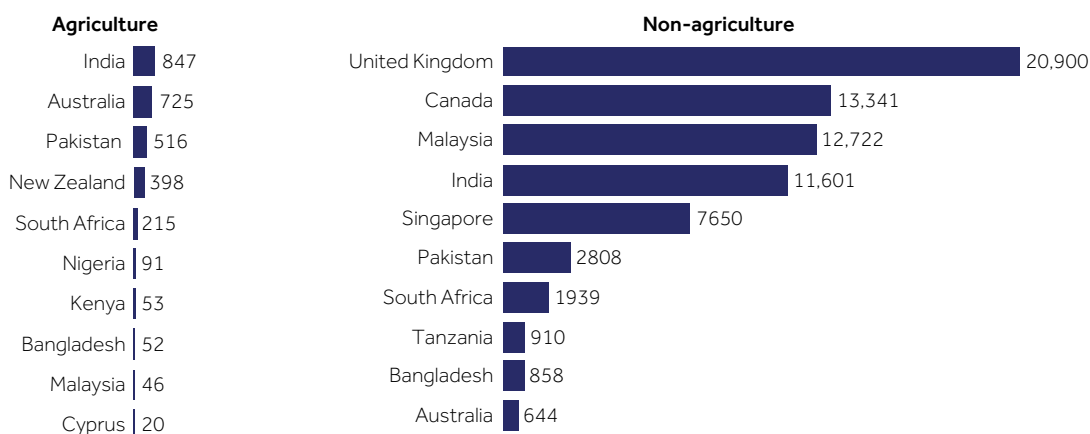
Note: Figures in brackets indicate change in exports owing to digital trade facilitation efforts.

Source: International Economics Consulting Ltd CGE estimation.

member countries. Moreover, agricultural gains are relatively evenly distributed across Commonwealth regions, whereas non-agricultural export growth is concentrated in a few key economies, notably the Canada and the UK, and in Asia, in countries such as India, Malaysia, Pakistan and Singapore.

The UK leads with an estimated increase of US\$ 20.9 billion, followed by Canada (\$ 13.3 billion), Malaysia (\$12.7 billion) and India (\$11.6 billion). At a lower scale, exports of Singapore and Pakistan are expected to grow by \$7.7 billion and \$2.8 billion, respectively. Other members – South Africa, Tanzania, Bangladesh and Australia – are set to experience smaller yet significant increases.

Although agricultural exports increase, the scale of growth remains modest compared to the much larger expansion in non-agricultural exports, aligning with the existing export baskets of Commonwealth countries, which are dominated by non-agricultural goods. The largest increases are recorded in India (US\$847 million), Australia (\$725 million) and Pakistan (\$516 million), which together account for most agricultural improvements in the Commonwealth. New Zealand (\$398 million) and South Africa (\$215 million) also show notable growth above \$100 million, while Nigeria, Kenya, Bangladesh, Malaysia and Cyprus register smaller gains, each below \$100 million (Figure 3.8).

Figure 3.8. Change in exports in the agriculture and non-agriculture sectors in 2030, top 10 Commonwealth countries (US\$ million)

Note: Change in exports owing to digital trade facilitation measures.

Source: International Economics Consulting Ltd CGE estimation.

4. Conclusion and policy recommendations

Our combined gravity and CGE results demonstrate that digital trade facilitation can deliver significant but uneven benefits across the Commonwealth. The estimations from the econometric modelling confirm that higher digitalisation directly stimulates exports, though the effect is modest in agriculture, where complementary logistics, cold chains and standards adoption are needed. The general equilibrium simulations reinforce these findings by linking paperless transition to measurable GDP gains, especially for small and mid-sized economies such as Malta, Mozambique and Namibia, alongside larger emerging exporters like India and Malaysia. Export growth is strongest in non-agriculture sectors, with Asia-Pacific economies capturing the largest absolute gains, while agriculture remains constrained by structural bottlenecks. The analysis also highlights distributional disparities: developed and developing economies capture the bulk of gains, while LDCs, LLDCs and SIDS register modest improvements in absolute terms with relatively high growth rates. This underscores the importance of targeted support, regional co-operation and tailored sequencing to ensure all Commonwealth members can benefit equitably from paperless trade transitions.

The gains from paperless trade digitalisation measures indicate that trade facilitation can play an important role in promoting more balanced and inclusive global trade patterns. Taken together, the findings emphasise the need for a holistic and nuanced approach to paperless trade and trade facilitation policy. Policymakers should prioritise a combination of broad digital initiatives and sector-specific measures while tailoring strategies to address the unique dynamics of different country groups. Furthermore, it is important to address technical non-tariff measures by streamlining regulatory processes and aligning standards across countries to boost trade flows, promote efficiency and foster greater market integration.

The Fiji, Singapore and UK cases show that successful paperless trade facilitation requires

multi-tiered efforts. At the overarching regulatory level, the UK's ETDA demonstrates how clear legal recognition of electronic trade documents unlocks private adoption. At the level of specific measures, Fiji's ePhyto system delivers immediate, measurable gains in time and cost – especially for SMEs and perishable goods. Singapore's use of eBLs shows large logistics efficiencies. Finally, supporting systems and trust frameworks, exemplified by TradeTrust, enable interoperability across platforms and jurisdictions, proving that technical assurance and governance are as critical as the digital technology solutions themselves.

As Commonwealth member countries are at different levels of readiness for paperless trade transitions, a one-size-fits-all approach will be neither realistic nor effective. While economies such as Singapore and the UK have already advanced in their respective legal frameworks and piloted complex solutions like eBLs, many small island members may still face limited digital infrastructure and under-resourced border agencies. This diversity underscores the need for a layered reform strategy that balances ambition with practicality: anchoring progress in legal and regulatory reforms, introducing targeted high-impact digital measures and gradually building technical and institutional systems that support interoperability and resilience. Considering these factors, the following recommendations are provided to support paperless trade adoption across the Commonwealth.

Recommendation 1. Adopt legal frameworks in line with international good practices.

As legal certainty is foundational to paperless trade, Commonwealth countries should pass technology-neutral legislation aligned with international frameworks, such as the UNCITRAL MLETR, as well as the Commonwealth Model Law on Digital Trade. Such laws should grant functional equivalence, possession and control to electronic documents, supported by regulations and judicial practice notes on endorsement, title transfer and evidentiary use. Targeted training for both public and private sectors on the practical implementation of ETRs will help build confidence in interpreting

digital possession and ensure consistent application across the trading system. The Commonwealth Model Law on Digital Trade provides a framework and guidance for Commonwealth member countries to undertake legislative reform and align with international frameworks such as MLETR, UNICTRAL Model Law on Electronic Commerce (MLEC), UNCITRAL Model Law on Electronic Signatures (MLES) and UNICITRAL Model on Identity Management and Trust Services (MLIT).

Recommendation 2. Conduct cross-country and cross-regional pilots. As paperless trade facilitation is broad, one approach to boost readiness for implementation is conducting specific cross-border pilots in well-tested electronic trade documents, such as eBLs on anchor maritime routes, ePhyto for agricultural products and electronic certificates of origin for high-volume corridors. Corridor pilots (e.g. port-to-port) can be used to provide the business case for upscaling by mandate once service reliability, governance structure and procedures are in place.

Recommendation 3. Build interoperability frameworks. Interoperability for paperless trade transition covers both the semantic and the technological angles. In terms of semantics, the WTO, UNCITRAL and UNESCAP have identified 36 key trade documents central to trade transactions and suitable for digitalisation (WTO, 2022). Digitising these documents by using structured, connectable datasets is crucial for resilient, traceable and scalable trade processes. In terms of technology, mutual recognition with trading partners, publishing interoperability standards, conformance tests and certification schemes will reduce reliance on bespoke integrations, cut costs and foster competition among service providers while allowing for cross-border acceptance of e-documents.

Recommendation 4. Strengthen cybersecurity and operational resilience. Given that trust in digital systems is only as strong as their security, Commonwealth members should adopt measures such as baseline cybersecurity requirements and national incident response playbooks to safeguard against disruptions. Clear rules on breach notifications and resilience-testing will reassure both traders and regulators that digital systems can withstand operational and cyber risks.

Recommendation 5. Invest in public sector capability and process re-engineering. For paperless trade to deliver, governments must simplify procedures before digitisation. This includes harmonising the regulatory framework, aligning rules and removing redundancies. In this context, capacity for government officials and peer learning across Commonwealth countries through structured change management programmes will accelerate reform while ensuring new systems deliver measurable improvements in service delivery.

Recommendation 6. Support SME-first onboarding and assisted compliance. As SMEs face disproportionate costs in transitioning to digital trade, countries should design simplified digital workflows with low barriers to entry, as well as providing support such as onboarding services, helplines and financial incentives such as micro-grants or fee waivers, to ensure smaller traders benefit equitably from paperless systems.

Recommendation 7. Phased adoption and crowding-in private investment. To encourage adoption, Commonwealth countries should deploy a phased adoption by sector for digitalisation. For example, public procurement can serve as an anchor by mandating digital documentation for government transactions. Incentives for banks and logistics firms to adopt paperless transactions will facilitate the ease of paperless transitions.

Recommendation 8. Support less developed countries and countries at earlier stages of the paperless trade transition. For less digitally matured Commonwealth members, immediate priorities include focusing on quick wins such as digitising SPS and origin certificates, simplifying trade procedures before digitalisation, adopting model MLETR-aligned legislation and rolling out SME-friendly portals. These countries can also gain experience through participation in regional corridor pilots without bearing the full investment burden. More advanced members and the Commonwealth Secretariat can support by providing legal and institutional guidance, hosting shared trust services, co-ordinating blended finance and ensuring open standards for interoperability. They can further strengthen adoption through capacity-building and establishing peer-learning cohorts to promote the sharing of experiences and best practices.

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Annex A: Commonwealth countries income group classification

Income group	Countries
Developed economies	Australia, Canada, Cyprus, Malta, New Zealand, United Kingdom
Developing economies	Brunei Darussalam, Cameroon, Gabon, Ghana, India, Kenya, Malaysia, Namibia, Nigeria, Pakistan, South Africa, Sri Lanka
LDCs	Bangladesh, The Gambia, Mozambique, Sierra Leone, Togo, United Republic of Tanzania
LLDCs	Botswana, Eswatini, Lesotho, Malawi, Rwanda, Uganda, Zambia
SIDS	Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Fiji, Grenada, Guyana, Jamaica, Kiribati, Maldives, Mauritius, Nauru, Papua New Guinea, St Kitts and Nevis, Saint Lucia, St Vincent and the Grenadines, Samoa, Seychelles, Singapore, Solomon Islands, Tonga, Trinidad and Tobago, Tuvalu, Vanuatu

Annex B: Paperless trade readiness of Commonwealth countries

Table B1. Readiness of Commonwealth Africa region

Country	Law				Digital infrastructure		Cross-border paperless trade
	Consumer protection	Cybercrime	Electronic transactions	Privacy and data protection	Fixed broadband subscriptions per 100 inhabitants	International bandwidth usage per connection	
Botswana							
Cameroon							
Eswatini							
Gabon							
The Gambia							
Ghana							
Kenya							
Lesotho							
Malawi							
Mauritius							
Mozambique							
Namibia							
Nigeria							
Rwanda							
Seychelles							
Sierra Leone							
South Africa							
Tanzania							
Togo							
Uganda							
Zambia							
Overall							

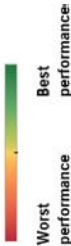
Worst performance Best performance

Note: Grey shading denotes areas with no available data.

Source: UN Global Survey on Digital and Sustainable Trade Facilitation; UNCTAD Cyberlaw Tracker; World Bank Digital Infrastructure Indices.

Table B2. Readiness of Commonwealth Asia region

Country	Law				Digital infrastructure		Cross-border paperless trade
	Consumer protection	Cybercrime	Electronic transactions	Privacy and data protection	Fixed broadband subscriptions per 100 inhabitants	International bandwidth usage per connection	
Bangladesh							
Brunei Darussalam							
India							
Malaysia							
Maldives							
Pakistan							
Singapore							
Sri Lanka							
Overall							

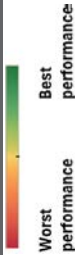


Note: Grey shading denotes areas with no available data.

Source: UN Global Survey on Digital and Sustainable Trade Facilitation; UNCTAD Cyberlaw Tracker; World Bank Digital Infrastructure Indices.

Table B3. Readiness of Commonwealth Caribbean region

Country	Law				Digital infrastructure		Cross-border paperless trade
	Consumer protection	Cybercrime	Electronic transactions	Consumer protection	Cybercrime	Electronic transactions	
Antigua and Barbuda							
The Bahamas							
Barbados							
Belize							
Dominica							
Grenada							
Guyana							
Jamaica							
St Kitts and Nevis							
Saint Lucia							
St Vincent and the Grenadines							
Trinidad and Tobago							
Overall							

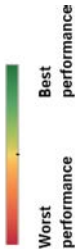


Note: Grey shading denotes areas with no available data.

Source: UN Global Survey on Digital and Sustainable Trade Facilitation; UNCTAD Cyberlaw Tracker; World Bank Digital Infrastructure Indices.

Table B4. Readiness of Commonwealth Pacific region

Country	Law				Digital infrastructure		Cross-border paperless trade
	Consumer protection	Cybercrime	Electronic transactions	Consumer protection	Cybercrime	Electronic transactions	
Fiji							
Kiribati							
Nauru							
Papua New Guinea							
Samoa							
Solomon Islands							
Tonga							
Tuvalu							
Vanuatu							
Overall							

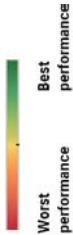


Note: Grey shading denotes areas with no available data.

Source: UN Global Survey on Digital and Sustainable Trade Facilitation; UNCTAD Cyberlaw Tracker; World Bank Digital Infrastructure Indices.

Table B5. Readiness of Commonwealth developed countries

Country	Law				Digital infrastructure		Cross-border paperless trade
	Consumer protection	Cybercrime	Electronic transactions	Consumer protection	Cybercrime	Electronic transactions	
Australia							
Canada							
Cyprus							
Malta							
New Zealand							
United Kingdom							
Overall							



Note: Grey shading denotes areas with no available data.

Source: UN Global Survey on Digital and Sustainable Trade Facilitation; UNCTAD Cyberlaw Tracker; World Bank Digital Infrastructure Indices.

Annex C: Methodology

The methodological approach of this study consists of three main steps, comprising both qualitative and quantitative analyses that link the findings in continued analysis flows. The first step, situational analysis, aims to reveal the current level of institutional and legal readiness for trade digitalisation as well as the state of trade digitalisation across Commonwealth countries. This involves analysing a range of indicators, such as UN Global Survey on Digital and Sustainable Trade Facilitation scores, the MLETR Index, World Bank Digital Infrastructure Indices and the Paperless Trade Index. Based on some of these and other indicators, a gravity model is used in the second step to estimate the potential trade gains from paperless trade adoption, incorporating digitalisation variables to measure reductions in trade costs. The estimated AVEs of trade cost reductions are then integrated into a CGE model (third step) to simulate the broader macro-economic impacts, including changes in GDP, sectoral output and investment. This two-tiered modelling approach provides robust, evidence-based insights into the trade and economic effects of digital trade facilitation across Commonwealth countries. The analytical steps are explained below.

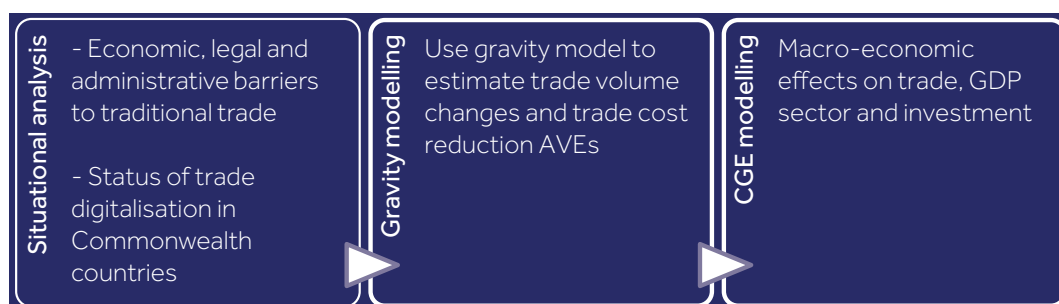
1. Situation analysis

To examine the economic, legal and administrative barriers to traditional trade, a qualitative analysis will be conducted using internationally recognised datasets and frameworks. This analysis will explore Commonwealth countries' infrastructure, institutional and legal readiness for digital trade. Sources of data for the analysis will comprise tools such as UNCTAD's Global Cyberlaw Tracker,¹⁰ which maps the status of e-commerce legislation across member countries, and the UN Global Survey on Digital and Sustainable Trade Facilitation,¹¹ which provides insights into the implementation of paperless and cross-border paperless trade measures. By assessing legal frameworks and infrastructure, this section aims to identify key constraints and enablers for transitioning to digital trade. These findings will be complemented by selected case studies (Section 2.2) to illustrate the successful adoption of paperless trade and to extract practical lessons for policy formulation.

Digital infrastructure readiness

The World Bank's Digital Infrastructure Indices¹² capture the technological and institutional environment necessary for digital trade, such as internet coverage by technology type; internet

Figure C1. Proposed methodological steps



¹⁰ <https://unctad.org/topic/ecommerce-and-digital-economy/ecommerce-law-reform/summary-adoption-e-commerce-legislation-worldwide>

¹¹ <https://www.untfsurvey.org/>

¹² <https://www.worldbank.org/en/data/interactive/2024/03/04/digital-progress-and-trends-report-interactive-charts-digital-infrastructure>

speed, price and affordability; mobile phone affordability; and data infrastructure and digital service provision. UNCTAD's Cyberlaw Tracker will provide the foundational legal framework for digital trade. These data points, listed in the Table D1, will enable a robust analysis of digital trade readiness and gaps across the Commonwealth, forming the evidence base for deeper modelling of trade and economic impacts.

Legal readiness

To assess the legal readiness of Commonwealth member countries to support digital trade (e.g. electronic transactions, data protection, cybersecurity laws), UNCTAD's Global Cyberlaw Tracker will be used. The MLETR Index¹³ will also be employed to track the legal harmonisation efforts across member countries, particularly around the recognition of electronic trade documents. As electronic transactions law often exempts certain documents, including transferable records, level of MLETR adoption will indicate the next level towards

full digital trade transition. This index will indicate digital trade readiness for the next step of analysis.

Status of trade digitalisation implementation

The current state of digital trade in Commonwealth countries will be assessed using globally recognised indicators and datasets. To gain a deeper understanding of the status of implementation of paperless trade measures, data from the UN Global Survey on Digital and Sustainable Trade Facilitation will be analysed. The survey highlights regulatory, administrative and technical challenges in trade digitalisation. Two key sections of the survey are Paperless Trade and Cross-Border Paperless Trade, which provide valuable insights into the specific challenges faced by countries in adopting paperless trade. Table D1 indicates the main areas covered by each section.

Table D2 provides an overview of all the indicators that will be used in the situational analysis of Commonwealth member countries regarding digital trade transition.

Table C1. Trade facilitation areas in paperless trade and cross-border paperless trade

Paperless trade	Cross-border paperless trade
Automated customs system	Laws and regulations for electronic transactions
Internet connection available to customs and other trade control agencies	Recognised certification authority
Electronic single window system	Electronic exchange of customs declaration
Electronic submission of customs declarations	Electronic exchange of certificate of origin
Electronic application and issuance of import and export permits	Electronic exchange of SPS certificate
Electronic submission of sea cargo manifests	Paperless collection of payment from a documentary letter of credit
Electronic submission of air cargo manifests	
Electronic application and issuance of the preferential certificate of origin	
E-payment of customs duties and fees	
Electronic application for customs refunds	

Source: UN Global Survey on Digital and Sustainable Trade Facilitation.

¹³ <https://www.digitalizetrade.org/mletr>

Table C2. List of indicative sources of information

Indicator	Description	Data source
Digital Infrastructure Indices	Measure a country's technological and institutional environment necessary for digital trade (internet coverage by technology type; internet speed, price and affordability; mobile phone affordability; data infrastructure and digital service provision)	World Bank
Cyberlaw adoption	Foundational legal framework for digital trade	UNCTAD Cyberlaw Tracker
MLETR Index	Tracks level of recognition in domestic legal systems of ETRs, which is essential to unlock the benefits of trade digitisation	UNESCAP and ICC UK Cross-Border Paperless Trade Database
UN Global Survey on Digital and Sustainable Trade Facilitation	Assesses implementation of trade facilitation measures, including paperless and cross-border digital trade (use of a computed Paperless Trade Index)	UN Global Survey

2. Gravity modelling to measure the boost in trade arising from digitalisation

A gravity model, the workhorse of international economics, can represent an insightful tool for identifying the propensity for paperless trade measures to increase trade flows. First proposed by Jan Tinbergen in 1962, the model's name came from its use of the Newtonian gravitational force concept as an analogy to explain the volume of bilateral trade flows. Just as planets are mutually attracted in proportion to their sizes and proximity, the gravity model of trade predicts that the volume of trade between any two countries will be positively related to the size of their economies (usually measured using GDP) and inversely related to the trade costs between them (Baker, 2022).

A gravity model using PPML (Poisson Pseudo-Maximum Likelihood)¹⁴ is proposed to estimate the effect on bilateral trade flows of trade cost reductions resulting from the adoption of paperless trade. This model is particularly well suited for assessing how lower trade costs influence bilateral trade flows. Widely used in trade economics, the gravity model effectively predicts trade flows based on geographic, economic and institutional factors. By incorporating digitalisation indicators, it estimates the expected increases in trade resulting from digital trade facilitation. Widely recognised and high-quality data sources (such as UN Comtrade, UNCTAD, the World Bank, CEPII and the UN Global Survey) will be used to enhance the robustness of the results and will feed into the gravity model, and the estimated trade volume changes (AVEs) will then serve as inputs into the CGE model to provide the wider macro-economic effects.

A PPML regression model is employed to examine the impact of digitalisation on the bilateral trade. The specification is:

$$\begin{aligned}
 \text{Exports}_{ijt} = & \exp(\alpha_1 \ln(\text{distance}_{ij}) + \alpha_2 \ln(\text{GDP}_j) \\
 & + \alpha_3 \ln(\text{GDP}_{jt}) + \alpha_4 \text{DTF}_{jt} + \alpha_5 \text{AGR}_{ijt} + \alpha_6 \text{AGR}_{ijt} \\
 & * \text{DTF}_{jt} + \alpha_7 \text{CMW}_{ij} + \alpha_8 \text{FTA}_{ij} + \\
 & \sum_k \lambda_k \text{AGR}_{ijt} * \text{DEV}_{jtk} + \omega_{jk} + \mu_t + \varepsilon_{ijt})
 \end{aligned}$$

¹⁴ The PPML model is widely used in trade analysis, particularly for estimating gravity models. Unlike traditional ordinary least squares regression, PPML accounts for heteroskedasticity and efficiently handles zero trade flows, making it well suited for analysing trade relationships. By modelling trade flows as a Poisson-distributed process, it provides robust and unbiased estimates even in the presence of missing or extreme values. This makes PPML a preferred approach for assessing the impact of policy changes, such as paperless trade reforms, on trade volumes and costs.

Where:

- Exports denote annual bilateral export value at the commodity group level (agricultural or non-agricultural products).
- Distance is the geographic distance (in kilometres) between exporters and partners.
- GDP denotes the gross domestic product of the exporter or the partner country.
- DTF denotes the Cross-Border Paperless Trade score of the partner country. It ranges from 1 to 100 (higher is better) and assesses the extent to which countries have implemented measures enabling the electronic exchange of trade documents across borders.
- AGR is a dummy variable that equals 1 for agricultural products and 0 otherwise. Agricultural products are those under HS chapters from 01 to 24.
- CMW is a dummy variable that equals 1 if both countries are members of the Commonwealth.
- FTA is a dummy variable indicating the existence of a free trade agreement between the exporter and the partner.
- DEV denotes the development status of the partner country. A country can be classified into one of five groups: developed, developing, LDCs, LLDCs and SIDS.
- $\omega_{j,k}$ denotes partner-group fixed effects.
- μ_t denotes year fixed effects.
- Errors are PPML with cluster-robust standard errors at the partner level.

3. CGE modelling to measure trade, GDP, sector, investment effects

The CGE¹⁵ model is a powerful tool for evaluating the broader economic impacts of policy changes like paperless trade adoption. The CGE is a system of equations describing an economy as a whole and the interactions among different actors, typically organised into blocks related to consumption, production, factor markets (i.e. capital and labour), international trade and taxation

Table C3. Data sources

Data	Source	Description
Digital trade facilitation	UN Global Survey	UN Global Surveys on Digital and Sustainable Trade Facilitation provide DTF scores from 2015 to 2025. This study uses the 2019, 2021, 2023 and 2025, which reflect conditions in preceding years.
Trade data	UN Comtrade	UN Comtrade provides bilateral HS6 export values for 2018, 2020, 2022 and 2024, aligned with the DTF score years. HS6 exports are aggregated into agricultural and non-agricultural groups for the model.
GDP	World Bank	The World Bank provides country-level data on Commonwealth membership, country-group status and GDP.
CEPII	WTO/Desta database	The CEPII Gravity database supplies various country-specific variables.

¹⁵ CGE modelling is a quantitative economic approach that simulates how economies respond to policy changes, such as trade liberalisation or paperless trade adoption. It captures interactions between sectors, households and governments, providing a comprehensive assessment of economic impacts.

Table C4. Summary statistics

Variables	Full sample			2018			2020			2022			2024		
	Mean	Standard deviation		Mean	Standard deviation		Mean	Standard deviation		Mean	Standard deviation		Mean	Standard deviation	
Exports ('000 US\$)	569,053	6,486,370		482,813	5,626,700		452,579	5,228,215		624,175	7,081,243		802,886	8,313,332	
Geodesic distance (km)	6,882	4,392		6,855	4,380		6,898	4,390		6,852	4,358		6,949	4,464	
GDP-exporter (million US\$)	965,415	3,153,988		815,340	2,581,382		822,017	2,699,659		965,200	3,272,237		1,426,866	4,225,743	
GDP-importer (million US\$)	771,876	2,794,318		725,578	2,473,814		714,457	2,551,955		841,307	3,068,887		828,701	3,166,905	
DTF score [1:100]	43.52	25.03		37.05	23.49		40.39	24.93		46.87	24.60		53.55	24.21	
AGR-Agricultural product group (1=yes)	55,681			15,464			15,216			14,927			10,074		
CMW-Within Commonwealth trade (1=yes)	8,835			2,464			2,429			2,475			1,467		
FTA (1=yes)	40,212			10,537			10,824			11,173			7,678		
Developed country (1=yes)	39,243			10,991			10,850			10,602			6,800		
Developing country (1=yes)	40,810			11,451			11,162			11,032			7,165		
LDCs (1=yes)	12,855			3,668			3,475			3,478			2,234		
LLDCs (1=yes)	16,219			4,499			4,419			4,391			2,910		
SIDs (1=yes)	14,489			4,036			3,980			3,769			2,704		
Number of observations	123,616			34,645			33,886			33,272			21,813		

Note: DTF scores are missing for some country-year observations. When absent, they are imputed using the country-specific average across observed years.

(Burfisher, 2021; Baker, 2022). Assessing GDP, sectoral investment and trade effects, the model allows for a comprehensive understanding of how digital trade impacts the entire economy, not just trade flows. A GTAP model will be used (Aguar et al., 2022), and the economy will be projected to 2030 using a baseline.

This exercise aims to measure the economic impact of reforms, particularly paperless trade and digitalisation of border processes, that contribute to making trade procedures faster and less troublesome. Our simulation model first translates improvements in the DTF indicator into AVE reductions in trade costs and then applies these reductions in a global economic model (GTAP).

Step 1: Estimating the trade cost impact

Economic research shows that improvements in DTF scores are strongly associated with higher bilateral trade flows (Beverelli et al., 2015).

Our approach to carry out the estimation of the trade cost impact uses a standard gravity model of trade to estimate the trade elasticity (β), which measures how much trade increases when the DTF score improves by 1 point.

The results show a lower elasticity for agriculture (β_a), indicating that agricultural trade is less responsive to paperless trade reforms, and a higher elasticity for non-agriculture (β_n), reflecting greater gains in manufacturing and services. This distinction allows us to capture sector-specific differences, recognising that digital trade facilitation delivers stronger benefits outside agriculture.

Note that agriculture is defined here as Chapters 1–24 of the Harmonized System (HS). The HS is a standardised international classification system that assigns numerical codes to traded products. It is widely used across countries to ensure uniform identification and description of goods, and serves key purposes such as determining tariffs, applying trade policies and compiling trade statistics.

Step 2: Translating into ad valorem equivalents

This involves converting the estimated trade gains into equivalent reductions in import costs – in other words, it estimates how big a tariff cut would generate the same increase in imports.

For each importer–sector pair:

1. Compute trade cost change:
 $\Delta \text{TradeCost} = \exp(\beta \times \Delta \text{DTF}) - 1$
2. Adjust for substitution elasticities:

GTAP uses sector-specific elasticities (ESUBD) to capture how import demand responds to price changes. The trade cost change is scaled by these elasticities to get an AVE tariff reduction:

$$\text{AVE} = (\Delta \text{TradeCost} / \text{ESUBD}) \times 100$$

This AVE is the percentage tariff cut that would yield the same effect as the DTF improvement.

Step 3: Implementation in GTAP

The AVE reduction is applied as a uniform AMS shock for each importer–sector combination and the GTAP model is run to estimate the resulting effects on trade, GDP and welfare.

In GTAP, the appropriate instrument for applying reductions in trade transaction costs is AMS ('import-augmenting technical change').

- AMS shocks directly lower the effective cost of imports, rather than applying a tariff or subsidy.
- This is the correct approach for policies like digital trade facilitation, which reduce procedural friction rather than changing tariff rates.
- It ensures welfare impacts are measured through efficiency gains rather than fiscal transfers.

Scenario analysed

In this CGE analysis, we implement a target-based policy scenario, where each country's DTF level progresses from its 2025 baseline towards a specified target by 2030. The adjustment path reflects each country's individual capacity and ambition to improve, ensuring changes are consistent with realistic policy trajectories. To maintain smooth and credible year-to-year dynamics, the DTF evolution is modelled using an exponential smoothing approach, which produces a gradual convergence towards the target values across the simulation period.

We apply exponential smoothing method (Sum Product, 2019) to estimate future values by weighting recent observations more heavily while retaining information from the full historical series. Since the DTF index is annual, no seasonal component is included. The advantage of this method is that it automatically adapts to the trend observed in recent years and is suitable for short-term forecasting horizons of up to five years ahead.

The forecasting process follows several steps. First, the historical DTF scores from 2019 to 2024 are input into the model. The exponential smoothing formula requires several parameters, including the target date for the year to be forecast (2025 to 2030), the observed DTF values from 2019 to 2024 and the corresponding timeline of years. The seasonality parameter is set to 1, indicating no seasonal patterns in the annual data. Data completion is set to 1 for automatic handling of any gaps, and aggregation is set to 1 to average any duplicate values if they exist. To maintain the validity of the DTF index, all forecasts are ensured to remain within the 0 to 1 range. If any projected values exceed these bounds, they are capped at 0 or 1, and this adjustment is noted explicitly.

Forecast equation (for 2025–2030):

$$DTF_{\{T+h\}}^{\hat{}} = Level_T + h \cdot Trend_T$$

In-sample recursions (for 2019–2024):

$$Level_t = \alpha \cdot DTF_t + (1 - \alpha) \cdot (Level_{\{t-1\}} + Trend_{\{t-1\}})$$

$$Trend_t = \beta \cdot (Level_t - Level_{\{t-1\}}) + (1 - \beta) \cdot Trend_{\{t-1\}}$$

Capping to maintain valid DTF range (0–1):

$$DTF_{\{T+h\}}^{\{capped\}} = \min\{1, \max\{0, DTF_{\{T+h\}}^{\hat{}}\}\}$$

Where:

DTF_t : observed DTF in year t (2019–2024)

$DTF_{\{T+h\}}^{\hat{}}$: forecast DTF for year $T+h$ (2025–2030)

$Level_t$: smoothed level of DTF in year t

$Trend_t$: smoothed annual change in DTF in year t

α, β : smoothing parameters

$T = 2024$: last observed year

$h = 1, 2, 3, 4, 5, 6$: forecast horizon corresponding to 2025–2030

The output of this forecasting exercise provides projected DTF values for the years 2025 to 2030. Optional 95 per cent confidence intervals are also generated using Excel's FORECAST.ETS.CONFINT function to indicate the range of uncertainty around the forecasts.

The results of the gravity and CGE modelling will generate updated and market-relevant trade insights that will make it possible to:

- **Quantify trade growth:** The gravity model provides updated estimates of trade flows under the digitalisation scenarios run in the

Table C5. Regional grouping of Commonwealth countries

Region	Countries
Africa	Botswana, Cameroon, Eswatini, Gabon, The Gambia, Ghana, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Nigeria, Rwanda, Seychelles, Sierra Leone, South Africa, Tanzania, Togo, Uganda, Zambia
Asia	Bangladesh, Brunei Darussalam, India, Malaysia, Maldives, Pakistan, Singapore, Sri Lanka
Caribbean	Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, St Kitts and Nevis, Saint Lucia, St Vincent and the Grenadines, Trinidad and Tobago
Developed	Australia, Canada, Cyprus, Malta, New Zealand, United Kingdom
Pacific	Fiji, Kiribati, Nauru, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu

model, giving a more complete understanding of how trade and paperless trade affect current trade volumes.

- **Estimate sectoral impacts:** The CGE model simulates trade cost reduction into sectoral production shifts, identifying industries that benefit the most from digital trade reforms.
- **Draw regional and national comparisons:** By disaggregating results by country types and region, policymakers can assess trade

performance across different economies, providing evidence-based insights into digital trade's role in economic integration. The 'Commonwealth advantage' will be analysed with a focus on LDCs and SIDS.

- **Formulate policy implications:** The analysis can guide policymakers by identifying where trade cost reductions have the greatest impact, allowing for more targeted and effective digital trade policies.

Table C6. Digital trade facilitation (cross-border paperless trade) forecast by Commonwealth country

	2025	2026	2027	2028	2029	2030
Australia	83%	83%	83%	83%	83%	83%
Bangladesh	33%	33%	34%	35%	36%	37%
Botswana	6%	6%	6%	6%	6%	6%
Brunei Darussalam	67%	68%	72%	77%	81%	85%
Cameroon	72%	77%	83%	89%	95%	100%
Canada	67%	69%	71%	72%	74%	75%
Cyprus	39%	48%	53%	59%	65%	70%
Eswatini	35%	40%	44%	45%	49%	51%
Gabon	0%	0%	0%	0%	0%	0%
Ghana	61%	64%	67%	69%	72%	75%
India	67%	69%	71%	72%	74%	75%
Jamaica	28%	28%	28%	28%	28%	28%
Kenya	67%	69%	70%	72%	73%	75%
Malawi	61%	63%	72%	80%	89%	97%
Malaysia	78%	80%	84%	88%	91%	95%
Malta	33%	37%	40%	42%	44%	46%
Mauritius	56%	58%	60%	61%	63%	64%
Mozambique	33%	40%	44%	48%	52%	56%
Namibia	44%	59%	67%	74%	82%	89%
New Zealand	94%	98%	100%	100%	100%	100%
Nigeria	28%	30%	31%	33%	34%	36%
Pakistan	56%	61%	67%	72%	78%	83%
Rwanda	83%	96%	100%	100%	100%	100%
Singapore	83%	86%	88%	90%	92%	94%
South Africa	54%	56%	59%	59%	62%	63%
Sri Lanka	50%	52%	56%	61%	65%	69%
Tanzania	56%	68%	75%	81%	88%	94%
Togo	56%	55%	57%	59%	61%	62%
Trinidad and Tobago	61%	67%	75%	83%	91%	99%
Uganda	75%	79%	85%	85%	86%	86%
United Kingdom	72%	75%	78%	82%	86%	89%
Zambia	67%	69%	77%	84%	92%	99%

Annex D: Gravity modelling data

Table D1. Gravity modelling data – GDP, current price (US\$ billion)

Country	2018	2020	2022	2024
Antigua and Barbuda	1.7	1.4	1.9	2.2
Australia	1,427.8	1,328.4	1,690.9	1,752.2
Bangladesh	321.4	374.0	460.1	450.1
Barbados	5.6	5.2	6.3	7.2
Belize	2.3	2.0	2.8	3.5
Botswana	17.0	15.0	20.3	19.4
Brunei Darussalam	13.6	12.0	16.7	15.5
Cameroon	40.0	40.8	44.3	51.3
Canada	1,725.3	1,655.7	2,190.4	2,241.3
Cyprus	25.8	25.6	30.9	36.3
Dominica	0.6	0.5	0.6	0.7
Eswatini	4.6	4.1	4.7	4.9
Fiji	5.6	4.4	5.0	5.8
Gabon	16.9	15.3	20.4	20.9
The Gambia	1.7	1.8	2.2	2.5
Ghana	67.3	70.0	73.9	82.8
Grenada	1.2	1.0	1.2	1.4
Guyana	4.8	5.5	14.7	24.8
India	2,702.9	2,674.9	3,346.1	3,912.7
Jamaica	15.7	13.8	17.1	19.9
Kenya	92.2	100.7	114.4	124.5
Kiribati	0.2	0.2	0.3	0.3
Lesotho	2.6	2.1	2.4	2.3
Malawi	9.9	11.8	12.4	11.0
Malaysia	358.8	337.5	407.6	422.0
Maldives	5.4	3.7	6.2	7.0
Malta	16.2	16.4	19.2	24.3
Mauritius	14.7	11.4	12.9	15.0
Mozambique	15.0	14.2	18.9	22.4
Namibia	13.7	10.6	12.6	13.4
Nauru	0.1	0.1	0.2	0.2
New Zealand	212.0	213.0	249.5	260.2

(Continued)

Table D1. Gravity modelling data – GDP, current price (US\$ billion) (Continued)

Country	2018	2020	2022	2024
Nigeria	421.7	432.2	477.4	187.8
Pakistan	356.1	300.4	374.9	373.1
Papua New Guinea	24.1	23.8	31.7	32.5
Rwanda	9.6	10.2	13.3	14.3
Samoa	0.9	0.9	0.8	1.1
Seychelles	1.8	1.4	2.0	2.2
Sierra Leone	6.4	6.7	7.1	7.5
Singapore	377.1	349.2	509.0	547.4
Solomon Islands	1.6	1.5	1.6	1.8
South Africa	405.3	338.0	406.9	400.3
Sri Lanka	94.5	84.3	74.1	99.0
St Kitts and Nevis	1.1	0.9	1.0	1.1
Saint Lucia	2.1	1.5	2.3	2.5
St Vincent and the Grenadines	0.9	0.9	1.0	1.2
Tanzania	57.0	66.1	75.8	78.8
Togo	7.0	7.4	8.2	9.9
Tonga	0.5	0.5	0.5	
Trinidad and Tobago	23.9	21.0	28.5	26.4
Tuvalu	0.0	0.1	0.1	
Uganda	32.9	37.6	45.6	53.7
United Kingdom	2,871.3	2,696.8	3,114.0	3,643.8
Vanuatu	0.9	0.9	1.0	1.2
Zambia	26.3	18.1	29.2	26.3

Table D2. Gravity modelling data – cross-border paperless trade index

Country	2019	2021	2023	2025
Antigua and Barbuda	22%	22%	33%	33%
Australia	83%	83%	83%	83%
Bangladesh	28%	28%	28%	33%
Belize	11%	11%	22%	33%
Botswana	6%	6%	6%	6%
Brunei Darussalam	39%	44%	44%	67%
Cameroon	39%	39%	56%	72%
Canada	56%	67%	67%	67%
Cyprus	6%	22%	39%	39%
Eswatini	19%	19%	33%	35%
Fiji	6%	6%	11%	39%
Gabon	0%	0%	0%	0%
Ghana			56%	61%
Guyana	6%	6%	39%	39%
India	56%	67%	67%	67%
Jamaica			28%	28%
Kenya		61%	67%	67%
Kiribati	0%	0%	22%	28%
Lesotho	19%	19%	33%	35%
Malawi	11%	11%	22%	61%
Malaysia	56%	61%	67%	78%
Maldives	0%	0%	6%	17%
Malta	22%	22%	33%	33%
Mauritius	44%	56%	56%	56%
Mozambique	11%	17%	33%	33%
Namibia	6%	6%	44%	44%
Nauru	0%	0%	0%	0%
New Zealand	78%	94%	94%	94%
Nigeria		22%	28%	28%
Pakistan	22%	22%	44%	56%
Papua New Guinea	0%	0%	0%	22%
Rwanda		28%	50%	83%
St Kitts and Nevis		28%	28%	28%

(Continued)

Table D2. Gravity modelling data – cross-border paperless trade index (*Continued*)

Country	2019	2021	2023	2025
Saint Lucia			28%	28%
St Vincent and the Grenadines	0%	0%	22%	22%
Samoa	0%	0%	0%	22%
Seychelles			28%	67%
Sierra Leone	0%	0%	33%	61%
Singapore	72%	78%	83%	83%
Solomon Islands	28%	28%	28%	33%
South Africa	44%	44%	50%	54%
Sri Lanka	22%	33%	33%	50%
Tanzania	22%	22%	56%	56%
Togo	44%	44%	44%	56%
Tonga	11%	11%	11%	28%
Trinidad and Tobago	11%	11%	39%	61%
Tuvalu	11%	11%	17%	17%
Uganda	44%	44%	58%	75%
United Kingdom	50%	56%	61%	72%
Vanuatu	11%	22%	22%	50%
Zambia	22%	22%	33%	67%

Annex E: CGE model results

Table E1. CGE results – real GDP change by Commonwealth countries (%)

Country	Real GDP value in 2025 (US\$ million)	2026	2027	2028	2029	2030
Namibia	13,464	1.8	2.9	4.0	5.1	6.3
Malta	16,444	1.9	2.9	4.0	5.1	6.3
Mozambique	14,336	1.0	1.8	2.5	3.2	4.0
Trinidad and Tobago	21,610	0.5	1.2	2.0	2.7	3.5
Malaysia	384,747	0.5	1.2	1.9	2.6	3.4
Maldives	7,480	0.8	1.4	2.0	2.7	3.3
Tanzania	76,228	0.9	1.4	1.9	2.5	3.0
Malawi	10,625	0.1	0.7	1.3	2.0	2.6
Zambia	32,277	0.2	0.7	1.3	1.9	2.5
Togo	6,297	-0.1	0.5	1.1	1.7	2.4
Singapore	394,884	0.6	0.9	1.3	1.7	2.1
Pakistan	394,749	0.3	0.7	1.0	1.4	1.8
The Gambia	2,771	1.2	1.3	1.5	1.6	1.8
Lesotho	2,404	1.2	1.3	1.5	1.6	1.8
Seychelles	2,198	1.2	1.3	1.5	1.6	1.8
Sierra Leone	8,386	1.2	1.3	1.5	1.6	1.8
Cameroon	41,711	0.3	0.6	1.0	1.4	1.7
Cyprus	28,106	0.4	0.7	1.0	1.3	1.7
Eswatini	5,373	0.5	0.9	1.0	1.4	1.6
Sri Lanka	83,392	0.2	0.5	0.9	1.3	1.6
Brunei Darussalam	12,765	0.1	0.5	0.8	1.2	1.6
United Kingdom	2,775,075	0.2	0.6	0.9	1.2	1.6
Ghana	78,688	0.3	0.6	0.9	1.2	1.5
Rwanda	15,123	1.1	1.4	1.4	1.4	1.4
Mauritius	14,565	0.3	0.5	0.7	0.9	1.1
Fiji	6,257	0.3	0.5	0.7	0.9	1.1
Kiribati	312	0.3	0.5	0.7	0.9	1.1
Nauru	169	0.3	0.5	0.7	0.9	1.1
Papua New Guinea	32,835	0.3	0.5	0.7	0.9	1.1
Samoa	1,160	0.3	0.5	0.7	0.9	1.1
Solomon Islands	1,898	0.3	0.5	0.7	0.9	1.1

(Continued)

Table E1. CGE results – real GDP change by Commonwealth countries (%)

Country	Real GDP value in 2025 (US\$ million)	2026	2027	2028	2029	2030
Tonga	568	0.3	0.5	0.7	0.9	1.1
Tuvalu	65	0.3	0.5	0.7	0.9	1.1
Vanuatu	1,267	0.3	0.5	0.7	0.9	1.1
Antigua and Barbuda	2,373	0.3	0.4	0.6	0.8	1.0
The Bahamas	15,178	0.3	0.4	0.6	0.8	1.0
Barbados	7,552	0.3	0.4	0.6	0.8	1.0
Belize	3,611	0.3	0.4	0.6	0.8	1.0
Dominica	742	0.3	0.4	0.6	0.8	1.0
Grenada	1,464	0.3	0.4	0.6	0.8	1.0
Guyana	25,822	0.3	0.4	0.6	0.8	1.0
St Kitts and Nevis	1,129	0.3	0.4	0.6	0.8	1.0
Saint Lucia	2,632	0.3	0.4	0.6	0.8	1.0
St Vincent and the Grenadines	1,242	0.3	0.4	0.6	0.8	1.0
Canada	1,800,858	0.2	0.4	0.5	0.7	0.9
South Africa	374,435	0.2	0.4	0.4	0.7	0.8
Kenya	107,058	0.2	0.3	0.4	0.5	0.6
Uganda	43,332	0.2	0.6	0.6	0.6	0.6
New Zealand	223,408	0.3	0.4	0.4	0.4	0.4
Nigeria	424,278	0.1	0.2	0.2	0.3	0.3
India	3,697,021	0.1	0.1	0.2	0.3	0.3
Bangladesh	436,270	0.0	0.0	0.1	0.1	0.2
Jamaica	15,388	0.0	0.1	0.1	0.1	0.1
Australia	1,424,964	0.0	0.0	0.0	0.0	0.0
Botswana	16,671	0.0	0.0	0.0	0.0	0.0
Gabon	15,107	0.0	0.0	0.0	0.0	0.0

Table E2. CGE results – real GDP change by Commonwealth Africa countries (%)

Country	Real GDP value in 2025 (US\$ million)	2026	2027	2028	2029	2030
Namibia	13,464	1.8	2.9	4.0	5.1	6.3
Mozambique	14,336	1.0	1.8	2.5	3.2	4.0
Tanzania	76,228	0.9	1.4	1.9	2.5	3.0
Malawi	10,625	0.1	0.7	1.3	2.0	2.6
Zambia	32,277	0.2	0.7	1.3	1.9	2.5
Togo	6,297	-0.1	0.5	1.1	1.7	2.4
The Gambia	2,771	1.2	1.3	1.5	1.6	1.8
Lesotho	2,404	1.2	1.3	1.5	1.6	1.8
Seychelles	2,198	1.2	1.3	1.5	1.6	1.8
Sierra Leone	8,386	1.2	1.3	1.5	1.6	1.8
Cameroon	41,711	0.3	0.6	1.0	1.4	1.7
Eswatini	5,373	0.5	0.9	1.0	1.4	1.6
Ghana	78,688	0.3	0.6	0.9	1.2	1.5
Rwanda	15,123	1.1	1.4	1.4	1.4	1.4
Mauritius	14,565	0.3	0.5	0.7	0.9	1.1
South Africa	374,435	0.2	0.4	0.4	0.7	0.8
Kenya	107,058	0.2	0.3	0.4	0.5	0.6
Uganda	43,332	0.2	0.6	0.6	0.6	0.6
Nigeria	424,278	0.1	0.2	0.2	0.3	0.3
Botswana	16,671	0.0	0.0	0.0	0.0	0.0
Gabon	15,107	0.0	0.0	0.0	0.0	0.0

Table E3. CGE results – real GDP change by Commonwealth Asia countries (%)

Country	Real GDP value in 2025 (US\$ million)	2026	2027	2028	2029	2030
Malaysia	384,747	0.5	1.2	1.9	2.6	3.4
Maldives	7,480	0.8	1.4	2.0	2.7	3.3
Singapore	394,884	0.6	0.9	1.3	1.7	2.1
Pakistan	394,749	0.3	0.7	1.0	1.4	1.8
Sri Lanka	83,392	0.2	0.5	0.9	1.3	1.6
Brunei Darussalam	12,765	0.1	0.5	0.8	1.2	1.6
India	3,697,021	0.1	0.1	0.2	0.3	0.3
Bangladesh	436,270	0.0	0.0	0.1	0.1	0.2

Table E4. CGE results – real GDP change by Commonwealth Caribbean countries (%)

Country	Real GDP value in 2025 (US\$ million)	2026	2027	2028	2029	2030
Trinidad and Tobago	21,610	0.5	1.2	2.0	2.7	3.5
Antigua and Barbuda	2,373	0.3	0.4	0.6	0.8	1.0
The Bahamas	15,178	0.3	0.4	0.6	0.8	1.0
Barbados	7,552	0.3	0.4	0.6	0.8	1.0
Belize	3,611	0.3	0.4	0.6	0.8	1.0
Dominica	742	0.3	0.4	0.6	0.8	1.0
Grenada	1,464	0.3	0.4	0.6	0.8	1.0
Guyana	25,822	0.3	0.4	0.6	0.8	1.0
St Kitts and Nevis	1,129	0.3	0.4	0.6	0.8	1.0
Saint Lucia	2,632	0.3	0.4	0.6	0.8	1.0
St Vincent and the Grenadines	1,242	0.3	0.4	0.6	0.8	1.0
Jamaica	15,388	0.0	0.1	0.1	0.1	0.1

Table E5. CGE results – real GDP change by Commonwealth Pacific countries (%)

Country	Real GDP value in 2025 (US\$ million)	2026	2027	2028	2029	2030
Fiji	6,257	0.3	0.5	0.7	0.9	1.1
Kiribati	312	0.3	0.5	0.7	0.9	1.1
Nauru	169	0.3	0.5	0.7	0.9	1.1
Papua New Guinea	32,835	0.3	0.5	0.7	0.9	1.1
Samoa	1,160	0.3	0.5	0.7	0.9	1.1
Solomon Islands	1,898	0.3	0.5	0.7	0.9	1.1
Tonga	568	0.3	0.5	0.7	0.9	1.1
Tuvalu	65	0.3	0.5	0.7	0.9	1.1
Vanuatu	1,267	0.3	0.5	0.7	0.9	1.1

Table E6. CGE results – real GDP change by Commonwealth developed countries (%)

Country	Real GDP value in 2025 (US\$ million)	2026	2027	2028	2029	2030
Malta	16,444	1.9	2.9	4.0	5.1	6.3
Cyprus	28,106	0.4	0.7	1.0	1.3	1.7
United Kingdom	2,775,075	0.2	0.6	0.9	1.2	1.6
Canada	1,800,858	0.2	0.4	0.5	0.7	0.9
New Zealand	223,408	0.3	0.4	0.4	0.4	0.4
Australia	1,424,964	0.0	0.0	0.0	0.0	0.0

Table E7. CGE results – volume of exports by Commonwealth countries (US\$ million)

Country	2025	2026	2027	2028	2029	2030
Antigua and Barbuda	29	29	29	30	31	32
Australia	331,204	331,403	331,834	332,498	333,429	334,662
The Bahamas	656	664	676	693	716	745
Bangladesh	62,451	62,439	62,645	63,065	63,695	64,542
Barbados	432	437	445	456	471	490
Belize	238	240	245	251	259	270
Botswana	6,669	6,671	6,675	6,681	6,692	6,707
Brunei Darussalam	6,260	6,264	6,276	6,296	6,324	6,360
Cameroon	5,483	5,519	5,598	5,720	5,889	6,102
Canada	541,813	544,197	548,496	554,146	561,627	570,894
Cyprus	24,342	24,401	24,494	24,626	24,796	25,007
Dominica	21	21	21	22	23	23
Eswatini	1,942	1,978	2,021	2,073	2,133	2,203
Fiji	5,169	5,195	5,222	5,248	5,275	5,302
Gabon	6,199	6,204	6,213	6,227	6,246	6,271
The Gambia	77	79	80	82	85	88
Ghana	23,979	24,048	24,185	24,393	24,676	25,039
Grenada	43	44	44	46	47	49
Guyana	10,129	10,238	10,428	10,694	11,046	11,490
India	607,652	611,663	618,330	627,481	639,215	653,470
Jamaica	4,386	4,374	4,350	4,316	4,272	4,217
Kenya	12,491	12,534	12,609	12,716	12,858	13,037
Kiribati	436	438	440	443	445	447

(Continued)

Table E7. CGE results – volume of exports by Commonwealth countries (US\$ million)

Country	2025	2026	2027	2028	2029	2030
Lesotho	770	785	802	822	846	874
Malawi	957	974	995	1,021	1,051	1,085
Malaysia	278,195	279,725	283,473	289,511	298,052	309,348
Maldives	497	499	502	505	507	510
Malta	3,669	3,681	3,702	3,730	3,765	3,808
Mauritius	6,678	6,702	6,741	6,795	6,864	6,950
Mozambique	7,671	7,812	7,983	8,185	8,424	8,700
Namibia	6,241	6,268	6,304	6,344	6,385	6,422
Nauru	1,072	1,065	1,053	1,036	1,015	989
New Zealand	59,381	59,743	60,311	60,902	61,523	62,169
Nigeria	57,106	57,249	57,489	57,834	58,285	58,845
Pakistan	32,430	33,150	34,635	36,983	40,348	44,952
Papua New Guinea	47,614	47,856	48,100	48,345	48,592	48,839
Rwanda	2,167	2,217	2,288	2,362	2,441	2,523
St Kitts and Nevis	85	86	87	89	92	96
Saint Lucia	77	78	80	82	84	88
St Vincent and the Grenadines	38	39	39	40	42	43
Samoa	206	207	208	209	210	211
Seychelles	508	517	528	542	558	576
Sierra Leone	1,397	1,422	1,453	1,490	1,534	1,584
Singapore	334,707	335,845	337,659	340,157	343,389	347,372
Solomon Islands	2,690	2,704	2,718	2,732	2,746	2,760
South Africa	106,277	106,680	107,673	108,760	110,424	112,334
Sri Lanka	16,670	16,726	16,894	17,166	17,540	18,015
Tanzania	10,482	10,756	11,188	11,798	12,611	13,656
Togo	1,350	1,374	1,404	1,440	1,482	1,530
Tonga	57	57	58	58	58	59
Trinidad and Tobago	9,077	9,092	9,125	9,173	9,241	9,329
Tuvalu	257	259	260	261	263	264
Uganda	5,917	5,964	6,084	6,213	6,356	6,509
United Kingdom	783,936	784,877	787,467	791,562	797,103	804,117
Vanuatu	1,005	1,010	1,015	1,020	1,026	1,031
Zambia	11,117	11,148	11,276	11,503	11,833	12,269

Table E8. CGE results – change in export volume in agriculture sector of Commonwealth countries (US\$ million)

	2026	2027	2028	2029	2030
Australia	152	286	423	575	725
Bangladesh	9	18	28	40	52
Botswana	2	3	4	7	8
Brunei Darussalam	0	0	0	0	1
Cameroon	2	3	3	2	0
Canada	–71	–149	–113	–147	–167
Cyprus	5	8	12	16	20
Eswatini	2	4	5	7	9
Gabon	0	0	0	0	0
Ghana	–2	–7	–15	–22	–30
India	249	405	570	718	847
Jamaica	0	–1	–1	–1	–1
Kenya	14	23	33	42	53
Malaysia	30	36	40	45	46
Malta	–3	–5	–6	–8	–11
Mauritius	5	8	12	16	19
Namibia	–6	–5	–7	–9	–12
New Zealand	159	262	305	353	398
Nigeria	21	40	56	73	91
Pakistan	107	202	302	408	516
Rwanda	–2	–2	–1	0	1
Singapore	–21	–31	–44	–55	–69
South Africa	60	96	136	174	215
South Asia	–152	–284	–412	–544	–684
Sri Lanka	6	7	7	6	5
Tanzania	1	0	–7	–17	–31
Trinidad and Tobago	0	0	–1	–2	–3
Uganda	8	10	14	16	19
United Kingdom	–19	–112	–217	–328	–450
Zambia	7	11	12	11	10

Table E9. CGE results – change in export volume in non-agriculture sector of Commonwealth countries (US\$ million)

	2026	2027	2028	2029	2030
Australia	85	215	300	465	644
Bangladesh	-47	155	365	601	858
Botswana	3	8	9	14	17
Brunei Darussalam	2	8	14	19	26
Cameroon	24	56	94	135	176
Canada	3464	6354	8136	10822	13341
Cyprus	25	39	56	73	94
Eswatini	-4	-7	-11	-14	-20
Gabon	9	17	25	34	44
Ghana	68	141	222	312	412
India	2807	4821	6835	9151	11601
Jamaica	-2	-3	-5	-6	-7
Kenya	15	24	35	45	57
Malaysia	1600	4089	6734	9619	12722
Malta	96	146	204	267	338
Mauritius	7	9	10	12	13
Namibia	47	67	88	107	124
New Zealand	106	147	97	49	-1
Nigeria	52	96	144	200	264
Pakistan	468	988	1549	2155	2808
Rwanda	50	71	77	81	86
Singapore	2076	3356	4710	6137	7650
South Africa	402	984	1093	1683	1939
Sri Lanka	50	175	294	415	532
Tanzania	217	354	516	703	910
Trinidad and Tobago	38	86	128	182	236
Uganda	27	84	85	91	93
United Kingdom	2553	7077	11509	16177	20900
Zambia	22	116	216	323	436

Paperless Trade 2.0: Quantifying the Commonwealth's Trade Advantage makes a compelling economic and policy case for accelerating the transition from paper-based trade documentation to trusted, interoperable digital trade systems across Commonwealth member countries. Drawing on readiness assessments, country case studies and quantitative modelling, the report shows how paperless trade can reduce transaction costs, improve transparency, strengthen supply-chain resilience and expand participation in global commerce, particularly for SMEs, least developed countries, landlocked developing countries and small island developing states.

At its core, this report demonstrates that digital trade facilitation is not simply an administrative reform, but a strategic growth opportunity for the Commonwealth. The analysis finds that continued adoption of paperless trade measures could increase Commonwealth exports by an estimated US\$183 billion by 2030, with benefits spread across regions, income groups and sectors. Through evidence drawn from across the Commonwealth, the report illustrates how legal reform, digital certification, electronic bills of lading and interoperable trust systems are already delivering measurable efficiencies for businesses and governments. Readers will find a practical roadmap for turning the Commonwealth's shared legal traditions, institutional networks and digital momentum into a stronger, more inclusive and more competitive trade advantage.

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