

# Global Digital Trade Development Report 2025



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# Global Digital Trade Development Report 2025

## About the paper

This report analyses how digital trade evolved in 2020–2024. It finds robust growth driven by online orders of goods and services delivered over the internet, with participation widening but persistent gaps in connectivity, payments, logistics, and compliance.

The report examines shifts in markets, policy, technology, and inclusion, and highlights the influence of artificial intelligence and innovation in online retail. Priorities include helping small firms sell abroad through platforms, expanding services exports, simplifying customs and taxes, enabling secure and interoperable payments and trusted data sharing, strengthening cross-border delivery, and investing in digital skills and finance for women-led and developing-country businesses.

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## Foreword

Over the past decade, digital technologies have tested, and frequently upended, longstanding assumptions about how trade can work in practice. Digital trade has moved from the margins to the mainstream of international commerce, reshaping how goods are designed, produced, and delivered, how services are created and consumed online, and how firms of all sizes connect with customers and suppliers across borders. As digital channels become essential to the way economies function, whether these same technologies will level the playing field between firms or fuel greater inequalities remains to be seen.

At the same time, the challenges that small and medium-sized enterprises (SMEs) around the world are facing are growing larger and more acute, spanning everything from economic upheaval to rising costs of living and the growing toll of our climate crisis. They are having to make daily adjustments to their business practices and trading plans, often for the sake of their own survival. All the while, new technologies are continuously entering the scene, offering solutions even as they create new risks. One thing is clear: cooperation in the digital arena cannot wait, and that includes in our digital trade ecosystem.

At the International Trade Centre (ITC), we see digital trade as having immense potential to support inclusive development and help firms not just overcome the crises of our time, but to become more resilient against those still to come. But whether it delivers on that potential depends on what happens next. Too often, as we have seen, the opportunities offered by digital trade—and more broadly, the full-fledged digital transformation of firms—are out of reach for too many SMEs, including those led by women and youth. That is why we not only work extensively to support firms as they adopt digital technologies in their business and trading practices, but we also engage with policymakers as they weigh regulatory approaches and avenues for cooperation.

The *Global Digital Trade Development Report 2025* is a contribution towards these efforts. It provides timely insight into how digital trade works today, as artificial intelligence, data-driven platforms, and cross-border e-commerce reconfigure not just how businesses function, but how entire value chains are structured. At the same time, it underscores some of the challenges and risks that remain, including uneven distribution of benefits, persistent gaps in infrastructure and skills, and emerging frictions in governance frameworks. Its analyses are meant to inform a digital trade ecosystem that is both inclusive and forward-looking – grounded in evidence and practical guidance.

This publication builds on insights from our projects on the ground and extensive research and consultation with peers around the world. It follows the latest edition of our flagship research report, the *SME Competitiveness Outlook*, devoted to the digital transformation of small and medium-sized enterprises, and supports the outcomes of ITC's first-ever Global SME Ministerial Meeting in July 2025, hosted by the Government of South Africa, where these topics were the subject of a dedicated thematic track and featured in a related call to action.

If there is one lesson we take away from the crises of recent years, it is quite simply this: we cannot leave any stone unturned as we work to make sure that SMEs are empowered to grow, compete, and trade. But we must also make sure to do so responsibly. I welcome the collaboration behind this publication and invite policymakers, entrepreneurs, and researchers to use it as a resource to make sure digital trade lives up to its potential for good, leaving no one behind.



**Pamela Coke-Hamilton**

Executive Director  
International Trade Centre

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## Acronyms

Unless otherwise specified, all references to dollars (\$) are to United States dollars. Percentages may not add up to 100% due to rounding.

AI	Artificial intelligence
AfCFTA	African Continental Free Trade Area
ASEAN	Association of Southeast Asian Nations
CNY	Chinese yuan
EU	European Union
GDP	Gross domestic product
GDPR	General Data Protection Regulation
ICT	Information and communications technology
IMF	International Monetary Fund
IP	Intellectual property
ITC	International Trade Centre
OECD	Organisation for Economic Co-operation and Development
SMEs	Small and medium-sized enterprises
UNCTAD	UN Trade and Development
WEIDE	Women Exporters in the Digital Economy
WTO	World Trade Organization

# Executive summary

This report analyses the evolution of global digital trade in 2020–2024, highlighting market dynamics, policy developments, technological drivers, and inclusion. Anchored in the statistical frameworks of the International Monetary Fund, the Organisation for Economic Co-operation and Development, UN Trade and Development (UNCTAD), and the World Trade Organization (WTO), it defines digital trade as digitally ordered transactions and digitally delivered services.

Using a blend of official statistics, platform data, and quantitative estimation, the report quantifies the scale of digital trade and distills implications for policymakers, businesses, and researchers.

**Growth trends:** Digital trade rose from \$4.59 trillion to \$7.23 trillion in 2020–2024. The average annual growth rate was 12.1%, faster than overall global trade at 9.7%. Digitally delivered services accounted for the biggest share and grew steadily. Digitally ordered trade – led by platforms such as Alibaba, Amazon, Shopee, and TikTok Shop – expanded even faster, at 16.7% a year.

Despite this momentum, digital trade's share in total international trade rose only from 20.1% to 21.9%. Developed economies, particularly the European Union (EU), the United States, and the United Kingdom, remained dominant, though emerging markets such as India, China, and Brazil grew more quickly.

**Policy developments:** Governments have been active in shaping the rules of digital trade amid technological rivalry and shifting geopolitics. The United States tightened controls on data access and digital taxation. The EU introduced the first comprehensive regulation on artificial intelligence (AI) and reinforced electronic-commerce tax compliance. China advanced cross-border data-flow liberalization and facilitation of electronic commerce.

The Association of Southeast Asian Nations launched the Digital Economy Framework Agreement. The African Union adopted its first continent-wide digital trade protocol under the African Continental Free Trade Area. Latin America and the Middle East invested in infrastructure, integration, and the participation of small and medium-sized enterprises (SMEs). On the multilateral level, the WTO's Electronic Commerce Agreement and UNCTAD's measurement work marked important steps towards a global governance framework.

**Technology drivers:** AI emerged as a transformative force in digital trade, reshaping infrastructure, services, and applications. Advances in large-model architectures, including the DeepSeek open-source ecosystem, lowered barriers for SMEs and spurred innovation across healthcare, education, finance, and cross-border data markets. Differing strategies – commercialization in the United States, regulation-first in the EU, and an adaptable, scalable approach in China – are shaping the global AI landscape. AI tools also improved supply-chain efficiency, dynamic pricing, and customer service in electronic commerce.

**E-commerce as an engine:** Cross-border e-commerce has become a primary engine of trade innovation, enabled by digital platforms, smart logistics, and embedded finance. Social-commerce models (such as Shein and TikTok Shop) and fast-turnaround production are reshaping consumer behaviour and supply chains. Regulatory and logistical models including Hangzhou's Six Systems, Two Platforms show how coordinated governance can reduce friction and enable SME participation in global value chains.

**Inclusive participation:** Digital trade is creating new opportunities for women entrepreneurs and SMEs, though barriers remain in access to finance, technology, and compliance. Evidence from Africa, Southeast Asia, and Eastern Europe shows that women-led firms excel in innovation and customer engagement when equipped with digital tools. Policies such as simpler customs procedures, inclusive procurement, and digital training platforms help ensure that digital trade supports sustainable and broad-based development.

This report presents an integrated perspective on digital trade's expansion, governance, technological transformation, and inclusion. It provides data-driven insights and policy recommendations across five dimensions: market trends, regulatory frameworks, transformation driven by AI, innovation in electronic commerce, and inclusive development. Together, these findings position digital trade as a critical driver of the next phase of globalization.

## CHAPTER 1

# Overview

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# CHAPTER 1

## Overview

In this report, global digital trade refers to all international trade transactions that are digitally ordered or digitally delivered. The definition and methodologies are aligned with the *Handbook on Measuring Digital Trade* (second edition), published in 2023 by the World Trade Organization (WTO), the Organisation for Economic Co-operation and Development (OECD), the International Monetary Fund (IMF), and UN Trade and Development (UNCTAD).

Digitally ordered trade encompasses all goods and services transactions conducted via computer networks and cross-border e-commerce platforms. Digitally delivered trade refers exclusively to service trade delivered digitally through computer networks.

Drawing on the data from the WTO's Global Services Trade Data Hub,<sup>1</sup> UNCTAD surveys,<sup>2</sup> and national statistics on cross-border e-commerce,<sup>3</sup> this report estimates the overall scale of global digital trade between 2020 and 2024. It also evaluates the digital trade of the world's 10 largest economies. Due to data availability and accuracy considerations, the analysis primarily focuses on digital trade exports.

### Steady growth in global digital trade

Global digital trade continued to expand at a strong and sustained pace in 2020–2024. The total value of digital trade increased 58% from \$4.59 trillion in 2020 to a projected \$7.23 trillion in 2024,<sup>4</sup> representing an average annual growth rate of 12.1%. This growth significantly outpaced that of total global trade, which grew at an average annual rate of 9.7% over the same period.<sup>5</sup> The faster expansion of digital trade underscores its increasing importance in the global economy and reflects an ongoing structural shift towards digitalization in international commerce.

Digitally delivered services and digitally ordered goods and services have jointly driven growth in digital trade. The former accounted for the larger share, rising from \$3.21 trillion in 2020 to \$4.64 trillion in 2024, with an average annual growth rate of 9.6%. However, digitally ordered trade expanded more rapidly – from \$1.41 trillion to \$2.62 trillion – at an average annual growth rate of 16.7%. The combined momentum of these two segments highlights the growing maturity of digital infrastructure and cross-border e-commerce ecosystems, reinforcing digital trade's role as a key driver of global economic growth.

### Box 1 Approaches to measuring digital trade

The rapid growth of global digital trade has heightened the need for a standardized statistical framework. In recent years, international organizations and academic communities have accelerated efforts to build a digital trade measurement system, aiming to comprehensively capture the digitalization of trade through consistent methods, providing a solid basis for policymaking and market analysis.

The second edition of the *Handbook on Measuring Digital Trade* (2023) offers a foundational methodology, emphasizing an ‘embedding rather than reconstructing’ approach. It analyses digital trade based on international goods and services trade statistics by identifying transactions that qualify as ‘digitally ordered’ (e.g. goods purchased via cross-border e-commerce) or ‘digitally delivered’ (e.g. cloud services).

To avoid double counting, the handbook excludes transactions involving commercial presence (e.g. sales by foreign affiliates) and focuses solely on cross-border delivery (Mode 1 services trade). It also excludes non-monetary data flows (e.g. free interactions on social media platforms). This approach maintains compatibility with traditional frameworks while simplifying the measurement process. On the operational level, the handbook advocates the use of multiple sources of information such as integrating customs data, corporate surveys, and platform records, and provides standardized templates to enhance international comparability.

Two main measurement approaches have emerged from practices in recent years:

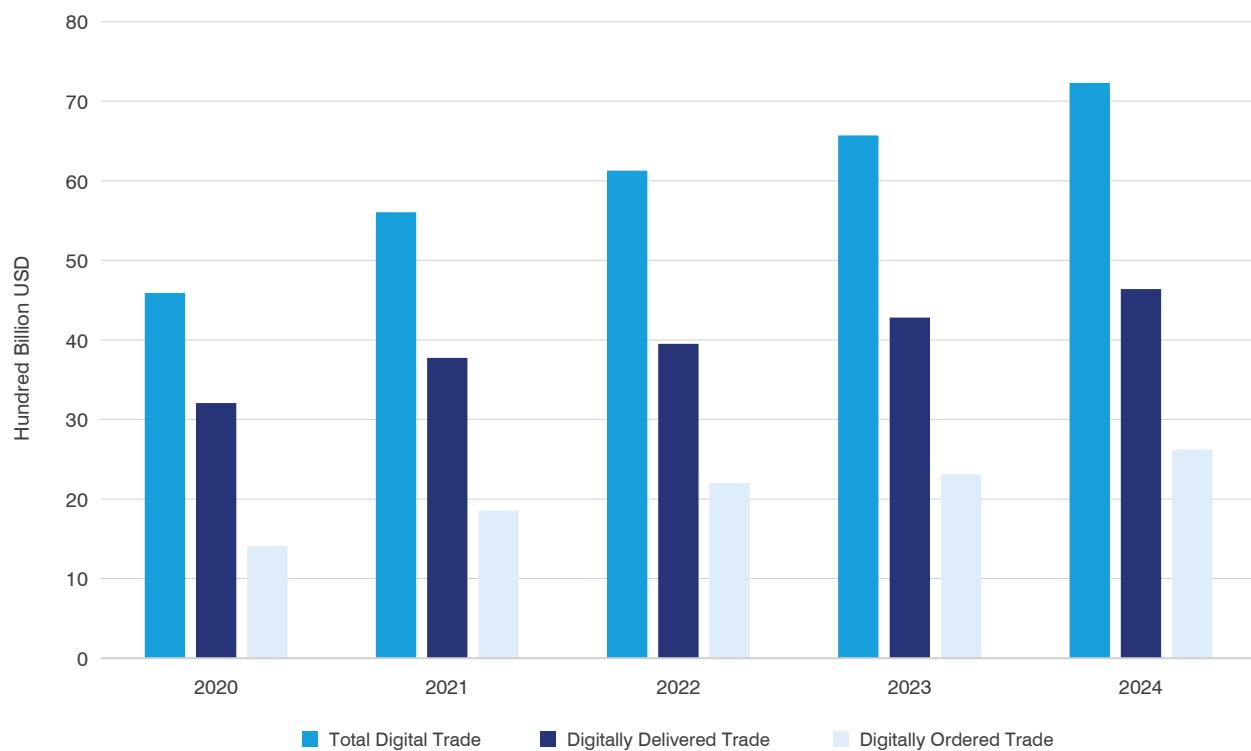
**Direct data extraction from statistics systems:** Some countries leverage statistical systems, such as customs codes for digitally ordered goods trade (e.g. specific codes for cross-border e-commerce import/export) and service trade statistics for digitally delivered categories (e.g. information and communication technology [ICT] services or intellectual property [IP] services). This approach relies on a combination of administrative records and industry surveys. For instance, Zhejiang Province in China uses foreign exchange and enterprise-reported data to estimate digitally delivered trade, while using customs and platform data to estimate digitally ordered trade.

**Ratio-estimation method:** Proposed by academics, this methodology estimates the volume of digital trade by calculating the proportion of digital technology integrated in traditional services. For example, in a selected sample sector, a digital penetration rate (e.g. percentage of online delivery) is estimated and then applied to extrapolate the total digital trade volume for the sector. Variants of the methodology include dual-measurement (tracking both ordering and delivery) and single-measurement (focusing only on delivery), refined with firm-level data.

Challenges persist – notably the lack of uniform classification for emerging areas such as non-fungible tokens and data trading and the need to clarify attribution for transactions through digital intermediaries (e.g. cross-border payment or travel platforms). Despite these challenges, a global measurement framework for digital trade is taking shape. Its value extends beyond ensuring statistical consistency – it lays an empirical foundation for international discussions on digital taxation and cross-border data regulations, supporting the transformation and enhancement of global value chains in the digital age..

Source: 2<sup>nd</sup> edition of the *Handbook on Measuring Digital Trade* (2023) and *Global Digital Trade Development Report 2024*.

**Figure 1 Global digital trade grew steadily in 2020–2024**



Source: Estimates by the report team. Raw data come from the WTO Global Services Trade Data Hub, UNCTAD surveys, and national statistics on cross-border electronic commerce. See endnotes 1–3 for details.

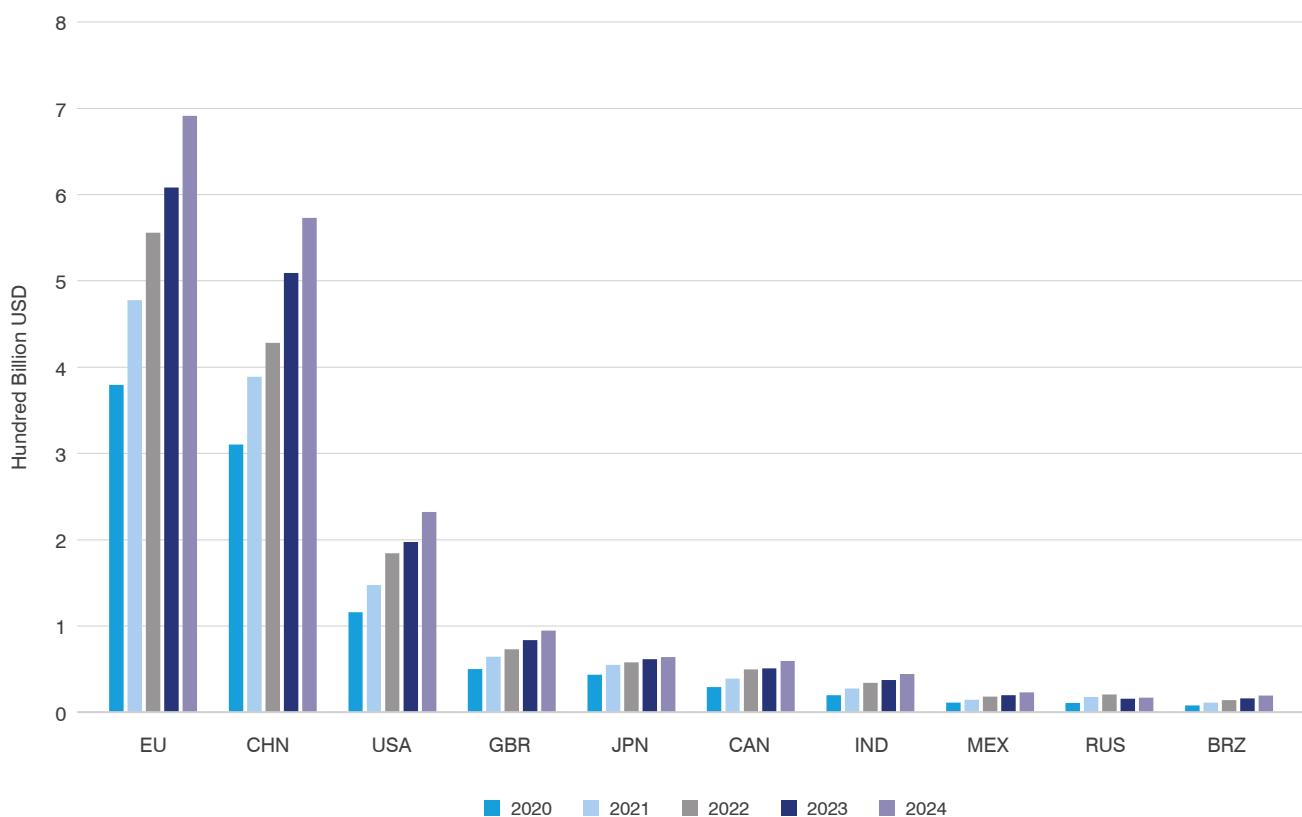
## Rapid expansion of digitally ordered trade

Digitally ordered trade, fuelled by the brisk expansion of cross-border e-commerce, has become the fastest-growing segment of global digital trade. Its value rose from \$1.85 trillion to about \$2.62 trillion in 2020–2024, achieving an average annual growth rate of 12.3%.<sup>6</sup> Over the same period, its share in global digital trade climbed from 30.7% to 36.2%, reflecting its increasingly prominent role in shaping global trade patterns.

The global expansion of cross-border e-commerce platforms – most notably Amazon and Alibaba – drove this surge. These platforms have greatly enhanced the efficiency of digital transactions in both consumer and intermediate goods markets, particularly amid the ongoing digital transformation of global supply chains.

Among the world's top 10 economies, the total value of digitally ordered trade exports rose from \$980 billion in 2020 to an estimated \$1.82 trillion in 2024, with an average annual growth rate of 16.8%, broadly consistent with the global trend. The European Union (EU), China, and the United States ranked as the top three globally, with export values in 2024 projected to reach \$690 billion, \$570 billion, and \$230 billion, respectively – together accounting for more than 55% of global digitally ordered trade.

Emerging markets also demonstrated notable dynamism. Brazil, India, and Mexico each recorded average annual growth rates exceeding 20% between 2020 and 2024, highlighting the increasing penetration and vitality of cross-border e-commerce in developing economies and their growing contribution to the expansion of global digital trade.

**Figure 2 EU and China dominate in digitally ordered trade**

Note: EU = European Union, CHN = China, USA = United States, GBR = United Kingdom, JPN = Japan, CAN = Canada, IND = India, MEX = Mexico, RUS = Russian Federation, BRZ = Brazil.

Source: Estimates by the report team. Raw data come from the WTO Global Services Trade Data Hub, UNCTAD surveys, and national statistics on cross-border electronic commerce. See endnotes 1–3 for details.

## Steady growth in digitally delivered trade

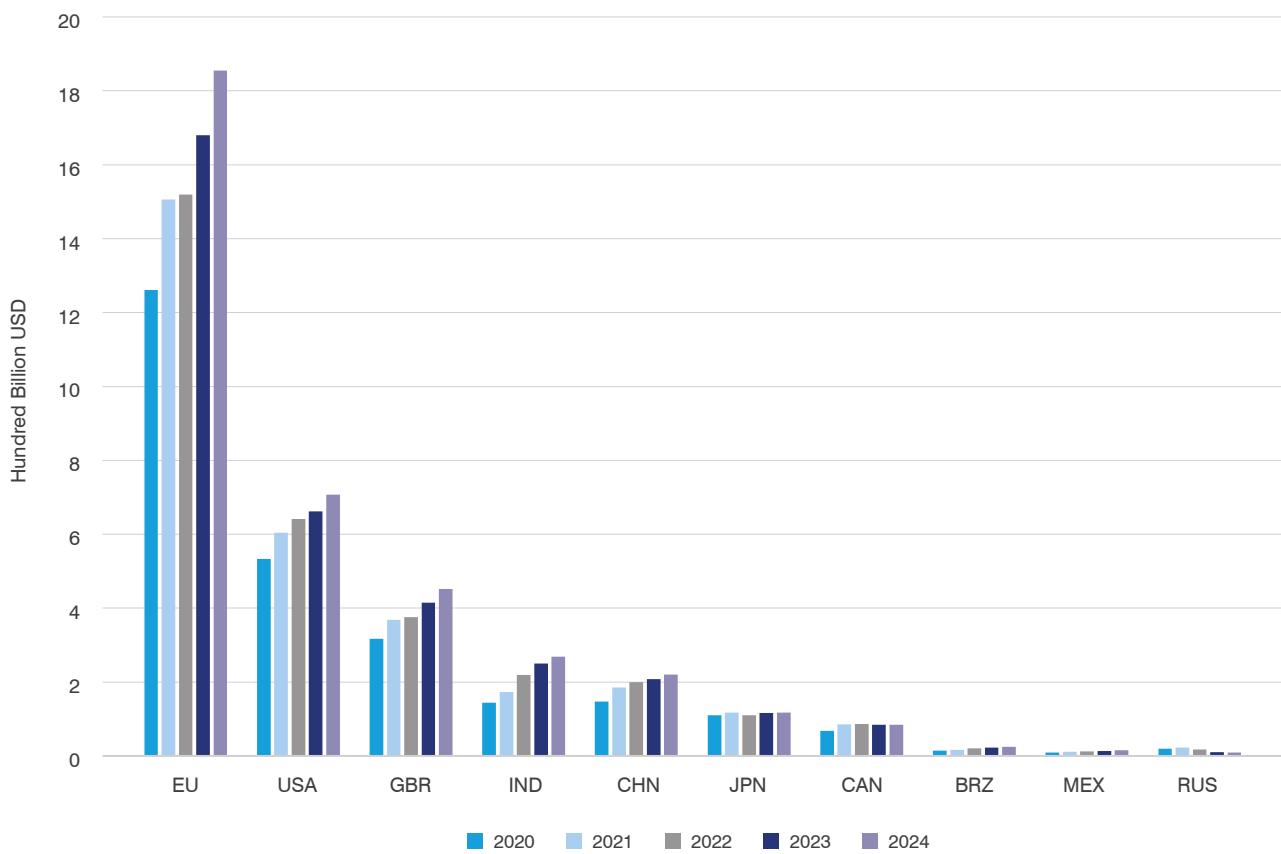
Digitally delivered trade has continued to expand steadily. The total value of global digitally delivered trade rose from \$3.21 trillion to \$4.64 trillion in 2020–2024, reflecting an average annual growth rate of 9.7%. This category includes services delivered remotely via computer networks – such as financial services, online education, software, consulting, and data processing – and serves as a key indicator of digital economy development. Major economies have become increasingly active in this domain, highlighting the growing importance of digital services in international trade.

In terms of export volume, the EU, the United States, and the United Kingdom ranked as the top three digitally delivered

trade exporters in 2024, with export values of \$1.86 trillion, \$710 billion, and \$450 billion, respectively. Together, they accounted for about 66% of the global total, forming the core region of digital services trade.

Emerging economies also posted impressive growth. India recorded the fastest growth globally, with an average annual growth rate of 16.9% in 2020–2024. Brazil and Mexico followed with growth rates of 14.8% and 13.9%, respectively – significantly outpacing many advanced economies. These trends reflect the growing integration of emerging markets into global digital service value chains, driven by advantages in human capital and increasing global demand for outsourced services. As a result, these economies are rapidly becoming new engines of growth in digitally delivered trade.

**Figure 3 EU is top exporter of digitally delivered trade**



Note: EU = European Union, CHN = China, USA = United States, GBR = United Kingdom, JPN = Japan, CAN = Canada, IND = India, MEX = Mexico, RUS = Russian Federation, BRZ = Brazil.

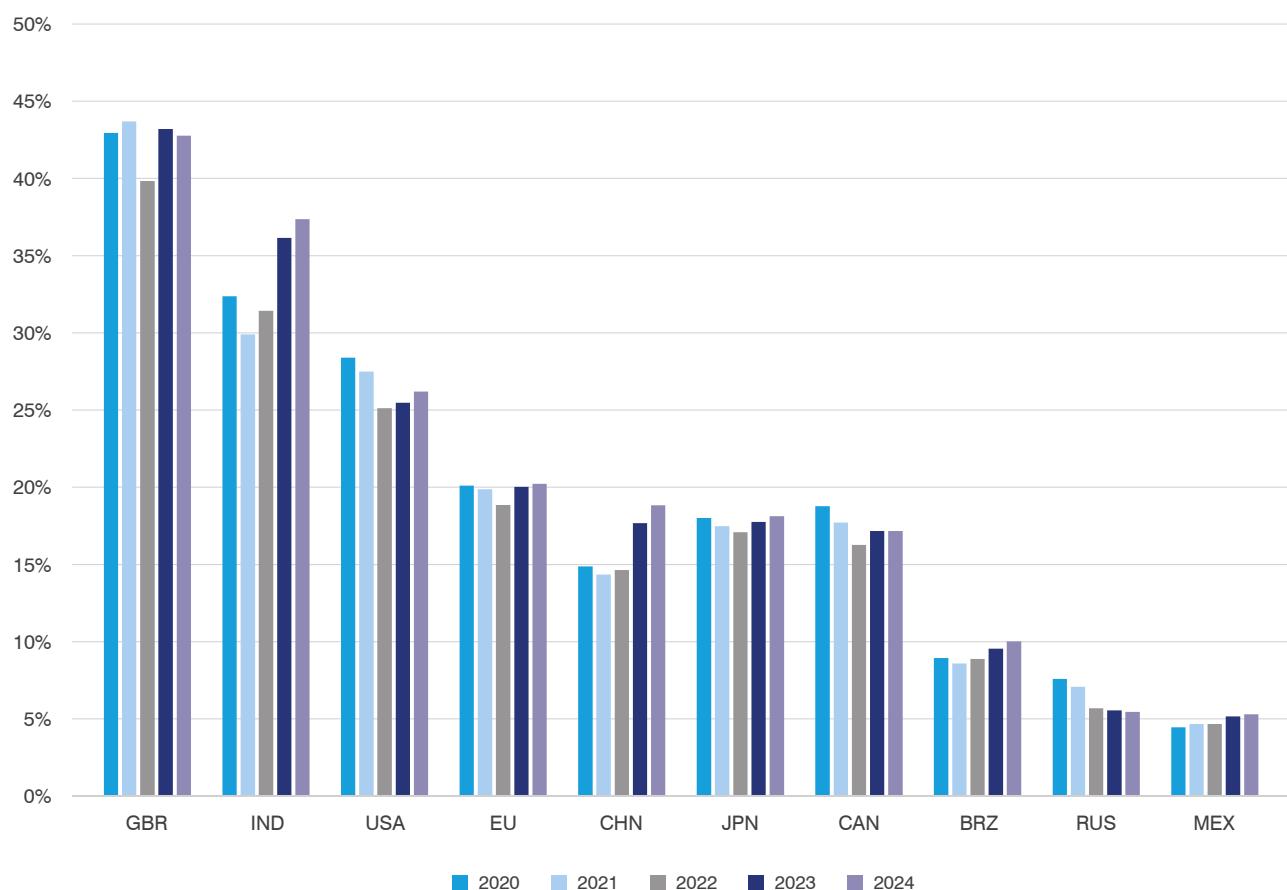
Source: Calculated by the report team based on data from the WTO Global Services Trade Data Hub.

## Significant potential for trade digitalization

Although global digital trade grew substantially in 2020–2024, its share in international trade increased a modest 1.8 percentage points, suggesting that the digital transformation of global trade is still in its early stages. Global digital trade was valued at \$4.59 trillion in 2020, accounting for 20.1% of international trade (\$22.8 trillion).<sup>7</sup> By 2024, it had expanded to \$7.23 trillion, representing 21.9% of international trade, estimated at \$33 trillion. This indicates that a major portion of global trade – especially in goods – is still conducted through traditional, offline channels, highlighting considerable room for further digitalization.

In terms of trade digitalization – measured by the share of digital trade in a country's total trade – the United Kingdom, India, and the United States emerged as global leaders. The United Kingdom had the highest digital trade share, reaching about 43% in 2024, driven largely by digitally delivered services.

While advanced economies such as the United Kingdom and the United States have maintained relatively stable digital trade shares over the past five years, developing economies including India and Brazil have shown notable upward trends. India's digital trade share rose from around 32% in 2020 to 37% in 2024, while China's share increased from 15% to 19% over the same period. These developments reflect the significant progress made by major developing countries in advancing their digital trade capabilities.

**Figure 4 Britain and India's digital trade share outpaces global peers**

Note: EU = European Union, CHN = China, USA = United States, GBR = United Kingdom, JPN = Japan, CAN = Canada, IND = India, MEX = Mexico, RUS = Russian Federation, BRZ = Brazil.

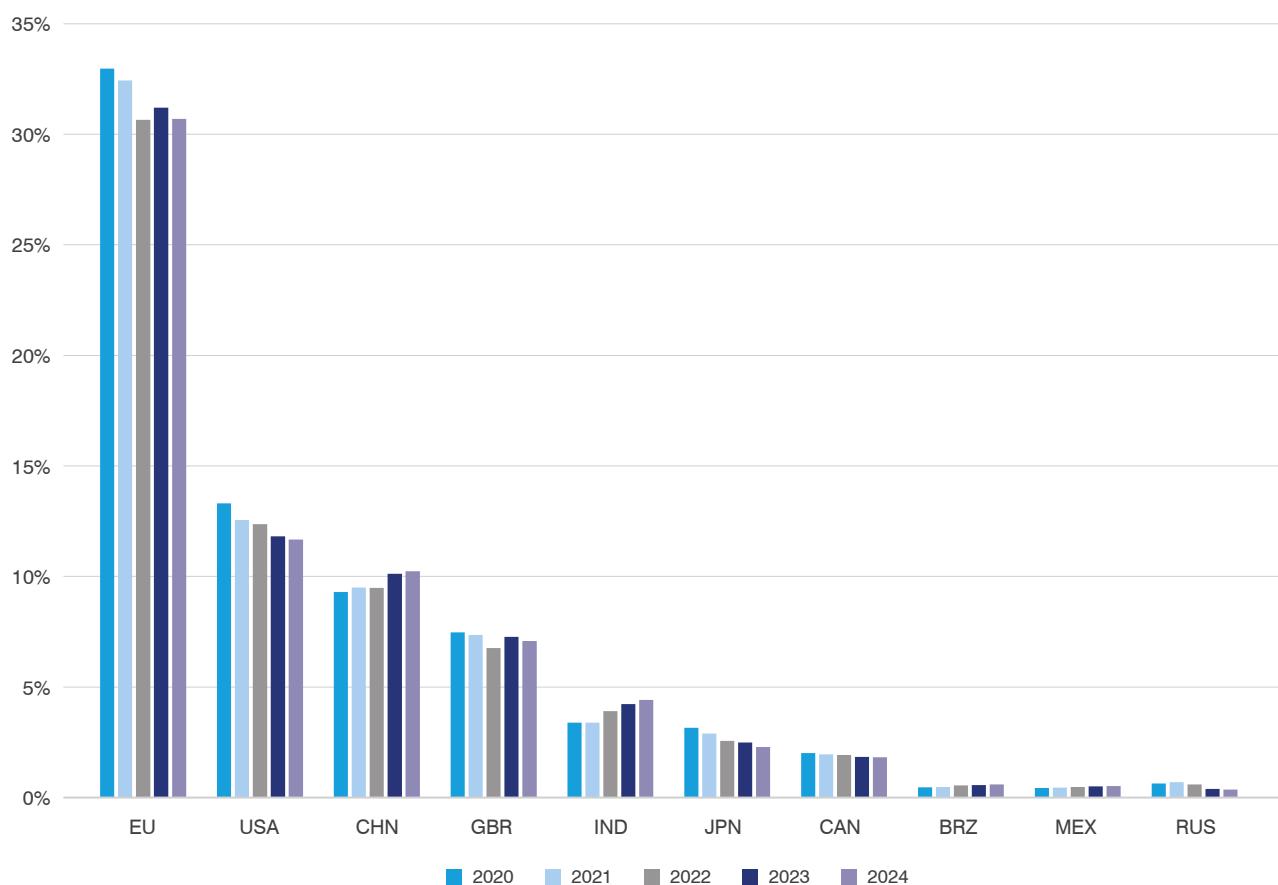
Source: Estimates by the report team. Raw data come from the WTO Global Services Trade Data Hub, UNCTAD surveys, and national statistics on cross-border electronic commerce. See endnotes 1–3 for details.

## A more diverse global digital trade landscape

The global digital trade landscape evolved gradually between 2020 and 2024, displaying clearer distinctions between developed and developing economies. Developed economies such as the EU, the United States, and the United Kingdom continued to dominate, with their combined share of global digital trade exports exceeding 50% in 2024. However, all three saw a decline in their digital trade shares last year.

In contrast, emerging economies such as China and India have shown strong growth momentum. China's share of global digital trade increased from 9.2% in 2020 to 10.3% in 2024, while India's share rose from 3.2% to 4.3% in the same period. These developments suggest that while developed economies still hold a leading market position, developing economies – represented by China and India – are growing at a faster pace, helping to steer the global digital trade landscape towards greater diversity and balance.

**Figure 5 Developed economies lead digital trade but market shares shrink**

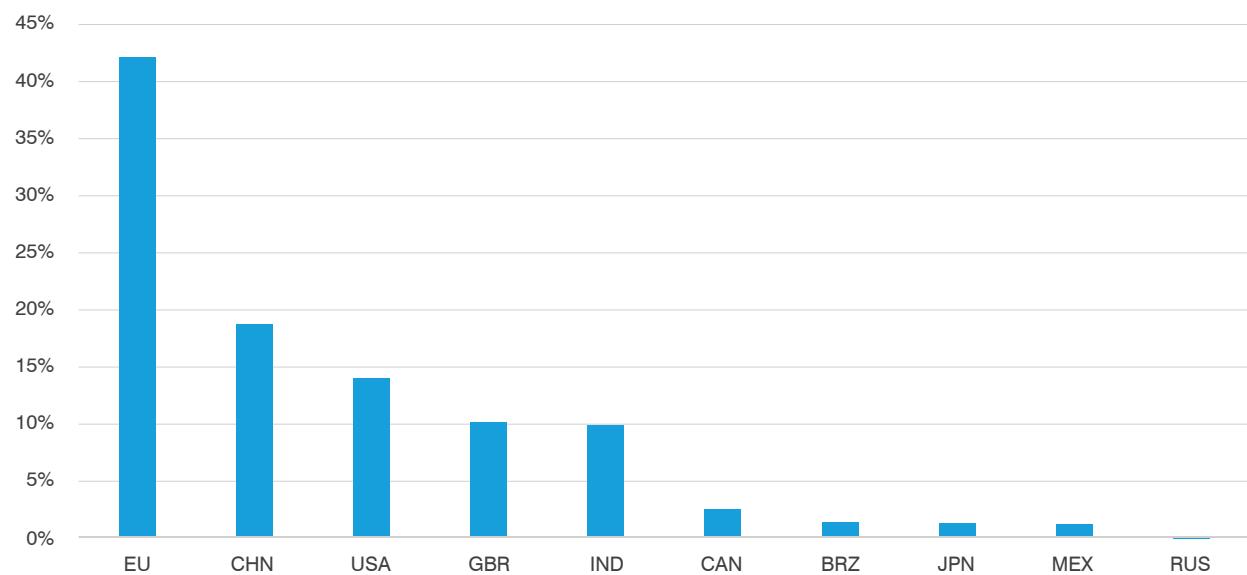


Note: EU = European Union, CHN = China, USA = United States, GBR = United Kingdom, JPN = Japan, CAN = Canada, IND = India, MEX = Mexico, RUS = Russian Federation, BRZ = Brazil.

Source: Estimates by the report team. Raw data come from the WTO Global Services Trade Data Hub, UNCTAD surveys, and national statistics on cross-border electronic commerce. See endnotes 1–3 for details.

Major economies contributed unevenly to the growth of global digital trade exports in 2020–2024. The collective export value of the top 10 economies rose by \$1.68 trillion in this period. The EU, the United States, and China were the top three contributors, accounting for 41.9%, 18.6%, and 13.9% of growth, respectively.

The United Kingdom and India also made significant contributions, with shares of 10.1% and 8.8%, respectively. In contrast, other major economies including Brazil, Mexico, Japan, and the Russian Federation contributed less to global digital trade growth during this period.

**Figure 6 EU and China contributed most to digital trade growth in 2024**

Note: EU = European Union, CHN = China, USA = United States, GBR = United Kingdom, JPN = Japan, CAN = Canada, IND = India, MEX = Mexico, RUS = Russian Federation, BRZ = Brazil.

Source: Estimates by the report team. Raw data come from the WTO Global Services Trade Data Hub, UNCTAD surveys, and national statistics on cross-border electronic commerce. See endnotes 1–3 for details.



**Box 2 Methodology for measuring the scale of global digital trade**

The second edition of the *Handbook on Measuring Digital Trade* classifies digital trade into two categories: digital delivery trade and digitally ordered trade. This report relies on data from WTO's Global Services Trade Data Hub to measure digitally delivered trade. Based on the digital services trade data of major economies provided therein, the report calculated the digital delivery trade for each major economy.

Digitally ordered trade falls into two main categories: digitally ordered goods trade and digitally ordered services trade. The latter can be further subdivided if the service can be delivered digitally. Specifically, it includes services that are ordered digitally but cannot be delivered in digital form, such as certain transportation services that are booked through digital platforms but physically delivered; as well as services that are both ordered and delivered digitally, such as digital music purchased and accessed through specialized online platforms.

The second subcategory, involving services that are both digitally ordered and digitally delivered, overlaps with digitally delivered trade. To avoid double counting, these services are excluded from the scope of digitally ordered trade once they are accounted for under digitally delivered trade. Therefore, this report focuses its measurement of digitally ordered trade on the first two categories: digitally ordered goods and services that are digitally ordered but physically delivered.

As digitally ordered goods trade constitutes the overwhelming majority of total digitally ordered trade, this year's report places emphasis on refining and enhancing the estimation of this component, while also conducting preliminary exploration into the measurement of digitally ordered but non-digital delivered services. Further developments in this area will be reflected in next year's report.

To estimate the scale of digitally ordered goods trade (Category 1) more accurately, this report begins by collecting cross-border e-commerce data released by the government departments of major economies, including China, the United States, the EU, the United Kingdom, and Japan. It also draws on data published by market research institutions and international organizations such as the WTO and UNCTAD.

The report systematically compiles and standardizes information on cross-border e-commerce transaction volumes from both national and international sources, providing the foundation for estimating the digitally ordered trade volumes of major economies. If an economy's cross-border e-commerce volume is available for only one year, the report interpolates the remaining values using the growth rate of its merchandise trade.

Building on this foundation, the report incorporates information on each economy's industrial structure and the development level of its domestic e-commerce sector. In particular, it applies quantitative economic models to estimate the share of digitally ordered trade within international trade. In doing so, the report evaluates the share of digitally ordered trade within international trade using four key dimensions: the level of economic development, the quality of digital infrastructure, the advancement of cross-border e-commerce, and the degree of international trade openness.

These dimensions are represented by indicators such as gross domestic product (GDP) per capita, digital economy size, internet and mobile broadband penetration rates, the number and transaction volume of cross-border e-commerce platforms, the ratio of international trade to GDP, and the number of international ports. A regression model is then constructed by regressing the economy's share of cross-border e-commerce in total international trade on the aforementioned regressors.

Based on the estimated regression model, the report extrapolates digitally ordered trade volumes for other economies where direct data are limited or unavailable. Finally, by incorporating each economy's share of global GDP and total international trade, the report estimates the total value of global digital trade by scaling the economy-specific digital trade volume using the average of its share of global GDP and its share of total international trade.

## CHAPTER 2

# Policy trends in global digital trade

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# CHAPTER 2

## Policy trends in global digital trade

### Opportunities and challenges

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#### Evolution of digital trade policies across countries

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This section curates the most recent policy moves by the world's major economies. It spotlights reforms in trade taxation and facilitation, maps the evolving network of e-commerce chapters in preferential and multilateral agreements, and distils each country's overarching strategy for digital-trade expansion. Rather than an exhaustive catalogue, the aim is to trace the policy currents now shaping the digital-trade frontier.

#### United States

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The US Government has introduced major new regulations in the fields of data security and digital trade policy. On 27 December 2024, the US Department of Justice issued final rules for implementing Executive Order 14117 of the Biden administration, effective 8 April 2025.<sup>8</sup> This order prevents China, Cuba, Democratic People's Republic of Korea, Iran, the Russian Federation, and Venezuela, as well as their entities, from accessing the sensitive personal data of American citizens and US Government-related data.

The United States has also implemented tariff measures against countries that applied digital services tax. In February 2025, the US Trade Representative's Office started a Section 301 investigation into the imposition of digital services taxes by other countries and announced plans to impose retaliatory tariffs on those countries.<sup>9</sup>

In addition, the Government has imposed stricter restrictions on technological cooperation, particularly with China. In January 2025, the United States restricted China-related investments in semiconductors, artificial intelligence (AI), and quantum technologies.<sup>10</sup> On 9 April, citing 'alignment with national and economic security interests', the Government prohibited the export of Nvidia's H20 chips, AMD's MI308 chips, and other similar products to China.

Three days later, the US Government notified Nvidia that exports of its H20 GPU, specifically designed for the Chinese market, were subject to an export license issued by the US Department of Commerce

Nvidia and AMD reached an agreement with Washington four months later: as a condition for obtaining export licences, they consented to remit 15% of their respective revenues from sales of H20 chips and MI308 chips in the Chinese market to the US Government.

On 2 June, the Department of Commerce instructed the three major electronic design automation firms – Synopsys, Cadence Design Systems, and Siemens EDA – to stop providing services to Chinese companies. All three confirmed on 3 July that the Commerce Department's Bureau of Industry and Security had lifted the temporary export ban targeting the Chinese market. Discussions between the United States and China are ongoing.

#### European Union

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The EU updated its regulatory framework by strengthening technological governance and aligning economic policies. The Artificial Intelligence Act, the world's first comprehensive regulatory framework, took effect in August 2024, establishing a risk-based classification and oversight system.<sup>11</sup>

In February 2025, during the AI Action Summit in Paris, France announced an investment of €109 billion (\$127 billion), and the EU committed €50 billion (\$58 billion) to leverage a €150 billion (\$175 billion) AI fund.<sup>12</sup> On 9 April, the European Commission adopted the AI Continent Action Plan, which aims to enhance the EU's innovation capabilities in the field of artificial intelligence by focusing on five key areas, including infrastructure and access to high-quality data.<sup>13</sup>

While refining its technological governance framework, the EU simultaneously advanced trade and economic reforms: it abolished the long-standing de minimis tax exemption for cross-border e-commerce goods imports under €150 (\$175), leveraging the one-stop shop value-added tax declaration platform for centralized tax collection. The framework is scheduled to come into force in 2028.

The EU has actively promoted its regulatory standards abroad. On 10 March 2025, the EU said it had signed a landmark digital trade agreement with Republic of Korea<sup>14</sup> that covers many areas, including cross-border data flows, privacy and personal data protection, electronic contracts, electronic authentication and trust services, source code protection, and consumer rights.

In advancing AI governance and digital trade, the EU has consistently treated the General Data Protection Regulation (GDPR) as its foundational standard. Key provisions of the GDPR, which entered into force on 25 May 2018, include expanding the definition of personal data (to cover sensitive information such as health records and religious beliefs), clarifying data processing principles and data subjects' rights, and imposing compliance requirements on enterprises.

The institutional design of the GDPR has standardized data governance criteria across the European Union, laid down a privacy baseline for AI investments and cross-border digital trade, and reinforced the EU's 'rules-first' characteristic in governing the digital economy.

## China

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China uses a multidimensional and multi-pronged approach to deepen institutional innovation and international cooperation in the field of digital trade, contributing to the development of a new, higher-level open economic system.

The Chinese Government has taken steps to strengthen regulatory frameworks to promote openness and cooperation in digital trade. In August 2024, China issued Opinions on Digital Trade Reform, Innovation and Development, which included 18 measures to actively develop trade in digital products, build high-level open platforms for digital trade, and accelerate the establishment of a digital trust system, among others.<sup>15</sup>

China has also been optimizing mechanisms for cross-border data flows. In September 2024, the State Council issued the Opinions on Promoting High-Quality Development of Trade in Services through High-Standard Opening Up, proposing to establish dedicated international internet data channels in eligible regions, develop efficient, convenient, and secure mechanisms for cross-border data flows, and improve the digital environment for trade in services.<sup>16</sup>

In November 2024, at the World Internet Conference in Wuzhen, China launched the Global Cross-Border Data Flow Cooperation Initiative, advocating principles of openness, inclusiveness, security, and non-discrimination in cross-border data flows.<sup>17</sup>

China has supported the high-quality development of cross-border e-commerce and new forms of foreign trade. On 15 December 2024, the Government abolished the filing requirement for cross-border e-commerce firms operating overseas warehouses, simplified document declaration procedures, and reduced compliance costs for businesses.<sup>18</sup> On 27 January 2025, China implemented a 'tax refund upon goods departure' policy for goods exported via overseas warehouses through cross-border e-commerce.<sup>19</sup> Exporters may apply for export tax refunds or exemptions immediately after the goods cleared customs.

In March 2025, a series of measures were introduced to further facilitate customs clearance at airports, supporting cross-border e-commerce enterprises in their operations. This means goods from multiple sources (i.e. overseas returned goods, domestic products entering bonded zones, and imported goods) can be sorted and repackaged in comprehensive bonded zones and re-exported through air freight.<sup>20</sup>

## ASEAN

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The Association of Southeast Asian Nations (ASEAN) is advancing digital economic development through top-down design and cross-border collaboration. A key step in this collective effort is the ASEAN E-Commerce Agreement, which entered into force in 2021. The ASEAN Digital Economy Framework Agreement, set for implementation in 2025, aims to eliminate cross-border digital trade barriers, targeting an increase in the digital economy scale from a projected \$1 trillion in 2030 to \$2 trillion.<sup>21</sup>

At the 5<sup>th</sup> ASEAN Digital Ministers' Meeting in January 2025, member states agreed to collaborate with China on developing the China–ASEAN Action Plan on Building a Sustainable and Inclusive Digital Ecosystem (2026–2030).<sup>22</sup> The plan will focus on digitalization, digital transformation, and green development, with the goal of jointly fostering a new ecosystem for the digital industry.

ASEAN member states have also worked to advance digital transformation.

- The digital economy contributes more than 20% to Malaysia's GDP.
- Singapore, under its Smart Nation 2025 strategy, saw digital trade rise to 17.3% of GDP, ranking the country first globally in digital competitiveness.
- The digital transformation plan of Indonesia's central bank aims to reach 91.3 million unbanked individuals.

- Lao People's Democratic Republic achieved QR code cross-border payment interoperability with China UnionPay.
- Thailand had built a 5G innovation centre to support digitization of small and medium-sized enterprises (SMEs).<sup>23</sup>
- In the Philippines, with 90% internet penetration, the Government has accelerated data centre investments, building synergies with the digital ecosystem in the region.

ASEAN members have worked to strengthen digital technology innovation and application. For example, Thailand has leveraged technologies such as 5G, cloud computing, and AI to provide high-quality medical solutions to residents in remote areas. The China–ASEAN Information Harbor has established more than 20 joint laboratories or innovation centres in several ASEAN countries to promote information technology innovation. These centres support the use of digital technologies in sectors such as agriculture, healthcare, and government services.

## Africa

African countries have made advancements in regulatory harmonization and regional coherent development of the digital economy.

The continent now has a unified digital trade framework. In February 2025, 48 African Union member states adopted the Digital Trade Protocol under the African Continental Free Trade Area (AfCFTA) during the 37<sup>th</sup> African Union Summit. The protocol, which will enter into force once the entry-into-force conditions are met, promotes the integration of the regional digital market and covers key issues such as cross-border data flow, electronic payments, and IP protection. It aims to eliminate digital trade barriers among member states and lay a solid foundation for the integration of Africa's digital economy.<sup>24</sup>

African countries have also stepped up digital collaboration with the rest of the world. China and 26 African countries signed the China–Africa Digital Cooperation Development Action Plan on 29 July at the China–Africa Digital Cooperation Forum. The plan focuses on six key areas, including digital policy coordination, infrastructure development, and technological innovation, injecting new momentum into continental digital harmonization.<sup>25</sup>

Governments across Africa are fast-tracking regional e-commerce integration. Advanced logistics and payment solutions have been adopted to bring locally distinctive

agricultural products and handicrafts to the global market through online channels. For example, Google partnered with one of South Africa's largest logistics company, Imperial, to launch the LogiSmart Clearing Initiative. This initiative established an AI-powered customs clearance platform based on Google Cloud application programming interfaces, boosting the efficiency of export documentation processing to an average completion time of under four hours.

## Middle East

The region is steadily positioning itself as a major hub for global digital trade by advancing infrastructure, platforms, talent development, and regulatory frameworks. With a comprehensive approach to digital transformation, the Middle East is laying a strong foundation for sustained digital trade growth.

Rapid expansion of broadband connectivity is laying the groundwork for transformative infrastructure growth. In the United Arab Emirates, Dubai's Cloud Creek Port has adopted Huawei's 10G PON solution to establish an all-optical 10Gbps network. This infrastructure supports a wide range of services, including digital media, music streaming, Wi-Fi backhaul, and building management systems. The region is also accelerating 5G deployment, greatly enhancing data transmission speed and capacity to power emerging digital trade applications such as the Internet of Things, big data, and AI.

Middle Eastern governments are developing platforms to improve public services and support business operations. The United Arab Emirates has launched integrated platforms such as TAMM and DubaiNow, which streamline cross-departmental data exchange to provide efficient public services – creating a favourable environment for digital trade firms. In Saudi Arabia, Huawei's partnership with the Saudi Space Commission has led to the creation of the Future Space technology experience centre, which showcases advanced digital technologies and promotes innovation and wider adoption in the digital trade ecosystem.<sup>26</sup>

Governments have enhanced public–private partnerships to accelerate digital transformation. The United Arab Emirates's Digital Economy Strategy encourages the adoption of blockchain, cloud computing, and 5G in the private sector, boosting the competitiveness of its digital industries. Saudi Arabia's Vision 2030 emphasizes digital transformation across sectors by investing in digital infrastructure such as Huawei's all-flash data centres. This sort of investment addresses growing needs in data processing, storage, and analytics across industries like finance and energy.

## Latin America

In 2024, the Latin America region advanced on policy coordination and ecosystem development to provide multidimensional support for digital trade. These efforts are reflected in three areas:

### 1. Actively promoting regional trade facilitation and digital cooperation.

In October 2024, Argentina's Congress approved the Mercosur Trade Facilitation Agreement (Bill No. 27766), which includes language on digital technologies to manage customs procedures, implements risk-based control measures, and enhances interoperability among member states' systems. This will improve trade efficiency and reduces logistics costs among Argentina, Brazil, Paraguay, and Uruguay.

The Mercosur e-commerce agreement was initially signed in 2021, marking an important step in the region's digital trade development. Argentina also ratified the Mercosur Electronic Commerce Agreement (Bill No. 27768) that year, establishing a regulatory framework for cross-border data transfers, consumer protection, and online transaction security, providing strong support for SMEs to expand in cross-border e-commerce.

Across Latin America, traditional industries are increasingly embracing digital tools, marking steady progress in the region's broader transformation. Merchandise exports from Latin America and the Caribbean rose 4.1% year-on-year in 2024, according to the Inter-American Development Bank.

Argentina and Brazil have begun integrating digital technologies into the trade of traditional exports such as soybeans and iron ore to optimize supply chain management. Supply and demand are precisely matched through digital platforms, and big data are used to analyse market trends and enhance the scientific basis for trade decisions. For example, Brazil uses digital tools to monitor logistics in real time during soybean exports, ensuring timely delivery and improving trade efficiency.

### 2. Advancing digital economy strategies.

Brazil launched its Digital Transformation Strategy (E-Digital) in 2018 and introduced a national artificial intelligence plan in 2024, allocating some \$4 billion to support commercial innovation projects and AI infrastructure development. The country also updated its national cybersecurity policy and established a national cybersecurity council to safeguard the digital trade environment.

As one of the founding members of the Digital Economy Partnership Agreement, Chile actively promotes the formulation of international standards for digital trade. With a solid foundation in digital economy development, the country leads the region in metrics such as network speed and business internet adoption. In 2024, Chile passed Law No. 21713, which expanded the scope of its value-added tax regime on the digital economy, further clarifying digital taxation rules.

### 3. Accelerating enterprise digital transformation and fostering cross-border e-commerce ecosystems.

Argentina launched its SME Digital Transformation Programme to support SMEs through technical assistance, financial support, and training initiatives. The country also accelerated the development of digital payment systems to enhance credit accessibility for SMEs.

In Brazil, the Government partnered with the Inter-American Development Bank to promote SME participation in international trade. The modernization of Brazil's domestic logistics network, along with the integration of AI into e-commerce development, has led to significant growth. Brazil's e-commerce transaction volume reached \$346 billion in 2024 and is projected to climb to \$586 billion by 2027, positioning the country as the most dynamic e-commerce market in Latin America.

## International organizations' efforts

International organizations continue to support discussions on digital trade. One important collaborative initiative – the *Digital Trade for Development* report, jointly produced by the IMF, the OECD, UNCTAD, the World Bank and the WTO – highlighted the pivotal role of digital trade in fostering more inclusive and widely shared benefits.

## WTO

Discussions on trade-related aspects of e-commerce have taken place at the WTO under the Work Programme on Electronic Commerce, which was adopted in 1998 and is tasked with examining all trade-related aspects of e-commerce as well as exploring the relation between existing WTO agreements and e-commerce. The work programme gives WTO Members a platform for discussions and experience sharing.

Work has intensified in recent years, with Members exploring issues such as the digital divide and legal and regulatory frameworks. Discussions have also touched on the longstanding moratorium on customs duties for electronic transmissions, which was adopted in 1998 and has been regularly renewed. Both the work programme and the moratorium are scheduled to lapse at the 14th WTO Ministerial Conference, prompting ongoing negotiations among Members as they prepare for the upcoming deliberations.

After five years of negotiations, a coalition of WTO Members reached a milestone with the conclusion of the landmark Electronic Commerce Agreement in 2024. This accord marks a critical breakthrough in global digital trade governance, providing a stable rule framework for global e-commerce development.

The agreement facilitates e-commerce trade, reduces business costs, advances global digital trade rules, and creates a safe, reliable environment for consumers. Key provisions include electronic signatures and electronic invoices, enhancing online consumer protection, promoting cybersecurity cooperation, and banning tariffs on electronic transmissions. These rules reduce digital trade barriers, facilitate cross-border e-transactions, and support members' digital transformation.<sup>27</sup>

Not all members support the agreement, however.

## UNCTAD

UNCTAD plays a key role in promoting inclusive digital trade development. It fosters global discussions and policymaking through platforms such as its Intergovernmental Group of Experts on E-commerce and the Digital Economy. UNCTAD emphasizes greater digital readiness, particularly in developing countries, to ensure equitable benefits from e-commerce and the digital economy. It provides policy advice, technical support, and evidence-based assessments to help countries craft inclusive e-commerce strategies.

Collaborating with relevant stakeholders including international organizations and development partners, UNCTAD leverages resources to ensure coherent approaches, reliable data, and effective support for nations in digital trade development. The Task Group on Measuring E-commerce Value was set up to respond to UNCTAD members' need for statistics on the value of digitally ordered transactions, including country requests for technical assistance on measuring the value of e-commerce and digitally ordered trade.

UNCTAD, along with the WTO, the OECD, and the IMF, released the second edition of the *Handbook on Measuring Digital Trade* in July 2023. This marked an important step towards unifying measurement approaches for global digital trade, thereby providing the necessary foundation for industry development and analysis.<sup>28</sup>

## Policy recommendations

The global trade landscape has undergone notable shifts since early 2025, with countries revising tariff policies on low-value cross-border e-commerce shipments and rolling out new digital trade measures – driven in part by evolving geopolitical dynamics. Against this backdrop, greater rationality and collaboration are needed to develop digital trade and promote cross-border e-commerce. This approach will strengthen evidence-based policymaking, foster a more stable, cooperative, and inclusive policy environment, and inject fresh momentum into the expansion of digital trade.

### Explore alignment of digital trade rules

An array of approaches has emerged in shaping global digital trade rules, each emphasizing different priorities – from market liberalization and data security to inclusive development and equitable access. Rule-making processes in areas such as cross-border data flows has long been stalled due to major differences among countries.

Strengthening cooperation grounded in win-win principles, promoting mutual recognition of technical standards, and harmonizing rules on cross-border data flows can open new pathways for deepening international collaboration on digital trade governance. This would ensure data sovereignty and privacy protection while reducing compliance costs for businesses.

At the same time, cooperation must be anchored on shared consensus and institutional openness integrated with security governance. On the basis of safeguarding data sovereignty, countries could explore innovative tools such as regulatory sandboxes to inject policy certainty and momentum into the global digital trade ecosystem. By adopting a governance model based on joint rulemaking, shared risk, and mutual benefit, the inclusive value of digital trade for the global economy can be realized.

A joint research initiative by the OECD and the WTO underscores that upholding coordinated approaches to data governance is critical to safeguard global economic vitality. Their findings indicate that fostering an integrated global economy – where cross-border data flows remain open and unimpeded – helps avoid significant economic losses. In contrast, a fragmented scenario, characterized by widespread national restrictions on data flows, could lead to a 4.5% reduction in global GDP and an 8.5% decline in global trade.<sup>29</sup>

#### Enhance communication and coordination of cross-border e-commerce policies

The cross-regional, multi-nodal, and inherently complex architecture of cross-border e-commerce highlights the challenges posed by divergent policies and regulatory inconsistencies across jurisdictions. Strengthening policy communication and coordination is not only a pragmatic response to trade frictions but also a strategic choice for building a fair, efficient, and sustainable global digital trade system.

When formulating trade policies, countries need to enhance communication with relevant stakeholders, avoid trade frictions such as ‘tariff wars’ or tariff escalations, and cooperate more to prevent double taxation. This would lower the entry barriers for SMEs in global trade, promoting policy inclusiveness and fairness.

#### Building a strategy that balances development and security

The development of digital trade must strike a balance between fostering innovation and maintaining security to prevent risks such as technological monopolies and data breaches from disrupting global industrial chains. On one hand, a transnational data security governance framework should be established.

For example, by drawing on Global Initiative on Data Security, countries can develop tiered and categorized rules for cross-border data flows, promote mutual recognition of critical infrastructure protection standards, and explore innovative tools such as ‘regulatory sandboxes’ to provide controlled testing environments for digital technology applications.

On the other hand, it is vital to strengthen the diversity and resilience of digital supply chains. This can be achieved through international cooperation to foster open-source technology ecosystems, reduce reliance on a single technological system, and support local suppliers in fields such as cloud computing and AI –ultimately enhancing the industrial chain’s capacity to withstand risks.

Furthermore, countries could explore creating cybersecurity emergency coordination mechanisms and seek a balance between the protection of data sovereignty and cross-border law enforcement cooperation. Ensuring security will serve as a solid foundation for the sustainable development of digital trade.

#### SME Competitiveness Outlook 2025: A Digital Transformation Roadmap

The 2025 edition of ITC’s flagship report, the SME Competitiveness Outlook, focuses on how SMEs can digitally transform in this era of fast-paced technological change. It introduces ITC’s new Enterprise Digital Transformation Index (e-DTI) to assess firms’ adoption of digital technologies, analysing which factors may limit them from achieving their full potential and which enablers are vital to their success. Finally, it offers a roadmap—with recommendations for the public sector, private sector, international community, and small businesses—to ensure that all firms can benefit fully from the digital economy, and that no one is left behind.

## Key findings

1. Digital transformation drives efficiency  
More than 80% of firms that use digital technologies report higher sales and lower costs, a new ITC survey of some 7,400 companies in 78 countries shows.
2. Not all firms benefit equally  
Firms that use digital technologies intensively, which ITC dubbed expert users, were 12 times more likely than emerging users to cut costs, 5 times more likely to increase sales, and 2 times more likely to innovate or improve quality.
3. The environment shapes firms' success  
In countries with high digital readiness, nearly 60% of firms were expert users – three times more than in countries that are less digitally ready.
4. Size and leadership matter in unsupportive environments  
Firms, especially the most vulnerable, struggle when operating in countries with unsupportive environments. In these contexts, large firms, non-youth-led firms and men-led firms are, respectively, 2.5, 2, and 1.5 times more likely to be expert users than their smaller, youth-led, and women-led counterparts.
5. SMEs can take concrete steps to make up for gaps in the environment  
Even where the surrounding environment isn't fully supportive, SMEs can advance with their digital transformation by taking three key actions:
  - Improve their financial management, helping make up for infrastructure inefficiencies;
  - Identify and train staff, helping make up for skills shortages; and
  - Connect with business support organizations (BSOs), which can help firms navigate complex regulatory ecosystems.
6. Three key enablers of digital transformation  
While SMEs can take steps to make up for some of these gaps in their environment, those alone are not enough for ensuring that firms can reach their full digital transformation potential. That is where external enablers play an essential role. These include:
  - Digital infrastructure
  - Digital skills
  - A supportive regulatory ecosystem

	<b>Public Sector</b>	<b>Private Sector</b>	<b>International Community</b>	<b>Small Business</b>
<b>Infrastructure</b> 	Increase availability and affordability through direct investment, partnerships and (fiscal and non-fiscal) incentives	Develop innovative market-based solutions and socially responsible initiatives	Offer concessional financing and support data collection efforts to pinpoint gaps and needs	Improve financial management and access to finance
<b>Skills</b> 	Integrate digital skills in educational curricula, allow entry of foreign talent and strengthen social safety nets	Share information on demanded skills, provide training and transfer know-how	Support educational and training institutions to upgrade curricula	Professionalize recruitment and provide training to improve skills matching
<b>Regulations</b> 	Update/build the regulatory toolbox for the digital age and ensure cross-border interoperability	Engage in digital strategy-, policy- and rule-making, as well as implementation	Champion and facilitate regulatory alignment and crossborder governance mechanisms	Engage with business support organizations to obtain information and advocate for SME-friendly rules

## CHAPTER 3

# Key issues in global trade development

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# CHAPTER 3

## Key issues in global trade development

From the perspectives of offering thought leadership and promoting inclusiveness, AI, cross-border e-commerce, and female digital entrepreneurship were selected as the key topics of this year's report. These three topics not only represent the key directions of global digital trade in terms of technological innovation and business model innovation, but they also profoundly determine whether the dividends of digital trade can break through the barriers of regions, income groups, and genders to achieve inclusive development. They are also the key pillars for promoting high-quality and sustainable development of digital trade.

### Artificial intelligence

Artificial intelligence has reshaped the infrastructure and business models of digital trade and spawned a large number of emerging services and cross-border transaction scenarios. This report focuses on technological development and the global market expansion of AI. It analyses how artificial intelligence promotes the innovation and transformation of global digital trade and comprehensively presents the current situation and future trends of AI in empowering digital trade.

#### Rapid adoption of artificial intelligence technologies

Breakthroughs in core AI technologies are accelerating at an unprecedented pace, fuelling the evolution of large model performance, deepening multimodal integration, and enabling new frontiers in embodied intelligence. These

advances are propelling AI beyond theoretical exploration into widespread practical deployment. As each wave of technological iteration unfolds, it not only expands the boundaries of AI capability but also reshapes the logic through which AI systems engage with the real world.

#### *Continuous leap in large model performance*

With the rapid adoption of AI technology, large models have achieved major breakthroughs in core performance indicators. Among them, the leapfrog growth of parameter scale and the refined optimization of training data have become the two core engines driving the performance leap.

Many technology giants and research institutions continue to expand the parameter boundary of models. For example, OpenAI's GPT-4 has 1.8 trillion parameters, far exceeding its GPT-3 (175 billion parameters). This increase in parameter scale enables the model to capture more complex patterns and relationships in data, thus performing excellently in tasks such as natural language processing and image recognition.

At the same time, the screening, cleaning, and expansion of training data have become more stringent, with the introduction of multi-domain and multimodal data, including academic literature, social media dynamics, and professional datasets. This makes the learning content of the model richer and more diverse and significantly improves the knowledge reserve. For instance, GPT-4's training data include billions of web texts, tens of millions of image data, and millions of hours of voice data, enabling the model to learn more abundant and diverse knowledge.

### Box 3 How DeepSeek propels global AI development

As an innovative representative in the field of artificial intelligence, China's DeepSeek is injecting new momentum into the development of global AI through innovation in computing power infrastructure, breakthroughs in basic model construction, and the building of an open-source ecosystem.

The core of AI development lies in breakthroughs in basic models. The release of DeepSeek-MoE architecture has promoted the explosive growth of the global open-source ecosystem. Enterprise-level application cases have further verified its commercial value. Leveraging DeepSeek-MoE's flexible deployment capability, Southeast Asian e-commerce giant Shopee has reduced the response time of its dialogue system from 2.3 seconds to 0.17 seconds, and African medical AI company MedBot has increased the accuracy of malaria identification by 19%.

Developing countries have become the biggest beneficiaries in the open-source ecosystem. Indonesian edtech company Ruangguru has reduced costs by 80% with the help of DeepSeek's open-source model; AI for drug detection based on DeepSeek was born in a slum in Mexico. These innovations help mitigate the challenges posed by proprietary models with high licensing fees, enabling a form of technological parity through the open-source ecosystem.

Source: Science and Technology Daily, 2025. See [https://xxzx.fj.gov.cn/jxj/szj/202502/t20250228\\_6769667.htm](https://xxzx.fj.gov.cn/jxj/szj/202502/t20250228_6769667.htm)

#### *Maturity of multimodal fusion technology*

Mainstream global AI large models have evolved from single-language models to multimodal fusion, supporting the joint processing of multiple types of data such as images, voice, text, and video, and the information fusion and interaction between different modalities have reached a new height. Nvidia launched Nvidia AI Blueprint, a tool mainly used to develop visual AI agents. Almost any industry can use it to analyse videos and images and improve work efficiency and monitoring effects.

In traffic management scenarios, for example, this solution can conduct real-time analysis of video streams at intersections, accurately identify vehicle violations, and promptly warn of congestion and accidents. The AI music generation model SunoV3 can generate high-quality music works with corresponding melodies and rhythms based on users' input text descriptions of music styles, emotional tones, etc., realizing accurate conversion from text to audio.

In the field of image and text fusion, the model can generate detailed and accurate text descriptions based on given image content, or edit and synthesize images according to text instructions, achieving in-depth understanding and flexible generation of cross-modal information.

#### *Progress in embodied intelligence*

The hardware design and manufacturing processes of humanoid robots and service robots have been substantially improved, with greatly enhanced joint flexibility and motion stability that enables them to complete more complex and delicate actions. For example, Figure AI's Figure 02 robot has smoother walking and climbing abilities and its robotic arm can complete tasks such as screw tightening and object

grabbing with high precision, showing broad application prospects in industry and logistics.

The Unitree G1 humanoid robot can complete actions such as side flips and 720-degree roundhouse kicks and walk stably on difficult terrain, helping it adapt to multiple scenario requirements.

Embodied intelligent agents rely on advanced sensors and deep learning algorithms. Their ability to perceive the environment, understand tasks, and make decisions continues to improve. For example, in logistics scenarios, robots equipped with Deepoc-embodied intelligence development boards can construct dynamic obstacle maps through 3D lidar and parse voice commands through microphone arrays. In warehouses, they can quickly identify dynamic obstacles, parse voice commands in complex environments, and dynamically adjust routes, significantly improving traffic efficiency.

#### *Diversified governance of artificial intelligence*

Competition in the global AI industry is becoming fierce. Technology companies and many governments are promoting technology export through multiple methods while building their own competitive advantages.

The United States leverages its technological first-mover advantage, with enterprises such as OpenAI, Google DeepMind, and Nvidia as the core. They export worldwide through open-source large models, cloud service integration, and technology authorization to build global influence in the AI field.

For example, OpenAI has cooperated with Microsoft to integrate GPT series models into the Azure cloud platform, providing text generation, data analysis, and other services for global firms. OpenAI supports 161 countries and regions and its services cover firms in finance, healthcare, education, and other industries.

Nvidia, relying on GPU chips and deep learning frameworks, supports most of the global AI computing power infrastructure. Data show that more than 70% of global AI training tasks rely on Nvidia's GPU products. At the same time, this strategy of parallel technical specification and market output reflects its consideration of balancing technological development and commercial interests.

The EU takes a risk-based approach and focuses on strengthening rule-making in the field of artificial intelligence, aiming to shape a favourable international cooperation pattern for AI by clarifying development directions and norms. To this end, the EU has introduced the Artificial Intelligence Act and the Digital Services Act, establishing a strict regulatory framework and clarifying prohibitive clauses and review requirements for AI applications. For example, stricter controls are imposed on facial recognition technology that may violate personal privacy.

At the same time, the EU actively promotes AI technology cooperation with other countries in areas such as manufacturing and healthcare. For example, German companies including SAP have exported industrial AI optimization solutions to Asian manufacturing bases to help local enterprises improve production efficiency.

China promote the implementation of AI solutions in emerging markets. For example, Chinese technical standards are increasingly embedded in Southeast Asia's infrastructure and regulations. The AI customs clearance system deployed in Malaysia Digital Free Trade Zone has reduced the customs declaration time for SMEs from 72 hours to 2 hours, and palm oil exports to Europe have increased by 18%. The system adopts China's independently developed OCR recognition engine, supporting document processing in six languages including Indonesian and Malay, with an error rate of less than 0.5%.<sup>30</sup>

In the future, AI will upgrade from an efficiency tool to an ecological operating system, driving global digital trade towards intelligence, inclusiveness, and compliance. It will reshape the global competitive landscape in three dimensions: technological autonomy, rule discourse power, and development inclusiveness. However, it also faces challenges such as data sovereignty disputes and fragmentation of technical standards.

## Cross-border e-commerce

Cross-border e-commerce, a vital component of global trade, has grown rapidly in recent years, with expanding market scale and accelerating speed. Global retail e-commerce sales have increased at an average annual rate of 17.9% over the past decade, according to Statista, and e-commerce is projected to account for 23% of total retail sales worldwide by 2027.<sup>31</sup>

The application of emerging technologies such as AI, the rise of platform-based enterprises, and the continuous improvement of digital infrastructure have acted as strong drivers for cross-border e-commerce innovation. These advancements enhanced supply–demand matching, optimized transaction processes, and improved business environments, igniting a new engine for global foreign trade.

### AI drives new trends in cross-border e-commerce

Artificial intelligence empowers the cross-border e-commerce industry, enabling more efficient and intelligent global trade. The global AI market in e-commerce is expected to reach \$45.7 billion by 2032.<sup>32</sup> This growth is largely driven by AI's deep application in scenarios including customer service, personalized recommendations, and supply-chain optimization.

In Yiwu, China's trading hub, nearly 30,000 merchants have collectively used AI applications more than 1 billion times daily, with local smart platforms integrating tools such as DeepSeek. As successive innovations reshape the digital landscape and algorithms mature, AI is rapidly embedding itself in cross-border e-commerce, transforming everything from content creation and product curation to customer service and supply chain logistics.

In market insights and ad optimization, German sellers on Amazon using the Amelia assistant saw their return on investment rise 40%. In text processing, AI Listing efficiently translates text and extracts keywords, with more than a third of Amazon sellers and brands using it to write and optimize listings,<sup>33</sup> boosting conversion rates by 35%.<sup>34</sup> In customer service, TikTok Shop's Tako and Lazada's LazzieChat provide 24/7 multilingual smart support. AliExpress uses AI tools to reduce seller response times from six hours to two minutes. Shopify merchants using AI to detect user emotions reduced negative reviews by 15%.

In digital supply chains, new AI models intelligently match demand data, traffic, and factory production. For example, AliExpress's Choice (fully managed) mode saw more than 60% order growth in the fourth quarter of 2023, with Choice orders exceeding 70% of the total.

### Cross-border e-commerce platforms lead changes in transaction models

The competitive terrain of international e-commerce platforms has grown more varied and fragmented, with traditional giants and emerging platforms coexisting, driven by technology and innovative models as core competitive factors.

Amazon, the global e-commerce leader, reported \$620 billion in revenue in 2024, dominating with 17 global sites, a 60% share of US e-commerce sales, and more than 80 distribution centres across Europe. eBay, which uses an auction-based transaction model, operates in the United States, Canada, Europe, Japan, and Australia, with 30 million US users, making it one of the world's largest online marketplaces.

Emerging platforms including Shopee, Lazada, and AliExpress have gained traction with competitive pricing and responsive supply chains. Shein, with its 'small-batch, fast-turnaround' model, takes as little as seven days from design to listing, leading fast fashion with a 2024 gross

merchandise value exceeding \$60 billion, spanning across Southeast Asia, the Middle East, and South Africa.

TikTok Shop, powered by a 2-billion-strong user base and influencer-driven content, is reshaping consumer behaviour across Southeast Asia. Its fusion of live-streaming and short-video e-commerce pushed the platform past \$33.2 billion gross merchandise value in 2024.<sup>35</sup>

Southeast Asia is also building independent platforms, with Indonesia's Tokopedia reaching \$16.3 billion gross merchandise value in 2023 (exceeding 35% market share).<sup>36</sup> In Viet Nam, Tiki recorded 33.7 million monthly visits in 2025,<sup>37</sup> overtaking Lazada to claim second place behind Shopee. In Latin America, Argentina-based Mercado Libre has self-operated overseas warehouses across Mexico and Chile. Its Mexican site has grown nearly 60% annually, with the delivery rate within 48 hours reaching 80%.

More businesses are selling internationally through online platforms than ever before. Cross-platform activity among sellers is significant: about 20%<sup>38</sup> of merchants on Temu and Shein also operate on Amazon, aiming to capitalize on broader market access and fulfilment infrastructure. The seller ecosystems on Amazon and Walmart are evolving beyond traditional mass-listing sellers,<sup>39</sup> with a growing presence of boutique<sup>40</sup> and factory sellers. Branding and refined operations are building momentum, enhancing competitiveness and customer loyalty.

**Table 1 Key traits of global e-commerce platforms**

Platform	Key markets	Features
Amazon	17 global sites (North America, Europe, etc.)	Higher average order value; global logistics; stricter entry threshold
eBay	United States, Europe, Australia, Japan	Professional support; lower entry threshold; auction-based model; single-site for global reach
AliExpress	Russian Federation, Brazil, Spain, France	Easy to use; cost-effective; targets price-sensitive customers; strong in Russian Federation/Brazil; low profit margins
Wish	United States, Europe, Latin America	Mobile-focused; simple interface; targeted and personalized sales; fast sale, simpler rules
Shopee	Chinese Taipei, Southeast Asia	Low entry threshold; low commission; mobile-only; rapid growth; lower per-sale profit
Lazada	Southeast Asia	Timely payments; multilingual sites, high level of localization, low entry threshold

Source: Marketplace Pulse.



## Improved digital infrastructure lays foundation for cross-border e-commerce

More than 5 billion people are online globally, with 2.71 billion as active online shoppers.<sup>41</sup> SellersCommerce predicts 22.6% of purchases will be made online by 2027. Digital payments, a key pillar of cross-border e-commerce, are growing rapidly, with global cross-border payment flows reaching \$190.1 trillion in 2023 (a 9% compound annual growth rate) and projected to hit \$290 trillion by 2030.<sup>42</sup>

Simplifying cross-border payment processes – via credit/debit cards, e-wallets, bank transfers, and account-to-account payments – is key to fluid global trade. Speed, transparency, and security are prioritized for ‘small-amount, high-frequency’ e-commerce transactions, with instant payment services gaining focus. The EU’s SCT Inst and Nexus projects enhances interoperability via real-time domestic payment systems, slashing transaction time costs globally.

At the same time, embedded payments integrate payment solutions directly into e-commerce platforms, delivering a seamless transaction experience with streamlined processes and improved user satisfaction. Banks and payment service providers are embedding diverse alternative payment

methods – such as digital wallets, buy now, pay later, and pay by bank – into e-commerce platforms and mobile applications to enhance customer experience and build a more efficient cross-border payment ecosystem.

For example, when a British customer buys handcrafted furniture from an Indonesian seller, currency conversion and secure payment can be completed automatically within the same platform, without involving a third-party payment processor. This not only saves on currency conversion fees but also greatly simplifies the payment process. This integrated model ensures regulatory compliance while also providing valuable data insights for optimizing marketing strategies.

## From regulating to servicing

Beyond tariffs, bottlenecks in customs clearance, quarantine, logistics, finance, access to information, and statistics hinder cross-border e-commerce. Governments, as both regulators and facilitators, can innovate to create efficient business environment and address firm-level challenges. For example, Hangzhou, China, has pioneered the ‘six systems and two platforms’ model – driven by enterprise needs and data – which may offer new insights into further improving regulatory practices.

**Box 4 Six systems and two platforms model of Hangzhou**

The China (Hangzhou) Cross-Border E-Commerce Comprehensive Pilot Area first introduced the 'six systems and two platforms' model as a strategic framework to integrate information, capital, and logistics across international digital trade. Designed to streamline operations and enhance regulatory coordination, numerous pilot zones throughout China have since adopted the model, serving as a national blueprint for cross-border e-commerce development.

- Information sharing system  
Established an online 'single window' that provides comprehensive services to break down data barriers among customs, tax, foreign exchange, inspection and quarantine, commerce, logistics, and financial departments. This enables firms to enjoy 'one registration, nationwide customs declaration,' reducing export declaration time from four hours to one minute.
- E-commerce credit system  
The local government partnered with the private sector (Alibaba) to create a credit guarantee fund, establishing an enterprise credit database and a tiered management system. By integrating regulatory data with third-party evaluations, it implements credit risk warnings and negative list management.
- Smart logistics system  
Provides integrated cross-border logistics resources, promotes automated warehousing systems (e.g. Cainiao's packaging system), facilitates development of overseas warehouses, and connects multimodal transport. It optimizes aviation logistics information management and introduced support policies for overseas warehouses.
- Financial service system  
Offers innovative cross-border payment and financing services, simplified foreign exchange settlement processes, increased the threshold of a single transaction limit to \$200,000, and collaborated with China Export & Credit Insurance Corporation to launch cross-border insurance services. Partnered with China Construction Bank to establish a cross-border e-commerce financial centre.
- Risk management system  
Launched a National Monitoring Centre for Quality and Safety of Cross-border E-commerce Products, implementing a full-process traceability mechanism. Collaborated with public security departments to verify the authenticity of transaction entities and resolved disputes via an 'internet court'.
- Statistical monitoring system  
Established a cross-border e-commerce data-monitoring system based on customs declarations and platform data, releasing the world's first cross-border e-commerce index and simplifying statistical classification standards. The system provided experience for the national cross-border e-commerce statistical mechanism, supporting an average annual export growth rate exceeding 100% in the Hangzhou Comprehensive Pilot Zone.
- Online single window platform :  
The platform integrates full-process services such as customs declaration, inspection reporting, tax refunds, and foreign exchange settlement, enabling companies to complete the entire cross-border trade chain digitally.
- Offline 'comprehensive park' scheme:  
The Government established 13 cross-border e-commerce parks (e.g. Shangcheng, Yuhang), covering a total area of 3.23 million square metres. This forms a spatial layout of 'one core, one ring, one belt,' attracting platforms including AliExpress and Amazon, along with supporting service firms.

Source: Bureau of Commerce of Hangzhou Municipality

## Promoting global cooperation in cross-border e-commerce

Cross-border e-commerce is characterized by its global reach and inclusiveness, playing a key role in promoting the deep integration and efficient coordination of global industrial and supply chains. By optimizing logistics and accelerating capital flows, it helps reduce operational costs, enabling SMEs and underdeveloped regions to participate equally in global value chains and gain better access to quality production resources and market opportunities.

At the same time, the digital platforms built by cross-border e-commerce help SMEs and underdeveloped regions to improve their digital literacy and operational capabilities, thereby narrowing the digital divide. This allows more participants to share in the dividends of development and promotes more balanced and sustainable growth in global trade.

## Cross-border e-commerce drives development of logistics systems

High-efficiency logistics have become a critical lever for reducing cross-border e-commerce costs. Logistics costs account for more than 20% of cross-border e-commerce operations, with merchants noting that every additional day in fulfilment time (beyond seven days) increases return rates by 2%.<sup>43</sup>

Cainiao Network's Global 5-Day Delivery initiative enables Malaysian durian businesses to reach US consumers via cold-chain logistics in just seven days, boosting 2024 sales by more than 30%. Amazon's platform, through localized market sites and peak-season warehouses (e.g. Los Angeles POC warehouse), achieves the fastest delivery globally, with more than 5 billion same-day or next-day deliveries, which increases more than 30% year-over-year.<sup>44</sup>

Cross-border e-commerce drives the development of local logistics systems, enabling underdeveloped regions to join global supply chains. Systems such as the Central Asia Land-Sea Multimodal Transport Channel, Xinjiang's Eurasia Changbang cross-border warehousing, Cainiao's Africa parcel line, and the 'Global Soaring' overseas warehouse network mean SMEs in Central Asia and Africa can connect to global supply chains for the first time.

E-commerce penetration in the five Central Asian countries surged from 2.8% in 2020 to 9.3% in 2024, according to Statista. Armenia, leveraging China-Europe Railway lines, saw 19% annual growth in cross-border e-commerce transactions.<sup>45</sup>

Cainiao Express has boosted investments in Africa, and its China-Africa dedicated flights now cover eight countries including Morocco and Egypt, reducing logistics time to 20 days from 60 days.<sup>46</sup> All these improvements in transportation and logistics can play a key role in helping African agricultural exporters reach global consumers and make it easier for small businesses to trade internationally.

## Digital trade accelerates integration and synergy in supply chains

Cross-border e-commerce builds a global supplier network through continuous transactions, replacing the traditional production-export-distribution model with a new order-production-direct shipping approach. Among the Top 100 cross-border e-commerce sellers, 89% are directly linked with factories, with Temu sellers averaging an 18% profit margin.

The traditional 'platform-seller' relationship has gradually shifted to a 'seller-supply source' model, which has shifted the focus of competition among the platforms to securing premium resources of supply. By 2025, Shein will cover more than 300 Chinese industrial belts, by leveraging its platform's data to guide production, and thereby reduce inventory waste. TikTok Shop's 100+ Premium Industrial Belt Products fully managed merchant recruitment plan lowers global trade barriers for exporting companies.

## Cross-border e-commerce boosts digital literacy

Through technological empowerment and talent development, cross-border e-commerce serves as a key driver in enhancing digital literacy and bridging digital divides across regions and groups. SMEs using fully digitized tools – such as online payments, smart logistics, AI pricing, product selection, independent site operations, and social media marketing – need to improve their employees' digital skills constantly.

Online training resources from platforms such as TikTok Shop's live commerce courses and Amazon Seller Academy provide low-cost learning paths for entrepreneurs in remote areas, accelerating the democratization of digital knowledge. Statista estimates that the number of African e-commerce users will more than triple to 520 million by 2025 from 139 million in 2017, with a 17.9% compound annual growth rate.

Cross-border e-commerce drives more people into digital technology-related jobs. Governments in the United Arab Emirates, Singapore, and Ireland provide substantial support on digital talent cultivation.

The United Arab Emirates integrated computer science into its education system, with the One Million Arab Coders initiative training 1 million learners across 80 countries. Singapore encourages lifelong learning, offering citizens over age 40 a skills credit of 4,000 Singapore dollars (\$3,108) for courses in 5G, generative AI, data analytics, digital finance, and marketing. Ireland's multi-departmental ICT Skills Action Plan targets advanced talent in AI, AR/VR, robotics, Internet of Things, and cybersecurity, with information technology jobs comprising 6.2% of total employment.<sup>47</sup>

## Women entrepreneurs

Women face a range of obstacles in international trade that limit their participation and economic potential. According to International Trade Centre (ITC) survey data, women-led enterprises<sup>1</sup> in developed countries are generally smaller and have lower revenue than men-led companies. In the EU, for example, 56% of women-led firms have annual revenue below €10 million (\$11.7 million), compared to 45% for men-led firms. In terms of production efficiency, 25% of women-led businesses have capacity utilization rates below 50%, higher than the 16% for men-led firms, suggesting greater operational and managerial challenges.

Limited access to finance, information, and technology disproportionately affects women-led businesses, particularly in developing countries. ITC data from interviews with African enterprises also show that 19% of women-led firms face product certification barriers in international trade, compared to 11% for men. In the EU, women-led firms have a lower export rate (22%) than men-led firms (31%). In Asia and East Africa, women spend an average of 3.7 hours more processing trade documents. In terms of human resources, women-led firms usually face a 6%–8% higher skill gaps in law and information technology.

Research by UNCTAD in 2024 shows that women-led e-commerce businesses face greater regulatory burdens, primarily due to their smaller size and concentration in less profitable sectors, such as agriculture and textiles, in which non-tariff measures are more common. These challenges are compounded by broader gender inequalities in education, mobility, and cultural norms, which obstruct women's engagement in global trade.<sup>48</sup> Pressure intensifies when businesses move from early-stage digital entrepreneurship to growth.<sup>2</sup>

## Digital trade empowers women, promoting equity and inclusive development

Digital trade offers significant opportunities for women's economic participation. It can break geographic barriers, cut operating costs, and provide flexible work schedules. For example, Jumia — founded by German technology holding company Rocket Internet with the goal of becoming the 'Amazon of Africa' — spans 11 countries with 6.8 million users. It reports that half of its sellers in Kenya and Nigeria are women, highlighting the broad market access digital platforms provide. During the COVID-19 pandemic, Lazada's women sellers in Indonesia and the Philippines accounted for 33%—67% of its base.<sup>49</sup>

Online training brings learning opportunities that enable women to acquire skills tailored to the digital economy's demands. Jumia University's free courses and Uganda's agricultural platforms, which boosted women's bargaining power by 40%, exemplify the positive impact of digital empowerment. Kazakhstan's e-customs system, which improves clearance efficiency by 30%, demonstrates how digital tools streamline trade processes and enhance women practitioners' competitiveness.

Women operators in digital trade have unique strengths. Alibaba research shows that women-led firms score markedly higher in customer service. In Zhejiang's Yiwu, many standout women entrepreneurs have seized e-commerce opportunities with sharp market insight, deeply addressing customer needs.

In Ukraine, 49 women trained by ITC in search engine optimization secured jobs, with Hanna — one of many displaced Ukrainians who have taken part in a Japan-funded ITC project to help build their economic resilience — seeing her digital firm serve 216 enterprises. This showcases both the practical value of women's digital skills and their entrepreneurial potential in the digital economy. Such participation not only generates economic value but also optimizes trade processes, as seen in Kazakhstan's 25% cross-border efficiency gain.

Yet, too many women-led businesses remain concentrated in early digitalization stages – where digital tools are adopted to sustain operations – while fewer manage to grow fully digital, scalable ventures. The transition between these two phases is where the biggest barriers emerge.

<sup>1</sup> ITC defines a woman-led company as a business managed by a woman and at least 25% owned by one or more women. Its management and control lie with at least one woman and if there is a board of directors, at least 33% of its members are women. Otherwise, firms are defined as men-led.

<sup>2</sup> UNCTAD, forthcoming 2025.

UNCTAD's forthcoming report *Breaking Down Barriers for Women Digital Entrepreneurs: Insights from Africa* highlights the diversity and resilience of women-led digital businesses across sectors such as e-commerce, financial technology (known as fintech), health, education, and agriculture. Though primarily micro or small in scale – typically employing 1–9 people – 62% of the businesses surveyed by UNCTAD employ mostly women, creating meaningful opportunities for inclusion.

Often driven by a strong vision to generate positive social impact, these digital entrepreneurs are not only developing innovative solutions such as digital payment tools or online medical services, but they are also advancing the digital transformation of their local economies and addressing critical development challenges.

Women entrepreneurs are driving digital transformation through diverse business models. Many are digitizing traditional micro, small, and medium-sized enterprises, especially in retail or fashion, to broaden their market reach. Others are building technology-driven ventures with higher potential for innovation and scalability, in sectors such as information and communications technology services, software development, fintech, healthcare and agricultural technology, and platform-based business models for incremental growth tech-driven businesses aimed at regional or global expansion.

Both pathways require tailored policy responses.

### Collaborative efforts to enhance women's participation in digital trade

Despite the opportunities that digital trade offers, women in both developed and developing countries still face significant challenges in traditional international trade, as detailed earlier. To help women overcome these barriers and unlock their economic potential, coordinated support from governments and international organizations is essential.

National governments should systematically advance trade, fiscal, and monetary policy reforms to promote women's economic equality comprehensively. Outlined below are actionable strategies they can adopt.

**Trade policy:** Drawing from Canada and Chile, incorporate gender equality clauses into free trade agreements, explicitly supporting women's entrepreneurship, education, and trade rights, while promoting digital single window systems to simplify trade documentation, including for women. Côte d'Ivoire's Gender Reception Office offers a model for efficiently addressing women's trade issues.

**E-commerce and digital trade policy:** Create opportunities for women to participate in public–private consultations and national and regional forums on e-commerce and digital trade, enabling them to share their vision, challenges, and experiences for more inclusive digital policy making. Notably, cross-border e-commerce (a key area for women-owned micro, small and medium-sized enterprises' small-parcel models) relies on de minimis rules (low-value shipment duty/tax exemptions).

**Rule adjustments directly affect viability:** higher thresholds cut women sellers' costs, while strict rules raise barriers. Reforms should align thresholds and clearance with women entrepreneurs' needs to boost inclusive growth.

**Fiscal policy:** Increase women-led firms' share of public procurement, as is done in the US Fair Contracting Act, which prioritizes 5% of federal contracts for women-owned businesses, or Chile's e-platform, where SMEs – many of which are owned by women – account for 45% of public procurement transactions. Set explicit procurement quotas for women-led firms, similar to what is done in India (3%) and The Gambia (30%), providing stable market access for growth.

Boost fiscal investment in digital infrastructure and women's digital literacy training, similar to Morocco's GENIE programme (27% literacy increase), or emulate Colombia's value-added tax exemption to lower internet costs and narrow the digital gender gap.<sup>50</sup>

**Monetary policy:** Establish financing programmes for women-led firms, similar to Rwanda's Women's Guarantee Fund, addressing loan access challenges. Encourage public–private financial partnerships to reduce credit risks via blended financing, ensuring stable funding for businesswomen.

International organizations should coordinate global resources, focusing on infrastructure, data systems, women entrepreneurs' competitiveness, women empowerment in the digital economy, digital gender gaps and long-term support mechanisms: At the same time, the field work of international organizations helps to increase the evidence base for analysis, including gender differentiated statistics.

**Infrastructure:** The EU and other economies fund border inspection upgrades to enhance women's trade convenience and efficiency. Regional bodies such as the East African Community build unified women's trade portals, integrating policies, market information, and training, and making it easier for women to assess information.



**Data and analysis:** ITC's SheTrades Outlook tool tracks gender-related indicators across sectors, enabling evidence-based policymaking. The AfCFTA sets up women's trade task forces to coordinate policy, implementation, and evaluation, fostering sustained regional gender equity.

**Trade capacity:** The WTO develops gender equality training modules to enhance Members' focus on gender in trade policy. ITC connects women entrepreneurs with projects for information sharing, resources, and technical guidance, aiding global market expansion.

**Rights protection:** The International Labour Organization's HERproject has trained 50,000 women to improve

supply-chain rights, ensuring labour protections via training, monitoring, and evaluation, encouraging corporate social responsibility.

**Inclusive leadership:** Promote the visibility of women digital leaders and entrepreneurs as leading experts and trusted role models. Engage public institutions, alongside the private sector and civil society, in recognizing their contributions. Make effective use of networks such as UNCTAD's eTrade for Women Advocates – a group of influential women digital entrepreneurs from developing countries who serve as role models and promote inclusive leadership – to drive change in e-commerce and the digital economy.



## CHAPTER 4

# Global Digital Trade Expo and open cooperation

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# CHAPTER 4

## Global Digital Trade Expo and open cooperation

The Global Digital Trade Expo (hereafter Digital Trade Expo), held annually in China since 2022, serves as an important international exchange platform and public good in the digital trade domain. It fosters digital economy cooperation and supports an open world economy.

### A docking platform for global economic and trade cooperation

#### International procurement and transaction platform

By promoting global digital economy collaboration, the Digital Trade Expo drives digital technology applications in healthcare, education, and environmental protection, offering technical support and solutions for global challenges. In 2024, the expo focused on the fusion of ‘digital + technology + trade,’ spotlighting digital trade subsectors and showcasing future trends. During the event, 446 new digital trade products, technologies, and achievements debuted, spanning data services, AI, data-finance integration, and digital healthcare.

#### International investment promotion platform

The Digital Trade Expo focuses on advancing trade through exhibitions and driving production through trade. It has established a tiered service system for exhibitors, tailored to the needs of leading, mid-tier, and small/microenterprises, precisely matching them with resources such as

supply-chain integration, brand exposure, market expansion, business opportunity matchmaking, and investment/financing negotiations. Each exhibition zone is paired with one or two key industry events.

In collaboration with Forbes, the expo launched the Global Digital Trade Key Enterprise Matchmaking Conference, featuring 10 industry-specific matchmaking sessions themed around digital healthcare, low-altitude economy, and AI. Three new special committees were established – Digital Cultural Trade, Low-Altitude Economy, and Talent & Intellectual Cooperation – resulting in 203 cooperative achievements.

Major breakthroughs were achieved in international cooperation within digital trade:

**United Nations project:** ITC collaborated with partners in China to set up the Hangzhou Digital Innovation and Sustainable Development Centre, incubating innovative entities in digital trade.

**Educational initiative:** The Digital Trade International Industry Academy was established, deepening economic and trade cooperation between China and ASEAN countries.

**China–Africa cooperation:** Implementing outcomes from the China–Africa Cooperation Forum Summit, the inaugural Digital Trade Africa Day saw the signing of projects in trade platforms, media co-creation, brand globalization, smart taxation, and venue construction, comprehensively enhancing China–Africa cooperation across economic, trade, and cultural domains.

**Box 5 The exhibition zones of the third Digital Trade Expo**

The third Digital Trade Expo featured one comprehensive exhibition zone and eight specialized digital trade zones, with a total exhibition area of 150,000 square metres. These were:

Comprehensive Exhibition Zone: This zone included 14 dedicated sections such as guest countries, guest provinces, and international organizations. More than 120 international enterprises showcased cutting-edge trends and innovative achievements in domestic and global digital trade. Chinese studio Game Science's role-playing Black Myth: Wukong made its debut at this exhibition.

Silk Road E-commerce Zone: This zone brought together leading global e-commerce platforms and invited more than 1,000 African merchants, international students, and others to participate in live-streaming sessions, helping premium products from Silk Road E-commerce partner countries enter the Chinese market.

Artificial Intelligence Zone: Featuring a first-ever robotics section, this zone gathered the full spectrum of the robotics industry – humanoid, cloud-based, and industrial robots – with 50 intelligent robots competing on the same stage, making it a popular check-in spot.

Digital Mobility Zone: Debuting a low-altitude economy section, this zone showcased more than 200 exhibits and scenarios related to smart mobility, spanning autonomous driving, intelligent connectivity, new energy vehicles, and low-altitude aircraft, creating a panoramic showcase of future transportation.

Digital Healthcare Zone: Attracting 86 leading global digital healthcare companies, this zone displayed innovations such as genomic sequencing and future clinic set-ups, presenting new healthcare scenarios.

Digital Entertainment Zone: This zone offered immersive interactive experiences such as the soundscape interaction Light and Shadow Danqing, a Michael Jackson virtual concert, and an 8K deep-space immersive experience. More than 480 international buyers from 40 countries/regions submitted procurement lists.

Consumer Electronics Zone: Targeting end consumers, this zone featured themed sections including vehicle energy upgrades and home appliance replacements, converting exhibition traffic into sustained consumer engagement.

Data and Finance Zone (new): This inaugural zone highlighted the latest technologies and exemplary cases of big data empowering finance, trade, and cybersecurity.

Smart City Zone (new): This zone presented a series of digitized smart city experiences and solutions, showcasing advancements in urban digitalization.

Source: Office of the Organizing Committee of the Global Digital Trade Expo

**Box 6 Digital Trade Africa Day: Opening a new chapter in South–South dialogue**

The Digital Intelligence China–Africa Industry Matchmaking Conference was held in Hangzhou on 26 September and Digital Trade Africa Day was officially launched. The event brought together more than 300 participants, including leaders, business representatives, and experts from China and Africa.

With the rapid development and widespread adoption of mobile internet technology, the digital economy is playing an increasingly vital role in the economic development of African countries. The concept of Digital Africa has become a shared consensus and pressing need across many African nations.

Several cooperative projects were signed at the matchmaking conference. For instance, the collaboration between Yunzhen Technology and South Africa in the field of smart water management focuses on water resource management, sewer system optimization, and sewage treatment plant upgrades. This partnership leverages high-tech solutions such as Internet of Things sensors, big data analytics, AI, and smart infrastructure applications.

'If the water governance structure is improved, children in South Africa can access cleaner water and grow up healthier,' said Sivu, who represented a South African firm. He noted that South Africa struggles to achieve digital transformation independently, but through the smart water project, it can harness China's technological expertise to 'activate' local resources, paving the way for smarter cities.

Source: Office of the Organizing Committee of the Global Digital Trade Expo

## International creative showcase platform

The Digital Trade Expo introduced immersive and interactive digital scenarios. For the first time, it hosted the Digital Human Intelligence Debate Competition, attracting digital

human contestants from across China. Eight large-model-empowered digital humans competed in a debate showdown. The International Electronic Music Festival and the AI Electronic Music Composition Contest also debuted at the expo.

### Box 7 Robot intelligence debate competition

'Who would you choose to be among the five pilgrims in *Journey to the West*?' 'If you were traveling in space and encountered an alien, how would you make friends?'

The finals of the Digital Human Intelligence Debate Competition took place at the Global Digital Trade Expo on the afternoon of 26 September. These intriguing questions were posed to the eight digital human contestants. Through three rounds – Self-Presentation, Ability Assessment, and Intelligence Debate Showdown – these contestants showcased the intelligence levels of their respective AI large-scale models.

In the Intelligence Debate Showdown round, four advancing digital 'debaters' engaged in a lively debate on topics such as 'Can falling in love with a digital human be considered love?' and 'What is the impact of AI on human art?' Professors from university AI departments, along with professionals from government agencies and investment institutions, evaluated the digital human 'debaters' based on multiple dimensions, including technological innovation, practical applicability, and market potential.

The eight contestants demonstrated a wide range of application scenarios, spanning cultural tourism, e-commerce livestreaming, healthcare, conference services, education, and more. Powered by leading large language models such as Tongyi Qianwen, ERNIE Bot, KwaiYii, and Cici, as well as customized models independently developed by companies, these digital humans underwent enhanced reasoning training to build sophisticated thinking frameworks. This enabled them to draw flexibly on their comprehensive knowledge bases, accurately recognize and comprehend questions posed by the onsite host, and engage in real-time interactions.

Source: Office of the Organizing Committee of the Global Digital Trade Expo.

## A channel for global governance dialogue

The Digital Trade Expo focuses on topics such as global digital trade development and governance, fostering mutual learning and consensus-building. It serves as an international public good, providing a high-level platform for dialogue and exchange among political, business, and academic leaders worldwide.

### Data security and governance in the new era of artificial intelligence

The advancement of AI relies on high-quality datasets, which in turn depend on robust data security and governance. At the expo, representatives from government, industry, academia, and research held in-depth discussions on data circulation, security protection, and cross-border governance, offering innovative ideas and practical pathways for digital economy development.

**New challenges in data factorization governance:** Participants noted that the world had entered a new phase

of data factorization, with 80% of high-value private domain data yet to circulate. AI development faces a bottleneck as public domain data near exhaustion, making the circulation of private domain data (involving confidential/privacy data) a critical hurdle.

Additionally, generative AI introduces new governance dimensions, such as content security, model security, and ethical safety. Existing standards struggle to adapt to data factorization scenarios – for example, the lack of data collection standards for automobiles leaves 20% of smart connected vehicle companies facing compliance risks.

**Dual drivers of institutions and technology for cross-border flow governance:** Attendees emphasized that data governance and security require scenario-specific considerations beyond classification and grading to enhance regulation and circulation efficiency. Technical tools are essential for cross-border data classification, grading, and monitoring – such as blockchain traceability for medical data or whitelist mechanisms for e-commerce data. This 'institutions-first, technology-supported' model offers a new approach to resolve tensions between data sovereignty and circulation efficiency.

**Dynamic security systems to address flow risks:**

Business representatives noted that black and gray industries, aided by AI, have drastically increased attack efficiency and speed, rendering traditional static defences inadequate in the AI era. Using AI to counter AI and manage AI will become a future trend.

This requires tech companies to achieve breakthroughs while reducing costs and promoting widespread AI adoption. Specifically, building a 'data cold chain' ensures both technological innovation and large-scale data infrastructure deployment, safeguarding high-value sensitive data transmission while meeting general data needs, thus fostering coordinated development of innovation and application to accelerate data cold-chain construction.

### Digital trade and sustainable development

The deep integration of digital trade and sustainable development has emerged as a new engine for global economic growth. Through multiple industry matchmaking sessions and forums, the expo showcased innovative practices and global collaboration in leveraging digital technology for green development. Against the backdrop of digital technology reshaping industrial ecosystems, representatives of government, business, and academia explored the core proposition of 'digital-driven green transformation,' forming forward-looking action consensus.

**Digital technology offers solutions for green transformation:** Experts stressed that green development is essential and digital technology must become an inclusive tool. For instance, Alipay's digital platform (Ant Forest) encourages low-carbon behaviours such as green commuting, converting virtual tree-planting into real-world afforestation, with 548 million trees planted to date. ITC

experts noted that digital trade and green development can drive sustainable growth for SMEs in developing countries. In Central Asia, ITC established e-commerce service centres to help SMEs with registration and market entry, fostering new opportunities.

**Digital breakthroughs in healthcare reflect human-centric sustainability:** At the Digital Healthcare Industry Matchmaking Conference, experts highlighted Anzhener, a digital health human powered by medical AI, achieving precise health management for 12 million people. Hospital representatives noted that digitalization extends beyond healthcare delivery to full industry chain integration – for instance, using blockchain for traceable traditional Chinese medicine processes (planting, harvesting, processing, transport), ensuring patients access to 'trustworthy' traditional Chinese medicine.

AI also uncovers insights from renowned practitioners of traditional Chinese medicine, extending high-quality care to county-level hospitals. These innovations boost efficiency while reducing carbon footprints via remote diagnostics.

**Digital service trade innovations drive sustainability:** Experts showcased Amazon's ecological finance model, using AI to assess SME cross-border e-commerce cash flows and address financing challenges. Business representatives pointed to the role of smart logistics in advancing intelligent manufacturing. For example, ThunderHub uses automation and mobile robots for full-process factory management, significantly improving efficiency.

The advent of large-scale models has advanced robotics, with quadruped robots such as Unitree replacing humans in hazardous tasks (e.g. fire scenes), equipped with sensors to assess conditions in inaccessible areas.



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## CHAPTER 5

# Case studies

### ITC projects boost growth of African SMEs in service trade

Through its Netherlands Trust Fund Phase V project (2021–2025), ITC helps African tech start-ups and SMEs in the agribusiness sector achieve digital transformation.

In Ethiopia, 27 tech companies (including seven women-led firms) underwent in-depth evaluations using the FastTrackTech online diagnostic tool, covering core modules such as business models, financial management, and market strategies to clarify their development paths. Target groups included the Mogxit housekeeping service platform, which used the tool to target smartphone users and optimize its service model, and Quanomic, which developed smart irrigation software to improve agricultural water resource management.

The project collaborated with the African Union Commission, showcasing innovative solutions at a business forum held at the Africa Hall in Addis Ababa to promote regional technical collaboration.

First, it conducts a deep-dive assessment of each firm's operating status, benchmarking it against sector-specific best practice to quantify gaps and prioritize improvement pathways.

Second, it maps SMEs to specialized institutions capable of solving their most pressing bottlenecks. For instance, it brokered engagements with Africa's Seedstars Ethiopia venture fund and the Ghana Tech Lab to deliver investment-readiness coaching to the crowdfarming platform Grow for Me, sharpening its ability to link smallholder farmers with risk-tolerant capital.

Third, it curates high-visibility digital-trade showcase platforms — exemplified by curated expos in emblematic venues such as Africa Hall (the historic site of the OAU Charter) — to amplify SMEs' local brand equity and market salience.

Fourth, it pilots digital tools that can later be scaled up on-farm. In Ethiopia, Ghana and Senegal the project is embedding traceability, e-payment and other digital

solutions within selected cashew, coffee, sesame and horticulture value chains, with the aim of reducing post-harvest losses and increasing supply-chain transparency.

The Netherlands Trust Fund Phase V project continues in 2025, with ITC sustaining efforts to accelerate the internationalization of African tech firms through digital transformation, prioritizing digital agricultural solutions and innovative service models to strengthen intra-African and cross-regional industrial collaboration.<sup>51</sup>

### ITC and WTO join hands to help businesswomen trade internationally

ITC and the WTO Secretariat jointly launched the Women Exporters in the Digital Economy (WEIDE) Fund in February 2024. The \$50 million fund, supported financially by the United Arab Emirates and the FIFA World Cup Qatar 2022™ Legacy Fund, aims to help women entrepreneurs achieve business growth through international trade and digitalization.<sup>52</sup>

The WEIDE Fund supports eligible women entrepreneurs in the following areas:

- Grants and help from financial institutions to bridge the financing gap
- Technical assistance and training related to digital skills and enhancing export competitiveness
- Export market resources to help more women connect with digital market platforms
- Networking and support services to build a more inclusive and effective business ecosystem, including establishing partnerships with the private and public sectors

The WEIDE Fund accepts applications from women-led SMEs and microenterprises in the Dominican Republic, Jordan, Mongolia and Nigeria that export or have export potential. The fund secretariat, together with technical experts, will select beneficiaries and provide different amounts of financial subsidies and digital and financial

technical assistance according to the scale of enterprises. It can also provide online training, group training, and one-on-one coaching for businesses.

Individuals and institutions can cooperate with the fund as donors, technical partners, or financial partners. Donors and partners can gain exposure in relevant materials, activities, and communications. They also can join the technical committee to contribute strategic insights.

As the WEIDE Fund continues to grow and evolve, it is poised to support more women entrepreneurs in breaking through systemic barriers and carving out a distinct presence in the digital economy. At the same time, the fund will further deepen the integration of international trade and digitalization, inject a continuous stream of ‘her power’ into the inclusive growth of global trade, and write a new chapter in the collaborative development of women’s economic empowerment and international trade.

## UNCTAD facilitates the advancement of women in the digital business

The UNCTAD-led eTrade for Women initiative aims to close the gender digital divide by unlocking the economic potential of women and shaping a more inclusive digital future. Through targeted support, knowledge-sharing, and advocacy, the initiative gives women entrepreneurs from developing countries the potential to scale innovative, impact-driven digital businesses. The initiative recognizes that, with the right support, these entrepreneurs can become drivers of inclusive growth and digital transformation in their communities.

The initiative focuses on the following actions:

- **Closing the gender digital gap:** Through a set of capacity-building activities, eTrade for Women equips women entrepreneurs with the skills, knowledge, mindset, and visibility needed to thrive as leaders in the digital economy.
- **Harnessing digital entrepreneurship for inclusive growth:** Through tailored business support, the initiative enables women to expand their ventures, create jobs, drive innovation, and contribute to thriving digital ecosystems.
- **Driving ecosystem transformation:** The initiative nurtures vibrant communities of like-minded women leaders – called eTrade for Women Communities – by offering them networking and peer-learning opportunities on the regional and global levels.

- **Promoting gender-responsive policy change:** The initiative seeks to increase the visibility, leverage the expertise, and bring the perspectives of women digital entrepreneurs to the policy table to help shape more inclusive policies and regulatory environments.

Since its launch in 2019, eTrade for Women has supported more than 450 women-led digital businesses across 65 countries, strengthening the role of women in the digital economy worldwide. In 2024 alone, more than 30 business, leadership, and networking events were organized to empower and connect women entrepreneurs. The initiative has delivered 15 regional masterclasses, providing tailored capacity-building and peer learning opportunities to more than 300 engaged women digital entrepreneurs.

Today, 17 Community champions appointed by eTrade for Women actively lead the initiative’s regional networks, fostering local engagement and driving collective action among women digital entrepreneurs.

## BRICS mechanism pioneers an inclusive digital governance paradigm

BRICS frameworks have helped boost digital trade development through rule coordination, technological empowerment, and resource sharing. The BRICS countries adopted the Digital Economy Partnership Framework in 2022, systematically outlining six key cooperation areas:

- promoting digital tools including e-payments and paperless customs clearance for trade facilitation
- investing in digital infrastructure such as 5G and smart cities
- harmonizing rules for AI governance and data security
- empowering SMEs through digital platforms
- conducting digital skills training to narrow development gaps
- upgrading the Digital Economy Working Group to drive implementation

This framework leverages institutional cooperation to bridge the digital divide, providing a policy cornerstone for subsequent initiatives.

Guided by this framework, BRICS has established a multi-layered cooperation system. By 2024, the BRICS communications ministers’ meeting had convened 10 times, adopting documents such as the BRICS ICT Development

Agenda and Action Plan to advance 5G and AI applications. The 14th BRICS trade ministers' meeting in 2024 promoted platforms including the Industrial Internet and Digital Manufacturing Development Forum.

On the project level, Huawei partnered with the United Arab Emirates to build a 5G Internet of Things lab, while China Mobile deepened communication services with Etisalat and du in dedicated lines, roaming, and IPX, enhancing regional digital infrastructure. Indonesia became a full BRICS member in 2025 – marking the organization's first Southeast Asian expansion – and launched cooperation projects with China in satellite communications and e-commerce.

During Brazil's 2025 BRICS presidency, developing efficient payment systems was prioritized to boost intra-BRICS trade and investment, alongside promoting inclusive and responsible AI governance for development.

BRICS benefits broader emerging markets through technology exports and resource sharing. China Oil and Foodstuffs Corporation's global-first zero-deforestation soybean traceability project in Brazil drives South American agricultural digitization. The Philippines' J&T Express established a Middle East smart logistics hub in Dubai that handles 500,000 items daily, and the New Development Bank has invested nearly \$35 billion in clean energy, energy efficiency, and transport infrastructure.

At the 2024 Chain Expo, free booths and set-up services for least developed countries facilitated digital industry chain cooperation, highlighting BRICS' inclusivity.

Looking forward, BRICS will focus on setting standards for digital infrastructure and AI; building capacity through the China–BRICS AI Development and Cooperation Centre to tackle communications technology and train digital talent; and expand the mechanism with an open, multilateral, and humanistic approach to attract global participation, forming a digital Southern community. These efforts will propel BRICS from a regional platform to a core force in global digital governance, offering a digital transformation model for developing nations.

## Silk Road E-commerce creates a new channel for global cooperation

Silk Road E-commerce is a policy initiative under the Belt and Road framework that leverages China's strengths in e-commerce technology, innovative models, and market scale to promote international e-commerce cooperation. Since 2016, 33 countries, including China, have signed

e-commerce cooperation memoranda and established bilateral mechanisms, spanning five continents. The range of cross-border e-commerce goods has expanded from apparel and sundries to consumer electronics and beyond.

In fostering industrial alignment and narrowing the global digital divide, Silk Road E-commerce has supported events such as e-commerce expos in Thailand and Iceland. Platform roadshows in Italy and Thailand connected 75 local firms, yielding nearly 50 cooperation intents.

The Silk Road E-commerce Cloud Lecture Series is an innovative effort to enhance digital literacy and narrow the digital divide, hosting 105 multilateral and bilateral sessions by September 2024 and benefiting more than 3,000 people across 53 countries. Offline sessions in Africa and Thailand, along with the Silk Road E-commerce Cooperation and Research Center, have trained more than 5,000 foreign participants.

In advancing global logistics infrastructure, China's e-commerce express transport network spans 47 countries, enabling agricultural products from Lao People's Democratic Republic and Thailand to reach global markets via transit warehouses, cutting logistics costs by more than 30%. Countries including Kyrgyzstan, Kazakhstan, and Tajikistan have signed memoranda to co-build the Air Silk Road.

In addition, the Luxembourg-to-Zhengzhou, China, air route connects 24 countries and more than 200 cities, delivering European perishables and South American fruits to Zhengzhou Airport, with onward distribution across China within 12 hours.

Looking ahead, Silk Road E-commerce will broaden its scope of international cooperation, providing hands-on experience to drive innovation in global cross-border trade and support the globalization of SME brands. It will also serve as a collaborative platform for global internet governance – advancing consultation, co-construction, and shared development – while accelerating the growth of digital infrastructure worldwide.

## The United States: Building the world's premier digital-trade ecosystem

As the undisputed pacesetter in global digital trade, the United States is leveraging its unmatched capacity for technological innovation, its constellation of world-leading internet platforms, and its outsized influence over rule-making to continuously refine the governance architecture and growth environment for digital commerce.

## Reinforcing the digital-infrastructure backbone

The US Government treats digital infrastructure as strategic infrastructure. Amazon Web Services, Microsoft Azure, and Google Cloud have spun a planet-spanning lattice of data centres — Amazon Web Services alone operates more than 200 so-called availability zones across North America, Europe, Asia-Pacific, and Latin America, guaranteeing ultra-low latency and near-zero downtime. Parallel investments in 5G, fibre backbones, and edge nodes are widening bandwidth and deepening coverage, laying a rock-solid foundation for real-time, high-volume digital trade flows.

## Powering global exports of digital services

The United States's digital-service exports ride on the global footprints of Silicon Valley titans, spanning software, AI, fintech, and premium content. Apple, Google, Meta, and Microsoft dominate not just their home market but also supply the world with indispensable digital goods and services.

Adobe's Creative Cloud has become the global designer's default workspace; Salesforce ships customer relationship management solutions via SaaS to enterprises on every continent; Netflix and Spotify beam subscription-based content into living rooms from Lagos to Lisbon. These offerings extend US influence while locking in recurring, high-margin revenue streams.

## Shaping the international rulebook

Washington is both architect and advocate of the emerging global digital-trade regime. In the United States–Mexico–Canada Agreement, the United States–Japan Digital Trade Agreement, and other pacts it has embedded clauses that bar forced data localization, prohibit compulsory technology transfer, and safeguard cross-border data flows—provisions that dilute foreign data-sovereignty claims and lower market-entry barriers for US firms.

Simultaneously, the United States is driving negotiations at WTO e-commerce talks, Asia-Pacific Economic Cooperation digital-trade discussions, and plurilateral initiatives, pressing for a harmonized set of standards that enshrine its technological and regulatory preferences at the core of the world's digital economy.

Looking ahead, the United States is poised to double down on these advantages — deepening its digital-infrastructure footprint, exporting its technical standards, and, in so doing, continuing to shape the trajectory of global digital trade.

## China's approach to promote cross-border service trade openness

As global value chains pivot from goods to services, China is leveraging institutional innovation, regulatory alignment, and targeted breakthroughs to open its services sector wider and faster — establishing itself as a key engine of worldwide services liberalization.

Beijing released two landmark documents in 2024: the National Negative List for Cross-Border Trade in Services and the Pilot Free-Trade Zone version of the same list. Both adopt the national industry classification and enumerate, in one place, all restrictions that apply when foreign suppliers deliver services across borders — whether by cross-border supply, overseas consumption, or the temporary movement of natural persons.

The national list contains 71 items and, for the first time, sets a single 'floor' for market access to cross-border services across the entire country. The pilot list pares the tally to 68 items and offers additional openings in professional services, finance, and culture as well as the mutual recognition of professional qualifications — signalling a controlled but deliberate push to go further, faster.

Also in 2024, China released new rules on cross-border data transfers in Measures for Facilitating and Regulating Cross-Border Data Flows. These rules create a safe-harbour regime that exempts routine data transfers — online shopping, cross-border parcel delivery, remittances, payments, travel bookings, global human resources management, and offshore data processing — from the triad of security assessments, standard contractual clauses, and certification requirements.

Since the rules took effect, the monthly caseload for security assessments has fallen by roughly 60% and standard-contract filings by about 50%, demonstrating that the intended facilitation effect has largely been achieved.

China rolled out five new facilitations for foreign nationals in 2024, ranging from relaxed port-visa eligibility to streamlined documentation for residence permits. These steps tackle the long-standing bottlenecks that hamper foreign business travellers, students, and tourists. As of 9 June 2025, citizens of 47 countries can enter China visa-free under unilateral liberalization schemes.

## Ireland: Engineering a world-class digital-trade ecosystem

Long dubbed ‘Europe’s Silicon Valley’, Ireland perennially tops the league tables for digital-services exports and remains a magnet for high-tech foreign direct investment. By orchestrating policy, talent, infrastructure, and innovation into a single virtuous circle, Dublin has produced a uniquely compelling proposition: a digital-trade habitat that is low-cost, high-efficiency, and fully compliant. What began as a competitive tax advantage has matured into a technology-retention engine, weaving multinationals and home-grown start-ups into a symbiotic fabric that now drives more than 70% of the country’s service exports.

The headline 12.5% corporate-tax rate — barely half the EU average — was only the opening gambit. It drew Apple, Google, Microsoft, TikTok, and others to plant European or regional headquarters on Irish soil and, in Apple’s case, to route substantial volumes of digital-services trade through its Dublin subsidiary via the now-retired ‘Double Irish’ structure. The upshot is an ecosystem where tax savings are systematically reinvested in local research and development, data-centre build-outs, and talent pipelines, converting fiscal incentives into durable technological assets.

Ireland’s universities — Trinity College Dublin, University College Dublin, and NUI Galway among them — run joint curricula with industry in AI, cybersecurity, and data governance, posting graduate-employment rates above 90%. The Dublin Institute of Technology and the Irish Software Association jointly operate a Digital-Trade Compliance Officer programme that feeds directly into multinationals’ GDPR and cross-border data-management needs.

Complementing this domestic pipeline, the 2021 Start-up Entrepreneur Visa and the Critical Skills Employment Permit allow tech firms to parachute in scarce global talent at speed; today, 40% of Ireland’s tech workforce is foreign-born, with Chinese and Indian nationals accounting for one-fifth of the total — catalysing innovation in cross-border e-commerce and fintech.

Headquartered in Dublin, the European Data Protection Board gives Ireland outsized influence over the interpretation of the GDPR and, more broadly, over EU rules on data flows. Ireland’s Data Protection Commission led the negotiations that produced the 2023 EU–US Trans-Atlantic Data Privacy Framework, simultaneously safeguarding compliance for firms and lowering transaction costs for transatlantic digital trade.

Looking ahead, an expanding talent base and deeper international collaboration will only sharpen Ireland’s edge. In the unfolding global digital economy, the country will continue to punch far above its weight, anchoring Europe’s digital-trade frontier.

## Cross-border payment rails: Levelling the field for globalizing SMEs

Micro, small and medium-sized enterprises account for the bulk of world trade, yet they face a common triad of pain points: fragmented orders, multi-currency settlements, and urgent cash-flow needs. Building safe, low-friction payment corridors is therefore central to any agenda for trade upgrading. Yiwu, which hosts the world’s largest wholesale market for small commodities, is a case in point: 95% of its stallholders trade in high-frequency, low-ticket, multi-batch consignments and, until recently, their overriding demand was simply ‘collect the money safely and quickly’.

Yiwu Pay has stitched together a tri-currency infrastructure — Chinese yuan (CNY), foreign exchange, and e-CNY — covering more than 170 jurisdictions and 26 major currencies. As of May 2025, it had recorded no disputed transactions since its launch in 2023.

Africa: Its naira-denominated collection service in Nigeria channelled more than CNY 7.5 million (\$897,000) in four months, leveraging local clearing rails and AI-driven risk models to cut both cost and settlement time.

Middle East: In 2024, Yiwu Pay joined Industrial and Commercial Bank of China on the m-CBDC Bridge, executing real-time Emirati dirham-to-CNY conversion for a Dubai appliance order. Funds moved from buyer to Yiwu merchant in minutes, with full transparency.

Targeting cross-border e-commerce sellers, LianLian Pay runs a 28-currency network that blends e-wallets, card acquiring, and local payouts across 15 markets, plus remittance corridors reaching 180 countries. By pruning documentation and onboarding friction, the platform has onboarded 300,000 merchants to date and has extended the same rails to 20 additional verticals — travel, aviation, and more — delivering inclusive finance to the smallest players.

PingPong has deployed 71 local clearing channels worldwide, allowing merchants to bypass the paperwork maze traditionally imposed by payment service providers. Settlement can now hit the seller’s account within seconds, while the all-in transaction fee has fallen by up to 95%.

Together, these payment specialists have woven a mesh of ‘service networks’ that attack the pain points of both goods and services trade. Through product innovation and business-model refinement, they are democratizing access to the swift, secure, and low-cost cross-border payments that SMEs and microenterprises need to scale globally.

## Blockchain: Reinventing digital IP protection

By combining cryptographic hashing with immutable timestamps, blockchain generates a unique digital fingerprint for every creation — delivering ‘rights at the moment of authorship’. This radically improves the traceability, security, and credibility of digital assets, giving digital trade a critical layer of trust.

BanDing, a blockchain-based cultural-IP platform, operationalizes this concept. Built on a judicial consortium chain co-governed by domestic and overseas authorities, it offers end-to-end services for registration, enforcement, and licensing of digital cultural works. Once a creator uploads original content, the platform instantly issues a notarized certificate — legally binding and verifiable — signed by the Hangzhou Internet Notary Office. This certificate becomes prima-facie evidence of ownership.

Beyond registration, BanDing provides 24/7 real-time infringement monitoring, one-click evidence collection, and a self-service enforcement portal, slashing the time and cost traditionally associated with IP litigation.

Today, the platform serves the full value chain of digital culture — animation, film, gaming, and toy merchandizing — delivering one-stop, full-coverage protection.

Robust IP protection is the bedrock on which digital value is unlocked and monetized. As blockchain applications in IP services deepen, they enhance the efficacy of public IP infrastructure. Continued technological refinement and evolving legal frameworks will further unleash this potential: a decentralized, tamper-proof trust layer could eventually re-engineer the entire IP lifecycle — from creation and protection to trading and enforcement — offering creators faster, cheaper, and more credible safeguards.

## Global multilingual tech ecosystem enables barrier-free communication

As the event supplier for the 2023 Budapest World Athletics Championships, iFlytek provided automatic translation software, hardware, and services while spearheading a global multilingual technology ecosystem. Launching the Budapest AI Joint Open Platform, iFlytek united global tech forces to serve people worldwide, using technology to facilitate barrier-free communication. This infused every cross-language interaction during the championships with technological warmth.

For instance, a Yemeni athlete speaking only Arabic competed solo in the men’s 800-metre race. Upon arrival, the iFlytek Translator assisted him seamlessly — from registration and check-in to training and competition — becoming his reliable communication companion.

Supporting 60 languages, the iFlytek Translator acted as a versatile personal interpreter. Athletes, coaches, and staff from countries speaking Arabic, Finnish, German, and more used it to connect on and off the field. A Chilean athlete discussed winning strategies in Spanish with Morocco’s 3,000-metre steeplechase champion, while a South American athlete expressed interest in buying one to take home. The iFlytek Dictionary Pen, like a portable language tutor, was a hit — French athletes scanned menus with it and an Argentine athlete praised it, planning to recommend it to teammates.

At press conferences, iFlytek’s Hearing Simultaneous Interpretation served as a real-time ‘translation officer’, converting speeches into Chinese, English, Japanese, Korean, French, Spanish, Hungarian, Arabic, and more, displayed on screens for global attendees. During the event, iFlytek and the organizing committee supported sustainability goals, partnering with Hungary’s Sinosz Deaf Association for the ‘Smile for a Sustainable World’ campaign.

Nearly 1,000 athletes shared smile photos on iFlytek’s overseas social media, with iFlytek donating €1 (\$1.17) per smile — and 5% of event revenue — to Sinosz to aid the hearing-impaired and visually impaired.



# References and Endnotes

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## Endnotes

- 1 The WTO's Global Services Trade Data Hub provides estimates of services traded through computer networks – such as the internet, apps, email, voice and video calls, and digital intermediation platforms. It covers over 200 economies and regions across eight sub-sectors for the period 2005–2024. The dataset is available at: [https://www.wto.org/english/res\\_e/statistics\\_e/gstdh\\_digital\\_services\\_e.htm](https://www.wto.org/english/res_e/statistics_e/gstdh_digital_services_e.htm)
- 2 This report draws on several UNCTAD surveys on digital trade, including Business E-commerce Sales and the Role of Online Platforms, the Handbook on Measuring Digital Trade, and Measuring the Value of E-commerce. For more information, see: <https://unctad.org/topic/ecommerce-and-digital-economy/measuring-ecommerce-digital-economy>.
- 3 The report also incorporates volume estimates of cross-border e-commerce released by government departments of major economies and commercial market research institutes. For instance, China regularly publishes annual estimates of its cross-border e-commerce trade. See: <http://www.news.cn/fortune/20250616/215891361a4f40678e75f5800353eb84/c.html> for China's e-commerce export volume in 2024.
- 4 The global digital trade volume is estimated by the research team for this report. See the column at the end of this section for a brief introduction to the estimation method for digital trade.
- 5 Global trade data can be obtained from the WTO's World Trade Statistics website: [https://www.wto.org/english/res\\_e/statistics\\_e/world\\_trade\\_statistics\\_e.htm](https://www.wto.org/english/res_e/statistics_e/world_trade_statistics_e.htm). Both the digital trade volume and the international trade volume here cover all economies worldwide.
- 6 We take the volume of digitally ordered trade in 2021 as the benchmark because goods trade plummeted in 2020 due to the disruption caused by the COVID-19 pandemic, which would otherwise result in an upward bias. If 2020 were used as the benchmark, the annual growth rate would be 16.8%. We thank the editor for raising this point.
- 7 These values are consistent with previous estimates of digital trade. For example, Key Issues in Digital Trade Review, published by the OECD, estimates that the volume of digital trade reached around USD 5 trillion in 2020. See [https://www.oecd.org/content/dam/oecd/en/publications/reports/2023/01/key-issues-in-digital-trade-review\\_5a91f9a0/b2a9c4b1-en.pdf](https://www.oecd.org/content/dam/oecd/en/publications/reports/2023/01/key-issues-in-digital-trade-review_5a91f9a0/b2a9c4b1-en.pdf) for more details.
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