

Ecosystem of E-Commerce and Digital Payment in the CAREC Region

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Sequence of the Presentation

- E-Commerce CAREC Region Overview since 2019
- Defining and measuring payment interoperability, General
- Shaping the future of cross border fast payment system, ASEAN.
- CAREC level of implementation of cross border paperless trade.
- Conclusion

CAREC Region



Afghanistan



Azerbaijan



People's Republic of China



Georgia



Kazakhstan



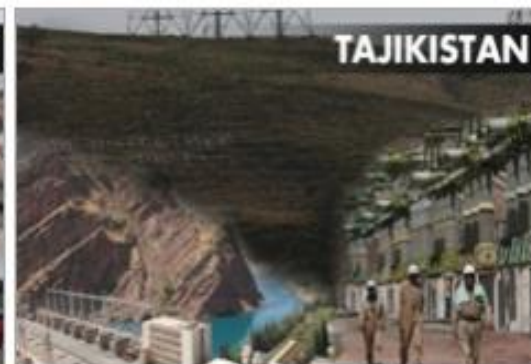
Kyrgyz Republic



Mongolia



Pakistan



Tajikistan



Turkmenistan



Uzbekistan

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E-Commerce Use, 2019

Country	Number of Users (million)	User Penetration (% of population)	Average Revenue per User (\$)
Afghanistan	n.a.	n.a.	n.a.
Azerbaijan	3.1	31	101.22
PRC	855.1	61	1,008.80
Georgia	1.3	35	78.03
Kazakhstan	7.0	38	129.26
Kyrgyz Republic	1.5	23	33.10
Mongolia	0.8	24	38.12
Pakistan	41.0	19	51.92
Tajikistan	1.4	15	21.60
Turkmenistan	0.9	15	21.50
Uzbekistan	8.5	25	42.32
CAREC-10 ^a	65.4	21	60.15
All CAREC countries	920.5	54	941.42
World	3,170.8	41	607.07

CAREC = Central Asia Regional Economic Cooperation, n.a. = not available, PRC = People's Republic of China.

^a CAREC-10 includes all countries in the CAREC Program except the PRC.

Note: E-commerce is one of six major business-to-commerce digital platforms, the other five being online travel, advertising technology, transportation, e-services, and digital media.

Source: ADB estimates based on Statista. 2020. *Statista Digital Market Outlook*. <https://www.statista.com/outlook/digital-markets>.



Internet Infrastructure

Country	Secure Internet Servers per Million People, 2019	International Internet Bandwidth per Internet User, 2018 (bps)	3G Network Coverage, 2018 (% of population)	4G Network Coverage, 2018 (% of population)
Afghanistan	28	n.a.	30.3	14.9
Azerbaijan	369	52,143	95.0	48.1
PRC	735	27,722	98.0	99.0
Georgia	2,776	140,194	100.0	85.0
Kazakhstan	2,359	55,068	92.7	75.0
Kyrgyz Republic	288	47,864	75.0	50.0
Mongolia	1,690	22,399	95.0	27.3
Pakistan	63	20,854	78.5	54.7
Tajikistan	71	2,256	90.0	80.0
Turkmenistan	20	n.a.	n.a.	67.0
Uzbekistan	453	n.a.	75.0	43.0
CAREC-10 ^a	812	n.a.	73.0	55.0
All CAREC countries	805		75.0	59.0
World	10,050	224,803	86.0	69.0

bps = bits per second, CAREC = Central Asia Regional Economic Cooperation, PRC = People's Republic of China, 3G = third generation, 4G = fourth generation

^a CAREC-10 includes all countries in the CAREC Program except the PRC.

Sources: World Bank, World Development Indicators. <https://databank.worldbank.org/source/world-development-indicators> (accessed 1 August 2020); Portulans Institute. 2019. The Network Readiness Index 2019: Towards a Future-Ready Society. Washington DC. <https://networkreadinessindex.org/wp-content/uploads/2020/03/The-Network-Readiness-Index-2019-New-version-March-2020.pdf>; and Global System for Mobile Communications Association. Mobile Connectivity Index 2019. <https://www.mobileconnectivityindex.com/> (accessed 1 August 2020).



Internet Download Speeds, 2020 (Mbps)

Country	Mobile Download Speed	Fixed Broadband Download Speed
Afghanistan	5.52	7.38
Azerbaijan	30.99	21.24
PRC	103.67	133.60
Georgia	27.72	26.19
Kazakhstan	21.25	46.31
Kyrgyz Republic	20.06	40.26
Mongolia	19.19	35.63
Pakistan	14.86	8.87
Tajikistan	12.62	27.59
Turkmenistan		3.69
Uzbekistan	11.78	28.52
CAREC-10 ^a	18.22	24.57
All CAREC countries	26.77	34.48
World	34.67	78.26

CAREC = Central Asia Regional Economic Cooperation, Mbps = megabits per second, PRC = People's Republic of China.

^a CAREC-10 includes all countries in the CAREC Program except the PRC.

Source: Speedtest Global Index. <https://www.speedtest.net/global-index> (accessed 11 June 2020).



Internet Access and Usage

Country	Internet Users, 2019 (million)	Internet Penetration, 2019 (% of population)	Households with Internet Access, 2018 (% of households)	Households with a Computer, 2018 (% of households)	Mobile Connections, 2019 (million)
Afghanistan	7.65	20	6	3.43	26.92
Azerbaijan	8.05	80	78	64.10	11.29
PRC	854.50	59	60	55.00	1,610.00
Georgia	2.70	68	70	62.11	5.57
Kazakhstan	14.73	79	88	78.50	25.45
Kyrgyz Republic	3.06	47	21	23.29	9.73
Mongolia	2.20	68	23	36.45	4.42
Pakistan	76.38	35	22	16.15	164.90
Tajikistan	2.42	26	12	14.83	10.04
Turkmenistan	1.56	26	11	10.73	4.79
Uzbekistan	18.34	55	80	38.50	25.14
CAREC-10 ^a	137.09	50	41	35.00	288.25
All CAREC countries	991.59	51	43	37.00	1,898.25
World	4,540.00	59	55	47.10	7,950.00

CAREC = Central Asia Regional Economic Cooperation, PRC = People's Republic of China.

^a CAREC-10 includes all countries in the CAREC Program except the PRC.

Sources: Kemp, Simon. 2020. Digital 2020. Afghanistan. <https://datareportal.com/reports/digital-2020-afghanistan>; Kemp, Simon. 2020. Digital 2020: Azerbaijan. <https://datareportal.com/reports/digital-2020-azerbaijan>; Kemp, Simon. 2020. Digital 2020: China. <https://datareportal.com/reports/digital-2020-china>; Kemp, Simon. 2020. Digital 2020: Georgia. <https://datareportal.com/reports/digital-2020-georgia>; Kemp, Simon. 2020. Digital 2020: Kazakhstan. <https://datareportal.com/reports/digital-2020-kazakhstan>; Kemp, Simon. 2020. Digital 2020: Kyrgyz Republic. <https://datareportal.com/reports/digital-2020-kyrgyz-republic>; Kemp, Simon. 2020. Digital 2020: Mongolia. <https://datareportal.com/reports/digital-2020-mongolia>; Kemp, Simon. 2020. Digital 2020: Pakistan. <https://datareportal.com/reports/digital-2020-pakistan>; Kemp, Simon. 2020. Digital 2020: Tajikistan. <https://datareportal.com/reports/digital-2020-tajikistan>; Kemp, Simon. 2020. Digital 2020: Turkmenistan. <https://datareportal.com/reports/digital-2020-turkmenistan>; Kemp, Simon. 2020. Digital 2020: Uzbekistan. <https://datareportal.com/reports/digital-2020-uzbekistan>; Kemp, Simon. 2020. Digital 2020: World. <https://datareportal.com/reports/digital-2020-world>



Electronic Payment Capacity and Use, 2017 (%)

Country	Share of Respondents Who					
	Own a Debit Card	Own a Credit Card	Used a Debit or Credit Card to Make a Purchase	Used the Internet to Pay Bills or Purchase Online	Made or Received Digital Payments	Used Mobile Phone or Internet to Access Account
Afghanistan	2.7	1.1		0.5	10.8	0.9
Azerbaijan	24.6	5.3	7.4	9.4	24.6	2.0
PRC	66.8	20.8	41.9	48.8	67.9	39.8
Georgia	39.9	14.6	18.5	13.5	53.0	9.4
Kazakhstan	39.7	20.0	25.5	24.3	53.9	18.2
Kyrgyz Republic	19.3	3.6	6.7	5.0	36.1	5.8
Mongolia	75.7	3.2	60.8	17.1	85.3	38.4
Pakistan	8.3	1.0		8.0	17.7	7.6
Tajikistan	15.9	5.7	10.8	12.8	43.9	8.3
Turkmenistan	37.9		5.6	2.0	34.3	2.2
Uzbekistan	24.1	0.6	25.0	7.1	34.2	6.7
CAREC-10 ^a	28.8	6.1	20.0	10.0	39.4	10.0
All CAREC countries	32.3	7.6	22.5	13.5	42.0	12.7
World	47.7	18.4	32.6	29.0	52.3	24.9

CAREC = Central Asia Regional Economic Cooperation, PRC = People's Republic of China.

^a CAREC-10 includes all countries in the CAREC Program except the PRC.

Source: World Bank. DataBank. Global Financial Inclusion. <https://databank.worldbank.org/reports.aspx?source=global-financial->



Postal and Logistics Performance Indexes, 2018

Country	Postal Reliability Score	Mail Delivered at Home (% of population)	LPI Score for Infrastructure Quality	LPI Score for Quality of Logistics Services	LPI Score for Timeliness of Shipments
Afghanistan	6	50	1.81	1.92	2.38
Azerbaijan	86				
PRC	85	99	3.75	3.59	3.84
Georgia	99	100	2.38	2.26	2.95
Kazakhstan	72	94	2.55	2.58	3.53
Kyrgyz Republic	20		2.38	2.36	2.94
Mongolia	47	51	2.10	2.21	3.06
Pakistan	54	95	2.20	2.59	2.66
Tajikistan	1	75	2.17	2.33	2.95
Turkmenistan			2.23	2.31	2.72
Uzbekistan	41	100	2.57	2.59	3.09
CAREC-10 countries	47	81	2.27	2.35	2.92
All CAREC countries	51	83	2.41	2.47	3.01
World	49	80			

CAREC = Central Asia Regional Economic Cooperation, CAREC-10 includes all countries in the CAREC Program except the PRC, LPI = Logistics Performance Index, PRC = People's Republic of China, UNCTAD = United Nations Conference on Trade and Development.



Overview of E-Commerce-Related Legislation

Legislation	Afghanistan	Azerbaijan	People's Republic of China	Georgia	Kazakhstan	Kyrgyz Republic	Mongolia	Pakistan	Tajikistan	Turkmenistan	Uzbekistan
E-transactions	*	•	•	•	•	•	•	•	•	•	•
E-documents	*	•	•	•	•	•	•	•	•	•	•
E-signatures	*	•	•	•	•	•	•	•	•	•	•
International certificates and foreign signatures	*	•	•	•	•	•	•	•	•	•	•
Privacy	*	•	•	•	•	•	*	*	•	•	•
Cybercrime	•	•	•	•	○	○	○	•	○	○	○
Consumer Protection	•	•	•	○	•	○	•	*	*	•	○

• = specific legislation or modern statutes are available that are generally compliant with international instruments (with minimum provisions applicable to e-commerce transactions).

○ = there is no specific legislation but there is general legislation (such as civil or criminal codes) that is applicable to all kinds of transactions and is considered media-neutral legislation or statutes.

* = there is incomplete legislation, outdated provisions, or a law has yet to be enacted.

Source: Author's compilation.

World Economic Forum, 2022

Defining and Measuring Payment Interoperability

WHITE PAPER

APRIL 2022

Background

- According to PayPal's Borderless Commerce Report, worldwide e-commerce is expected to grow 14.3% in 2021, with a 28% increase in new online shoppers.
- Based on Visa's latest Global Merchant E-commerce Study, 66% of e-commerce companies are selling products across borders, with cross-border sales accounting for around one-third (31%) of their revenue on average.
- Even though 87% of merchants believe their biggest growth potential lies with international online sales expansion, owners of small businesses expressed their reluctance to take actions to expand into new markets.
- Lacking interoperable payment solutions suitable for international trade is preventing merchants, especially small and medium-sized enterprises (SMEs), from tapping into international markets:
 - According to a survey conducted by Visa, only half of the merchants have a payment processing infrastructure that is suitable for cross-border payments.
 - Close to 40% of merchants consider accepting and processing foreign transactions an obstacle in achieving their growth potential through selling abroad online.
 - Based on a survey conducted by PayPal, while 18% of global merchants said that having to accept new, local payment methods is preventing them from selling their products and services in more markets, 40% of online shoppers say they are likely to abandon a purchase if their preferred method of payment isn't available.

Definition of payment interoperability

- **Technical interoperability:** most of the existing discussions on payment interoperability focus on technical or system interoperability. Technical interoperability measures the ability to build seamless connections across different payment methods or closed networks.
- **Regulatory interoperability:** the ability to connect payment systems within a jurisdiction or “across different jurisdictions governed by differing regulatory requirements in order to ensure that transactions are conducted in a lawful manner.”
- **Usage interoperability:** the ability for different demographic groups to participate in the digital economy and to transact across different geographies at low cost, leading to inclusion without any discrimination

China's move to payment interoperability



As a pioneer in digital payments, e-money has dominated China's mobile payment scene. For a long period of time, Weixin Pay, a payment service built into Tencent's social communication app Weixin, and Alipay, an e-wallet company grown out of Alibaba, have operated as semi-closed loop systems with their own QR code standards. In recent years, the People's Bank of China has pushed for public and private sector collaborations for a more open ecosystem across different payment methods. Weixin Pay is currently cooperating with multiple banks and institutions to promote a more comprehensive payment interconnection. In addition, Weixin Pay and UnionPay Cloud QuickPass, which is owned by one of the largest card networks in China, have created a comprehensive interoperability mechanism with various in-depth payment and service interconnection scenarios. Starting from September 2021, UnionPay Cloud QuickPass app users can scan Weixin Pay QR codes to make offline payments. Weixin Pay users can do the same with UnionPay Cloud QuickPass QR codes. As more payment service providers in China expand their collaborative approach to QR codes, there is expected to be a shift from previously incompatible technical standards between different payment services to a more open and mutually compatible payment services framework, thereby increasing convenience for consumers.



QR code standardization in ASEAN



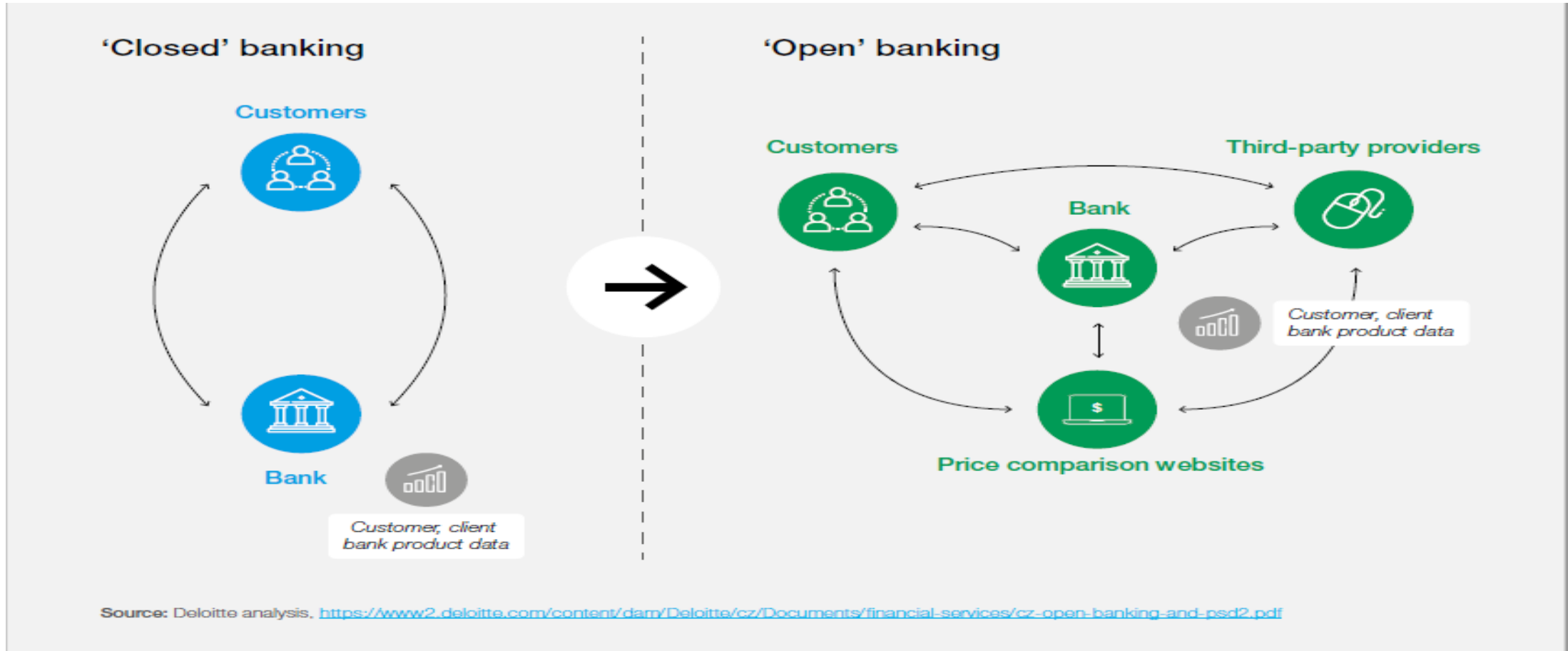
QR codes have a strong presence in Association of Southeast Asian Nations (ASEAN) countries. Scan-to-pay transactions within China have grown 15-fold between 2019 and 2022, hitting 9.6 trillion yuan (\$1.5 trillion) in the fourth quarter of 2019 alone.²⁴ Regardless of the current economic downturn, the COVID-19 pandemic has only intensified the QR code market, increasing transaction activity over the first quarter of 2020 by 26% compared to the same period the year prior. As QR codes across ASEAN have become more ubiquitous, the adoption of an interoperability approach is timely.

The ASEAN Bankers Association (ABA) has led an effort to create an interoperable QR code. The main objective is to provide low-cost and convenient cross-border payments across ASEAN to further facilitate retail consumer business transactions through tourism and trade. There is potential to harmonize the use of national QR payment codes through the adoption of standards developed by EMVCo, ISO20022, open loop, and other standards and technologies to enhance interoperability. Thus far, ASEAN countries have adopted a bilateral approach for which national QR payment schemes are “operationally ready” for cross-border payments. These countries include Malaysia, Thailand and Singapore. Other countries will certainly follow. The long-term goal is a hub and spoke approach. This collaboration is part of the ASEAN Payment Connectivity initiative, which promotes financial integration in the region through efficiency, reduced costs and improved user experience for cross-border payments.

In other emerging markets the technology is left open. For example, in Azerbaijan, QR code payment is available via an instant payment system (IPS) and payment channels integrated into the IPS. QR code payments via IPS offer several benefits. In particular, perceived ease of use and high-level security are the two factors that most strongly influence the intention to accept the use of QR code payment services among users.

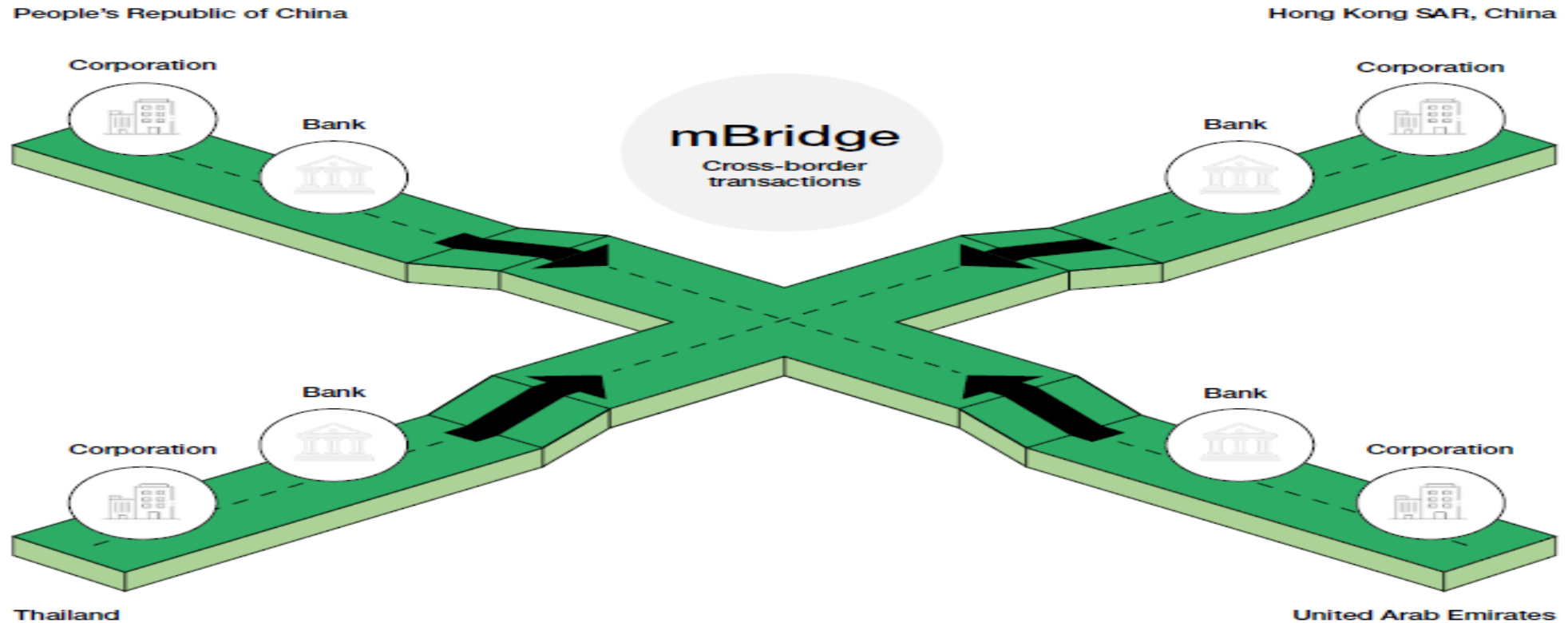


To insure technical interoperability



Source: Deloitte analysis, <https://www2.deloitte.com/content/dam/Deloitte/cz/Documents/financial-services/cz-open-banking-and-psd2.pdf>

mBridge cross-border transactions



Lower fees



Simpler operations



No foreign exchange settlement



Greater transparency



Low reporting burden

World Economic Forum, 2023

Shaping the Future of Cross-Border Fast Payment Systems: Revolutionizing Transactions in South-East Asia

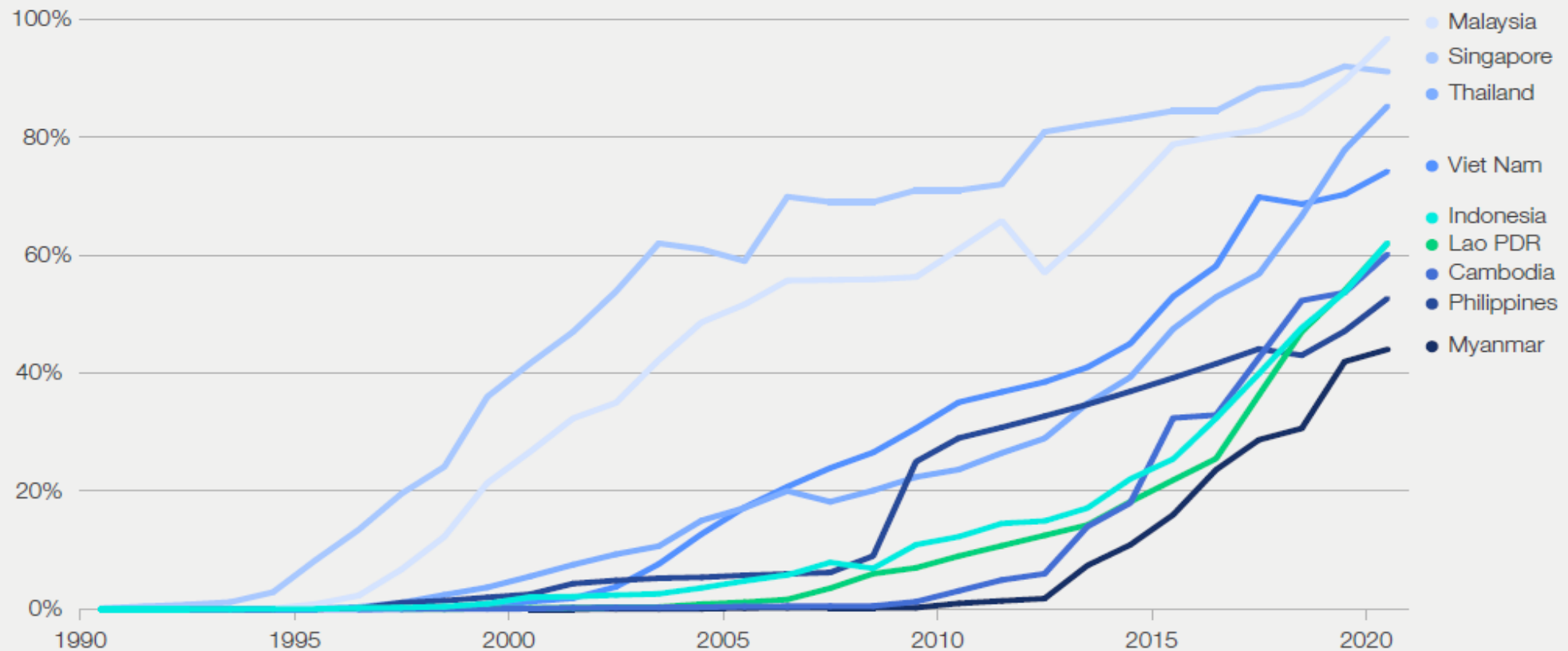
BRIEFING PAPER

NOVEMBER 2023



The rise of internet usage across ASEAN countries since 1990

Individuals using the Internet (% of population)

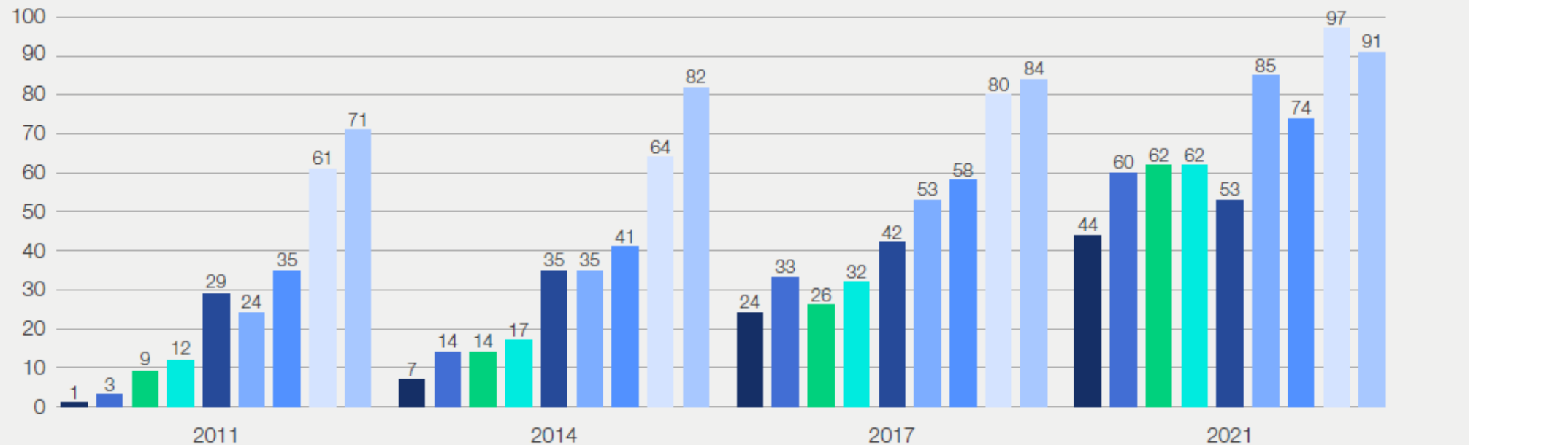


Source: International Telecommunication Union (ITU) World Telecommunication/ICT indicators Database

Account ownership at a financial institution or with a mobile money service provider

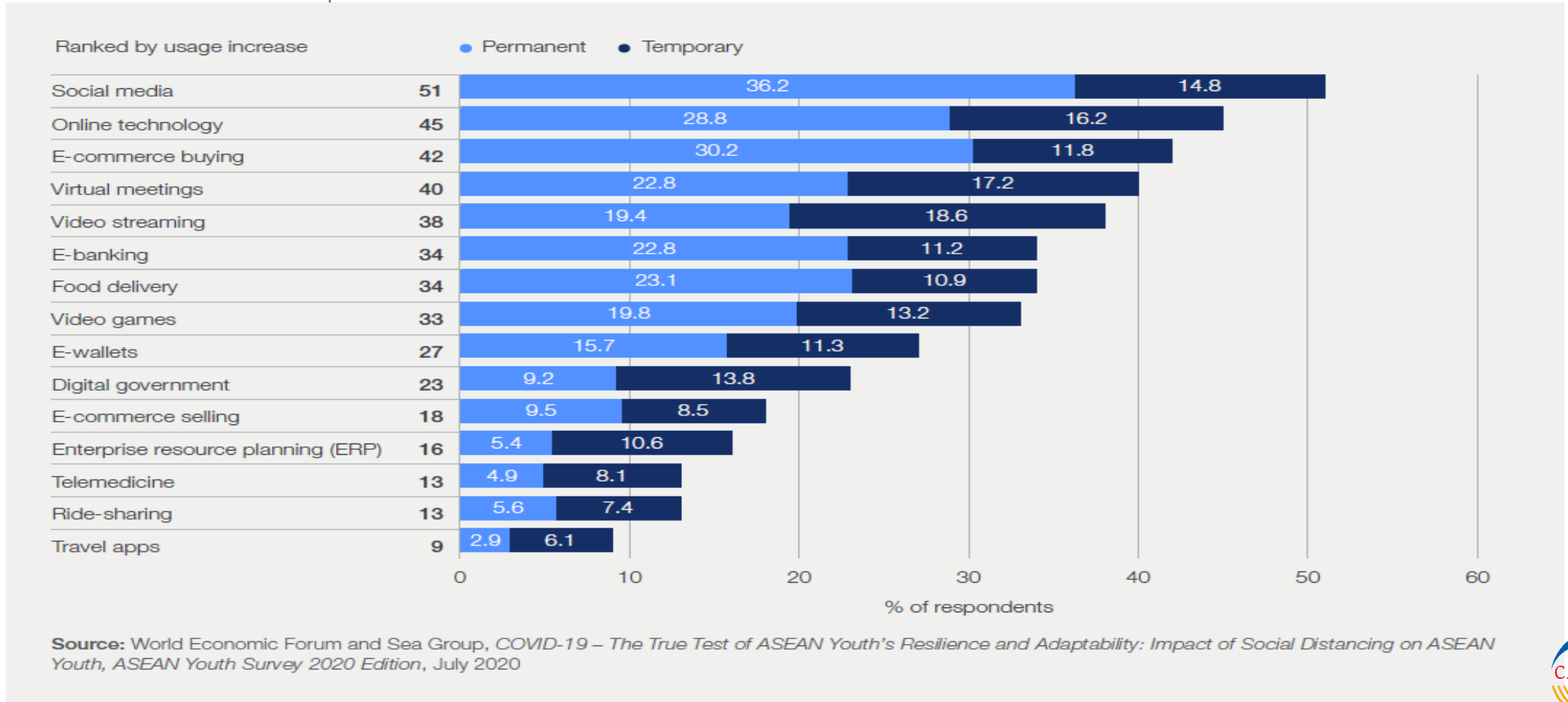
● Myanmar ● Cambodia ● Lao PDR ● Indonesia ● Philippines
● Thailand ● Viet Nam ● Malaysia ● Singapore

Percentage of population aged more than 15 years



Source: World Bank, Findex 2022 edition

Increase in the use of digital tools in ASEAN following the pandemic



Lessons learned from the implementation of the PromptPay–PayNow linkage

The PromptPay–PayNow linkage represents an important milestone, proving the viability of connecting domestic FPS across borders. The project faced complexities, but, through structured collaboration, stakeholders in Thailand and Singapore successfully delivered a world-first linkage that meets customer needs for convenient, accessible and affordable cross-border payments.

The different stakeholders involved in this project provided several lessons learned, which they believe could be valuable to other countries looking to implement similar cross-border linkages between their payment systems. They can be grouped into the following five key overarching categories:

1. Governance: establishing robust governance and project-management structures

The project established clear governance and project-management structures upfront. A steering committee of senior central bank officials provided oversight and direction. Project-management offices in each country facilitated working groups covering business, technical and legal/regulatory issues.²⁹ Domestic operators, settlement banks and commercial banks from both countries collaborated closely. Strong governance and structured project management enabled alignment across multiple stakeholders.

2. Technical standards: allowing flexibility in technical standards

Allowing flexibility in technical standards ensures adaptability to unforeseen challenges, promotes collaboration and facilitates the integration of evolving technologies to meet dynamic project needs. To streamline cross-border peer-to-peer (P2P) fund transfers, BCS and ITMX (the two countries' systems operators) devised a gateway using ISO 20022 as the message benchmark. The solution facilitates message conversion for cross-border sections while maintaining domestic formats, and addresses the time discrepancy between PromptPay and PayNow. Ensuring flexibility in the implementation of the cross-border linkage was balanced with interoperability needs, which helped to smooth onboarding and minimized disruption across legacy infrastructure.

3. Regulation: bridging operational differences

Different countries have different laws and regulations; such operational differences are common and must be studied and resolved collaboratively. For example, the turnaround times differed between PromptPay and PayNow, which had to be addressed to avoid transaction failures. New, asynchronous messaging flows were implemented. Another example was the disparity in anti-money laundering/combatting the financing of terrorism (AML/CFT) screening between the countries: Thailand requires real-time screening to be conducted during the look-up stage, whereas Singapore is open to performing this at the payment stage. Although the domestic systems shared similarities, they had operational differences that needed careful reconciliation, including variations in the message formats and timing. Instead of trying to completely harmonize the approaches, a compromise was reached that considered the differing processes in both countries and respected each country's approach and honoured their respective regulations.

4. Testing: conducting extensive testing and ensuring comparable methodologies

The project allotted significant time for rigorous testing by operators and banks. This revealed unanticipated issues, such as subtly different data-field norms, which caused transactions to fail. While time-consuming, comprehensive testing ensured a smoothly functioning system. As well as providing sufficient testing resources, it was also crucial to ensure from the outset that the testing methodologies used by both parties were comparable.

5. Collaboration: developing legal frameworks collaboratively

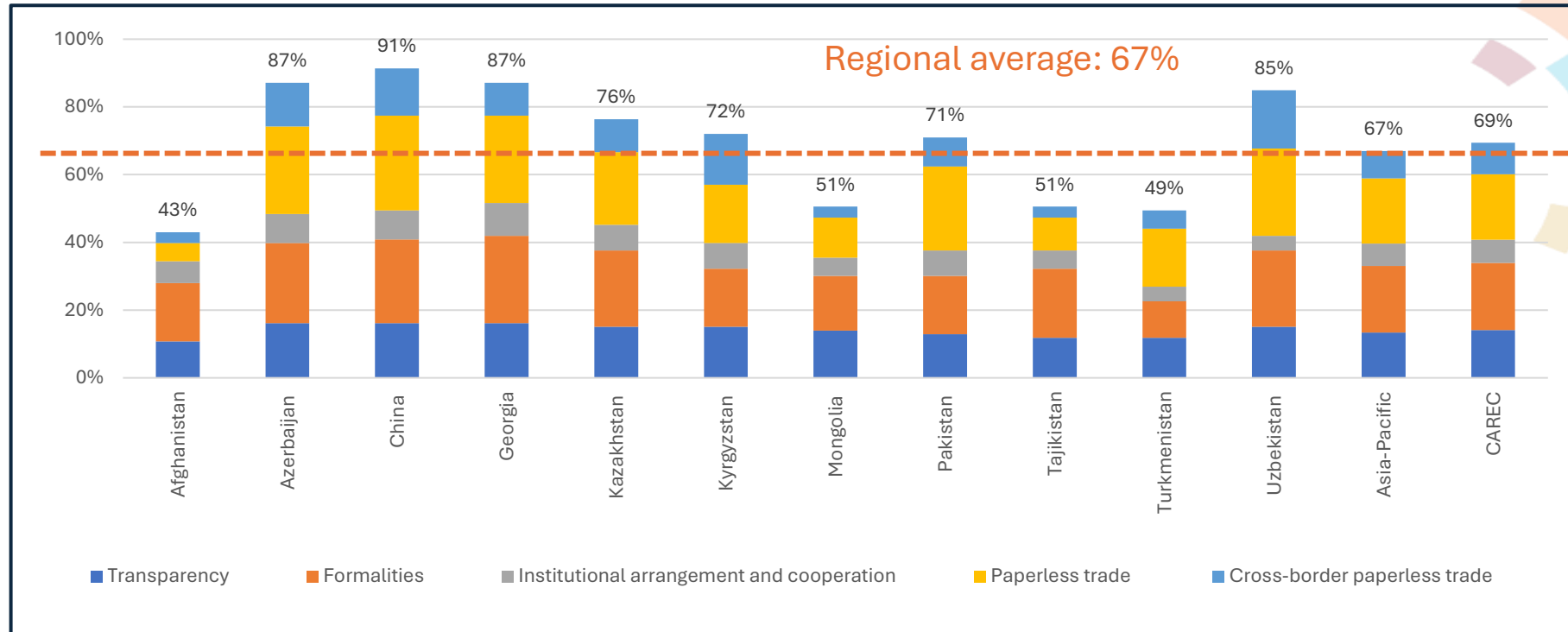
Developing mutually acceptable legal agreements between parties in two jurisdictions was complex but essential for risk management and recourse. A novel multiparty structure was devised to handle issues such as governance, liability and dispute resolution. While demanding, this collaborative legal infrastructure provides the bedrock for sustainable operations. The roles of the Bank of Thailand and the Monetary Authority of Singapore were also highlighted as key stakeholders in overseeing the governance of this project. In cases where agreements could not be reached between the participating banks and payment service providers, these issues could be escalated to the central banks for resolution.

Case study: The PromptPay–PayNow cross-border payments linkage between Thailand and Singapore

Implementation varies widely across CAREC countries

- » CAREC average implementation rate at 69%
- » China, Azerbaijan and Georgia leading the CAREC subregion

Overall implementation of trade facilitation measures in CAREC countries

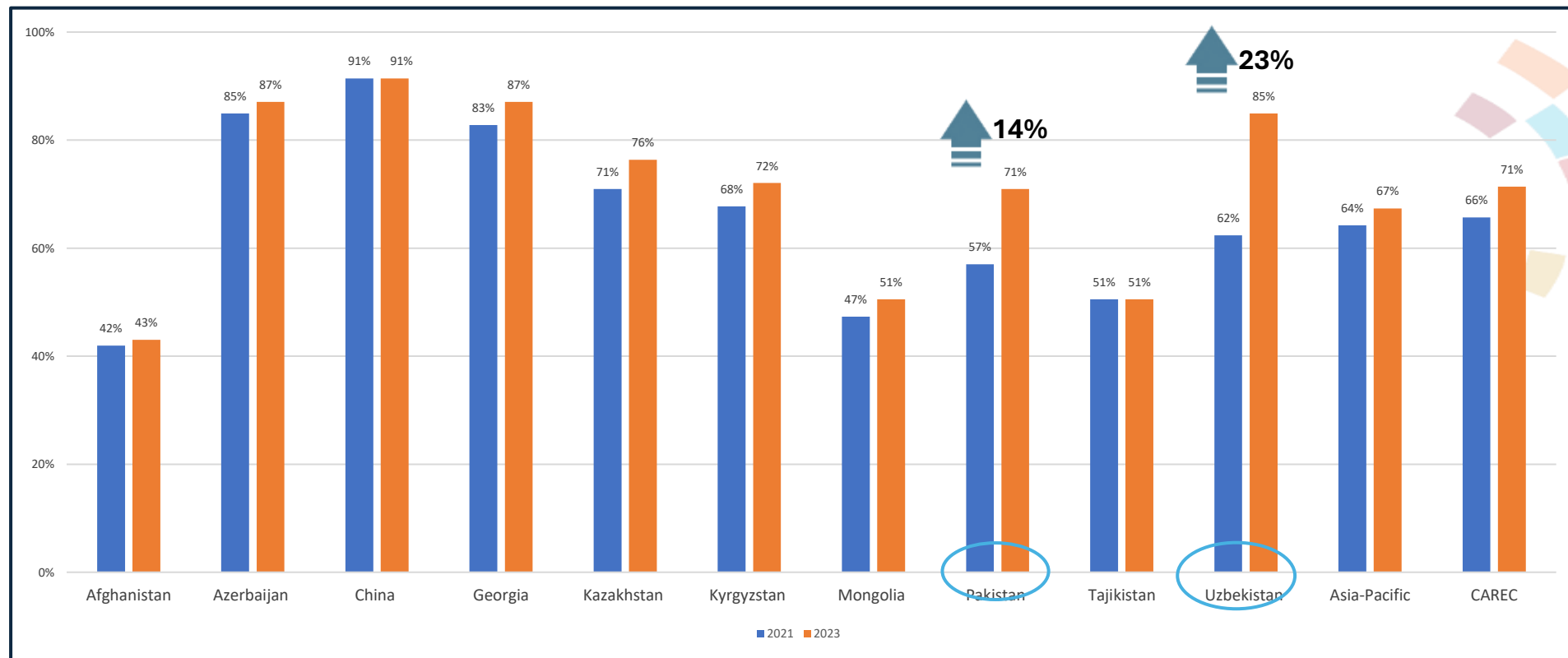


Source: UN Global Survey on Digital and Sustainable Trade Facilitation, 2023. www.untfsurvey.org

Implementation improved in CAREC subregion

- » CAREC average implementation: increased by 5 percentage points
- » Significant progress observed in Uzbekistan and Pakistan

Trade facilitation implementation by CAREC countries between 2021 and 2023

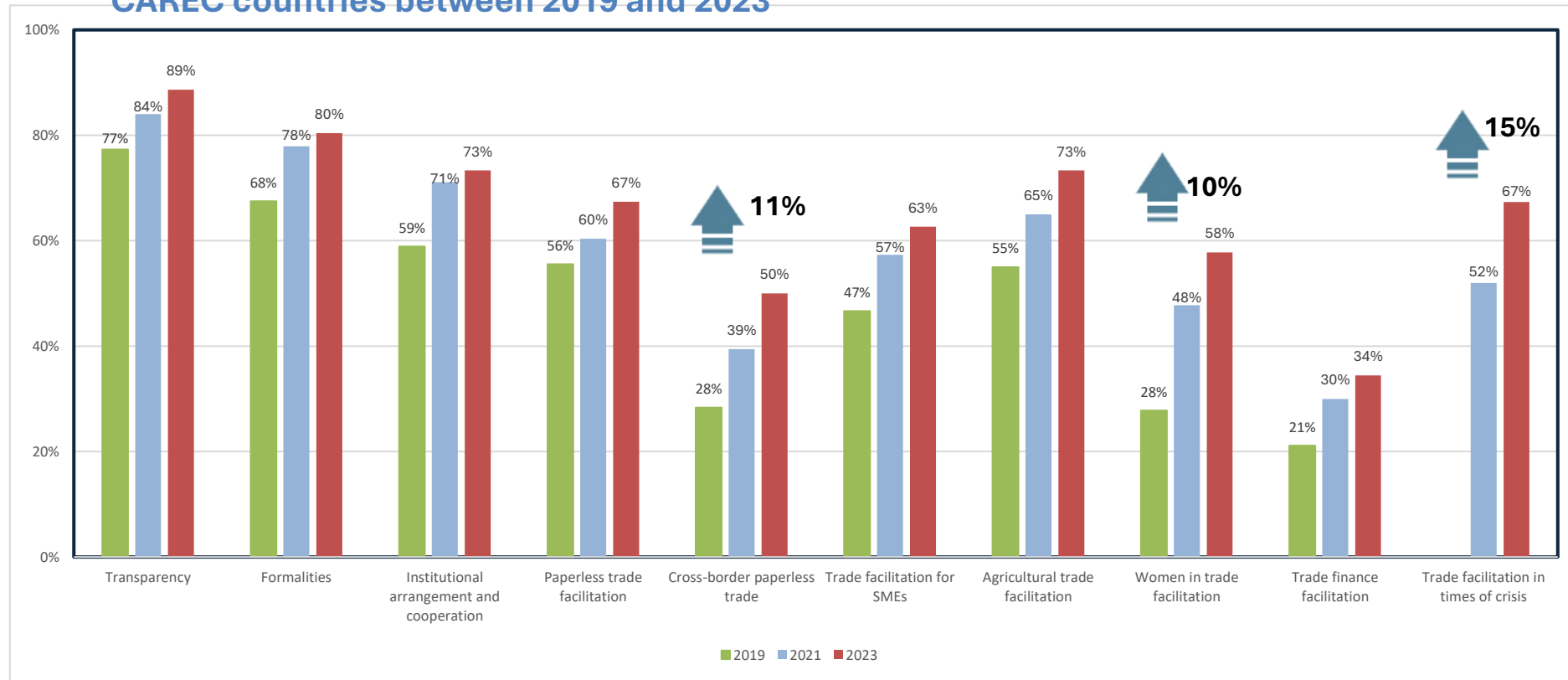


Source: UN Global Survey on Digital and Sustainable Trade Facilitation, 2023. www.untfsurvey.org

Implementation varies across different sub-groups

- » WTO TFA related measures well implemented (>70%)
- » Cross-border paperless trade and sustainable TF measures implementation relatively low, despite good progress made

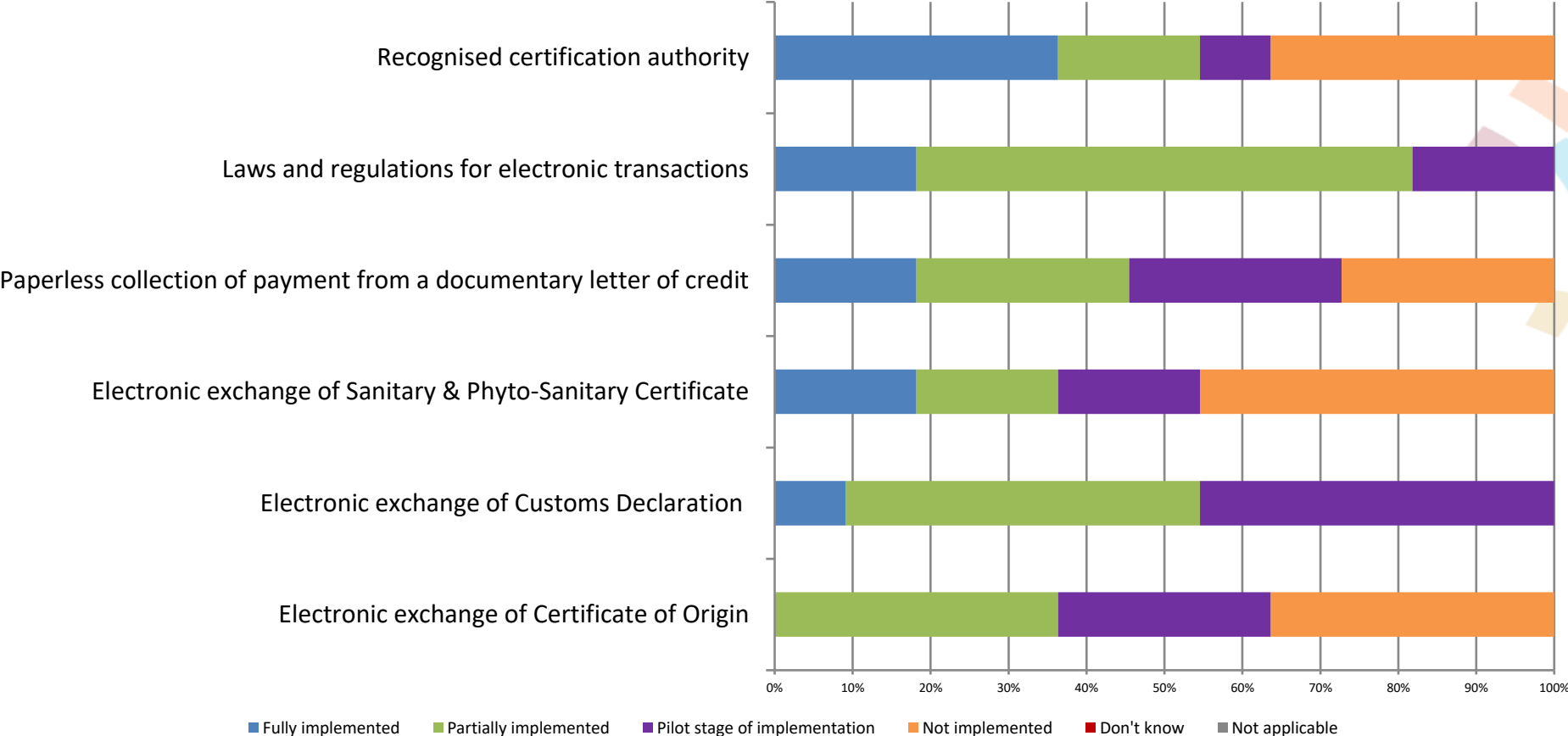
Average implementation of different sub-groups of trade facilitation measures by CAREC countries between 2019 and 2023



Source: UN Global Survey on Digital and Sustainable Trade Facilitation, 2023. www.untfsurvey.org

Implementation of cross-border paperless trade measures remains low

State of implementation of 'cross-border paperless trade' in CAREC



Source: UN Global Survey on Digital and Sustainable Trade Facilitation, 2023. www.untfsurvey.org



Conclusion

- Establish a comprehensive national interoperability policy.
- Provide a framework for intra-agency collaboration.
- Enhance public and private sector collaboration.