GUIDING PRINCIPLES
for the Development of
Interoperable Open Data Systems
in the Asia-Pacific Region

FOREWORD

Open data is an expanded version of open banking, a concept implemented in Europe through the Payment Services Directive 2 (PSD2), as well as in a few other markets. While the classic open banking involves a one-way flow of permissioned consumer data from banks to third-party service providers, open data involves a multi-directional flow of data across market participants. If properly designed, an open data system can enable competition and empower innovation. It can enable better consumer outcomes and provide an ecosystem for fintech firms to collaborate with banks and other service providers. When supported by digital enablement and access, open data can promote financial inclusion in developing economies.

In order for the region to benefit from open data systems, there needs to be coordinated guidance from governments to agencies and private institutions in sharing customer data for the benefit of individuals. Given its weight in the world economy, APEC has a potential role to play in developing a common standard and harmonizing basic implementation of open data among its members, and eventually to coordinate with other jurisdictions, in promoting a global ecosystem.

In 2022, the APEC Business Advisory Council (ABAC) recommended in its report to APEC Finance Ministers, among others, that they encourage collaboration among the financial industry, international organizations and relevant public sector stakeholders to advance the development of open data systems, consistent standards with domestic regulatory control, and common guiding principles of open data for use across the region.[1] The Chair's Statement of the 2022 APEC Finance Ministers' Meeting called on relevant stakeholders to collaborate in implementing ABAC's recommendations. [2]

In 2023, ABAC, together with the Emerging Payments Association (EPA) Asia and the Asia-Pacific Financial Forum (APFF) Financial Market Infrastructure Network and Data Ecosystem Working Group, convened various experts from the banking and payments industry, international organizations, governments and regulatory agencies to formulate a set of Guiding Principles for the Development of Interoperable Open Data Systems in the Asia-Pacific Region. The Guiding Principles, which are contained in this document, are intended to assist APEC member economies that are developing their respective open data systems in ensuring the interoperability, accessibility and scalability of safe and secure open data and payment systems, promoting the expansion of cross-border financial transactions, and supporting progress toward economic integration within the Asia-Pacific region.

[1] http://www2.abaconline.org/assets/2022/Ministerial_Letters/ABAC_Letter_to_APEC_Finance_Ministers_2022.pdf

[2] https://www.apec.org/meeting-papers/sectoral-ministerial-meetings/general/chair-s-statement-of-the-29th-apec-finance-ministers-meeting

Guiding Principles for the Development of Interoperable Open Data Systems in the Asia-Pacific Region

THE PRINCIPLES

Achieving Domestic and International Interoperability

1. A **whole-of-economy approach** involving collaboration (a) among relevant government and regulatory agencies, (b) among industry sectors and (c) between the public sector and industry is critical for the successful development of open data systems.

2. Economies need to adopt the open data system **development model that best fits their individual market conditions**. Irrespective of whether it is a market-driven, regulation-driven or a mixed model, it needs to allow the industry to effectively engage with the government and regulators to avoid the development of a fragmented ecosystem.

3. Domestic open data systems need to be developed with a view toward **international interoperability**, through consideration of each jurisdiction's international obligations. Collaboration among economies is required for the success of efforts to domestically embed and evolve common standards underpinning the international payments and data ecosystem.

Enabling Trusted and Secure Sharing and Use of Data

4. Public-private sector collaboration to enable **expanded trusted and secure sharing and use of data** through a toolbox of legal and regulatory mechanisms, agreement on common principles of privacy protection, and expanded adoption and use of privacy-enhancing technologies, is critical to enabling consumers and businesses to benefit from open data systems.

5. **Proportionality** in the design and implementation of data laws and regulations is important to allow the sharing of a wider range of data sets, increase the inclusiveness and benefits of open data and reduce the risk of fraud. Regulations that compel private sector participants to comply with obligations need to take into consideration the proportionality of those obligations to the anticipated benefit, the resources of these participants and the place of those organizations in society.

Providing an Enabling Governance and Regulatory Framework

6. A **centrally organized framework** encompassing standards, tools, policies and regulations that are effectively distributed throughout the market is important for enabling stakeholders to best serve their customers. It is also critical for setting up governance structures that can drive industry participation in open data systems.

7. A **balanced and flexible framework** that provides room for evolution and allows constant communication with businesses can enable innovation to flourish in a collaborative environment, while ensuring consumer protection, fairness and financial stability. The framework needs to recognize the difference between regulations that permit and regulations that compel, and identify the appropriate conditions for their application.

8. **International regulatory cooperation** in utilizing global data to combat crime and fraud and strengthen efforts at anti-money laundering (AML) and combating the financing of terrorism (CFT) will lead to cost reduction, foster innovation, improve inclusion and enhance security in open data systems.

9. **Sectoral public-private collaboration** is critical to the design of the right incentives and regulations that can drive market competition, innovation and connectivity and enable the adoption of APIs that can fit each sector's market specifics.

10. Financial regulators will need to adapt their operational frameworks to the impact of open data systems on their ability to continue **ensuring financial stability**.

Building the Infrastructure

11. An important foundation of an open data ecosystem is a common identity and authorization framework built on a **digital ID platform.** Utilizing the existing banking system for data verification or agreed mechanisms for participants or intermediaries to efficiently identify and establish connections with each other can significantly reduce industry costs.

12. To benefit from open data systems, economies need to develop a sufficient **foundational infrastructure**, including telecommunications and digital and financial infrastructure that can enable the efficient collection, processing and sharing of customer data. A coherent industry roadmap for the future with clear long-term objectives can encourage private sector participants to invest with confidence in their own technology environments.

Fostering a Dynamic Market

13. Creating a **customer-centric open data system** that places the needs of customers front and center and ensures that solutions developed by the industry are useful to them is an important key to the success of any open data initiative.

14. Creating an **efficient and competitive market environment** enabling innovation from all stakeholders, including innovation in the open data ecosystem in its entirety and the secure and trusted unlocking of datasets in and beyond the banking industry, is critical to ensuring the continuous development of open data systems. It is important to appropriately navigate the balance between the need for progressive development of standards in response to market evolution and the desire for stability of standards to reduce the burden of ongoing compliance for market participants.

Laying the Foundations for Adoption through Education

15. Government and industry need to collaborate in efforts at **proactive customer education and transparent communication** to address concerns and promote trust in open data systems.

16. Government and industry across the region need to collaborate in **developing human resources** for open data systems to support industry transformation and regulatory capacity.

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Guiding Principles for the Development of Interoperable Open Data Systems in the Asia-Pacific Region

The development of secure, efficient and inclusive open data[3] and payment systems is key to achieving strong and sustained growth in the digital economy. It is important that such systems be designed and implemented in a way that best fits the specific conditions in each market and meets the needs of its consumers and businesses. For member economies of APEC, which aspires to a vision of regional economic integration and free and open trade and investment, there is an added requirement that future open data systems be interoperable. In order to avoid the region's fragmentation into isolated digital islands and ensure the free flow of services across the Asia-Pacific in the digital age, APEC member economies need to advance the development of their respective open data systems on the basis of the following common principles.

A. Achieving Domestic and International Interoperability

A whole-of-economy approach involving collaboration (a) among relevant government and regulatory agencies, (b) among industry sectors and (c) between the public sector and industry is critical for the successful development of open data systems.

Providing effective financial services to consumers requires addressing issues cutting across different industry sectors. A whole of government approach and horizontal frameworks that cut across sectors are needed to replace traditional regulatory boundaries and develop new ecosystems that can help businesses, consumers and government access and use data securely and productively. Possible ecosystem architectural models could include hub-and-spoke and bilateral arrangements, as well as federated models.

Industry collaboration in all relevant areas including privacy, security, technical standards, and consumer consent will allow different sectors of the economy to move forward with common goals, and generate trust across industries. This could be achieved through industry working groups focused on technology, law, business and economic issues related to the development of open data systems.

Certain projects being developed in the industry will require government support and collaboration in the context of competition frameworks and other legal requirements. This needs to be addressed through close collaboration between government agencies/regulatory bodies and the industry. Government agencies can also greatly contribute to the supply of data by making government-held data sets available, as well as to the demand for data and the adoption of data sharing.

[3] Examples of the wide range of services that open data can provide to customers include business accounting, authentication and identity, budgeting and financial planning, data analytics, payment processing, account aggregators, credit scores, and subscription and tax management.

Economies need to adopt the open data system development model that best fits their individual market conditions. Irrespective of whether it is a market-driven, regulation-driven or a mixed model, it needs to allow the industry to effectively engage with the government and regulators to avoid the development of a fragmented ecosystem.

The market-driven model allows a good balance between mandating parts of infrastructure as needed and empowering innovation. It works best in cases where there is an existing strong digital identity framework and well-developed payment rails. The regulation-driven model[4] can ensure trust and stability through the establishment of precise and well-defined rules. The mixed model requires strong government-industry collaboration. To be successful and avoid fragmentation, however, the industry needs to be actively involved in standardization and the implementation of standardized APIs.

Domestic open data systems need to be developed with a view toward international interoperability, through consideration of each jurisdiction's international obligations. Collaboration among economies is required for the success of efforts to domestically embed and evolve common standards underpinning the international payments and data ecosystem.

Developing accessible and interoperable open data systems will require well-defined standards and functions that can connect and work together both locally and globally. Global standards must be used in conjunction with well-defined local functional API standards, including those related to security. These functions should be designed to be adaptable to any environment, with a view to developing systems that are familiar to market participants and harmonious in their standardized functionality.

While a global solution to interoperability of open data systems is not available at present, economies should leverage the APEC platform to collaborate in sharing information about their ongoing efforts. The platform can assist them in learning what has been working well and how systems can be improved, and in developing concrete initiatives toward adoption of common standards and achieving future interoperability.[5] Member economies may consider embedding interoperability of open data systems in plurilateral digital economy partnership agreements and expanding such arrangements more widely across the region.

B. Enabling Trusted and Secure Sharing and Use of Data

Public-private sector collaboration to enable expanded trusted and secure sharing and use of data through a toolbox of legal and regulatory mechanisms, agreement on common principles of privacy protection, and expanded adoption and use of privacy-enhancing technologies, is critical to enabling consumers and businesses to benefit from open data systems.

An open data system works on the basis of customers having full control over their permissible records and leveraging these to access a more comprehensive array of services. It can provide

[4] It is important to distinguish here between policy functions (imposing regulation) and regulatory functions (applying and enforcing regulations).

[5] In this process, member economies may take into consideration the potential for gradual evolution toward common standards. For example, while local data sharing standards may be seen currently as necessary to recognize disparate domestic payment system formats, there is potential for moving toward common data sharing standards as the payments industry achieves progress toward adopting ISO 20022.

benefits to consumers if accessibility is increased and friction reduced in data sharing and their position in financial transactions made visible. It can benefit businesses if rich and scalable data sets that can be used in various ways are made available. However, the sharing of customer data comes with risks, including unauthorized processing of data, data loss, fraud, and privacy and cybersecurity breaches, that need to be effectively addressed.

Achieving the benefits of open data systems therefore needs to be seen in the context of legal responsibilities of institutions to protect customer data and the legal and regulatory frameworks in the jurisdictions that define those responsibilities. This poses a challenge to Asia-Pacific economies in view of their economic integration aspirations, which require expanded cross-border data flows. The uncoordinated introduction of data privacy and security laws and regulations and the growing proliferation of data localization measures across this very diverse region will need to be addressed for cross-border interoperability of open data systems to be achieved.

For economies in the region, overcoming these hurdles will require: (a) international collaboration to develop a practical toolbox of legal and regulatory mechanisms that can be used to enable wider cross-border data flows;[6] (b) agreement among member economies to adopt common principles[7] that can serve as foundation for convergence of views on data privacy and a future international privacy framework that can be adopted across the region; and (c) promoting expanded adoption and use of emerging technologies to enhance privacy and security in digital payments.[8]

Proportionality in the design and implementation of data laws and regulations is important to allow the sharing of a wider range of data sets, increase the inclusiveness and benefits of open data and reduce the risk of fraud. Regulations that compel private sector participants to comply with obligations need to take into consideration the proportionality of those obligations to the anticipated benefit, the resources of these participants and the place of those organizations in society.

The sharing of socio-economic data has significant impact on inclusion and on the benefits of open data systems. However, this could be limited where socio-economic data are treated in the same way as data that are subject to restrictions due to political security considerations. This may be addressed by dividing data sets into different categories and allowing the sharing of those data sets that do not fall under restricted categories.

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[6] These include contractual safeguards, binding corporate rules (BCRs),certification, codes of conduct, statutory or administrative exemptions, and wider participation in the APEC Cross-Border Privacy Rules (CBPR).

[7] These include the OECD Recommendation on Enhancing Access to and Sharing of Data (6 October 2021), https://www.oecd.org/publications/enhancing-access-to-and-sharing-of-data-276aaca8-en.htm.

[8] Currently, serializable credentials (saving consumer credentials from an object into a file, database or memory), which is an insecure mechanism for gaining customer authentication, are still widely used. Screen scraping (where the consumer shares online banking login and password credentials to allow a third party to access their bank statements and transaction data) is provided by third parties and not regulated. Thus, banks are unaware of who may really be accessing their customers' data. Increasingly, however, new technologies are being introduced. For example, there is now a trend to swap screen scraping with FIDO (a software providing consumer protection in the form of biometric authentication).

Robust identification processes require leveraging reliable sources of data to verify identities. However, which and how many data points are used depends on the risk associated with the identification process. As the risk increases, both the required level of assurance and the required amount and depth of data will need to increase as well. It is thus important to make a wider range of data available to more effectively reduce the risk of fraud.

C. Providing an Enabling Governance and Regulatory Framework

A centrally organized framework encompassing standards, tools, policies and regulations that are effectively distributed throughout the market is important for enabling stakeholders to best serve their customers. It is also critical for setting up governance structures that can drive industry participation in open data systems.

Market participants need a clear domestic framework that can provide guidance on the operationalization of open data system in a way that is consistent across industries. This includes: (a) the establishment of governance entities with clearly defined roles and responsibilities; (b) mechanisms for customer protection, responsibility, liability and dispute resolution; (c) clearly articulated regulatory expectations on API architecture and governance arrangements; and (d) requirements for technical and security standards. These may vary depending on what is practical given the conditions in any specific market and may be complemented by sound industry practices. The framework may be based on legislative or policy mandates but may also be industry-led.

A balanced and flexible framework that provides room for evolution and allows constant communication with businesses can enable innovation to flourish in a collaborative environment, while ensuring consumer protection, fairness and financial stability. The framework needs to recognize the difference between regulations that permit and regulations that compel, and identify the appropriate conditions for their application.

While lack of regulations can hinder the development of a fair and competitive environment, too many restrictions can prevent creative thinking and innovation. Thus it is important to have a balanced and flexible framework that can allow businesses to offer products and services that effectively cater to the changing needs of consumers and society. Such a framework is best suited to adapt to a constantly evolving financial landscape driven by technological changes, which give rise to new risks, including those related to financial stability, market conduct and regulatory arbitrage. This will need to involve proportionate regulatory, governance and disclosure requirements, as well as continuous updating of regulatory authorities' knowledge, skills and tools. Constant dialogue with business, where innovation is happening, is essential. Throughout this process, it is important to provide regulatory clarity and certainty to support continued innovation.

International regulatory cooperation in utilizing global data to combat crime and fraud and strengthen efforts at anti-money laundering (AML) and combating the financing of terrorism (CFT) will lead to cost reduction, foster innovation, improve inclusion and enhance security in open data systems.

While new technologies can be used for criminal purposes, they can also at the same time provide means for protecting the integrity of financial systems by helping policy makers and

regulators effectively identify, understand, assess and address the risks of criminal misuse and facilitating compliance by financial service providers with AML and CFT rules. In addition to effective implementation of AML/CFT frameworks in line with the FATF 40 recommendations, jurisdictions developing open data systems need to collaborate in addressing financial integrity risks in the introduction of new technologies. Such collaboration could, for example, cover the development of institutional capacity to identify, understand and assess the risks and develop appropriate measures to address them, as well as to identify and use new technologies that can support AML and CFT efforts.

Sectoral public-private collaboration is critical to the design of the right incentives and regulations that can drive market competition, innovation and connectivity and enable the adoption of APIs that can fit each sector's market specifics.

Trustworthy and convenient services that guarantee confidence in the enforcement of personal data protection across various sectors is key to broad consumer participation in open data ecosystems for the right value. Clear rules regarding the role of market participants are needed to address free riding and to encourage and enable financial institutions and third-party service providers to participate in the ecosystem by providing the best service to customers instead of simply creating minimum viable products for compliance purposes. It is critical to have clarity around liability, a horizontal cross-sectoral approach to security and clear privacy mandates to achieve equilibrium in the open data ecosystem. Sectoral collaboration is a key enabler of the adoption of API approaches, such as API-first, that support the establishment of market-catered APIs for different sectors.

Financial regulators will need to adapt their operational frameworks to the impact of open data systems on their ability to continue ensuring financial stability.

Open data systems have the potential to impact the effectiveness of financial regulations through changes in how consumers and firms react to new financial products, in risk-taking behavior of banks and non-bank intermediaries and in the role of banks in payments, among others. While the introduction of new technologies can help improve financial sector efficiency and resilience as well as regulators' ability to identify and address risks, it also leads to the emergence of new risks, particularly those associated with the increased role of non-bank financial institutions and new financial market infrastructure and the rapid growth of activities outside the regulated perimeter of the traditional banking sector. It is thus important for policy makers and regulators to constantly and closely examine, in collaboration with industry, the implications of evolving open data systems on existing frameworks for maintaining financial stability and identify appropriate adjustments where needed.

D. Building the Infrastructure

An important foundation of an open data ecosystem is a common identity and authorization framework built on a digital ID platform, which can significantly reduce industry costs. Utilizing the existing banking system for data verification or agreed mechanisms for participants or intermediaries to efficiently identify and establish connections with each other can significantly reduce industry costs.

A well-developed digital ID system allows end-users to control their data and in practical terms their digital life. It enables relying parties such as merchants to know who the end-users are and to verify their access to goods and services on offer. A key element in the digital ID system is a trusted third party whose role is to vouch for both relying parties and end-users, facilitating trust in digital transactions. An effective digital ID system establishes trust in digital transactions and the network (for example by enabling merchants and buyers who may not have a prior relationship to trust the exchange in online e-commerce across devices). This stands to hugely reduce transaction risks and costs, which in turn will encourage more consumers and small enterprises to shift to digital transactions

An effective digital ID system facilitates digital access to a wide variety of services within the economy. Banks can play an important role due to the fact that they have in place the trust infrastructure that enable trade between distant parties within and across borders. They are bound by KYC regulations to invest in verifying the identities of their customers, and they have a fiduciary responsibility to keep that data private and to invest in security. For these reasons, banks are by far the most trusted among institutions across the world on matters of data and security, and they can offer end-users security, control and convenience.

Meanwhile, relying parties benefit from identity assurance and a dramatically simplified user experience. As end-users enjoy a better online experience with far fewer passwords and forms, relying parties can provide more services through digital channels. This adds value for relying parties across the economy, be it in energy, insurance, health, education and mobility among many others.

To benefit from open data systems, economies need to develop a sufficient foundational infrastructure, including telecommunications and digital and financial infrastructure that can enable the efficient collection, processing and sharing of customer data. A coherent industry roadmap for the future with clear long-term objectives can encourage private sector participants to invest with confidence in their own technology environments.

The IMF-WB Bali Fintech Agenda provides recommendations that can help develop the foundational infrastructure for open data systems, especially in developing economies. These include facilitating the development of telecommunications, broadband and mobile data services – including in rural areas -- that ensure a basic quality of service and affordability across customer segments; promoting digitization across the entire economy including government services; and developing financial infrastructure such as those for credit reporting and cross-border payments with fair, transparent and risk-based access and usage criteria.[9]

E. Fostering a Dynamic Market

Creating a customer-centric open data system that places the needs of customers front and center and ensures that solutions developed by the industry are useful to them is an important key to the success of any open data initiative.

Creating conditions conducive to safe and secure customer engagement, initiating processes with customer needs and protection in mind and overcoming traditional sectoral boundaries

[9] https://www.imf.org/en/Publications/Policy-Papers/Issues/2018/10/11/pp101118-bali-fintech-agenda

and outdated siloed approaches will gradually produce an enabling ecosystem. Efforts should focus on offering customers an integrated service, framing platforms based on datasets rather than individual sectors like finance or energy. In the end, it must be the customers' choice what data they would like shared and on whom they wish to rely on as a trusted source.

Creating an efficient and competitive market environment enabling innovation from all stakeholders, including innovation in the open data ecosystem in its entirety and the secure and trusted unlocking of datasets in and beyond the banking industry, is critical to ensuring the continuous development of open data systems. It is important to appropriately navigate the balance between the need for progressive development of standards in response to market evolution and the desire for stability of standards to reduce the burden of ongoing compliance for market participants.

Rapid advances in the collection, storage, processing and sharing of customer data, together with greater connectivity, are giving rise to new types of firms providing financial services using innovative business models. They are facilitating the adoption of new approaches and establishment of new partnerships by incumbent financial institutions to compete with new market entrants, established technology firms and telecommunications providers. These new developments have the potential to produce network effects and economies of scale that could incentivize innovation and increase competition by reducing information asymmetries and operational and compliance costs. To achieve these benefits of an open data system, governments and regulators need to provide a level playing field in terms of access to data, technology and infrastructure.

F. Laying the Foundations for Adoption through Education

Government and industry need to collaborate in efforts at proactive customer education and transparent communication to address concerns and promote trust in open data systems.

A survey of Asian jurisdictions conducted by Emerging Payments Association Asia in 2019 showed over half of respondents saying that the main barrier to the development of open banking is trust and concerns about data sharing, followed by lack of knowledge, lack of customer preparedness, regulatory issues and infrastructure-related issues. The success of open data will depend on customer confidence in the protection and control of their data; reliable and consistent access to useful, competitive and consumer friendly financial services; availability of recourse and redress; and consistent consumer protection and market conduct standards. It is therefore important to educate consumers and business owners to sufficiently understand the benefits and risks of open data systems and to improve their knowledge, skills and confidence in making financial decisions.

Governments and industry will need to collaborate in undertaking awareness and education initiatives that ensure consistent and unbiased messaging to customers. Clear, simple and accurate disclosure of benefits, risks and key information based on evidence and grounded in international best practices are important in fostering understanding and positive outcomes for customers. Different types of education programs may be offered by various entities but need to be coordinated between government and industry to ensure that consumers and business owners develop knowledge on how best to benefit from open data systems.

Government and industry across the region need to collaborate in developing human resources for open data systems to support industry transformation and regulatory capacity.

Human capacity has always been a valuable asset for the banking industry, where performance depends heavily on the ability of employees to deliver quality customer services. Thus, successful banks consider investment in human resources as critical to their continued success. The shift from traditional banking models to open data systems will require addressing key skill gaps that need to be filled in order to provide the work force for the future industry. Identifying key skill gaps in major areas such as the collection, sharing and use of data, cybersecurity, the use of technology including artificial intelligence and creativity, among others, can facilitate the development of clear roadmaps for collaboration among banks and other stakeholders to address future talent needs. Reskilling and redeploying banking practitioners for the purpose of acquiring new skills, as well as making needed adjustments to curricula in educational institutions will require the formulation of appropriate strategies in both the public and private sectors in coordination with each other.

No less important is the development of expertise and capacity in relevant regulatory agencies. With the advent of open data, regulators face new challenges in playing an effective role of ensuring continuous innovation, increased competition, fairness and consumer protection. Among these challenges are understanding data, balancing innovation and protecting consumers and market players from negative outcomes, keeping abreast of technological developments, and responding to a changing regulatory perimeter with the involvement of new players outside the traditional financial sector (e.g., technology and fintech companies and third-party service providers). Regulators will also need to understand the new environment of open data systems in order to effectively play their critical role of identifying vulnerabilities and flaws in the framework that can have systemic impact on the economy. Meeting these challenges will require sharing of experiences across markets and sharing of knowledge among regulatory authorities, financial institutions and innovators that are reshaping the financial industry today.