Microsoft

# Sharing Data For Impact: Lessons From Data Sharing Initiatives in Asia

# Executive Summary

The rapid growth in data, together with cloud computing and the rise of artificial intelligence (AI), is creating incredible opportunities across Asia. At the same time, there is a growing risk of a "data divide" that could limit these opportunities from being fully realized. Research indicates that 50% of the data generated by online interactions is amassed by less than 100 companies. This creates the potential that rather than being widely distributed, the economic value of data will flow only to a few economies and companies. But this data divide is not inevitable. In fact, there is growing, widespread recognition across Asia of the value of greater data sharing, reflected in government policies and concrete data collaboration initiatives.

This is the context for Microsoft, with input and support from the Open Data Institute, gathering and sharing case studies of data collaboration from across the region as part of Microsoft's global Open Data Campaign. Our hope is that by learning from these case studies, we can generate further momentum on data collaborations, and provide insights to help governments and other stakeholders shape a stronger enabling environment for data sharing.

One of the key lessons from the case studies reviewed include the benefit of publishing data with purpose, by taking an active approach to sharing useable data. We have seen the increased impact of government data sharing efforts when there is collaboration with the private sector, the research community, non-government organizations and others. A recurring theme from the case studies is the importance of fostering trustworthy data ecosystems and pursuing practical approaches to addressing privacy and cybersecurity challenges.

The case studies also highlight the positive role that governments can play in creating an enabling environment for data collaboration to flourish. This includes publishing useable government data, applying risk-based data classification policies, updating domestic regulations and implementing strategies that incentivize stakeholders to enter into data sharing efforts. There are also opportunities for governments to use regional organizations to create an enabling environment for data sharing across borders.

Drawing on these learnings, and the experience of others, we look forward to working with organizations across Asia to unlock the potential of data sharing for the region's future.

## Part I: The Power of Data Sharing

### Why is there a growing momentum towards greater data sharing?

Data sharing is not an end in itself: the reason governments and organizations are pursuing data sharing initiatives is because they create significant value. From an economic perspective, the OECD has estimated that data access and sharing could generate benefits worth between 0.1% and 1.5% of GDP in the case of public-sector data, and between 1% and 2.5% of GDP when also accounting for private-sector data.

Sharing data can help address some of society's biggest challenges and help individuals and organizations be more innovative, efficient, and productive. Health researchers can combine data sets to better diagnose and treat cancer. Insights from weather data can be used to promote environmental sustainability. Makers of self-driving cars can better analyze the terabytes of data their cars generate by the hour to make automated driving safer. As the chart below highlights, the potential benefits of effective data sharing touch all aspects of our economies and societies.

## ECONOMIC

**Accelerates post-pandemic recovery** by unlocking new business opportunities

**Stimulates innovation and competition** as businesses compete to develop new products, services and experiences that cater to consumer preferences

**Empowers data-oriented businesses to scale their operations** up more effectively

**Allows regional pooling of data** to ensure businesses within the region remain internationally competitive

## SOCIETAL

**Supports pandemic response** through the availability of real-time, granular data that informs predictions and enables localized management

**Fosters trust and cooperation** through improved transparency and accountability

**Deepens citizen engagement** and encourages participation and responsibility

**Supports research and cooperation** across communities to allow for joint discoveries

## GOVERNANCE

**Enables evidence-based policy making** as data can be accessed, measured and acted upon in real-time

**Bolsters digitalization efforts** which improve efficiency and overall productivity

**Improves regulatory processes** by empowering regulators to review effects of existing regulations

**Strengthens public safety** by improving the ability to target emergency prevention and response

**What is happening in Asia?**

The value that can be unlocked through data collaboration initiatives has led to growing momentum on data sharing in Asia. Governments have been working on new domestic policy and regulatory frameworks and have been collaborating with regional bodies like ASEAN to facilitate data sharing (Figure 1). These initiatives demonstrate the clear interest from governments in developing policies and frameworks to support data sharing and collaboration. An indirect benefit of these efforts is that they promote greater societal awareness of potential benefits of data sharing.

**Australia**'s Best Practice Guide to Applying Data Sharing Principles guides agencies that collect Australian government data on how to safely and effectively share data using five Data Sharing Principles.

**Singapore**'s Trusted Data Sharing Framework facilitates data sharing between organizations and consumers by providing strong safeguards and clarity on regulatory compliance related to sharing data.

**The Philippines**' guidelines on Data Sharing Agreements clarify how data can be shared with third parties through a contractual, joint issuance document that contains the terms and conditions of the data sharing arrangement between two or more parties.

**India's** Data Empowerment and Protection Architecture (DEPA) promotes data sharing among consumers by empowering users to control how their data is shared while ensuring that their privacy is safeguarded.

At the **regional** level, ASEAN has developed the Digital Data Governance Framework and ASEAN Data Management Framework, which are noteworthy initiatives that provide a foundation for regional data collaboration.

Figure 1: Examples of government data sharing initiatives


## Part II: Lessons learned through data collaborations in Asia

**What insights can governments and organizations take away to create and facilitate greater data sharing and collaboration?**

The interest in unlocking the potential of data sharing in Asia is clear, and there is a growing set of practical data sharing initiatives across the region. Yet, there have been few efforts to highlight these initiatives and identify some of the lessons learned, so that others can build on these experiences. This section captures some of the key lessons from ten case studies gathered in early 2021[1]. Particular attention is given to the role of governments, given the clear interest from governments across Asia in doing more to facilitate data sharing. The case studies gathered cover a range of markets (including both developing and advanced economies); industry verticals; and types of stakeholders involved (including governments, private sector, research institutions, and more).

## #1 Data has the greatest potential for impact when it is shared for the purpose of collaboration – with a focus on its usability

Open data is not a new issue in Asia. Many governments and organizations have developed open data policies and implemented practical initiatives like government open data platforms. Such measures are positive and can create opportunities for data innovation and engagement in data collaborations.

A key learning from the case studies in Asia is that even greater impact can be achieved when attention is paid not only to data being open, but also to how it can be used – to create *purposeful* data collaborations using shared data. The Open Data Charter describes this as "publishing with purpose" as opposed to "publish and they will come". This involves a shift in thinking wherein the original goal of data sharing may be to open up as much data, as quickly as possible, to first making sure that data is being shared in ways that is most likely to deliver positive benefits through collaboration. Projects that showcase how the sharing of data can achieve positive impact and contribute to the public good underline the benefits of this more purposeful approach to data sharing.

One example from Asia of publishing data with purpose is a **climate data sharing partnership in New Zealand**. The project was initiated to support the government's plans to take greater action against climate change. Representatives from government agencies, academia, the private sector and the scientific community collected, processed and analyzed data from their respective remits. When calibrated, this enhanced climate monitoring research and helped develop more effective climate change mitigation strategies. Similarly, the **MEGHA-TROPIQUES joint satellite mission** between India and France publishes scientific data collected in their study of convective systems and their influence on tropical weather and climate. This helps the International Scientific community refine weather prediction models.

[1] The case studies were gathered with the support of Access Partnership, based on interviews and published information available to Access Partnership.

Another example of a data sharing initiative with a clear objective in mind, which created opportunities for active data collaboration, is **LinkedIn's Economic Graph.** With over 730 million members and 55 million companies, LinkedIn can provide governments and regional organizations with insights on the latest labor market situations and digital talent gap. This has been particularly important during COVID-19, given the dramatic impact lockdowns and other pandemic-related disruptions have had on the labor market. LinkedIn has provided real-time granular analysis of both the supply and demand side of the labor market, which ensures policy making is responsive to market demands. Various governments across Asia have been able to draw on this data.

This emphasis on sharing data for the purpose of collaboration, including a focus on the usability of data, does not undercut the importance of broad initiatives to open datasets – such as government open data initiatives. Experience shows that once shared, there can be various uses for that data beyond its initial intended purpose. For example, the use of open satellite imagery data for estimating poverty at the household level in developing countries can open up opportunities to draft more effective poverty reduction programs and allocate funding more efficiently. The key learning is that these opportunities for data to be used for impact are greatest when the data is shared with a focus on it being useable, and that impact can be maximized through active collaboration between organizations to use shared data to achieve their goals.

## CASE STUDIES IN FOCUS: TACKLING THE PANDEMIC

The value of data collaboration in addressing global challenges is already evident through recent **efforts of the COVID-19 Clinical Research Coalition. Researchers are connected from all over the world** to share data and findings from resource-limited settings to drive more equitable access to COVID-19 solutions. The more granular data researchers have access to, the more effective their AI models would become in predicting the severity of outbreaks and hot-spot locations.

A further example of data sharing being fundamental in tackling the pandemic is in **Taiwan, where there was sharing of real-time data** on mask inventory, information on pharmacies' locations and their business hours. These collaborative efforts between the government and the civic tech community inspired social innovations to enhance the rationing of masks and contributed significantly to the successful containment of the pandemic.

## #2 Governments have more impact through data sharing initiatives when there is collaboration with the private sector – and private sector data can help generate policy insights for governments

The impact of government data initiatives can be greater when there is collaboration with the private sector and other stakeholders. Governments can harness the data held in the private sector; policy making efforts can be improved; and human resources and skills can be utilized.

An example of a government collaborating to gain insights from private sector data is **an initiative by the Singapore Tourism Board (STB) to leverage private sector data around tourist travel and spending patterns**. STB aggregated this data into a data sharing and analytics platform – the Singapore Tourism Analytics Network (Stan). This enabled tourism industry organizations such as hotels and tour agencies to tap into this expansive database, and importantly, it also allowed SMEs with limited data analytical capabilities to make use of those analytics provided on the Stan platform.

Governments can also engage in public-private data sharing initiatives to help improve policy. This was the case in Indonesia where the **Ministry of Tourism and Statistics Indonesia (BPS) initiated a public-private project to formulate better policies around mobility and infrastructure development.** The objective was to enhance the Ministry's ability to utilize Mobile Positioning Data (MPD) to better track inbound, outbound and domestic tourism data. As BPS lacked the necessary data analytics and processing resources and infrastructure, it relied on the skilled talent and technical infrastructure of Telkomsel, the country's largest telecommunications provider, to process the data. Ultimately, this collaboration helped the Indonesian government formulate better policies. The success of the pilot has turned other government agencies into supporters of data collaboration with the private sector, which sets a positive tone for future initiatives.

Another benefit of public-private partnerships is that governments can tap into the wide pool of technical and professional expertise from the private sector to fill any gaps in talent and expertise on data analytics, application development, and data security. The **Taiwanese government, for example, drew on the civic tech community through crowdsourcing** to leverage the skillsets of a wider range of participants. Taiwan has been actively promoting civic participation and spurring social innovation through an open data policy. This has seen contributions by over 1,000 software developers, who are active members of the civic tech community, g0v. Critical to the early containment of COVID-19 in Taiwan, g0v members were able to create over 130 applications within one to two weeks to support the implementation of mask rationing systems throughout Taiwan.

Other examples of initiatives by governments that aim to share data between public and private sectors to achieve greater impact include **Thailand**'s Tourism Smart Data: Open Data Platform (2019), featuring a collaboration with Grab to build a smart data system to drive the tourism industry forward. **Malaysia** has also established a Health Data Warehouse (2017) to gather health related data from both public and private hospitals, enabling healthcare providers to make more informed decisions for treatment.

## CASE STUDIES IN FOCUS: INFORMING POLICYMAKING

The value of data collaboration in aiding policymaking can be seen in **Hong Kong through the promotion of intermodal transport data sharing**. Private transport service providers have shared their operational information such as passenger, route and time data with government agencies through a trusted third-party Data Trust. This gave the government newfound insights that has informed transport policy making – such as how the layout of entrances and exits can improve passenger flow, areas where intermodal routes are most in demand, and opportunities to provide less-well served areas with complementary modes of transport.

Another demonstration of data sharing supporting policymaking is **LinkedIn's Labor Market Insights.** LinkedIn has shared insights with governments based on aggregated data from its 730 million members and 55 million companies. This has provided a granular and real-time analysis of both the supply and demand sides of the labor market. Governments are better positioned to implement more effective policies to address gaps between unfilled roles and workers looking for jobs, promote the development of in-demand skills in the labor market, and address skills-related inequities.

## #3 A lack of trust can undermine data sharing initiatives – but this can be overcome by addressing commercial sensitivities and through efforts to protect privacy and security

Businesses and citizens may be reluctant to share personal data for a number of reasons, including fears of commercial rights and interests being infringed, as well concerns relating to privacy or cybersecurity. Recognizing these concerns, and implementing practical approaches to address them, is important for creating the trust required for data sharing initiatives to succeed.

### Addressing commercial sensitivities

One of the concerns that arose in the case of the **intermodal transport data sharing project in Hong Kong** was how data could be shared without negative commercial impacts on the participants. The challenge was that private operators were cautious about sharing a valuable asset such as operational information. As they started to operate their individual timetable mobile apps, they made profits through associated advertisements. They were therefore naturally resistant to sharing this source of revenue.

The private operators needed assurance that **their data would not be directly available to competitors**. The discussions around commercial interests with the private operators covered issues such as commercial sensitivity and reasonable usage in the event of usable outcomes from the data analysis. They also covered assurances that company data would not be shared between data controllers or with third parties; that only aggregated pooled data would be available for analysis; and that all data would be destroyed after usage.

These concerns were ultimately overcome by **sharing and leveraging data through a trusted third-party intermediary – Hong Kong University's Data Trust**. Creating the data trust fell into three phases; firstly agreeing to MOUs with each of the data contributors; secondly undertaking a sample data transfer to the data trust consisting of data selection and hashing and encryption of the data; and thirdly aggregating anonymized data and undertaking data analysis of use cases. The Data Trust and its framework of stakeholder engagement to address commercial concerns have been a successful proof of concept, which can now be used by government agencies and the private sector alike, as well as in other industry verticals.

### Privacy

One of the most common questions associated with data sharing is how privacy can be protected while sharing data. This question comes from individuals, who might be concerned that data sharing initiatives will not adequately protect their privacy. This question also comes from organizations, which may not be familiar

with privacy regulations and may be unsure of how to comply with privacy regulatory requirements. The latter is an especially relevant question in Asia, given the fast pace of privacy regulatory reform in recent years, where almost all governments have either put new privacy laws in place, or are amending existing laws.

Privacy considerations emerged in several of the case studies – but they also demonstrated ways in which sound privacy practices can be used without undermining the opportunities for data sharing. For example, in the **Indonesia tourism project**, a sandbox mechanism was utilized where access to the raw data was restricted, and only data which has been anonymized and adequately hashed was shared. Developing clear principles to govern the data collaboration initiative, including how privacy will be protected, can also be helpful. In the **Singapore tourism data-sharing network project**, a Data Trust Charter was developed. The Charter clearly outlines the principles of the data sharing initiative, and the practical ways in which privacy is protected in line with regulatory requirements. **LinkedIn's labor market insights data** is published while using various techniques to ensure that the privacy of its users is protected. For example, differential privacy is used to aggregate insights from datasets without learning about specific individuals. There may also be less data available for specific time periods if, for example, there were lower hiring volumes for those time periods, resulting in insufficient data to meet privacy thresholds for the aggregated data published by LinkedIn. The use of differential privacy highlights the growing range of technical methods available to enable data sharing while ensuring strict protection of privacy. Another example is **Azure Confidential Computing**, which allows data to be combined for uses like AI, while retaining confidentiality.

Privacy regulators can play a role in creating confidence that data can be shared, while still respecting personal privacy. For example, as part of the **intermodal transport data sharing project in Hong Kong**, the Privacy Commission was involved in developing the MOUs between project participants to give confidence that they were in line with Hong Kong's privacy regulatory requirements. To support the objectives of Singapore's Trusted Data Sharing Framework, the **Singapore Personal Data Protection Commission** has published various templates for data use agreements, seeking consent of data subjects, and appropriate disposal of data. These aim to strengthen privacy practices when sharing data, while also giving reassurance that the privacy regulator supports data sharing initiatives.

There are also opportunities to test new business models like data trusts to manage privacy concerns. For example, a key motivation of **Japan developing the 'information bank' concept** was to address concerns from Japanese businesses that greater data sharing might create new privacy risks. The information bank concept creates a trusted intermediary between individuals willing to share their personal data, and businesses that want to access and leverage health data and payment information to develop new services and applications. The information bank provides personal data to third parties within the scope of information, benefits, and services that that individual has consented to. Although the creation of intermediaries like

this may not be necessary in all cases, the Japan example highlights how creative approaches can be taken to managing privacy concerns while still sharing data.

A similar approach has been taken **in India with the proposed Data Empowerment and Protection Architecture (DEPA) framework**. To ensure individual data rights around privacy and portability are protected, India saw a need for a new class of institutions to be created that have economic incentives aligned with those of the users when it comes to the sharing of personal data. Under the proposal, the interaction between an individual, a potential data user, and the data fiduciary holding a user's information will be mediated through **consent managers**. These organizations maintain an 'electronic consent dashboard', and are 'data blind'. This means the data is encrypted and can only be processed by intended users, They are also prohibited from storing data to minimize the risk of data leaks and misuse.

## Security

Alongside privacy, a common question is whether greater data sharing might create new cybersecurity risks. It is important to acknowledge this question, while recognizing that, like privacy, there are various practical ways of ensuring that security is retained while sharing data. Indeed, for many of the privacy examples outlined above, the protection of privacy is strengthened by sound security practices – like the use of access and authentication procedures to ensure that only appropriate people have access to personal information in datasets. Taking a security-by-design approach when implementing data security initiatives is another practice that can help mitigate security risks when developing new data collaborations. Various international best practices exist, including ISO standards (such as ISO/IEC 38505 for data governance, ISO27701 for privacy information management), and practical tools like the NIST Cybersecurity Framework.

Greater sharing of data is an important approach for addressing the challenging cybersecurity environment. One example of this from Asia is **Australian researchers' development of one of the world's largest publicly available databases of online malicious activity**. This drew on a wide range of other databases of blocked entities that have been created over time in order to recognize a broad range of entities and block their access in the future. The challenge is that these databases are fragmented and often incoherent despite their central role in enabling modern threat detection systems. The Australian research project aimed to address this by bringing data together so it can help researchers and other cybersecurity actors more clearly identify trends and corroborate wider observations of growing prevalence of phishing and malware attacks. Similarly, **Microsoft shares various cyber threat intelligence data**, like the open source data available on COVID-19 related cyber threats, to further bolster the cybersecurity environment.

## #4 Interoperability and usability are supported by the use of data agreements and technical standards

A recurring theme from data sharing initiatives in Asia is the importance of interoperability to ensure that data is readily usable. If data is open and available, but not usable, it serves little purpose. This is why interoperability is key to effective data collaboration. Greater use of standard data agreements can accelerate the process of negotiation and cooperation among stakeholders in defining the roles and responsibilities of the parties. The greater use of international standards and best practices relating to data can also promote interoperability.

### Standard agreements and collaboration frameworks

One key feature of interoperability is streamlining and standardizing key aspects of the relationship between stakeholders and this can be achieved through standards and collaboration frameworks. A data collaboration typically requires a legal agreement or contract to clearly define the governance framework, roles, responsibilities, and liabilities of each stakeholder and how to contribute, combine and share data. An important operational basis of data sharing is the framework structure of memorandum of understandings (MOUs), non-disclosure agreements (NDAs), Codes of Practice, Intellectual Property Rights (IPRs), and contracts. These must conform to required data privacy and data security standards to build trust and alignment among stakeholders and participants, including the general public.

In especially complex data sharing initiatives, the drafting of legal agreements can lead to time consuming back and forth negotiations. **Hong Kong's intermodal transport data sharing program** involved a long-drawn process by which participants spent months discussing the MOUs over data security, commercial interests, and data privacy issues. This highlights the potential time savings that could be attained by relying on standard frameworks.

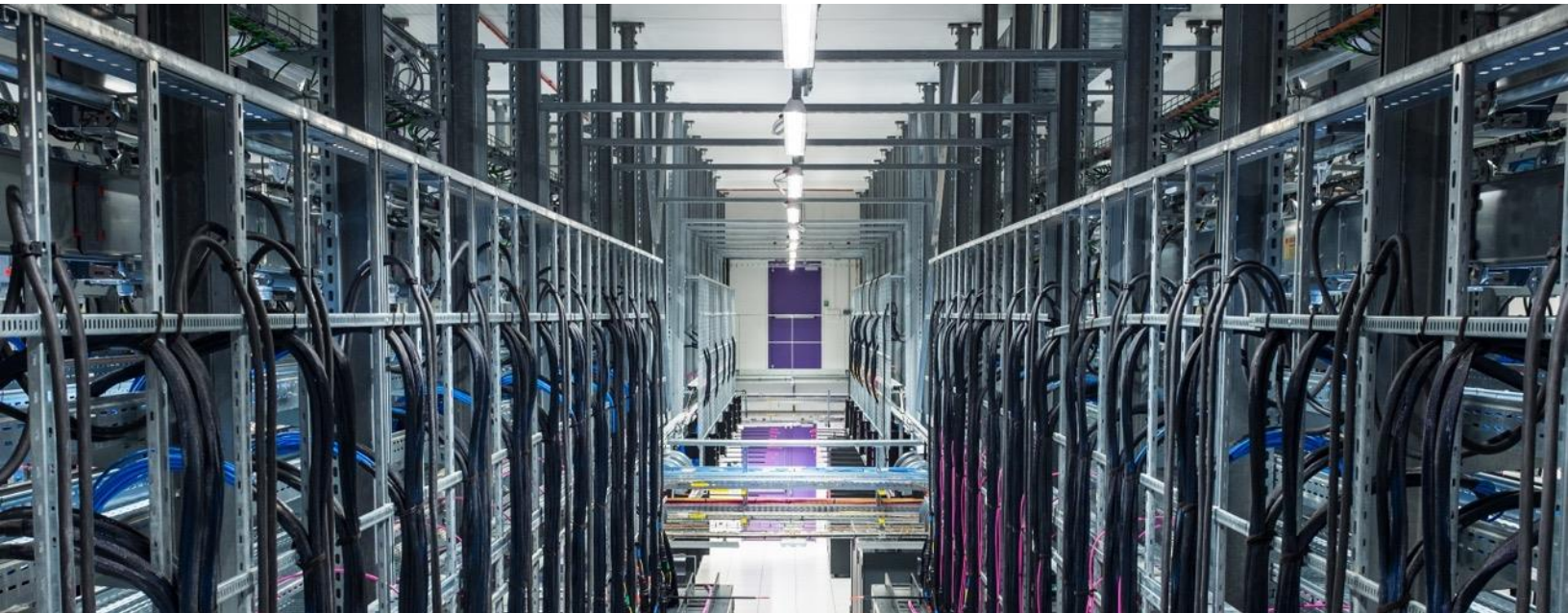
Although there will always need to be some time involved in developing legal instruments for data sharing, organizations can significantly accelerate this process by drawing on templates or examples of such agreements when crafting their own agreements. The industry is renewing its interest in standard data agreements to support open data collaborations and enable machine learning. Microsoft has drafted and published three data sharing agreements. In October 2020, the Linux Foundation launched a new working group to update the CDLA data agreements to better support data collaboration and machine learning. That work is expected to reach fruition soon with broad industry support. Similarly, through the **AI Data Consortium in Japan,** an IP and Contract Process working group is developing contract templates and smart contracts for AI practitioners to share data more easily, without expending resources on managing the finer details relating to legal obligations and contracts.

## Technical standards

Another key feature of interoperability is technical standards, which includes publishing data that anyone can use and redistribute, is available in common machine-readable standard formats and that contain no usability restrictions. Technical standards relating to data formats and taxonomies have an important role to play in promoting interoperability.

For example, one of the initial barriers the **Australian blocked sender list** initiative faced was the differing formats and parameters used in the datasets. This meant that they had to manually extract and sort data from archived databases. Another example of the challenges presented by variations in data taxonomies is how even slight modifications made by national governments to standard classifications of economic activities greatly complexifies multi-economy analysis, such as **LinkedIn's Economic Graph data**. One of the beneficial features of the **Singapore Tourism Analytics Network (Stan)** was that it provided a common data taxonomy and standardized data formats that the industry could use.

Although standards development is most effective when it is done through multistakeholder processes, governments can make a significant positive contribution to promoting standardization through their own government datasets. There are various examples of this in Asia. **Indonesia**'s One Data Policy requires each data set to be accompanied by metadata explaining the rationale and methodology behind the data production. The **Malaysia** Government Central Data Exchange (MyGDX) has also established a data sharing platform which sets common standards, tools, components, repository, and registry for enhanced coordination between various agencies. The Digital Economy and Society (DES) Ministry in **Thailand** plans to implement a centralized government data sharing platform by 2023 to simplify how data is accessed and shared between government and citizens. Finally, NITI Aayog in **India** is developing the National Data and Analytics Platform (NDAP) to democraticse access to publicly available government data and standardizing the formats in which data is presented across sectors.



## #5 Governments can lead by example in how they share data

Governments can play a leading role through sharing government data. Government data sets can be useful, for example, when combined with other forms of data, or across industries, to derive new insights and findings. It can also enable stakeholders to cross-check and verify data as valid against accessible government databases.

Opening government data has been a focus for governments across Asia for some time. **Australia, India, Japan, Malaysia**, **New Zealand** and **Singapore** are examples of governments that have established hubs that provide access to government data sets. This strengthens transparency, enables cross-government collaboration and drives commercial innovation. In India, for example, there is an Open Government Data (OGD) Platform that facilitates government organizations to public their datasets in open formats for free public use. This creates a valuable connecting link for government, citizens and the community to crate an open data ecosystem in the country.

Beyond maintaining hubs like these, governments can ensure the impact of their open data policies is maximized by periodically reviewing their open data and data sharing frameworks and being open to stakeholder feedback. For example, since 2009 the Australian Government has implemented a series of open data policies, and adapted approaches to sharing government data over time based on industry feedback.

In line with its objective to offer e-government services, the **Government of Vietnam initiated a project to bring six key national databases online** and make them ready for data sharing between local ministries. It initially faced challenges as it was effectively translating historical data from physical to digital form and establishing the use, adoption and legal validity of using electronic documents in the public service. It overcame this challenge and successfully established the infrastructure it needed to connect its top databases. This has resulted in more efficient operations, and significant cost and time savings. Its success is demonstrated by consistently high usage metrics of the data sharing platform, registering over 4.2 million transactions in the first 10 months of project execution alone.

As part of this, it is important for **governments to implement transparent, standardized, and risk-based data classification policies**. This will ensure as much government data as possible can be shared publicly, and that data is not unnecessarily prevented from being shared due to over-classification. A positive example of a data classification policy in Asia is Australia's Protective Security Policy Framework, which has been published online to promote transparency, takes a harmonized approach across different governmental agencies, and gives a clear explanation of what the data classification levels are and how to assign different levels of data based on a risk-based approach.

## #6 Governments can strengthen the enabling environment for data collaboration through domestic policy and regulation, as well as cross-border cooperation

Governments play a clear role in shaping the enabling environment for data sharing across the economy. Three ways governments can do this is by setting the domestic regulatory framework, pursuing national data sharing strategies, and harnessing their role in the promotion of cross-border cooperation and harmonization with other countries. Through the case studies, and Microsoft and ODI's own experience, we want to share some possible ways that governments can play a positive role to unlock the value of data collaboration.

### Domestic regulations

Domestic regulations play a key function in influencing data sharing and collaboration. Privacy regulation is one of the most important aspects of the enabling environment for data sharing, as noted earlier. One of the most important steps that governments and regulators can take is to ensure privacy frameworks enable data sharing in a responsible manner. Similarly, governments need to ensure that intellectual properly legal frameworks are conducive to sharing data, while ensuring that IPRs are respected.

Outdated or overlapping regulations can create ambiguity that inhibits data sharing. It is important to review whether regulations remain fit for purpose, especially when technological change may have made some obligations obsolete. This is what the **Government of Vietnam faced when bringing six of their key national databases online.** Vietnam has traditionally relied on physical signatures with red rubber stamps to identify the legal validity of documents. However, with the need to ensure greater data collaboration, the country has needed to develop and promote the use of the National e-Document Exchange Platform as a mechanism of sending and receiving electronic documents in the public service. It initially faced challenges in establishing the use, adoption and legal validity of using electronic documents in the public service. As such, the government updated relevant regulations to ensure that electronic documents and signatures held legal validity.

**Japan provides another example of the impact of regulatory complexity on data sharing,** with a 2017 study by the Japanese government identifying regulatory concerns as a key barrier to private sector data sharing. Complicated differences in personal data protection rules across industries, and even across entities within the same industry, can hinder data sharing. For example, in the healthcare sector, hospitals are subject to different data protection rules depending on the type of hospital establishment entity. This can make it harder to pursue data collaboration.

## Domestic strategies

Beyond their role in overseeing the regulatory framework, governments can issue policies that promote data sharing, and proactively engage with the private sector and other stakeholders on their implementation. The **Singapore** Trusted Data Sharing Framework (2019) is a clear example of a government initiative designed to facilitate data sharing between organizations, by providing clarity on the regulatory environment and showing strong government support for data sharing. In this way, governments can play a catalytic role in data sharing.

Several measures that can be enacted in support of this include developing regulatory sandboxes to allow for appropriate experimentation of data sharing, implementing pilot data sharing initiatives with the private sector and other partners, and directly funding data collaborations where necessary. Public communication campaigns that offer clarity to how data is collected and used will also boost wider societal confidence, including through the use of non-technical language.

## Cross-border cooperation

One of the clear lessons from the COVID-19 pandemic has been the value in sharing data across borders. International efforts to track COVID-19 cases and collaborate on research to prevent and treat the disease have been a critical element in the global community's response.

Drawing on this experience, it is important for governments to look beyond their own borders when assessing how they can enable greater data sharing. Policy and regulatory choices that governments make can have significant impacts on the feasibility of data sharing initiatives. For example, in Asia, governments have a clear opportunity to promote greater privacy regulatory coherence, including through greater cooperation in regional organizations like APEC and ASEAN. Improved regulatory coherence can be especially important for SMEs, researchers, or smaller organizations that might lack the resources to comply with various, overlapping regulatory requirements.

Some of the building blocks for greater cross-border cooperation to enable data sharing are already in place. For example, ASEAN member states have developed a Digital Data Governance Framework with various initiatives like the ASEAN Data Management Framework and ASEAN Model Contractual Clauses that aim to facilitate greater data sharing across borders, while ensuring privacy and security are retained.

One of the most important steps that governments can take is to promote global best practices, including through the use of international standards. For example, in the area of information security, the ISO27001 family of standards provides a clear global benchmark for security controls that address some of the security concerns related to data sharing. Although it may be useful to develop national standards and practices tailored to local contexts, aligning as much as possible to international best practices helps promote cross-border data sharing.

## CASE STUDIES IN FOCUS: STIMULATING RESEARCH AND INNOVATION THROUGH CLIMATE DATA SHARING

The value of data collaboration across various stakeholders is clear from a **climate data sharing partnership led by the New Zealand government**. The project was initiated to support the Government's plans to take more drastic action against climate change. Representatives from government agencies, academia, the private sector and the scientific community collected, processed and analyzed data from their respective remits, which when calibrated, improved overall climate change data tracking. This initiative enhanced climate monitoring research and helped develop more effective climate change mitigation strategies.

# III: Action Plan for Governments

## How can governments create a stronger enabling environment for data sharing?

Many governments across Asia are implementing policies and plans to promote data sharing across the economy, as outlined in Part I. Governments play a key role in sharing data and shaping the overall enabling environment for data sharing. Based on the lessons set out on the preceding section, Part II, several action areas can be identified for governments wanting to encourage data sharing. There is no one-size-fits-all approach, and different actions may be more or less relevant for each government in Asia. Our goal in sharing this action plan is to stimulate discussion, based on the learnings from practical data sharing initiatives in the region.

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### ☐ Play a leading role through sharing government data for the purpose of collaboration, with a focus on usability

- Make open government data a policy priority, with a focus on sharing data in a way that is useable for data collaboration
- In addition to opening up government datasets, engage in data collaborations where stakeholders collaborate purposefully by sharing data to achieve a shared objective
- Apply reasonable data classification policies to avoid the over-classification of data that could prevent the sharing of certain government data sets

### ☐ Seek opportunities for further collaboration with the private sector and other stakeholders

- Execute public-private pilot programs
- Tap into the pool of technical and professional expertise when needed
- Explore opportunities for government to catalyze data sharing initiatives through funding, as well as to support the sustainability of data sharing initiatives

### ☐ Promote practical, innovative approaches that safeguard privacy while facilitating data sharing

- If not already in place, consider implementing a comprehensive and balanced privacy law that acts as a key enabler for data sharing initiatives
- Regulators should look for opportunities to build confidence among data sharing participants through pilot and sandbox approaches
- Encourage innovative approaches to responsible data stewardship, including non-mandatory roles for independent, third-party stewards for data
- Promote the use of privacy-enhancing technologies to safeguard sensitive information in data sharing scenarios, for example confidential compute, or differential privacy techniques.

### ☐ Maintain and strengthen cybersecurity through secure data collaboration

- Ensure data sharing platforms are supported by robust cybersecurity risk management practices
- Seek opportunities to cooperate with other governments, industry and other stakeholders on cybersecurity research

### ☐ Promote interoperability and usability through standard agreements and frameworks

- Promote the adoption of international standards and tools (such as ISO/IEC 38505 for data governance, ISO27701 for privacy information management, the NIST Cybersecurity Framework for cybersecurity, or the FAIR principles for scientific data management and stewardship)

- Review domestic standards to ensure alignment with international standards and best practices, in order to promote cross-border data collaboration
- Encourage the development of model or template contracts on data sharing through collaboration with industry and other stakeholders

### ☐ Ensure that domestic regulations do not create unnecessary barriers to data sharing, and are relevant for the current context by being principles-based and technology-neutral

- Key areas of regulation relevant for data sharing include privacy, cybersecurity and intellectual property rights
- When updating regulations, take a principles-based, technology-neutral approach to avoid regulations becoming outdated and hindering innovation with technological change
- Provide opportunities for the private sector and other data sharing stakeholders to provide input on how regulations affect data sharing

### ☐ Implement domestic strategies that promote data sharing

- Develop whole-of-government strategies, in consultation with the private sector and other stakeholders, on how to facilitate sustainable, systematic and responsible data sharing across the economy
- Create regulatory sandboxes to allow for responsible testing of data sharing approaches in a "safe" space
- Provide non-binding guidance through regulators on how existing regulations apply in data sharing contexts
- Hold pilots and consultations with private sector and interested parties to gather feedback on barriers to data sharing

### ☐ Encourage the trusted international flow of data through regional collaboration through groups like ASEAN and APEC to create consistent legal and regulatory frameworks for data sharing across countries

- Promote regulatory coherence and interoperability in areas relevant to data sharing, notably privacy
- Include open data provisions in bilateral or multi-lateral free trade agreements

### ☐ Foster data skills in the workforce so that more organizations can benefit from data sharing

- Share information widely on data skills capacity building programs, many of which are available for free through the private sector and other stakeholders (e.g. Open Data Institute)
- Explore opportunities to scale private-sector and other stakeholder-led skilling and capacity building programs
- Recognize that while technical data-related skills are important, it is also important for policymakers and decision makers within organizations to have high level awareness of the opportunities that data sharing presents – relevant training and awareness-raising opportunities can address this
- Ensure mobility of data professionals to fill skills gaps

## A Path Forward

As we encourage and facilitate more data sharing in the region, we must recognize that there is no one-size-fits-all approach. As the cases highlighted in this paper demonstrate, the key to success lies in charting a principled course, remaining flexible and being open to testing innovative models and solutions. It is also vital that governments and organizations consistently and proactively seek, and deepen, opportunities to collaborate.

The data divide is not inevitable. The economic, societal and governance advantages that greater data sharing can bring are clear – and these benefits can be unlocked through collaboration and adopting the learnings from the growing experience on data sharing across the region.

## Additional Resources

We launched the **Open Data Campaign** in 2020 to help governments and organizations fully realize the benefits data can bring through trusted sharing and collaboration. As part of the campaign, Microsoft has committed to launching 20 new collaborations by 2022, and has invested in new tools and assets to make data sharing and publication easier.

These assets include data use agreements that help accelerate lengthy contractual processes between data sharing participants, as well as a published curated collection of public datasets that are ready to be deployed. They can be accessed by visiting our Open Data Campaign microsite.

We also invite interested parties to view resources developed by the Open Data Institute. This includes toolkits for public and private sectors, planning and technical tools, and the Data Ethics Canvas which provides ethical guidance to ensure the collection, sharing, and use of data does not produce unintentional adverse effects.

Resources are also available from other partners in the Microsoft Open Data Campaign, including the Open Data Policy Lab.

**Please view "Sharing Data For Impact: Regional Case Studies" for more information on the 10 key case studies highlighted in this report.**


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