Empowering Thailand's Digital Government with Open Data

April 2024

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About

This report has been researched and produced by the Open Data Institute (ODI), and published in March 2024. Its lead author was Sasha Moriniere, with support from Dr. Jared Robert Keller and Calum Inverarity.

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Executive summary

The importance of data to the functioning of modern economies and societies is well understood, as has been evidenced by research into the economic[1] and societal benefits[2] of data. However, the value that can be created from data is contingent on the degree to which this data can be made available for decision-making and the development of tools, products and services – whether through the publication of open data or limited sharing.

Governments' role in promoting data access cannot be understated: they are stewards of data and they have influence, through means such as legislation, to incentivise other actors within data ecosystems to use and share data responsibly. Some of the greatest social benefits, such as innovation, greater transparency and increased efficiencies, can be achieved through the publication and use of open data. At the same time, individuals and organisations can be reluctant to make data openly available, either out of concerns over compliance with data protection legislation, or through rivalrous attitudes.[3] Governments must therefore use their position of influence to lead by example, demonstrating the benefits of open data and the practices required to achieve this.

The government of Thailand, and the Digital Government Development Agency (DGA) more specifically, are committed to realising the benefits of open data to empower Thailand's digital government. This is evidenced by existing initiatives such as the open government data portal, which contains more than 11,000 open datasets, and numerous guides and resources that can help government agencies publish open data. These resources have been complemented by efforts to promote interest and awareness in the benefits of open data, such as hackathons, and open data awards for government agencies.

However, challenges remain to the wider publication and use of open data in Thailand by government agencies and society in general. Through this body of research, we have identified potential measures that can help

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[1] Lateral Economics (2016), 'Permission Granted: The economic value of data assets under alternative policy regimes'.
ODI (2016), 'Report Research: The economic value of open versus paid data'.

[2] ODI (2022) 'Understanding the social and economic value of sharing data'.

[3] ODI (2023) 'Understanding the social and economic value of sharing data'.

overcome these challenges. A summary of these challenges and recommendations is below (further details are included in the next steps and recommendations section of the report):

Challenge: Limited understanding of open data and data literacy in general

Recommendations:

- The DGA should raise awareness of Personal Data Protection Act (PDPA) compatibility with open data principles, leveraging emerging technologies like privacy-enhancing technologies (PETs). The DGA should consider developing guidance akin to the UK's 'Security-Minded approach to Open and Shared Data'[4], building on the DGA's 'Open Data Process Quick Guide'.[5]
  - This will require time, and should be considered as a **longer-term development**. However, an accompanying **short-term activity** would be to run a series of workshops with key stakeholders across government departments to identify concerns and provide PDPA compliance capacity building.
- The DGA and other relevant government bodies should perform a gap analysis between current open data literacy levels and required skills, and develop a training plan. They should explore conducting a data literacy assessment, utilising the ODI's 'Data Skills Framework',[6] across various government departments.
  - We suggest that this is a **medium-term** exercise, because though materials exist, additional time would be required to conduct a baseline analysis.
- The DGA and other pertinent government agencies should prioritise the integration of data ethics into their organisational data processes.
  - This could be a **short-term** activity for some agencies, but will likely be a **longer-term** process for others, based on their existing data literacy. Agencies that deal heavily with data, such as the DGA and National Statistics Offices, are often better placed to adopt an ethical approach to the use of data, whereas others will need additional time and help.

Challenge: Data availability, quality, and usability

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[4] National Protective Security Authority (2023), 'Security-Minded approach to Open and Shared Data'.

[5] DGA (2020), 'Open Data Process Quick Guide'.

[6] ODI (2020), 'Data Skills Framework'.

Recommendations:

- The DGA could contribute to improving data licensing and standards across Thailand's government by creating additional guidance and resources for agencies.
  - We believe that this would require a **longer-term** commitment from the DGA.
- The DGA should work towards improving data quality and making data machine-readable to increase data usability. For each dataset, open data catalogues should initially include the name and official URL of the applicable licence, dedication, or terms of use in a machine-readable format.
  - This would likely be a **medium-term** effort, with the DGA building on pre-existing efforts and developing existing guidance.

Challenge: Available open data resources are not being fully utilised or appreciated for their potential value and benefits

Recommendations:

- The DGA should advocate for organisations promoting open data to emphasise data reuse and its benefits, including increased productivity, efficiency, transparency, and citizen trust in government.
  - While this will be a **long-term** effort towards cultural change, this can be achieved through **short-term activities**, building on existing strategic efforts (such as open data prizes and hackathons) that the DGA already uses.
- The DGA and other government bodies should establish strong partnerships through multi-stakeholder engagement. By aligning partnerships with strategic priorities and societal needs, the Thai government can maximise the impact of open data initiatives and foster a culture of data-driven decision-making across various sectors.
  - This is likely a **medium-term** objective that will require groundwork to develop relationships and work with partners to identify opportune areas for intervention.

Challenge: Difficulties in implementing and enforcing open data policies and infrastructure

Recommendations:

- The DGA and other relevant government bodies should identify 'open data champions' who could serve as a primary contact within government agencies and assist colleagues on matters related to making data openly available, or using open data. These champions should also be tasked with advocating for open data policies, coordinating efforts across different departments, and ensuring compliance with relevant regulations such as the PDPA.
  - This should be seen as a **short-term** objective that could be implemented quickly across different government agencies and ministries.
- The DGA should consider exploring the potential of data institutions to drive economic growth and social impact, as a complement to efforts towards empowering the Thai government through open data. It is important for the DGA to identify and map out the various roles that data institutions could fulfil in Thailand, while encouraging other regulators to do the same.
  - This activity would complement open data efforts by the DGA. The DGA is well placed to perform the role of a data institution across the Thai government. However, this process has several steps involved, which the ODI would be able to assist with. This would therefore be a **medium-term** undertaking.

Challenge: Need for streamlining, optimising workflows and enhancing communication

Recommendations:

- The DGA should consider looking to establish clear collaboration guidelines for agencies, and enhance communication channels about open data within government.
  - Given the existing materials and guidelines, this should be a **short or medium-term** objective for the DGA.
- The DGA should designate focal points for responding to urgent queries and improving accessibility to its resources. This would facilitate smoother operations and promote a more efficient open data environment.
  - Similarly to the recommendation to establish data champions within agencies, identifying and designating specific persons to undertake this role should be seen as a **short-term** priority.

To help it address these challenges, the government of Thailand should consider drawing from other countries' experiences in successfully advancing open data practices. Examples of successful initiatives have been included in this report, and are intended to serve as inspiration or provide template structures for the government of Thailand to replicated, if appropriate.

The report recommendations are based on the findings of research conducted by the ODI and aim to advance the publication and use of open data in Thailand. To ensure continued progress towards the empowerment of digital government in Thailand through open data, it is imperative to measure the impact of implemented interventions and follow this with a subsequent re-evaluation of remaining challenges and obstacles. Through this cyclical process, the government of Thailand can encourage an increase in the adoption and use of open data across both the government and wider Thai society.

Background

Data continues to be an increasingly valuable asset for organisations and governments to provide products and services. Organisations are collecting more data than ever before, from customer information to employee records and financial transactions. Governments also collect and store vast amounts of data, to inform decision-making and to improve services for their citizens. This includes census data, patient health records, and crime statistics. In recent decades, numerous global projects and initiatives have been established to leverage open data to tackle a variety of challenges.

The ODI has championed the consideration and adoption of open data and advised governments on how to develop and enhance their open data strategies. Open data has many recorded benefits, such as improving public administration efficiency, promoting economic growth within the private sector, and contributing to the realisation of broader societal benefits. With public bodies increasingly collecting, utilising and sharing data, transparency and accountability of the functions for which data about citizens are used have become increasingly important. It is anticipated that this will only increase further, with artificial intelligence (AI) expected to play a greater role in the delivery of public services. By facilitating data re-use and sharing, governments can stimulate innovation and deliver more precise and effective public services.[7]

Empowering Thailand's digital government with open data

This research (which took place from October 2023 to March 2024), was conducted with support of the British Embassy, Bangkok, South Asia Research Hub, Government of UK and the DGA. It aims to inform the ways in which Thailand's digital government can be further empowered with open data. Workshops and stakeholder interviews conducted as part of this research have identified opportunities to further enhance the use of open data across the Thai government and beyond, to spur further

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[7] OECD (n.d.), 'Open Government Data'.

innovation, transparency and efficiencies in decision-making processes. These opportunities have been informed by comparative research conducted in parallel, that has considered the successes of open data activities and initiatives in countries considered as global leaders in open data. Through these successes, transferable learnings have been identified for consideration within Thailand.

This report has consolidated these findings to inform a series of recommendations and a prospective roadmap that can help DGA and the government of Thailand to reap the benefits of open data.

Objective of the research

The objective of this research was to provide actionable advice to the DGA of Thailand to aid in promoting open data adoption and use across the government of Thailand and wider society.

Structure of the report

The following section of the report provides a high-level overview of what open data is, the benefits it can bring, and some of the general considerations that are necessary. The next section then covers the findings of research activities conducted during the project. It also includes case studies from countries around the world that are considered leaders in open data and provide insight recommendations to apply those case studies for the DGA. Through these use cases, we have sought to identify opportunities for consideration to enhance the publishing and use of open data across the government of Thailand. The report concludes with a series of recommendations based on the findings of the current level of open data maturity in Thailand and the challenges faced across government agencies towards realising the further benefits of open data across government.

What is open data, and what are the benefits of making data openly available?

In this section, we provide a high-level overview of open data through first considering how it varies from other types of data and the circumstances in which these types of data are most suitable. We then illustrate some of the practical ways in which open data, specifically, can benefit both those who publish openly, and those who use it. We then take this further by considering the potential sectoral impacts of open data. To demonstrate the potential benefits, we have evidenced these through the use of open data case studies, where material impacts have been measured.

For the ODI, open data is data that *anyone* can **access, use** and **share**.[8] It is important to acknowledge that 'open data' refers to more than 'open government data'. Open data is not just a tool for increasing transparency and accountability, but has many other benefits for both the public and private sectors. Every data-sharing framework should include a commitment to open data that is grounded in delivering value to people and the planet – initiatives must be published with purpose.[9]

The Data Spectrum

When considering open data, it is important to bear in mind the Data Spectrum.[10] The spectrum should be considered as a conceptual vehicle showing what data will be published under an open licence, what data will be shared under non-open licences and how, and what data will remain closed.

In this regard, **open data** refers to data that anyone can access, use or

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[8] ODI (2016), 'What is open data?',

[9] Open Data Charter (2018), 'Publishing with Purpose: ODC 2018 Strategy'. -

[10] ODI (2020), 'The Data Spectrum'.

share.[11] This should be published with an open licence,[12] such as the UK's [Open Government Licence](url)[13] or those available from [Creative Commons](url).[14]
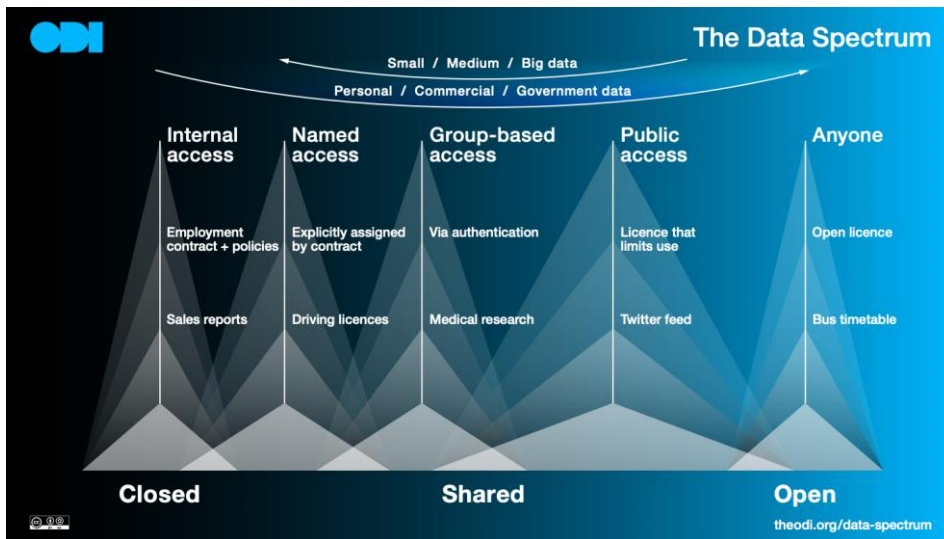

Figure 1: 'The Data Spectrum' (Source: [theodi.org](url))

While the ODI advocates for data to be made open where possible, most data available for use tends to fall under the umbrella of **shared** data. This is generally understood as data that is accessible beyond where it was collected or created, but is not published with an open licence. Shared data has the widest range on The Data Spectrum, from data provided from one entity to another under a named or group-based access arrangement – such as through a data-sharing agreement or commercial data portal – all the way to data published on the web under licences that limit use, such as a non-commercial[15] or no-derivatives licence.[16]

Within every ecosystem, some data must remain **closed** – not being shared outside an organisation – to protect privacy, commercial interests or national security. However, aggregated or anonymised versions of this data can be shared or made openly available. New data governance approaches[17] and technologies[18] are driving reconsideration of the extent to which such sensitive data must remain closed; however, this remains an evolving space of research at the time of writing.

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[11] ODI (2022), '[Glossary](url)'.

[12] ODI (2013), '[Publisher's Guide to Open Data Licensing](url)'.

[13] The National Archive, '[Open Government Licence](url)'.

[14] Creative Commons, '[Licenses List](url)'.

[15] Creative Commons, '[CC BY-NC 4.0 LEGAL CODE](url)'.

[16] Creative Commons, '[CC BY-NC-ND 4.0 DEED](url)'.

[17] ODI (2021), '[How do data institutions facilitate safe access to sensitive data?](url)'.

[18] ODI (2023), '[Privacy enhancing technologies (PETs)](url)'.

In each case, through responsible data stewardship,[19] it is possible to derive benefits that can contribute towards greater efficiencies in many areas of public administration.

Steward –> Create –> Decide

Stewarding data is the foundational activity in the lifecycle or value chain of data – collecting, maintaining and sharing it. This is outlined in Figure 2, below.

Organisations that steward data make important decisions about who has access to it, for what purposes, and for whose benefit. This includes government bodies such as departments and agencies that publish data openly, as well as open data portals, where organisations and individuals can access this data.

How data is stewarded ultimately affects what types of products, services and insights it can be used to create, what decisions it can inform and the activities it can support. Stewarding data involves realising the value and limiting the harm that data can bring.
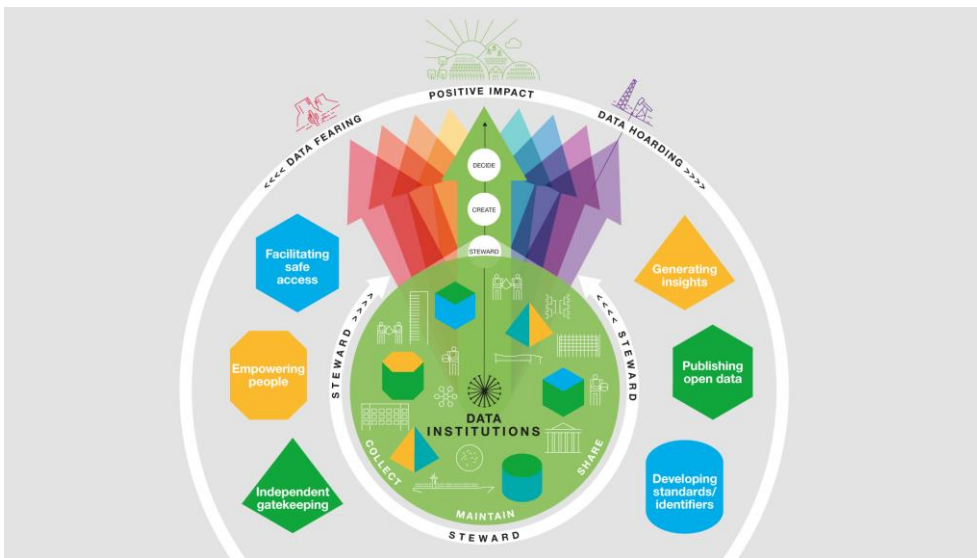
Figure 2: The role of data institutions (Source: theodi.org)

By following this approach, stakeholders can preemptively acknowledge and minimise the negative impacts that sharing data, or making data

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[19] ODI (2023), 'Responsible data stewardship'.

openly available, may have, while maximising the benefits that can be gained. We will now explore some of these benefits.

The benefits of open data

The case studies below will touch on many of the benefits of open data, however these have been summarised here to provide a comprehensive overview.

While we have acknowledged the roles to be played by both closed and shared data, businesses, charities, individuals and the public sector can all make better use of data when it is **open**. When government departments publish open data, citizens may already be receiving some of this value in a number of ways.

Because anyone can use open data for any purpose, everyone can benefit. This could be the public sector making better decisions about medical prescriptions,[20] which can help save lives. It might be one of the hundreds of businesses that use open data,[21] or people making better decisions by using services that make it easier to buy a home[22] or find our way around an unfamiliar town.[23] Ultimately, all of these highlighted innovations can benefit people and communities, and the use of the data and resulting innovations is not constrained from further use. We like to emphasise how data is a non-rivalrous good, that can be used by other actors without this affecting or limiting the other's capacity to get benefit from it.[24] As a result, the benefits of open data can be the basis for even further innovation.

Trust

In our previous work, we have shown that publishing open data can help build trust in an organisation; it was originally used in the public sector to keep the government accountable to the citizens. Open data can serve as a mechanism for accountability by providing organisations and individuals

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[20] Bennett Institute for Applied Data Science, University of Oxford (2024), 'Explore England's prescribing data'.

[21] ODI (2015), 'Open data means business'.

[22] Zoopla (n.d.), https://zoopla.co.uk/

[23] ODI (2015), 'Citymapper executive to governments: 'Open more data so we can improve your cities''.

[24] ODI (2023) 'Understanding the social and economic value of sharing data'.

with the means to scrutinise government actions and decisions. By publishing data related to matters such as budgets, expenditures and progress towards performance metrics, government agencies can monitor how public funds are allocated and hold authorities to account for their actions. This transparency can foster trust between the government and its constituents, strengthening democratic processes and citizen engagement. By publishing open data, organisations not only enhance accountability to citizens, as traditionally seen in the public sector, but also extend transparency to customers, partners, government entities, and regulators.[25] In both the public or private sectors, open data is a powerful tool for showcasing transparency to a wide range of stakeholders. By making data accessible, readable and understandable, organisations can build trust, foster collaboration, and demonstrate their commitment to accountability practices.

Improving efficiencies

The benefits of open data[26] are diverse and range from improved efficiency of public administrations to economic growth in the private sector[27] and improving wider social welfare. Greater efficiency in processes and delivery of public services can be achieved through cross-sector sharing of data, for example, by providing an overview of unnecessary spending.

The economy can benefit from easier access to information, content and knowledge, in turn contributing to the development of innovative services and the creation of new business models.

Social welfare can be improved as society benefits from information that is more transparent and accessible. Open data enhances collaboration, participation and social innovation.

Increasing innovation

Open data has the potential to stimulate innovation and collaboration, and encourage new service offerings that increase efficiency and enhance the customer experience; for example, by the development of apps.

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[25] For further details on the importance of trust in data ecosystems, see: Frontier Economics for the ODI (2021), 'Economic impact of trust in data ecosystems'.

[26] ODI (2017), 'The value of open data for the private sector'.

[27] ODI on Medium (2015), 'The economic impact of open data: what do we already know?',

Open data is supporting innovation and growth by revealing opportunities for businesses large and small to build new services, identify savings, and improve operations. Open data stimulates innovation by removing barriers to the access, use and shareability of data.

There is an existing body of evidence showing that open data provides significant value to the economy. Building on previous research,[28] the ODI calculates that open data will generate an additional 0.5% of GDP annually compared to data for which users must pay, across all essential public sector data assets.

One example of the innovations spurred by the use of open data is in Paris, where café owners have used open data to attract tourists to the city's most affordable coffees. Open data is harnessed through an online questionnaire via social media to collect public input on the addresses of cheap cafes across the city, which undergo a selection process to filter redundant entries and credit contributors, ultimately informing the creation of a map. This demonstrates how public input can be leveraged to create informative and community-driven resources, thereby enhancing accessibility and engagement with the data.[29] In Iceland, meanwhile, farmers are using open data about the quality of their lambs[30] to attract new customers.

Case study: Stream[31]

Stream is a sector-wide initiative enabling a scalable, repeatable approach to open data in the UK water industry. Stream's vision is to unlock the potential of water data to benefit customers, society, and the environment. Stream aims to bring benefits to the water sector and beyond by establishing a widely accessible open data platform.

Working as a collective of 11 water companies and six partner organisations, Stream has worked through phases to define its strategy co-creating an open data framework for the sector, with a goal of tackling key sector challenges such as:
- Preventing environmental incidents;

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[28] ODI (2016), 'The economic value of open versus paid data | The ODI'.

[29] Web.Archive.org (2014), 'Où boire un café à 1€ à Paris'.

[30] Linked (2014), 'Icelandic Open Data, lambs and maps'.

[31] ODI (2022), 'Enabling innovation across the water sector with Stream'.

- Reducing absolute carbon emissions associated with water extraction, use and treatment;
- Bringing down the cost of water, particularly for the most vulnerable customers;
- Catalysing innovation and new ways of working across the sector; and
- Enabling people to do more exciting, meaningful work.

In collaborating to solve sector-wide challenges and explore the solutions and opportunities that open data might provide, the companies involved in Stream are increasing their open data maturity[32] and considering how the benefits offered by open data can best be unlocked.

Once the initial open data platform phase is complete, Stream will be transitioned into an independent data institution.[33] There are plans to provide secure data sharing and data analysis services on top of its core purpose as an industry open data platform.

Insight for empowering digital government in Thailand:
The Stream use case is a prime example of competing private sector organisations working together on a common good by opening up valuable data that is unlikely to harm them from a business perspective. The Thai government should use this model to encourage private sector participation in data collaboration, starting such collaborations with a focus on non-sensitive data with societal benefit.

This example also provides a potential roadmap for the Thai government to consider – through publishing open data as a first step in a larger and longer data-sharing initiative. Just as Stream began with an open data use case, a similar initiative in Thailand could then expand into further consideration of how to enable greater data sharing, through measures such as gaining buy-in from essential stakeholders and developing suitable data infrastructure to enable greater data sharing as part of future steps.

While the DGA is first and foremost concerned with increasing the publication and use of open data by government agencies, for open data to really deliver returns, it is vital to engage with other sectors that can either similarly publish data openly, or make use of this open data to develop products and services. Using open data as the basis to foster cooperation with other actors can also involve government-to-government cooperation. In interviews, it was identified that greater data sharing, or preferably open data, could be helpful in tackling water management issues in the Mekong Basin. While this would require cooperation between the Thai government and neighbouring governments, the Stream use case illustrates how an environmental challenge, such as water resource management, can be tackled by publishing and sharing open data. The DGA could therefore consider – as a first step – collaborating with the Office of the National Water Resources and the Pollution Control Department, as well as any other relevant departments, to consider what types of data can be made openly available to foster collaboration within the region and address challenges associated with the Mekong Basin.

The role to be played by data

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[32] ODI (2015), 'Open Data Maturity Model'.

[33] ODI (2021), 'What are data institutions and why are they important?'.

institutions

As articulated in our overview of [The Data Spectrum](#), open data and data sharing are part of a continuum. To ensure impactful open data initiatives across government, we recommend that consideration is also given to effective data *sharing* across government agencies. One approach to this is through responsible data stewardship,[34] facilitated by data institutions.

Data institutions can play a complementary role to open data initiatives as a mechanism for improving access to data. Data institutions are organisations that steward data on behalf of others, often towards public, educational or charitable aims.[35] With this definition in mind, DGA could play the role of the data institution of the Thai government.

Data institutions are playing an increasingly important role in digital government, where data can be sensitive and dispersed, and requires independent stewardship to maximise its value to society. Data institutions can facilitate safe access to data, combine and link data from multiple sources, publish open data and develop and maintain identifiers, standards and other infrastructure.

The role of data institutions

In practice, data institutions steward data in different ways, including:
- Protecting sensitive data and granting access under restricted conditions.
- Combining or linking data from multiple sources, and providing insights and other services back to those that have contributed data.
- Creating open datasets that anyone can access, use and share to further a particular mission or cause.
- Acting as a gatekeeper for data held by other organisations.
- Developing and maintaining identifiers, standards and other infrastructure for a sector or field – for example, by registering identifiers or publishing open standards.
- Enabling people to take a more active role in stewarding data about themselves and their communities.
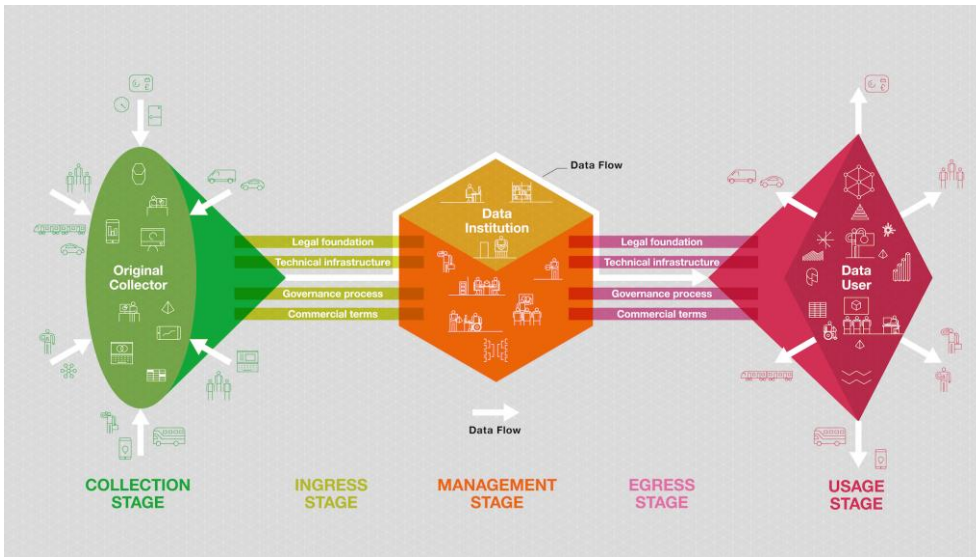
Data institutions play crucial roles in realising the value of data while

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[34] ODI (2023), '[Defining responsible data stewardship](#)'.

[35] ODI (2021), '[What are data institutions and why are they important?](#)'.

limiting harms throughout what is known as the data-use journey.

Figure 3: A diagram of a generic data institution and the five stages of the 'data-use journey'. (Source: theodi.org)

Data institution design requires ensuring there are processes in place for all activities along the five stages of the data-use journey:

- The collection stage: The stage when data about the world is collected – for instance, data about people, infrastructure or commercial markets.
- The ingress stage: The stage in the data use journey when data enters a data institution.
- The management stage: The stage when the data institution holds, manages and protects the data, primarily through internal processes.
- The egress stage: The stage in the data-use journey when the data institution allows outside parties to access the data it stewards.
- The usage stage: The stage when people and organisations use the data from the data institution to deliver services, insights or products for people and organisations.

When designing data institutions, there are four key elements to consider to ensure that the institution is providing valuable services, mitigating risk of harm, and is financially sustainable:

- The legal foundation, standing, authority or permission by which data institutions are allowed to collect, ingress, egress, or use data.
- The commercial terms data institutions put in place that enable or restrict ingress or egress.

- The technical infrastructure data institutions build to support ingress or egress.
- The governance or decision-making processes that data institutions put in place to govern when and how to ingress or egress data.

The value of data institutions

Data is unlike other goods and assets that are bought and sold. It has particular economic characteristics that affect the perception of its value, such as non-rivalry, excludability and externalities.[36] Although it may not be possible to measure the exact value of a dataset, the economic and social contributions of data initiatives and data institutions can be understood.

Previous research into measuring the impact of data institutions focused on illustrative case studies of five UK-based data institutions, corresponding with the different stewardship roles:[37]

- Marine Environmental Data and Information Network (MEDIN) (facilitating safe access and developing infrastructure) – a web portal that aggregates UK marine data, providing a centralised access point for users.
- Farmbench (independent gatekeeping and generating insights) – an online benchmarking tool enabling farmers to compare their performance to other farmers across the UK.
- 360Giving (publishing open data and developing infrastructure) – a charity providing an open search platform for charitable grants data.
- Clinical Practice Research Datalink (CPRD) (facilitating safe access and independent gatekeeping) – a platform that collects anonymised patient data from UK GPs, and links this data to a range of other sources to provide a UK-representative health dataset.
- OpenActive (developing infrastructure) – a sector-wide initiative providing a set of open data standards, and support with using and adopting these standards, to facilitate the sharing of sports activity data.

MEDIN	Farmbench	360Giving	CPRD	OpenActive

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[36] Bennett Institute of Public Policy (2020), 'The Value of Data – Summary report 2020'.

[37] ODI (2022), 'Measuring the impact of data institutions | report'.

Time savings from making data more findable and accessible: £1.84m per year	Efficiency gains from reduced labour costs: £212,577 per year	Duplication of funding avoided: £10.4bn	Compensation for GPs recruiting patients into clinical trials enabled by CPRD: £50,000 per year	Additional revenue enabled in the ecosystem: £15.6m per month
Cost savings from making data reusable: £1.32m per year	Efficiency gains from reduced machinery costs: £283,437 per year	Time savings for funders and grant recipients: £1.5m	Cost savings for pharmaceutical companies on phase two and three clinical trials: £5m	Time savings for individuals to find activities: £4.7m per month
Cost savings from improved data management and storage: £2.64m per year	Efficiency gains from reduced expenditure on inputs: £2.6m per year		Cost savings for pharmaceutical companies on phase four clinical trials: £800m	Time savings for activity providers on promotional activities: £267,200 per month

Table 1: 'Summary of final quantified financial benefits of data institutions'[38]

Case study: UK Biobank[39]

UK Biobank is a non-profit charity and long-term research project stewarding health data for 500,000 research participants. It is financially supported by large funders like Wellcome and the Medical Research Council.

As noted above, data institutions can perform multiple roles, but one of the main roles of a data institution is to facilitate safe access to sensitive data.[40]

UK Biobank facilitates safe access to a large-scale biomedical database and research resource, containing in-depth genetic and health information from half a million UK participants. The database is regularly augmented with additional data and is globally accessible to approved researchers undertaking vital research into the most common and life-threatening diseases. It is a major contributor to the advancement of modern medicine and treatment and has enabled several scientific discoveries that improve human health.

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[38] ODI (2022) 'Measuring the impact of data institutions'.

[39] ODI (2021), 'How do data institutions emerge? Six short case studies'.

[40] ODI (2021). 'How do data institutions facilitate safe access to sensitive data?'.

UK Biobank provides access to 'bona fide researchers' from academic institutions, charities, government bodies or commercial companies, as long as their research is health-related and 'in the public interest'. UK Biobank uses a collection of legal, commercial and decision-making mechanisms to ensure that the data it stewards is used safely by those provided access.

Data drives discovery. UK Biobank's unique biomedical database – the largest, most detailed and openly accessible research resource of its kind – is enabling the global research community to make scientific discoveries that improve public health. Case studies include accelerating MRI data processes, improving understanding of sepsis, catching dementia earlier, and studying clinical and genetic factors that affect the outcome and spread of Covid-19.

Insight for empowering digital government in Thailand:
The healthcare sector collects, holds and shares some of the most sensitive data on the planet. Although health data sharing initiatives are often very bilateral and measured in pace, they can provide a look at best practice for stewarding and sharing highly sensitive data.

This use case provides an example of where it can, at times, be necessary to consider solutions that acknowledge the challenges associated with publishing data in a fully open manner. This is particularly the case when dealing with highly sensitive data, such as health data. Further to the anonymisation of data, given the sensitivity of health data and the potential risks of reidentification, additional measures may be necessary.

As the agency responsible for setting out guidance among Thai government agencies on open data, the DGA is well placed to advise where open data is appropriate and the limited cases where additional steps must be taken to protect either individuals or the national interest when data is shared. In such instances, the DGA could consider suggesting the formation of a data institution for specific sectors, to ensure that sensitive data does not remain underutilised.

A first step that the DGA could consider in developing this capability would be to identify a prospective issue where publishing data openly would not be appropriate. Although the interviews and workshops identified an appetite for the use of personal data to inform insights, they also highlighted concerns about compliance with the PDPA – particularly in healthcare and finance. These could serve as starting points, areas for the DGA to consider assessing whether a data institution could help solve a specific problem already known to be hindered by a lack of data sharing. A successful data institution pilot could then serve as a blueprint for future responsible data-sharing initiatives, where making data openly available is not possible, yet keeping data siloed is similarly not a sustainable option.

Opportunities for government

Supporting growing economies. To support the emergence of new data-driven businesses and the growth of existing ones, governments need to publish key datasets from different key sectors, such as education, healthcare, transportation and electricity. Governments also need to support data infrastructure that connects data with those who use it.

Improved service delivery. Governments must strike a balance between

addressing the needs of expanding populations and addressing localised, small-scale challenges. The availability of detailed open data is essential to improving delivery of financial and social services at the local level, which can enhance the lives of citizens. Several of these new services are already accessible, such as mySociety[41] and Fix my Street.[42] Open data allows the Open School Project – the only service that provides detailed information about all of Ukraine's 17,000-plus schools – to scale easily while providing a valuable service to citizens.

Cost savings. Open data enables governments to realise cost savings across critical sectors like healthcare, education and utilities. For instance, in the UK health sector, open data initiatives uncovered £200 million in savings.[43] Existing evidence demonstrates[44] the substantial economic benefits of open data to the economy. The latest report expands on prior research, indicating that open data from core public sector assets is projected to contribute 0.5% more to GDP annually compared with data with user fees.

Case study: Transport for London (TfL)[45]

The UK transport sector was an early adopter of open data, having identified that greater data access could enable innovation in tackling various sector challenges, including uneven economic development and the depletion of traditional energy sources.

Transport for London (TfL) is a local government body responsible for the transport system in Greater London. TfL has the responsibility for London's network of principal road routes, various rail networks and other public modes of conveyance.

TfL has been a pioneer in the space of open data. Research has shown that TfL's provision of free, accurate and real-time open data helps London's economy by delivering value of up to £130m a year.[46]

This has been delivered by:
- Saved time for passengers – customers can plan journeys more accurately using apps with real-time information and advice on how to adjust their routes. This drives usage of public transport and also helps to reduce commuter emissions.

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[41] mySociety (n.d.), 'mySociety'.

[42] SocietyWorks (n.d.), 'FixMyStreet'.

[43] ODI (2012), 'Prescription Savings Worth Millions Identified by ODI incubated company'.

[44] ODI (2016), 'Research: The economic value of open versus paid data'.

[45] ODI (2018), 'Using open data for public services'.

[46] Transport for London (2017), 'TfL's free open data boosts London's economy'.

- New commercial opportunities – third-party developers generate revenue by building and improving products and services using TfL open data, to deliver value to commuters in London.
- Building data partnerships – TfL gets significant data back on areas where it does not proactively collect data, giving it an even better understanding of journeys in London and improving operations.

Insight for empowering digital government in Thailand:
The TfL case study shows the benefits of a multifaceted approach to data infrastructure. Open data supported by published standards, available through a unified open API with significant guidance available through its digital toolkit,[47] has made TfL one of the UK's most valuable data stewards.

As the agency responsible for promoting Thai government agencies' adoption of open data, the DGA should look to build up a bank of similar cases, drawing from the example of TfL as a rich case that demonstrates the innovative potential of open data, that could also lead to efficiencies and cost savings within government agencies. A participant who took part in the in-person workshop in Bangkok spoke with the ODI project team about the lack of similar open data and standards in Bangkok, which at times led to inferior transportation planning compared with their experiences in other cities. As has been demonstrated – such as in the TfL example – open public transport data can help to improve citizens' travelling experiences.

The DGA can look to promote this through similar use cases, which can lead to an increased profile for open data and the benefits that can be gained through government agencies investing the time to publish data openly. It is important, however, that any increased efforts made by other government agencies to publish more open data are backed up by support by the DGA in the form of acknowledgement and promotion of new open data assets, through engagement with prospective developers that might benefit from building on this open data.

Case study: OpenActive[48]

OpenActive is a community-led initiative launched in 2016 to address the problem of inactivity in England by helping people get active using open data. Stewarded by the ODI and supported by Sport England the initiative was formed by organisations and engaged individuals working within the sport and physical activity sector.

It aims to help the 17.7 million (39.4%) adults in England who don't exercise enough to easily discover and take part in suitable activities. Together, the sector is improving access to opportunity data, stimulating innovation with data to meet people's digital expectations, developing open standards, building data literacy, and working collaboratively to evoke change.

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[47] Transport for London (n.d.), 'Digital toolkit'.

[48] ODI (2019), 'OpenActive: addressing inactivity in the UK (case study)'.

OpenActive is an example of a sector-change programme: where those involved are working with organisations to tackle a sector-level social problem with data, using an open approach. Sector programmes aim to create impact, both by addressing the problem and by embedding good data practices and business models. This includes through the use of open standards, which was developed and adopted in the case of OpenActive.[49] Through the creation of the OpenActive data standards, this made it easier for different software systems in the sport and physical activity sector to connect and share data.

OpenActive is an example of a sector-change programme in which many organisations are working together to tackle a sector-level social problem with data, using an open approach. There has been a clear social benefit to OpenActive, with an external assessment in 2019 estimating:

- up to £3 million per year in health costs avoided
- up to a £20 million per year increase in productivity
- up to 100 premature deaths per year avoided

Insight for empowering digital government in Thailand:
The example of OpenActive demonstrates what can be achieved when data is made openly available in a standardised, machine-readable format. Just as OpenActive has been successful in health and sport, opportunities exist to replicate this infrastructure and similar standards for different sectors.

The DGA should consider OpenActive as a demonstration of where open data and open standards have been promoted in combination to address a sector specific challenge. Through interviews, it became apparent that while publishing open data is a good start, government agencies could not truly see benefits of their efforts. OpenActive presents an example where additional effort has been required in the form of a corresponding open standard; however this has resulted in economic and health benefits.

Furthermore, the ODI's research identified a strong appetite for a similar initiative in Thailand's tourism sector. This significant contributor to the country's economy could be optimised through the adoption of a data standard that could foster greater interoperability between different platforms, thus creating efficiencies between accommodation and activity providers, to create a more streamlined visitor experience. This could provide a testing bed that the DGA could encourage the Ministry of Tourism to lead on, to help develop a similar open standard for tourism data. This could be stewarded by the Ministry of Tourism, mirroring how OpenActive has been stewarded by Sport England. This would involve coordination with platforms and organisations in the sector.

Changing societies and public policy

Open data has been used to unlock new social value and enable better targeted public policies. It has the power to revolutionise the way we travel.

All over the world, open transport data enables companies like Citymapper and Google to give people accurate transport information. This not only helps people understand and use complex transport systems, it also

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[49] OpenActive (2024), 'Why we need data standards'.

decreases the number of people in cars and increases revenue for public transport systems.

Case study: Opening mobility data in France

France ranks among the top three countries in the EU for open data maturity, as per the 2023 EU Open Data Maturity assessment.[50] The Open Data Inventory (ODIN) ranked France 37th in the Open Data Inventory 2022 with an overall score of 68 – a combination of a data coverage subscore of 59 and a data openness subscore of 77. Notably, France's progress in open data is exemplified through its robust initiatives, particularly in the realm of mobility data.

Key achievements:
- *Building a robust open data taskforce*
  At the end of 2010, the French government established an inter-ministerial taskforce, Etalab.[51] Acting as the state's Chief Data Officer (in the same capacity as the General Administrator of Data, Algorithms and Source Codes), it coordinates the design and implementation of France's data strategy, overseeing the sharing of public data, which led to the creation of the national open data portal.[52] This platform hosts more than 47,000 datasets at the time of writing.

- *Concrete uses of open data*
  Opening mobility data has proven to be effective and productive in France. The open platform[53] dedicated to transport data serves as a national hub, aligning with EU mandates for national access points in 2017 – a mechanism for accessing, exchanging and reusing transport-related data. The short-term objective involves fostering a community of data producers and consumers to catalyse the development of mobility services for end-users, with a strong emphasis on building a digital common and ensuring data quality.

- *Impact/use cases of open data*
  At the city level, France's open data initiatives have spurred innovative use cases. For instance, in the city of Rennes, the STAR public transportation network,[54] operated by transportation company Keolis, has made real-time bus location data available on its open data portal.[55] This has spurred the development of seven transportation apps by local developers, demonstrating the tangible outcomes of open data initiatives. Another example can be found in Paris, where thermal cameras equipped with pattern recognition technology have been deployed at eight locations to monitor the movement of bicycles, scooters and motorised vehicles such as cars, trucks, buses and motorcycles. The real-time data captured

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[50] data.europa.eu (2023), '2023 Open Data Maturity Report'.

[51] Etalab, https://www.etalab.gouv.fr/

[52] Data.gouv.fr, https://www.data.gouv.fr/en/

[53] Ministère chargé des transports (n.d.), 'French national access point to transport data'.

[54] Opendatasoft (2022), 'STAR (Keolis): a pioneered mobility open data'.

[55] STAR open data portal, https://data.explore.star.fr/page/home/

by these sensors is made publicly available on the city's open data portal,[56] leveraging the French company Opendatasoft's[57] data visualisation tools to generate dynamic analysis reports. This aids traffic management, prevents accidents and reduces pollution, benefiting various stakeholders. Finally, the Lille European Metropolis (MEL) utilises traffic data to monitor and manage urban traffic effectively.[58] By integrating data from platforms like Waze, MEL enhances its traffic management capabilities, facilitating quicker responses to incidents and proactive traffic solutions.

Insight for empowering digital government in Thailand:
Drawing inspiration from France's open data advancements, Thailand could prioritise fostering collaboration between government agencies. Based on the findings from interviews and workshops, it is recommended to address the barrier of insufficient coordination between government agencies by establishing an inter-ministerial/department taskforce following the example of the French government's Etalab. This could facilitate improved communication and foster collaboration in data sharing and open data initiatives across various government bodies. Based on feedback from interviews, it is recommended that the DGA and other government bodies explore partnerships with private companies to leverage their technical expertise and resources in utilising open data more effectively. By collaborating with private actors to develop tools, visualisation and reports showcasing the benefits of open data, government agencies can accelerate the adoption and use of open data resources, driving innovation and improving public services.

Open data across government in Thailand

Open data in Thailand

Departments and agencies of the Thai government already collect and publish data across many areas and sectors that are essential to the functioning of Thai society.[59] These include company registrations, current land use, political finance, public consultation, performance, budget allocation, public spending, public procurement, vital statistics, real-time healthcare capacity, Covid-19 vaccination, and climate vulnerability. Nevertheless, there is limited data availability in areas such as beneficial ownership, land tenure, asset declarations, lobbying, emissions and biodiversity.

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[56] Paris Data, 'Paris Data met à disposition les données produites et collectées par la Ville de Paris'.

[57] Opendatasoft (n.d.), 'Create the best data experiences'.

[58] Opendatasoft (2017), 'Opendatasoft Partners with Waze'.

[59] OECD (2022), 'Open and Connected Government Review of Thailand'.

Research has previously identified areas for improvement in increasing accessibility and utility of open government data in Thailand[60] and more can be done to further these efforts. As evidenced in research by Utamachant and Anutariya, data quality remains a pervasive issue for users of open government in data, even though providers have "attempted to follow the EGA [DGA predecessor, Electronic Government Agency] framework and procedure well".[61][62] Since this report, the DGA has reiterated its commitment to enhancing the transparency and accessibility of government information. This has included efforts such as hosting the open data forum, to facilitate knowledge exchange on data sharing and open data.[63] Despite these efforts "key challenges in delivering public value from open data at its fullest potential" remain.[64] This is an ongoing process for all countries, as new sources and applications of data continue to impact on the functioning of government and the delivery of services to citizens. Thailand has undergone a rapid transformation with the digitisation and datafication of its society and economy, evidenced by a 35% growth in digital services in 2021.[65] Given the rapid increase in the importance of data and related technologies to the functioning of Thai society, the DGA has played, and continues to play, a key role in Thailand's digital economy, and is well-situated within the regulatory ecosystem to spearhead efforts towards greater open data across the Thai government. With the announcement of the new digital government development plan for 2023-2027,[66] which has placed emphasis on further developing Thailand's digital government and improving the lives of Thai citizens, open data will play an important role in achieving these objectives. This has featured as a critical part of previous DGA Digital Government Development Plans, which have emphasised "supporting useful open data and making the citizens participate in the open government process".[67]

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[60] Utamachant, Piriya and Anutariya, Chutiporn (2018), 'An Analysis of High-Value Datasets: A Case Study of Thailand's Open Government Data' *2018 15th international joint conference on computer science and software engineering (JCSSE)* (pp. 1-6)

[61] Ibid. (p.3)

[62] For more on the procedure, see: DGA (2020), 'Open Data Process: Quick Guide'.

[63] Open Gov Asia (2023), 'Thailand's Push for Open Government Data'.

[64] OECD (2022), 'Open and Connected Government Review of Thailand'.

[65] Mordor Intelligence (2023), 'Thailand Ict Market Size & Share Analysis - Growth Trends & Forecasts (2023 - 2028)'.

[66] Santhika, Eka (2023), 'Thailand Aims to be in the top 40 e-Governments Worldwide by 2027'.

[67] DGA (2021), 'The Digital Government Development Plan of Thailand'.

As part of these efforts, the DGA has continued to make progress with the national open data portal,[68] which includes greater than 11,000 datasets related to economic development, transportation, industry and society, and government spending (at the time of writing). This effort has been encouraged by the DGA's ambitions to open data or public information about government agencies in digital platforms and channels, to improve access for Thai citizens so that they might be able to scrutinise the activities of the government.[69]

The 2022 Global Data Barometer[70] underscores the strides that Thailand has taken in data utilisation capacities (due to initiatives such as annual hackathons[71] and training in data reuse), yet identifies opportunities for improvement. This is particularly relevant in the case of enhancing data availability and quality, especially in areas such as climate action and company information. In addition, the sub-national open data portal for Bangkok exists at the municipal level. Despite this, certain data categories like beneficial ownership and emissions are currently less comprehensively represented.

Open data policies and data ecosystem

As part of the Open Data Strategy, led by the DGA, Thailand has adopted "Open by Default" as one the ten core principles for data publication. As a KPI for government agencies, open data volume is flourishing. However, it is important that the government ensures that open data value is flourishing too by understanding the reuse of open government data and the impact through user feedback.

This can be one of the more difficult challenges with open data – accurately measuring its impact when it can be so freely used, that not all instances in which the data has been used are always recorded. As a result, deeper analysis than considering solely the instances in which the use of open data has been credited is required to provide a more accurate picture of the benefits that publishing open data can provide.

To better understand the open government data ecosystem and the value

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[68] DGA (2015), 'Open Government Data of Thailand'.

[69] DGA (2021), 'The Digital Government Development Plan of Thailand'.

[70] Global Data Barometer (2022), 'GDB country report - Thailand'.

[71] UNODC Regional Office for Southeast Asia and the Pacific (2018), 'Open data for anti-corruption efforts in Thailand - Bringing the agenda forward'.

it creates, the DGA might consider exploring the efficacy of a code of conduct or accreditation programme for open government data users. This non-technical standard could use data assurance principles[72] to build more trusted data flows between government data providers and users by better understanding reuse, and exploring what reciprocal benefits would encourage this information sharing.

Outside of the public sector, the DGA could explore adopting a 'presumed open' open policy in regulated sectors such as finance, energy, water, transportation and communications. Thailand could consider adopting the UK's Open Data Triage[73] process, developed by Ofgem and being rolled out more widely, and contextualise it for the Thai legal and regulatory ecosystem.

Case study: Open data in the UK

Since 2013, the UK has consistently been recognised as a leader in open data. The establishment of the Open Government Licence[74] and the national open data platform[75] in 2010 marked a significant milestone, signifying the success of the campaign initiated by The Guardian in 2006 to make data collected by authorities at public expense freely available for reuse by individuals.

Key achievements:
- *Robust open data portal*
  Since 2010, the UK has maintained an open data portal containing open government data and supporting government publishers to maintain that data. In March 2018, the platform evolved into a Find open data service where data is published by central government, local authorities and public bodies. The portal gathers datasets from across a wide range of categories from defence to education.

- *Policies favouring open data initiatives*
  The UK government has a policy of 'Open by Default' for public sector data across all departments.[76] This approach promotes the concept of open data release for a number of desired outcomes: accountability (by openly publishing data and the evidence base behind policy, government will drive trust in decision-making); efficiency (publishing data to identify duplication,waste and other systemic issues that can be reviewed and remedied); and

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[72] ODI (2023), 'Assuring data practices'.

[73] Ofgem (2023), 'Track Changes Data Best Practice Guidance v2.0'.

[74] Wikipedia, 'Open Government Licence'.

[75] UK government, 'Find open data'.

[76] GOV.UK (2020), 'National Data Strategy'.

economic outcomes (catalysing the growth of innovative companies using data as the basis of new products and services).

- *Best practices around open data*
  Industries like energy, bound by regulations, have adopted a unique approach to data management, particularly with the concept of 'Presumed Open'. This approach involves treating data assets as open data, contingent upon undergoing Open Data Triage,[77] a procedural step aimed at assessing whether any sensitivities are associated with the data assets slated for publication as open data.[78] These sensitivities primarily encompass concerns related to personal privacy rights, security necessities, legal or regulatory obligations, commercial imperatives crucial for safeguarding consumer interests, and considerations impacting the public welfare.

Insight for empowering digital government in Thailand:

Throughout the interviews and workshops conducted in this research, data quality was frequently raised as a concern that government agencies in Thailand have with using open data more frequently. The use case of approaches that have been adopted in the UK serve as examples of initiatives that could be considered in Thailand, through promotion by the DGA.

For example, specifically to address concerns held by government agencies around the potential disclosure of sensitive data in contravention of the PDPA, the DGA should consider implementing a similar process to the Open Data Triage process mentioned above, which can enable the identification and prioritisation of data quality issues in datasets, as well as identifying datasets that would be suitable for publishing openly. It is clear from interviews that government agencies in Thailand would welcome greater assurance from the DGA regarding processes that can ensure that data publication is in compliance with the PDPA. Furthermore, despite the existence of the Thai Open Government Data Standard,[79] government agencies reported that they found datasets on the Open Government Data Portal to vary in quality. The DGA could lead a comprehensive triaging process to diagnose this issue proactively, while identifying opportunities for potential open data publication training for government agencies, to accompany existing guidance that exists.

Like the General Data Protection Regulation (GDPR) in Europe, the PDPA promotes data portability – the right for data subjects to port their data to other data controllers. However, without supporting data infrastructure such as standards, technologies and organisations stewarding that infrastructure (much like the Open Banking Implementation Entity[80] in the UK), it is unlikely the data portability right will generate significant value for

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[77] Ofgem (2021), 'Data Best Practice Guidance'.

[78] Energy Networks Association (2021), 'Data and Digitalisation Steering Group – Data Triage Playbook'.

[79] DGA (2018), 'Annual Report'.

[80] Open Banking Ltd (n.d.), 'About Open Banking Limited'.

Thai citizens.

Case study: Open banking in the UK[81]

The Open Banking Implementation Entity (OBIE) acts as a trusted third party, creating the technical standards and industry guidelines that support open banking. In this ecosystem, the Financial Conduct Authority (FCA) manages the licensing of the third-party providers (TPPs) authorised to access consumer data. Consumers can determine who has access to their data and can revoke access at any point. Open banking was mandated by the Competition and Markets Authority (CMA) in its Retail Banking Market Investigation Order 2017[82] following its investigation into competition in UK banking.

Open banking was designed to allow greater access to consented customer data to new service providers, with the ultimate goal of greater competition. Some banks initially resisted this in various ways, including through creating a complicated customer experience. To create a smoother authentication journey, the OBIE developed and mandated user experience standards to promote customer buy-in. The OBIE ensures that all banks and building societies comply with standardised formats for APIs, security profiles, customer experience, and operational guidelines to facilitate trustworthy and secure data sharing, while supporting compliance with existing regulations. Standardising the underlying requirements improves efficiency and levels the playing field for all providers, ensuring that small fintechs – as well as large banks – can access the data they need to develop new products and services and compete in the market.

Open banking – facilitated by the OBIE – offers individuals and SMEs more choice by enabling them to share data about themselves to identify the most appropriate financial product or service for their individual needs. These include easily switching bank accounts to new providers, using budgeting apps that provide personalised recommendations, and using price comparison websites to receive tailored quotes for financial products. As of March 2022, there were 128 fully regulated firms with live-to-market open banking-enabled products and services, reaching a combined 10-11% of digitally-enabled consumers and small businesses in the UK.[83]

Insight for empowering digital government in Thailand:
Open banking is currently being developed in Thailand with expert advice from UK organisations that were critical in establishing it in the UK. Open banking represents one of the most successful data initiatives, focussing on sharing sensitive data in a decentralised way. While these efforts are being supervised by the Bank of Thailand, the DGA should be a collaborator in the development of open banking in Thailand, both to influence its creation as a regulator of electronic transmissions, and to learn from its development.

Specifically, the example of open banking provides evidence for the ways in which standardised data formats can be promoted to allow for greater interoperability. It could therefore be opportune

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[81] Open Banking (2019), 'Open Banking: Preparing for Lift Off'.

[82] Competition and Markets Authority (2017), 'Retail Banking Market Investigation Order 2017'.

[83] Open Banking (2022), 'The Open Banking Impact Report'.

for the DGA to be closely involved in the process as this develops in Thailand. In particular, the current efforts towards Open Banking Data for Consumer Empowerment being led by the Bank of Thailand could provide a rich homegrown use case in the Thai context that can demonstrate the value of open data and open standards. This was another element frequently raised during interviews as something specific to the Thai context for which government agencies would appreciate greater evidence.

It is also worth noting that the EU has recently proposed a requirement for business to government (B2G) data sharing across all economic sectors in the new Data Act.[84] It should therefore be prioritised to clarify who can use and access what data and for which purposes, and establish conditions for such access and use. DGA and other relevant government departments should explore what a similar B2G requirement could look like for a future version of the PDPA, potentially starting with an expert advisory group similar to that which has been set up in the EU.

Research findings

The observations in this section are based on views of workshops participants and interviews.

Limited literacy surrounding open data and its benefits

There seems to be limited qualitative understanding and clarity on the benefits of open data, leading to inefficiencies and impeding the advancement of open data initiatives across the government. All stakeholders raised that it is critical to realise the benefit of open data and how the data will be used to improve society. Agencies face challenges in data format and quality despite the existence of developed data standards, indicating a lack of readiness and understanding.

Additionally, a lack of IT personnel within government agencies and an insufficient level of data literacy among officials were both raised as significant challenges to effective (open) data management across the Thai government. This limited expertise hampers the government's ability to capitalise on the benefits of open data, as there is limited awareness among individuals about its advantages. Consequently, the adoption of

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84 European Commission (2024), 'Data Act'.

open data practices across government departments remains slow and limited.

Furthermore, there is uncertainty and privacy concerns, compounded by government agencies' fears regarding data protection under the PDPA. This poses a significant obstacle to open data initiatives. The PDPA is seen as an obstacle for the publication of open data, pointing out that some departments were worried about being sued for privacy breach. This suggests that a misunderstanding exists within certain portions of the Thai government regarding the compatibility of open data and data protection laws.

Moreover, legal barriers, including concerns about data ownership, deter agencies from sharing data openly according to some stakeholders. Additionally, cybersecurity concerns were identified as a factor that could explain some government agencies' reluctance to publish open data, as they are responsible for the stewardship of substantial volumes of data.

The following case study showcases Serbia's active development of resources and materials tailored for individuals with limited data and digital literacy regarding open data. This could provide valuable insights for government agencies on the practical implementation of open data initiatives.

Case study: Open data in Serbia

Serbia has witnessed a notable acceleration in its digital transformation journey, placing open data high on both the public and political agenda. Supported by the United Nations Development Programme (UNDP), which is providing expertise and management assistance to empower responsible government teams, the Serbian government is actively enhancing its open data strategy and initiatives.

Key achievements:
- *Policies favouring the open data agenda*
  Serbia started its open data journey in 2015 with an Open Data readiness assessment,[85] which aimed to build a strong community that would be essential to develop critical initiatives. Drawing insights from international open data strategies and learning from global best practices, Serbia has made significant strides in its open data initiatives. The Covid-19 pandemic played a pivotal role in highlighting the significance of open data as a

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[85] United Nations Development Programme (2015), 'Open data readiness assessment Republic of Serbia'.

catalyst for informed decision-making and enhancing public services, showcasing the transformative power of data-driven approaches nationwide.

- *Open data portal*
  The government of Serbia has strategically committed to opening up data, as evident in both the Strategy for the Development of eGovernment and the action plan for implementing the international Open Government Partnership initiative in Serbia. The Office for Information Technology and eGovernment oversees the institutional process of data opening, maintaining the National Open Data Portal[86] and serving as the primary point of contact for institutions seeking to publish their data. The portal comprises data from 14 categories, including industry, energy, construction, education and the environment, and 684 datasets across all categories.

- *Building international collaborations*
  To strengthen its open data agenda, Serbia has established partnerships with national open data portals of other European countries, such as France's Etalab. These collaborations aim to facilitate the ongoing enhancement of Serbia's open data portal, ensuring its continual improvement and alignment with international standards.

- *Creating robust and complex open data infrastructure*
  The Serbian government's Open Data Hub[87] serves as a centralised resource hub, providing expert support, educational resources, financial assistance, and networking opportunities to enhance accessibility and usability of open data for various stakeholders, including journalists and the general public. It serves as a good add-on, complementing the national open data portal, which is more technical and less user-friendly. It responds to different kinds of needs and is digitally connected.

- *Setting up open data activities*
  Serbia has embarked on a series of initiatives to promote open data activities, including the implementation of data innovation challenges akin to EU Datathons.[88] Additionally, the establishment of an Open Data Working Group, comprising approximately 65 members from various sectors (from administration to technology, academia and media), facilitates multi-stakeholder engagement through quarterly meetings and annual workshops. These events are open to the public, to promote transparency and citizen engagement. Furthermore, Serbia's annual Open Data Week features 27 community co-organised events, including hackathons, meetups and training sessions. These efforts underscore Serbia's commitment to involving citizens in decision-making and ensuring their voices are heard.

- *Participatory approach to open data*
  Citizen science initiatives, such as the collaboration on air quality monitoring between the tech community, NGOs and the Serbian Environment Protection Agency, demonstrate Serbia's efforts to engage citizens and build trust through open data initiatives. These initiatives complement official data sources and emphasise the value of citizen engagement in data collection processes.

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[86] Data.gov.rs, https://data.gov.rs/sr/organizations/republichki-zavod-za-statistiku-2021/

[87] Open Data Hub (2015), 'About us'.

[88] European Union (n.d.), 'EU Datathon'.

Insight for empowering digital government in Thailand:

To enhance the accessibility and utilisation of open data, the Thai government could actively plan citizen engagement in data collection processes. By involving the public in initiatives such as citizen science projects, particularly in sectors like air monitoring, awareness and understanding of the value of open data could be effectively promoted. Additionally, to address the needs of audiences with lower levels of data literacy, establishing a dedicated entity, such as the Open Data Hub, could be valuable. This platform would serve as a resource centre, providing accessible materials and resources about open data, thereby empowering all users to effectively access and leverage available data for various purposes.

Data availability and quality challenges

According to research on open data in the southeast Asian region,[89] and confirmed by workshop participants, the available data on Thailand's open government data portal is often insufficient in terms of quantity, quality and variety. Many datasets suffer from infrequent updates, leading to outdated information.

The quality of disclosed datasets still does not match the standards set by the DGA and there is a need for more data standards that would lead to more data accuracy. In some cases, datasets are made openly available, but not in a format that allows others to use them effectively. This inconsistency might contribute to lower confidence amongst users of the open datasets, potentially undermining their uptake and use. The DGA could consider conducting a broader analysis of users' confidence, what they primarily want to do with open data, and any concerns they have.

This analysis could serve as the first step in revisiting and potentially revising the current Open Data Process: Quick Guide,[90] to bring staff across government departments greater clarity on what additional considerations should be factored in when publishing data openly. On a related note, while many interviewees were aware of the existence of this guide, one asked for guidance on making data openly available, which suggests that this is still unfamiliar within some departments. Whether this is the responsibility of the departments themselves, or could be improved through greater cross-government communication, is a matter to consider.

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[89] D4D (Cañares, M.P.), 'South, East, and Southeast Asia and the State of Open Data'.

[90] DGA (2020), 'Open Data Process: Quick Guide'.

Another interesting finding was that it was unclear whether government departments are at liberty to decide themselves what data they consider of value and importance for making openly available on the DGA catalogue. Open data can provide unanticipated benefits for users outside of those who have collected and published it. However, this can sometimes lead to closed thinking about the usefulness of certain datasets to other departments or communities, leading to less data being made openly available as a result. It could therefore be useful to consider how departments are determining what data is considered 'important', whether this is a standardised practice across government departments in Thailand, and whether there are active discussions between departments, or consultations with the DGA, to scrutinise what data can and should be made openly available.

Limited use and value of open data

Most stakeholders said they are engaging with the national open data platform,[91] but mainly to share data, rather than to access and use it. While data quality was cited as a frequent barrier to the use of data by government departments, further analysis should be conducted through sustained engagement with stakeholders to identify additional blockers currently hindering the wider use of open data.

These challenges persist for various reasons. Government agencies and citizens, in general, lack understanding of the benefits of open data, resulting in limited awareness of how individuals can utilise and derive value from it. Stakeholders emphasised the urgent need for more use or business cases to illustrate these advantages. It is essential to know who is using open data and how it can be used by others – for commercial purposes, for instance. This will encourage officials and data owners to open data or support open data initiatives. While activities like hackathons, open data awards, and sandbox initiatives aim to promote open data usage, they encounter obstacles due to a lack of clarity of how users engage with open data. While awards have been taking place within the DGA, the current practice of individual awards adds a significant burden to recipients. To alleviate this burden and promote collaborative efforts, it is recommended to establish grouped awards involving diverse individuals from various teams, including data owners, IT practitioners and other relevant stakeholders. This approach not only distributes responsibility but also fosters a collective sense of ownership and accountability towards

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[91] Open Government Data of Thailand, https://data.go.th/

open data initiatives.

Despite the increasing volume of available data, current datasets often fail to meet public needs and are underutilised, underscoring the need for a more user-centric approach to data provision. Issues with data quality are a major reason why open data is not used effectively by both government and citizens, according to those interviewed in workshops and meetings. Concerns about the disparity between the government's abundant data resources and its relatively low utilisation rate were raised.

The following case study showcases how Canada has been actively developing and allocating resources to the creation of open data use cases and success stories. These initiatives could serve to inspire government agencies by providing valuable insights into the potential benefits and applications of open data.

Case study: Open data in Canada

Canada, ranking 15 out of 195 countries according to the Open Data Inventory by Open Data Watch in 2022[92], has made significant progress in promoting open data initiatives, making it a world leader.

Key achievements:
- *Policies favouring an open data agenda*
  In October 2014, Canada adopted the Open by Default directive for government publications and data, laying the foundation for transparent data practices. The country's latest National Action Plan on Open Government[93] outlines milestones to cultivate an 'open data ecosystem' as part of its broader Open Government Strategy.

- *Updating and maintaining the national open data portal*
  The country's federal open data portal hosts more than 30,000 datasets from more than 40 departments and agencies. This data covers myriad topics, such as the mother tongue of residents, the Ontario Tree Seed Transfer Policy,[94] and Canada's War Dead Honour Roll.[95] Data on the Open Government portal originates from various Government of Canada entities, including departments, agencies and Crown corporations. While each entity manages its own data, the Treasury Board leads the governance, including guidelines and policies. Data preservation aligns with government information retention rules, including

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[92] Open Data Watch (2022), 'Open Data Inventory – Country profile Canada'.

[93] Government of Canada (2023), 'National Action Plan on Open Government'.

[94] Government of Canada (2020), 'Ontario Tree Seed Transfer Policy data'.

[95] Government of Canada (2014), 'Canada's War Dead – Honour Roll'.

regulations from the Library and Archives of Canada Act, the Financial Administration Act, the Access to Information Act and the Privacy Act.

- *Concrete uses of open data/impact*
  In 2023, Statistics Canada launched an exploratory initiative to improve the use and harmonisation of open building data from government sources, aiming to contribute to the development of a complete, comprehensive and open database of buildings in Canada. One of the results of this initiative is the Open Database of Buildings (ODB),[96] which exemplifies the potential of harmonising government data sources to create comprehensive databases, fostering collaboration and innovation in data usage. Additionally, the Charities Directorate of the Canada Revenue Agency (CRA) systematically published open datasets via the government's data portal under a commercial open data licence. Charities are among the most frequent users of the T3010 dataset, with organisations like Imagine Canada utilising it extensively since the early 1990s. Initially used for population counts and key indicators of charitable activities, revenue and expenditure, the dataset now serves diverse purposes, from survey sampling to policy analysis. Imagine Canada considers it vital for understanding the philanthropic sector, and integrates it into various organisational processes daily. For more information, this case study on the use of open data to drive accountability of Canadian charities is very informative.[97] To explore additional user stories and the impact of open data in Canada, the government's Open Data User Stories repository[98] features diverse narratives that showcase how open data is used across various sectors and by a range of stakeholders.

Insight for empowering digital government in Thailand:
To address the lack of understanding of the benefits of open data among its potential users of open data, including government agencies advocating for increased openness, one solution could be to establish a repository of success stories. This collection of use cases would demonstrate the diverse utilisation of open data across different sectors and by various stakeholders. This directly addresses a challenge raised by interviewees and workshop participants regarding the lack of understanding of the benefits of open data.

Challenges in policy implementation and enforcement

The absence of formal action plans for open data implementation means that reliance is solely placed on the goodwill of the government agencies that generate the data. This has two key consequences: first, there are limited enforcement mechanisms for data updates, resulting in inconsistencies. Second, there is a perception amongst interviewed stakeholders that national open data portals, such as those managed by

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[96] Statistics Canada (2023), 'The Open Database of Buildings'.

[97] McMurren, Juliet, Verhulst, Stefaan and Young, Andrew (2016), 'Opening Canada's T3010 Charity Information Return Data'.

[98] Government of Canada (2023), 'Open Data user Stories'.

the DGA, lack institutionalised support, leading to further irregularities in dataset publication and updates.

Stakeholders advocated for stronger leadership and commitment to open data in order to enhance collaboration and ensure the effective implementation of open data initiatives. Interestingly, one of the interviewed departments noted that, this year, the department will focus on how to enhance the quality of data. As part of this process, staff will have to identify what constitutes quality data in their case and will develop a checklist for quality of data. It will be interesting to see how this checklist will correspond with existing DGA materials and guidance on publishing and sharing data. There may be opportunities for the DGA to engage more closely with this process and identify whether there is the precedent to encourage other departments to conduct a similar exercise.

Through this collaborative process, the DGA can empower departments across Thailand's government to have a sense of agency over the quality of the data that they are stewarding and, potentially, making openly available. This could also help departments address any staff concerns regarding publishing data openly, as this was raised by almost all stakeholders as an obstacle. Relatedly, we found an emphasis on the need to recognise the departments that model best practice with open data. It was noted that some awards already exist that acknowledge departments that are doing well in this regard. However, there might be an opportunity to expand these further to recognise innovative initiatives that departments are experimenting with.

Another challenge raised across departments was the amount of time and effort spent on prioritising sensitive data, as this requires more care and consideration when selecting what data can be made openly available. This is a challenging process for all governments when determining what data can and should be made openly available. However, there are examples that can be drawn on as a basis, such as the recent guidance from the UK's National Protective Security Authority on 'Security-Minded approach to Open and Shared Data'.[99]

Creating clear guidance can give prospective publishers of open data greater confidence that they are in adherence with what is necessary when dealing with particularly sensitive datasets. This can be supplemented by additional guidance that specifically looks to address issues relating to the privacy of sensitive data. In the UK, this includes examples such as the

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[99] National Protective Security Authority (2023), 'Security-Minded approach to Open and Shared Data'.

Information Commissioner's Office (ICO) code of practice on managing data protection risk through anonymisation.[100] In joining up these related domains of expertise, more comprehensive guidance can be made available for governmental staff, to provide them with the confidence that they are handling data in accordance with policies and that they will be in compliance with these requirements.

A current obstacle to adherence to publishing more open data is that a clear guideline is needed for all agencies to be on the same page before setting KPIs for open data. These are normally set for Thai government agencies by the Office of the Public Sector Development Commission (OPDC). It could be worth exploring how this process currently is carried out and whether there is adequate consultation between the OPDC and agencies, as well as between agencies themselves. This exercise could also facilitate the sharing of practices and learnings and foster greater collaboration on open data publishing by agencies of the Thai government.

Case study: Open data in Uruguay

Uruguay stands as a leader of open data in Latin America, setting a high standard for transparency and citizen engagement. Leading the Global Open Data Index alongside Colombia, Uruguay ranks 12th globally, the highest in Latin America, showcasing its commitment to transparency and accessibility. Internationally recognised for its digital government quality, information security, interoperability and citizen services, Uruguay has garnered acclaim for its recent strides in e-participation and online service provision.

Key Achievements:
- *Building an open data portal*
  The establishment of dedicated platforms such as the Public Data Portal[101] and the National Open Data Catalog[102] has democratised access to government information, fostering transparency and accountability. The open data agenda and platforms are spearheaded by the President of the Republic's Agency for the Development of Electronic Government and Information Society and Knowledge (AGESIC). Since its establishment in 2005, Uruguay's e-government strategy has transformed public service delivery and promoted an inclusive

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[100] Information Commissioner's Office (2012), 'Anonymisation: managing data protection risk code of practice'.

[101] Sitio oficial de la República Oriental del Uruguay, 'Datos Abiertos'.

[102] Gub.uy, 'Catalogo de datos abiertos'.

information and knowledge society. The Open Data Catalog contains 2,452 datasets spanning 22 categories, including culture, sports, social development, economy, education and statistics, contributed by 60 publishing organisations.

- *Open data partnerships*
  Collaborative efforts between civil society and government entities have resulted in innovative applications like A Tu Servicio,[103] which was honoured at the Open Government Partnership (OGP) Summit in Mexico in 2015.[104] This platform, developed by DATA Uruguay in partnership with the Ministry of Health, leverages open health data to provide accessible and visually represented health insights to citizens.[105]

Insight for empowering digital government in Thailand:
Legislative measures, such as enacting laws similar to Uruguay's Open Data Law of 2015, can provide a clear framework for open data governance and streamline data publication processes. Institutionalising a national open data policy and enforcing compliance are necessary for long-term sustainability. Civil society involvement should be encouraged through any multi-stakeholder initiatives in order to promote transparency, while integrating open data education into formal curricula can help cultivate a data-literate workforce. Supportive regulations should be enacted to facilitate data sharing and promote a culture of openness across sectors. Finally, encouraging private sector participation can diversify available datasets and foster innovation. This whole-of-society approach can help to communicate both the benefits and roles that can be played by different sectors of society when efforts are made towards making data openly available.

Open data infrastructure

When asking interviewees what data they would like to have made openly available or shared more widely, one respondent noted the importance for greater collaboration between government departments to make sure that open data is used. One of the greatest obstacles to this is the awareness of the existence of particular datasets, which is related to the findability of data on platforms. There was uncertainty as to whether data that they wanted was already available on the government data platform, which indicated that there remain some difficulties with this.

Another interviewee noted that they would benefit from data that they believed that regulatory agencies might already have, yet they were unaware if this was in fact true. This finding highlights the importance of enabling open data infrastructure that accompanies the data itself. In cases where data cannot be made openly available, it can be useful to consider cataloguing what data is available. An example of this is the UK's

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[103] A Tu Servicio, http://atuservicio.uy/

[104] Open Government Partnership (2015), 'Open Government Partnership Global Summit Mexico'.

[105] Open Data Handbook, 'Saludos - health and open data in Uruguay and Argentina'.

Coal Authority's geospatial data catalogue.[106] Making these public-facing inventories available can facilitate requests for data and reduce uncertainty around what types of data different departments and agencies hold.

Optimising ways of working and efficiency around open data

Improving efficiency in open data processes is paramount to ensure prompt and effective data dissemination. The current process of obtaining approval for open datasets often involves prolonged deliberation among various government agencies, resulting in significant delays. The lack of streamlined workflows and coordination exacerbates this inefficiency. Moreover, insufficient human resources, and requests for additional data and documentation made at short notice, contribute to what are considered additional administrative burdens for government departments.

The DGA could adopt a specific inbox for queries from different departments and develop a triaging process to respond to these requests in a timely manner. As part of this, it can be helpful to consider the management of expectations through providing an estimated response time frame based on the volume of requests being processed at the time.

One interviewee noted that their department shares additional data according to the requests they receive, which can also serve as an indicator of which types of data should be considered to make openly available. Conducting an exercise to quantify the number and types of requests received across government for particular data can inform the opening of additional datasets, where appropriate, which can in turn create efficiencies for departments by reducing the number of requests they need to respond to for additional data. This echoes a finding from the ODI's previous work with the UK's Metropolitan Police,[107] which sought to reduce the amount of time the organisation spent responding to freedom of information access requests by publishing more datasets openly.

It is, however, worth noting that making these frequently-requested datasets openly available will only provide benefits if they are easily findable and if department staff can easily query whether such data has already been made available. This adds emphasis to the need for robust open data infrastructure, such as an open data catalogue that can provide additional details of what data is included in the datasets, and the associated metadata. As noted, resources are already limited, so it would

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[106] Coal Authority (2019), 'Geospatial Data Catalogue: Coal Authority'.

[107] ODI (2022), 'Metropolitan Police Open Data Strategy'.

be essential to demonstrate the value, such as the time savings possible, through investing effort into making data openly available by default.

Case study: Open data in Slovakia

Slovakia has made significant strides in enhancing its open data ecosystem, as evidenced by its improved ranking in the 2023 EU Open Data Maturity assessment.[108] The country's commitment to open data maturity within the EU has been underscored by various initiatives aimed at bolstering transparency and collaboration. Slovakia is part of the Open Government Partnership and set up a reviewed action plan for 2022-2024.[109]

Key achievements:
- *Building a new open data portal*
  The portal was created within the project 'Electronic Services of Government Office of the Slovak Republic – eDemocracy and open government', financed from the resources of the European Union. Improvements were not solely confined to a software solution but also encompassed enhancements in the technological security of its operation. The portal hosts diverse datasets from obligated entities in Slovakia, accessible via direct links or search. It also offers data storage options and visualisation tools tailored to different data types and uses.

- *Development of training programmes for data stewards*
  Targeted training sessions were organised to enhance the knowledge and skills of civil servants and data stewards. These initiatives served as valuable platforms for networking and fostering discussions on open data practices among government officials.

- *Communication and collaboration*
  A dedicated methodology portal and working group sessions were established to facilitate communication and knowledge-sharing among stakeholders. Common commitments and collaborative activities were forged across government agencies, bolstered by partnerships with civil society organisations and participation in the Open Government Partnership.

- *Participatory approach to open data impact assessment*
  The development of the open data impact methodology was characterised by a participatory approach, engaging multiple stakeholders in the process. This inclusive approach ensured that diverse perspectives were considered, leading to a more comprehensive and effective assessment framework.

- *Development of a simple open data impact methodology*

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[108] data.europa.eu (2023), '2023 Open Data Maturity Report'.

[109] Open Government Partnership (2023), 'Slovak Republic Action Plan Review 2022-2024'.

A comprehensive methodology was devised to evaluate the impact of open data initiatives, focusing on their accessibility, utilisation and overall impact within government sectors. This methodology incorporated high-value datasets, particularly those relevant at the governmental level, to ensure its wide-ranging applicability. Stakeholder workshops were convened to refine the methodology, resulting in the establishment of a robust framework for measuring the impact of open data initiatives in 2022 and 2023. Notable examples of these initiatives include projects such as Open Wood, which addresses critical issues in Slovakia's forestry sector and facilitates transparent decision-making in timber-related matters. Additionally, the 'Atlas of Roma Communities'[110] initiative assists government efforts in allocating resources to marginalised communities, illustrating the tangible benefits of open data initiatives in addressing societal challenges.

Insight for empowering digital government in Thailand:
A key challenge regarding open data in Thailand is the government's limited understanding of open data benefits. Collaborating on an actual, simple and efficient open data methodology could inform agencies about its impact and advance the open data agenda, fostering progress from the outset of data strategies.

Challenges in obtaining data from government departments

Through our research, we found that obtaining data from government departments proves to be highly challenging due to a lack of internal coordination. It appears that the primary role of IT is not to advocate for open data initiatives, but rather to facilitate technical processes across different teams. It was observed that the focus on engaging IT practitioners may be misplaced, as they do not have ownership of the data. Instead, there is a need to raise awareness among individuals who possess ownership of the data but may not fully appreciate its value. While IT professionals are generally supportive, their capacity to drive open data strategies may be limited. Thus, there is a clear need to identify and engage the appropriate stakeholders within government agencies who have the authority to promote open data plans and strategies. Furthermore, the scope of awareness-raising efforts should extend beyond IT departments to encompass the entire organisational structure.

Lack of communication and data sharing across Thai government

There was a consensus that various government entities lack effective

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[110] rroma.org (2018), 'Slovakia: Atlas'.

communication channels, particularly concerning data. When discussing open data initiatives, it is imperative to address data-sharing practices within the Thai government. The Data Spectrum illustrates the interconnectedness of data sharing and open data initiatives. To advance the open data agenda, enhanced collaboration and communication among different government agencies and departments is crucial. This was identified as a significant barrier.

In this section, we have raised the key findings of our research interviews and workshops. We have grouped these into areas that we believe are distinct, addressable and can help inform the development of activities to increase the publication and use of open data to empower Thailand's digital government. Where possible, we have accompanied these findings and potential actions with relevant case studies that have been trialled in countries that are making great strides in publishing and using open data. In the final section of the report, we set out our suggested next steps and recommendations for further consideration by DGA and other government agencies in Thailand.

Next steps and recommendations

The following recommendations have been prioritised based on the frequency with which related issues were raised throughout the interviews and workshops, leading with those where issues were consistently raised. On this basis, we believe that the greatest return can be achieved in focusing efforts towards the recommendations in sequence, however it should be noted that the recommendations will require different levels of effort. Where possible, we have tried to provide an indication of this.

1. **DGA should consider enhancing awareness and understanding of the PDPA and its compatibility with open data principles.**

- It is apparent that it would be beneficial to raise awareness of how open data initiatives can coexist with data protection laws. This is increasingly the case with the development of new data governance means and technologies, such as privacy-enhancing technologies (PETs). DGA could consider developing guidance

similar to the UK's Security-Minded approach to Open and Shared Data.[111] This could build on the DGA's Open Data Process Quick Guide.[112]

- Efforts should be made to strengthen the journey between 'secure by default' and 'open by default'. This can be done through greater communication of the message that publishing open data does not go against data protection regulations, throughout both the Thai government and society.. 'Open by default' does not imply disregarding privacy, security, or legal and ethical considerations when striving to establish open data. Instead, it acknowledges the concept of the 'spectrum of openness' (see The Data Spectrum). This spectrum illustrates that data availability exists along a continuum that can range from being accessible to individuals or specific groups to being open to anyone.
- Encouraging and retaining a commitment to an 'open data by default' approach requires continued education and awareness raising campaigns. Despite initial challenges, emphasising the long-term benefits of open data and fostering cultural change within agencies is vital.

2. **The DGA should advocate for organisations promoting open data to emphasise data reuse and its benefits, including increased productivity, efficiency, transparency, and citizen trust in government.[113]**

- A key finding was that many stakeholders still need further convincing of the tangible benefits of open data. The more evidence that can be gathered on these benefits, the stronger the case that can be made for more open data. This is not a minor undertaking and will require time, resources and investment. However, there are existing efforts from which to take inspiration, including the case study featured in this report on open data in Canada.
- Encourage data reuse to enhance the utilisation of open data, ensuring that data publication serves specific objectives through open innovation initiatives including sandboxes, hackathons, open data challenges and awards.

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[111] National Protective Security Authority (2023), 'Security-Minded approach to Open and Shared Data'.

[112] DGA (2020), 'Open Data Process Quick Guide'.

[113] OECD iLibrary (2022), 'Open and Connected Government Review of Thailand'.

- If open data challenges demonstrate effectiveness as an innovation-led approach, DGA and other pertinent government entities can leverage resources such as the ODI-Open Data for Development (OD4D) method guide[114] and the Nesta-ODI Open Data Challenge Series Handbook[115] to structure and execute suitable challenges. Studies indicate that economic multipliers resulting from open data challenges could range from five to 10 times.[116]

3. **The DGA could contribute to improving data licensing and standards across Thailand's government through creating additional guidance and resources for agencies.**

- Open standards can support better quality data by providing rules on what to share and how to share it. Standards for exchanging data specify common formats and shared rules that lead to consistent data. A good standard for data exchange solves a specific problem and provides tools to check that data has been properly structured.
- The DGA could consider undertaking a review of existing open data standards that could be adopted or adapted before creating new ones.
- There are lots of tools to find open standards,[117] from schema.org to the open data standards directory.[118] When selecting an open standard to use, ensure you are assessing it correctly.[119] Use or adapt a checklist for choosing open standards to ensure the selected one is fit for purpose.[120]
- In some instances, it may be advisable to create an open standard. This is time – and resource – intensive and requires significant understanding of the problem that requires solving, the other organisations and technologies in the ecosystem, the community of potential users, and how to ensure sustainability. Following existing guidance on developing a standard can be helpful if this approach is chosen.

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[114] ODI (2017), 'What works in open data challenges'.

[115] Nesta and ODI (2015), 'Open Data Challenges series Handbook'.

[116] ODI (2015), 'Investment in Open Data Challenge Series could see 5 to 10-fold return to UK economy over 3 years'.

[117] ODI (n.d.), 'Open Standards for Data'.

[118] Open Data Standards Directory (2017).

[119] ODI (n.d.), 'How to choose an open standard'.

[120] ODI (n.d.), 'A checklist for choosing open data standards'.

4. **The DGA should work towards improving data quality and making it machine-readable to increase data usability.**

- If not already done, each dataset should have a link to its corresponding licence, dedication, or terms of use in a format readable by machines. For a start, open data catalogues should include, for each dataset, the name and official URL of the applicable licence, dedication, or terms of use in a machine-readable format. It is advisable to limit the number of open data licences and dedications used by a catalogue to one. Additionally, metadata elements such as data format, update frequency, and spatial and temporal coverage should be provided and monitored. A defined list of data formats for publishing open data should be established and adhered to so as to minimise confusion amongst users. This would benefit, again, from explicit DGA guidance.
- Establishing standardised data formats and communication protocols is essential to streamline data-sharing processes and avoid inconsistencies across different departments and agencies. Therefore, it is recommended to establish clear guidelines for data formats and communication standards, and to disseminate this information effectively to all relevant parties within government organisations.

5. **Perform a gap analysis between current open data literacy levels and required skills, and develop a training plan.**

- The DGA and other relevant government bodies should explore conducting a data literacy assessment, utilising the Data Skills Framework,[121] across various government departments. This assessment aims to ensure that agencies align their workforce's expertise with organisational objectives by striking a balance between leadership and technical proficiency – depending on the roles and responsibilities required by each department or agency. Subsequently, these agencies should develop a tailored data literacy programme for their employees based on the identified needs from the assessment.
- Furthermore, government representatives within the DGA and related agencies should undergo training to become advocates for crucial elements of publishing and using open data.
- Moreover, it is essential to equip all government personnel with training resources to comprehend the fundamental aspects of open

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[121] ODI (2020), 'Data Skills Framework'.

data and its accessibility to users. The ODI's e-Learning courses on Open Data Essentials[122] and Finding Stories in Data[123] offer a diverse range of introductory materials suitable for individuals new to the subject or seeking a refresher.

6. **The DGA should consider open data and data sharing as a continuum.**

- Our research has shown the substantial economic impact of data institutions across diverse sectors.[124] We recommend that the DGA considers exploring the potential of data institutions to drive economic growth and social impact, to complement efforts towards empowering the Thai government through open data.
- It is important for the DGA to identify and map out various roles that data institutions could fulfil in Thailand, while encouraging other regulators to do the same. Furthermore, in sectors without official public regulators, the Thai government should consider leveraging industry organisations, trade bodies and unions to undertake data institution roles, which may include facilitating data sharing and empowering individuals to engage in data stewardship activities.
- The DGA and other relevant government agencies should explore more participatory approaches, such as 'bottom-up data institutions',[125] to ensure that citizens and businesses are able to contribute to decisions that are being made around how data is collected, maintained, shared and then published by government agencies.
- The DGA should collaborate with existing international and regional data institutions, such as Open Net Zero and Open Development Mekong, to understand how they approach complex data collaboration.[126]
- We suggest running a series of workshops, drawing inspiration from successful data institutions such as Stream or OpenActive, aimed at assisting the DGA and other government bodies in establishing their own data institutions to steward data responsibly. These workshops can provide customised guidance, interactive learning opportunities and continuous support, while sparking discussions among government agencies. They will also provide

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[122] ODI (n.d.), 'Open Data Essentials'.

[123] ODI (n.d.), 'Finding Stories in Data'.

[124] ODI (2022), 'Measuring the impact of data institutions'.

[125] ODI (2021), 'What are 'bottom-up' data institutions and how do they empower people?'.

[126] Open Development Initiative (2015), 'Open Development Mekong'.

the DGA with practical strategies and resources, creating a culture of data-driven decision-making and innovation.

7. **The DGA should consider looking to establish clear collaboration guidelines for agencies, and enhance communication channels about open data.**

- Designating focal points for urgent queries and improving accessibility to DGA resources would facilitate smoother operations and promote a more efficient open data environment.
- These 'open data champions' could serve as a primary contact within government agencies, to whom colleagues could turn for assistance or queries on matters related to making data openly available, or using open data. These champions should also be tasked with advocating for open data policies, coordinating efforts across different departments, and ensuring compliance with relevant regulations such as the PDPA.

8. **Establishing strong partnerships through multi-stakeholder engagement is recommended**. **By aligning partnerships with strategic priorities and societal needs, the Thai government can maximise the impact of open data initiatives and foster a culture of data-driven decision-making across various sectors.**

- Fostering partnerships between government agencies is recommended, to ensure coordinated efforts in open data initiatives. This collaboration will facilitate the exchange of data resources, best practices and technical expertise among different governmental bodies, ultimately enhancing the accessibility and usability of government data.
- Partnerships between the private sector and civil society organisations should be encouraged, particularly on issues relevant to government data.[127] Collaborative efforts between these sectors can contribute valuable insights, resources and innovative solutions to address complex challenges related to data sharing, privacy concerns and data-informed policymaking. By leveraging the expertise and perspectives of diverse stakeholders, such partnerships can lead to more inclusive, transparent and impactful open data initiatives.

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[127] OECD iLibrary (2022), '_Open and Connected Government Review of Thailand_'.

- The DGA could also consider, if it is not already doing so, the possibility of becoming a member of an international initiative, such as [Open Government Partnerships](#).[128]

9. **The DGA and other pertinent government agencies should prioritise the integration of data ethics into their organisational data processes.**

- Utilising the ODI's Data Ethics Canvas[129] or the Data Ethics Maturity Model[130] can serve as a foundational assessment to evaluate the extent to which a data ethics culture and accompanying practices are integrated throughout an organisation.

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[128] [Open Government Partnerships](#) (2024)

[129] ODI (2021), '[The Data Ethics Canvas](#)'.

[130] ODI (2022), '[Data Ethics Maturity Model: benchmarking your approach to data ethics](#)'.

Appendix: Methodology

Through this work, the ODI research team sought to identify opportunities for DGA to empower Thailand's digital government with open data. As a first step in this research, the ODI conducted desk research, with a focus on:

- assessing the legal, regulatory and ethical context of the Thai national government data ecosystem
- assessing the data infrastructure context of the Thai national government data ecosystem

As a second step, the ODI conducted a baseline analysis to determine how government agencies are using open data, identify some of the present obstacles to greater use and explore opportunities to make improvements. The ODI collaborated with Bolliger & Company (Thailand) for this stakeholder engagement, which involved interviews and three workshops.

Interviews were conducted to further explore the use cases, understand the challenges and barriers of each, and test initial proposed means of addressing them. The following organisations took part in the interviews:

- Office of the Public Sector Development Commission (OPDC)
- National Electronics and Computer Technology Centre (NECTEC)
- National Statistical Office (NSO)
- Office of the National Digital Economy and Society Commission (ONDE)
- Digital Government Development Agency (DGA)
- Customs Department
- Pollution Control Department
- Department of Disease Control

Three workshops were organised to explore the wider ecosystem of open data across the Thai government, with a specific focus on current attitudes and barriers to the broader publication and use of open data. The third of these workshops was designed as a capacity-building workshop, based on the findings of the research, with tailored content that addressed some of the present challenges identified across Thai government agencies to the greater use of open data. Details of the three workshops are as follows:

Workshop 1 – 'Open data maturity'
The 24 attendees included representatives from ODI, DGA, the British Embassy, Bangkok, the Department of Business Development, National Statistical Office, Thailand Institute of Justice, Department of Mineral Resources, Ministry of Tourism and Sport, Department of Pollution Control, Office of Public Sector Development Commission and Office of the Permanent Secretary, and the Ministry of Labour.

Workshop 2 – Presentation of initial findings and recommendations
The 11 attendees included representatives from ODI, DGA and the British Embassy, Bangkok.

Workshop 3 – 'Open data capacity building'
The 35 attendees included representatives from Ministry of Tourism and Sport, Department of Pollution Control, The Office of SMEs Promotion (OSMEP), Ministry of Commerce, National Research Council of Thailand, Thailand Institute of Justice, Ministry of Finance and Office of the Permanent Secretary, Minister of Finance, Office of Agricultural Economics, National Housing Authority, Ministry of Digital Economy and Society, Department of Business Development, Department of Highways and the Ministry of Labour.

These three workshops also served as opportunities to gather further input to inform this report. In the third workshop, this involved discussion amongst participants regarding the feasibility of the preliminary recommendations, suggested based on the findings from the research interviews and first two workshops. This feedback then informed the prioritisation of the recommendations included in this report.