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MAY 2017

THE MALAYSIA DEVELOPMENT EXPERIENCE SERIES

Open Data Readiness Assessment



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Please contact Carolina Luisa Vaira (cvaira@worldbank.org) or Bernard Myers (bmyers@worldbank.org) if you have questions or comments with respect to content.

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Disclaimer

The analysis and recommendations in this Open Data Readiness Assessment are based on information and opinions collected from interviews undertaken and materials provided by the government and other local stakeholders during this study. This Open Data Readiness Assessment is not based on detailed, legal due diligence and does not constitute legal advice. Accordingly, no inference should be drawn as to the completeness, adequacy, accuracy or suitability of the underlying assessment of, or recommendations or any actions that might be undertaken resulting therefrom, regarding the enabling policy, legal or regulatory framework (including institutional aspects thereof) for open data in the country.

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List of Acronyms

| | |
|---------|--|
| 11MP | 11th Malaysia Plan |
| API | Application Programming Interface |
| ATI | Access to Information |
| CC | Creative Commons |
| CIO | Chief Information Officer |
| CONVEX | Convention and Exhibition |
| CSO | Civil Society Organization |
| CSV | Comma-Separated Values |
| CTO | Chief Technology Officer |
| DOSM | Department of Statistics Malaysia |
| DRSA | Public Sector Big Data Analytics |
| EPU | Economic Planning Unit |
| ETP | Economic Transformation Programme |
| G2G | Government to Government |
| GB | Gigabyte |
| GDP | Gross Domestic Product |
| GeoJSON | Geographic JavaScript Object Notation |
| GLC | Government-Linked Corporation |
| GODUG | Government Open Data User Group |
| GTP | Government Transformation Programme |
| ICT | Information and Communication Technology |
| IEC | International Electrotechnical Commission |
| INTAN | Malaysian National Institute of Public Administration |
| IRB | Inland Revenue Board |
| ISO | International Organization for Standardization |
| IT | Information Technology |
| ITU | International Telecommunications Union |
| JPICT | ICT Steering Committees |
| JPN | National Registration Department of the Ministry of Home Affairs |
| JTISA | Public Sector ICT Technical Committee |

| | |
|---------|---|
| KTM | Keretapi Tanah Melayu or Malayan Railways Limited |
| MAMPU | Malaysian Administrative Modernisation and Management Planning Unit |
| Mbps | Megabits per second |
| MCMC | Malaysian Communications and Multimedia Commission |
| MDEC | Malaysia Digital Economy Corporation |
| MoF | Ministry of Finance |
| MoSTI | Ministry of Science, Technology and Innovation |
| MYR | Malaysian Ringgit |
| NBOS | National Blue Ocean Strategy |
| NITC | National Information Technology Council |
| NSO | National Statistics Office |
| OBI | Open Budget Initiative |
| ODRA | Open Data Readiness Assessment |
| ODUG | Open Data User Group |
| OGP | Open Government Partnership |
| OSA | Official Secrets Act |
| PDF | Portable Document Format |
| PDPA | Personal Data Protection Act |
| PEMANDU | Performance Management and Delivery Unit |
| SME | Small and Medium Enterprise |
| SSM | Companies Commission of Malaysia |
| TIG | Technology Innovation for Globalization |
| ToU | Terms of Use |
| XBRL | eXtensible Business Reporting Language |



Foreword

The digital revolution upswell surpasses conventional Information Communications Technology (ICT) tools in a profound way, mutating and revolutionizing the geo-political and socio-economic landscape of many nations, including Malaysia.

As Malaysia navigates new frontiers of this digital revolution, efforts are underway to harness the power of open data for enhanced public service delivery and accountability. It is also timely to accelerate this movement, resonating the announcement made by the Honorable Prime Minister, Dato' Sri Mohd Najib Tun Abdul Razak, that 2017 will be The Year of the Internet Economy for Malaysia.

At the closing ceremony of the 28th Malaysia Implementation Council Meeting (ICM) held on 13th October 2016, the Honorable Prime Minister urged government agencies to remain agile in the face of upcoming challenges and realities of the digital revolution, which is coming at us at lightning speed. Thus, it is imperative for us, at the Malaysian Administrative Modernisation and Management Planning Unit (MAMPU), Prime Minister's Department, to embrace this digital revolution, being the central agency entrusted to spearhead the modernization of administration and transformation of public service delivery.

In this regard, MAMPU has embarked on citizen-centric initiatives built on open data as part of a larger transformative effort across and beyond the public sector. Through increased data sharing, we are committed to developing national open data initiatives as the building blocks for improved quality of life.

“Many governments across the globe are publishing official data and making it readily available online to empower the public and various civil society organizations, leveraging on existing datasets to improve the way we do things or conduct our daily transactions.”

Many governments across the globe are publishing official data and making it readily available online to empower the public and various civil society organizations, leveraging on existing datasets to improve the way we do things or conduct our daily transactions. There is tremendous potential in this movement to derive meaningful ideas, insights and innovation. Similarly, here in Malaysia, several key initiatives have been undertaken by MAMPU, such as the Government Open Data and Big Data Analytics, to produce high quality shared content for the benefit of all.

In order to advance the open data initiative, MAMPU has established a long term collaboration with the World Bank, through the Open Data Readiness Assessment (ODRA) from 31st October 2016 to 8th November 2016. Additionally, we are also proud to say that Malaysia is the first country in ASEAN to adopt the ODRA methodology.

Findings from this report offer encouraging insights with specific recommendations for government agencies, business leaders, civil society, academia and the community at large. In my personal view, the most important recommendation is the need to strengthen partnerships across government, businesses and civil society organizations to propel the data-driven economic development agenda. I believe that with a solid mechanism in place, we could unleash the full potential of open data as we move towards achieving the national goals of the 11th Malaysia Plan, as well as a top 30 ranking in the Global Open Data Barometer by the year 2020.

All constructive views and suggestions gathered from ODRA team members will be transformed into action plans in setting the direction for the

coming years. I would like to take this opportunity to express my deepest gratitude and appreciation to all participants and relevant parties for making this program a huge success. Many thanks are also due to the experts from both the World Bank Group Global Knowledge and Research Hub in Malaysia and the World Bank Headquarters, for their close collaboration in working with our team at MAMPU.

Finally, I hope this cooperation formed for the open data initiative will forge many more concerted programs between MAMPU and World Bank.

Thank you.

Dato' Dr. Mazlan Yusoff

Director General
Malaysian Administrative Modernisation and
Management Planning Unit (MAMPU)
Prime Minister's Department



Executive Summary

Country Context on Open Data and ODRA

Countries around the world are witnessing the emergence of new information and communication technologies (ICT) which are poised to radically change the relationship between citizens and Governments. This trend is complemented with an increased willingness from Governments to open-up data and to create innovative channels to connect with citizens.

As a growing number of countries look to the digital economy for innovation and growth, open data has an important role to play. Open data, which is proactively and freely published in machine readable formats has the potential to create tremendous economic and social value by improving service delivery, supporting more transparent and accountable governments, and fostering economic growth.

The Government of Malaysia has joined this global trend by recognizing the potential of open data and placing a strong emphasis on improving information and communications technology within the public sector, with a specific focus on e-Government and open data. The 2011 Tenth Malaysia Plan specifically identified e-Government and open data as critical elements in the move towards more effective, transparent and accountable public service delivery. This focus and the aim to harness the power of data is carried forward in the “Eleventh Malaysia Plan” (2016-2020) that clearly articulates the country’s intention to use data-driven governance to improve citizen-centered service delivery, increase responsiveness, and strengthen accountability through greater transparency.

Building on “Eleventh Malaysia Plan” (2016-2020) and the aim of Malaysia to become a high-income nation by the year 2020, government

agencies were urged to strategically prepare for future challenges and the reality of a digital revolution which is moving at a very fast pace. In order to move ahead with these efforts, MAMPU has been assigned responsibility to drive forward the digital government agenda, and plays a leading role in consolidating data and serving as an information broker between various public and private stakeholders.

However, while Malaysia has made some good progress in moving towards a more open environment, more work is needed to align the actual practice and experience with open data with the country’s aspirations. Immediate steps are needed to ensure that the expected benefits of openness – improved citizen voice, enhanced accountability, and better service delivery – are not deferred.

It is within this particular context that MAMPU requested the support of the World Bank Group to carry out the Open Data Readiness Assessment (ODRA) exercise to evaluate the open data environment in Malaysia in a more holistic manner. The assessment includes reviewing the availability of data, the legal and regulatory framework, relevant cultural and behavioral elements, the inter-agency and inter-ministerial coordination, the demand and need of data inside and outside of government, and all of the factors which help translate data openness into results.

Malaysia is the first country in ASEAN to implement the ODRA methodology to assess its readiness, the existing challenges and opportunities, while identifying actions required to move the open data program ahead.

ODRA Main Findings and Recommendations

The ODRA exercise in Malaysia focused on how open data could support the government efforts to move towards more effective, transparent and accountable public service delivery to the citizen. It also aims at identifying targeted actions that can help achieve these objectives, while also raising the country's ranking globally to the top 30 in the Global Open Data Barometer by the year 2020 (from a rank of 51 in the year 2015).

The overall conclusion of the ODRA exercise is that Malaysia is well-placed to realize significant socio-economic gains from open data if it can successfully address some remaining obstacles to openness. The assessment reveals that the country has many of the necessary building blocks in place including: a) an active open data program, b) strong technical capacity amongst line agencies, and c) data already collected and digitized across different sectors. Malaysia could achieve progress and create significant value by connecting these existing components. In particular, the Government must address a number of key issues related to the existing fragmented policy environment, data management challenges, and the still-limited public engagement around data.

A summary of the main findings and recommendations for each of the ODRA dimensions are detailed below:

1. Senior Leadership

| Assessment | Importance | Remarks |
|---|------------------|---|
|  <p>YELLOW</p> <p>Tending  Green</p> | Very High | A national open data program exists, and general support for the concept is high. However, increasing open data buy-in amongst data-owning agencies is still a critical issue to be addressed in Malaysia. Stronger sense of purpose for open data as an instrument for impact may yield additional champions. |

While there is high-level commitment for both open data and big data, with MAMPU and MDEC leading efforts for the public and private sectors respectively, there is still a need to increase open data buy-in amongst data-owning agencies in Malaysia. Visible public Ministerial support exists for open data, and an open data program coordinated by MAMPU has already been launched. Around 50 agencies have already contributed in some way to this open data program, showing support for the general notion of data openness. In general terms the overall national priorities are well-aligned with open data aspirations, which stand to serve as a valuable tool for achieving results at both the individual agency and national level. However, there is still need to address resistance and inertia among some data owners in order to incentivize them to make the necessary changes for data to be released in a timely and effective manner. Specific awareness on how open data can create value for various stakeholders has not yet fully emerged, which has slowed the emergence of visible champions amongst data-owning agencies beyond MAMPU.

2. Policy and Legal Framework

| Assessment | Importance | Remarks |
|--|------------------|--|
|  YELLOW | Very High | <p>While data availability is high, access to data is challenging and remains an area of concern among data users in Malaysia. The legal framework is fragmented, and poses an obstacle to more open data as well as to sustained publication. Minor fees charged for data requests are inefficient and act as a further barrier.</p> |

There is no single legal framework in the country that determines whether data can be opened or not making the legal environment for data management a source of some uncertainty and caution.

While the Official Secrets Act (OSA) only lists a few items explicitly, it mostly devolves decision-making power regarding confidentiality to agencies, allowing for differences in interpretation and application. Data exchanges, whether inter-agency or with non-government stakeholders, are decided on a case-by-case basis, with senior managerial approval necessary for most decisions. Data owners are not always confident about the application of general rules and regulations related to privacy and confidentiality, and individual agencies may also face specific internal data management regulations.

This situation creates a fragmented environment for data management that lacks clarity for both government and the public on how data can be requested, shared and used. Moreover, regulations that require the collection of fees in exchange for data sharing are common. Those fees seem to be small compared to the operating budgets of the data owners concerned, while significant costs are incurred when administering these usage fees and managing compliance. Agencies have strongly devolved responsibilities in deciding on the release or sharing of data, and in this devolution lies the opportunity to build on the general willingness to entertain data requests on an agency by agency basis. Once a decision to publish has been made, a Circular applies that specifies what terms to adhere to for open data.

The existing legal and regulatory framework would benefit from strengthening. Clarifying and/or strengthening the legal framework for key data areas, providing guidance on appropriate data release, and especially reducing the need for case-by-case decision-making on data sharing, will increase government efficiency and create better visibility for interested data users. As a more immediate action, MAMPU's Circular, which stipulates various steps for public agencies to decide on which data to open and how, needs to be implemented more systematically across government in order to see a clear improvement in this dimension. In a second phase, the current Circular could be revised to address a number of directives to be in line with international good practices: (a) all agencies should inventory their data holdings within 12 months, and (b) data should be open by default, non-open data should be the exceptions, and the exceptions should be clearly listed in the instrument.

3. Institutional Structure, Responsibilities and Capabilities within Government

| Assessment | Importance | Remarks |
|---|--------------------|---|
|  GREEN | Medium High | Clear lead institution, clear mechanisms for ICT projects. |

Malaysia is currently implementing an open data program, coordinated by MAMPU. Other agencies (e.g. DOSM, Ministry of Health, Ministry of Finance) have well-developed data competencies. There are several inter-agency mechanisms to coordinate ICT efforts. Chief Information Officers (CIOs) are common, yet Ministries and agencies have strong devolved powers in making their own decisions regarding ICT.

4. Government Data Management Policies, Procedures and Data Availability

| Assessment | Importance | Remarks |
|--|-------------|--|
|  YELLOW | High | Malaysia is a data-rich environment, but not much high-quality data is released in practice. There is little automated inter-agency data exchange, and fees are a hindrance to data users with little benefit to data owners. |

Although general guidance on data management policies and procedures exists, individual agencies largely retain authority to decide their own information management. This results in wide variation of data management practices across government. The interconnectedness and integration of government data is still sparse. Agencies know what data they hold, and are rich in digital data, although comprehensive inventories within agencies and/or across agencies are not available. There is strong demand for (more) internal data sharing, though usually dealt with on a case-by-case basis. The amount of openly shared data on the national open data portal is increasing, but there are still numerous cases where data fees apply to requests.

5. Demand for Open Data

| Assessment | Importance | Remarks |
|---|------------------|---|
|  YELLOW Tending  Green | Very High | CSOs, academia, and the business community articulate clear demand, though not all groups are well developed or organized. Case-by-case decision-making for data requests hinders responsiveness and predictability of data provision. |

Stakeholder demand for more high priority datasets, as well as more granular levels of data, is strong in Malaysia; therefore, the scope of open data could be usefully broadened. However, making data available does not guarantee it will be used. An interactive and collaborative engagement between government data owners and other private sector, civil society and academic data users would provide

important benefits on all sides in the current country context. By proactively looking for such engagements to happen data owners can help users to better understand the data, and improve the quality of how the data gets used. Moreover, this also provides an opportunity for data users to provide feedback and input to data owners on how data can be made even more useful and targeted.

6. Civil Engagement and Capabilities for Open Data

| Assessment | Importance | Remarks |
|---|-------------|---|
|  YELLOW Tending  Green | High | Notable ICT sector and apps exists, however, data journalism is not visible. Co-organized events occur, but more sustained interaction is possible after those events. |

Civic capabilities for open data are present in Malaysia including communities of app developers and large numbers of teams that participated in the hackathons that have been organized by the government. However, the demand-side ecosystem in the country is characterized by actors that are eager to get data but are not organized; thus their needs are not well-articulated to data owners across government. Some groups of infomediaries have emerged with academia, researchers and CSOs leading the demand for data, but with a less prominent role from journalists compared to other countries.

7. Funding Open Data Programs

| Assessment | Importance | Remarks |
|---|--------------------|---|
|  GREEN | Medium High | There are ongoing open data and big data programs and innovation funding. Acceleration likely lies in connecting existing elements, not increased funding. |

The Government of Malaysia is already making significant investments in running an open data program, with allocated resources. There is also government funding for big data efforts and e-government programs. On the demand side, innovation funding is available. Key actions to consolidating results from the open data program lie less in funding needs, and more on awareness-raising efforts.

8. National Technology and Skill Infrastructure

| Assessment | Importance | Remarks |
|---|-------------|--|
|  GREEN | High | High Internet usage, mostly mobile broadband. Start-up and coding communities active. |

Malaysians are well-connected, mostly through mobile broadband, and are active Internet and social media users. The ICT sector is well developed and growing. A wide variety of technical communities exists, and would appreciate more interaction with government around topics such as open data.

Overall Conclusion

The overall conclusion from Malaysia's open data readiness assessment is a mixed picture. On the one hand, Malaysia shows clear evidence of readiness in most of the eight dimensions of the ODRA, with six either already "green" or "tending to green." This portends an excellent foundation for realizing the socio-economic potential of open data. On the other hand, the two dimensions on which evidence of readiness is less clear – "yellow" – policy/legal framework and government data management policies/procedures – are significant barriers to achieving the vision laid out in the 11MP. They may also require a high level of national leadership to achieve consensus across government agencies on the scope of legislative, regulatory, and/or policy changes that need to be made to turn open data into a practical reality and regular occurrence for data users large and small. Indeed, these two dimensions, where evidence of readiness is less clear, may help explain why many users in Malaysia highlight significant difficulties in accessing high-quality data despite the country's data-rich environment.

Notwithstanding these challenges, Malaysia can begin to realize the enormous socio-economic benefits of open data without having to put significant new resources into the initiative. Most of the options outlined in this report can achieve real results with targeted efforts that build on the existing foundation. Indeed, government could create value by connecting the already existing elements and efforts of Malaysia's open data program, and grounding these efforts in the achievement of results at both the individual agency and national level. Malaysia has established institutional structures to manage the open data agenda, and leadership exists at senior levels of government. Moving forward, central agencies will need to shift away from a focus on operational work, and towards providing data owners with the motivation and the guidance required to open their data as a matter of routine, rather than exception.

In turn, data owners will be more likely to support the open data agenda if existing legal and policy uncertainties are addressed, and clear guidance on data sharing and publication is made available across government agencies. Moreover, they would more pro-actively support the country's efforts if they become more convinced of the demand for their data, and see open data as a tool to support the achievement of both individual agency results frameworks as well as broader socio-economic policy outcomes outlined in the 11MP. Drawing clear connections – with concrete examples – on how open data has helped the achievement of results at both the agency and national level will help create support for the proactive release and use of data.



Introduction and Methodology

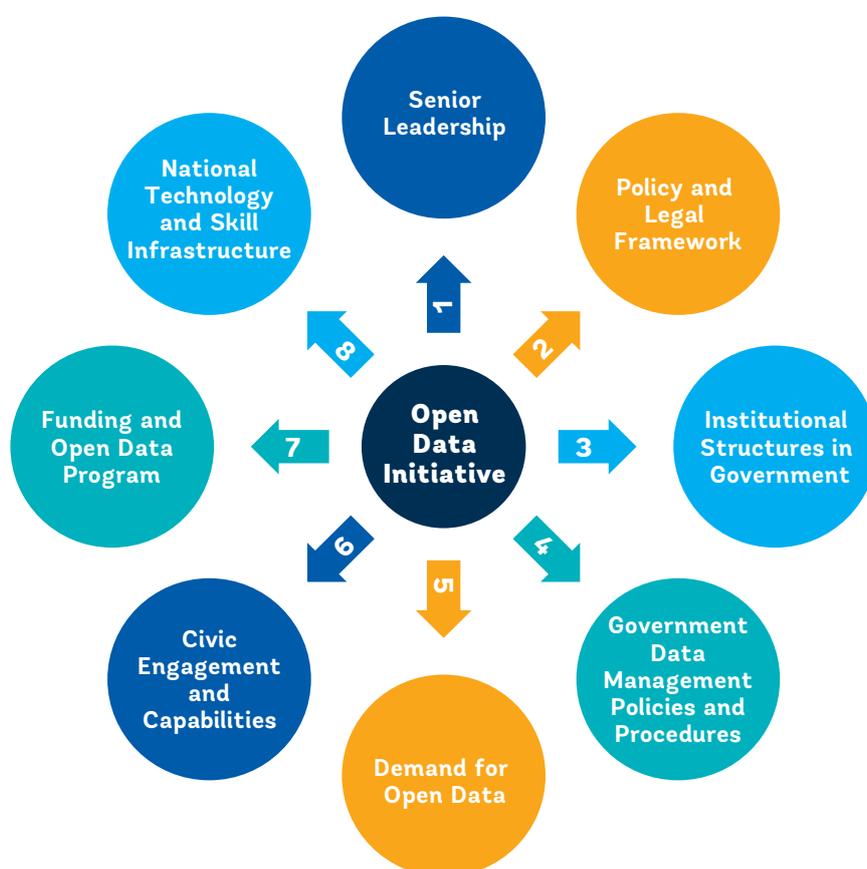
Introduction and Methodology

This “Open Data Readiness Assessment” was prepared for the Government of Malaysia, at the request of MAMPU. It is the product of a joint team of experts from both the World Bank Group Global Knowledge and Research Hub in Malaysia and World Bank Headquarters, working in close collaboration with MAMPU.

The purpose of this assessment is to assist the government in diagnosing what actions it could consider in order to further promote the existing open data initiative. An open data initiative involves addressing both the supply and the reuse of open data, as well as other aspects such as skills development, financing for the government’s open data agenda, and targeted innovations linked to open data infrastructure, policy and legal framework.

The World Bank Open Data Readiness Assessment Framework uses an “ecosystem” approach to open data, meaning it is designed to look at the larger environment for open data – “supply” side issues like the policy/legal framework, data existing within government and infrastructure (including standards) as well as “demand” side issues like citizen engagement mechanisms and existing demand for government data among user communities (such as developers, the media and government agencies).

This assessment evaluates readiness based on eight dimensions considered essential for an open data initiative that builds a sustainable open data ecosystem including:



The readiness assessment is intended to be action-oriented. For each dimension, it proposes a set of actions that can form the basis of an open data action plan. The recommendations and actions proposed are based on global best practices while also incorporating the needs and experiences of the Government of Malaysia to date. Within each dimension, the assessment considers a set of primary questions, and for each, notes evidence that favors or disfavors readiness.

The evaluation of each dimension and primary question is color-coded:

-  Green (G) means there is clear evidence of readiness
-  Yellow (Y) means that evidence of readiness is less clear
-  Red (R) means there is evidence for absence of readiness
-  Grey (O) means insufficient information to assess readiness

When addressing the questions used for assessing each of the dimensions the following measures are used:

-  Evidence of readiness is scored with a "+" sign.
-  Evidence against readiness is scored with a "-" sign.
-  Evidence that has mixed implications or neither favors nor weighs against readiness are scored with "o" sign.

Not all evidence is weighed equally when determining the overall color indicator for a given primary dimension. Certain factors may weigh more heavily when deciding readiness status.

Finally, it is important to note that the assessment's ratings are not intended to reflect how well Malaysia is or is not currently doing with open data, as the assessment is neither a score card nor an evaluation to compare the country's performance with other countries around the world.

Rather, the ODRA is a diagnostic tool that establishes how well-positioned Malaysia is to move forward on open data (i.e. its readiness or the lack of) to realize the socio-economic potential of it. For each dimension it highlights which elements (evidence) are conducive to an open data program, and the presence or absence of certain elements that are likely to become obstacles to advance it. On that basis actions are recommended, as stand-alone and/or in addition to existing programs and initiatives, to bring open data forward more purposefully and successfully in the country.

The full methodology is available on-line from <http://opendatatoolkit.worldbank.org/> and can be used for further self-assessment as well.



CHAPTER 1

Key Dimensions and Evidence

Leading governments have learned that open data creates the most value when an “ecosystem” approach is used. Governments that only focus on releasing data fail to maximize its benefits, since data release by itself is useless for most people. Value is created when data is reused by people seeking insights.

Best-in-class governments do not only focus on building an open data portal and the “supply” of government data, they also focus on the larger environment for open data – its “ecosystem.” The ODRA methodology assesses countries’ readiness based on eight dimensions considered essential for building a sustainable open data ecosystem including leadership, legal & policy framework, institutional structures/capabilities, data management & availability, funding, national technology & skills, and civic engagement and demand for open data.

The following is the assessment and evidence supporting it for each of the eight dimensions essential for building a sustainable open data ecosystem in Malaysia.

1. Senior Leadership

Open data programs require the implementation of change – often including legal, institutional, technological and cultural changes – and may affect stakeholders both inside and outside government.

Focused, strong, sustained, political/senior leadership is therefore critical to helping a government overcome resistance and inertia of all kinds, help incentivize actors to make the necessary changes in a timely and effective manner, and achieve the desired objectives and benefits of an open data program.

The rating of leadership readiness focuses on three core issues: (i) whether or not top leaders have expressed publicly visible support for open data; (ii) support for open data among key data-owning agencies; and (iii) whether or not the broader political context and national priorities/plans help or hinder open data. A *green rating* always requires evidence of top leaders expressing support for open data together (i), with clear evidence for at least an important number of other data-owning agencies expressing support for open data (ii), or that the broader political context and national priorities/plans help open data (iii). A *yellow rating* can be based on a favorable political environment (stated priorities or goals of government that align with doing open data), even if top-level leaders have not yet committed to open data. It should be supported by leadership of several data-owning agencies (e.g. during meetings with the assessment team). A *red rating* is merited when support for open data has not been expressed beyond the agency sponsoring the assessment, and/or when the current political climate may pose real obstacles to open data, or when national priorities do not align with open data.

| Assessment | Importance |
|---|------------------|
|  YELLOW Tending  Green | Very High |

Visible public Ministerial support exists for open data in Malaysia. The Prime Minister’s Department is already formally responsible for open data efforts, and has visibly and publicly emphasized the importance of open data to the Malaysian society and economy, as well as for public service delivery. An open data program has already been launched, with MAMPU designated as the coordinating agency for cross-government initiatives concerning IT infrastructure, e-services, and the public-sector data center. Adding big data within the public sector (DRSA) and open data to MAMPU’s responsibilities, embeds open data efforts in an established leadership and governance model for multi-institutional and cross-government implementation.

Around 50 agencies have already contributed in some way to this open data program, showing support for the general notion of data openness. This was witnessed during the interviews performed during the implementation of the assessment. However, while general support of the concept within agencies exists, there is still need to address resistance and inertia among some data owners in order to incentivize them to make the necessary changes for data to be released in a timely and effective manner. Moreover, a stronger sense of purpose of open data as an instrument for policy impact will likely yield additional champions as well as practical progress. This sense of purpose could be found in positioning open data as a practical and low-cost tool to help reach the existing wider overall policy priorities, and the related specific policy goals for individual agencies.

Overall national priorities, such as stated within the 11MP, are well-aligned with open data aspirations.

This is the case for both more general goals, such as becoming a high-income country by 2020, lifting up the bottom 40 percent of income earners and strengthening the many small and medium-sized companies, as well as more technology-specific goals, such as completing the nation’s digital transformation. Open data can serve as a valuable tool for achieving results in this context at both the individual agency and national level. Specific awareness on how open data can create value for various stakeholders has, however, not yet fully emerged, which has slowed the emergence of visible strong champions amongst data-owning agencies.

The findings satisfy two out of the three core issues considered for this dimension. Visible high-level support for open data and national priorities generally conducive to open data are present. However, broader support and open data buy-in from key data-owning agencies still need to be achieved. The latter will be critical for Malaysia readiness to open data with regard to the “Senior Leadership” dimension.

Evidence

Detailed below is the evidence considered to sustain the assessment of the current dimension. Evidence of readiness is scored with a “+” sign, evidence against readiness is scored with a “-” sign and evidence that has mixed implications or neither favors nor weighs against readiness are scored with a “⊕” sign.

| | | |
|---------------------|--|------------------------------|
| Evidence 1.1 | To what extent is there visible political leadership of Open Data/Open Government/ Access to information? | Importance: Very High |
|---------------------|--|------------------------------|

- + The Prime Minister’s Department is responsible for open data efforts, which are led by Minister in the Prime Minister’s Department Datuk Joseph Entulu Belaun, who is responsible for MAMPU.
- + Malaysia has an established open data program as well as a big data program led by MAMPU. Besides that, the Malaysia Digital Economy Corporation (MDEC) run open data and big data programs for the industries.
- + Minister Datuk Joseph Entulu Belaun has publicly emphasized, during an open data seminar and in a press release, the importance of open data for both the Malaysian society and economy, as well as to public service delivery. The Economic Planning Unit, also under the Prime Minister’s Department, has indicated their Minister might be willing to champion data as well.
- While the general value of open data and big data for public sector service delivery and for Malaysian society is recognized, awareness across government on how specifically that value can be created and leveraged to address specific policy challenges is still low. As such, intrinsic motivation for open data is low, and clear champions amongst line agencies have yet to emerge.

Evidence 1.2

To what extent is there an established political leadership and governance model for the policy and implementation of programs across multiple institutions or across government as a whole?

**Importance:
High**

-  MAMPU is the coordinating agency for cross-government initiatives concerning IT infrastructure, e-services, the public sector data center (for those agencies located in Putrajaya), big data within the public sector (DRSA) as well as open data. All these efforts are mostly on a federal level.
-  MAMPU heads an established public sector open data program reporting to the Government IT and Internet Committee (GITIC). Under this program, a steering committee on open data and data analytics, and an Open Data Team within MAMPU, have been formed.
-  MAMPU has already solicited participation from some 50 different government agencies (including several state level, local entities) in their open data program, specifically contributing data to the Government of Malaysia's open data portal.
-  A circular by MAMPU that applies to all public entities has been distributed to all levels of government and made publicly available through the Malaysia Government Open Data Portal (data.gov.my). It stipulates various steps for agencies to decide on which data to open, and how.
-  The responsibility to open up data according to the outlines in the Circular remains with the individual data publishing agency, within the applicable legal and regulatory limits.
-  Participation of other agencies in these efforts is not centrally mandated but voluntary. Silos are strongly visible. (Also due to many aspects of IT, data security, data provenance, and fees being regulated at the agency level).

Evidence 1.3

What existing political activities or plans are relevant to open data?

**Importance:
Medium**

-  Minister Datuk Joseph Entulu Belaun oversees MAMPU's efforts to increase the skill level concerning data analysis within the public sector. To this end, MAMPU provides technical and capacity-building support to various other public-sector entities. After several pilots in 2015 (including with the Ministry of Domestic Trade, Royal Malaysia Police and Ministry of Health), the focus in 2016-2017 is on extending the number of agencies using the DRSA (public-sector big data) platform, in an effort to reduce silos in the information environment and to unleash the power of open data.

Evidence 1.4**How does the wider political context of the country help or hinder open data?****Importance:
High**

-  Specific political goals, such as becoming a high-income nation by 2020, lifting up the bottom 40 percent of income earners, strengthening Malaysia's many SMEs, and completing the economy's digital transformation, can all benefit from open data efforts.
-  Ministries and departments interviewed generally favor wider information and data sharing, if existing concerns with regard to legal and liability issues can be addressed in a more unified way.
-  No clear open data champions have emerged yet from ministries and departments other than MAMPU as the directly responsible agency.

Evidence 1.5**What is the country's position in relation to the Open Government Partnership?**

-  Malaysia has participated in the International Open Budget Initiative (OBI) for a couple of years, which allows it to identify current fiscal transparency gaps with regard to open budget data that should be addressed as well to report to local and international communities on achievements made in this area. Malaysia has been doing a steady progress in the ranking lately.
-  Malaysia is aiming to be in the top 30 countries in the international Open Data Barometer by 2020 (currently ranked 51). As the agency currently responsible for leading Malaysia's open data program, this target falls under MAMPU's remit, but requires the broad cooperation of agencies across government.
-  Malaysia currently cannot join the OGP, as one of the prerequisites for membership (an access to information (ATI) law) is not fulfilled. Malaysia does not currently have plans to introduce an ATI law at the federal level; however, two state-level governments have introduced such laws.

2. Policy and Legal Framework

The long-term success and sustainability of an open data program is greatly impacted by the policy and legal framework that exists. Open data requires that a range of policy and legal issues be addressed – for example, the licensing of data reuse. It is important to identify at an early stage the existing policies, laws and regulations that regulate a core set of issues; then to identify actual or perceived obstacles so that policy or legal changes can be initiated early. The contents of this chapter do not constitute professional legal advice.

The rating of the policy and legal framework readiness focuses on six core issues: (i) existence and effectiveness of an ATI law; (ii) privacy protections; (iii) systems security and archiving/preservation; (iv) use of anonymization; (v) ownership and licensing of government data; and (vi) sale of government-owned data. A *green rating* requires evidence that the country has (i) enacted an ATI law (ii) privacy protection rules are in place (iii) and the country uses anonymization of data (iv), together with at least one other positive factor. A *yellow rating* can be based on a combination of factors such as the existence of an ATI law and privacy protection mechanisms, even if their implementation has a mixed record, where a few agencies sell data at no more than the cost of distribution, or where no regulations actively prevent agencies to provide data on request, even if it does not regularly happen. A *red rating* is merited when there is no ATI law or privacy protection mechanisms, no data anonymization or aggregation techniques are used to protect privacy, and where sale of data is common, with typical findings such as the active application of an official secrets law to prevent in a systematic manner the release of data.

| Assessment | Importance |
|--|-------------|
|  YELLOW | High |

There is no single legal framework, such as an ATI law, that determines whether data shall be released/opened or not to the public and agencies decide themselves on whether to release data or not based on their specific regulatory context. The Official Secrets Act (OSA) is not being used to actively prevent the release of information in general. The Personal Data Protection Act applies to the private sector only. Information security is part of the implemented national public sector ICT strategy, and agencies that are part of the critical national information infrastructure have been certified against international information security standards and norms. Otherwise, all agencies have specific regulations that apply to them concerning publishing and protecting information. This also means that decisions concerning information release, and aspects of confidentiality or (personal) data protection, are largely devolved to the agencies themselves.

Despite the above-mentioned national context, generally, agencies in practice do proactively publish information and do entertain requests for information and data from the public and third parties. However, these decisions are made on a case-by-case basis at a high level within the government agency structure. Agencies take a cautious approach, and express an awareness of the importance of data security and privacy issues. Data-sharing requests between government agencies are likewise decided on a case-by-case basis at a high level, and meet with similar high levels of caution. Fees, established through regulation, often apply, and are mostly seen as not very relevant to the agency as revenues collected from them generally flow to the central government.

Once an agency decides on releasing data, a Circular applies that sticks closely to the international open data definition of terms, such as concerning open licensing.¹ However, this Circular is not yet implemented systematically across the government, thus the country still does not see a clear improvement in this dimension.

In practice the described devolved case-by-case decision-making process creates silos and uncertainties for both government and non-government requesters alike about the possible availability and provision of data. The currently mandated fees, which applies to certain government agencies, add another layer of difficulty for data to circulate across government agencies and to be freely released to the public.

At the same time, those devolved responsibilities provide a solid opportunity for willing agencies to release open data, and do so in a more structured way. Building on that opportunity, will help reduce the silo effect and existing uncertainties, and will also reduce the cost of compliance in case an access to information law is introduced in the future (now compliance costs are cited as an obstacle to such a law). The motivation for individual agencies to use their devolved responsibilities in this way can be found in connecting the open data efforts to intra-government efficiency in data sharing, and connecting it to stated policy goals in the 11MP. The 11MP provides a good cross-government umbrella for open data, with goals like improved service and responsiveness, greater accountability and transparency, outreach, and more data-driven decision-making, as well as supporting SMEs (existing evidence shows they grow faster with access to open data) and lifting up the bottom 40 percent of income earners.

Whereas the legal framework is not specifically mandating open data, it is not actively hindering or making it impossible either. Practice and overall policy context show there is strong opportunity to enable more open data and more impact therefrom within the current legal framework, by streamlining and guiding the devolved decision-making on data requests by individual agencies. This allows working agency by agency.

Re-evaluating the fee structures, to the extent they are an obstacle to data sharing and economically a net loss to government as a whole, will need to be taken as a centrally-driven initiative. In this regard, given that revenue generated by sale of data is small, agencies could consider replacing them with revenue from the sale of value-added data services. Examples include data analysis for a particular client, or data collection at the request of a particular client. These services would probably generate more revenue than the current sale of data, and, since they would require more sophisticated capabilities, the public servants thus employed can also provide more specialized services to the government agencies themselves.

¹ Similar Circulars used in other countries stipulate that: 1) all data that is already public should be made open, 2) if a public agency gives data to one, it gives it to all (through the OD portal) and 3) there is a need to establish criteria for classifying data as per the Official Secrets Act. The purpose of this type of Circulars as enforced in different countries is to minimize ad-hoc and discretionary decision-making on data dissemination, and should be very helpful to address current legal regulatory uncertainties in Malaysia.

Evidence

Detailed below is the evidence considered to sustain the assessment of the current dimension. Evidence of readiness is scored with a “+” sign, evidence against readiness is scored with a “-” sign and evidence that has mixed implications or neither favors nor weighs against readiness are scored with a “⊕” sign.

Evidence 2.1

What is the legal and policy framework for the protection of personal privacy?

Importance:
Very High

-  The Personal Data Protection Act (PDPA) only applies to private entities and only in the context of commercial transactions.
-  The Personal Data Protection Act establishes a Privacy Commissioner, appointed by the Minister for Communications and Multimedia (and within the Department of Personal Data Protection, an agency under the Ministry for Communications and Multimedia.) This indicates data privacy as an issue that is being treated seriously by government. There are 11 specific sectors (e.g. telecommunications, banking) for which registering personal data usage by companies is mandatory. For all other commercial entities, compliance is mandatory, but registration is not.
-  For those 11 specific sectors, good practice examples are gathered to form sectoral codes of conduct.
-  The Personal Data Protection Act does apply to Government-Linked Corporations (GLCs) and to the Companies Commission of Malaysia (SSM) concerning commercial transactions.
-  The Department of Statistics Malaysia (DOSM) adheres to all the international standards concerning anonymization and aggregation of personal data, and other personal data safeguards.
-  Data-owning agencies (e.g. DOSM, Ministry of Health, Inland Revenue Board (IRB), and Ministry of Domestic Trade) routinely express caution in dealing with personal data whether based on regulations or on general prudence.
-  The Personal Data Protection Act does not apply to government.
-  GLCs may have more lenient or more stringent personal data protection requirements in the laws that established them.
-  Government entities may have personal data protection requirements in the laws and regulations that establish them (e.g. Department of Statistics, Ministry of Health, Ministry of Domestic Trade et. al.). These differ from agency to agency.

Evidence 2.2**What rights of access to information exist?****Importance:
Very High**

-  Most public sector bodies accept and take into consideration information requests, either through an established online form, or when sent through general contact channels.
-  The public sector bodies spoken to all pro-actively publish at least basic information on their current activities, including such laws and regulations as pertain to them or fall within their remit.
-  No ATI law currently exists at the federal level, although two such laws exist at the state level.
-  In 2015 a Minister in the Prime Minister's Department stated that an ATI law is unlikely to be forthcoming in the near future, in part because of the additional burden of work this would be expected to create during a time when staffing constraints exist. There are also currently no plans to make changes to the Official Secret Act.
-  While the Official Secrets Act itself covers only a small and specific subset of government information, it does provide decentralized authority to all government bodies to further declare information restricted, confidential or secret. In practice, this creates uncertainties about the accessibility of data and information, also in the context of data sharing between government entities.
-  Information requests are usually decided on a case-by-case basis. Statements of interest are typically required and must be reviewed for approval by senior management in the public sector body concerned.
-  Similar or repeated data requests are dealt with as above, and do not result in establishing default decision and provision processes.
-  Approval of information requests is usually granted only for the specific instance and purpose of the original request. New usage of the same information would require a new decision.

Evidence 2.3**What is the legal and policy framework for data security, data archiving and digital preservation?****Importance:
High**

-  Information security and compliance with information security measures are part of the Public Sector ICT Strategic Plan implemented 2011-2015.
-  Responsibility for information security measures, including disaster recovery measures, as pertaining to e-government processes are devolved to the Minister responsible for a specific agency.
-  The Ministry of Health's data hub has a data governance committee and sees data security as their key building block in maintaining trusted relationships with their data partners.

-  Some institutions (e.g. IRB) voiced concerns about data security, especially if data is to be shared between different government bodies, but were uncertain about the capacity across government to protect data appropriately.
-  The Public Sector Cyber Security Framework (MAMPU 2016) serves as a reference on data security in the public sector.
-  Some 150 agencies, deemed part of the Critical National Information Infrastructure (CNII), have been certified to the ISO/IEC 27001:2013 information security management systems standard in accordance with *Arahan 24 - Dasar Dan Mekanisme Pengurusan Krisis Siber Negara* dated 29 September 2011.
-  Agencies which were interviewed had high awareness of the importance of data security. That awareness may stem from both specific regulation applying to a specific agency, as well as/or from professional prudence as expressed by the IT teams involved.
-  No clear indications found about the existence of specific laws on data archiving or digital preservation.
-  Laws establishing specific public sector entities may contain differing regulations on these topics.

Evidence 2.4

What is the policy on the ownership and licensing of government data?

**Importance:
Very High**

-  Of the data and information currently provided in the national open data portal (data.gov.my), 22 percent have a fully-open license (public domain, or by attribution).
-  The Circular on the implementation of open data includes a standard Malaysia Government Open Data Terms of Use (ToU), which should be applied to published open data. These ToU constitute an open license, on the condition of acknowledging the source and linking to those ToU.
-  Generally, government websites explicitly reserve all rights.
-  Of the data and information currently provided in the national open data portal (data.gov.my), 78 percent have no license specified and 1 percent has a license with restrictions.
-  Government holds copyright over the material it produces, for a period of 50 years, excluding official texts of a legislative or regulatory nature and judicial decisions. While there is no independently-defined database protection clause in Malaysian law, the copyright act does provide copyright protection to databases if their creation itself constitutes intellectual creation.
-  The Ministry or Department responsible for the works in question can decide over copyright aspects in usage requests and set terms and conditions.

Evidence 2.5**To what extent is government data sold by agencies?****Importance:
High**

-  The federal government is exempted from fees to access SSM data.
-  In general, government to government (G2G) data provision at the Federal level is not subject to fees.
-  Other public bodies requesting SSM data may see their fees waived, but not all.
-  In general, data owners are required by regulation to charge for data provision (except G2G). Fees are regulated as well, and are in part but not often based on marginal costs. Data owners state that the generated revenue is trivial compared to their overall budgets. Revenue is always forwarded to central government; transaction and administration costs fall with the data owners.
-  SSM is required to self-fund, on the basis of both registration and access fees. A specific share of revenues is forwarded to the central government. Fees are regulated.

Evidence 2.6**What other policies/laws exist that may have significant impact on open data?****Importance:
High**

-  The 11MP provides a policy context in which open data can be an instrument for delivery (e.g. improving public service delivery, enhancing responsiveness, more data-driven processes, greater outreach and public engagement, increasing accountability with a focus on transparency and on outcomes).
-  No instances of exclusive arrangements concerning sharing datasets with third parties were encountered.
-  Many different acts and regulations apply per department and agency. This creates unclear situations concerning data accessibility and restrictions, for government and non-government stakeholders alike.

3. Institutional Structures, Responsibilities and Capabilities within Government

Middle-management-level skills and leadership are important factors in the success of transparency initiatives such as open data. Creating an open data program requires agencies to manage their data assets with a transparent, organized process for data gathering, security, quality control and release. To effectively carry out these responsibilities, agencies require clear business processes for data management as well as staff with adequate ICT skills and technical understanding of data (e.g., formats, metadata, APIs, databases). Engagement among agencies and at all levels of government to set common standards and remove impediments to data interoperability and exchange is also vital, and requires mechanisms for inter-agency collaboration.

In addition to handling the “supply side” of creating an open data program, agencies require the structures and capabilities to engage with communities that reuse open data – including developers, companies, NGOs, other agencies, and individual citizens.

The rating of institutional readiness focuses on three core issues: (i) expressed readiness of an agency with sufficient political weight and competency to lead on open data; (ii) track record of inter-agency mechanisms coordinating major ICT or Open Government initiatives; and (iii) existence and effectiveness of positions comparable to a CIO/CTO within agencies responsible for strategic ICT decisions and management. A *green rating* for the Institutional dimension always requires evidence of readiness of an agency to lead on open data (i), together with clear evidence for at least one other issue such as inter-agency mechanisms coordinating the open data initiative or the existence of CIO/CTO for open data within agencies. A *yellow rating* for the Institutional dimension will be associated with a government that has good options for an agency/entity to lead an open data program or at least manage a portal, even if a final decision has not been taken yet. Yellow is also appropriate when a government does not have CIO-type positions but at least some key agencies have IT departments with real technical capacity, and the track record for ICT coordination is mixed. A *red rating* for the Institutional dimension is merited when there is no agency well positioned (in terms of political weight and technical skills) and ready to manage an open data program. Red is also supported when there is no track record for coordinating.

| Assessment | Importance |
|---|-------------|
|  GREEN | High |

Malaysia is currently implementing an open data program. MAMPU is tasked with development and implementation of this open data program, as part of their broader responsibilities in ICT management and Digital Government for the Government of Malaysia. MAMPU has strong convening power through their proximity to the Prime Minister’s Office, and as such is a logical choice to lead the public sector open data program.

There is a track record of inter-agency mechanisms to coordinate ICT initiatives. Strategically this is done at the highest government level through the National Information Technology Council (NITC). MAMPU

in turn is responsible at the technical level for cross-government coordination of ICT programs, managed through committees such as the Public Sector ICT Technical Committee. Ministries have their own ICT steering committees that coordinate with MAMPU. Various ministries and agencies (e.g. DOSM, Ministry of Health, Ministry of Finance) have well-developed data competencies, and e-services are increasingly common.

Chief Information Officers (CIOs) have existed within the Malaysian public sector for 16 years and all agencies have them. CIOs are typically very senior staff. Ministries and agencies have strong devolved powers in making their own decisions regarding ICT.

Concerns exist within individual agencies, resulting in caution when releasing data as open data. However, the existing situation of devolved decision-making by senior staff, and MAMPU's existing inter-agency mechanisms, can be leveraged and can lead to the provision of general guidance and coordination for a consistent implementation of open data, which in turn will support making data available in a sustainable manner.

Evidence

Detailed below is the evidence considered to sustain the assessment of the current dimension. Evidence of readiness is scored with a “+” sign, evidence against readiness is scored with a “-” sign and evidence that has mixed implications or neither favors nor weighs against readiness are scored with a “⊕” sign.

| | | |
|---------------------|--|----------------------------------|
| Evidence 3.1 | Which agency or agencies have relevant capabilities, mandates, project management experience and technical skills to be a suitable lead institution in the planning and implementation of an open data program? | Importance: Very High |
|---------------------|--|----------------------------------|

- + MAMPU is tasked with development and implementation of an open data program, as part of their broader responsibilities in ICT management and Digital Government for the Government of Malaysia. MAMPU has strong convening power through their proximity to the Prime Minister's Office.
- + MAMPU's collection of different ICT responsibilities has allowed it to attract and retain a cadre of technically strong ICT professionals. They have already coordinated a number of cross-government ICT projects, including the Malaysian Government Open Data portal (www.data.gov.my) as well as the Malaysia Corporate Identity Gateway (<http://www.ssm-mycoid.com.my/>) which enables simultaneous registration for businesses across a range of government agencies.
- + MAMPU is seeking support from external parties, including multilateral institutions as well as open data services firms, to help develop change management and socialization skills and capabilities.
- Despite having strong technical capabilities, MAMPU does not have enough staff to conduct a broad outreach and acceptance of open data as a concept amongst other agencies and civil servants.

Evidence 3.2

Which (if any) agencies have a CIO, CTO or permanent official positions dedicated to data management?

**Importance:
Medium High**

-  All government agencies have a CIO; technical agencies, such as the Cyber Security agency under MoSTI may also have a Chief Technology Officer.
-  CIOs are typically very senior-level staff (Director or above) and appear to have a significant degree of power.
-  Training programs, discussion forums and conferences exist for CIOs; Malaysia recently concluded their government-wide Malaysia Public Sector CIO CONVEX on Digital Government Towards Digital Citizens, organized by MAMPU, and attended by some 1,000 delegates and presided over by the Chief Secretary to the Government of Malaysia.
-  CIOs have been present in the Malaysian public sector for more than 16 years.

Evidence 3.3

What inter-agency mechanisms coordinate ICT issues (such as for technical matters)?

**Importance:
Medium High**

-  At the highest level of government, the National Information Technology Council (NITC) is responsible for strategically managing national IT interests. The NITC is chaired by the Prime Minister, and the Secretariat is housed in MoSTI.
-  At a technical level, MAMPU is responsible for coordination of ICT systems and technical matters across government; this is managed through a number of committees, such as the Public Sector ICT Technical Committee (JTISA), which evaluates and approves technical aspects of public-sector ICT projects.
-  Individual Ministries have ICT Steering Committees (JPICT) each of which coordinates with MAMPU on their respective ICT endeavors.
-  Within the overall policy and strategy umbrella set by MAMPU, individual agencies have strong devolved power to implement ICT policy and manage their own internal systems, without strong coordination from the center of government.

Evidence 3.4**What process is currently used to measure agency performance or quality of service delivery?****Importance:
Medium**

-  Performance management is undertaken on both a government-wide basis as well as an individual agency basis. There are a wide range of different performance management initiatives across government. For example, the Performance Management and Delivery Unit (PEMANDU) under the Prime Minister's office was responsible for facilitating, tracking and reporting on key performance indicators under Malaysia's Economic and Government Transformation Programmes (ETP and GTP). Financial management is also undertaken using a performance orientation under Malaysia's Outcome Based Budgeting approach, which requires agencies to develop detailed results frameworks at the ministry, program and activity level, with inputs, outputs and outcomes. These examples reflect a concerted effort to measure and report on agency performance and quality of service delivery.
-  MAMPU evaluates and reports on organizational performance under their STAR rating index across a range of different criteria. This includes organizational management, financial management, human resource management, development of project management capabilities, and ICT management.

Evidence 3.5**Which agency or ministry is primarily responsible for data or statistics?****Importance:
Medium**

-  DOSM provides a wide range of information as open data and is currently the largest contributor of data to the national open data portal; however, much of this is at an aggregated level.
-  Data which is shared by DOSM is downloadable in reusable format.
-  DOSM has advanced and well-defined processes for systematic collection, cleaning and management of data. Technical capacity is high.
-  Disaggregated data are subject to a number of constraints, including restrictions on access to full datasets. Typically, DOSM provides with either 1/3 of the indicators requests, or 1/3 of the sample requested.
-  DOSM is responsible for collecting, consolidating, cleaning and maintaining statistical data across a wide range of different sectors. Data comes from a variety of different sources, but key sources include the national census, which captures demographic information at the individual level; the household income and expenditure survey, which captures demographic, income and expenditure data at the household level; as well as the economic census, which captures detailed information on firm size, sector, employment, investment level, and other key indicators for all registered firms in Malaysia.
-  Disaggregated data are not freely and proactively published, but may be requested on a case-by-case basis. Clear channels for requesting data exist on the DOSM website, with a dedicated form.

Evidence 3.6

Which agencies or ministries appear most concerned about the release of data, and what is the basis of their concern? How can they be handled procedurally, and how can their concerns be addressed?

**Importance:
High**

-  Across agencies, there is a general lack of clarity about the different laws and rules which govern the release of information. Agencies take a very cautious approach to the release of data. In particular, there is confusion about the Official Secrets Act, which governs the release of information considered to be relevant to national security, and the Personal Data Protection Act, which governs the commercial release and use of information by companies such as telecoms. Government agencies are exempt from the PDPA; however, many cited this as a reason for not disclosing detailed data.
-  Some key agencies indicated a reluctance for releasing data in the fear that it might be manipulated, misunderstood and misused.
-  Many agencies are unclear about both the demand for their data, and the potential value that it might create for other stakeholders outside their own use. Many agencies also specifically attempted to publish only summary statistics, charts and figures as an approach to provide citizens with information that was easier to consume and understand, rather than just providing raw data.
-  In some instances, data is only released to Malaysian requesters, out of concern that foreign entities may gain a bigger advantage over local stakeholders.

Evidence 3.7

How strong is the government's overall ICT skill base among senior government leaders and civil servants?

**Importance:
High**

-  Leaders show strong digital literacy; data-driven policy making and government operations are key themes amongst leaders in Malaysia. Officials who were interviewed generally demonstrated good understanding of the role of data in their daily work.
-  All government officials receive ICT training through a range of different channels. First, the Malaysian National Institute of Public Administration (INTAN) provides general government training to all incoming civil servants across a range of different topics, including ICT use and basic analytics. Second, individual agencies provide more targeted ICT training for officials on an ongoing basis, especially related to newly implemented or revised ICT tools and platforms.
-  There is no evidence of a systematic competency framework or assessment methodology to track and measure ICT skill levels amongst civil servants.
-  ICT skills are not explicitly considered when determining civil service grades and promotions; however, data analysis and data-driven decision-making skills do play a role.

Evidence 3.8**What is the government's presence on the Web?****Importance:
Medium**

-  The Government of Malaysia has a strong web presence. The vast majority of ministries, departments and agencies have websites and web portals. Most of these are presented in both Bahasa Malaysia as well as English. Consolidation efforts towards a single point of access for citizens in 2015 and 2016 have reduced the number of government websites to increase usability. User satisfaction feedback is collected throughout the Malaysia User Satisfaction Evaluation (MUSE). Most agencies also actively use social media.
-  The Ministry of Finance and the Accountant's Department Office both have strong websites with detailed data on budget and expenditure. The National Audit Department of Malaysia publishes the Annual Federal Audit Reports in PDF, as well as state audit reports and federal statutory bodies' reports.
-  E-services are offered by many client-facing agencies, including the Company Registrar's Office (SSM), IRB, the National Registration Department of the Ministry of Home Affairs (JPN), the Customs Department, and others.
-  Most agencies track website usage, downloads, and use web analytics.
-  Websites are frequently updated by technical staff within agencies.

4. Government Data Management Policies and Procedures

Open data programs can build on established digital data sources and information management procedures within government where they already exist. Where data is only available in paper form, it will be hard to release as open data and in reusable format quickly and cheaply. Conversely, good existing information management practices within government can make it much easier to find data and associated metadata and documentation, identify ownership, assess what needs to be done to release it as open data and put processes in place that make the release of data a sustainable, business-as-usual, downstream process as part of day-to-day information management.

The rating of readiness for Government Data Management focuses on three core issues: (i) how and where data is held by government; (ii) the visibility of agencies into their data holdings; and (iii) the existence of key data-owning agencies with demonstrable capabilities in data management. A *green rating* for Government Data Management always requires evidence of large amounts of high-value, digital data together with clear evidence for at least one other issue. A *yellow rating* is supported when multiple agencies have a good understanding of their data assets and data management capabilities, even if no formal inventories of data assets exist. Yellow is also appropriate when some key agencies have Management Information Systems holding high-value, machine-readable data, and there is evidence that agencies provide high-value data online or at least on request. A *red rating* is merited when a government provides little data online, data is not held in digital form, and evidence of agencies selling or charging for data un-mandated.

| Assessment | Importance |
|--|-------------|
|  YELLOW | High |

While umbrella guidance on data management practices and policies are issued by MAMPU, individual agencies have strong devolved power and responsibilities in managing their own internal systems. This promotes flexibility given the different needs and data types across agencies, but also results in considerable variation in the application of policies and practices across different agencies. The interconnectedness and integration of government data is still sparse. Agencies know what data they hold, and are rich in digital data. In those instances, where data is still being collected on paper, subsequent steps of processing have all been digitized, although historic records may still be in paper form. Most agencies maintain their digital data on their own ICT infrastructure. For the agencies located in the Putrajaya area, a central warehouse, maintained by MAMPU is available. Agencies have a general, but not a detailed, understanding of what data is collected and produced by other agencies. Agencies generally do not publish comprehensive inventories of the data they hold, nor are such inventories available across government as a whole. Data management capabilities are most clearly visible in those agencies that are accustomed to large volumes of personally identifiable data or where quality is critical (e.g. Ministry of Health, DOSM, e-procurement).

There is strong demand for more internal data sharing. Inter-agency data requests are common, but the devolved decision-making, and doing so on a case-by-case basis regardless of previous decisions on similar requests, is widely perceived as inefficient. Caution because of legal uncertainties, as well as practical hindrances in exchanging data, also plays an important role in the country. This results in a

large amount of latent demand, that is currently being unmet. A program creating an information-sharing coordination mechanism and data exchange infrastructure is foreseen as a possible and viable solution in the case of Malaysia. The said program falls within the remit of MAMPU. The amount of openly-shared data on the national open data portal is increasing. Where data is requested, mandated fees regularly apply, which only obstruct data to freely circulate as envisioned for the country.

Evidence

Detailed below is the evidence considered to sustain the assessment of the current dimension. Evidence of readiness is scored with a “+” sign, evidence against readiness is scored with a “-” sign and evidence that has mixed implications or neither favors nor weighs against readiness are scored with a “⊙” sign.

Evidence 4.1

What are the policies and practices on the management of government information?

Importance:
High

-  A data governance committee exists for the Ministry of Health data hub, where different stakeholders combine healthcare related data. Trust and quality are of importance.
-  Data governance is a key topic for the Steering Committee of Open Data and Data Analytics, as well as the other committees, as part of the MAMPU open data program.
-  The e-procurement agency has their data management organized along ISO-standards, as has the DOSM (in the 1990s) for their data structures and published indicators, in order to increase public trust.
-  External stakeholders note that often when individual government agency websites get renewed or revised, previously published data and information is either no longer easily accessible, or may no longer be available. Moreover, in their opinion, archiving historical data and publications does not appear to be of high priority in some government agencies.
-  While umbrella guidance on data management practices and policies are issued by MAMPU, individual agencies have strong devolved power and responsibilities in managing their own internal systems. This promotes flexibility given the different needs and data types across agencies, but also results in considerable variation in the application of policies and practices across different agencies.

Evidence 4.2

To what extent does the government have a coherent view of its data holdings?

Importance:
Medium

-  Individual agencies appear to have a good record of what data they hold and in what form. Internal knowledge management practices appear to be well developed. Agencies have a general understanding of the types of data which are produced or collected by other agencies across government.

- ⊖ There is no evidence of a systematic approach to detailed cataloging all existing datasets across the whole of government, nor a consolidated record of data holdings. Individual agencies do not publish comprehensive inventories of the data they hold. Individual agencies do not appear to have strong awareness of specific data which might be available from other agencies.

Evidence 4.3 How and where is government data held?

Importance:
High

- + Government agencies hold their data mostly in digital form. Although part of the data may come in the form of reports, and in non-machine readable formats such as PDF.
- + There is a central data warehouse for agencies located in the Putrajaya area, maintained by MAMPU.
- Though data collection may still be partly paper based (e.g. material collected by IRB, or price information collected by the Federal Agricultural and Marketing Authority are a mix of digital and paper based data), for subsequent steps data is fully digitized. Historic data can still be in paper form.
- Individual agencies typically hold their data in their own information systems and on their own ICT infrastructure.

Evidence 4.4 What is the extent of intra- and inter-government actual demand and latent demand for data?

Importance:
High

- + All departments spoken to indicate actual demand as well as latent demand for data from other departments and agencies. G2G data requests are common and generally accepted and acted upon.
- + Government agencies interviewed have focal points who receive and direct data requests to the teams in charge, facilitating the way data flows across government agencies. For example, the NBO at the MoF compiles data on subsidies and incentives and provides it to DOSM while the latter provides information about household income. Neither the NBO nor the DOSM has direct online access to the other agency's data systems.
- + Under the 11MP, a new government program concerning an Information Sharing Hub and National Registries is foreseen, aimed at creating an information-sharing coordination mechanism and data exchange infrastructure. The said program falls within the remit of MAMPU.
- ⊖ However, the process of receiving requested data is often inefficient. This stems from a range of factors, including the need for high-level case-by-case approval, uncertainty about which legal constraints apply, needing to manually exchange the data, and receiving aggregates or samples and not granular or complete data (which precludes the receivers' ability to do their own quality checks on the data received or deeper analysis based on primary findings).

- ⊖ Repeated requests for the same or similar data do not usually lead to by-default approval or exchange.
- ⊕ Not many cross-government automatic data exchanges currently exist, with the notable exception of the national persons register. Many internal data exchanges are decided on a case-by-case basis (e.g. DOSM and EPU regularly request data from IRB), but such exchanges are neither routine (meaning a default decision has been taken) nor automated. A number of initiatives to automate and integrate data exchanges between specific partners exist, such as between the Royal Malaysian Customs Department (Customs) and Malayan Railways Limited (KTMB) concerning goods that go directly from the border to a harbor and vice versa. Other initiatives are planned or are under way, such as the Ministry of Health Data hub which is nearing completion, as well as the integrated data sharing between IRB, SSM and Customs using the XBRL standard (to be operational by 2018) and the planned connection of the e-procurement system of the Ministry of Finance with SSM and the national persons register.

Evidence 4.5**What data is already made available outside government - either free or for a fee – and on what conditions?****Importance:
High**

- ⊕ Many agencies publish data in the form of annual reports or online tables and charts. They seem generally open to the idea of releasing information in a more proactive way, using a machine-readable format.
- ⊕ A good example of data made available in machine readable format is the Economic and Fiscal Statistics produced by the MoF/Treasury Department. These include economic data for 2017 which are accessible through the MoF website in CSV and Excel formats (PDF for previous years) as well as Economic Data – Real Sector: Gross Domestic Product by Sector; Gross National Income; Balance of Payments – all data shared in CSV and Excel format for 2017 and in PDF for previous years (2010-2016).
- ⊕ A MAMPU Circular spells out the principles and data formats to be applied by all agencies when publishing data as open data. This includes publishing such data free of charge, and a ToU constituting an open license on the sole condition of acknowledging the source.
- ⊕ Some 50 government entities currently publish data through the national open data portal, launched by MAMPU. In the past year, efforts have been made to increase the amount of machine-readable data, while decreasing the amount of data in the form of PDFs. Most data (78 percent) on the portal currently has no specific licensing information.
- ⊖ External stakeholders signal that when analyzing publicly available information (such as procurement information), not all information seems to be complete. Some information may no longer be available after a certain amount of time has elapsed, such as when a new version of an annual report is published, or a website has been revised or renewed.
- ⊖ As previously stated, where data is being shared at request for a fee, such fees are reported by the data owners to be immaterial in comparison to their overall budget (and fees are generally forwarded to the central government).

- Most agencies decide on a case-by-case basis about data requests, and often are required by regulation to charge a fee for data provision, when requests are larger than a specific scope in terms of aggregation, volume or time series.

Evidence 4.6

What practical experience does the government have in anonymizing personal data?

Importance: High

- ⊕ The Ministry of Health in their data hub routinely anonymize data, where the needed personal information is separately stored and thus inaccessible for those who use the anonymized data for analysis. The protection of personal data is the main driver, while ensuring that the resulting data is trustworthy.
- ⊕ DOSM follows international standards and international statistic practices on anonymizing personal data.

Evidence 4.7

Which agencies with established capabilities in data management (e.g. the NSO) could give leadership to a wider program?

Importance: Medium

- ⊕ MAMPU is already positioned to lead the open data program, as well is tasked with ICT and e-service aspects.
- ⊕ Other agencies, such as DOSM and Ministry of Health, could play a role in defining guidance for other agencies concerning data management topics.
- Many of the agencies interviewed indicate they have relatively small IT teams, which means there is not much room for specialized capabilities.

Availability of Key Datasets

The Assessment considers whether key datasets are available and what would need to be done in order to release them as open data.

Generally, Malaysia collects and holds the majority of the 26 key datasets² this assessment considers. There is considerable variation in terms of the availability and openness of these datasets, owing to the decentralized approach to data management across agencies. Many key data are published but only in PDF; likewise, many key datasets are published but at more aggregate levels, or as incomplete datasets. Given the majority of the datasets assessed are already collected, held and published in some form, Malaysia could quickly move to make these datasets fully open.

² An overview of the availability of key datasets considered in the assessment is provided in a separate file in the on-line version of this report.

5. Demand for Open Data

The value of data is in its use. A strong demand-side “pull” of data is important not only in creating and maintaining pressure on government to release data, but also in ensuring that the wider open data ecosystem develops and that open data is turned into economically or socially valuable services for citizens. The “pull” can come from civil society, the private sector, international organizations, donors and individual citizens, and even from government itself.

The rating of readiness for “Demand for Open Data” focuses on two core issues: (i) evidence of data demand by civil society, the private sector, the research community and media, and (ii) existence of agency mechanisms in place to intake and respond to requests for data. A green rating for Demand for Open Data can be supported by clear evidence of a combination of factors such as data demand by civil society, the private sector, the research community and media, effective mechanisms for data sharing among agencies and with people outside government, and a record of citizen engagement through two-way communication channels. A yellow rating is supported when there is some evidence of data demand from outside of government and some agencies do have responsive channels for data requests and release. A red rating is merited when there is a poor track record in responding to data/information requests, agencies share little data with each other easily, and civil society is very under-developed (or passive).

| Assessment | Importance |
|---|------------------|
|  YELLOW Tending  Green | Very High |

There is strong actual demand for various types of data from civil society, the business community and in particular from academia, but notably much less so from the media. CSOs generally, with notable exceptions, seem less developed concerning IT and data capabilities resulting in less articulated demand, as opposed to the academic and business community which have clearer objectives for what data is requested and seem to know better what channels (including informal ones) need to be used to get data released from government. The existing demand includes currently unavailable high-value data (health, maps, meteorological, census, procurement, specifically more granular and complete than currently available).

Some pro-active publishing by government agencies is taking place both in the form of reports as well as in the form of data on the national open data platform. External stakeholders indicate such material is often more generic and less granular than they can use. This then requires these stakeholders to approach agencies directly with their data requests. Agencies have implemented various mechanisms to entertain such data requests. Decision-making takes place on a case-by-case basis, however, and often needs a new request for subsequent use of the same data. External stakeholders thus perceive requesting data as an unpredictable and inefficient process.

Stronger interaction between supply-side and demand-side and increased responsiveness (routine and automated) may lead to much-better-articulated demand and more usage of open data, as well as better understanding inside agencies of the purpose and significance of external demand. Activities

that have already been organized such as hackathons have created an appetite with the participants for more such regular interaction with data owners. Some agencies such as DOSM already have plans in progress to seek stronger interaction. Further reinforcing for data owners the potential and purpose of open data, such as with agency-specific examples from elsewhere would be welcomed. Key steps of interest are agencies more actively seeking out stakeholders with demand, seeking to provide more granular data for high-demand areas, publishing data inventories, and clarifying and systematizing mechanisms for submitting and responding to data requests. External stakeholders have offered practical assistance to agencies to better understand demand, help increase availability and quality of data provision.

Evidence

Detailed below is the evidence considered to sustain the assessment of the current dimension. Evidence of readiness is scored with a “+” sign, evidence against readiness is scored with a “-” sign and evidence that has mixed implications or neither favors nor weighs against readiness are scored with a “⊕” sign.

| | | |
|---------------------|---|-----------------------------|
| Evidence 5.1 | What is the level and nature of actual demand and latent demand for data from Civil Society Organizations, Academia and the Media? | Importance: High |
|---------------------|---|-----------------------------|

- + Some CSOs, such as the Sinar project, are very visible in their actual demand for open data seeking specific procurement, tender and budget data which are all in high demand for CSOs working on public financial management issues. They are eager to work more closely with MAMPU on data availability and quality, and they’ve already taken the lead and are publishing their own datasets while encouraging other CSOs to do the same, with the aim of making available open government data more useful.
- Civil society in general seems less-developed concerning IT and data capabilities, and is less visible in potential demand for open data.
- + There is civil society demand for more granular and comprehensive procurement, budget and contracting/tender and contract fulfillment data. Although much material is already available, it is not perceived as complete, also because historic material may disappear when new material is published.
- + Members of Parliament regularly put forward parliamentary questions concerning specific data, which is an indicator for latent demand.
- + The open source community, having taken part in government-organized hackathons, is eager for more such interaction with public sector entities.
- + Academia has a strong demand for more granular population and census data, particularly from DOSM, as well as more granular (especially geographically) healthcare data concerning dengue fever and other diseases. It signals an unmet demand for more APIs as well as GeoJSON (instead of shapefiles for geodata). There is also demand for meteorological data to be paired with other data such as dengue fever data.
- + Map data is in high demand, but is currently monetized. 1Malaysia Map is not detailed enough for practical use, and its Points of Interest are not being updated frequently. As a result, Google Maps,

and to a lesser extent OpenStreetMap, get used in applications. There is demand for geographic data like boundaries (states, municipalities, local councils, districts, school districts etc.), as these are key enablers of various civic technology applications, such as reporting on street and infrastructure problems.

-  There is demand for adding language as a metadata field. Currently, most metadata is in Bahasa Malaysia, and translations are welcome.
-  One university offered MAMPU help in cleaning up and translating datasets showing both the demand and the willingness to collaborate on such efforts.
-  Civil society and the open source community signal that the currently-available data on the open data platform often is more generic, meaning that requests for more detailed data then need to be addressed to the original data owner.
-  Both civil society and academia expressed a desire for more transparency on the character and status of submitted data requests.
-  Malaysia is not an OGP member. This is a practical obstacle for civil society, as globally, many civic technology solutions and communities have coalesced around the OGP. Malaysia civil society is barred from taking part in such communities.

Evidence 5.2**What is the level and nature of actual demand and latent demand for data from business/the private sector?****Importance:
High**

-  There is a strong unmet demand for more statistical data (DOSM) in the private sector. Stakeholders also expressed demand for more direct interaction and 'data crunching' sessions with DOSM, to better understand and trust the data.
-  Real time public transport data is in high demand.
-  Demand is strong for more public transport data, healthcare data, crime statistics, public safety, and education data.
-  Some business stakeholders signal that many private-sector entities may not be ready yet (in terms of capabilities and skills) to use data.

Evidence 5.3**How do public agencies listen to demands for data and respond?****Importance:
Medium**

-  Demands for data are usually taken into consideration and decided upon.
-  Data owners such as DOSM and others have request forms on their websites to facilitate data requesters.

-  DOSM is planning to initiate greater interaction with different data stakeholders, with the goal of being able to start providing more granular and varied data between now and 2020.
-  Public transport officials expressed the desire to see others use their data for apps, but are not clear on what they can and cannot publish.
-  Public sector bodies signal demand for good practice examples from elsewhere, concerning public transport, healthcare, education, security.
-  Data owners repeatedly expressed a lack of awareness on the demand for their data or its possible uses.
-  Data requests are decided upon on a case-by-case basis, which can result in significant delays.
-  Open data is a new topic, and in general, data owners are cautious. In practice, MAMPU (as first point of contact for open data) and MDEC (as first point of contact for big data), upon receiving requests from different data users, explore the legal situation with the relevant agency.

Evidence 5.4

How do external stakeholders view public agencies' willingness to listen to demands for data and respond?

**Importance:
Medium**

-  Hackathons have been organized, and have been well received. Especially the interaction with government stakeholders about their data has been appreciated.
-  MAMPU is welcomed as a clearly visible entry point, as not all external stakeholders know their way inside the many government entities, and MAMPU can serve as the conduit.
-  External stakeholders perceived that data owners could do much more to better communicate the data they hold, and the data they make available. For example, data owners generally do not publish data inventories.
-  Data requests are being decided on a case-by-case basis, which can negatively impact timely responses.
-  A lack of clarity on the legal issues concerning data availability and publication, especially the different acts and regulations that apply to each department and agency, makes outcomes of data requests uncertain. Data requesters signal that the data made available regularly does not meet their expectations of desired granularity or comprehensiveness.
-  While acknowledging improvements in the open data portal, external stakeholders generally questioned the depth of understanding that government officials have regarding the role and importance of open data.
-  Many external stakeholders indicated a lack of clarity on how to approach a data owner with a request. Knowing someone within the data-owning agency is seen as helpful to make sure a request reaches the right official and gets decided upon.

6. Civic Engagement and Capabilities for Open Data

Mutual connections and understanding between government agencies and civil society are important to collectively learn and explore how to do open data well. Open data results in new communication and interaction channels. To realize open data’s value, it is important that civil society and private sector stakeholders are willing and capable to serve as intermediaries, preparing data for broader usage, creating applications and visualizations that disseminate information and insights to the general public.

The rating of readiness for Civic Engagement and Capabilities focuses on five core issues: (i) government record on citizen engagement using multiple channels (consultations, feedback mechanisms among others); (ii) the capacity of technical universities; (iii) potential infomediaries such as data journalists; (iv) existence of an ‘apps economy’; and (v) government promotion of reuse of its data. A *green rating* can be supported by evidence of a combination of factors such as a strong record of citizen engagement, technical universities that produce advanced research using government data and collaborate on ICT projects, a real and growing ‘apps economy’, and agencies with experience in co-creation of data with non-government stakeholders. A *yellow rating* is appropriate when evidence indicates that tertiary education institutions produce a notable number of graduates with technical degrees/skills, an ‘apps economy’ is emerging in a notable ICT sector, and there is some data journalism happening. A *red rating* is merited when government has not promoted data reuse and practices little genuine citizen engagement, the technical education system is weak, and there are some serious constraints to the growth of the ICT sector or an ‘apps economy’.

| Assessment | Importance |
|---|-------------|
|  YELLOW Tending  Green | High |

Civic capabilities for open data are present in Malaysia. This is evidenced by a range of (online) developers’ communities that regularly meet, as well as app-developing companies that can be readily found. It is further illustrated by the numbers of teams that have participated in the hackathons that have been organized by MAMPU and MDEC. Data journalism seems to be much less developed on the other hand, and for the same reason, it is more likely that developers’ communities and civil society organizations are best positioned to be infomediaries between data-publishing agencies and the wider public.

When it comes to citizen engagement, most government agencies have an online presence in the form of websites from which they communicate with the public. Generally, these websites have feedback forms or other channels through which public outreach is sought and participation is invited. In addition, a range of agencies are active on Facebook, Twitter and similar social media platforms. Some, such as the public transport operator Prasarana Malaysia Berhad (Prasarana), actively uses the feedback received on Twitter and Facebook on a daily basis for improving its operations and services provided to the public.

MAMPU and others are also actively promoting the usage of government open data. They have organized a number of hackathons that brought together data-owning agencies, developer communities and private sector and civil society organizations as well as academic institutions, in which all of them met

with enthusiasm (around 42 teams participated in one of the major events in 2016). Similarly, MDEC has been hosting App Challenges focused on reaching out to academia and the professional sector, also in cooperation with international coding communities.

The investments the academic community and the Malaysian government are making in increasing technical capabilities around, for example, data analysis (amongst others) are reinforcing the engagement of academics in using open data, especially as a strong demand for more data availability has been seen as well. Moreover, an app economy is emerging in an already well-developed and economically very significant general ICT sector. A range of app-developing companies exist, and there is strong overlap with the various developer communities.

Further engaging these existing developer and civil society communities will leverage the experience and connections made at the hackathons and the existing social media channels. This could promote a more sustained engagement with other potential users of open data, and strengthen the government’s reputation on pro-active engagement with data users from different sectors. Participants in the hackathons and events that have already taken place have indicated that they are very positive towards more frequent and sustained interaction with government data agencies, as well as willing to contribute to the open data program’s overall success.

Evidence

Detailed below is the evidence considered to sustain the assessment of the current dimension. Evidence of readiness is scored with a “+” sign, evidence against readiness is scored with a “-” sign and evidence that has mixed implications or neither favors nor weighs against readiness are scored with a “⊕” sign.

| | | |
|---------------------|--|-------------------------|
| Evidence 6.1 | Which potential infomediaries (such as data journalists) are able to help translate open data into meaningful information for the public? What actions are needed to develop or enhance these parts of the open data ecosystem? | Importance: High |
|---------------------|--|-------------------------|

- + The CSO Sinar project is actively working on projects relating to government accountability and presenting these in meaningful ways to the public, sometimes in collaboration with online press.
- + The press already extensively reports each year on the national budget, and the annual Budget Speech is broadcast live on several TV stations.
- The press wasn’t regularly referred to as a potential data user by both government and non-government entities during the interviews.
- + Online media, due to their diversity in comparison to traditional media, likely have the best starting point for using data.
- ⊕ The media industry is mostly privately owned, with about half of the newspapers and a range of television channels belonging to one media conglomerate.

Evidence 6.2

What activities has the government engaged in to promote reuse of government-held data (e.g. in developing apps or organizing co-creation events)? How could such promotion be developed or enhanced?

**Importance:
High**

-  MAMPU has organized hackathons bringing together government data owners and the coding and open source community, as well as civil society and private sector organizations. The last such event in 2016 saw 42 teams participate.
-  MDEC has organized the “Big App Challenge” consisting of several hackathons, mostly focused on academia. One of the hackathons, AngelHack Kuala Lumpur, focused on the professional sector (and topics such as smart cities and open government) and was co-organized with the (global AngelHack) coding community and with involvement from a range of private-sector companies. Winners are given assistance to scale their solutions. DOSM is planning interaction sessions with stakeholders around their data, to explore how to be more responsive to demand.
-  Participants in these events indicated an appetite for more opportunities to work and interact with government data owners this way.
-  Around the time of the publication of the new annual budget, the Ministry of Finance has a dedicated Budget Website (microsite) for several weeks that includes relevant budget information such as the budget approved by Parliament, the Budget Speech and the Federal Expenditure Estimates (all in PDF).
-  The connections made at the hackathons could be the starting point for more sustained interaction between external stakeholders and data owners.

Evidence 6.3

What is the extent of engagement with government through social media and other digital channels?

**Importance:
Medium**

-  A range of government departments and agencies have presences on Facebook, Twitter and similar social media platforms.
-  Public transport operator Prasarana actively uses feedback received through Twitter and Facebook.
-  Most government websites have feedback forms or channels for the public, with an open invitation encouraging participation.

Evidence 6.4

To what extent is there an existing ‘apps economy’?

Importance: Medium High

-  Smartphone usage is widespread in Malaysia.
-  A wide range of app-developing companies exist, building a variety of mobile apps for all platforms. Examples of a diabetes support app, an app to attract blood donors, new parents’ community, visitor registration and building management, loyalty programs, etc. were easily found.
-  Public transport operator Prasarana built their own journey planner app.

Evidence 6.5

To what extent is there an academic or research community that trains people with technical skills or has capabilities in data analysis?

Importance: Medium

-  The big data program run by MDEC contains goals concerning working with academia to increase the number of people with relevant data skills.
-  A plan launched by the PM encourages data analytics as a subject in education. Pilots that bring together programming and analytical skills are encouraged.

7. Funding Open Data Programs

When data exists in digital format, open data is not a high-cost initiative. Still, it requires some financing. A government needs some funding to support training of officials, development of an open data portal and, very importantly, investment in the reuse of its data (through co-creation events and selected apps development). Where there is a lack of data, open data can be used as a way to reduce the cost for data collection, digitization, and production, as well as attract investments.

The rating of readiness for Funding Open Data focuses on three key issues: (i) existence of resources and personnel for an open data program; (ii) availability of government funding for necessary ICT infrastructure and training; and (iii) government's track record for investing in innovation. A *green rating* can be supported when a government has identified some initial resources and personnel for its open data program, and also has a record of investing in innovation. A *yellow rating* is supported when a government is prepared to consider budgeting for open data even if funding is not yet committed, and it has some initial staff dedicated to preparing and managing an open data program. Yellow also applies when a government, even if constrained with limited resources, does manage to make some investment in innovation. A *red rating* is merited when a government to date made no indications of providing budget or a dedicated team to an open data program, and has no record in meaningful investment in innovation or entrepreneurship.

| Assessment | Importance |
|---|--------------------|
|  GREEN | Medium High |

Malaysia already runs an open data program and as such has already committed and allocated the necessary resources to create the needed infrastructure (a national open data portal). In addition, government funding is available for big data efforts and e-government programs, which are mutually strengthening the open data efforts to creating societal impact with data. Some agencies, notably DOSM, indicate that resources currently are a constraint in moving faster towards more data sharing and provisioning. Additional ways to extend the number of departments and agencies contributing to the open data efforts are needed, as MAMPU does not have the resources or manpower to do it all by themselves. The key to consolidating results from the open data program, however, lies less in funding needs, and more in raising awareness, building connections, and finding stronger champions amongst contributing agencies that are intrinsically motivated by the beneficial impact open data has on their own existing policy goals. Doing so will help current efforts yield more impact.

To promote innovation by the private sector and academia, the Malaysian government already deploys various innovation funding vehicles. These same vehicles are useful to help companies create innovative products and services using open data.

Evidence

Detailed below is the evidence considered to sustain the assessment of the current dimension. Evidence of readiness is scored with a “+” sign, evidence against readiness is scored with a “-” sign and evidence that has mixed implications or neither favors nor weighs against readiness are scored with a “⊕” sign.

| | | |
|---------------------|---|------------------------------|
| Evidence 7.1 | How could resources be identified to fund an initial phase of an open data program? Who would need to take what action to do so? | Importance: Very High |
|---------------------|---|------------------------------|

- + Malaysia is already running an open data program. MAMPU has an Open Data Taskforce.
- + In parallel to open data efforts, there is also a big data program, which shares goals of creating societal impact with data.
- + DOSM indicates money is a constraint in moving faster when it comes to data sharing and data provisioning.

| | | |
|---------------------|--|-------------------------|
| Evidence 7.2 | What, if any, resources exist or have any been identified to fund development of initial apps and e-Services that will use Open Data? | Importance: High |
|---------------------|--|-------------------------|

- + Both MAMPU and MDEC have organized hackathons where prize money was available, as well as resources to assist winners in working more closely with the relevant data owners and/or scaling their projects.
- ⊕ Within ongoing e-government projects, big data pilots and similar programs funding might be found, where open data can be used as a means to already formulated goals and desired results.

| | | |
|---------------------|---|--------------------------------|
| Evidence 7.3 | What funding is available to support the necessary ICT infrastructure and ensure enough staff have the skills needed to manage an open data program? | Importance: Medium High |
|---------------------|---|--------------------------------|

- + A national open data portal already exists, maintained by the Open Data Taskforce within MAMPU.
- ⊕ Additional ways to extend the number of departments and agencies contributing to open data efforts are needed, as MAMPU does not have the resources to do it all by themselves. However, such contributions depend more on building relationships and identifying champions than funding.

| | | |
|---------------------|---|--------------------------------|
| Evidence 7.4 | What funding mechanisms does the government have for innovation? | Importance: Medium High |
|---------------------|---|--------------------------------|

- + Various innovation funding vehicles exist. These include the Enterprise Innovation Fund for technological innovation (NITC Malaysia), the InnoFund (MOSTI), the Enterprise Innovation Fund (MoSTI) for SMEs and micro-businesses, and the Technology Innovation for Globalization (TIG) Fund for MSC Malaysia Status Companies.

8. National Technology and Infrastructure

The success of open data programs normally relies at least in part on the national technology infrastructure, including technology and communications services, and the ICT skills among officials, infomediaries, and the general public.

The rating of readiness for Technology and Skills Infrastructure focuses on five core issues: (i) overall ICT ecosystem and skills; (ii) access to high-speed Internet and mobile broadband; (iii) maturity of the government's ICT infrastructure and use of technology, especially use of shared infrastructure and services; (iv) ICT literacy among the population; and (v) strength of the ICT industry, local developer community and overall digital literacy. A *green rating* is merited by a combination of factors such as a government with a generally strong technical skill base, notable Internet penetration that is affordable to a large segment of the population, government use of shared ICT infrastructure and the Web, a vibrant local developer community, and digital literacy among a notable segment of the population. A *yellow rating* is applicable when Internet access is small but growing meaningfully, mobile penetration is significant, the government has a notable number of information management systems even if shared infrastructure/services are limited, and the digital divide is a real problem but the government is taking initiatives to address it. A *red rating* is merited when Internet access is unavailable or unaffordable to most citizens and mobile remains unaffordable to large segments of the population. Red is also appropriate where technical skills inside government are generally weak, and digital literacy among citizens is generally low, even in urban areas.

| Assessment | Importance |
|---|-------------|
|  GREEN | High |

Malaysians are well-connected to the Internet, predominantly through mobile broadband (90 percent), with speeds varying depending on location. The Malaysian population is active on the Internet (71 percent) with an increasing number of social media users (i.e. national usage of Facebook and Waze is very widespread). This Internet usage is handled by a wide variety of around 150 service providers over a growing architecture (e.g. currently 30 co-location centers) which supports the Malaysia's IT sector aspiration to compete with both Hong Kong and Singapore as a regional data hub. The ICT sector in general is well developed and growing, and government agencies offer an increasing variety of e-services. Moreover, a National Agenda exists, aimed at further increasing digital skills and digital literacy amongst the population, to also meet the growing demand of companies for these skills.

A wide variety of technical communities are active around different technologies and development platforms. These communities would not only appreciate more interaction with government around topics such as open data but would have the potential of becoming strategic partners for advancing the open data program in the country.

Evidence

Detailed below is the evidence considered to sustain the assessment of the current dimension. Evidence of readiness is scored with a “+” sign, evidence against readiness is scored with a “-” sign and evidence that has mixed implications or neither favors nor weighs against readiness are scored with a “⊕” sign.

Evidence 8.1

What is the local ICT “ecosystem”? Which technologies reach what proportion of citizens?

Importance:
High

- + Mobile penetration is at 145 percent (ITU 2015), some 50 percent have smart phones.
- + 68 percent of households have a computer (ITU 2015).
- + 71 percent of Malaysian individuals use the Internet, 70 percent of households have access (ITU 2015).

Evidence 8.2

What is the level and cost of Internet access, both by broadband and by mobile technologies?

Importance:
High

- + Some 150 network service provider licenses have been issued (MCMC 2015).
- + Fiber connections are available in Kuala Lumpur at 150 MYR (\$33) per month for 100Mbps, and 500Mbps at 300 MYR (\$66) per month.
- + Broadband connections generally are around 150 MYR (\$33) per month, though speeds may differ significantly between 2Mbps and 30Mbps depending on region and location.
- + Mobile data connections costs between 8 to 15 MYR (\$1.50 to \$ 3.30) per GB.
- + 90 out of 100 inhabitants have a mobile broadband subscription (nine out of 100 a fixed broadband subscription).

Evidence 8.3

How readily available is compute and store infrastructure?

Importance:
Medium High

- + There are some 30 co-location data centers available in Malaysia, over half of which are located in Cyberjaya and Kuala Lumpur.
- + Malaysia’s IT sector is aiming to compete with Hong Kong and Singapore as a regional data hub.

Evidence 8.4**How strong are the IT industry, developer community and overall digital literacy?****Importance:
High**

-  Malaysia ranks 61st in the ITU ICT Development Index, which also provides a measure for overall digital literacy. 71 percent enroll into secondary, 39 percent into tertiary schooling.
-  A National Agenda exists to improve technical skills amongst the general population, also to meet the existing demand of companies.
-  ICT constitutes 13 percent of GDP, plus an additional 5 percent as e-commerce, and 7.6 percent of employment (DOSM 2015). Government routinely outsources IT efforts.
-  Malaysians are strong social media users (with two thirds active on Facebook).
-  Smartphone usage and usage of geolocation services like Waze is high.
-  Developer communities exist, and have regular meet-ups. Communities exist around topics ranging from specific software or mobile platforms and coding languages, to start-ups/entrepreneurship, new technology (AI and block chain etc.), open source hardware, and big data. There is demand for more interaction with government entities from these communities.



CHAPTER 2

A Way Forward

1. Summary of the Assessment

In this chapter, the conclusions, recommendations and suggested actions are presented. Based on the observations and findings collected during the interviews and desk-research process, a summary of the assessment per dimension is shown in the table below.

The assessment's ratings are not intended to reflect how well Malaysia is or is not currently doing with open data, as the assessment is neither a score card nor an evaluation to compare the country's performance with other countries around the world. Rather, the ODRA is a diagnostic tool that establishes how well-positioned Malaysia is to move forward on open data (i.e. its readiness or the lack of) to realize its socio-economic potential. For each dimension, it highlights which elements (evidence) are conducive to an open data program, and the presence or absence of certain elements that are likely to become obstacles to advance it.



| | Dimension | Assessment | Importance | Remarks |
|----|---|---|-------------|---|
| 1. | Senior Leadership |  YELLOW Tending  Green | Very High | A national open data program exists, and general support for the concept is high. However, increasing open data buy-in amongst data-owning agencies is still a critical issue to be addressed in Malaysia. Stronger sense of purpose for open data as an instrument for impact may yield additional champions. |
| 2. | Policy and Legal Framework |  YELLOW | Very High | While data availability is high, access to data is challenging and remains an area of concern among data users in Malaysia. The legal framework is fragmented, and poses an obstacle to more open data as well as to sustained publication. Minor fees charged for data requests are inefficient and act as a further barrier. |
| 3. | Institutional Structures, Responsibilities and Capabilities within Government |  GREEN | Medium High | Clear lead institution, clear mechanisms for ICT projects. |
| 4. | Government Data Management/ Policies, and Data Availability |  YELLOW | High | Malaysia is a data-rich environment, but not much high-quality data is released in practice. There is little automated inter-agency data exchange, and fees are a hindrance to data users with little benefit to data owners. |
| 5. | Demand for Open Data |  YELLOW Tending  Green | Very High | CSOs, academia, and the business community articulate clear demand, though not all groups are well developed or organized. Case-by-case decision-making for data requests hinders responsiveness and predictability of data provision. |
| 6. | Civic Engagement and Capabilities for Open Data |  YELLOW Tending  Green | High | Notable ICT sector and apps exists, however, data journalism is not visible. Co-organized events occur, but more sustained interaction is possible after those events. |
| 7. | Funding Open Data Programs |  GREEN | Medium High | There are ongoing open data and big data programs and innovation funding. Acceleration likely lies in connecting existing elements, not increased funding. |
| 8. | National Technology and Skills Infrastructure |  GREEN | High | High Internet usage, mostly mobile broadband. Start-up and coding communities active. |

2. Conclusions and Recommendations

The assessment suggests that Malaysia is well-positioned to take their open data program forward, in line with the 11MP's aspirations of becoming a digitally strong and mature society. The overall conclusion is that connecting existing elements of the open data environment better will help generate significant returns. Connecting the existing elements, will increase consistency in how decisions concerning opening data are taken, how demand for data is met, and how publication is sustained. Such refining of procedural and operational mechanisms in support of open data will lead to increased impact of open data through re-use, as well as help improve public service effectiveness and efficiency.

Specific conclusions, clustered around the main goals of the open data program in Malaysia, are detailed below:

Increasing the impact of open data

The value of open data is realized when that data is used by diverse stakeholders, both within and outside of the public sector, for diverse purposes. Increasing the impact of open data means both increasing the consistency of data provision, and increasing the awareness of how such open data can be used in valuable ways.

Many important building blocks for creating impact with open data exist in Malaysia, but they are not yet connected into an ecosystem that is able to deliver visible results for Malaysian society or public services. The Malaysian government has set the goal of reaching the top 30 in the Open Data Barometer, which in practice is a useful measure for progress; however, not in and of itself likely to create momentum for open data with data owners and users. A focus on outcomes would be more relevant for gauging progress and performance.

The open data program competes with many other public-sector performance reform initiatives, which may dilute the attention and focus of data-owning agencies towards open data efforts. Moreover, while general high-level support and a national program exists, there is a lack of visible and passionate advocates amongst data owners and users as to the purpose and potential of open data. In order to increase open data buy-in amongst data-owning agencies, MAMPU could focus on making the case for open data as a tool linked to the achievement of specific socio-economic impacts in the policy domains of individual agencies. It would be also important to identify more champions within government departments and agencies, which MAMPU can supply with motivating use cases, examples, and practical guidelines.

The external demand for open data in the country is strong and there is continued interest from different actors to interact with data-owning agencies to better understand the content and quality of data, as well as the way it is collected and used inside government. However, this external demand has not yet been met despite the existence of an open data program.

There is strong interest from data-owning agencies in being exposed to tangible examples of how specific datasets are used elsewhere to create value. Collecting and sharing these examples will raise awareness for how open data is of value to the data owner itself, and increase willingness to act. Doing so for key policy domains will further increase momentum and help translate external evidence to Malaysia's context, policy goals and data owners, to help energize open data efforts in the country.

Improving public service effectiveness and efficiency through open data

Public-sector entities often turn out to be strong users of available open data, as the availability of open data reduces the friction of finding and applying that data to their own public tasks, and thus creates efficiency. Streamlining processes for deciding on data provision and abolishing fees where that makes economic sense, create more efficiency as well as more predictability, and thus effectiveness and result in more demand for the data. The quality of data is usually better served with wider usage and the feedback that results from such usage.

In Malaysia, inter-agency data sharing is in high demand; however, current approaches are seen as inefficient to attend this demand, and not much integration takes place yet in practice. Clarifying and simplifying legal and regulatory frameworks, and automating data provision where repeated requests are made, will create significant cost savings and will help address the latent demand which is currently unattended. For non-personal and non-sensitive data, open data would be the most effective and cheapest way to create inter-agency interfaces, and will also help provide a strong push towards making agencies more data-driven – which is another stated national policy goal to be achieved.

Many data-owning agencies still charge for data and in most cases, except where marginal costs are incurred, revenues collected from fees on data provision are reported as being relatively immaterial. Given that such fees flow to central government, this practice is a likely obstacle for tapping into external latent demand. Malaysia could consider mapping those revenues in detail, and comparing them with external evidence concerning their economic viability.

External stakeholders in Malaysia have indicated their interest in supporting data-owning agencies to improve open data provision and to help make the existent data more useful. Such assistance should be considered by MAMPU and data owners as a way to not only improve the strength of the open data ecosystem, but also to build collective confidence and trust in the value and usage of open data in the country.

Supporting open data usage to create socio-economic value for the Malaysian population

For open data usage to create socio-economic value, opening cannot be merely an additional step that public-sector bodies take as an afterthought to their regular operational processes. The data needs to be consistently, sustainably and reliably available for others to make more than occasional use of it. Streamlining procedural mechanisms, and encouraging consistency across the public sector, is of key importance for this. Doing this first for data where it is easiest, where demand is already clear, where the possible impact is already known based on international evidence, and where doing so lines up with the existing policy interests and with existing stakeholder networks of the data-owning agency, ensures that impact will be easier to achieve. It also helps build up the political motivation and operational experience to take additional steps to open up data where that may be currently harder to do so.

Malaysia is a digital data-rich country, and although historic data may not yet be digitized, digital data for all policy domains already exists, which provides a good basis for more open data. However, while many types of data are already made public, albeit at a generic and aggregate level, often they are

released in non-machine-readable format or with other restrictions. Removing such barriers, similar to how the national data portal in the last year turned more of its content into machine-readable format, should be considered as a priority action for the government, and would represent a quick win to move forward the open data program.

While some data is already being released both through the national portal as well as through individual requests, the legal framework itself, the distributed responsibilities in the OSA, and the existing different interpretations of OSA and PDPA, result in data owners or data requesters being generally uncertain about possibilities and constraints for obtaining data in Malaysia. Counteracting such existing concerns would require more central leadership, and practical assistance in simplifying decision and provision processes within agencies. Moreover, recurring and common data requests, currently all decided on a case-by-case basis, point to datasets for which strong demand exists, and providing this data through an open platform approach would also reduce the workload of the agencies involved.

The copyrights, awarded to government by law, mean using a Creative Commons licensing framework to indicate the removal of restrictions for releasing data is aligned with international best practices. In order to make it effective, the Circular, which prescribes its use, should be implemented in a more systematic manner.

MAMPU's current methodology to measure progress made with regard to open data, including monitoring the number, diversity and volume of open data published and the number of agencies involved, constitutes a good practice. Going forward, MAMPU should expand the monitoring framework to incorporate qualitative elements concerning the intensity of agency involvement, the level of interaction between agencies and external stakeholders, and the awareness within agencies. These would help to focus attention on the interconnectedness of stakeholders rather than the existence of individual building blocks.

3. Action Plan

Based on the above assessment and conclusions, specific actions are proposed to help drive Malaysia's open data agenda forward. The suggested actions are grouped around relevant ODRA dimensions, and are meant to work towards a stronger socio-economic impact of open data, given the current assessed situation as a starting point. While these actions are useful as standalone interventions, their impact will be greater when undertaken holistically. However, it is important to note that it is not necessary to undertake all of them at once. Therefore, as a more immediate next step, MAMPU can work with partners (government data-owning agencies and external stakeholders) to select and prioritize actions in order to create a strategic action plan.

PLANNING PHASE

1

Develop a time-based plan to select and prioritize actions in coordination with partners

Responsible Agency(s)

MAMPU in collaboration with data-owning agencies and selected partners.

All actions proposed in the action plan below are relevant and feasible to be implemented in the current country context. Deriving a time-based plan from these suggested actions should be done by taking into consideration the current needs and strategic priorities of selected data-owning government agencies and external partners. Based on willingness and opportunity, specific actions with specific partners can then be scheduled in a way that they are implemented effectively and efficiently.

Short-Term: Create an initial time-based plan, by selecting and prioritizing actions that will help address critical challenges.

Mid/Long-Term: Actions towards building the envisioned open data ecosystem is part of the regular planning cycle of MAMPU as well as other involved data-owning agencies.

2

Create lists of entry points, obstacles and concerns for each of the data-owning agencies to use as input to create individual agency specific action plans

Responsible Agency(s)

MAMPU with support of the World Bank team and in consultation with relevant data-owning agencies.

Interviews conducted during the implementation of the ODRA exercise produced a wealth of information. Listing in more detail the opportunities, constraints and concerns for individual data owners will allow MAMPU to build a specific action plan with each concerned agency, starting with the largest data owners. The actions included in the action plan below should be used to select and prioritize interventions for each of the targeted data-owning agencies.

Short-Term: Use the existing material from the assessment to identify entry points, obstacle and concerns for each of the targeted data-owning agencies.

Mid/Long-Term: Use the Government Open Data User Group described further below, to regularly collect feedback on opportunities, constraints and concerns to be addressed.

ACTION PLAN

ACTION 1.1

1. Senior Leadership

Map and document the desired impact of open data per policy domain and map external stakeholders pertaining to those policy domains

Responsible Agency(s)

MAMPU in collaboration with data-owning agencies and selected partners.

Every data-owning agency has policy goals specific to their domain, e.g. healthcare, transport, housing. Releasing data connected to those policy domains enables other stakeholders relevant to the domain to act. For example, releasing real-time traffic, parking, and public transport data can enable external stakeholders to help address traffic congestion. By connecting the type of impact an agency aims for in their policy domain with the data that can play a role in achieving those aims, a map is created. Such a map would constitute a useful tool to help prioritize which data should be opened first, as it is expected to have the highest policy-relevant impact.

In addition, identifying key stakeholders for each policy issue means creating a list of those who are most likely to put the related open data to good use. This creates a sense of purpose for the data-owning agency (i.e. data is released with a specific aim in mind, and for an intended user group). Other forms of use are then simply unintended additional benefits. Having such a sense of purpose leads to more agencies becoming champions for open data.

Short-Term: MAMPU and one or two data-owning agencies create, per agency, both a map of which datasets are connected to specific existing policy goals, as well as an external stakeholder analysis to identify who might want to use that data. This is used to choose one or more datasets to open up, and approach identified stakeholders to invite them to use the data.

Mid-Term: MAMPU provides a documented method for agencies to make the impact and stakeholder maps themselves. MAMPU continues to work with specific agencies to help them prioritize datasets to be released, based on the analysis of desired impact.

Long-Term: Every agency, when setting new or adjusting existing domain specific policy goals, also plans for related datasets to be released as open data.

ACTION 1.2**1. Senior Leadership****Build stronger data-owning agency buy-in for open data****Responsible Agency(s)**

This step can be led by MAMPU.

Raising awareness on how open data can be used to create value for society, as well as to support achieving results for the agency itself, will create buy-in and ownership among data-owning agencies. This should help establish champions amongst data owners, while also improving the quality of interaction between data users and data-owning agencies.

Short-Term: MAMPU and a few agencies do awareness-raising sessions to explain to a wide group of agency staff how open data is useful for the government agency and for society at large. People with enthusiasm for open data potential are identified, and can then be continually engaged in similar processes.

Mid-Term: MAMPU releases an information package that agencies can use to conduct internal awareness-raising campaigns. Identified champions within agencies are encouraged to interact and invite to these events different data user groups.

ACTION 1.3**1. Senior Leadership****Measure progress not just by data released or international ranking but also for quality of network and interaction****Responsible Agency(s)**

This step can be taken by MAMPU.

As most building blocks are already in place for open data in Malaysia, the greatest value will come from connecting different parts of the open data environment. This makes the quality and intensity of relationships among data owners, as well as with external stakeholders, a key success factor. Tracking the growth of the number of agencies involved in publishing data, next to the range of high-value and in-demand datasets published, the number and type of external stakeholders involved in using data, the frequency and depth of interaction between agencies and data, and the number and breadth of collaborative efforts resulting from that, provides a useful measure of how well different parts of the open data ecosystem are functioning together. The number of published datasets on its own is a much less useful metric and can easily be 'gamed'. International ranking will improve as a result of the above, but in itself is more of a lag indicator, and does not provide information on whether the country is taking the right steps towards the envisioned impact of open data, which will contribute to move in the international ranking.

Short-Term: MAMPU defines additional metrics to track.

Mid-Term: These additional metrics are published on the national open data platform.

Long-Term: These additional metrics become part of regular performance metrics for data-owning agencies.

ACTION 1.4**1. Senior Leadership****Launch a Government Open Data User Group (GODUG)****Responsible Agency(s)**

This step can be taken by MAMPU together with volunteering data-owning agencies.

Bringing together a group of data-owning agencies willing to meet informally to discuss and address open data issues, questions and actions will increase the cohesion and results of targeted actions. It will also provide a 'safe' space to discuss concerns in more detail and find collaborative solutions. Over time, the number of members can grow. From the collective experience, standards based on good practices can emerge, which can be applied more widely across government agencies. Collectively, guidance documents and other supportive material can be developed.

Short-Term: MAMPU and volunteering data-owning agencies hold regular informal meetings to share experiences and discuss concerns.

Mid-Term: All data-publishing agencies take part in the GODUG. Volunteers from within the group author some first guidance documents based on collective experience and identified good practices.

Long-Term: The GODUG is formalized or absorbed into existing similar structures, and regularly produces standards-setting documents and other materials to support agencies in implementing open data.

ACTION 2.1**2. Policy and Legal Framework****Provide clarification and guidance on the current legal framework****Responsible Agency(s)**

This step can be taken by individual data-owning agencies in collaboration with MAMPU.

Clarifying the legal framework for key data areas, providing guidance on appropriate data release, and especially reducing the need for case-by-case decision-making on data release will increase government efficiency and create better visibility for interested data users. As most data-owning agencies have their own regulatory context, this should be done at first on an agency-by-agency basis (prioritized by willingness of agencies and visible demand for specific datasets they hold), with lessons learned informing a general approach in the long term.

Short -Term: MAMPU and agencies distribute general infosheets on the legal framework for sharing data (covering OSA, PDPA amongst others) to increase the general knowledge level about legal constraints and possibilities within agencies.

Mid-Term: The current Circular defines the general legal possibilities for opening data, and explicitly covers how to decide upon opening up data (not just what to do when the decision has been taken).

Long-Term: The Circular or other regulation sets a mandatory 'open by default' principle for data: (a) all agencies should inventory their data holdings within 12 months, and (b) data should be open by default, non-open data should be the exception and the exceptions should be clearly listed in the instrument.

ACTION 2.2**2. Policy and Legal Framework****Map out the specific legal aspects concerning data sharing and publication for an agency and publish the results****Responsible Agency(s)**

This step can be taken by individual data-owning agencies with guidance from MAMPU.

Regardless of the actual legal situation, people inside agencies will have varying notions and concerns as to what is allowed or not when it comes to sharing or opening data. When confronted with legal or regulatory uncertainties, caution and restraint will be the logical result, even if not necessary. Creating an overview of precisely which regulations and rules apply to data within the agency, and publishing that overview publicly, creates a common reference point. This allows for more effective and consistent discussions around data release between agencies and external counterparts. The same is true for listing decision criteria used by data-owning agencies concerning confidentiality under the OSA.

Moreover, MAMPU's Circular, which stipulates various steps for public agencies on how to act when a decision on opening up data to the public has been made, needs to be communicated and implemented more systematically across government, in order to provide more clarity to data owners, and when possible should be amended to address a number of directives to support the 'open by default' principle.

Short/Mid-Term: MAMPU and data-owning agencies create an overview of which specific regulations concerning data protection, sharing or publication apply to them, next to any general legal requirements that apply, as well as how confidentiality decisions are evaluated. This overview is communicated within the agency, as well as published on the national open data portal, so government agencies and the general public can verify the actual legal situation.

Mid/Long-Term: All agencies, following the method MAMPU and key agencies already applied, create similar overviews of applicable legal regulations as well as how confidentiality decisions are evaluated, to be communicated internally as well as published on the national open data portal.

Mid/Long-Term: The Circular is amended to establish more cross-government consistency in providing data to third parties, using principles such as: 1) All data that is already public or has been publicly shared once, should be published as open data. 2) Providing data to one external party by default means supplying that same data to all (by publishing it in the open data portal). Preferably the original requester only gets their data through publication in the national open data portal. 3) Mandatory publication by all agencies of the above-mentioned applicable regulations, and especially the evaluation criteria for confidentiality decisions under the OSA.

ACTION 2.3**2. Policy and Legal Framework****Implement a Creative Commons license (CC0 and/or CC-BY)****Responsible Agency(s)**

This step can be taken by individual data-owning agencies, with guidance on methods to be provided by MAMPU.

Creative Commons (CC) BY (requiring only attribution of source) is congruent with the existing ToU for open data. Using CC Zero or CC BY adopts international best practice. As such, it provides certainty to data users about what they are allowed to do with the available data. The same license can also be used for agency websites and material within the existing copyright framework: it effectively pre-approves specific types of usage that normally require explicit consent.

Short-Term: MAMPU adds a CC License to the national open data portal.

Mid-Term: The ToU are made to explicitly refer to the proper CC License. Agencies are encouraged to add a CC license to their own online presences.

Long-Term: All government-published information and data is CC licensed.

ACTION 3.1**3. Institutional Structures, Responsibility and Capabilities within Government****Build a network of champions across government agencies****Responsible Agency(s)**

This step can be taken by MAMPU.

MAMPU cannot be solely responsible for open data provision. Finding and connecting champions in agencies is important to build a network of people able to raise open data awareness within their agencies, and amongst their stakeholders. MAMPU can use material such as use cases, international examples, and external demand in approaching agencies to find champions, and help those champions to advocate effectively.

Short-Term: MAMPU engages known champions within data-owning agencies and brings them regularly together. With them, sessions mentioned in Action 1.4 above are organized, resulting in more champions becoming visible.

Mid-Term: Visible champions are actively raising awareness within their agencies, and regularly come together amongst themselves and with MAMPU to learn from each other's experiences. These experiences are related back to their own organizations. The group of champions and their members are easy to find and contact by others across government.

ACTION 3.2**3. Institutional Structures, Responsibility and Capabilities within Government****Map out all current fees for data sharing and publication. Decide on their economic effectiveness****Responsible Agency(s)**

This step can be taken by the Ministry of Finance with input from MAMPU and the World Bank.

Currently, in many cases, fees apply when data is requested from an agency. International evidence shows that G2G fees are a net loss to government as a whole, as there is no net revenue, but there are always administration and collection costs. Additionally, requesting fees for external requests also carry administration, collection and enforcement of compliance costs with them. Where the collected revenues are small compared to the overall agency's budget, international evidence suggests that it is not only a net loss to the agency, but latent demand for the data is actively suppressed. Removing fees will in such cases result in costs savings, while releasing pent-up latent demand. Globally, nonlinear growth of data usage is observed where such fees are removed. Additional tax revenues from commercial re-use of that data (income taxes, corporate taxes) will soon be higher than the original revenue from fees. Creating an overview of where revenues are collected, and in what amounts, allows government agencies to determine which fees are economically ineffective and can be abolished, based on international evidence.

Mid-Term: Make an inventory of currently-established fees for data provision. Establish where such fees serve no economical purpose and remove those fees for data provision where possible.

ACTION 4.1**4. Government Data Management****Create and publish agency data inventories****Responsible Agency(s)**

This step can be taken by individual data-owning agencies, with guidance on methods from MAMPU.

Creating an inventory of which datasets an agency holds, e.g. which datasets contain personal information, in which technical format data exists, which data is critical for which processes, and for which purpose or public tasks it is collected, is a meaningful instrument. It can be used internally to structure data management. Publishing such an inventory means making internal and external stakeholders aware of which data exists and helps articulate demand, and improves the quality of data requests received. It also is a tool to help select and prioritize which datasets to publish as open data in which order (e.g. on the basis of technical feasibility, amount of work needed to anonymize or aggregate etc.). An inventory is a key and high-value dataset in itself, and each agency should consider publishing it as early as possible.

Short-Term: MAMPU and one or more data-owning agencies publish a first inventory of the data they hold.

Mid-Term: Within 12 months, key data-owning agencies, and agencies already publishing open data, create and publish data inventories. MAMPU provides guidance on methods and inventory format.

Long-Term: Publishing and maintaining data inventories becomes a mandatory part of existing data management standards.

ACTION 4.2**4. Government Data Management****For existing data in the platform, remove barriers to reuse (machine readability, open license specifically)**

| | |
|------------------------------|---|
| Responsible Agency(s) | This step can be taken by MAMPU together with data-owning agencies, and with feedback from external stakeholders. |
|------------------------------|---|

This continues the ongoing process to improve current data provision, by replacing PDFs in the national open data portal with machine-readable formats, adding proper open licenses etc. External stakeholders can provide feedback on which currently-published data they would like to see e.g. in another machine-readable format, or where they would like a dataset of different quality or scope.

Short-Term: Ongoing work to turn already-published information in the national data portal into machine-readable datasets continue. An open license is added to the portal, and to all machine-readable datasets.

Mid/Long-Term: New data is only added to the national open data portal with an open license and in machine-readable formats.

ACTION 5.1**5. and 6. Demand for Open Data and Civic Capabilities****Work to release some high-value datasets (e.g. maps, meteo, remote sensing, spending/budget, transport)**

| | |
|------------------------------|--|
| Responsible Agency(s) | This step can be taken by individual data-owning agencies in collaboration with MAMPU. |
|------------------------------|--|

There are a number of high-value datasets that have a double effect when released as open data. This concerns data such as detailed maps, meteorological data, remote sensing, transport and procurement/budget data. First, they are in high demand and will find immediate strong re-use. Second, they have a multiplier effect, because they can make using other smaller datasets easier or more valuable. For instance, maps can be used to combine other datasets more meaningfully. SMEs, evidence suggests, benefit in particular from this, and grow 15 percent faster with free access to open data maps. Releasing high-value datasets as open data is a clear signal to the business community, academic community and civil society that open data is considered a key tool in further developing Malaysia. Additionally, publishing high-value datasets will immediately improve Malaysia's ranking in the Open Data Barometer.

Short-Term: MAMPU collects evidence of socio-economic impact of high-value open datasets.

Mid-Term: MAMPU and a key data-owning agency plan to release one high-value dataset. One by one, high-value dataset owners are approached, and their high-value dataset(s) opened up.

Long-Term: High-value datasets are considered the fundamentals of a national open data infrastructure, and routinely released in full and in open formats.

ACTION 5.2**5. and 6. Demand for Open Data and Civic Capabilities****Connect external stakeholders to the data owners around data of common interest****Responsible Agency(s)**

This step can be taken by MAMPU.

External stakeholders with an interest in using data always appreciate direct interaction with the specialists inside data-owning agencies. Connecting the external stakeholders MAMPU has already met through e.g. hackathons and the portal this way will result in new meaningful conversations about the usefulness, quality and value of datasets. This also builds confidence for those agencies that publishing that data as open data will result in prudent use. Building these connections will help build more awareness within agencies, will result in more and better data being opened, and seeing that data used in meaningful ways.

Short-Term: MAMPU connects already-known external stakeholders with already-known champions within data-owning agencies.

Mid-Term: MAMPU and willing data-owning agencies actively invite external stakeholders to approach agencies directly, and in the national open data portal, publish contact details for internal champions for this purpose. A few agencies organize regular meet-ups and events with external stakeholders.

Long-Term: All government agencies name and identify a point of contact for open-data-related issues, and many create meet-ups with external stakeholders.

ACTION 5.3**5. and 6. Demand for Open Data and Civic Capabilities****Map out which types of data are commonly and repeatedly requested by other agencies and by external stakeholders. Take default decisions on these requests, and/or publish as open data****Responsible Agency(s)**

Step to be taken by individual data-owning agencies together with MAMPU.

Currently, most data requests from both other government agencies, as well as from external interested parties, are decided upon on a case-by-case basis. Listing which requests are received repeatedly and are most common allows a direct cost saving for data-owning agencies, by them taking default decisions on those frequent requests. It also increases the responsiveness of the agency involved. In addition, when possible, the requested data should be released as open data and further publication automated. This step makes requesting data unnecessary, and will also enable latent demand for the data to be met.

Mid-Term: MAMPU requests data-owning agencies to start tracking all requests for data they receive (from both within and outside government), and how the request was decided. MAMPU asks agencies which requests for data they send to other government agencies. MAMPU works with one or more agencies to create routine decisions for frequent requests. Frequently-requested data is considered for open data publication.

Long-Term: Data-owning agencies create routine decisions for most requests concerning datasets, and frequently-requested data is by default published as open data.

ACTION 5.4

5. and 6. Demand for Open Data and Civic Capabilities

Select the most relevant datasets and publish them as open data**Responsible Agency(s)**

This step can be taken MAMPU.

The assessment encountered strong demand among government agencies for their respective data. Once the mapping of most-commonly-requested datasets across various agencies is done and the legal situation clarified for each of those datasets, the list of high-demand data can be released in open format. Releasing that data as open data creates an instant inter-agency data interface (i.e. the national open data portal). This in turns increases the usage of the data, and increases efficiency for the agencies involved.

Mid-Term: Commonly-requested data is considered for open data publication based on the established legal context and then added to the national open data portal.

Long-Term: Commonly-requested data is by default published as open data.

ACTION 5.5

5. and 6. Demand for Open Data and Civic Capabilities

Launch an Open Data User Group (ODUG)**Responsible Agency(s)**

This step can be taken by MAMPU together with volunteering external stakeholders from the business and academic communities as well as civil society.

An ODUG with external users creates a clear channel through which feedback is exchanged and engagement can be mobilized. It is again a 'safe' space to raise questions and concerns, and to build trust, and can help focus the government's open data efforts on the most pressing needs and demands. Both the ODUG and GODUG should be well-aware of each other's discussions and activities, so efforts can be aligned to strengthen each other.

Short-Term: External stakeholders encountered (such as through Actions 8 and 11) are informally approached for feedback on current open data provided, and on new open data efforts planned by MAMPU.

Mid-Term: An ODUG is established, self-run by external stakeholders and meets regularly, providing input to GODUG members (Action 12)

Long-Term: ODUG is a routine part of government consultation concerning open data, and self-initiates documents and material to suggest improvements to open data, as well as actively collects feedback from a wide range of open data users.

ACTION 5.6

5. and 6. Demand for Open Data and Civic Capabilities

For existing data in the platform, approach data owners to provide the same data at one level or more of disaggregation**Responsible Agency(s)**

This step can be taken by MAMPU.

Making already-published data available at a more disaggregated and more granular level improves the usefulness of the published data. External stakeholders can provide feedback on which datasets in the national portal are of most interest at any given time.

Short/Mid-Term: Based on external feedback, MAMPU approaches agencies who have published data already to provide a more disaggregated version of the same data, where possible. This could be done using the Mexican model of “data squads” (each squad has 2 or 3 people that go agency-by-agency, on a rotating basis, to discover what data can be further disaggregated in each agency and respond to concerns).

Long-Term: Open data is always published at the level of granularity it is held in by government agencies, except where legal constraints mandate a higher level of aggregation.

ACTION 5.7

5. and 6. Demand for Open Data and Civic Capabilities

Involve external stakeholders in open data efforts**Responsible Agency(s)**

This step can be taken by MAMPU and data-owning agencies.

Several external stakeholders have offered help either in working with data-owning agencies to better understand data demand, or in working with MAMPU in improving data provision and making existing data more useful. Such offers should be embraced, as they strengthen the quality of interaction and help to overcome data owners’ concerns around how their data will be used. It also ensures that the agency does not have to work on the basis of assumptions of what data might be useful, but on the basis of ongoing constructive feedback.

Short-Term: MAMPU accepts existing offers of assistance by external stakeholders in improving current data provision, and collects feedback on new steps to be taken.

Mid/Long-Term: Feedback is routinely sought in the planning stage of open data efforts, e.g. through external stakeholders and the Open Data User Group (ODUG).



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