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# IP MANAGEMENT BY THE GOVERNMENT OF SINGAPORE

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**IP Management by the Government of Singapore**

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## I. Objectives of the assignment

WIPO is in the process of determining the experience of member states in managing the intellectual property (IP) rights arising through the activities of Government departments, institutions and agencies. Based on the understanding gained through the process WIPO will determine the appropriate programs of assistance, if any, that may be developed for the benefit of Member States.

This report sets out the position in Singapore and will cover broadly:

- Government funded research + process of IPM
- Big data by public agencies and its use
- Procurement and IP Management
- Content created by government
- Government signage
- Risk management for IP products by government

Some of these issues are over-lapping and the discussion of risk is raised as part of the discussion of the core subject areas for ease of reference and content.

## II. Identification of Governmental Research Entities - *identify and describe briefly the main functions and objectives of the leading Government ministries, departments, institutions and agencies in Singapore that engage in research that result in new and/or improved products and processes*

2.1 The following are the key governmental ministries, organisations, departments, institutions and/or agencies which engage in research that result in new and/or improved products and processes:

(a) Agency for Science, Technology and Research (“A\*Star”) – <https://www.a-star.edu.sg/>

An agency under the Ministry of Trade and Industry, A\*Star enables and supports research and development into areas of need, sustainability and competition for Singapore.<sup>1</sup> In particular, A\*Star partners with local enterprises and nurtures local start-ups. A\*Star also funds its own internal research projects and recently has come into the news for changing the way it provides funding for its institutes and researchers in order to stay competitive.<sup>2</sup>

(b) Agri-Food and Veterinary Authority of Singapore (“AVA”) – <https://www.ava.gov.sg/>

The AVA is a statutory board under the Ministry of National Development formed for the regulation of food safety, animal and plant health, and to develop and enhance the areas of agri-food and marine fisheries trade. The AVA has its own internal institutions to carry out research and development, such as the Marina Aquaculture Centre and the Post-Harvest Technology Centre. The AVA provides grants to local industries to support innovation.

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<sup>1</sup> <https://www.a-star.edu.sg>

<sup>2</sup> <https://www.straitstimes.com/singapore/astar-changes-the-way-it-funds-research>

(c) Defence Science Organisation (“DSO”) National Laboratories –

<https://www.dso.org.sg/>

DSO National Laboratories was set up to conduct research on future electronic warfare, and was formally established in 1977. In 1997, it was incorporated as a not-for-profit company. DSO National Laboratories includes different divisions conducting research and development on defence medical and environmental research, electronic systems, emerging systems (such as next-wave technologies in the areas of lasers and advanced materials), engineering, guided systems, information, and sensors.

The DSO National Laboratories works with the local institutions and universities (e.g. National University of Singapore, Nanyang Technological University, research institutes under A\*STAR and ST Engineering) in collaborative projects<sup>3</sup>, and also with overseas organisations and other national defence research agencies.<sup>4</sup>

(d) Defence, Science and Technology Agency (“DSTA”) – <https://dsta.gov.sg/home>

The DSTA, formed as a statutory board under the Ministry of Defence, implements defence technology plans, acquires defence equipment and supplies, and develops defence infrastructure for the Ministry of Defence.<sup>5</sup> Since 2005, the DSTA has put out an annual publication “DSTA Horizons” in order to share their work, projects and contributions.<sup>6</sup>

Recently, DSTA was engaged by the National Security Coordinating Secretariat to review the requirements for a National Cybersecurity R&D roadmap, as part of Singapore’s plan to improve and enhance national cybersecurity capabilities.<sup>7</sup>

(e) Economic Development Board - <https://www.edb.gov.sg/>

A statutory board under the Ministry of Trade and Industry, the EDB’s focus is on developing Singapore as a global centre or hub for business, innovation and talent. EDB offers incentives and grants for research and development.<sup>8</sup>

(f) Housing and Development Board (“HDB”) –

<https://www.hdb.gov.sg/cs/infoweb/homepage>

A statutory board under the Ministry of National Development, the HDB is focused on public housing in Singapore. It set up the Centre of Building Research in 2009 to spearhead research and development in building and environmental sustainability, while nurturing new technologies for future generations of public housing.<sup>9</sup>

<sup>3</sup> <https://www.dso.org.sg/collaborations/local>

<sup>4</sup> <https://www.dso.org.sg/collaborations/overseas>

<sup>5</sup> <https://dsta.gov.sg/home>

<sup>6</sup> <https://dsta.gov.sg/about/publications>

<sup>7</sup> <https://www.dsta.gov.sg/programme-centres/cybersecurity/developing-national-cybersecurity-roadmap>

<sup>8</sup> <https://www.edb.gov.sg/en/how-we-help/incentives-and-schemes.html>;

<https://www.startupdecisions.com.sg/singapore/incentives/business-incentives-singapore-companies/>

<sup>9</sup> <https://www.hdb.gov.sg/cs/infoweb/about-us/our-role/centre-of-building-research-page>

In 2017, the HDB entered into collaboration with Imperial College London and A\*STAR's Institute for Infocomm Research (I<sup>2</sup>R) for a S\$5.3 million research programme to study how smart sensing and analytics can enhance services within housing estates.<sup>10</sup>

- (g) Government Technology Agency (“GovTech”) - <https://www.tech.gov.sg/>  
GovTech was launched on 7 October 2016 to harness the use of technology in governmental services. Their focus is on 6 key areas, being data science, government infrastructure, application development, geospatial technology, cybersecurity and smart sensors.<sup>11</sup>

GovTech reports to the Smart Nation and Digital Government Group (“SNDGG”), under the auspices of the Prime Minister’s Office.

- (h) Ministry of Education (“MOE”) – <https://www.moe.gov.sg/home>  
The MOE is in charge of formulating, planning and implementing policies for education, such as curriculum, structure, pedagogy and assessment. It also manages and oversees education institutions which are publicly-funded.

The Academic Research Division of the MOE formulates, implements and reviews academic research and research manpower policies and funding under the RIE Masterplan for the universities, polytechnics and the Institute of Technical Education. It also reviews the progress and performance of the Research Centres of Excellence and administers funds for research.<sup>12</sup>

- (i) Ministry of Health (“MOH”) – [https://www.moh.gov.sg/content/moh\\_web/home.html](https://www.moh.gov.sg/content/moh_web/home.html)  
The MOH focuses its research and development efforts on scientific and health research with the aim advancing human healthcare and increasing the translational and clinical research capabilities of public hospitals, research institutions and medical researchers.

The MOH has established the National Medical Research Council (“NMRC”) to develop manpower and research capabilities, as well as fund research programmes and projects carried out by restructured hospitals, national disease centres and public tertiary educational institutions. The MOH also awards research grants to encourage research in areas MOH wishes to develop, such as the Communicable Diseases – Public Health Research Grant, the Care-At-Home Innovation Grant and Traditional Chinese Medicine Research Grant.<sup>13</sup>

- (j) National Research Foundation (“NRF”) - <http://www.research.gov.sg/>  
The NRF was founded on 3 January 2006 and takes the role of setting the national direction for research and development. The scope of the NRF’s role is develop

<sup>10</sup> <https://www.hdb.gov.sg/cs/infoweb/press-releases/research-collaboration-to-enhance-estate-services->

<sup>11</sup> <https://www.straitstimes.com/tech/govtech-launched-to-lead-digital-transformation-in-public-sector>

<sup>12</sup> <https://www.moe.gov.sg/about/org-structure/higher-education-group>

<sup>13</sup> [https://www.moh.gov.sg/content/moh\\_web/home/Fundings\\_and\\_Medical\\_Research.html](https://www.moh.gov.sg/content/moh_web/home/Fundings_and_Medical_Research.html)

policies, plans and strategies for research, innovation and enterprise; fund strategic initiatives; build up R&D capabilities and capacities through nurturing our own and attracting foreign talent; and co-ordinate the research agenda of different agencies.

The NRF also provides secretariat support to the Research, Innovation and Enterprise Council (“**RIEC**”), which is chaired by the Prime Minister.

(k) Public Utilities Board (“**PUB**”) – <https://www.pub.gov.sg/research>

The PUB’s research and development work is focused on the management of water and related technology, towards their mission of ensuring an efficient, adequate and sustainable supply of water. PUB works with local and international partners for their research & development. Since 2002, PUB together with stakeholders in Singapore’s water conservation and management efforts have collectively invested nearly half a billion dollars in research and development.<sup>14</sup>

(l) Singapore Sports Council, Singapore Sport Institute (“**SSI**”), Sports Science Centre – <https://www.sportsingapore.gov.sg/athletes-coaches/singapore-sports-institute>

The Sports Science Centre of the SSI’s role is to help athletes optimise performance through application of science, performance-testing and monitoring as well as research and education.<sup>15</sup>

The SSI offers the Singapore Sports Science & Technology Research Grant (“SSSTRG”) <sup>16</sup> which aims to support multidisciplinary sports research and development, including to build capability and capacity for sports-related science, medicine and technology research in Singapore, to use national science and technology capabilities for smart solutions to achieve success for Singapore athletes and to encourage and fuel collaborative research into advancing Singapore sports science.

2.2 There are other governmental entities which also engage in research but which may not necessarily produce or result in new and/or improved products and processes, such as the Ministry of Social and Family Development. These entities are not covered in this section on government R&D. However, where relevant in other parts of the report as an example or case study, these government entities will be referred to as appropriate.

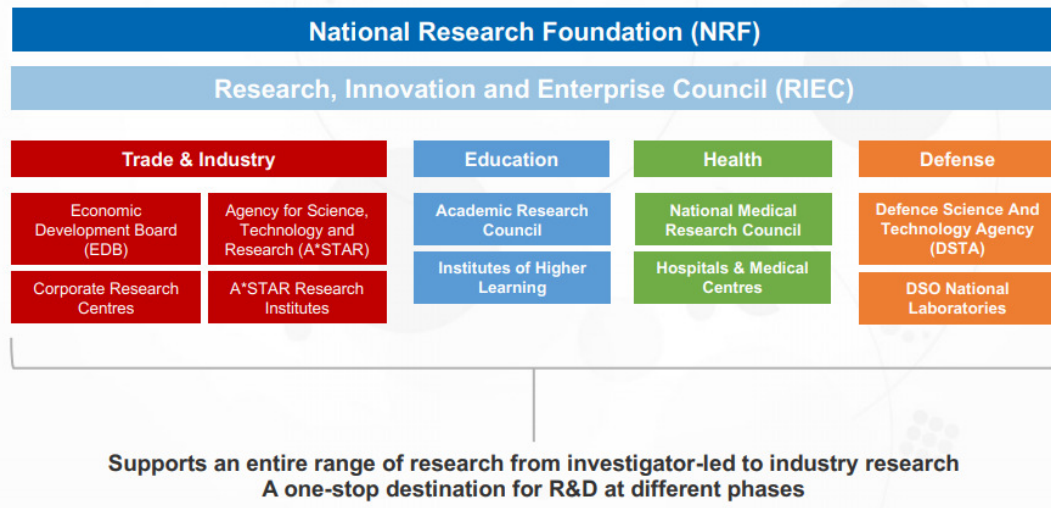
2.3 It may also be useful to see an overview of Singapore’s research ecosystem by way of an infographic prepared by the EDB, including education institutions and institutes of higher learning.<sup>17</sup>

<sup>14</sup> [https://www.pub.gov.sg/Documents/RD\\_in\\_Numbers.pdf](https://www.pub.gov.sg/Documents/RD_in_Numbers.pdf)

<sup>15</sup> <https://www.sportsingapore.gov.sg/athletes-coaches/singapore-sports-institute>

<sup>16</sup> <https://www.sportsingapore.gov.sg/athletes-coaches/singapore-sports-institute/science-and-technology/singapore-sports-science-technology-research-grant>

<sup>17</sup> <https://www.edb.gov.sg/content/dam/edb/edbsite/news-and-resources/resources/singapore-business-environment/singapore-business-environment-research-development.pdf>



**III. Systems and Procedures for IP Management – *what are the systems and procedures, if any, in place for dealing with the IP of such research results? This section relates to IP title, the ownership of such IP titles, where relevant revenue and commercialisation mechanisms***

- 3.1 The management, ownership and commercialisation of the intellectual property arising from research and development by the government would depend on their internal policies as well as whether such intellectual property was created in conjunction or collaboration with other entities / organisations. For example, where there was a collaborative venture. In such cases, the management of the intellectual property would likely be dependent the terms and conditions of such collaborative projects as agreed between the parties. Similarly, where research and development is conducted by private entities or industry players through award of grants from the government or public agencies, such grants would have their own specific terms and conditions which would usually include provisions as to the holding / apportionment of intellectual property rights.
- 3.2 One example of terms and conditions of a grant by the National Medical Research Council contains the following intellectual property rights clause:<sup>18</sup>

*“16. Intellectual Property Rights*

*16.1. Background Intellectual Property (“BIP”) is any existing IP brought by the Institutions and/or Collaborators into the Research. Unless expressly agreed otherwise, this Research shall have no effect on BIP.*

*16.2. All Intellectual Property howsoever arising from the Research (“Research IP”) shall, at the first instance, be the property of the Institutions in such proportions as they may determine. This is without prejudice to any agreement*

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[http://www.nmrc.gov.sg/content/dam/nmrc\\_internet/nmrc2.0/policiesAndGuidelines/NMRC%20Research%20Grant%20Terms%20and%20Conditions.pdf](http://www.nmrc.gov.sg/content/dam/nmrc_internet/nmrc2.0/policiesAndGuidelines/NMRC%20Research%20Grant%20Terms%20and%20Conditions.pdf)

*that the Institutions may enter into with the Investigators or Research Personnel on ownership and exploitation of Research IP.*

*16.3. The Investigators shall use best efforts to identify and disclose to the Institutions details of all such Research IP.*

*16.4. The Institutions shall keep and maintain a full, comprehensive and updated list of all Research IP, which shall be made available to Grantor for inspection at any time.*

*16.5. The Institutions shall use best efforts to ensure that Research IP is properly managed and wherever feasible, fully exploited and commercialised. When required to do so by Grantor, the Institutions shall attend such meetings as Grantor may direct to discuss the potential for exploitation and commercialisation of Research IP.*

*16.6. The Institutions shall keep and maintain a full, comprehensive and updated set of statements, records and accounts documenting the Revenue from the commercialisation and exploitation of the Research IP.*

*16.7. [Applicable to projects awarded to private companies or of national interest] The Government and public sector agencies shall reserve a non-exclusive, non-transferable, perpetual, irrevocable, worldwide, royalty-free right and licence to use, modify, reproduce and distribute the Research IP for non-commercial, R&D and/or educational purposes only."*

- 3.3 The above clause points to the private or collaborating entities retaining the use of the intellectual property rights, while the agency obtains a non-exclusive perpetual irrevocable and worldwide license and right to use the intellectual property rights for non-commercial purposes.
- 3.4 What is also interesting is the provision that the institutions have to use best efforts to manage the intellectual property rights and fully exploit and commercialise the same where this is feasible. There is therefore a *positive obligation* on the institutions to develop the intellectual property rights for commercial use.
- 3.5 There does not appear to be government policy documents or guidelines on such management of intellectual property which is publicly available, however from available statistics the government and public agencies do apply for and register their own intellectual property, such as patents. In recent years (as far as statistics are readily available), the data on patents owned, applied for and granted to private and public sector are as follows (the following is an excerpt):<sup>19</sup>

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<sup>19</sup> <http://www.tablebuilder.singstat.gov.sg/publicfacing/createDataTable.action?refId=1741>



	Year	Private	Public
Patents owned	2013	3,980	1,295
	2014	5,223	1,356
	2015	7,112	1,463
Patents applied for	2013	1,323	821
	2014	1,131	834
	2015	1,233	857
Patents granted	2013	217	717
	2014	204	707
	2015	254	734

- 3.6 From a search on the electronic registry of the Intellectual Property Office of Singapore, there are 3,697 of patent applications (whether in force, withdrawn, abandoned or pending) in the name of A\*STAR (ie. where the proprietor is the Agency for Science, Technology and Research).
- 3.7 There is also indication that the government or public agencies may not prefer to hold the rights to the intellectual property, depending on which party can best commercialise and bring more value to the same – this is especially the case for collaborative and sponsored projects. In the Science and Technology 2010 Plan published by the Ministry of Trade and Industry, it is stated that:<sup>20</sup>

***“The key consideration in IP agreements arising from collaborations is the right for the PROs to use and exploit the IP, even when partnering other collaborators in future research. Ownership is not necessary to guarantee these rights, but is an effective solution in practice.***

*Generally, these objectives can be achieved by arrangements where either joint ownership is provided for or the industry partner owns the IP, while allowing the PRO freedom to use the IP for research and development. The PRO should also have a share of the revenue generated by the industry partner (where the industry partner commercializes the IP). However, for the reasons stated below, these are not the most expedient solutions and PRO<sup>21</sup> ownership of the IP is preferred.*

***In the case of joint ownership, clear rules must be prescribed upfront on the management of IP protection and sharing of costs, particularly with regard to patents. Also, rights must be defined for dealing with the potential asymmetry of advantages accruing to commercial organizations who can exploit the technology themselves whereas PROs can only commercialize through licensing. Verification and monitoring of the industry partners’ obligations may be costly and difficult. Potential problems could also arise when a PRO needs to create a bundle of IP based on licenses from different industry collaborators, and when IP is***

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[https://www.mti.gov.sg/NewsRoom/Documents/app.mti.gov.sg/data/article/2461/doc/S\\_T%20Plan%202010%20Report%20\(Final%20as%20of%2010%20Mar%2006\).pdf](https://www.mti.gov.sg/NewsRoom/Documents/app.mti.gov.sg/data/article/2461/doc/S_T%20Plan%202010%20Report%20(Final%20as%20of%2010%20Mar%2006).pdf)

<sup>21</sup> Public research organisations

***owned by different parties. In such cases, fragmentation of IP ownership becomes an impediment to effective exploitation.***

***In collaborations and sponsored research, the basic premise in deciding the assignment of commercialisation rights should be to assign the rights to whichever party can best achieve it. The sponsoring agencies should receive a fair share of the revenue from commercialisation.***

***Appropriate structures and processes need to be in place at the PROs to encourage the valorisation of research. A clear mandate from the management is necessary and appropriate performance indicators relating to commercialization must be established to ensure focus. Research at PROs should cover technology validation and proof-of-concept activities that would bring the technology closer to the market and increase its likelihood of commercialization.***

- *IP Management and Processes*

*PROs should demonstrate their commitment by investing in proper commercialization management systems. PROs should have in place an organizational structure for commercialization of IP that allows for timely decision-making, appropriate risk management process, and flexibility in market approach. Employment, reward, assessment, and recognition systems have to be designed to provide incentives for researchers to encourage them to engage in commercialization activity. Technology and Competitive Intelligence (TICI) should be undertaken to analyse the strength of the PRO's IPs and their market potential. In particular, PROs need to pay more attention to portfolio building so as to enhance the success of bringing to market technologies with good commercial potential. Commercialization as well as incubation and spin-off management teams must also actively bring budding technologies to the companies to facilitate their commercialization.*

- *Technology Managers*

*Technology transfer offices must be able to hire staff with sufficient expertise as well as outsource certain activities to specialists as the need arises. Efforts by the IP Academy, IPOS, as well as Exploit Technologies, in providing training for IP professionals must continue.*

- *Availability of Early Stage Funding*

*The venture capital (VC) environment in Singapore is unlike that of the Silicon Valley or Boston-Cambridge. In Singapore, there are limited investments by VCs into seed-stage companies, with most VC funds focusing on later-stage companies, typically when they are already generating revenue. The limited funding available at the pre-seed and seed rounds generally discourages potential entrepreneurs from spinning-off companies out of PROs, unless there are alternative sources of funds that allows them a sufficient runway to achieve*

*milestones of significance (e.g. preclinical proof of concept) to attract early stage VC funds. PROs could have a role in this.”*

[emphasis added]

- 3.8 This approach was further reiterated in an article published by Mr. Lim Chuan Poh, A\*STAR Chairman and Mr. Suresh Sachi, A\*STAR Deputy Managing Director and General Counsel:<sup>22</sup>

*“Singapore recognises that a one-size-fits-all approach towards IP does not always result in the best outcome for innovation and growth. Our public sector's economic agencies leverage open innovation to strengthen Singapore's key industry clusters and grow new ones. **We do this by exercising flexibility in our approach when it comes to IP ownership, use and access rights. We also consider the nature of the collaboration and the needs of our industry partners, which include multinational corporations, large local enterprises, small and medium-sized enterprises (SMEs) and start-ups.***

...

*More than 70 per cent of the more than 1,000 technology licences signed with A\*Star between 2011 and last year have gone to SMEs and start-ups. These efforts were amplified through platforms such as A\*Star's GET-Up, Technology Adoption Programme and Headstart.*

*The Headstart licensing programme grants SME collaborators an exclusive, royalty-free licence for the first 18 months to start with. This provides access to practical and affordable technology and first-mover advantage, encouraging companies to participate in further R&D to create their own products and solutions.*

*Worldwide, the licensing of technologies is increasingly becoming the norm. The Association of University Technology Managers Annual Licensing Survey estimates that 6,900 licence agreements were closed by universities, research institutions, and hospitals in 2014, up from 4,900 in 2005. Closer to home, A\*Star's licensing numbers to companies grew from 40 in 2006 to 1,250 last year.*

*As a small country with scarce natural resources, Singapore's economic survival will increasingly depend on how well we are able to leverage our talent and intellectual assets. IP is a critical link in the innovation value chain. Just as critical is the need to steward what we have created with public funds to achieve greater economic outcomes and societal benefits for Singapore.”*

[emphasis added]

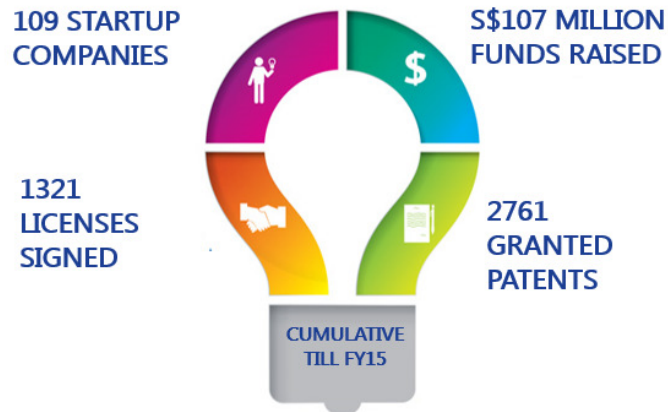
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<sup>22</sup> <https://www.a-star.edu.sg/News-and-Events/News/Editorials/ID/5111>

- 3.9 Oft-touted as having a successful commercialisation strategy, A\*STAR has its own commercialisation arm, Exploit Technologies Pte Ltd (“**ETPL**”) that works to facilitate and support technology transfer to the industry.<sup>23</sup> ETPL boasts the following statistics:<sup>24</sup>

» KEY STATISTICS

**OPEN INNOVATION PARTNER OF CHOICE**



- 3.10 An example of a successful start-up licensing A\*STAR’s technologies is Biotech company InvitroCue, which became A\*STAR’s first publicly-listed (on the Australian Securities Exchange) spinoff in January 2016. InvitroCue was incorporated in 2012 to license technology from A\*STAR. The company was created to hold the licences, bring in the investment capital needed and grow the technologies.<sup>25</sup> The spin-off licensed A\*STAR’s technologies to help drug-makers determine which vaccines, products or devices are safe to use in humans with technology incubated in A\*STAR. This method allowed them to side-step the burden of research and development costs of a start-up as well as enter into contracts with large pharmaceutical companies like Novartis.<sup>26</sup>
- 3.11 Another A\*STAR spin-off, Euchloe Bio, was incorporated in 2016 and licensed A\*STAR’s Singapore Immunology Network’s technology for therapeutic immune checkpoint target antibodies for cancer treatment and combination therapy. Euchloe Bio was acquired by Tessa Therapeutics (an immunotherapy company dedicated to revolutionising the treatment of cancer) in 2017.<sup>27</sup>

<sup>23</sup> <https://www.a-star.edu.sg/Portals/69/documents/Collaterals/20th-ann-com-pub-low-res.pdf>

<sup>24</sup> <https://www.etpl.sg/welcome/key-statistics>

<sup>25</sup> <https://www.straitstimes.com/business/companies-markets/invitrocue-takes-tech-licensed-from-astar-to-market>

<sup>26</sup> <https://www.etpl.sg/welcome/licensee-stories>

<sup>27</sup> <https://www.etpl.sg/welcome/licensee-stories>

- 3.12 Recent news is of another A\*STAR spin-off, Advanced Micro Foundry which specialises in silicon photonics technology and is valued at around US\$300 million.<sup>28</sup>
- 3.13 Moving forward, the RIE2020 plan includes schemes administered by the government agencies with the aim to allow industry players to work with the public agencies to commercialise and capitalise on the intellectual property from government research and development. This includes:<sup>29</sup>
- (a) Centralised Gap Funding;
  - (b) Innovation & Enterprise (“**I&E**”) Cluster Fund;
  - (c) Early Stage Venture Fund (“**ESVF**”):
- 3.14 Also, in September 2017, the Minister of Finance Mr. Heng Swee Keat announced at the opening of the Singapore Week of Innovation and Technology that the National IP Protocol will be implemented to enable technology transfer from the government to commercial enterprises and start-ups. What this means is that the government will “*connect publicly-funded R&D to start-ups and enterprises for commercialisation*”<sup>30</sup> – ie. allowing the government agencies to grant exclusive, non-exclusive licences or even assign intellectual property to enterprises. The National IP Protocol will encourage public agencies to work closely with enterprises, which can develop and commercialise the intellectual property into products and services that create economic and social value for Singapore.<sup>31</sup>
- 3.15 However one issue with public agencies licensing their intellectual property rights to industry players on a non-exclusive basis is that this may make it more difficult for industry players to grow a competitive advantage. In IPOS’ “Update to the Intellectual Property Hub Masterplan” published in May 2017, it is stated that:<sup>32</sup>
- “4.4.10 The IPTM study calls for better access by the private sector, especially the SMEs, to government IP. Its survey found that some businesses preferred to have exclusive rights when licensing IP, in order to protect their commercial interests. However, some public research institutes leaned towards non-exclusive licensing, in hopes of more widely disseminating new technologies. The study found that greater collaboration between industry and public research institutes, as well as clearer IP commercialisation policies and strategies, may lead to better commercialisation of government IP and innovation outcomes.”*

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<sup>28</sup> <https://www.todayonline.com/singapore/astars-commercial-foundry-pole-position-be-supplier-new-technology>

<sup>29</sup> <https://www.nrf.gov.sg/rie2020/growing-a-vibrant-national-innovation-system>

<sup>30</sup> [https://www.mof.gov.sg/Newsroom/Speeches/Opening-Address-By-Mr-Heng-Swee-Keat-Minister-For-Finance-At-Opening-of-Singapore-Week-of-Innovation-amp-Technology-\(SWITCH\)-Founding-A-New-World-At-M](https://www.mof.gov.sg/Newsroom/Speeches/Opening-Address-By-Mr-Heng-Swee-Keat-Minister-For-Finance-At-Opening-of-Singapore-Week-of-Innovation-amp-Technology-(SWITCH)-Founding-A-New-World-At-M)

<sup>31</sup> [https://www.mof.gov.sg/Newsroom/Speeches/Opening-Address-By-Mr-Heng-Swee-Keat-Minister-For-Finance-At-Opening-of-Singapore-Week-of-Innovation-amp-Technology-\(SWITCH\)-Founding-A-New-World-At-M](https://www.mof.gov.sg/Newsroom/Speeches/Opening-Address-By-Mr-Heng-Swee-Keat-Minister-For-Finance-At-Opening-of-Singapore-Week-of-Innovation-amp-Technology-(SWITCH)-Founding-A-New-World-At-M)

<sup>32</sup> [https://www.ipos.gov.sg/docs/default-source/about-ipos-doc/full-report\\_update-to-ip-hub-master-plan\\_final.pdf](https://www.ipos.gov.sg/docs/default-source/about-ipos-doc/full-report_update-to-ip-hub-master-plan_final.pdf)

**IV. Procurement – to what extent is procurement used by the government for initiating innovative solutions of public interest and as a tool to support the development of innovative local SMEs. Are there laws, regulations or guidelines for managing the IP arising out of such procurement contracts?**

4.1 It appears that while the government may be using procurement as one of the methods (though not a key method) to help local SMEs and start-ups with innovation in the industry, this may not be as effective as other methods such as grants. The Singapore Business Federation's Recommendations for Budget 2018 states that:<sup>33</sup>

*“Despite the benefits associated with government procurement, participation of SMEs in government procurement is still low. There are currently about 70,000 registered GeBIZ Trading Partners but only 5,000 to 8,000 accounts are active. Contrasting this number to the approximate figure of 200,000 existing SMEs in Singapore (Singapore Department of Statistics), this means that only 2.5 to 4 percent of SMEs take part in government procurement, assuming all the above-mentioned active accounts belong to SMEs. The NUS study found that government procurement entities (GPEs) might not possess up-to-date market knowledge on products and services available in the market place. Thus, the specifications drawn up by GPEs might not be up to date and could restrict participation to a smaller number of suppliers...”*

4.2 This seems to also have been an issue raised in 2017 during parliamentary debates on the Budget, where the Second Minister for Finance Mr. Lawrence Wong had responded that more than 80% of government contracts (comprising about half the total value of government contracts) go to SMEs each year. More is also being done to support SMEs, such as government agencies using crowdsourcing, ie. partnering businesses, the community and individuals, to come up with innovative solutions, and ensuring that tenders are appropriately sized to give SMEs a chance to compete for them.<sup>34</sup>

4.3 Apart from the regular procurement process, there is also the enhanced Partnership for Capability Transformation (“PACT”) programme by SPRING Singapore<sup>35</sup> which provides grants to SMEs and start-ups to undertake innovative projects initiated by government or public agencies. The government or public agencies will identify problem statements that require innovative solutions that do not yet exist in the market, and call for proposals from the industry to develop and test-bed solutions. Local SMEs and start-ups whose proposals are accepted are eligible for up to 70% funding support.<sup>36</sup>

4.4 One example of such a call for proposals is the “GOV-PACT Innovation Call For Drone Inspection System for Building Façade” jointly issued by the Building Construction Authority and the HDB, the purpose of which is to “develop an

<sup>33</sup> [https://www.sbf.org.sg/images/2018/SBF-SME-Committee-Budget-Recommendations-2018\\_Full-Report.pdf](https://www.sbf.org.sg/images/2018/SBF-SME-Committee-Budget-Recommendations-2018_Full-Report.pdf)

<sup>34</sup> <https://www.reach.gov.sg/participate/discussion-forum/2017/03/08/more-chances-for-smes-to-get-government-projects>

<sup>35</sup> <https://spring.enterprisesg.gov.sg/Developing-Industries/Industry-Initiatives/Pages/partnerships-for-capability-transformation.aspx>

<sup>36</sup> <https://www.mof.gov.sg/Newsroom/Parliamentary-Replies/government-tender-opportunities-for-local-smes>

*integrated inspection system, using advanced image-capturing drone and computing technologies, assisted by artificial intelligence to perform autonomous defect detection, based on image recognition and machine learning*".<sup>37</sup> This is aimed at local companies, as well as local institutes of higher learning and research institutes.

4.5 In November 2017, the Minister for Finance Mr. Heng Swee Keat stated in his Ministerial Address at the Future Economy Conference and Exhibition that:<sup>38</sup>

*"...Public sector procurement allows us ways to actively support and catalyse the development of new technologies, to the benefit of growing SMEs.*

*i. Gov-PACT works with SMEs and start-ups without track record on projects initiated by government agencies – this allows the businesses to build up their capabilities and even innovate new solutions.*

*ii. Since April this year, SPRING has worked with six government agencies on Gov-PACT.*

*iii. The third Open Innovation Call by JTC, launched in partnership with Gov-PACT, issued eight challenge statements, SMEs came forward with 70 proposals offering promising solutions..."*

4.6 There does not appear to be government policy documents or guidelines on such management of intellectual property which is publicly available for procurement.

4.7 However, according to an article published by Mr. Kow Keng Wee (credited as Head of the Legal Department in DSTA and Head of the Agency & Statutory Law Practice in MINDEF Legal Services at the time) in DSTA Horizons 2007, "*Managing Intellectual Property in Procurement – Applicable Laws and Policies for MINDEF and the Local Defence Industry*"<sup>39</sup>, the general government position on intellectual property rights arising out of such research and development is that it would only procure or retain such rights that are necessary for operational reasons, and allow the intellectual property rights to be owned by the party who is in the best position to commercialise the same (with the exception where there are national security and national interests issues).

4.8 In summary the position as articulate by Mr Kow are :

*a) that the Government will only acquire IP rights based on actual need, such as those which are necessary to support and develop national defence capabilities;*

<sup>37</sup> <https://www.bca.gov.sg/GovPACT/drone.html>

<sup>38</sup> <https://www.mof.gov.sg/newsroom/speeches/Ministerial-Address-by-Mr-Heng-Swee-Keat-Minister-for-Finance-at-The-Future-Economy-Conference-and-Exhibition-2017-at-Marina-Bay-Sands-Expo-amp-Conven>

<sup>39</sup> [https://www.dsta.gov.sg/docs/default-source/dsta-about/dh2007\\_chapter\\_05.pdf?sfvrsn=2](https://www.dsta.gov.sg/docs/default-source/dsta-about/dh2007_chapter_05.pdf?sfvrsn=2)



*b) that the local defence industry (i.e. the contractor) should own the Foreground IP under procurement contracts unless to do so would be contrary to national interests or prior commitments with strategic partners, allies or friendly nations (e.g. pursuant to TTAs or MOUs);*

*c) that the Government will obtain appropriate rights to the IP at appropriate times for the purposes of using and supporting the defence system which has been supplied by the contractor in the course of procurement; and*

*d) that the Government will be committed in supporting the local defence industry to commercialise the Foreground IP that arises from procurement contracts.*

- 4.9 The above IP principles are generally consonant with international norms and modern procurement standards. They emphasise the need for the Government to promote the local defence industry by actively allowing the latter to exploit or commercialise the IP derived during the course of procurement. Mr Kow emphasised that these principles not only encourages the industry's contribution to national defence capabilities, but also sustains the market competitiveness of the defence procurement regime. It was noted that these same IP principles have since been adopted as policies by the UK's Ministry of Defence (MoD) and Australia's Department of Defence (DoD) as part of their procurement practice.

## **V. Government Guidelines for Managing IP – the Singapore Perspective**

- 5.1 The UK and Australian approaches to defence IP management have provided much impetus to the formulation of Singapore's IP policies for procurement. In 2004, the Ministry of Law and the IPOS tabled a set of guidelines for managing IP in Government agencies. Several principles were devised, none of which deviated significantly from the general ones that have been enunciated above.
- 5.2 This was followed by a circular that year issued by the Ministry of Finance which documented the Government's decision that its agencies "procure or retain only IP rights that they need for operational reasons, and allow the IP to be owned by the party who is in the best position to exploit the IP in the commercial space". That said, the same circular also lists certain situations where the Government agencies may still choose to own the IP arising from procurement, namely, "where there are national security or national interest implications in letting the contractor own the IP". All these pronouncements were to apply to public procurement at all levels, be them by Ministries, Departments, Statutory Boards or Organs of State. Inevitably, they would also apply to MINDEF and its central procurement arm for the purposes of defence acquisitions, DSTA.
- 5.3 Overall, it appears that the governmental position is that it does not seek to own or hold title to intellectual property obtained from research and development conducted in collaboration with industry partners – but conversely encourage that these industry partners take steps to actively commercialise the intellectual



property and produce new products and processes from the same in order to benefit local society, economy, industry and technology. There is also a focus on assisting SMEs or local enterprises to conduct and capitalise on such products of research and development through procurement and grants.

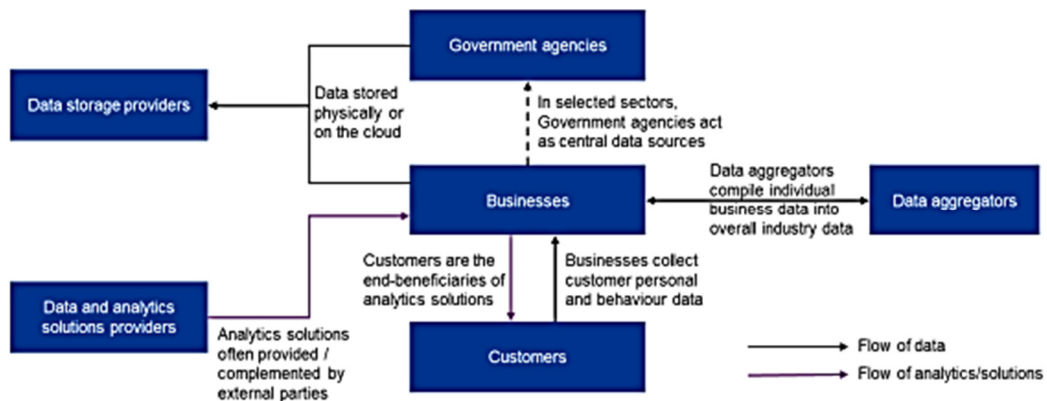
## VI. **Big Data & Management of Data – *collection and use of data; what procedures are in place or applicable regulations?***

6.1 The term “big data” is defined by the Oxford English Dictionary to be “extremely large data sets that may be analysed computationally to reveal patterns, trends, and associations, especially relating to human behaviour and interactions”<sup>40</sup>.

6.2 According to a report by KPMG dated 16 August 2017 (engaged by the Competition Commission of Singapore), findings from their study of the data and analytics landscape in Singapore are set out.<sup>41</sup> The following are key excerpts from the same.

(a) Main players in the data and analytics landscape in Singapore:

- (i) Government agencies;
- (ii) Businesses;
- (iii) Customers;
- (iv) Data analytics solutions providers;
- (v) Data storage providers; and
- (vi) Data aggregators.



(b) The study covered 6 sectors, including the impact and contributions of governmental and public agencies on the collection, use and commercialisation of data in the relevant sectors:

- (i) Digital Media Sector
- (ii) Finance Sector
- (iii) Healthcare Sector
- (iv) Consumer Retail Sector

<sup>40</sup> [https://en.oxforddictionaries.com/definition/big\\_data](https://en.oxforddictionaries.com/definition/big_data)

<sup>41</sup> <https://www.ccs.gov.sg/-/media/custom/ccs/files/media-and-publications/publications/occasional-paper/understanding-the-data-and-analytics-landscape-in-singapore--kpmg-16-aug-2017final.pdf>

- (v) Land Transport Sector
- (vi) Logistics Sector

6.3 The legislation which may be applicable is the Personal Data Protection Act 2012 (“PDPA”). Under the PDPA, “personal data” is defined as “*data, whether true or not, about an individual who can be identified (a) from that data; or (b) from that data and other information to which the organisation has or is likely to have access*”.<sup>42</sup> The PDPA applies if there is collection, use or disclosure of such data where an individual can be identifiable. The PDPA provisions as to protection of personal data does not apply to anonymised data – ie. where the data does not fall into the meaning of “personal data” as defined in the PDPA. The advisory guidelines issued by the Personal Data Protection Commission on 28 March 2017 defines “anonymisation” as “*the process of converting personal data into data that cannot be used to identify any particular individual, and can be reversible or irreversible*”.<sup>43</sup>

6.4 The PDPA does not impose obligations on any public agency or an organisation in the course of acting on behalf of a public agency in relation to the collection, use or disclosure of the personal data. However, the Public Sector (Governance) Act 2018<sup>44</sup> does provide as follows:

**“Division 2 — Directions on data sharing**

**Authority to share**

**6.—(1)** *Where a data sharing direction is given to a Singapore public sector agency —*

(a) *the Singapore public sector agency and every officer of that agency; and*

(b) *where the Singapore public sector agency is a public body, the members of the public body,*

*are authorised to share the information under the control of the Singapore public sector agency with another Singapore public sector agency to the extent permitted by the data sharing direction despite any obligation as to confidentiality under the common law.*

(2) *However, subsection (1) does not override any obligation as to confidentiality because of legal privilege or contract.*

(3) *To avoid doubt, this Act is not intended to prevent or discourage the sharing of information by Singapore public sector agencies as permitted or required by or under any Act or other law (apart from this Act).*

<sup>42</sup> <https://sso.agc.gov.sg/Act/PDPA2012>

<sup>43</sup> <https://www.pdpc.gov.sg/-/media/Files/PDPC/PDF-Files/Advisory-Guidelines/finaladvisoryguidelinesonpdpaforselectedtopics28march2017.pdf>

<sup>44</sup> <https://sso.agc.gov.sg/Acts-Supp/5-2018/Published/20180305?DocDate=20180305#P12-P22->

**Unauthorised disclosure and improper use of information**

7.—(1) If —

- (a) an individual discloses, or the individual's conduct causes disclosure of, information under the control of a Singapore public sector agency to another person (whether or not a Singapore public sector agency);
- (b) the disclosure is not authorised by any data sharing direction given to the Singapore public sector agency;
- (c) the individual is a relevant public official of the Singapore public sector agency at the time of the disclosure; and
- (d) the individual does so —
  - (i) knowing that the disclosure is not in accordance with that direction; or
  - (ii) reckless as to whether the disclosure is or is not in accordance with that direction,

the individual shall be guilty of an offence and shall be liable on conviction to a fine not exceeding \$5,000 or to imprisonment for a term not exceeding 2 years or to both.

(2) In proceedings for an offence under subsection (1), it is a defence for the defendant to prove, on a balance of probabilities, that the defendant disclosed, or caused the disclosure of, information under the control of a Singapore public sector agency —

- (a) as permitted or required by or under an Act or other law (apart from this Act); or
- (b) as authorised or required by an order of court.

(3) If an individual —

- (a) makes use of information under the control of the Singapore public sector agency when he or she is a relevant public official of a Singapore public sector agency or a contractor (or an employee thereof) supplying goods or services to a Singapore public sector agency; and
  - (b) obtains a gain for himself or herself as a result of that use,
- the individual shall be guilty of an offence and shall be liable on conviction to a fine not exceeding \$5,000 or to imprisonment for a term not exceeding 2 years or to both.

(4) In proceedings for an offence under subsection (3), it is a defence for the defendant to prove, on a balance of probabilities, that the information under the control of a Singapore public sector agency was, at the time of its use by the defendant, generally available information.

(5) In this section —

“disclose”, in relation to information, includes provide access to information;

“gain” means —

- (a) a gain in property or a supply of services (whether temporary or permanent); or
- (b) an opportunity to earn remuneration or greater remuneration or to gain a financial advantage otherwise than by way of remuneration;

*“generally available information” means information that consists of readily observable matter, including information that consists of deductions, conclusions or inferences made or drawn from readily observable matter;*

*“relevant public official”, for a Singapore public sector agency, means —*

- (a) an officer of the Singapore public sector agency;*
- (b) a member of a Group 1, Group 2 or Group 3 public body which is that Singapore public sector agency, or of the governing body of such a public body;*  
*or*
- (c) the chief executive of a Group 1, Group 2 or Group 3 public body which is that Singapore public sector agency.*

***Unauthorised re-identification of anonymised information***

***8.—(1) If —***

- (a) an individual takes any action to re-identify or cause re-identification of the person to whom anonymised information under the control of a Singapore public sector agency relates;*
  - (b) the re-identification is not authorised by any data sharing direction given to the Singapore public sector agency;*
  - (c) the individual is a relevant public official of the Singapore public sector agency at the time of taking that action; and*
  - (d) the individual does so —*
    - (i) knowing that the re-identification is not authorised by that data sharing direction; or*
    - (ii) reckless as to whether the re-identification is or is not authorised by that data sharing direction,*
- the individual shall be guilty of an offence and shall be liable on conviction to a fine not exceeding \$5,000 or to imprisonment for a term not exceeding 2 years or to both.*

*(2) In proceedings for an offence under subsection (1), it is a defence to the charge for the accused to prove, on a balance of probabilities, that —*

- (a) the information on the identity is publicly available; or*
- (b) the action to re-identify or cause re-identification is —*
  - (i) permitted or required by or under an Act or other law (apart from this Act); or*
  - (ii) authorised or required by an order of court.*

*(3) In this section —*

*“anonymised information” means any information which is in anonymised or de-identified form;*

*“relevant public official” has the meaning given by section 7(5).”*

- 6.5 At the Second Reading of the Public Sector (Governance) Bill on 8 January 2018, Mr Ong Ye Kung, Minister For Education (Higher Education And Skills) And Second Minister For Defence stated as follows:<sup>45</sup>

“... 3. *Each statutory board has a constituting Act which spells out its powers and functions and the key governance requirements. These Acts provide for the statutory boards to be separate legal entities from Ministries, and to be governed by their own Board of Directors. This allows them greater autonomy over day-to-day running of operations, and ensure greater responsiveness, efficiency and effectiveness. To illustrate, statutory boards have broad discretion over operational issues; can exercise some flexibility over terms and conditions to hire employees; can own land, and raise capital by issuing bonds.*

4. *At the same time, statutory boards are part of government and cannot be totally independent either, and Ministers are ultimately accountable for their performance in this House. **How statutory boards operate must therefore be in line with the policy directions set by Ministers and their ministries. They must also abide by important tenets of governance, such as standards of conduct and discipline, principles of remuneration such as the clean wage policy, that apply to the whole Public Service.***

5. *In short, statutory boards are part of the government, to be governed centrally, but deliberately constituted as separate entities for operational flexibility. Legislation must reflect that intent, and that balance.*

...

7. *Because of the considerable time span during which different statutory boards were established, the key governance requirements in the Acts of our statutory boards are not even. The central agencies, which are the Public Service Division and Ministry of Finance, together with the Smart Nation and Digital Government Office and Ministry of Communications and Information, recently did a comprehensive stock-take of all these Acts. **This Bill will reduce and minimize this unevenness, with a view to institutionalize a clearer and consistent governance framework for statutory boards. It will therefore achieve three main objectives:***

- a. *First, standardise key governance requirements amongst statutory boards.*
- b. *Second, make explicit requirements for Statutory Boards to comply with key corporate policies in HR, finance, office administration, and IT. They are already doing so by abiding the Government Instruction Manuals or IMs, but we should provide for formal legislative backing.*
- c. *Third, improve the data sharing scheme. I am specifically addressing this governance policy because it is a more recent requirement.*

<sup>45</sup> <https://www.psd.gov.sg/press-room/speeches/speech-on-public-sector-governance-bill-by-mr-ong-ye-kung--minister-for-education-higher-education-and-skills-and-second-minister-for-defence--at-parliament>

*d. And fourthly, finally, this Bill also makes related amendments to five Acts.*

*8. Let me go through each area in turn.*

...

*16. The use of data has transformed the way services are conceived and delivered, to bring greater convenience and faster, seamless service to users. For example, when we drive, our location data is aggregated with other drivers, shared with an app company to generate real time traffic condition maps to guide our travels. The Public Service is also using data to better serve the public, in two ways. The first, is to better provide front line service.*

*17. MSF's Social Service Offices (SSOs) is a good example. When a resident applies for financial assistance at an SSO, he does not need to submit various documents before receiving assistance. The front line officers already have access to data, from multiple agencies to swiftly evaluate his or her eligibility for financial assistance.*

*18. Another example is MyInfo, a "tell-us-once" platform for Government services that the Public Service is currently developing. When an individual wants to perform an online Government service transaction, such as applying for a HDB Build-to-Order flat, enrolment into polytechnics or applying for baby bonus, he or she only needs to log in via SingPass, and MyInfo will automatically pre-fill the application form with his or her information. This is achieved by pooling an individual's personal data from multiple agencies securely through a central platform, and the outcome is a more hassle-free and seamless online transaction process for the applicant.*

***19. Another way to improve public service is to better use data for analysis and to develop policies and programmes. For example, government agencies are using the Enterprise Data Hub (EDH), a central repository of business entity data, to better understand industries and companies, bring about better analytical insights, and improved support strategies for industries and businesses. In the case, of MOE, we can put together data on past education attainment, family background, jobs and careers to better understand the relationship between education and careers.***

***20. But in doing such analysis, we need to anonymize the data because it is the aggregated trend and causal relationships that we are seeking to understand. Hence, we will set up centralized data custodians, where raw data from different sources will be matched, and anonymized, before being released to relevant agencies for analysis.***

*21. Such cross-agency data sharing initiatives are already happening today, because technology has made it possible. But we need to strengthen the rules,*

which were written before we could envisage how we can leverage data to improve our work and deliver services better. There are three areas of improvement.

**22. First, the Bill provides the bases for data to be shared between public sector agencies. Specifically, there are seven specific purposes supporting public interest, under which data can be shared under the direction of the Minister. This is backed up by amendments to the Civil Service's internal guidelines to further elaborate the conditions for sharing. In gist, identifiable personal data is shared when services need to be better delivered to the individual, while non-identifiable data is shared to improve policy analysis, planning, and formulation.**

**23. Second improvement, under today's rules, there is an asymmetrical distribution of responsibility between data owning and data requesting agencies. The requesting agency is using the data, but yet the owner is responsible and accountable for the security of the data. This Bill will correct this asymmetry, and makes clear that it is the user that will be accountable for the protection and safeguarding of data passed to them.**

**24. Finally, the Bill further introduces criminal penalties for the unauthorised disclosure and improper use of information, and the unauthorised re-identification of anonymised data by the user of data.**

**25. For avoidance of doubt, the Bill makes it clear that sensitive data protected by legislation would remain protected. This includes data exchanged or received by Statutory Boards, which are subject to confidentiality obligations under international treaties or agreements that are provided under any written law.**

..."

[emphasis added]

- 6.6 The directions for which the relevant Minister may make for data sharing may be for any or all of the following reasons (as set out at section 4 of the Public Sector (Governance) Act 2018):
- (a) to uphold and promote the values of the Singapore public sector;
  - (b) to secure economies or efficiencies for the Singapore public sector;
  - (c) to improve (directly or indirectly) the efficiency or effectiveness of policies, programme management or service planning and delivery by Singapore public sector agencies (whether by carrying out data analytics work or otherwise);
  - (d) to ensure business continuity;
  - (e) to ensure accountable and prudent stewardship of Singapore public sector finances and resources;
  - (f) to manage risks to the financial position of the Government; and
  - (g) to support a whole-of-government approach in the discharge of the Singapore public sector agencies' functions.

6.7 Further, as an example of the internal policy of a public body, the Singapore Tourism Board (“**STB**”) has published a Data Trust Charter for data sharing between the organisation and industry stakeholders, which provides as follows:<sup>46</sup>

*“Singapore Tourism Board (“STB”) has drawn up the Data Trust Charter (“Charter”) to support data sharing between STB and our industry stakeholders in the private sector (“Industry Stakeholders”). This Charter represents our public commitment to secure and responsible data sharing and usage of the data shared with us by Industry Stakeholders joining us for the Singapore Tourism Analytics Network (“Stan”) and the Tourism Information Hub (“TIH”) as our data partners (“Data Partners”) and the protection of the privacy of personal data in that data sharing and usage. This public commitment mirrors the relevant data-related laws, guidelines and directions that govern STB’s conduct, including the Statutory Bodies and Government Companies (Protection of Secrecy) Act (“Protection of Secrecy Act”)<sup>47</sup>, the Public Sector (Governance) Act 2018 and the Government Instruction Manual. Equally, this Charter describes the commitment we expect from our Data Partners.”*

6.8 A summary of the key commitments by STB in its Data Trust Charter covered the following areas:

- (a) Data Usage and Transparency
- (b) Data Confidentiality and Sharing:
- (c) Data Protection:
- (d) Data Accuracy and Relevance:
- (e) Personal Data Privacy
- (f) Modification and Withdrawal.

6.9 As another example, the Monetary Authority of Singapore announced on 13 February 2017 that it had internally set up a new Data Analytics Group (“**DAG**”) with effect from 15 March 2017. The purpose of the DAG is to harness the power of data analytics to unlock insights, enhance the supervision of financial institutions, make regulatory compliance more efficient for financial institutions, and improve work efficiency across the organisation.<sup>48</sup> The functions of the DAG would include Data Governance & Architecture Office, Specialist Analytics & Visualisation Office and Supervisory Technology Office.

6.10 Moreover, as to internal government data-sharing, in the Opening Speech by Mr. Peter Ong, the Head of Civil Service (as he then was), at the Digital Government Exchange 2017 on 3 May 2017, it was stated that the government has its own internal system, i.e. API Exchange (“**APEX**”) to share data between agencies:<sup>49</sup>

<sup>46</sup> <https://www.stb.gov.sg/about-stb/Documents/Singapore%20Tourism%20Board%20Data%20Trust%20Charter.pdf>

<sup>47</sup> <https://sso.agc.gov.sg/Act/SBGCPSA1983>

<sup>48</sup>

<sup>49</sup> <https://www.smartnation.sg/happenings/speeches/digital-government-exchange-2017>; see also <https://www.mci.gov.sg/cos2017/modules/articles/leveraging%20data%20for%20the%20digital%20economy/a>



*“To improve data exchange within the public service, the Singapore Government is implementing an API Exchange or APEX. A network of data “pipes and gates”, APEX lets agencies share data through secure application programming interfaces or APIs, while centrally monitoring and managing the security of these exchanges. 15. APEX is our answer to connecting disparate systems used by different agencies. It will help us to avoid some costs in the long run, as agencies do not have to build entire services from scratch. Not only will it be easier to reuse existing infrastructure, development time can be shortened too.”*

- 6.11 Apart of internal data-sharing within the government, some of such data from governmental and public agencies are provided for free on <https://data.gov.sg> (which is managed by GovTech). This initiative was launched in 2011 as a one-stop for the public to open data gathered by government and public agencies. In a speech at the World Cities Summit 2016, Dr. Vivian Balakrishnan as Minister-in-Charge of Smart Nation Initiative stated that:<sup>50</sup>

*“The fourth thing we need to do different is **open data**. Many governments and cities are doing this. We have all got our open data portals, but really it goes deeper than just having a portal. It is about making a commitment that as much data as possible will be available so that people can generate new and collaborative solutions, become co-creators and own the problem and can offer novel solutions. In Singapore, the chief proponent of open data has been our Prime Minister who has been haranguing all government departments to put all that data on data.gov.sg. And it is not enough to put a raw dump or a PDF file; but to make sure that it is available through application programming interfaces (API), accessible in real-time, accurate, verifiable and usable.”*

- 6.12 Use of the data on <https://data.gov.sg> is governed by a licence (ie. the Singapore Open Data Licence) granted by the Agency (which is defined as “the Singapore Government (including its Ministries, departments, and Organs of State) or the Statutory Board providing the dataset, and where the dataset derives its data from multiple Agencies, a reference to “Agency” shall include all the Agencies providing the source data”) and the licence is a world-wide, perpetual, royalty-free and non-exclusive licence.<sup>51</sup> It is provided in the terms of the licence that the licence does not grant any rights over any personal data, any third party rights that the Agency is not authorised to licence and any patents, trademarks and design rights. Further, it is expressly stated that all datasets are the intellectual property of the Agency.
- 6.13 The application of the Singapore Open Data Licence is not only for datasets provided on <https://data.gov.sg> but also other governmental websites such as the Singapore

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<https://www.opengovasia.com/articles/7566-singapore-government-launching-centralised-api-exchange-for-convenient-and-secure-inter-agency-data-sharing> ;  
<https://www.opengovasia.com/articles/7566-singapore-government-launching-centralised-api-exchange-for-convenient-and-secure-inter-agency-data-sharing>

<sup>50</sup> <https://www.smartnation.sg/happenings/speeches/innovative-solutions-for-a-smart-city-conference-at-world-cities-summit-2016>

<sup>51</sup> <https://data.gov.sg/open-data-licence>

Department of Statistics' <https://www.singstat.gov.sg><sup>52</sup> or even the website of the Inland Revenue of Singapore.<sup>53</sup>

- 6.14 The <https://data.gov.sg> blog provides an explanation of the Singapore Open Data Licence:<sup>54</sup>

*“The new Licence now governs all Open Data that the Singapore Government publishes for free on Data.gov.sg or any other government website bearing the licence. Under the licence, users have a worldwide, perpetual, royalty-free right to use the datasets freely, with certain limitations clearly written in a single section.*

*We call it a licence as its main purpose is to enable reuse of our data, not to impose any unnecessary restrictions on users. Another practical concern is to avoid confusion with the Website Terms of Use that governs the general use of the Data.gov.sg site.”*

- 6.15 Recently in June 2018, it was announced that there would be an advisory council set up on the ethical use of artificial intelligence and data, which would be helmed by the former Attorney-General V K Rajah SC.<sup>55</sup> One of the key purposes of the council is to develop ethical standards and reference governance frameworks, as well as issue advisory guidelines, practical guidance and codes of practice for voluntary adoption by businesses. A 5-year research programme on the governance of AI and data use will be conducted by the Singapore Management University with a S\$4.5 million grant from the NRF and Infocomm Media Development Authority.<sup>56</sup>
- 6.16 From the above, it can be seen that the governmental position on data is one of embracing the power of big data and attempting to create new ways and technology to harness the same. Further, this is done to improve the industry in Singapore, in particular efficiency of conducting business. One of the keys ways in which the industry is being benefitted in through providing them with free access and use to shared data collected by public agencies (subject to the relevant licences and legislation / regulations).

<sup>52</sup> <https://www.singstat.gov.sg/terms-of-use>

<sup>53</sup> <https://www.iras.gov.sg/irashome/terms-of-use/>

<sup>54</sup> <https://blog.data.gov.sg/making-open-data-more-open-the-new-open-data-licence-and-api-terms-of-service-d310a4c5cdf0>

<sup>55</sup> <https://www.mci.gov.sg/pressroom/news-and-stories/pressroom/2018/6/speech-by-mr-s-iswaran-at-the-innovfest-unbound-2018-on-5-june-2018>; see also

[https://www.gov.sg/~/sgpcmedia/media\\_releases/imda/press\\_release/P-20180605-1/attachment/Artificial%20Intelligence%20Governance%20and%20Ethics%20Initiatives.pdf](https://www.gov.sg/~/sgpcmedia/media_releases/imda/press_release/P-20180605-1/attachment/Artificial%20Intelligence%20Governance%20and%20Ethics%20Initiatives.pdf)

<sup>56</sup> <https://www.businesstimes.com.sg/startups/singapore-to-set-up-council-on-ethical-use-of-ai-data>

## VII. Government Signage

### *Protection of symbols or representations of Government Agencies*

7.1 With regard to the protection of symbols / representations of government agencies, there appears to be at least 3 methods:

(1) Filing a trade mark via the Trade Marks Act (i.e. regular trade marks process)

(2) Recording the image as a logo<sup>57</sup>

(3) Statutory protection under the relevant legislation

7.2 Option 2 appears to be the more widely used method by government agencies although there have been instances where option 1 has been used. For example, a proprietor search on the “Ministry of Finance” shows a mix of logos and marks that have been recorded / registered respectively<sup>58</sup>. These include:

- MSD
- GST Voucher
- Pioneer mark with logo
- OneInbox
- VITAL
- Net Economic Value
- CorpPass

7.3 In addition, as government agencies are generally created through the enactment of a statute which confers upon it its functions, responsibilities and powers, many of these statutes contain a provision providing for the protection of the symbols or representations of these agencies.

7.4 Thus for instance the various statutory provisions include the following examples:

*(a) Sections 13A and 13B of the Housing and Development Act*

*Symbol or representation of Board*

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<sup>57</sup> Whilst there does not appear to be a clear provision that provides for the recordal and process as such, Rule 13(1) of the Trade Marks Rules has been cited and relied on by IPOS. See [https://www.ipos.gov.sg/docs/default-source/resources-library/trade-marks/infopacks/tminfopack\\_apr2017.pdf](https://www.ipos.gov.sg/docs/default-source/resources-library/trade-marks/infopacks/tminfopack_apr2017.pdf) at page 1

Rule 13(1) provides that

*Where a representation of the name, initials, armorial bearings, insignia, orders of chivalry, decorations, flags or devices of any state, settlement, city, borough, town, place, society, body corporate, government body, statutory board, institution or person appears on a trade mark which is the subject of an application for registration, the Registrar, before proceeding to register the mark, may require the applicant to furnish the Registrar with the consent to the registration and use of the matter in question of such official or other person as appears to the Registrar to be entitled to give consent*

<sup>58</sup> IP2SG Trademark Search on IPOS website

13A.—(1) *The Board shall have the exclusive right to the use of such symbol or representation as the Board may select or devise and thereafter display or exhibit in connection with its activities or affairs.*

(2) *Any person who uses a symbol or representation identical with that of the Board, or which so resembles the Board's symbol or representation as to deceive or cause confusion, or to be likely to deceive or cause confusion, shall be guilty of an offence and shall be liable on conviction to a fine not exceeding \$2,000 or to imprisonment for a term not exceeding 6 months or to both.*

*Use of name, etc., of Board*

13B.—(1) *The Board may conduct its operations under its full name or under the acronym HDB.*

(2) *A person other than the Board shall not —*

(a) *use in connection with a business, trade, profession or occupation;*

(b) *use as the name, or as part of the name, of any firm, body corporate or institution; or*

(c) *use in relation to —*

(i) *services or products; or*

(ii) *the promotion, by any means, of the supply of services or products,*

*the name of the Board or the acronym HDB, or a name or acronym so closely resembling the name of the Board or the acronym HDB, as to be likely to be mistaken for it.*

(3) *Any person who contravenes subsection (2) shall be guilty of an offence and shall be liable on conviction to a fine not exceeding \$2,000 or to imprisonment for a term not exceeding 6 months or to both.*

*(b) Section 31 of the Defence Science and Technology Agency Act*

*Symbol or representation of Agency*

31.—(1) *The Agency shall have the exclusive right to the use of such symbol or representation as it may select or devise and thereafter display or exhibit such symbol or representation in connection with its activities or affairs.*

(2) *Any person who uses a symbol or representation identical with that of the Agency or which so resembles the Agency's symbol or representation as to deceive or cause confusion, or to be likely to deceive or to cause confusion, shall be guilty of an offence and shall be liable on conviction to a fine not exceeding \$10,000 or to imprisonment for a term not exceeding 6 months or to both.*

*(c) Section 20 of the Agency for Science, Technology and Research Act*

*Symbol or representation of Agency*

20.—(1) *The Agency shall have the exclusive right to the use of such symbol or representation as it may select or devise and thereafter display or exhibit such symbol or representation in connection with its activities or affairs.*

(2) *Any person who uses a symbol or representation identical with that of the Agency, or which so resembles the Agency's symbol or representation as to deceive or cause confusion, or to be likely to deceive or to cause confusion, shall be guilty of an offence*

*and shall be liable on conviction to a fine not exceeding \$2,000 or to imprisonment for a term not exceeding 6 months or to both.*

From the above, there appears to be a wide range of options available for government bodies to protect their symbols / representations, including penal consequences for the unauthorised use of the same. In particular, recording the image as a logo under Rule 13 is a statutory mechanism not afforded to private entities and appears to have several advantages, the key of which is that such symbols / representations do not appear to be confined to a specific class which potentially means that the Registry may potentially cite this mark against any class.

- 7.5 A useful case study or example of a government agency's use and control of its marks is the use of Singapore Tourism Board (STB) Logos<sup>59</sup>

The Singapore Tourism Board owns a number of logos, including the following:



- 7.6 It is possible for tourism industry stakeholders to seek permission from STB to use the logos. If approved, a licence agreement will be entered into and which primarily includes the following terms:

- (a) STB grants to the Company at no cost a royalty-free, revocable, non-exclusive, non-transferable, non-sub licensable and limited licence to use the Logos in Singapore, for the sole purpose of promoting and marketing Singapore's leisure and/or business offerings.
- (b) The Company shall not alter or modify the Logos, or use any other signs, logos, trademarks or branding in connection with the Logos, without the prior written approval of STB.
- (c) The Logos shall not be used in any manner which would bring them into disrepute or otherwise reduce or diminish the goodwill, reputation, image or prestige of the Logos and/or STB.
- (d) All artwork, collaterals, content and material created and developed for the Purpose of the Agreement which use, contain or make reference to the Logos must be submitted to STB for approval at least four (4) weeks before the intended use of the Logos is carried out, displayed, performed and/or published online or offline.

<sup>59</sup> <https://www.stb.gov.sg/assistance-and-licensing/resources/Pages/STB-owned-Logos.aspx>

## VIII. Content created by Government

### *Terms of Use of Government Websites*

8.1 Some examples of the Terms of Use on the various government (or government-related entities) websites are as follows;

(i) Ministry of Education<sup>60</sup>

*Materials, including design, source codes, pages, documents and online graphics, audio and video in The Website are protected by law. The intellectual property rights in the materials are owned or licensed to us. All rights reserved (© Ministry of Education, Government of Singapore)*

*Apart from any fair dealings for the purposes of private study, research, criticism or review, as permitted by law, no part of The Website may be reproduced or reused for any commercial purposes whatsoever without our prior written permission. The modification of the materials on The Website is prohibited.*

(ii) Ministry of Social and Family Development<sup>61</sup>

*“The materials located on this Website including the statistical data, reports, charts, graphs, information and documentation (the Contents), are protected by copyright, trademark and other intellectual property rights. All rights, title and interest in the Contents are owned by, licensed to or controlled by the Government of Singapore.*

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<sup>60</sup> <https://www.moe.gov.sg/teachers-digest/terms-of-use>

<sup>61</sup> <https://www.msf.gov.sg/pages/terms-of-use.aspx>

(iii) Singapore Tourism Board<sup>62</sup>

*“All editorial content, graphics and multimedia works on this site are protected by copyright laws and/or other laws and/or international treaties, and belong to the STB and/or its Suppliers. These works, logos, graphics, sounds or images may not be copied, reproduced or imitated whether in whole or in part, unless expressly permitted by the STB (“copyright statement”).*

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*(3) no alterations, additions or modifications of the materials or content are made in any way.*

*Use for any other purpose is expressly prohibited, and may result in severe civil and criminal penalties. Violators will be prosecuted to the maximum extent possible under the law.*

**COPYRIGHT NOTICE:** *“Copyright © 1998 Singapore Tourism Board [and/or its suppliers], Tourism Court, 1 Orchard Spring Lane, Singapore 247729. All rights reserved.”*

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Generally, the contents of the Terms of Use are largely similar across the websites. For example, there is a need for consent by the relevant entity before reproductions can be made.

## IX. Summary & Comments

9.1 There are 12 key agencies identified although there are still many other statutory bodies and public departments which also have innovation and IP. In preparing the

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<sup>62</sup> <https://www.stb.gov.sg/Pages/Terms-of-use.aspx>



report, we are mindful that not all government agencies are at the same stage of procurement, IP management and sophistication even though there appears to be overarching guidelines available as resources. In every country, the fact remains that there has to be a tailored approach when it comes to implementation.

- 9.2 IP Management from publicly funded R&D depends on internal policies as well as best practices articulated at national level. IP created in collaboration with the private sector is treated differently and is dependent on terms and conditions as agreed between the parties.
- 9.3 In Singapore some control over such research and development comes in the form of grant or funding terms if supported by the government.
- 9.4 The terms and conditions do differentiate between background IP and new or developed IP from research and development.
- 9.5 The government recognizes in general the need to provide rights to the party most likely to use and commercialise the IP even if title to the IP is retained for policy considerations.
- 9.6 The Singapore government has in various publicly available documents indicated it appreciates that ownership is not necessary to guarantee its ability to use the IP it needs and has taken an enlightened approach to IP ownership, to ensure the best party to commercialise and bring value to the IP, holds the IP. There is also the recognition that the fragmentation of IP ownership is an impediment to effective exploitation. In 2017, minister Heng Swee Keat launched a national IP protocol to facilitate this.
- 9.7 On data, the Singapore government has a fairly open and organized system of sharing data with the public in order to facilitate new and collaborative solutions and encourage co-creation. The challenge primarily lies in establishing systems for open data to be accurate, verifiable and usable. This is currently managed through licence (the Singapore Open Data licence) with limitations included. This licence does not grant any rights to patents, trademarks and design rights and the government continues to own the intellectual property. The development on guidelines and ethical standards is still on going.
- 9.8 It is recognised that any plan to better manage government R&D and any IP or data generated is a long term commitment. It includes building the capabilities to understand how to do the same. WIPO can play a role in helping train such capabilities and establish guidelines in part of an ongoing exercise to ensure such national policies developed are consistent with international best practices. It is also helpful for WIPO to identify the various mechanisms deployed to further facilitate the ethical use of shared or open data so that it may be available at international level and that it may be consistently applied.