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Digital Technology Taskforce
Department of Prime Minister and Cabinet

Strategies for developing the Digital Economy

We would like to propose various additions to the [*JobMaker Digital Business Plan*](#).

Our submission is based on our experience in the financial, telecommunications and building industries, as well as the insights of the “New Institutional Economics”, particularly as expressed by the Economic “Nobel” prize winners, Ronald Coase, Douglass North, Elinor Ostrom and Oliver Williamson. Their contribution to economic theory has been in understanding how and why economic institutions develop. By institutions they include such things as firms, markets and other established ways of economic collaboration.

We briefly describe some of their theory relevant to the development of digital markets in the first section below. Section 2 suggests how public data can be made available for the development of more effective markets; section 3 suggests how digital markets can be made more effective and efficient through interoperability, and section 4 raises possibilities in the regulation of intellectual property.

We would be pleased to amplify any points in the submission. Anthony can be contacted at [REDACTED] and Rob at [REDACTED].

Sincerely

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1 Collaboration

All economic activity measured by the GNP (and much of the rest) is collaborative. Collaboration requires a level of agreement as to the “rules of the game”, which may be range from the informal to the highly regulated, and includes cooperation in organizations and markets.

1.1 Collaboration in markets

Coase (1991) expresses the need for appropriate legal structures for the efficient functioning of markets. He points out that:

Stock and produce exchanges are often used by economists as examples of perfect or near-perfect competition. But these exchanges regulate in great detail the activities of traders (and this quite apart from any public regulation there may be). What can be traded, when it can be traded, the terms of settlement and so on, are all laid down by the authorities of the exchange. There is, in effect, a private law. Without such rules and regulations, the speedy conclusion of trades would not be possible.

The rules may not however be efficient. North (1991) describes the traditional *Suq* markets of the Middle East, which provide a useful illustration of inefficiency:

Haggling over terms with respect to any aspect or condition of exchange is pervasive, strenuous, and unremitting. ... In essence, the name of the game is to raise the costs of transacting to the other party to exchange. One makes money by having better information than one's adversary.

Kent (1983) traces how the more efficient fixed price retail markets in the developed world came about in the nineteenth century - not least because of the innovation of the Quakers, who espoused fixed prices in retail for ethical and social reasons for over two centuries, and which we now take for granted.

1.2 Collaboration more generally

Ostrom (2011) describes a framework for analysing institutions that identify rules that set out rules that specify, for collaborative institutions:

- Who may participate and what different participants may do (boundary, position and choice rules)
- Information rules as to what data is shared and when
- Payoff rules that set out the allocation of costs and benefits
- Aggregation or control rules as to obtaining permission or the nature of agreements.

Williamson's contribution (1981, 2002) include insights into the centrality of transactions in collaboration, and how the most effective institutions require effective contracts and so reduce transaction costs.

1.3 Roles of different sectors

There is a long standing and sometimes vitriolic debate about the relative role of governments and the private sector, which can be divided into commercial and social sectors. A recent contribution by Mariana Muzzacato (2021) argues that states can successfully develop "missions" to develop the economy. John Kay (2021) is critical of her ideas, listing failures of ambitious missions, but does accept: "The role of government, appropriately, has primarily been in funding basic research and *assuring that there will be a rewarding market* for successful products." (Our emphasis)

Ostrom (1990) critiques the views that collective action problems such as the development of appropriate institutions such as fair markets can only be addressed by purely private or purely state intervention. She (Ostrom, 2010) would rather go beyond a simple choice of market or state:

Designing institutions to force (or nudge) entirely self-interested individuals to achieve better outcomes has been the major goal posited by policy analysts for governments to accomplish for much of the past half century. Extensive empirical research leads me to argue that instead, a core goal of public policy should be to facilitate the development of institutions that bring out the best in humans. We need to ask how diverse polycentric institutions help or hinder the innovativeness, learning, adapting, trustworthiness, levels of cooperation of participants, and the achievement of more effective, equitable, and sustainable outcomes at multiple scales.

We are taken by her idea of polycentricity, which emphasises the possibilities of distributing power – and the opportunity to innovate – as widely as possible. A similar principle is subsidiarity, which is that power should be delegated to the lowest capable level in an organization, which again maximises the possibilities of innovation.

2 Releasing government data to new markets

2.1 Why release public data

Public data is any information collected or generated by the Australian Government, including demographic, location, health, education, economic and business information.¹ As

¹ Australian Government, 'Public Data' <<https://www.pmc.gov.au/public-data>>.

noted in the 2018 *Data Review Report*, the Australian Government holds vast amounts of valuable public data that could be used to fuel future data-driven innovation.² Take for example census data, which has been collected by governments for almost 6,000 years.³ The Government currently provides access through data.gov.au to certain anonymized public data published by federal, state and local government agencies.

Expanding access to more types of public data will facilitate the development of new and more effective digital markets. Access to data has long been recognized for its pro-competitive effects.⁴ This includes lowering barriers to entry; reducing information asymmetry; enhancing consumer choice and switching through the development of new products and services; and facilitating greater efficiency and innovation in the market.

Providing data provides a variety of platforms on which the private sector can innovate. It eliminates friction and information asymmetry. The private sector can then use these data feeds to innovate and take risks. Given the data provision is decoupled from the private sector, business risk is contained, which allows the private sector to make riskier product bets without threatening core services.

We have identified the following areas where access to public data could facilitate the development of new markets:

- Financial data for financial advice and planning. Asher and de Ravin (2020) suggest that MyGov could be used to aggregate people’s personal financial and demographic data to extend the market in financial advice by reducing costs dramatically.
- Job data for career development. In its submission to the Taskforce, the Business Council of Australia suggested that government should encourage better job matching portals and businesses should be encouraged to use them. A more ambitious program would be to provide people, especially students, with information about relative lifetime salary paths for those with different qualifications and from different educational institutions. This would lead to more informed decisions as to education, and could also be used in financial planning.
- Property data for property development. The NSW “digital twin” is a great example of this. The NSW government provides zoning, cadastral and valuation data layers

² Department of the Prime Minister and Cabinet, *Review of Australian Government Data Activities* (Report, 2018) 2.

³ Population Reference Bureau, ‘Milestones and Moments in Global Census History’ (online, 4 September 2019) <<https://www.prb.org/milestones-global-census-history/>>.

⁴ See, eg, Productivity Commission, *Data Availability and Use* (Report No 82, 31 March 2017).

free via Application Programming Interfaces (APIs). Private developers and building professionals are able to use this data for a multitude of commercial purposes. This dramatically reduces the capital requirements of API driven, digital businesses and facilitates rapid experimentation and product innovation⁵ which can serve the entire property industry.

- There are a number of other areas where government and privately held data could be made widely available in a common format and which would offer opportunity for the development of more effective markets. Medical data (as in myHealth), both food and non-food commodities, transport usage spring to mind in addition to the industries that are intended to be covered by the Consumer Data Right (CDR). Much progress has been made in these areas, but – it seems to us – that more thought should be given to the rules that would ensure effective collaboration through markets, with and without government regulation.

2.2 How to release public data

Ostrom’s rules provide some guidance as to how greater access to public data could be given.

1. Who may participate and what different participants may do (boundary, position and choice rules).

The data can often be used legitimately for education, research, government and commercial purposes. While consideration should be given to restricting some data that may be used for criminal purposes, there will normally be advantages in making it universally available on the web. Standards need to be set to ensure access and limit downtime.

2. Information rules as to what data is shared and when.

Public data should continue to be anonymized and aggregated to a sufficiently high level to mitigate privacy concerns and encourage greater trust in data sharing. The data should be easily accessible through universal and safe technical standards. However, Marsden and Nicholls (2019) warn that technical standards have the potential to limit the development of innovative goods and services because they force companies to settle around a standard set of features.⁶

⁵ See for instance <https://www.giraffe.build/>

⁶ Chris Marsden and Rob Nicholls, ‘Interoperability: A Solution to Regulating AI and Social Media Platforms’ *Society for Computer and Law* (online, 19 September 2019) <<https://www.scl.org/articles/10662-interoperability-a-solution-to-regulating-ai-and-social-media-platforms>>

Hsu and Nicholls (2021) note that the CDR framework provides an effective example for regulating access to sensitive data without hindering innovation.⁷ The CDR requires all data be available through data standards based on application programming interfaces (APIs). The APIs were developed in a collaboration between Government, industry and consumer groups.⁸ The resulting APIs reduce the costs of data collection and processing while ensuring that the data is sent and received through secure and extensible mechanisms that are internationally competitive.

3. Payoff rules that set out the allocation of costs and benefits.

The marginal costs of providing data are minimal, while it is often difficult to identify the beneficiaries, let alone quantify the benefits. This suggests that that it will often be possible to make it free: those who benefit commercially will contribute by paying tax. User charging for the overhead costs of collection do not have to be ruled out, but they should not lead to inefficiency.

4. Aggregation or control rules as to obtaining permission or the nature of agreements.

This applies to quality control and the collection of the data, where only governments have the ability to sanction free riders (who use aggregated data from others without providing their own data, or submit poor quality data).

3 Ensuring interoperability of networks

3.1 Why interoperate

Interoperability is a technical term to describe the ability of two computing systems to connect and communicate with each other.⁹ This can be seen in individuals communicating on social media, businesses using email or government departments exchanging information.¹⁰

Interoperability provides both economic and social benefits that could improve Australia's digital markets. Economically, it promotes efficient use of and investment in infrastructure; permits new entrants to compete with existing operators; allows for greater switching; and

⁷ Giulianna Hsu and Rob Nicholls, Submission No 218 to Senate Select Committee on Financial Technology and Regulatory Technology (5 March 2021).

⁸ Consumer Data Standards Australia <<https://github.com/ConsumerDataStandardsAustralia/standards>>.

⁹ Alek Tarkowski, Paul Keller and Bartosz Paszcza, 'Mandated and Generative Interoperability', *Shared Digital Europe* (online, 14 December 2020) <<https://shared-digital.eu/mandated-and-generative-interoperability/>>.

¹⁰ Chris Marsden and Rob Nicholls, 'Interoperability: A Solution to Regulating AI and Social Media Platforms' *Society for Computer and Law* (online, 19 September 2019) <<https://www.scl.org/articles/10662-interoperability-a-solution-to-regulating-ai-and-social-media-platforms>>

facilitates data-driven innovation.¹¹ As a regulatory tool, it may be used to mitigate competition issues arising from the substantial degree of market power held by major online platforms like Facebook and Google.

Socially, it reduces the need for individuals to gain access to every network or the tendency to a winner-takes-all outcome.¹² It has been suggested that regulating interoperability could provide social benefits by increasing the availability of independent news, thereby reducing the instances of fake news or extremist media.¹³

3.2 How to regulate interoperation

The international telecommunications network, governed by the ITU since 1865,¹⁴ provides a useful template for the governance of networks, and the importance of Ostrom's principles. It currently also offers an example of the risks created by unmanaged externalities, with a need to manage the space debris being generated by the satellites it regulates. It is not beyond criticism that it could be more democratic and should not necessarily be used as a template to regulate the internet.¹⁵

International collaboration is however necessary and requires ongoing adaptation. The payments system provides another example. Governments set the rules as to access, interoperability and pricing as the Reserve Bank does in the Australian payments market. There is not yet an international payments market, although evidence suggests that the SWIFT network has produced significant benefits to banks in countries that participate.¹⁶

The multiplicity of Voice over Internet Protocol (VOIP) providers¹⁷ may also illustrate the advantages of government coordination. With well over 30 providers often use different usernames – suggesting that some agreement as to standard addresses for the same people could be part of interoperability standards. Some thought might also be given to providing the same standardization to social networks such as Facebook and LinkedIn.

¹¹ Ibid.

¹² Ibid.

¹³ Ian Brown, 'Interoperability as a Tool for Competition Regulation' (OpenForum Academy, November 2020) <<https://osf.io/preprints/lawarxiv/fbvxd>>.

¹⁴ Noll, A. A. (2001). The ITU in the 21st Century. *Singapore Journal of International and Comparative Law*, 5, 63.

¹⁵ Ryan, P. S. (2012). The ITU and the internet's titanic moment. *Stanford Technical Law Review*, 8.

¹⁶ Scott, S. V., & Zachariadis, M. (2010). The impact of the diffusion of a financial innovation on company performance: an analysis of SWIFT adoption.

¹⁷ Listed at https://en.wikipedia.org/wiki/List_of_VoIP_companies, but does list Wechat, and presumably many other providers

As a regulatory tool, Marsden and Nicholls (2019) argue that essential facilities or bottlenecks in networked industries could be opened up through APIs.¹⁸ This could be regulated with language similar to access regimes in telecommunications. Access providers would make a standing API access offer through either a private or public API. Access would be offered to any qualified entity on a non-discriminatory basis with transparent terms and conditions set out in a Standard API Access Agreement.

Alternatively, interoperability could be implemented following the example of the CDR as mentioned above. Access would be granted through an independent and transparent accreditation process. As suggested above, technical standards would be based on APIs that are developed in collaboration with Government, industry and consumer groups to ensure safe, extensible and internationally competitive standards.

4 Regulation of some new markets

Some of the new markets that have been created on the internet over the past three decades are inefficient and often less than effective. As examples, we list:

- A proliferation of comparison sites for products and services, where economic rents appear can be extracted by dominant channels and consumers are unable to judge whether they are obtaining access to better options. The economic rents are extracted both by the “aggregators” (Wotif, iSelect, Hipages etc,) and by the search engines such as Google.
- Apparently free market places such Amazon Market-place, where the market maker is also a player.
- Private market places that are sufficiently dominant to charge extractive prices: Property and car sales and ebay are examples.

These markets would probably exist in different forms if producers had been able to band together to develop their own markets but are prevented – sometimes by Competition Law, sometimes because of the difficulty of organizing many small participants, sometimes apparently from an inability to adapt.

Government can potentially play a variety of roles in these markets:

- Governments can create the comparison site – as for instance the NSW Compulsory Third Party¹⁹.

¹⁸ Chris Marsden and Rob Nicholls, ‘Interoperability: A Solution to Regulating AI and Social Media Platforms’ *Society for Computer and Law* (online, 19 September 2019) <<https://www.scl.org/articles/10662-interoperability-a-solution-to-regulating-ai-and-social-media-platforms>>

¹⁹ <https://www.greenslips.nsw.gov.au/>

- Alternatively the Yellow Pages provides a template for what was a state controlled market, but when paper based it included much less information on sellers than would now be required. It is now one of a number of marketplaces, and illustrates how a monopoly may fail to take advantages of new markets.
- The ASX provides an example of private and public initiatives, self- and government regulatory regimes over its history. Professional bodies, as the guilds that preceded them going back to medieval times, similarly provide examples of mixed regulation.
- Government sometimes creates the market as with the Australian Energy Market, with its own regulator.

There would seem to be regulatory space for producers in a different industries to collaborate to produce an efficient market, covering Ostrom's rules but with the power to ensure all players in the market participate. The ACCC could perhaps oversee the rules to ensure the on terms that are fair to large and small companies, and to consumers.

5 Intellectual property

Innovation may also be constrained by inappropriate intellectual property (IP) rules.

5.1 Too much

The development of information technology has resulted in a proliferation of patents and copyright protections that may well inhibit innovation. Aoki and Schiff (2008) make some interesting suggestions about the development of "patent pools, copyright collectives, and clearinghouses". The design of these collaborative ventures needs careful regulation to prevent them becoming skewed to larger and established firms and thus discouraging innovation.

Rimmer (2006) views the "Free trade agreement" between the USA and Australia as particularly skewed against Australian intellectual property. In particular, the *Copyright Term Extension Act of 1998* extended copyright from 50 years beyond the death of the author, to 75 years or 95 years if created by a company. Disney was an immediate beneficiary as its protection for Mickey Mouse was about to expire. The retrospective nature of the extension cannot possibly have any general economic benefit.

5.2 Too little²⁰

Neither patents nor copyright offer protection to innovators in methods of doing business, making it more difficult to justify an investment in a new products offering services. An example of this difficulty in developing an innovative product is set out in Asher (2011).

It seems generally agreed that IP encourages innovation. Some type of IP for financial products might do the same. Our thoughts are that such an instrument might dispense with the patenting requirement that an invention be non-obvious and novel by a measure of whether the product was currently available in the market. A potential supplier might apply for a short term (say 5 year) exclusive licence.

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