

Developing a Responsible and Well-designed Governance Structure for Data Marketplaces

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Data for Common Purpose Initiative

The World Economic Forum-led Data for Common Purpose Initiative (DCPI) is a global initiative that explores data exchanges and marketplaces for the common good. With more than 50 global partners in 20 countries, including seven governments, the project looks to embed trust and fairness into the global data ecosystem by promoting the use of data, driving innovation and enhancing public good in the Fourth Industrial Revolution.¹

In December 2020, the Forum's Centre for the Fourth Industrial Revolution Japan launched the Study Group on Vitalization of Data Marketplaces, a coalition of experts from government, private sector and academia in Japan to explore data marketplaces as a model for advancing the aims of the DCPI and as a starting point of data marketplace exploration for Japan.

DMSPs: A key governance component

The exchange of data and its use are essential to addressing urgent problems – from fighting COVID-19 and improving the state of global healthcare, to preventing and responding to natural disasters. But many barriers, including commercial, governance, policy and regulatory, are hampering the ability to accelerate the exchange and use of data to solve critical challenges and fuel innovation for society. Recent advances in technology make the ability to deliver improved outcomes through data sharing possible today, while still rooted in ethical and responsible data sharing and privacy policies.

Relative to the vast amount of data that exists in the world, the amount that is exchanged between the parties that control it remains small. The market for processing and analysing data lacks depth for a variety of complex reasons, in part because the general public remains concerned about and solely focused on data privacy. Simply put, people feel that they lack sufficient control over their data.

To address this concern and other barriers to leveraging data, it is necessary to develop a governance structure for data marketplaces, one that ensures trust while incentivizing market participants. In a well-designed market, Data Marketplace Service Providers (DMSPs) – likely the primary operators and managers of data exchanges – will be a key governance component, acting as sources of both trust and economic incentives.

Looking at the data-market landscape globally, many businesses² are taking on roles similar to those of DMSPs. They may soon be joined by players from other sectors, such as financial exchanges (e.g. the London Stock Exchange³). Drawing parallels to the ecosystem of a stock exchange, this paper defines a DMSP as an entity that operates a data marketplace irrespective of who initiates the exchange platform (for instance, a government, private company, other entity or a combination of).

DMSPs, including incumbent businesses that claim that designation, are supposed to function as data intermediaries – that is, to match demand from data users with supply from data providers. In addition, they should act as “trust anchors”⁴ – entities that create and enhance trust in the data marketplace by behaving as trusted third parties under an appropriate governance structure.

Governance structures for DMSPs

In 2021, based on the above understanding, the Japanese Study Group (hereinafter referred to as “the coalition”) has focused on governance structures for DMSPs, using the guiding question: What would an ideal governance structure for data marketplaces look like? The goal of the coalition is to determine the key factors and considerations involved in designing such a structure and to offer concrete policy proposals to the government.

The work of this coalition is well-timed. In June 2021, the Japanese cabinet authorized the government's first comprehensive National Data Strategy (NDS),⁵ which had been developed in collaboration with C4IR Japan. Citing DCPI, the strategy document refers to the concept of data marketplace. Officials involved in the NDS have meanwhile expressed support for proof-of-concept initiatives to validate the function of data marketplaces predicated on fair, neutral and trusted DMSPs.

The aim of this paper is not to provide a definitive or exhaustive list of answers that can be applied to each future data marketplace developed. Rather, it extracts insights from the study group's discussions to serve as a point of departure for governments and other members of the global community to discuss governance structures for DMSPs in data marketplaces and exchanges in a wide range of jurisdictions. As decision-makers globally develop data marketplace solutions specific to their unique cultural nuances and needs, it provides insights into key governance issues to get right and do so with global interoperability and adaptability in mind.

What is a data marketplace?

Before discussing the specific roles and responsibilities of DMSPs, it is worth touching briefly on the concept of data marketplaces. What is a data marketplace, and how can data exchanges be used to unlock the value of data?

Exchanges of all kinds exist to facilitate trade among strangers. Transactions require trust, but doing business only with people we know personally – people whose trustworthiness we can evaluate from direct experience – limits opportunities to trade. Exchanges replace personal trust among acquaintances with systemic trust: rules, enforcement mechanisms, transparency procedures, etc. By minimizing information asymmetry and other barriers to trade among diverse market participants, they expand the pool of buyers and sellers and increase the market's potential to create value.

The principal holds true for data as much as for stocks or commodities. The greater the number of participants in a data marketplace, the greater the opportunities to optimally match buyers' and sellers' needs. As liquidity increases with increased trading volume, the market's price discovery function can be expected to improve, leading to more stable prices over the medium to long term. But, accommodating a potentially unlimited number of market participants will require careful exchange design. Measures to ensure trust in counterparties and to deal with (temporary) liquidity risks, for instance, will be crucial to preserving the stability and sustainability of the market.

Much needs to be considered in any discussion on "data exchanges" and "data marketplaces", including cultural beliefs, philosophies and nuance, which differ from person to person. In this paper, the focus remains on global approaches to realize the potential of these interoperable systems, while respecting the concepts' individualized and localized notions.

Key roles and responsibilities of DMSPs

This paper discusses the roles and responsibilities of DMSPs in addressing the challenges inherent in data marketplaces that connect large numbers of unrelated buyers and sellers. The Study Group on Vitalization of Data Marketplaces identified, specifically but not limited to, the following five key roles and responsibilities of DMSPs:

1. Providing a settlement function

- DMSP should provide a convenient and secure settlement function, one of the most critical functions in facilitating transactions between buyers and sellers.
- Reducing the cost of payments (transaction costs) is also essential. The balance between convenience and price matters.

2. Screening of market participants

- DMSPs should audit sellers and buyers based on specific eligibility requirements (e.g. DMSPs should assess whether a data seller has a system to properly obtain the consent of every original data provider).
- It is also important to eliminate any arbitrariness regarding participant eligibility.

3. Ensuring quality of data

- Quality of data should be ensured through uniform formats and vocabulary, and the use of quality assessment criteria for traded data.

4. Disclosing appropriately

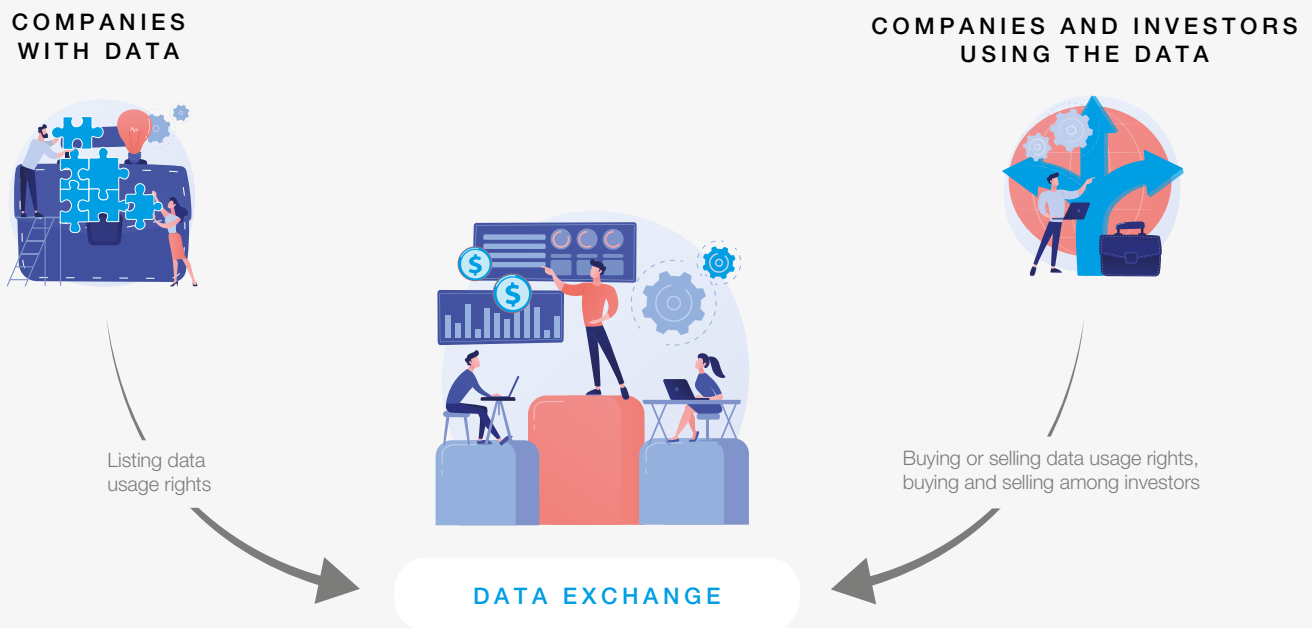
- DMSPs should disclose final transaction prices and other information about traded data, referring to disclosure mechanisms used by stock exchanges.

5. Providing means of dispute resolution

- DMSPs should provide means of arbitration in disputes between buyers and sellers (e.g. in cases where there is a dispute over the interpretation of a transaction contract).
- In addition, DMSPs might be empowered to sanction parties that violate exchange rules, through such means as trading suspensions.



FIGURE 1 | Image of a data exchange in Japan



A chart illustrating a data exchange⁶ in Japan. Future data exchanges are, however, likely to adopt further enhancements, including but not limited to, extending participants to individuals, governments, academia and others.

Designing the governance layer

What kind of governance structure can best ensure that DMSPs carry out these roles and responsibilities?

The first issue to tackle is the extent to which a data marketplace should be governed by its DMSP, rather than by the government (through disclosure regulations, conduct rules and the like). Regardless of the chosen balance between self-regulation by DMSPs and government oversight, what matters most is to ensure that DMSPs execute their roles and responsibilities fairly and act as neutral, impartial “trust anchors”.

The second and perhaps thornier issue involves anti-trust regulations for instance, whether or not multiple DMSPs should be allowed to compete in a given jurisdiction or data exchange. If not, why not? What rules should be required to protect the interest of the public if competition is to be restricted? Addressing these questions will require further discussion. Governance structures in the securities market can serve as a useful reference.

Data brokers

Brokers have played an essential role in many markets, serving as nodes connecting retail buyers with sellers in diverse settings – from the New York Stock Exchange to fish markets.⁷ Their function as intermediaries could also be applied to data marketplaces.

Data brokers could analyse the potential needs of data consumers, propose best data sets and collect data. They could assess and take on risks on behalf of data consumers. DMSPs could be expected to closely coordinate with brokers to develop data marketplaces, and to monitor brokers to ensure they can be trusted by all parties.

Issues regarding the design of data marketplaces

Promoting the development of data marketplaces will require both institutional measures to clarify the roles and responsibilities of DMSPs and secure their neutrality and impartiality, and proper market design of data exchanges as a whole. The following issues should be addressed through future discussion.

Targeted area: cross-sectoral or sectoral data trading markets

- In considering the roles and responsibilities of DMSPs, one important question is whether an exchange is intended as a comprehensive market that deals with data from a wide range of industrial sectors, or as a specialized market that handles data related to a specific area (e.g. finance, energy, the environment).
- Even in the case of specialized exchanges, it may be necessary to consider how to ensure interoperability with other marketplaces, taking into account the possibility of future integration.

Market participants: professionals or the general public?

- Should a given exchange be restricted (if only initially) to professionals, such as the call money market between central banks and financial institutions, or should it be open to the general public, like the stock market?
- For professional-only marketplaces, governance structures would likely be simpler.

Object of trading: right to access data

- Data is infinitely copyable and shareable, making it a poor fit with traditional ownership rights that assume exclusivity. Access, rather than ownership, will likely be what is traded on a data exchange, raising the question of how access rights are defined and secured.
- In practice, an important question is how to prevent unauthorized use by third parties that have not obtained permission. From a contractual perspective, it will be necessary to consider the design of title deeds; from a technical point of view, addressing this issue could involve the use of encryption technology.
- Other issues include whether purchased access rights should be transferrable to third parties, and under what conditions (e.g. if the original data provider has granted permission to transfer the right for a specific purpose). This question has implications for increasing the number of market participants and promoting price discovery. If transferring is permitted, what kinds of systems (including legal frameworks) are required?
- Preventing value dilution due to transfer of access rights would be also at issue.

Price formation

- How can prices be stabilized, especially during the market formation phase? Could volatility ensue if there is insufficient trading volume? Solutions could include floor/ceiling prices, price evaluation guidelines.

- If the value of transacted data is subject to taxation, an inevitable issue will be how to assess the taxable value of the transacted data. It will be necessary to consider a process for checking and auditing whether a price paid in the market was reasonable from a tax standpoint.

Cross-border data transfers

- From the perspective of enabling interoperability of data marketplaces that are cross-border, it is important to promote shared principles and promote governance harmonization (for instance, by encouraging countries to participate in standardization processes, promoting public-private partnerships, etc.⁸).

Conclusion

Establishing trust in data marketplaces will be a long journey, one which must begin with the identification of key opportunities and issues, followed by thorough discussion to determine appropriate solutions. This paper, co-designed through a multistakeholder endeavour, looks at some key components of the “governance layer” of data marketplaces, paying particular attention to governance structures needed to establish DMSPs as trusted third parties. It leaves the economic and technology layers for further collaboration as part of the DCPI and other on-going initiatives.

The paper will be used as a point of departure for policy-makers as they design their data marketplace governance to address social issues and enhance innovation through ethical data exchange. The DCPI will further explore the concrete governance model, which would be applicable to each jurisdiction and adaptable as per local context, through further discussion with the global community, followed by providing a toolkit for policy-makers.



Contributors

This initiative is a multi-industry, multistakeholder endeavour. This briefing paper is a combined effort of all stakeholders involved based on numerous discussions, workshops, user feedback groups and research. However, the opinions expressed herein may not necessarily correspond with each individual involved with the project. Sincere thanks are extended to those who contributed their insights, including those not captured below.

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Endnotes

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