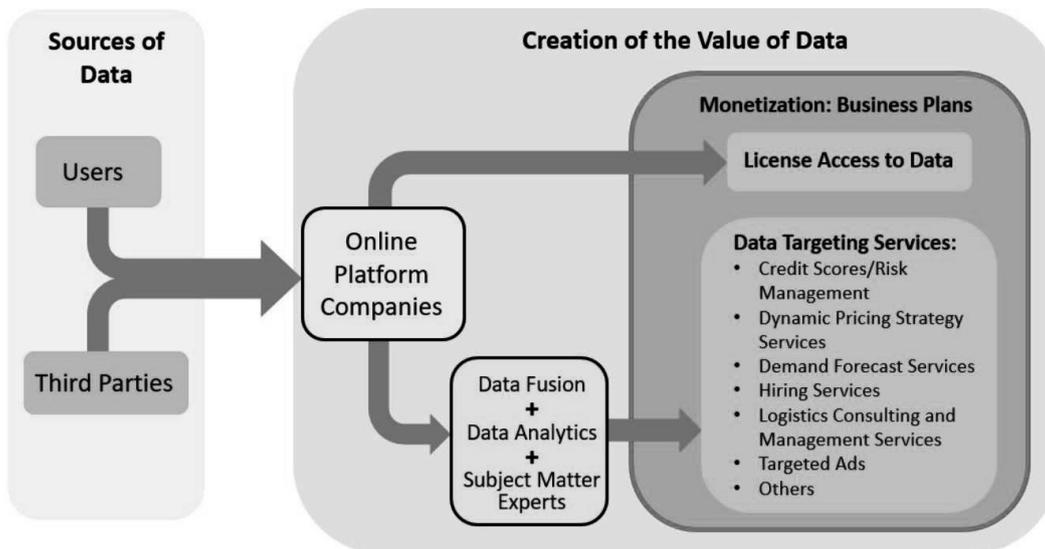


Why are indicators on business data and data flows needed?

Businesses have long been using data, but in recent years both the scale of data usage and its central importance for many business models has increased exponentially. “Data-enhanced businesses” augment their existing business models and processes with new, data-driven processes to enhance their production, distribution or marketing, while for “data-enabled businesses”, such as online platforms, data are a key enabler of their core business model. Data also help businesses to co-ordinate better within and across global value chains, facilitate international transactions and can enable new or improved products and services. The value of data to businesses will depend on how and where in the business value chain they are put to use. Since data flows are likely to differ vastly across firms and sectors, there is a need to decompose and analyse data business models and value chains in detail, considering factors such as the types of data involved, their origin, the way they are used and institutional context (e.g. within an MNE or not). For example, Li et al. (2018) have analysed the nature and role of data in various online platform businesses.

There is not yet a consensus on the best way to measure and value different types of data and data inputs in the production process. The challenges of doing so are further exacerbated by the international nature of many business models, which entail related cross-border data flows. Without proper measurement and valuation, it also becomes difficult to assess the role data plays in terms of firm performance or product market structures. These measurement problems arise at the company, industry and country levels. They hamper the accuracy of national statistics and, in consequence, the development of effective and well-targeted policies aimed at fostering growth in the digital era.

The nature and role of data in online platforms



Source: Li et al. (2018).

What are the challenges?

There is no off-the-shelf method for valuing data, despite the fact that they have a significant and often critical value to businesses. While there are standard units for data (e.g. Megabyte, Gigabyte, Terabyte, Zettabyte, etc.), it is clear that these cannot form a meaningful basis for data valuation (HM Treasury, 2018; OECD, 2019). Even if stocks and flows of data were to be reliably measured, the value of data depends on the information they carry, which further depends on the context in which the data are generated and used. The same package of bits and bytes can thus have different economic implications in different contexts.

This implies a need for detailed metadata to contextualise any raw measures of data volume. While some classifications of data based on type, sources, uses and so on do exist (e.g. Abrams, 2014), there is also no established typology of data for statistical purposes that provides a common way of understanding and contextualising data prior to addressing measurement challenges. A key challenge, both theoretically and practically, is the non-rivalrous nature of data (Mandel, 2017; OECD, 2013). This means that data can be used multiple times (e.g. in different contexts) without inherently diminishing their value. In principle, data can be exploited and re-exploited infinitely at low marginal cost; it is data infrastructure and analytics that are the primary costs related to data re-use.

The increasing digitalisation of the global economy is not only driving data flows within countries but increasingly across borders (European Commission, 2017). Digitalisation enables the physical detachment of data collection, aggregation,

analysis, storage and use or monetisation; each of these can take place in multiple countries, making it difficult to compile complete and robust measures of data and data flows. For example, data points are collected from the users of online social media platforms free of charge and, hence, they do not generate any financial transactions in the country where the user is based. However, once those data points are transferred and aggregated with millions of other data from across the globe they become the basis for data analytics and thus for value creation. Eventually, they are monetised by the provision of data-based services (e.g. targeted advertising) or by database licensing. An important, related challenge is transfers of data between affiliates within multinational enterprises (van der Marel, 2015), though this is an extension of measurement issues relating to MNEs' transactions generally.

This international dispersion amplifies the challenges of measuring stocks and flows of data, and indeed challenges the concept of “national stocks” of data assets, which would result from treatment of computerised databases as assets in the System of National Accounts. Another related challenge is establishing whether data assets should be considered as “produced assets” in the same way as machinery, equipment, buildings and research and development, or as “non-produced assets” similar to land, leases and licences, and marketing assets. This has non-trivial implications for economic statistics such as GDP (as outlined in Ahmad and van de Ven, 2018).

Options for international action

A first step is likely to consist of building upon initial work to establish internationally accepted classifications and taxonomies relating to data and data flows for statistical purposes, as a foundation for understanding and describing these entities. The OECD is currently working on such a taxonomy, which aims to group data into categories defined by its characteristics, such as ownership, exclusivity, privacy, tradability, source, completeness and trustworthiness, regardless of whether the data were actively collected or passively observed. Such a taxonomy would be a useful tool in helping to contextualise data volumes to gain a sense of the associated value.

Beyond this, potential measurement and/or valuation approaches for data and data flows include:

- Valuation based on market prices: this involves observing market transactions for different types of data (according to data typology), for example, transactions through data brokers/marketplaces.
- Estimates based on business models and data value chains: analysis focusing on particular businesses and their business models, and dissecting specific global data value chains, could help to identify when and where value is being created and how data stocks and flows enter this picture.
- Formal appraisals of data value arising from business mergers and acquisitions may give insight into the relative values of some types of data.
- Valuation through costs, for example, costs of collection, cleaning, aggregation, processing, storage, maintenance, enrichment, analysis, etc. (somewhat similar to own account software)
- Superimposing Input-Output tables with data-flow tables to assess whether flows of value added are accompanied by flows of data.

Allowance for recording transactions related to data has been made in the Digital Supply and Use Tables (see page 2.11). The OECD is working with the statistical and academic community to develop measures to meet these and other user needs.

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