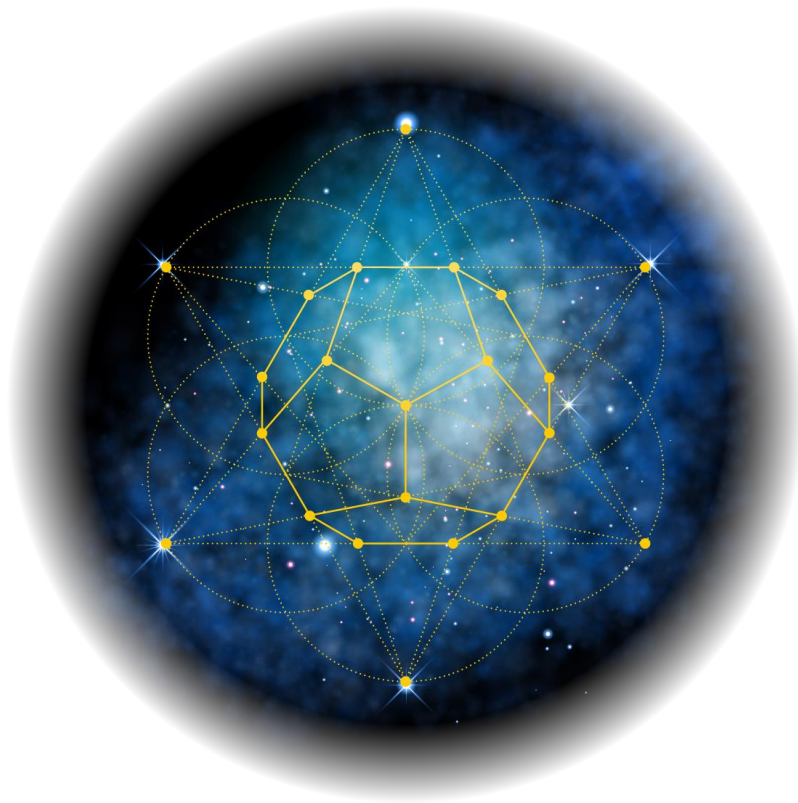


Study on emerging issues of data ownership, interoperability, (re-)usability and access to data, and liability



EXECUTIVE SUMMARY

A study prepared for the European Commission

DG Communications Networks, Content & Technology by:

Deloitte.

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Openforum europe

open, competitive choice for IT users

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Abstract

Analysing and understanding the European Data Economy has recently become a key concern for policy makers willing to enable data based services and products in Europe and willing to exploit all opportunities deriving from new (Big) Data technologies. Although the European Data economy is still “emerging”, it is of utmost importance to identify and remove, at this stage, the barriers for its further development in order to achieve a well-functioning and competitive Digital Single Market. This study is a first attempt to characterise the legal, technical and other types of barriers which currently prevent the full deployment of the European Data Economy and which limit Business to Business (B2B) data sharing and re-use in Europe. Based on this analysis, a number of policy options for the future are put forward and considered from a coherence, effectiveness and efficiency perspective. This assessment shows that, at this stage of market development, policy makers should adopt horizontal non-legislative measures in order to build a better ground for a flourishing European Data Economy.

Executive summary (EN)

There is a growing interest in the EU in the data economy, in IoT, robots and autonomous systems and in the emerging challenges they pose for EU policy makers. The purpose of this study was to identify the most important barriers to the development of the data economy and the use of IoT, robots and autonomous systems. It looked in particular at the extent to which issues in the areas of liability, (re-)usability of and access to (third party) data, and interoperability are impediments to the development of these markets.

These are markets that are still in their infancy, i.e. what is known as an ‘emergence phase’. To be entirely active in these markets, EU companies need to be intensive data users, but that is the case of only 6.3% according to a study for the European Commission¹. The fact that most companies have not yet engaged with these markets has been borne out by the qualitative assessment of the business models of more than 100 European firms as part of this study. Most companies have not yet completely integrated these new realities into their business models and approaches. But for the small number of companies which are currently proactively engaged in the data economy, there are genuine uncertainties and barriers to them moving forward, and which may well be acting as deterrents to companies want to enter the market.

Quantifying the barriers is much more difficult, precisely because the market and the barriers are both still emerging. This report should therefore be seen as a first attempt to provide indicative evidence of what barriers exist, their current and likely future impacts on businesses and citizens, and the implications for policy makers. A number of policy options were developed and tested to obtain an indicative ranking of relevant solutions for the short and medium term.

Limitations relating to the findings of this study

The data economy is in the “emergence phase” of a new market. The vast majority of European businesses are still considering how they will integrate these technologies into their business models. Consequently, the results of the study inevitably come from a relatively small group of proactive users of third parties data, IoT, robots and autonomous systems.

The findings on the genuine uncertainties and barriers for the proactive group nevertheless come from a wide range of sources though desk research, surveys, interviews and workshops, but are largely qualitative. The small number of cases and the difficulty for the companies themselves of knowing the true scale or cost of barriers that are still emerging put limits on meaningful quantification.

¹ Source: IDC and Open Evidence study, see p. 30, Second Interim Report, European Data Market Study, June 2016, <http://www.datalandscape.eu/study-reports>

This report should therefore be considered a first attempt at examining this topic, gathering the existing data and providing pointers for policy makers on where the data economy, as well as the IoT, robots and autonomous systems technologies are heading. The conclusions are based on independent judgement and are specific to this study.

Emerging barriers to the data economy

The barriers identified by this study fall into three broad categories:

- **Technical:** these are primarily in the area of IT and its infrastructure (interoperability and portability);
- **Legal:** these fall into two broad groups – contractual (e.g. ‘data ownership’ and access to and (re-)use of data) and non-contractual (e.g. extra-contractual liability);
- **Other:** these cover a range of business dimensions (e.g. skills, competition, pricing).

Not all these barriers are equally important individually or to a given company. The extent to which a business operating in the EU will be affected depends on its **position in the value chain, its size and the sector in it operates** (and whether there is already regulation in place to impose some degree of data sharing, as in the case in the automotive value chain, where motor manufacturers must share data with repairers, or in the financial services sectors as the result of the Payments Services Directive 2). The combination of these elements can be a guide to the barriers that a particular firm is likely to face when wanting to share, access or (re-)use third party data.

Looking at the barriers from the perspective of how serious they are, it is possible to distinguish **primary and secondary barriers**.

PRIMARY BARRIERS

- **Access and to (re-)use of data:** Companies cannot access the data they need or would like, and they face strict (contractual) limitations when wanting to (re-)use data;
- **Data liability:** Existing liability laws are based on the concept of tangible products. Companies cannot be sure whether they can have recourse to this legislation for data-based products, so prefer to fall back on contractual liability on a case-by-case basis;
- **Data interoperability:** Different standards and specifications are used for the same data and for different datasets;
- **Unequal bargaining power:** Smaller companies (SMEs) and companies in a weaker position in the value chain do not have the bargaining power to obtain access to certain data, whether for free or at a cost;
- **Skills:** There are not enough people now with the right skills, and the problem is likely to get worse in future.

The barriers in the areas of liability, interoperability and skills are essentially cross-cutting, though large businesses may be better placed to incur the costs of overcoming them. The issues of equitable access to data and unequal bargaining power tend to affect SMEs more.

SECONDARY BARRIERS

Other barriers which are relevant, but not seen as so serious at the current stage of market development are, both in terms of their importance and the number of firms affected:

- **'Data ownership'**: The concept of 'data ownership' is far less controversial for companies than thought when the study was launched; access to and (re-)use of data are much more important;
- **Data portability**: This is not a bar to companies sharing, accessing and re-using data, except in very particular cases;
- **Intellectual property rights (IPR)**: There is not felt to be a need to have recourse to the exclusive protection conferred by IPR when sharing, accessing and re-using data as this tool seems inadequate in most cases;
- **Valuing data**: The cost of data is an obstacle for data (re-)users, but if a company is interested in sharing data, it will find a means of valuing it;
- **Procurement**: Procurement barriers are more sporadic than recurrent.

THE CONSEQUENCES

The result, when these barriers (and especially the primary barriers) are taken together, is that:

- They are an impediment to data sharing;
- Businesses and consumers are incurring undue costs;
- Consumer safety is at risk;
- Clear and easy compensation for damage cannot be assured.

This has negative implications for the **Digital Single Market (DSM) and the society overall**. First, these barriers to the data economy are also barriers to **digital competitiveness and innovation**. Second, they constrain **freedom of choice for consumers** and **digital inclusion**.

Issues related to liability of IoT, robots and autonomous systems

A second area looked at in detail in this study is the extent to which **deficiencies in liability legislation are hampering the development and uptake in the EU of data-driven technologies, notably the IoT, robotics, and autonomous systems**. This is largely because of the non-deterministic autonomy of these systems, i.e. their behaviour may change based on what they have learned from their environment, and because of complexity.

This poses problems along the value chain through to the end-user, although these will vary depending on how developed the market is, the development stage a given company has reached in that market and the company's position in the value chain.

Nevertheless it is possible to identify five main axes which determine the types of liability issues and risks:

- **Axis 1 – Autonomy:** the degree of freedom that a device has to actuate in its environment, and specifically the degree of human involvement in either steering the device directly, or in controlling the flow of information that allows the device to determine its actions;
- **Axis 2 – Determinism:** the degree to which the actions of the device are fully pre-programmed or determined algorithmically;
- **Axis 3 – Dependence:** the degree to which the actions of the device depend fully on data derived from its own sensors or on external data;
- **Axis 4 – Operating environment:** the degree to which the devices operate in a clearly demarcated or unbounded space;
- **Axis 5 – Risk context:** the degree of risk that device errors may pose for their owners, businesses, the environment, or society.

The unique characteristics of the IoT, robots and autonomous systems on all of these axes are resulting in the emergence of new and specific liability challenges. These need to be considered in addition from the perspective of different stakeholder groups.

- **Producers** who manufacture an IoT device, robot or autonomous system, either by manufacturing it from scratch or assembling it from pre-existing components. This includes manufacturers of physical components and the providers of the operational logic (i.e. software providers);
- **Product or service providers** who offer a product or service in the market consisting of or using the robot or IoT device. This group includes direct vendors and importers, and service providers. Service providers offer a service that holds, integrates or uses the robot or IoT device. The customer does not necessarily become the owner of a device or robot, but enters into a service agreement;
- **End-users** who buy a robot or device (without the intent of building their own product or service around it), or who use a robot or device without necessarily owning it;
- **Injured parties** who suffer harm in relation to the use of a robot or device. These are not necessarily owners or users; they may simply be bystanders who were in the wrong place at the wrong time.

The combination of the Axes and the range of stakeholders makes this a more complex landscape than for conventional products, so that existing product liability concepts based on tangible products whose characteristics do not change over time may cease to be adequate. At the same time, this is an emerging market, where quantitative data is lacking and there is no experience of testing how liability law might apply. Moreover, it is evolving rapidly and in unpredictable ways. It is likely that the business models of today are not the business models of tomorrow.

On the one hand, there is a risk therefore in rushing to legislate and in singling out the IoT or robots specifically. On the other, the uncertainty about the liability regime in combination with the issues around autonomy and complexity could limit the take-up of IoT, robotics, and autonomous devices, by producers, service providers and end users because of:

- **Uncertainty about the extent to which existing liability regimes might apply;**

- **Divergences in national liability regimes; and**
- **The inability of Injured parties to count on the effective availability of redress.**

Both B2B and B2C transactions are suffering undue cost as a result. If costs to business came down, including the cost of legal advice and drawing up contracts case-by-case, the savings would be passed on to consumers, assuming competitive markets.

Assessment of the possible policy options

The study identifies a number of ‘hard’ and ‘soft’ options for the Commission if it wants to address the negative externalities related to the emerging barriers to the data economy and the liability issues affecting the IoT, robots and autonomous systems. They are:

- **Option 0 – No intervention:** no policy measure is taken to address these emerging barriers. This is the baseline scenario against which all other options are assessed.
- **Option 1A – Horizontal non-legislative measures:** awareness-raising, sharing of best practices, funding for research etc. across sectors and domains;
- **Option 1B – Sector-specific non-legislative measures:** a mirror of 1A but by sector.
- **Option 2A – Horizontal legislative measures:** a limited number of cross-cutting regulatory measures by barrier: liability, access to and (re-)use of data or interoperability, in the form of Regulations or Directives.
- **Option 2B – Sector-specific legislative measures:** mirrors option 2A but Regulations or Directive would be sector-specific (akin to the existing. Regulation that gives independent car repair companies access to manufacturers’ data).

Options 1A first and then option 1B emerged from multi-criteria analysis as those to be preferred based on three main criteria (effectiveness, efficiency and coherence). They were followed by the baseline scenario and finally by policy options 2A and 2B.

Thus, **non-legislative measures (and especially cross-sectoral non-legislative measures) are to be preferred at this stage of the development of the markets.** However, continuous monitoring of barriers, liability issues and cases, and business models is called for to be ready to regulate when and if it is necessary.

European Commission

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