European Office

# Sharing the future – Industrial Data Economy

## VDMA Discussion Paper on a European Data Economy

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## Who we are: The German Engineering Association (VDMA)

VDMA is Europe's strongest association in the mechanical engineering industry, with around 3,200 German and international member companies employing more than one million people. Nine out of ten VDMA member companies are small and medium-sized enterprises (SMEs) according to the EU definition. As a supplier of intelligent production systems, mechanical engineering is at the heart of the digitisation of European industry.

## 1. Data exchange is a core enabler for Industrie 4.0 – and it needs a European single market

The exchange of data is essential for a connected industry where people, machines and products communicate across factory walls, sectors and borders. With the uptake of Industrie 4.0, the exchanging, sharing and trading of data is becoming a commercial practice. As a digital representation of real processes and products, these data flows will make it possible to increase productivity, tap into new efficiency potential and enable new data-driven services and business models.

The framework and launch pad for this is the European single market. Industrie 4.0 needs a harmonised marketplace, enabling companies to develop their technologies for a domestic market of more than 500 million people and benefit from economies of scale. The strength of modern production comes from its international networks, so there is no alternative to a common legal framework and a European approach. Therefore, VDMA fully supports the "*Free Flow of data"* initiative of the European Commission and the debate on data governance, access and portability.

**Data in industry – a digital twin which carries information and responsibility**

So far, the political debate around data has been focused on consumer issues and digital consumer platforms. Industrie 4.0 stands for the digital transition of industrial value chains. This convergence of manufacturing and IT will reap benefits in the real world in terms of higher productivity, better resource efficiency, more sustainability, better product-service combinations and new, data-enabled businesses. But digitisation of industry also brings challenges such as liability for real machines, higher investments, longer innovation cycles, deeper technological integration and a legacy system of existing regulation, customer expectations and infrastructures.

In an industrial context, the analogy of data as raw material is misleading. An Industrie 4.0 production system is not a device which delivers data as a side-product, but comprises the machine, virtual digital shell and service/business interactions.

Therefore, data exchange in industry is different from B2C internet data markets in the following respects:

- **Industrial data are not raw material, but a context-sensitive key enabler:** Data in factories cannot be commercialised as a raw material (for example, for advertising). Added-value is created through the analysis of data in combination with domain know-how. In future, more and more data-driven business models and service offerings will emerge, but the data-enabled value creation and its monetisation will often be embedded in services or product-services combinations.
- **Industrial data contain trade secrets**: As a digital representation of innovations in products and processes, data might reflect competition-relevant know-how. This is particularly relevant for SMEs, which do not have the means for exhaustive legal or technical protection measures. For example, the process data collected for prescriptive analytics is a perfect picture of the process and is a business secret.
- **Data generation in industry is based upon investments in equipment and knowledge**. Development and use of digitised industrial equipment requires high investments. An Industrie 4.0 machine is not just a physical device with data-delivering sensors, but a system composed of mechanisms, sensors, actors, connectivity - and a data-based service concept. Data markets must provide sufficient incentives for investing in networked machines and factories.
- **Using industrial data implies real opportunities, but also real risks**: Industrial data are relevant for industrial and product safety. Products and machines in a digitised industry have to be as safe as traditional items. The management of industrial data implies responsibility for product safety, reliability and quality.
- **Industrial data are not homogeneous:** data exist as different types, categories and levels of added-value. They might be side-products or data created as part of a production network, containing trade secrets, safety-relevant information or personal data. This also limits the potential for fast upscaling. Business models based purely on Big Data might play a minor role in industrial value chains.
- **Established system of self-regulation and contractual practices**: There is an increasing flow of data in B2B, based upon existing legal instruments and contractual practices. There are good examples of data-driven businesses which have been established based upon entrepreneurial initiative and freedom of contract.
- **"Platform economies" might develop in a different way than in B2C**: The disruption potential of platform economies derives from the efficiencies gained by converting a linear business model into two-sided markets. It is not yet clear how far industrial value chains will develop into a platform or sharing economy. So far, there is no indication of a general trend towards market-dominating actors and abuse of market dominance.

## 2. Shaping the future: Questions and challenges

Industrie 4.0 and the digitisation of industry is an ongoing development and it is not yet clear which business models and which issues will emerge. However, some key questions are already being discussed:

- How to protect know-how and trade secrets in data value chain networks? How to ensure that investments in data technologies will pay back?
- Are machine data an asset which can be assigned to market participants in a kind of "ownership" regime ("data producer's right")? How can the use of data be licensed?
- Are there "data silos" which cannot be accessed and where innovation potential is blocked?
- If data markets are developing too slowly, is this the result of a market failure or just because markets are still emerging?

What has become clear from the debate so far is that existing law does not provide for claiming rights on data *per se*, but offers a variety of legislation dealing with content and context such as copyright, trade secrets, database regulation and so on. It remains to be assessed how these instruments might be applied in the different future application scenarios of Industrie 4.0 and how fit for purpose this legal framework is.

On the core question of a "data producer's right", the working group on "Legal framework" of the German platform Industrie 4.0[1] has concluded that is doubtful if a horizontal legislation can cover the variety of mainly unknown business situations where data are exchanged. In addition, assigning data rights means intervening in markets and might provide advantages to certain actors and deprive others from business opportunities.

The main instrument currently used by companies to organise data exchange is contract law, for example in the form of confidentiality agreements. For the time being, this seems to be fit for purpose in terms of legal certainty and flexibility. For sharing of data in multilateral networks, a bilateral solution will not be sufficient, but this is not a completely new situation and might also might be addressed by contract law. In order to deal with the increase in complexity, larger reference models or platform solutions such as the "Industrial Data Space" (IDS) will be developed and used. Such platforms, which are also developed by commercial providers, will enhance confidence in sharing data and therefore strengthen the willingness to share data on a voluntary basis.

As in other markets, concentration of power might also occur in data markets. The fast upscaling and disruptive effects make data markets even more vulnerable to this effect. However, due to the different settings in B2B and real-world value chains, disruptive

[1] http://www.plattform-i40.de/I40/Redaktion/EN/Downloads/Publikation/i40-how-law-is-keeping-pace.pdf?__blob=publicationFile&v=8

concentration effects have not yet been identified in the machinery sector. If in the future such effects were to occur, competition law is the appropriate instrument to address this.

So far, there is also no evidence in the machinery sector that large sets of data will remain closed away in silos and remain unused. Companies have good reasons to be careful when it comes to data exchange that might provide information or involve liability issues, but they are also interested in sharing data in the context of new, data-driven business models. The development so far shows that business logics are evolving, trust in data-based business relations is increasing and that markets will deliver sufficient incentives to exchange data. As mentioned above, this might happen rather in new products/service combinations which require a close business interaction. The commercial use of large amounts of data by third parties might not be the main business model in a digitised industry.

In general, policy-makers can support the process of creating data markets by providing legal certainty, raising awareness and ensuring a European level playing field. In particular, VDMA suggests the following principles:

## 3. Policy recommendations – principles for shaping European data markets

**Industrial data is a competitive asset of companies**

In principle, policy-makers must refrain from obliging enterprises to grant access to data, bearing in mind the business context. The intervention of legislators might interfere with already growing data ecosystems, expose sensitive trade secrets and undermine the legal certainty and trust needed for investments in connected factories and data-driven business models. In industrial value networks, enterprises must be able to decide and to negotiate to what extent and under which conditions they share data.

So far, in the context of Industrie 4.0, the issue of “data silos” has not been identified. However, It should be closely monitored for signs that the lack of a level playing field is preventing companies from participating in the data economy. Before considering legislative actions, it must be determined if existing instruments such as competition law are still fit for purpose. In most cases, voluntary agreements, soft-law approaches and supportive actions might suffice to facilitate data-based business.

**Not all the same: think in data categories**

A strategy for free flow of data must take into account the fact that data have different levels of interchangeability and require different considerations. The objective is for data to be fluently exchanged along value-creating processes. In this adding-value exchange, data can be free, shared, closed or even strictly confidential – depending on the business context. The decision about which data are free and the conditions for data trade should be left to the market actors. For companies and policy-makers, the categorisation of data might be an approach to better understand the commercial relevance of data and the implications of policy measures.

**Leave space for exploration**

The application scenarios of Industrie 4.0 are limitless and cannot be predicted in detail. Which structures and business models will emerge as the winners in the competition between ideas, technologies and companies is still unknown. Given this backdrop, the idea of spaces for experimentation is very interesting. Test-beds and experimentation spaces might not only provide more trust in the technologies, but also in the legal and commercial viability of data-based business models. However, unfair advantages in a patchwork of experimental zones must be avoided.

**Strengthen freedom of contract**

There is already a successful “flow of data“ in B2B, based upon contractual agreements which provide the needed flexibility to cover the variety and dynamics of the emerging business models. The principle of freedom of contract should be further strengthened, to gain the maximum legal certainty for parties engaging in data-sharing (a negative example is the German law on general terms and conditions which limits flexibility of contractual agreement). Nevertheless, in exceptional circumstances (for example, proven market failure), a reasonable test of fairness for contracts might be considered for certain sectors of industries. However, in general, freedom in negotiating and concluding contracts will be the basis for an efficient and fair “flow of data”.

**Harmonisation in Europe and the world**

A connected European industry is unimaginable without a single market for data exchange and harmonised rules. But a digital single market is not enough: data aspects must also be considered in the single market initiative, to ensure that the free flow of data is not hampered by non-digital-related regulations.

A framework for data exchange is also needed for trade with third countries. Trade agreements must ensure a level playing field for European companies in global markets; it is also essential to strike a balance between protection against unauthorised economic exploitation and encouraging the free trade of data around the globe.

**Transparent, simple and uniform implementation of the GDPR**

Even if machine data are mostly non-personal data, due to the wide definitions used by the GDPR they might be linked to persons and fall within the scope of the General Data Protection Regulation. In particular for SMEs, the obligations set by the GDPR are challenging. Implementation in member states must not create a patchwork of different settings. Companies might also benefit from clear guidelines which provide legal certainty.

**Portability – a balanced approach needed**

For a thriving data economy, it is important that companies have the freedom of choice to switch providers. This is vital to ensure an appropiate market spectrum and competition, in particular with regard to quality, confidentiality, data security and liability. It is therefore very positive that the EU-Commission is examining questions on portability, lock-ins, conflicts of interest of the platform operator and the enforceability of the rights of platform users and

suppliers. The objective must be to find a balanced political answer that enables new commercially beneficial developments and gains in efficiency on the one hand, while also ensuring fair competition and limiting the power of monopolies on the other.

**Continue the dialogue, improve coordination, increase capacities**

Even if right now it might be premature to shape in detail the legal framework for data, it is very important to closely monitor developments and continue a strong, strategic European dialogue between research, industry and policy-makers.

With “Digitising European Industry”, the European Commission has begun a fruitful debate and created a coordination framework. However, this could be improved. For example, an issue such as cybersecurity is very closely related to the data economy, but has not been well coordinated with the DEI initiative.

The EU Commission policy-makers and member states can further support the development by ensuring a single market approach and by helping to raise awareness and to increase the expertise required to shape the future, for example through promoting test-beds, graduate schools and guidance documents.

**Conclusions**

In Industrie 4.0, there is no evidence of a structural problem of unfair contract conditions or of data being locked away in silos. Data value chains are already developing, providing the basis for reaping the benefits of technological change in European industry. So far, contractual solutions have proved fit for purpose, covering the dynamics and the variety of business cases. Platform solutions will complement this and provide reference frameworks.

However, the future cannot be predicted and developments must be monitored to identify market failures. The challenge is not so much to quickly implement new rules. It is rather about increasing the capacity and ability of industry, science and legislators to understand the developments and to shape a framework for Industrie 4.0. Policy-makers can support companies by ensuring a single market, providing guidance and leaving space for experimentation.

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