European Commission

THE EUROPEAN DATA MARKET MONITORING TOOL

KEY FACTS & FIGURES, FIRST POLICY CONCLUSIONS, DATA LANDSCAPE AND QUANTIFIED STORIES

D2.9 Final Study Report- Executive summary

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EXECUTIVE SUMMARY

This is the Final Study Report (Deliverable D2.9) of the Update of the European Data Market Study (SMART 2016/0063), entrusted in 2016 to IDC and the Lisbon Council. The present document brings together the results and the activities carried out by the contractors under:

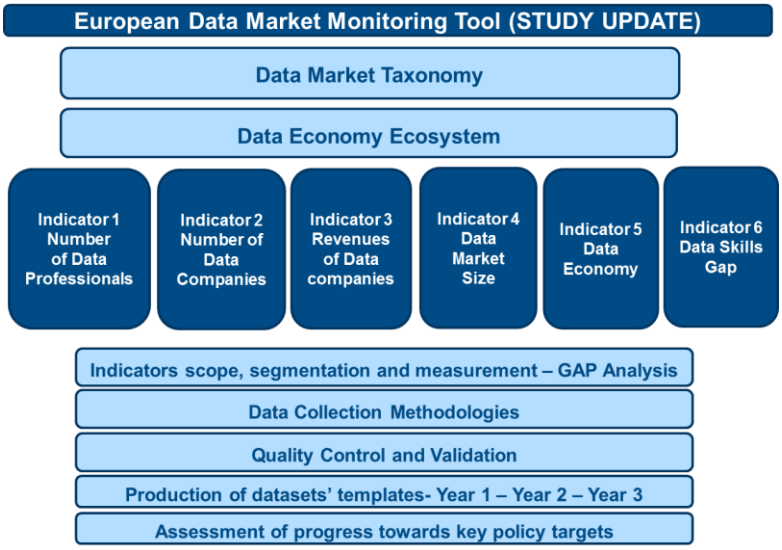
- **The Final Report on Facts & Figures (D2.7)** extending the measurement of the European Data Market Monitoring Tool by presenting data for the years 2018-2019 and forecasts to the year 2025 under three alternative scenarios;
- **The Final Report on Policy Conclusions (D2.8)** measuring the progress of European policies towards the objective of maximising the growth of the Data Economy as measured by the European Data Market Monitoring Tool;
- The key messages from the **quantified stories (D3.6-7, D3.8 and D3.9)** produced by the study team and focusing on the operational, organizational and/or economic benefits generated by the use of data-driven technologies with a special focus on data Commons and Data-driven Innovation in the European Healthcare Industry;
- **The Third Data Landscape Report (D4.3)** providing an overview of the EU Data Landscape and offering an up-to-date zoom onto the database of data market companies in Europe.

Quantifying the European Data Market – Key Facts & Figures

The European Data Market Monitoring Tool

In line with the results presented in the original European Data Market study (SMART 2013/0063) in February 2017, in the First Report on Facts & Figures (D2.1) of February 2018, in the Second Report on Facts & Figures (D2.4) of March 2019 and in the Final Report on Facts & Figures (D2.8) of May 2020, the measured indicators are organised around a modular and flexible structure – the European Data Market Monitoring Tool. The updated European Data Market Monitoring Tool designed by IDC is shown in the Figure below.

The Updated EDM Monitoring Tool



The EU Data Market and Data Economy in 2019

The value of the **Data Economy**, which measures the overall impacts of the Data Market on the economy as a whole, exceeded the threshold of 400 Billion Euro in 2019 for the

EU27 plus the United Kingdom[1], with a growth of 7.6% over the previous year. The positive trend in the growth of the Data Economy is confirmed by the Data Market value in 2019 for the EU27 plus the U.K., which is displaying a growth rate above the one exhibited by the total IT spending, at 4.9% year-on-year, reaching 75 Billion Euro.

As far as supply and demand are concerned, **data suppliers** are estimated at more than 290,000 units in the EU27 plus the U.K. for 2019, exhibiting a year-on-year growth of 2.3%. **Data users**, instead, remained stable in 2019, amounting to nearly 716,000 units and registering a growth of 0.6% over the previous year. Following increasing growth rates over the prior four years, these figures confirm a consolidation of data companies in the EU. **Revenues generated by data suppliers** increased by 9% to reach almost 84 Billion Euro in the EU27 plus the U.K., with the U.K. still in the leading position, Germany, France and Italy showing the highest share of data revenues per country - together accounting for two thirds (66%) of data revenues in the European Union plus the U.K.

According to the latest estimates, the number of **data professionals** in the EU27 plus the U.K. reached 76 million in 2019, corresponding to 3.6% of the total workforce, with an increase of 5.5% over the previous year. However, the EDM Monitoring Tool continues to register an imbalance between the **demand and the supply of data skills** in Europe as the estimated gap reached approximately 459,000 unfilled positions in the EU27 plus the U.K., corresponding to 5.7% of total demand. The data skills gap is forecast to continue in all the forecast scenarios as demand will continue to outpace supply.

The EU Data Market and Data Economy in 2025

The Update of the European Data Market Study also produced key facts & figures for the year 2025 according to three alternative evolution paths and of the European Data Market and Economy and driven by different macroeconomic and framework conditions. Based on IDC research carried out in March-April 2020, an additional post-Covid-impact scenario with estimates on the likely Data Market and Data Economy decline in 2020, and potential rebound and impacts on the 2025 scenarios for the EU27, has been developed (see subchapter below "*Considerations on COVID-19 impact*")

The 2025 scenarios are shaped by a combination of economic and social drivers, focused on the interaction of two main axes:

- **the high or low pace of diffusion of data-driven innovation**, driven by demand-supply dynamics, and its impact on economic growth.
- **the social and economic data governance model enabling a fair and competitive economy,** as indicated by the new European Data Strategy

This analysis highlights the critical turning points to be faced in the next years by governments, businesses and social actors in the development of the European Data Economy. The combination of alternative social and economic trends results in the following scenarios:

- The **Baseline scenario** is characterised by a healthy growth of data innovation, a moderate concentration of power by dominant data owners with a data governance

[1] Since Brexit is now definitive (as of May 2020), the authors provided an overview of data for EU27 plus the U.K. until 2019, and for the remaining months data are displayed for EU27.

model protecting personal data rights, and an uneven but rather wide distribution of data innovation benefits in the society. This is considered the most likely scenario.

- The **High Growth scenario** is characterised by a high level of data innovation, low data power concentration, an open and transparent data governance model with high data sharing, and a wide distribution of the benefits of data innovation in the society;
- The **Challenge scenario** is characterised by a low level of data innovation, a moderate level of data power concentration due to digital markets fragmentation, and an uneven distribution of data innovation benefits in the society.

The scenarios explore the drivers and framework conditions which may lead to maximise the benefits of a balanced Data Economy and to avoid the risks of an unbalanced one, highlighting the consequences of policy actions.

In the **Baseline scenario**, the EU 27 GDP cumulative growth average in the period 2020-2025 (+1.5%) will sustain the investments in the digital economy and consumer willingness to spend. As a result, the Data Market is forecast to reach 82.5 billion Euro in the EU27, with a compound annual growth rate of 5.8%. The Data Economy will grow faster than the Data Market, thanks to a positive multiplier impact of data innovation on the economy, reaching a value of 550 billion Euro in the EU27, with a steep increase of its incidence on EU from 2.8% in 2020 to 4% in 2025.

In the **High Growth scenario** at 2025, the EU 27 GDP compound annual growth rate in the period 2020-2025 (+2.1%) will be 1.5 times higher than in the Challenge scenario and 40% higher than in the Baseline scenario. This will accelerate the investments in the digital economy and consumer willingness to spend. In the European Union public and private investments will accelerate in Artificial Intelligence, advanced robotics, automation as well as new skills. As a result, the Data Market is forecast to reach 107 billion Euro in the EU27, with a compound annual growth rate of 11.5% between 2025 and 2020. The Data Economy will grow faster than the Data Market, reaching a value of 827 billion Euro in the EU27, with an incidence on EU GDP of 5.9%, against the 4.0% of the Baseline scenario.

In the **Challenge scenario**, the EU GDP compound annual growth rate in the period 2020-2025 will be only 0.9%, substantially lower than in the other scenarios. As a result, in this scenario the Data Market is forecast to reach 72 billion Euro in the EU27 with a compound annual growth rate of 3% between 2020 and 2025. In the same context, the Data Economy will reach a value of 432 billion Euro in the EU27 with an incidence on GDP of 3.3%, compared to 4% in the Baseline scenario 2025.

The number of data professionals will still increase to 8.4 million in the EU27 by 2025, adding 1.8 million positions in the period 2020-2025. We estimate a potential data skills gap of approximately 484,000 unfilled positions in the EU27 by 2025, corresponding to 5.7% of total demand, as demand will still grow faster than supply.

The EU Data Market and the International Indicators

Our latest measurement of the European Data Market Monitoring Tool reveals a substantially unchanged picture when comparing the EU indicators to those that have been developed for some of the key international partners of the EU. While confirming its vitality, the EU continues to lag behind the U.S in terms of both size and growth of the Data Market. In 2019, the EU27 plus the U.K. generated a Data Market value in 2019 approximately 2.5 times smaller than the one produced in the U.S. (72.3 billion Euro in the EU vs. almost 185 billion Euro in the U.S.) in the same year.

Filling this gap would be essential to increase Europe's competitiveness and for the future of work in the EU. To this aim, the new European Digital Strategy recently unveiled by the European Commission[2] designs a new, confident role for Europe as a global player.

A robust commitment on trade and investments on the international scene will also ensure a collaborative approach on several technology-related topics including data flows and the possibility to pool available and relevant high-quality data together. This approach, however, will have to be put in place while safeguarding Europe's "technology sovereignty", that is by making sure that Europe reduces its level of dependency on other parts of the globe for most of the crucial technologies and effectively protects the integrity and resilience of its data, networks and communication infrastructures.

Describing the Data Market – The Quantified Stories

Three quali-quantitatve stories were produced while conducting the third and final round of measurement of the European Data Market monitoring Tool[3]. These stories were the result of a mixed effort entailing both secondary and primary research. Extensive secondary research on available public sources, specialised press and academic literature was undertaken to obtain an actionable and up-to-date understanding of the operational, organizational and/or economic benefits generated by the use of data-driven technologies with a special focus on Data Commons and Data-driven Innovation in the European Healthcare Industry.

The first story ("Health Data and Data-driven Innovation in the European Healthcare Industry") highlighted the benefits that data-driven technologies can exert in uncovering unknown correlations, hidden patterns, and insights by examining large sets of data. By applying machine learning, Big Data can study human genomes and find the correct treatment or drugs to treat cancer or other rare diseases.

To better understand how European companies are approaching and implementing the use of Data Commons, the second story ("Accelerating the Impact of Data Commons) featured extensive desk research across a multitude of publicly available sources, and found a number of challenges to data pooling that can only be addressed by sophisticated and carefully designed governance mechanisms. Data pooling, to be effective, needs to be framed in a wider context of precompetitive collaboration between companies, and needs to have a compelling business case: in other words, it has to be demand-driven.

The third story looked at common data spaces from the viewpoint of those European industries that have already invested in data-driven innovation, have achieved measurable business benefits and are engaged in scaling-up these efforts. This provided an evidence-based and industry-specific view about the pragmatic requirements of Common European Data Spaces, with a focus on the requirements for data governance, access to data, access to infrastructures. The results showed that the path towards data spaces effectively supporting data sharing at ecosystem level will not be easy. The most relevant barrier found

[2] https://ec.europa.eu/digital-single-market/en/content/european-digital-strategy

[3] In total, the study produced 9 stories: D 3.1 Quarterly Stories – Story 1 "Opening Up Private Data for Public Interest", November 2017; D3.2 Quarterly Stories – Story 2 "Opening Up Scientific Data for Innovation", February 2018, D3.3 Quarterly Stories—Story 3 "Data Monetization", October 2018; D3.4 Quarterly Stories Story 4–How Big Data is driving AI: Selected Examples of AI Applications across European Industries, March 2019; D3.5 Quarterly Stories "AI paving the way for the Cognitive Revolution across European Utilities", May 2019; stories D3.6-7; D3.8, D3.9 are described above.

to scalability comes from the cost of cloud infrastructures and the dependency on a few global suppliers resulting in potential customer lock-in effects.

Mapping the Data Market – The Data Landscape and the Data Market Monitoring Tool

The Third EU Data Landscape Report (D4.3) provides an overview of the EU Data Landscape database revision as of January 2020. With a total of 1,556 companies and coverage of 42 countries (European Union-28, Belarus, Bosnia and Herzegovina, Georgia, Iceland, Israel, Kenya, Moldova, Norway, Russia, Serbia, Switzerland, Turkey, Ukraine and the United States), the database has grown by 9% with the addition of 131 new companies during 2019. Out of the new companies, 52 were identified as Key Data Landscape companies, offering a comprehensive overview of the most important data companies in Europe.

Acting Upon the Data Market – The Role of Policy

The new European Data strategy outlines the ambition for Europe to become a leading role model for a society empowered by data to make better decisions in business and the public sector and a global leader in the data-agile economy.

Considerations on COVID-19 impact

As the Final report on Policy Conclusions (D2.8) was being finalised in February 2020, the COVID-19 pandemic started its rampage across the globe with unprecedented impacts on the European economy as well as on the technology market. While the EDM Monitoring Tool Data and analysis until 2019 remain valid,our estimates for 2020 are now off-the-mark and the 2025 scenarios would need to be revised.

Based on IDC research carried out in March-April 2020, an additional post-Covid-impact scenario with estimates on the likely Data Market and Data Economy decline in 2020, and potential rebound and impacts on the 2025 scenarios for the EU27, has been developed. These estimates should be taken with caution because of the extremely high level of uncertainty about the current damages to the economy and the potential recovery paths.

According to our post-COVID scenario estimates, the European Data Market should decrease by 7.1% to 54 Billion Euro in 2020 (compared to 58 Billion Euroillion Euro in 2019) and the Data Economy by 5.5% to 307 Billion Euro Billion Euro (compared to 325 Billion EuroBillion Euro in 2019). In our view, the powerful negative impact of the slow-down in 2020 will be followed by a rebound and a likely return on the growth path in the next years. Many of the powerful drivers of data-driven innovation are likely to prove resilient in the next years, particularly the willingness to invest in digital technologies in order to re-launch services and create new products to stimulate demand.

By 2025, the post-Covid Baseline scenario foresees strong growth rates resulting in a value of 80 Billion Euro for the European Data Market (compared to 82.5 Billion Euro in the pre-Covid scenario) and 516 Billion Euro for the Data Economy (compared to 550 Billion Euro in the pre-Covid scenario). However, the incidence of the European Data Economy on the EU27 GDP will slightly increase from 4% (Pre-Covid scenario) to 4.04% (post-Covid scenario) because GDP is also affected by the recession. The Challenge and High Growth scenarios remain broadly valid, even though their degree of likeliness change; the Challenge scenario is marginally more likely,while the High Growth scenario assumptions, based on hyper-growth thanks to technology investments, seem now quite remote.

Europe's Data Market and Data Economy Evolution: Policy and the Three Scenarios (Pre-COVID)

Today, as we look at the main driving trends for the next years, we notice that the role of policies has increased in relevance: as data-driven innovation has become widespread across all industry sectors and user constituencies, the scope of the regulations and framework conditions to be adapted has considerably grown. At the same time, the emergence of disruptive technologies such as AI has increased the need for policy intervention to manage emerging social, economic and ethical risks.

The **Baseline scenario** is positioned between the two extremes of a high and a low concentration of power and data control. The development of an effective regulatory framework of data governance, as foreseen by the Data strategy, will enhance stakeholders' willingness and capability to manage data sharing and improves data access and re-use.

As in the Baseline scenario, in the **High Growth scenario** European enterprises multiply the use of "digital co-workers" (using intelligent process automation and AR/VR to support/complement human workers) reducing repetitive tasks, improving productivity and security. Besides automation, enterprises engage in "augmentation" of human resources providing technologies enhancing their physical and intelligence capabilities. On the other hand, initiatives to develop digital skills are successful: the Digital Europe Programmes delivers a boost to the supply of advanced digital and data skills, the revised Digital Education act helps to improve digital learning, and the networks of Digital Innovation Hubs play their role in providing internships, training and experimental spaces for companies to learn about new technologies.

The **Challenge scenario** foresees a negative self-reinforcing circle, where less positive global economic conditions discourage investments and weaken global demand with a negative impact on European growth. In this context, digital Europe and data strategies are not implemented successfully and fail to achieve many of their objectives. This may happen if a combination of insufficient investments and lack of collaboration at EU level lead to an uneven development of data infrastructures and digital resources.

The EU Data Policy and the International Dimension

The new European Digital Strategy recently unveiled by the European Commission appears to design a new, confident role for Europe as a global player. Realizing that the European model has proved to be an inspiration for many other partners worldwide, the strategy calls for the EU to strengthen its commitment towards the setting global standards for emerging technologies and to remain the most open region for trade and investment in the world. In terms of standards, in particular, the EU has paved the way for the setting of global standards for 5G and the IoT and is now committed to leading the standardisation process of a number of additional advanced and new generation technologies such as blockchain, quantum computing, supercomputing – all technologies that lie behind and allow data sharing and data usage and that, as a straight consequence, are directly linked to the further development of a well-functioning Data Economy.

This proactive international role in the standardisation process is accompanied by a robust commitment on trade and investments on the international scene so to ensure that a collaborative and inspiring European approach on several technology-related topics - including data flows and the possibility to pool available and relevant high-quality data together - is successfully implemented.

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