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**A European strategy for data**

## A European strategy for data

### 1. Introduction

Over the last few years, digital technologies have transformed our economy and society, affecting all sectors of activity and the daily lives of all Europeans. Data is at the centre of this transformation and more is to come. Data-driven innovation will bring enormous benefits for citizens, for example through personalised medicine (through the tailoring of treatments, including production of medicines, to the needs individual patients), improved mobility and better ways to tackle climate change. In a society where individuals will generate ever increasing amounts of data, the way in which the data are collected and used must place the interests of the individual first, in accordance with European traditions, values and rules. Citizens will trust and embrace data-driven innovations only if they are confident that any data sharing in Europe will be subject to full compliance with our strict data protection rules.

The combination of rapidly growing volumes of data with technological change in how the data is stored and processed, opens up wide-ranging opportunities for Europe. The value of data for the economy and for our society depends on its use: Data does not wear off and the same data can be used by several persons or organisations at the same time, without loss in utility for any of them. It should therefore rather be compared to renewable resources such as wind and sun than to oil. To leverage its potential for innovation, job creation and for the common good, for our society and economy, Europe needs to tackle, in a concerted manner, issues ranging from connectivity to processing and storage of data, computing power and cybersecurity.<sup>1</sup> Technologies that make sense of the data, such as AI, need to be developed and deployed in full respect of European rules and values.

Europe has the opportunity to **become a leading role model for a society empowered by data to make better decisions – in business and organisations**, and to maximise the benefits of the data-driven economy for our society, based on Europe's values. To fulfil this ambition, Europe can build on a strong legal framework – in terms of data protection, fundamental rights and security – its internal market and a large degree of interconnection in public services. Moreover, it has a strong industrial base and a recognised technological capacity to build safe and reliable complex products and services from aeronautics to energy, automotive, medical equipment and digital. It will, however, have to improve its infrastructures, technology offer and governance structures for handling data: And Europe has to increase its data pool. If Europe wants to acquire a leading role in the data economy it has to act now.

This Communication outlines a strategy and a roadmap for policy measures and investments for the data economy for the coming five years. It presents a European way of data

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<sup>1</sup> [reference to digital strategy Communication]

governance, which ensures that more data will become available for the economy and society, while contributing to improved data sovereignty in Europe, and in compliance with the General Data Protection Regulation. This data strategy is presented at the same time as a White Paper on artificial intelligence that indicates how the Commission will support and promote the development and uptake of artificial intelligence across Europe. There are strong links between the topics, since data is the raw material of machine learning. On the basis of this strategy, the Commission launches a comprehensive consultation on the specific measures that could be taken to keep Europe at the forefront of the data-agile economy, while respecting and promoting the fundamental values that are the foundation of our societies.

## **2. The challenge**

### *Growing data volumes and technological change*

The volume of data produced in the world is growing rapidly, from 33 zettabytes in 2018 to an expected 175 zettabytes in 2025.<sup>2</sup> Each new wave of data represents as many opportunities for Europe to position itself in the data-agile economy and to become a world leader in this area. Furthermore, the way in which data is stored and processed will change dramatically over the coming 5 years. Today 80% of the processing and analysis of data that takes place in the cloud occurs in data centres and centralised computing facilities, and 20% in smart connected objects, such as cars, home appliances or manufacturing robots, and in computing facilities close to the user (“edge computing”). By 2025 these proportions will change markedly.<sup>3</sup> Aside from the economic and sustainability advantages that this development presents (efficiencies rising from a reduced transfer of data to a data center that may be in a physical location far away from the node), it opens up additional opportunities for business to develop tools for data producers to increase control over their own data.

### *The importance of data for the economy and society*

Data will reshape the way we produce, consume and live. Benefits will be felt in every single aspect of our lives, ranging from more conscious energy consumption and farm to fork food traceability, to truly immersive augmented reality experiences, healthier lives and better health-care.

*Personalised medicine based on data analysis will make it possible to tailor treatments, including the production of medicine, to the real needs of individual patients instead of ‘guessed’ needs. This approach is based on the combination of non-personal data, such as information on the environmental conditions or aggregated insights from the treatment of similar patients, with the personal data of*

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<sup>2</sup> IDC, 2019.

<sup>3</sup> Gartner 2017

*the individual, such as health records as well as 'real world' data from any activity (wearables, social media) – based on their consent for the use of such personal data.*

Data is the lifeblood of economic development, of a better society and the backbone of a renewed European industrial policy: It is already the basis for many new products and services, driving productivity gains across all sectors of the economy, allowing for more personalised products and services and enabling better policy making and upgrading government services. It is an essential resource for start-ups and small and medium-sized enterprises (SMEs) in developing products and services. Moreover, making more data available and improving the way in which data is used is essential for tackling societal challenges, contributing to greener, healthier and more prosperous societies.

The availability of data is essential for training artificial intelligence systems, with products and services rapidly moving from pattern recognition and insight generation to more sophisticated prediction techniques and, thus, better decisions. Therefore access to data is a central element in all the national AI strategies. Data will also fuel the wide implementation of transformative practices such as the use of digital twins.

*Digital twins create a virtual replica of a physical product, process or system. The replica can for example predict when a machine will fail, based on data analysis, which allows to increase productivity through preventive maintenance.*

The manufacturing sector can also obtain significant benefits (e.g. improve production efficiency and responsiveness, e.g. through customisation of products and services) in particular from the analysis of data that the manufactured objects themselves generate through embedded sensors ('real world data') and complementary data. This ultimately benefits the users of such objects, including consumers, who get products that better meet their needs.

#### *Europe has everything to play for in the data economy of the future*

Currently, a small number of Big Tech firms hold a large part of the world's data. This is a major weakness for data-driven businesses to emerge, grow and innovate today, including in Europe, but huge opportunities lie ahead. A large part of the data of the future will come from industrial and professional applications, areas of public interest or internet of things applications in our everyday life, areas where Europe is strong. Opportunities will also arise from technological change, with new European business perspectives in areas such as cloud at the edge, low power consumption – a prerequisite for handling the data volumes of the future – digital solutions for safety critical applications, and also from quantum computing. These trends show the dynamic nature of a data-agile economy and the likely extent and degree of the digital transformation. They also indicate that the winners of today will not necessarily be the winners of tomorrow.

Europe has the potential to be successful in the data-agile economy. It has the technology, the know-how, a highly skilled workforce. But competitors such as China and the US are already innovating quickly and projecting their concepts of data access and use across the globe. In the US, the organisation of the data space is left to the private sector, with considerable concentration effects. China has a combination of government surveillance with a strong control of Big Tech companies over massive amounts of data.

The difference between success and failure in the next five years will be felt for decades to come, since data is at the core of the digital transformation and essential for innovation. Therefore Europeans need to join forces and agree on and operationalise an ambitious strategy for data. Companies, citizens, researchers and the public sector should be in a position to benefit from data generated in Europe and also beyond our shores.

#### *What has been done so far?*

Europe's technological future depends on its capacity to capture the value of data through a European model, and on the structures and policies for data access it puts in place in the next few years. The Commission has already taken a number of steps since 2014 to facilitate the development of the data-agile economy. With the General Data Protection Regulation (GDPR)<sup>4</sup>, the EU created a solid framework for digital trust. Other initiatives that have laid the foundations for the data economy are the Regulation on the free flow of non-personal data (FFD)<sup>5</sup>, the cybersecurity Act (CSA)<sup>6</sup>, the open data Directive<sup>7</sup>, and an open consultation<sup>8</sup> and focused discussions with stakeholders from a range of data-intensive sectors on access to and control over the use of private sector data.<sup>9</sup> Connectivity, powered by fibre and 5G infrastructures<sup>10</sup>, enabling secure, energy-efficient and reliable communications, is a precondition for the data-agile economy. The last Commission delivered an overhaul of the regulatory framework –the new European Electronic Communications Code - with a view to promote and increase connectivity and aiming to ensure Gigabit connectivity by 2025.

Sector-specific legislation on data access has also been adopted in some fields. In the area of automotive, the market for repair and maintenance services is kept open through specific data access rules.<sup>11</sup> Similarly, the market for payment service providers and consumer finance dashboard operators ("account information service providers") was opened up by the revised

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<sup>4</sup> Regulation (EU) 2016/679.

<sup>5</sup> Regulation (EU) 2018/1807.

<sup>6</sup> Regulation (EU) 2019/881.

<sup>7</sup> Directive (EU) 2019/1024.

<sup>8</sup> <https://ec.europa.eu/digital-single-market/en/news/synopsis-report-public-consultation-building-european-data-economy>

<sup>9</sup> See Communication COM(2018)232 final.

<sup>10</sup> COM(2016)587 final.

<sup>11</sup> Regulation 715/2007.

payment service Directive.<sup>12</sup> Similar provisions exist for smart metering information<sup>13</sup>, with respect to electricity network data<sup>14</sup> and in the context of the C-ITS strategy<sup>15</sup>.

### 3. The vision

Our vision stems from our values, our tradition and our conviction that the human being is and should be in the centre of what we think and do. We are convinced that we can **empower Europe through the use of data to make better decisions, in businesses and in organisations**. Better data usage will help us solve our resource and climate problems, tackle existing inequalities and aid us in addressing participation challenges. Data usage will drive innovation, enhanced services and improved solutions will be at the core of a **data-agile economy**; it will allow to address the individual and not just the average and, thus, will allow to create value, for our societies and our economies.

To release this potential, we need better access to data and its responsible usage.

By 2030, the share of data stored and processed in Europe, as well as the European share of the data economy, should at least correspond to its economic weight. The aim is to create a single European data space, a genuine single market for data, where personal as well as confidential data is secure and businesses have also easy access to an almost infinite amount of high quality industrial data boosting growth and creating value, while minimising our carbon footprint. It should be a space where European law can be enforced effectively in respect of data generated within its borders and that all data-driven digital products and services marketed within the EU's single market comply with relevant norms. To this end, Europe should combine fit for purpose legislation and governance to ensure availability of data, with investments in standards, tools and infrastructures as well as competences for handling data. This will lead to more data being stored and processed in Europe.

The European data space will give businesses in Europe the possibility to build on the scale of the internal market. It will lead to value-creation and to new high-end jobs. Common European rules and efficient enforcement mechanisms should ensure that:

- data can flow within the EU and across sectors;
- European rules and values, in particular personal data protection, are fully respected;
- the rules for access and use of data are both practical and clear.

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<sup>12</sup> Directive 2015/2366.

<sup>13</sup> Directive 2019/944 for electricity, Directive 2009/73/EC for gas meters.

<sup>14</sup> Commission Regulation (EU) 2017/1485, Commission Regulation (EU) 2015/703 of 30 April 2015.

<sup>15</sup> Directive 2010/40/EU.

Moreover, clear and trustworthy data governance mechanisms need to be in place. European data should be processed in all situations in full respect of European legislation.

However, rules and governance mechanisms are not enough. The functioning of the European data space will depend on the presence of key enablers for improved usage, such as standards, tools and technologies (including infrastructures). Therefore Europe needs to invest in next generation technologies and infrastructure as well as in competences like data literacy.

The infrastructures should support the creation of European data pools that contain rich sets of data enabling Big Data analytics and machine learning, in a manner compliant with data protection legislation and competition law. These pools may be organised in a centralised or distributed way. The organisations contributing data would get a return in the form of increased access to data of other companies, analytical results from the data pool, services such as predictive maintenance services, or licence fees.

While data is essential for all sectors of the economy and society, each domain has its own specificities and not all sectors are moving at the same speed. Therefore cross-sectoral actions towards a European data space need to be accompanied by the development of sectoral data spaces in strategic areas such as manufacturing, health, and mobility. Each of these data spaces is characterized by its own data, data structures, the necessary data-sharing tools, supporting technologies and infrastructures as well as specific governance mechanisms in place, without losing sight of the potential of cross-sectoral data use.

In order to turn the vision into reality, Europe has to build on its many strengths: strong industries and business sectors, an excellent public sector and a mature and educated society, able to make the best use of technology not only for its comfort and well-being but also to address the climate challenge and preserve its values and fundamental rights. We will develop a data-agile economy with innovative solutions and enabling us to make better decisions for the good of all our European citizens.

#### **4. The problems**

In spite of the actions already undertaken, several issues are holding Europe back from realising its potential in the data economy. The consultation following the 2017 Commission Communication on Building a European data economy<sup>16</sup> and the follow-up to the 2018 data package<sup>17</sup> identified these issues and offered ways forward.

Legislative fragmentation between European countries is a major risk for the vision of a common European data space. A number of Member States have started with adaptations of

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<sup>16</sup> COM(2017)9 final.

<sup>17</sup> COM(2018)232 final.

their legal framework, such as on use of privately-held data by government authorities,<sup>18</sup> data processing for scientific research purposes,<sup>19</sup> or adaptations to competition law.<sup>20</sup> Others are only starting to explore how to handle the issues at stake. These emerging differences underline the importance of common action in order to leverage the scale of the European market. Progress will need to be made together on the following issues:

**Availability of data:** The value of data lies in its use and re-use. Currently there is not enough data available for innovative re-use, including for the development of artificial intelligence. The issues can be clustered in terms of who is the data holder and who is the data user. Full respect of EU data protection rules is a *sine qua non* for any policy options arising in this context, depending on the nature of data involved (i.e. personal data, non-personal data, or mixed data sets combining the two). Several of the issues concern the availability of data for the public good.

***Data for the public good:** Data is created by society and should be used in the best possible manner for the benefit of all. It can serve to combat emergencies, such as floods and wildfires, to ensure that people can live longer and healthier lives, to improve public services, and to tackle climate change. Data generated by the public sector as well as the value created should be available for the common good by ensuring, including through preferential access, that these data are used by researchers, other public institutions, SMEs or start-ups. Data from the private sector can also make a significant contribution as public goods. The use of aggregated and anonymised social media data can for example be an effective way of complementing the reports of general practitioners in case of an epidemic.*

- *Use of public sector information by business (government-to-business - G2B).* Opening up government-held information is a long-standing EU policy.<sup>21</sup> The data has been produced with public money and should therefore be available for use for companies and citizens alike, to benefit society as a whole. The recently revised open data Directive<sup>22</sup> will ensure that the public sector makes more of the data it produces easily available for use, in

<sup>18</sup> For example the French 'LOI n° 2016-1321 du 7 octobre 2016 pour une République numérique', allowing the public sector to access certain (private sector) data of general interest

<https://www.legifrance.gouv.fr/affichLoiPubliee.do?idDocument=JORFDOLE000031589829&type=general&legislature=14>, or the Finnish Finnish Forest Act obliging forest owners to share information related to the management of the forest with the public sector, <https://mmm.fi/en/forests/legislation>

<sup>19</sup> For example the Finnish law on secondary use of health and social data, creating a data permit authority.

<sup>20</sup> Discussions on adapting the competition rules to make them better equipped for the data economy are for example ongoing in Germany.

<sup>21</sup> Since the adoption of Directive 2003/98/EC on the re-use of public sector information.

<sup>22</sup> Directive (EU) 2019/1024, repealing Directive 2003/98/EC as revised by Directive 2013/37/EU.



particular for SMEs.<sup>23</sup> However governments can do more. High value datasets are often not available under the same conditions across the EU. This results from different financing models of public sector bodies that hold such data and the absence of technical interfaces in some Member States, to the detriment of the use of the data by SMEs that cannot afford to pay for the data or to make the necessary technical adaptations. At the same time, sensitive data (e.g. health data) in public databases is often not made available for research purposes, in the absence of capacity or mechanisms that allow specific research actions to be taken in a manner compliant with personal data protection rules.

- *Sharing and use of privately-held data by other companies (business-to-business - B2B – data-sharing)*. In spite of the economic potential, data sharing between companies has not taken off. This is due to lack of trust between economic operators, imbalances in negotiating power, the fear of misappropriation of the data by third parties, and a lack of legal clarity of who can do what with the data (for example for co-created data, in particular IoT data).
- *Use of privately-held data by government authorities (business-to-government B2G – data sharing)*. There is currently not enough private sector data available for use by the public sector to improve public services such as mobility planning or improving the way in which official statistics could be delivered faster. An expert group has looked into the issue. Its report is published on the same day as this strategy.
- *Sharing of data between authorities* is equally important, in order to improve policy making and public services, for example managing cross-border environmental threats such as floods.<sup>24</sup> It also can make life easier to citizens if they do not have to share their data with authorities multiple times ('once only' principle).<sup>25</sup>

**Imbalances in market power:** Beside the high concentration in the provision of cloud services and data infrastructures, there are also market imbalances in relation with access to and use of data, for example when it comes to access to data by SMEs. A case in point comes from online platforms, structuring markets characterised by strong network effects, where there is a strong tendency for accumulation of data by a small number of players. Such platforms draw great efficiencies of scale and scope by optimising processes and gathering important insights from the richness and variety of the data they hold. This can affect, in turn, the contestability of markets in specific cases – not only the market for such platform services, but also the various specific markets for goods and services served by the platform - and could consequently lead to imbalances within the market as well, impacting businesses' and

<sup>23</sup> The European open data portal contains examples of a range of companies from across the EU that have benefited from open data, and some of them would not exist without the data availability.  
<https://www.europeandataportal.eu/en/using-data/use-cases>

<sup>24</sup> This is promoted by the INSPIRE Directive 2007/2 EC.

<sup>25</sup> Regulation (EU)2018/1724 establishing a Single Digital Gateway.

consumers' welfare. Imbalances may also arise in other situations, such as with regard to access to data co-generated in industrial IoT settings.

**Data interoperability and quality:** Data interoperability and quality, as well as their structure, authenticity, and integrity are key for the exploitation of the data value, especially in the context of AI deployment. Data producers and users have identified significant interoperability issues which impede the combination of data from different sources within sectors, and even more so between sectors. This concerns the absence of a consistent description of the data and how it has been gathered, as well as the considerable cost of making the data reuseable, which constitutes a barrier for SMEs. Standardisation of all types of (multilingual) data, including both structured and unstructured data, and data from different domains is essential to respond to the above key requirements. Overall, the application of standard and shared formats and protocols for gathering and processing data from different sources in a coherent and interoperable manner across sectors and vertical markets should be encouraged.

**Data governance:** There have been calls to further reinforce the governance of data use in society and the economy, not least in a recent series of workshops undertaken by the Commission on the concept of 'common European data spaces'.<sup>26</sup> For these data spaces to become operational, organisational approaches and structures (both public and private) are needed that enable data driven innovation on the basis of the existing legal framework. Data governance also addresses standardisation issues, where the potential of data use, including across sectors, offers new challenges. With a multitude of requests for new standards coming from a range of economic actors, prioritisation is necessary.

**Data infrastructures and technologies:** The digital transformation of the European economy depends on the availability and uptake of secure, energy-efficient, affordable and high quality data processing capacities, such as those offered by cloud infrastructures and services. However today problems persist on both the supply and demand side of cloud.

On the supply side:

- EU-based cloud providers have only a small share of the cloud market, which makes Europe highly dependent on external providers and implies a loss of investment potential for the European digital industry in the data processing market;
- Non-EU service providers operating in the EU are often subject to extraterritorial provisions of foreign jurisdictions. The US CLOUD Act is an example.<sup>27</sup> China also has

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<sup>26</sup> See in the Staff working document, p. XX.

<sup>27</sup> The Clarifying Lawful Overseas Use of Data Act obliges cloud service providers to enable access to personal data of US and non-US citizens. It is not only providers established in the US that are in scope, but also those having "sufficient minimum contacts" with the US, including many European providers. EU citizens and companies subsequently face an increased risk regarding the security of their data.

in force several laws which could result in unlawful disclosure of European data to Chinese national intelligence authorities;

- There is uncertainty about compliance of non-EU cloud services with important EU rules and standards, for example on data protection. Recently, the governments of several Member States had disputes with a prominent cloud service provider about the transfer without consent of personal (telematics) metadata to its headquarters outside the EU. Another example is the difficult negotiations between cloud service providers and regulated sectors (such as the financial sector) on audit rights regarding cloud service providers and access rights to data centers in this context.

On the demand side:

- There is a low cloud uptake in Europe (1 company in 4, only 1 in 5 for SMEs<sup>28</sup>). Significant divergences in cloud uptake exist between Member States (from below 10% to up to 65% of businesses using cloud);
- Specifically, cloud uptake in the European public sector is low, leading to less efficient digital public services.
- There is frequently insufficient visibility on the market of smaller, often European, providers of innovative cloud services.

***Lack of tools for empowering individuals to exercise their rights:*** Individuals value the high level of protection granted by the GDPR. However, they suffer from the absence of technical tools and standards that make the exercise of their rights simple and not overly burdensome.<sup>29</sup> They should also be further supported in enforcing their rights with regard to the use of the data they generate. The personal data protection framework, and in particular the portability right under the GDPR, needs to be more usable in practice. Calls to give individuals the tools and means (including ‘personal data spaces’) to decide at a granular level about what is done with their data - such as by the MyData movement<sup>30</sup> and others<sup>31</sup> – are promising, but these initiatives are in their infancy. Other solutions like independent authorities as broker between companies and individuals are considered but need a supporting environment. General data literacy across the population is low and participation lacks exist (rural areas, women, elderly people). In this context the further development of digital identities that help individuals to keep control over their data is highly relevant.

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<sup>28</sup>[https://ec.europa.eu/eurostat/statistics-explained/index.php/Cloud\\_computing\\_statistics\\_on\\_the\\_use\\_by\\_enterprises](https://ec.europa.eu/eurostat/statistics-explained/index.php/Cloud_computing_statistics_on_the_use_by_enterprises)

<sup>29</sup> Examples are: Web-based interfaces for requesting access to personal data, their correction or deletion and their portability towards novel service providers where desired as well as consent management interfaces supporting individuals when giving consent in terms of reducing the cognitive burden on understanding long consent notices and consent receipt mechanisms that allow individuals to monitor (and where desired: withdraw) consent given.

<sup>30</sup> <https://mydata.org/>

<sup>31</sup> <https://www.decodeproject.eu/>; <https://solid.mit.edu/>, <https://radicalxchange.org/>

**Skills:** Currently, big data and analytics are top of the list of critical skills shortages. This concerns skills at all levels, ranging from data-scientists to basic data skills in the public sector. In 2018, there were approximately 571,000 unfilled positions in the area of big data and analytics in the EU28, which could grow to 1.5 million in the EU 27 in a High Growth scenario.<sup>32</sup> If it is not addressed, this shortage will affect Europe's capacity to master the challenges of the data economy.

While there are differences between the individual sectors, the problems highlighted above are relevant across different sectors. Moreover, there are important links with other horizontal issues, such as digital identity and the roll-out of blockchain, for which further measures are foreseen during this mandate of the Commission.

*New decentralised digital technologies such as **blockchain** offer a further possibility to ensure a data-driven society and economy in which both individuals and companies are able to manage data flows and usage, based on individual free choice and self-determination. The tools of smart contracts and tokenisation on a blockchain make data management possible with minimal burden for the citizens and companies alike, with the possibility of using subscriptions and receiving compensation in diverse business models. Such technologies will make dynamic data portability in real time possible for individuals and companies. This will enable many new business models.*

In the area of **cyber-security** Europe has already taken several important steps in the last few years, but more needs to be done to protect our data. However, the new data paradigm where less data will be stored in data centers, and more data will be spread in a pervasive way closer to the user, calls for a further strengthening of cyber-security. The safe and widespread use of data-fuelled products and services will depend on the highest cyber-security standards, which are also a pre-requisite for successful data sharing and maintaining data sovereignty.

## 5. The strategy

This data strategy for Europe serves to realise the vision for a common European data space and tackles the problems identified through policy measures and funding. The actions are based on four pillars:

- A) Regulation & rules: Cross-sectoral measures for data access and use;
- B) Enablers: Investments in data and strengthening Europe's standards, tools and infrastructures for hosting, processing and using data;
- C) Competences: Investments in general data literacy, addressing lack of skilled labor, up/reskilling of our work forces as well as dedicated capacity building for SMEs.

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<sup>32</sup> IDC 2019.

D) The roll-out of common European data spaces in crucial economic sectors.

The strategy sets out a roadmap for the major actions to be launched on data. Each of the legislative measures will be prepared and assessed in full compliance with the Better Regulation principles.

#### **A. Regulations and rules: Cross-sectoral measures for data access and use**

Cross-sectoral measures for data access and use should create the necessary over-arching framework for the data economy, thereby avoiding harmful fragmentation through inconsistent actions between sectors and between the Member States. Such measures should nonetheless take into account the specificities of individual sectors and of the Member States.

Our approach to regulation is to create frameworks that shape the context, allowing lively, dynamic and vivid ecosystems to develop. Because we do not yet fully comprehend all elements of this transformation towards a data-agile economy, we deliberately abstain from overly detailed, heavy-handed *ex ante* regulation, and will prefer an agile approach to governance that favors experimentation (such as regulatory sandboxes), iteration, and differentiation.

In line with this principle, a first priority for operationalising the vision is putting in place an **enabling legislative framework for the governance of common European data spaces (Q3 2020)**. Such governance structures should support decisions on what data can be used in what situations, facilitate cross-border data use, and prioritise interoperability requirements and standards within and across sectors. The framework will reinforce the necessary structures in the Member States and at European level to facilitate the use of data for innovative business ideas. It will build on recent initiatives in the EU<sup>33</sup> and in individual sectors to address one or more of the following issues:

- strengthen the governance mechanisms at European level and in the Member States relevant for cross-sector data use and for data use in the common sectoral data spaces, involving both private and public players. This could include a mechanism to prioritise standardisation activities and to work towards a more harmonised description of datasets to foster data interoperability (i.e. their usability at a technical level<sup>34</sup>) within and between sectors.
- facilitate decisions on how data can be used and by whom for scientific research purposes in a manner compliant with the GDPR. This is particularly relevant for publicly held databases with sensitive data not covered by the open data Directive.

<sup>33</sup> Finnish Health and Social Data Permit Authority (<https://www.findata.fi/en/>), French Health Data Hub (<https://www.health-data-hub.fr/>), German Forschungsdatenzentrum (<https://www.forschungsdatenzentrum.de/en>).

<sup>34</sup> See also the FAIR data principles: <https://www.force11.org/group/fairgroup/fairprinciples>

- make it easier for individuals to allow the use of the data they generate for the public good, if they wish to do so ('data altruism'), in compliance with the GDPR.

Secondly, the Commission will work on making more high quality public sector data available for re-use, in particular in view of its potential for SMEs. In order to open up key public sector reference data sets for innovation, it foresees the adoption of an **Implementing act on high value data sets (Q1 2021)** under the open data Directive, making these data sets available across the EU for free, in machine readable format and through standardised Application Programming Interfaces (APIs). The implementing act will apply to areas such as geospatial, environment, meteorology, statistics and companies' data. The Commission will look into mechanisms to take into account the particular needs of SMEs. It will also assist the Member States to ensure an ambitious transposition of the new rules of the open data Directive before 17 July 2021.

In its role as data producer, the EU will connect data from the Copernicus earth observation programme to the European data spaces, thus opening new innovation opportunities and maximising return on investment, and enhance the Copernicus data infrastructure to make it AI ready, e.g. by investing in annotation that makes the data more usable. The EU will continue making data resulting from its research and deployment programmes available in line with the principle 'as open as possible, as closed as necessary', and will facilitate access to and use of the data by researchers through the European Open Science Cloud.<sup>35</sup>

Third, the Commission will **explore the need for legislative action on issues that affect relations between actors in the data-agile economy**, and that are relevant for a range of sectors. One or more of the following issues could be taken forward in a **Data Act (2021)**:

- business-to-government data sharing (follow-up to today's report of the expert group).
- Support B2B data sharing, in particular through a clarification of usage rights for co-generated data (such as IoT data in industrial settings). We will also identify and remove any undue existing hurdles hindering data sharing (e.g. review of relevant competition rules) and clarify rules for the responsible use of data (such as legal liability).
- refining the IPR framework to further enable data sharing (including a possible revision of the database Directive and a clarification of the application of the Trade Secrets Directive as an enabling framework).

Furthermore, the Commission will assess what measures are necessary to establish data pools for data analysis and machine learning.

The review of the current self-regulatory approach for cloud provider switching<sup>36</sup> could lead to further action, depending on the progress made by market players.

<sup>35</sup> <https://ec.europa.eu/research/openscience/index.cfm?pg=open-science-cloud>

<sup>36</sup> <https://swipo.eu/> The approach is based on the Free flow of data regulation, Regulation (EU) 2018/1807

The Commission will also consider jurisdictional issues related to data. These issues create uncertainty for businesses which may face conflicting rules. Europe should not compromise on its principles: all companies which sell goods or provide services related to the data economy in Europe must respect European legislation and this should not be compromised by jurisdictional claims from outside Europe.

The accumulation of vast amounts of data by Big Tech companies and the way they use and share the data across sectors is being analysed by the Observatory of the Online Platforms Economy. The issue will not be addressed as part of the Data Act, but under the broader fact-finding around the economic power of platforms and also in the context of the Commission's work on the Digital Services Act package. Such fact-finding will focus in particular on the conditions under which, in specific cases, the accumulation of data can impair the contestability of either the platform market or specific markets for goods and services, and/or enable large players to set the rules of the game and unilaterally impose conditions for access and use of data or, indeed, benefit in a disproportionate and unbalanced manner from economies of scale when developing new services and expanding towards new markets. On the basis of this fact-finding the Commission will consider how best to address more systemic issues, including by ex ante regulation if appropriate, to ensure that markets stay open and fair.

#### **Key actions**

- Propose a legislative framework for the governance of common European data spaces, Q3 2020
- Adopt an implementing act on high value data sets, Q1 2021
- Propose a Data Act, 2021
- Analysis of the importance of data in the digital economy (e.g. through the Observatory of the Online Platform Economy), and review of existing policy framework (such as the Platform to Business Regulation) in the context of the Digital Service Act package (Q4 2020).

#### **B. Enabler: Investments in data and strengthening Europe's infrastructures for hosting, processing and using data**

Making rapid progress on data driven innovation in strategic areas requires investments, both from the private and public sectors. The Commission will use its convening power as well as EU funding programmes to strengthen Europe's standard setting, tool development as well as build-out of next generation infrastructures for hosting and processing of data. Where relevant, the investments will be co-ordinated with relevant authorities in Member States and paired with national and regional subsidies, including investments through the structural and cohesion funds.

The initiatives below need to be seen in the context of a **wider set of strategic EU investments in new technologies** that the Commission will present in March 2020 **as part of its industrial strategy**. They concern in particular funding for edge computing, HPC/quantum computing, cyber-security, low-power processors and 6G networks. These investments are essential for our data infrastructure of the future.

#### *Developing Common European data spaces*

An investment of 1 billion EUR from the DEP programme is envisaged over 7 years to **establish EU-wide common, interoperable data spaces** in key sectors. This will include: (i) the deployment of data-sharing tools and platforms; (ii) the creation of data governance frameworks; (iii) improving the quality and interoperability of data – both in domain-specific settings and across sectors. DEP will also support authorities in the Member States in making high value data sets available for re-use in the different common data spaces.

#### *Support progress on data technologies and the incubation of new services and applications*

The Horizon Europe programme will continue to support technologies that are crucial for the next stages of the data economy, such as privacy preserving technologies and technologies underpinning industrial and personal data spaces. A public private partnership for Artificial intelligence, data and robotics is in preparation that can help steer the investments in this area.

#### *Interconnecting cloud infrastructures*

Enhancing European technological sovereignty in data infrastructure is a priority to provide public administrations and businesses with trustworthy European alternatives for secure and sustainable cloud based infrastructures and services. While building a competitive European cloud supply from scratch is not a realistic endeavour, the federation of European capacity will create the right context for European players to enter the market with highly innovative cloud services, including cutting edge computing technologies and high performance computing. Simultaneously, it will enable easier data sharing, enable a free flow and efficient utilisation of available data, and faster uptake of artificial intelligence. It will also foster the gradual rebalancing between centralised data infrastructure in the cloud, and highly distributed and smart data processing at the edge. Such a European cloud federation should therefore from the start interconnect emerging edge computing capacities, in order to enable the capture of newly generated data. Over time it should also enable access to top-end high performance computing and its integration with mainstream data processing services, so as to provide a seamless computing continuum to maximize the growth and exploitation of common European data spaces for public, industrial and scientific applications.



In response to concrete calls from the demand-side industry<sup>37</sup> for making available European-based data processing infrastructures, the Commission will therefore **stimulate the interconnection of the currently fragmented (public and private) cloud capacities in Europe**. It will do so by supporting the interconnection of infrastructures and services in an energy-efficient and highly secured manner, and by developing reference architectures and interoperability standards. An investment in the order of EUR 600 Mio for this is envisaged from the Connecting Europe Facility Programme (CEF2) and the Digital Europe Programme (DEP) over a period of 7 years.<sup>38</sup> The investments in cloud federation will be aligned with the opportunities ahead, such as cloud at the edge, low power consumption and safety critical applications. A broad representation of European industry and public administrations from different Member States has already shown clear interest to join a future cloud federation project, both from the demand and supply side. The incentives are clear: for the demand side, the advantage is the guarantee that critical and sensitive data will be stored and processed subject to European rules and standards, whereas for the supply side, it offers the opportunity to gain joint access to the European market with a globally competitive offering, which is unattainable if those EU providers do not join forces.

For such improved market access to materialise, the set-up of a **cloud services marketplace** for EU users from the private and public sector will be facilitated by the Commission **by Q2 2022**. The marketplace will put potential users (in particular the public sector and SMEs) in the position to select cloud processing, software and platform service offerings that have been certified to provide a given level of service and security. Participation to the marketplace will be subject to the use of transparent and fair contract conditions, which the current market is not currently providing, specifically to SME users.<sup>39</sup> A number of Member States are already developing similar marketplace initiatives at national level, which is good but creates a risk of fragmentation and limits the visibility of smaller European cloud providers to access public procurement in other Member States. The advantage of an EU-level cloud services marketplace is double: first, to fill the current problem of market asymmetry between hyperscale global actors that often offer integrated solutions containing applications also provided by smaller (European) players. Second, to generate clarity about the compliance of cloud services with key rules and regulations, as the participating cloud service providers will have to comply upfront with such rules. This will ensure a better match between the EU offer and demand stemming notably from public administrations, services of general public interest and SMEs.

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<sup>37</sup> For example the German car and manufacturing industry that subsequently strongly supported the Gaia-X project.

<sup>38</sup> These figures are subject to the outcome of the negotiations on the Multi-annual Financial Framework for the period 2021-2027.

<sup>39</sup> See: "Study on the economic detriment to SMEs arising from unfair and unbalanced cloud computing contracts", doi: 10.2838/397707.

In order to protect the rights and interests of European companies and citizens, the Commission will strictly monitor the adherence of cloud services operating on the EU market to EU regulations (e.g. GDPR, FFD, CSA) and their envisaged implementation through self-regulatory mechanisms. In this context, it will bring together **by Q2 2022** a coherent framework around the different applicable rules (including self-regulation) for cloud services, in the form of a **rulebook encompassing cloud codes of conduct and certification** on security, energy efficiency, quality of service, data protection and data portability.

The Commission will furthermore foster synergies between the work on European cloud federation and Member States initiatives such as Gaia-X.<sup>40</sup> This is necessary to avoid multiplication of fragmented cloud federation initiatives, as the success of such an initiative would depend on pan-European participation. Multiple parallel initiatives would indeed not bring the required economies of scale and pan-European service provision and would therefore reduce the chances of success. For this reason, the Commission will facilitate **Memoranda of Understanding with Member States by Q3 2020**, and will ensure the interconnection with the European Open Science Cloud, the single online platform for access and use of data generated by European research supported by the European Commission, and in due course with European high-performance computers currently being procured.

#### **Key actions**

- Invest an amount in the order of EUR 600 Mio in the European federation of energy-efficient and trustworthy cloud infrastructures and services, and EUR 1 Billion in the development of EU-wide common, interoperable data spaces (including standards/APIs, tools etc.) and the improvement of data quality at national level in the period 2021-2027. First calls for proposals will be launched in Q1 2021
- Sign Memoranda of Understanding with Member States on cloud federation, Q3 2020
- Launch a European cloud services marketplace, Q2 2022
- Create an EU (self-)regulatory cloud rulebook, Q2 2022.

### **C. Competences: User empowerment, investments in general data literacy, addressing lack of skilled labor, up/reskilling of our work forces as well as dedicated capacity building for SMEs.**

#### *Empowering individuals with respect to their data*

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<sup>40</sup> An initiative to stimulate cloud federation from the German perspective, presented by the German government on 29 October at the Digital Summit in Dortmund. The purpose of the project is to cater for European standards and reference architectures to create EU-based 'virtual hyperscale providers'.

Individuals should be further supported in enforcing their rights with regard to the use of the data they generate. They can be empowered to be in control of their data through personal data spaces. This could be supported by an enhanced portability right for individuals giving them more control over who can access and use machine generated data, for example data coming from smart home appliances (NB, this does not affect cloud portability). In addition, rules for providers of personal data spaces could be considered, guaranteeing their role as a neutral broker. These issues can be further explored in the context of the Data Act mentioned above.

The Digital Europe Programme will also support the development and roll-out of infrastructures for Personal Information Management Systems.

#### *Investments in skills and general data literacy*

The funding dedicated to skills under the Digital Europe Programme will contribute to narrowing the gap in terms of big data and analytics capacities. The programme will make funding available to expand the digital talent pool with in the order of 250,000 people who will be able to deploy the latest technology in business throughout Europe. Given the importance of data in the digital economy, many of these are likely to be related to data.

Overall, by 2025, the EU and the MS should have halved the current gap of 1 million digital specialists, including by putting a focus on increasing female participation.

The idea of a network of data stewards from across data intensive organisations (both business and the public sector), put forward by the expert group on Business to Government data sharing will be further explored.

In terms of general data literacy, the Revised Skills agenda will set out a pathway showing how EU and MS action can increase the proportion the EU population with basic digital skills, from currently 57% to 70% by 2025.

#### *Dedicated capacity building for SMEs*

The forthcoming European SME strategy will define measures to build the necessary capacity for SMEs and start-ups. Data is an important asset in this context, since starting a company based on data is not very capital intensive, while there are many opportunities ahead.

The Horizon Europe and DEP Programme will create opportunities for SMEs in the data economy, to have better access to data and to develop new services and applications based on data, inter alia through incubation schemes.

#### **Key action**

- Explore an enhanced portability right for individuals giving them more control over who can access and use machine generated data (possibly as part of the Data Act in 2021).

#### **D. Common European data spaces in key sectors and domains of public interest**

The Commission will promote the development of common European data spaces in strategic economic sectors and domains of public interest. This should lead to the availability of large pools of data in these sectors and domains, combined with the technical tools and infrastructures necessary to use and exchange data, as well as appropriate governance mechanisms. While not having a one size fits all approach, common governance concepts and models can be replicated in the different sectors.

The horizontal framework could be complemented by sectoral legislation for data access and use, and mechanisms for ensuring interoperability. Differences between the sectors will depend on the maturity of the discussions on and problems identified with data availability in the sector. A further relevant factor is the degree of public interest and involvement in a given sector, which may be higher in areas such as health and lower for example in areas such as manufacturing. The potential cross-sector use of data between sectors also needs to be taken into account. The data spaces will be developed according to the highest available cyber-security standards.

The common European data spaces will be enhanced by the following sector-specific actions that are tangible, sizable, focused on data, and accompanied by a clear and realistic timeline. They will complement the horizontal framework and the funding under A and B.

##### **i. Common European industrial (manufacturing) data space**

Europe has a strong industrial base, and manufacturing in particular is an area where the generation of and use of data can make a significant difference to the performance and competitiveness of European industry. A 2018 study estimated the potential value of use of non-personal data in manufacturing at EUR 1,5 trillion by 2027.<sup>41</sup>

In order to unleash this potential, the Commission will:

1. Clarify the usage rights on co-generated industrial data (IoT data created in industrial settings), as part of a wider Data Act (Q4 2021).
2. Gather key players from the manufacturing sector to agree – in a manner compliant with national and EU competition law rules – under which conditions they would be ready to share their data and how to further boost data generation, notably via smart connected products (Q2 2020 onwards). Where data generated by individuals are concerned, their interests should be represented.

##### **ii. Common European green data space**

Europe's Green Deal has set out the ambitious goal for Europe to become the world's first climate-neutral continent by 2050. The Commission's Communication clearly underlines the

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<sup>41</sup> Realising the economic potential of machine-generated, nonpersonal data in the EU, Deloitte 2018

importance of data for achieving this goal. A European green data space can make a major contribution to combatting climate change and meeting sustainable development goals.

In this context the Commission will:

1. Initiate a GreenData4All initiative. This consists of reviewing and possibly merging the INSPIRE Directive (EU-wide harmonisation of geospatial datasets) with the Access to Environment Information Directive and the Public Participation Directive (Q4 2021 or Q1 2022). It will modernise the regime in line with technological and innovation opportunities, making it easier for EU citizens to support the transition to a greener and carbon-neutral economy, and reducing administrative burden.
2. Launch the mission « Planet Earth project »

*The Digital twin of the Earth project will bring together European scientific and industrial excellence to develop a very high precision digital model of the Earth. This groundbreaking initiative will, amongst other things, improve the way in which we can monitor and combat climate change and will support Europe's efforts for a better environment as set out in the Green Deal [timing tbc].*

[ENV and CLIMA possibly to add further description and actions]

### iii. Common European **mobility data space**

Mobility, and in particular the automotive sector, is at the forefront of the debate on data sharing, and an area where Europe has many assets. Today, modern vehicles generate around 25 gigabytes of data every hour and autonomous cars will generate terabytes of data that can be used for innovative mobility-related services. Innovation in this area requires that car data are shared, in a secure and well framed way, in line with competition rules amongst many different economic players.

The access to in-vehicle data is regulated since 2007 in the EU vehicle approval legislation<sup>42</sup> to ensure a fair access to car data by independent repairers. This legislation is now being updated to take into account the increasing use of connectivity (3G-4G) (so-called remote diagnostics)<sup>43</sup>. The European Parliament also called in 2018 the Commission to legislate to ensure fair access to in-vehicle data and resources in general<sup>44</sup> and the Commission promised to study further options<sup>45</sup> to the current legal framework. Any legislative action should make

<sup>42</sup> Regulation 715/2007.

<sup>43</sup> As required by Art 61 of Regulation (EU) 2018/858.

<sup>44</sup> See request from the European Parliament in its resolution on a European strategy on Cooperative Intelligent Transport Systems (P8\_TA(2018)0063) and on autonomous driving in European transport (P8\_TA-PROV(2019)0005).

<sup>45</sup> On the road to automated mobility: An EU strategy for the mobility of the future". <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2018:0283:FIN:EN:PDF>.

it considerably easier to use data produced by connected cars, while guaranteeing that security issues are fully addressed and that the interests of the car-owners generating the data are respected.

The legislative framework for Intelligent transport systems already contains extensive data sharing obligations, in particular laid down in Commission delegated Regulation 2017/1926, which establishes a list of datasets (including datasets concerning public transport) that should be available to providers of multimodal travel information services. It has also created a network of national access points where the data are made available. Wide availability and use of data in public transport systems has the potential to make them more efficient, green and customer friendly.)

The Commission will:

1. Review the current EU type approval legislation for motor vehicles (currently focused on wireless data sharing for repair and maintenance), to open it up to more car data based services (Q1 2021). The review will *inter alia* look at how data is made accessible by the car manufacturer and what procedures are necessary to obtain it.
2. [actions on other areas of mobility, including public transport, input needed from DG MOVE]

#### iv. Common European **health data space**

The availability of health data is essential for advances in preventing, detecting and curing diseases, for supporting research on new treatments, medicines and medical devices. It helps healthcare authorities to take evidence-based decisions to improve the accessibility, effectiveness and sustainability of the healthcare systems. It also contributes to the competitiveness of the European industry. Better access to health data can significantly support the work of regulatory bodies in the healthcare system, the assessment of medical products and demonstration of their safety and efficacy. Citizens have the right to access and control their personal health data and to request their portability. Working towards making sure that every citizen has secure access to their Electronic Health Record (EHR) and can ensure the portability of his/her data – within and across borders – will improve access to and quality of care, cost effectiveness of care delivery and contribute to the modernisation of health systems.

Citizens also need to be reassured that, once they have given consent for their data to be shared, that the healthcare systems uses such data in an ethical manner.

Health is an area where Europe can benefit from the data revolution, increasing the quality of healthcare, while decreasing costs. Progress will often depend on the willingness of Member States and healthcare providers to join forces and find ways to use and combine data, in a manner compliant with the GDPR. While the GDPR has created a level playing field for the use of health personal data, fragmentation remains within and between Member States and the

governance models for accessing data are diverse. The landscape of digital health services remains fragmented, especially when provided cross-border.

Therefore the Commission will:

1. Explore sector-specific legislative or non-legislative measures for the European health data space, complementing the horizontal governance framework and building upon mapping of the use of personal health data in Member States (2020), a Code of Conduct for processing of personal data in the health sector (2022) and the results of the Joint Action on the European Health Data Space (2020-2022) in the context of the Health programme.<sup>46</sup>
2. Deploy the data infrastructures, tools and computing capacity for the European health data space, more specifically to support the development of national EHRs and to scale up cross-border exchange of health data, linkage and use of health data in secure, federated repositories of EHRs, digital images, genomic information of at least 10 million people by 2025, in compliance with the GDPR provisions. Enable the exchange of electronic patient summaries and ePrescriptions between at least 22 Member States by 2022, start cross-border electronic exchanges of medical images, laboratory results and discharge reports and enhance the virtual consultation model and registries of European Reference Networks. These actions will support prevention, diagnosis and treatment (in particular for cancer, rare diseases and common and complex diseases), research and innovation, public health and regulatory activities.

v. **Common European financial data space**

In the financial sector there are provisions in place for access to specific data under the PSD2 Directive. Specifically defined financial service providers can have access to consumer bank account information, with the informed consent of these consumers, for innovative financial services.<sup>47</sup>

[FISMA to add further description and actions as agreed]

vi. **Common European energy data space**

In the energy sector, several Directives<sup>48</sup> establish that consumer energy consumption data are sharable by the consumer on a non-discriminatory basis. The governance frameworks are to be defined at the national level. Legislation also introduced data-sharing obligations for electricity network operators.<sup>49</sup>

Therefore the Commission will

<sup>46</sup> [https://ec.europa.eu/health/funding/programme\\_en](https://ec.europa.eu/health/funding/programme_en)

<sup>47</sup> Directive 2015/2366.

<sup>48</sup> Directive 2019/944 for electricity meters and Directive 2009/73/EC for gas meters.

<sup>49</sup> Commission Regulation (EU) 2017/1485, Commission Regulation (EU) 2015/703 of 30 April 2015.

1. Adopt an implementing act setting out the interoperability requirements and non-discriminatory and transparent procedures for access to smart electricity meter data on the basis of Directive 2019/944 [timing to be added].
2. [ENER to add further description and actions as agreed]

vii. **Common European agricultural data space**

In the agricultural sector, stakeholders have agreed on data relationships in a Code of Conduct to be translated into contractual practice.<sup>50</sup> Furthermore, vendors of agricultural machinery have agreed on a common standard for data access.<sup>51</sup>

[AGRI to add further description and actions as agreed]

viii. **Common European public procurement data space**

Public procurement data are essential to improve transparency and accountability of public spending, fighting corruption and improving spending quality.

Therefore the Commission will elaborate a data strategy for public procurement data covering both the EU dimension (EU datasets, such as TED<sup>52</sup>) and the national ones.

[GROW + Publications Office to define more specific, sizeable actions with a clear timeline]

**Key actions**

- Review EU type approval legislation for motor vehicles (Q1/2021)
- GreenData4All initiative (Q4 2021/Q1 2022)
- Scale up cross-border exchange of health data, linkage and use of health data in secure, federated repositories of European Health Records, digital images, genomic information of at least 10 million people (by 2025). Enable the exchange of electronic patient summaries and ePrescriptions between at least 22 Member States (by 2022).

**6. An open, but proactive international approach**

The vision of a common European data space implies an open, but assertive approach to international data flows, based on European values. The Commission will continue to fight digital protectionism and address obstacles to data flows in bilateral discussions and international fora – including the World Trade Organisation – by seeking to eliminate unjustified restrictions, while promoting and protecting European data processing rules and

<sup>50</sup> [https://copa-cogeca.eu/img/user/files/EU%20CODE/EU\\_Code\\_2018\\_web\\_version.pdf](https://copa-cogeca.eu/img/user/files/EU%20CODE/EU_Code_2018_web_version.pdf)

<sup>51</sup> <https://www.agriculture.com/news/technology/john-deere-claas-cn-h-industrial-and-365farmnet-form-dataconnect>

<sup>52</sup> Tenders Electronic Daily.



standards. It will be vigilant and protect and assert the rights, obligations and interests of individuals and companies, in particular as regards data protection, security and fair and trustworthy market practices. The Commission is convinced that international cooperation must be based on an approach that promotes the EU's fundamental values, including protection of privacy. The EU must ensure, therefore, that any access to European data is in compliance with its values and legislative framework. In that context, transfers and sharing of data between like-minded countries should be promoted.

More analysis is needed to understand the EU's strategic interest for opening data flows with targeted third countries. To this end, the Commission will **create a European analytical framework for measuring data flows** (Q4, 2021). This should be a durable framework that provides the tools to conduct a continuous analysis of data flows and the economic development of the European data processing sector, including a robust methodology, economic valuation and data flows collection mechanisms. It will serve to better understand patterns of data flows and centres of gravity, both within Europe and between Europe and the rest of the world, and to be able to propose adequate policy responses in case necessary. It should also help to drive adequate investment to overcome possible infrastructure gaps preventing data flows. The Commission will therefore seek in due course cooperation with relevant financial and international organisations on the data flow measurement framework (e.g. EIB, EBRD, OECD, IMF...).

Europe should take advantage of its effective data regulatory and policy framework to attract the storage and processing of data from other countries and regions. The goal of attracting data from outside the EU can also be supported with the tools for improving connectivity with third countries under the CEF2 programme.

In parallel, and following examples such as the adoption of rules modelled on the GDPR by Brazil and Kenya, the EU will also actively promote its standards and its values with its partners around the world. It will work in multilateral fora to fight abuses such as the undue access of governments to data, for example access to personal data that is not in line with Europe's data protection rules. In order to promote the European model around the world, the EU will work with like-minded partners to support others who wish themselves to have greater control over their data, in line with values they share with Europe.

#### **Key action**

- Create a framework to measure data flows and estimate their economic value within Europe, as well as between Europe and the rest of the world, Q4 2021.

## **7. Conclusion**

This Communication puts forward a European data strategy whose ambition is to enable the EU to become the most attractive, most secure and most dynamic data-agile economy in the

world – empowering Europe with data to improve decisions and better the lives of all its citizens. It enumerates a number of policy measures and investments needed to achieve this goal.

The stakes are high, since Europe's technological future depends on whether we manage to harness our strengths and seize the opportunities offered by the ever increasing production and use of data. A European way for handling data will ensure that more data becomes available for addressing societal challenges and for use in the economy, while respecting and promoting our European shared values.

In order to secure its digital future, Europe has to seize its window of opportunity in the data economy.