



**Principles for  
a human-centric,  
thriving and  
balanced data  
economy**

EU2019.FI

## Towards an ethical data economy

For the benefit of people and businesses, a clear strategy is needed for digital transformation and for developing the data economy towards the ethical use of data. Sustainable development depends on finding new models for value creation and building operating models that are based on high ethical values and human-centricity.

**HUMAN CENTRIC** — **We must transform the focus from organisation-centric and technology-centric to human-centricity.** Change begins with empowering individuals, which enables data flows, data-driven personal services, better-informed decisions and more meaningful interactions with each other. The importance of personal data compels us to ensure that individuals are in a rightful position to know, access and control their data and its use. Efforts should be focused on facilitating more balanced interactions in digital services. This includes personal access to data sources, wider use of personal data with self-sovereign digital identity and data management tools, transparency in the collection, storage and use of data, and enablers of data portability across different services and platforms.

One prerequisite for change is that new governance models in a human-centric data economy need to be established. For example, data intermediaries or operators who can manage data on behalf of individuals and organisations will build trust-based relations between parties and enable data portability for seamless service experiences and innovations. These data flows are also important for research and societal development.

Success in a global operating environment depends on how competent people and organisations are in producing, understanding and making use of information. This competence also includes understanding the ethical issues involved in the use of data and information.

**THRIVING** — **We must ensure conditions that unlock the use of data for innovation and growth.** New technologies and the widespread use of data have a powerful impact on society, services and corporate revenue-generation models and, consequently, on the accumulation and distribution of value. From the perspective of a thriving data economy, access to data creates value potential.

The role of data as an economic asset is projected to give rise to opportunities, given that data storage and processing capacities, together with technological development, will continue to accelerate the digital transformation of industries and sectors. Policy approaches in the data economy should ensure a technology-neutral framework and competitive markets that encourage market-driven investments in the development of communications, satellite and information infrastructures designed to serve different modes of industries, mobility and transactions.

Unlocking the use of data for scaling services and operations calls for a new multi-stakeholder model and system thinking to reassess regulations. Regulations need to become less technical and more enabling and goal-based.

**BALANCED** — **We must make sure that data sharing benefits all.** We need action to provide a more level playing field for all actors and sectors — big and small, public and private. The goal is to maximise the collective benefits of data, by sharing and by establishing fair user rights to data.

Instead of exclusive and proprietary rights, explicit data usage rights need to be established in order to promote the sharing of data. Access to necessary data is granted by default — be it



public sector data, privately held data or machine-generated data. Stakeholders have the right to reuse data under fair, reasonable and non-discriminatory terms, with well-defined and duly justified restrictions. Well-established rights to well-defined categories of data allow the innovative use of data and encourage industries to invest in data-driven development. The transformation towards a data economy calls for further investments in the production of high-quality data at all levels, from the level of infrastructure to applications.

Research, development and innovation (RDI) play a significant role in terms of the competitiveness of the data economy because the end result is the transformation of data into in-depth knowledge. Collaboration between academic research and business development enables data spill-overs, which improves understanding and the use of data for application areas with practical needs and problems.



## Guiding principles for an ethical data-driven society

A human-centric, thriving and balanced data economy is based on data use that builds on the rights of individuals, on a fair operating environment for organisations and on a well-functioning society. These multiple goals can be balanced for a thriving, fair and human-centric data economy through the application of the following guiding principles: access, share, act, trust, innovate and learn.

The principles can be applied in stages to take into account the different starting points of organisations, sectors, societies, regions and so on. Existing data-related regulations form the basis for the principles that also open up avenues for new thinking within regulatory frameworks (e.g. a regulatory sandbox) to develop the data economy.

The principles should also be applied as more horizontal guidance in sectoral development in order to promote interoperability and coherence.

### Access

**Access by default.** Access to data according to various access rights (e.g. business-to-business, business-to-government) should be facilitated by technical or legal solutions and support.

Access to data is essential for digital development. Access to the necessary **business-to-business data** of each sector for various purposes should be provided on fair, reasonable and non-discriminatory terms while respecting the rights of individuals and businesses without jeopardising the protection of privacy or property, or compromising secrecy. Individuals should have access to their **personal data** in practice, not just as legal rights. Publicly funded data sets should be **open data** and provided through open interfaces for individuals and businesses by default.

The timely portability of data across services makes it possible to connect data from silos and to ensure that it is usable when it is needed. Data must be digital in machine-readable format, and if possible available as real-time data. Development should be guided towards decentralised data solutions where data is stored only once (once-only principle) and access to data sets is managed through data interfaces (API) and identification methods in trust networks (cloud networks).



## Share

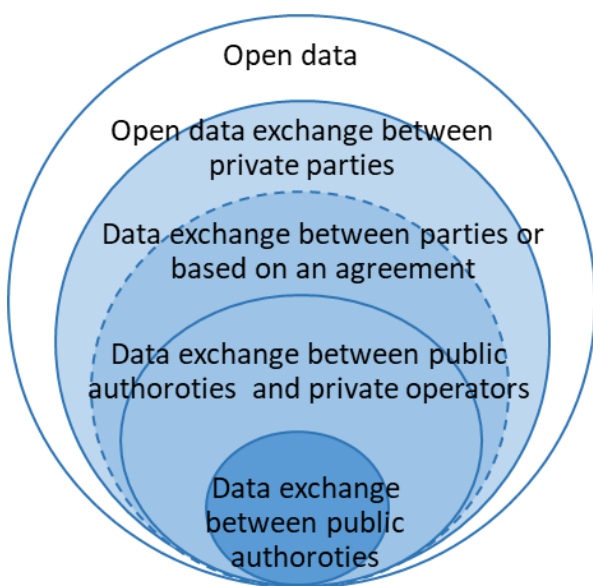
**Reusable by default.** Data sets need to be interoperable and harmonised in a structured format to enable the flow of data in automated processes.

All new initiatives for the production, collection and processing of data should be based on the principle of interoperability and on mutual reciprocity.

Reusability should be supported by interoperability measures such as open standards and structured data sets, commonly used technologies and information systems, codes of conduct and model contractual agreements, and governance structures for data exchange and value sharing in ecosystems.

Restrictions on data sharing should be based on well-defined reasoning at the corporate policy level and should not restrict third-party value creation.

Conditions for data sharing that are justified by clear and demonstrable public interests need to be established. Public bodies should ensure that their request for the reuse of private data is balanced (e.g. proportionality, functioning markets).



*Not all parties need equal access to data, rather access depends on their various roles.*

## Act

**Human-centric by default.** Individuals are guaranteed access to their personal data and the means to manage the reuse of their data without lock-ins or impediments that inhibit access or portability (e.g. timeliness).

Users should be given full control and portability of their data, while safeguarding their privacy.

Additionally, transparency and clear terms and conditions should be guaranteed so users can understand how their personal data is used in services and automated decision-making (also by third-parties). All stakeholders need to be informed of decision-making employing algorithmic programming in order to understand how data is being used and to take action, for example when agreeing to terms of use or product liability.

Empowering individuals to manage their data rights requires easy to use tools

- to manage access to and the reuse of their data (e.g. consent)
- to increase findability and reusability of user-generated contents (e.g. metadata)
- to change service providers (e.g. relocate data)

## Trust

**Ethically sustainable by default.** Building trust in data use and data-driven technologies requires strong respect for human rights, and transparency, reliability and the inclusion of all stakeholders. Data security and privacy by design should be integral parts of business and service development practices.

The trust of consumers in technologies, devices and applications related to the processing of data should be secured and enhanced. Data protection, privacy and security are the basic building blocks of this trust.

In the context of transparency, along with the use of data, we need to discuss the effects of decisions made by machines on people's lives and, thereafter, what types of binding rules are in order. Ensuring the interoperability and portability of data between services will also enhance trust-based relationships. Transparency is necessary also for securing social equality, for example to evaluate the representativeness of data in algorithmic decision-making in autonomous and intelligent systems.

Trust is created and maintained by

- clear responsibilities for data management
- easily understandable digital services and products
- transparency (e.g. traceability, explainability, interpretability) of algorithms as well as autonomous and intelligent systems
- traceability (e.g. logs) and security when processing data throughout data lifecycles
- use of new technologies and mechanisms that build trust in decentralised data-sharing networks (e.g. blockchain)
- establishment of accountability for intended and unintended consequences of gathering, processing and using data



## Innovate

**Level-playing field by default.** Data market access should be open to all on a fair and non-discriminatory basis for the benefit of everyone. Undistorted competition in data markets should be guaranteed.

In order to enable innovations, the findability of data and data reusability should be supported by

- data catalogues, extranets and other published channels
- commonly accepted data models, standards, ontologies, libraries and schemas
- functioning licensing
- mechanisms for balanced value sharing

## Learn

**Renewal by default.** A thriving data economy requires societal change and constant re-evaluation and up-scaling of people's skills and organisational capabilities.

Education systems should provide opportunities for individuals' life-long learning in a data-driven society. Individuals should actively learn new skills and gain know-how that will help them to adapt and contribute to the data economy.

Organisations should re-think strategic competence building for their needs in a data-driven future. This will also require the renewal of managerial and organisational cultures and practises (e.g. experimentation).

The data economy will require societal changes such as new solutions in legislation, taxation, the social security system, funding and the development of education and training, and in work-based learning mechanisms and structures to support sustainable and holistic competence development.





EU2019.FI