Alliance for
Internet of Things
Innovation

AIOTI Response to the Public Consultation on

# Data sharing in the EU – common European data spaces (new rules)

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## Introduction

Alliance for Internet of Things Innovation (AIOTI) believes the future of the Single Digital Market is underpinned by IoT data. In the future Internet navigation-related data will represent a minor portion of all datasets. Most of future data will be generated by IoT devices and sensors. It is therefore essential to build a strategic vision of how IoT data will be generated, searched, accessed, shared and exchanged, in accordance with the European values and to set up relevant technical standards.

AIOTI supports the four general principles provided in the inception Impact Assessment. AIOTI provides comments with relation to the future of IoT data.

### 1. Fostering the reuse of more data held by the public sector:

… *"Options to be examined will range from sharing of best practices among Member States to creation of obligations on Member States to offer certain support services to researchers and business innovators(one-stop-shop, hosting of data in secure environments for processing, support of public registers in compliance with existing regulation)"*

There are ongoing reflexions and experimentations in the MS to promote open data in the Public Administration. In France, Etalab, a department of the Interministerial Directorate for Digital Technology (DINUM), coordinates the policy of opening and sharing public data (open data). In 2019, France was ranked world second regarding the effectiveness of government data openness policies, measured by the OECD OURdata Index [1]. At sectorial level, for example, in the Spanish agricultural sector, public data sharing is supported through the creation of the MAPA (Spanish Ministry of Food and Agriculture, Fisheries and Food) catalogue and harmonization of published data [2].

Coordination between the EU Member States (MS), private sector representatives and standards organisations should be done with the proper emphasis on data standards, reliability, and sound data governance to achieve the goals of the EU Open Data Directive.

In addition to making available public data, stimulating and sensitizing to the use of data by private sector is important to rip value from available open data sets.

Digital Innovation Hubs (DIH) are one-stop-shops that accompany SMEs and city administrations with regard to adoption of digital technologies in their business/production processes, products or services. In IoT domain, AIOTI, in cooperation with 37 European IoT DIHs have defined services IoT DIH should provide to industry, structured around 6 pillars [3]:

In addition to the above listed services, DIH can become relevant organizations in providing data hosting, aggregation of datasets and access to applications and tools for IoT data query, analytics and AI for vertical domains (smart cities, mobility, agriculture, health, energy, building…) and across verticals. They can stimulate the use of open data by providing examples of data use and reuse, by upskilling activities to facilitate data utilization and by organizing open data user communities in regions.

*"European coordination bodies, functions or structures (or one single body, function or structure) could support exchange of best practices or may lead to adoption of guidelines for common practices of national bodies. These measures would complement the provisions of the Open Data Directive."*

The IoT eDIH network coordinated by AIOTI, enables local digital hubs to enrich their services, to spin a network of enabling communities and to further support new internet-based business creation at local level. The IoT eDIH network is designed to deliver the following services to IoT eDIH [4]:

- Marketplace with extension of catalogue of use cases
- Policy activities – liaison with the European bodies and programmes
- Best Practices and Skills - Knowledge management
- Support Functions (networking, events)

The IoT eDIH can organize definition of a strategy and concrete steps for the IoT industry to achieve the Single Digital Market. The IoT eDIH network can contribute to a EU-wide coordination and support to establishment of common practices in the area of open IoT data.

## 2. Supporting individuals in making data available for the common good:

*"Options to be assessed would examine whether main actions are best adopted at the national or European level. Options to be examined will range from obligations on Member States to ensure national data altruism mechanisms, to making available a common European consent form (which can be customised depending on areas), certification or labelling of tools or apps for communicating data and consent (including the option to withdraw) and tasking the European coordination mechanism (mentioned before) to maintain and disseminates such form"*

Data altruism mechanisms can indeed be effective ways to spur R&D in various industry sectors, particularly in the healthcare sector. The setting up of a European healthcare data space could significantly contribute to increasing the resilience and boosting the uptake of innovative data-driven business models, providing added value to businesses and benefitting society at large.

AIOTI believes that European-wide trust rules and mechanisms will be crucial to encourage data altruism of individuals and companies to create data pools for the common good.

AIOTI defines trust as "a subjective feeling of one's expectations matching with promise that is matching with the reality" [5]. That is, expectations of data altruists related to data use for the common good should be met.

Architectures and design principles of Data spaces should integrate data ethics and other social and procedural safeguards that ensure trust when donating data for the common good [3]:

- The underlying principle of "no surprises": what is done with data should not come as an unwelcome surprise to data givers; even if it comes as a "welcome surprise", surprises should give the data altruist a pause for ethical thought
- Existing examples of good practice, e.g. ethical review boards, customer protection authorities etc. could be used to define new roles or responsibilities for "data custody"
- Integration of ethical principles into the design and development process of Data Spaces, e.g. value-based design, responsible research and innovation should be considered
- Data rights of data givers should be effectively ensured by the European General Data Protection Regulation (GDPR):
    - Data control
    - Right to object
    - Right to forget (Lifetime of data)
    - Recognition of data sovereignty

GDPR requirements are currently rather a "tick a box" exercise. If organizations misuse data in the future, they should be enforced to cover damages.

- Responsibility of data givers: users need to learn they are responsible for themselves and need to manage their data
- For companies, opening up data for the common good can be associated with business costs and risks; there should be assessment and safeguard mechanisms for companies

Other important aspects underpinning trust of data altruists should be considered:

- Primary and secondary use of data

It is important to consider potentiality of sensitive information. Information can become sensitive when combined to other data, at different points of time. Data can have different meaning to different people in different contexts and it has implications for trust. If primary use of data is "for good", secondary use of data can produce a negative outcome.

- Unintentional and intentional bias and consequences

We need to distinguish intentional and unintentional bias and intentional consequences and un-intentional consequences and be able to deal with these four situations. We need to distinguish misuse from misunderstanding.

Whereas GDPR lays down fundamental principles for trust related to personal data, non-personal data falls under the umbrella of the Free-Flow regulation of non-personal data. Code of Conduct approaches can introduce main principles for building trust in sharing of non-personal data. An illustrative example is the Code of Conduct for agricultural data sharing by contractual agreement promoted by COPA-COGECA [2].

### 3. Interoperability and standardisation needs:

*"the establishment of (a) European coordination body/ies, structure(s)or process(es)is/are considered. Its/their role would be to better identify needs early on, also from an industrial policy perspective and which shall feed into the established mechanisms and processes for technical standardisation"*

A number of initiatives are working on data Spaces: AIOTI, 5GIA, BDVA, Industry 4.0, IDSA, Gaia X, SITRA. However, the entire landscape is fragmented. AIOTI believes this situation is suboptimal and prevents Europe from reaching a broader goal of European data market. We need to rise above the separate agendas of the individual associations and initiatives.

The standardization efforts should aim at specifying technical and governance conditions for trustworthy exchanges of data, including:

(i) the capability to search, discover and access IoT data on demand

(ii) a semantic ontology and vocabulary describing things and sensed parameters, stored as meta-data to allow data searching parties to carry out complex semantic searches that are geo-bounded or domain-specific and across all known devices and parameters

(iii) discovery and access entitlements on a fine-grained basis down to each parameter of a sensor in each device to provide data owners complete control of device and data discovery or access

(iv) mechanisms for data quality verification

(v) transaction traceability and audit to enable provenance, non-repudiation, entitlement validation and associated transaction support

An overview of efforts has been produced during the Workshop on common IoT standardisation framework, co-organized by the European Commission, CREATE-IoT Large Scale Pilot (LSP) project and AIOTI [6].

At semantic interoperability level, there are many existing data ontologies that have been developed in European projects, by industry or standards development organisations, e.g. ETSI SAREF, oneM2M, W3C SSN, NGSI-LD, and OPC-UA, interoperability models and principles achieved in LSPs such as Synchronicity and Activage. We should avoid defining standards from the scratch and give priority to reuse of existing and standardized models and approaches.

Additionally, Europe must take into account work done by international and European standardisation bodies, but also by Fora and Consortia. Significant work is already underway on interoperability, portability, data formats etc. In the context of data governance, any new body or coordination structure at European level established in the law should cooperate closely with these entities. An effective mechanism of coordination with MS should be established (lessons to be learnt from the GDPR implementation).

### 4. Lowering transaction costs in data sharing:

*"support could be given to the commercial uptake of novel data intermediaries through the development of voluntary labels or fully-fledged certification options. Options to be considered are the way in which criteria for labelling/certification are being established (already in the legislative act, in a delegated act to be adopted later, by stakeholders in a self-or co-regulatory process), and the mechanisms to be used (label/certification, voluntary or compulsory certification) and the means to obtain certification. Such decisions could be taken at European level or at national level. Existing frameworks in particular the one under the GDPR would be taken into consideration."*

The increase of data sharing is based in the generation of trust both for public and private entities, as discussed in (2). In the case of private entities, other key aspect that would promote the increase in data sharing is linked to potential business models that could be developed in this field.

AIOTI welcomes the principle of data intermediaries. Their operation must follow the openness principle: data intermediaries should enable the development of new collaborative applications by preventing the privatization of data storage and management.

Moreover, data intermediaries can offer a highly secure, privacy-friendly and flexible environment for stakeholders to share data. Built on a standards-based approach, data intermediaries can lead to facilitating easier exchange of data, while also significantly decreasing the cost of data sharing.

Different models of data intermediation can be envisaged. At the current stage of reflexion, AIOTI has identified two forms of intermediation:

i) Trusted third party data sharing services hosted on centralised platforms

The Nuances of Trust workshop organised by AIOTI in May 2018 achieved the following conclusions with respect to this form of data intermediation:

> We can imagine delegation of trust to a third-party entity. This profession should be codified and its compliance with ethical standards should be ensured. It could be a licenced profession. If not licensed, it is important to list background principles to be respected to be qualified as a trusted entity: fairness, openness, ethical standards. Accountability of the third-party entities should be made possible through audit systems and effective enforcement mechanisms.

ii) "Third-party-free" data sharing based on distributed platform architectures

Mathematical models underpinning distributed architectures prove that systems designed with some rules can provide environments for data sharing without third party intermediation. Differential privacy implies information can be collected without revealing identity.

Distributed architectures can set self-regulating mechanisms ("self-governance") to effectively manage data between peer parties. Collective self-governance rules such as reputation, transparency and accountability can replace trusted intermediary services offered by centralised data platforms.

To be successful, data sharing enabled by intermediaries [2]:

- Must be easy and automated, along with the provision of a high degree of data protection.
- Should be restricted to data sets with clear value, minimizing the amount of data exposed. For that, we need to define governance scheme supporting different types of data with different protection/access levels. For example: 1) highly protected data for data generators only, 2) certified data for proof of compliance, 3) open data... The levels need to be defined in collaboration with the all relevant stakeholders.
- Should be supported by sharing/communication between different platforms (from different manufacturers). For that, the number of allowed data formats should be kept to a minimum, to facilitate compatibility. Standard APIs should be used.
- Should rely on certification for guaranteeing standardisation and security, thus increasing the trust level on data sharing.

In summary, the role of data intermediaries necessitates more discussions at EU level to foster common understanding about their nature, role and objectives. Best practices for data sharing architectures and governance schemes should be benchmarked. In this context, legislation on data governance should be evolutive and lay out high-level rules for open, transparent and structured stakeholder involvement and decision-making processes, rather than prescriptive rules.

# References

[1] Antonin Garrone "La France de nouveau sur le podium de l'open data en 2019 », published on 11/03/2020

[2] Create-IoT, IoT LSP Programme and AIOTI Webinar Data sharing in agriculture. Towards a European agriculture data space held on June 10, 2020

[3] AIOTI White Paper DIH Network Activities (2018)

[4] AIOTI White Paper IoT eDIH Network activities (May 2020)

[5] The AIOTI Nuances of trust workshop held at the Digital Catapult in London (May 14- 15, 2018)

[6] Workshop on common IoT standardisation framework co-organized by the European Commission, CREATE-IoT and AIOTI in Brussels (February 19-21, 2020), pp. 21-29

## About AIOTI

AIOTI is the multi-stakeholder platform for stimulating IoT Innovation in Europe, bringing together small and large companies, start-ups and scale-ups, academia, policy makers and end-users and representatives of society in an end-to-end approach. We work with partners in a global context. We strive to leverage, share and promote best practices in the IoT ecosystems, be a one-stop point of information on all relevant aspects of IoT Innovation to its members while proactively addressing key issues and roadblocks for economic growth, acceptance and adoption of IoT Innovation in society.

AIOTI's contribution goes beyond technology and addresses horizontal elements across application domains, such as matchmaking and stimulating cooperation in IoT ecosystems, creating joint research roadmaps, driving convergence of standards and interoperability and defining policies. We also put them in practice in vertical application domains with societal and economic relevance.

AIOTI is a partner for the European Commission on IoT policies and stimulus programs, helping to identifying and removing obstacles and fast learning, deployment and replication of IoT Innovation in Real Scale Experimentation in Europe from a global perspective.

AIOTI is a member driven organisation with equal rights for all members, striving for a well-balanced representation from all stakeholders in IoT and recognizing the different needs and capabilities. Our members believe that we are the most relevant platform for connecting to the European IoT Innovation ecosystems in general and the best platform to find partners for Real Scale Experimentation.