

# data.europa.eu and the European common data spaces

*A report on challenges and opportunities*

**data.europa.eu**

The official portal for European data

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*This is the first of a series of two reports that analyse the role that data.europa.eu could play in the context of the emerging common EU data spaces foreseen in the European Strategy for Data. We report on desk research of the documentation around the European Strategy for Data, as well as of emerging technical and business case documents related to various initiatives across Europe that are working on data space implementations. We also ran interviews with members of some of the teams implementing these data spaces.*

*The second report, which will be delivered after data space implementations become available, will explore three data-space scenarios with data.europa.eu as a data holder or intermediary, and discuss in detail challenges and opportunities for data.europa.eu in the context of these developments.*

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## Executive summary

Data spaces are central to the European Strategy for Data. The strategy envisions “*a European data space as a genuine single market for data where personal and non-personal data, including sensitive business data, are secure and businesses have easy access to high-quality industrial data, boosting growth and creating value*”.

This report explores existing and emerging developments and initiatives around data sharing with data spaces (from the International Data Spaces Association, GAIA-X and OPEN DEI). Our aim is twofold: to identify data holders of open data who are involved in ongoing data space implementations; and to reflect on the role that open data portals (with a special focus on data.europa.eu) could play in these implementations.

Following a combination of desk research and interviews with developers of data spaces and data space architectures, we discuss how data.europa.eu could position itself in emergent European common data spaces in the core verticals discussed in European policy papers, as well as in other data spaces that are currently under development at city and regional level in different European countries.

While this is just the first of two studies, and no fully-fledged implementations of data spaces are yet available, we can draw several far-reaching conclusions:

1. **Open data is commonly mentioned alongside private and personal data as a core type of data source.** At the same time, open data holders are not well positioned or involved in initiatives developing data-space reference architectures or implementations. If this state of affairs persists, the use and impact of open data will suffer due to the frictions that may occur when combining the use of data shared in data spaces and data published in open government portals.
2. **Open data holders have extensive experience in data publishing, metadata management, data quality, dataset discovery, data federation, as well as tried-and-tested standards (e.g. DCAT) and technologies.** There seems to be very little knowledge/technology transfer from the open data community to the data spaces community, which is a missed opportunity. Data space implementations should not reinvent wheels that the open data community has already developed, tested, and used extensively.
3. **Whether the data is private, shared, or open, using data from multiple sources requires interoperability at several levels, from identifiers to vocabularies.** The question of which data intermediaries will act as neutral agents to ensure interoperability is underexplored in the data spaces context. Public administrations, piggybacking on their experience with publishing open data, are best placed to take on such roles.

In a follow-up report, expected in 2023, we will undertake an in-depth case study analysis, based on actual implementations of data spaces, to iterate over these initial findings and discuss challenges and opportunities for data.europa.eu in greater detail.

# 1. Introduction

A data space can be defined as a “*type of data relationship between trusted partners, each of whom apply the same high standards and rules to the storage and sharing of their data [...] In data spaces, data are not stored centrally but at source and are therefore only shared (via semantic interoperability) when necessary.*”<sup>1</sup>

There are many similar definitions like this issued by ongoing initiatives in Europe and worldwide that aim to develop the foundations of data spaces in specific sectors (energy, mobility, manufacturing, etc.), as well as across sectors.

Data spaces are at the core of the European Strategy for Data, which envisions “*a European data space as a genuine single market for data where personal and non-personal data, including sensitive business data, are secure and businesses have easy access to high-quality industrial data, boosting growth and creating value*” (European Commission, 2021).

Against this policy background, the European Strategy for Data announced the development of an initial set of nine initial sectoral data spaces, with more sectors to be added in due time. These initial European common data spaces are:

- An **industrial/manufacturing data space**, supporting the competitiveness and performance of EU’s industry.
- A **Green Deal data space**, to use the major potential of data in support of the Green Deal priority actions on issues such as climate change, circular economy, pollution, biodiversity, and deforestation.
- A **mobility data space**, to position Europe at the forefront of the development of an intelligent transport system.
- A **health data space**, essential for advances in preventing, detecting and treating diseases as well as for informed, evidence-based decisions to improve the healthcare systems.
- A **financial data space**, to stimulate innovation, market transparency, sustainable finance, as well as access to finance for European businesses and a more integrated market.
- An **energy data space**, to promote a stronger availability and cross-sector sharing of data, in a customer-centric, secure and trustworthy manner.
- An **agriculture data space**, to enhance the sustainability performance and competitiveness of the agricultural sector through the processing and analysis of data.
- Data spaces for **public administrations**, to improve transparency and accountability of public spending and spending quality, fighting corruption, both at EU and national level.
- A **skills data space**, to reduce the skills mismatches between the education and training systems and the labour market needs.

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<sup>1</sup> <https://www.gaia-x.eu/what-is-gaia-x/data-spaces> (last accessed: 28/02/2022)

Besides these nine initial European common data spaces, there are also some references to the European Open Science Cloud as another strategic field that is relevant for the development of data spaces.

The recently-released Commission Staff Working Document on Common European Data Spaces (European Commission, 2022b) highlights some of the key features that a common European data space should have:

- A secure and privacy-preserving infrastructure to pool, access, share, process and use data.
- A clear and practical structure for access to and use of data in a fair, transparent, proportionate and/non-discriminatory manner and clear and trustworthy data governance mechanisms.
- European rules and values, in particular personal data protection, consumer protection legislation and competition law, are fully respected.
- Data holders will have the possibility, in the data space, to grant access to or to share certain personal or non-personal data under their control.
- Data that is made available can be reused against compensation, including remuneration, or for free.
- Participation of an open number of organisations/ individuals.

As a result of all these developments, several work programmes and calls for proposals in Digital Europe (European Commission, 2021b) have already started asking for project proposals to run preparatory actions for the creation of data spaces, with deadlines for submission in the first half of 2022. This includes a list of data spaces that is slightly different (although overlapping) with the initial one, including: the **Green Deal** data space (European Commission, 2021b, Section 2.2.1.1), a data space for **smart communities** (European Commission, 2021b, Section 2.2.1.2), as well as data spaces for **mobility** (European Commission, 2021b, Section 2.2.1.3), **manufacturing** (European Commission, 2021b, Section 2.2.1.4), **agriculture** (European Commission, 2021b, Section 2.2.1.5), **cultural heritage** (European Commission, 2021b, Section 2.2.1.6), **health (genomics)** (European Commission, 2021b, Section 2.2.1.7; European Commission, 2022, Section 2.1), the **media** (European Commission, 2021b, Section 2.2.1.8), **finances** (European Commission, 2021b, Section 2.2.1.9), **skills** (European Commission, 2021b, Section 2.2.1.10), **languages** (European Commission, 2021b, Section 2.2.1.11), **public procurement**, and **security and law enforcement** (European Commission, 2021b, Section 2.2.1.12; European Commission, 2022, section 2.2), **tourism** (European Commission, 2021b, Section 2.2.1.13) and **energy**<sup>2</sup>. After these preparatory actions, the European Commission expects the corresponding data spaces to be deployed, with the support of the Data Space Support Centre. Figure 1, taken from (European Commission, 2021b), summarises some of the main activities funded through calls due in the first half of 2022.

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<sup>2</sup><https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl5-2021-d3-01-01> (last accessed: 28/02/2022)

<b>Data spaces</b>	Preparatory actions for the Green Deal data space
	Preparatory actions for the data space for smart communities
	Preparatory actions for the data space for mobility
	Preparatory actions for the data space for agriculture
	Health data space - Federated European Infrastructure for Genomics data
	Preparatory actions for the data space for manufacturing
	Preparatory actions for the data space for skills
	Preparatory actions for the data space for tourism
	Data spaces Support Centre

Figure 1. Some of the preparatory actions for the European Common Data Spaces.

A common theme among these data spaces is around Public Sector Open Data for AI and Open Data Platform (European Commission, 2021b, Section 2.2.2.2; European Commission, 2022a, Section 2.3]. Both aim at increasing the availability, quality and usability of public and private sector information in compliance with the requirement of the Open Data Directive (European Parliament & Council, 2019) and in relation to the High-Value Datasets that are being identified in the implementation acts. These datasets are considered to be highly “*relevant data that will feed into the different data spaces*” (European Commission, 2022a).

In fact, a large share of public datasets that may be relevant for these emerging data spaces is already available and catalogued in data.europa.eu, which has the opportunity to act as a central point of access to these sectorial data spaces, bringing together these resources from public sector. For example, at the time of writing this report there are around 48,000 datasets in transport, potentially useful for the European mobility data space or for any other local mobility data spaces being created in Europe, more than 300,000 datasets on agriculture, fisheries and forestry, more than 260,000 datasets on environment, approximately 185,000 on justice and legal systems, among others. Most preparatory actions discussed earlier will generate priority lists of datasets that are relevant to the corresponding data space, alongside sustainable data governance schemes to connect existing local, regional, national and supranational data ecosystems and enable public and private stakeholders to access the data they need to develop data services within and across sectors.

Data spaces will have to consider the needs and expectations of all their stakeholders (data holders, users, intermediaries) who will need to be explicit on the rules for data sovereignty and trust. Data spaces will consist of both public and private/shared data, reference architectures for data spaces and the ensuing implementations could capitalise on the huge body of knowledge and experiences of the open data movement in data federation in open data portals. However, when reviewing the documentation of ongoing data space initiatives beyond those that are directly linked to the Digital Europe programme (e.g., those reported as business cases or examples by the International Data



Spaces Association<sup>3</sup> or GAIA-X<sup>4</sup>), it becomes quickly clear that public administrations (and data.europa.eu) could have a stronger voice in the thinking and planning that is going on in data spaces. If this situation persists, there is a risk that open (government) data, with its unique sociotechnical challenges and opportunities, will be only an afterthought to the European “single market for data” (European Commission, 2021a).

This observation is the starting point for two reports that aim to explore challenges and opportunities that open (government) data and data.europa.eu - as probably the world’s largest public investment in open government data to date - could play in European common data spaces and their city and regional counterparts across Europe. For this first report, we want to map the current landscape and assess progress towards reference architectures and implementations.

Based on desk research and interviews with key stakeholders in fledgling data space projects, we discuss the current and potential role of data.europa.eu in data spaces, with suggestions on how the content and capabilities of data.europa.eu could help tackle their specific demands.

## 2. Methodology

### 2.1 Step 1. Desk research

We undertook desk research for two reasons: (1) to identify data spaces (existing and under development) across Europe and in all sectors; (2) to select stakeholders to interview; (3) to pinpoint use cases and uses of open data sources; as well as (4) to map out public administrations involved. In order to start the process, we used the following information sources:

- Use cases and data spaces identified in the *International Data Space Radar*<sup>5</sup>, maintained by the International Data Spaces Association. At the time of writing this report, this consisted of 57 use cases and data spaces, 7 of which are already live/in production in the domain of smart cities (4), manufacturing (7), energy (4), mobility (7), automotive (4), supply chains (8) and cross-sector/other (24). Figure 2 shows a snapshot of the IDSA Radar.
- The catalogue of use cases of the *GAIA-X initiative*<sup>6</sup>, available at the time of writing this report, this consisted of 78 use case descriptions, distributed as follows: agriculture

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<sup>3</sup> The International Data Spaces Association (<https://internationaldataspaces.org/>, last accessed: 28/02/2022) is a not-for-profit organization that represents dozens of industry sectors based in 22 countries across the EU and the world, with the objective of developing a reference architecture for data spaces, including a governance model and an adoption strategy.

<sup>4</sup> GAIA-X (<https://gaia-x.eu/>, last accessed: 28/02/2022) is a European association (AISBL) with more than 300 members, whose goal is to develop technical solutions and regulatory frameworks and ensure the necessary central facilities as well key federation services to guarantee a federated data infrastructure.

<sup>5</sup> <https://internationaldataspaces.org/adopt/data-space-radar/> (last accessed: 28/02/2022)

<sup>6</sup> <https://www.data-infrastructure.eu/GAIA-X/> and <https://www.gaia-x.eu/use-cases> (last accessed: 28/02/2022)

(4), energy (9), finance (3), geoinformation (5), health (22), industry 4.0 (14), mobility (5), public sector (10), smart Cities (1), and smart living (5).

- The *GAIA-X position papers* for these domains, which summarise the main characteristics of the previous use cases: agriculture (Gaia-X, 2021a), energy (Gaia-X, 2021i), finance (Gaia-X, 2021b), geoinformation (Gaia-X, 2021g), health (Gaia-X, 2021f), industry 4.0 (Gaia-X, 2021j), mobility (Gaia-X, 2021c), public sector (Gaia-X, 2021h), smart cities/smart regions (Gaia-X, 2021d) and smart living (Gaia-X, 2021e).
- The projects identified by the *Open DEI initiative*<sup>7</sup> in the areas of manufacturing (7), agriculture (6), energy (8) and healthcare (13). The Open DEI initiative is responsible for the position paper on the design principles for Data Spaces (1.0) (Nagel and Lycklama, 2021).

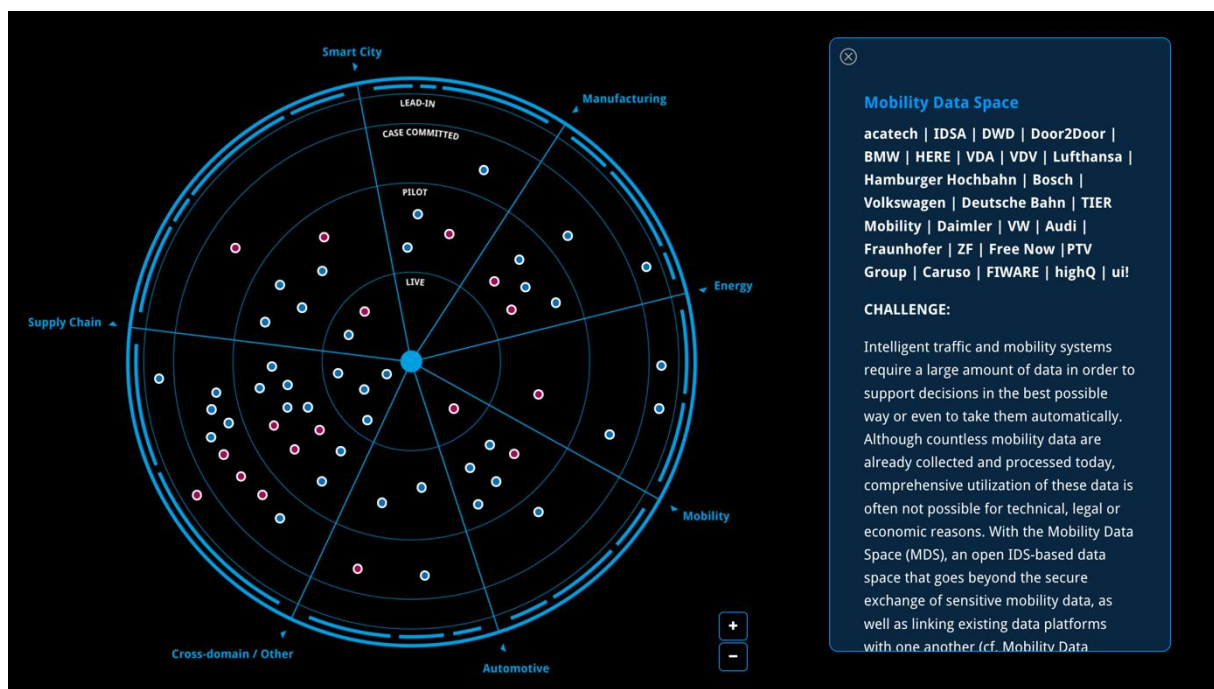


Figure 2. Snapshot of the IDSA Radar on Data Spaces. Different colours are used for data spaces (red) and use cases (blue), and the closer to the centre of the circle, the more mature the initiative is.

In these resources we checked if they mention or use open data from any source or portal, and if they engage actively with key open data stakeholders, such as the public administrations that act as data publishers or intermediaries in open government data portals (including data.europa.eu). We discarded all data spaces and data-space use cases from the IDS Radar that referred to commercial technologies that can be used for data space delivery or to enterprise (or internal) data spaces that benefit individual organisations.

<sup>7</sup> <https://www.opendei.eu/> (last accessed: 28/02/2022)

For each resource we provided its URL, and answered the following questions and sub-questions:

- i. Does the data space, use case or initiative report on the usage of open (government) data?
  - a. If yes, is the data coming from the open data catalogue of data.europa.eu? and
- ii. Are open data providers involved in the data space, use case or initiative?

The results are displayed in a table in Annex 2.

## 2.2 Step 2. Interviews with selected stakeholders

Several types of stakeholders are identified in the context of data spaces, as discussed in some of the main references for data space architectures and governance models. For instance, the IDS Reference Architecture Model (v3.0) (Otto et al, 2019) identifies the following roles organised in four categories:

- Category 1: core participants
  - o A **data owner** holds all legal rights of, and has complete control over, its data. Usually, a participant acting as a data owner automatically assumes the role of the data provider as well.
  - o A **data provider** makes data available for being exchanged between a data owner and a data consumer.
  - o A **data consumer** receives data from a data provider.
  - o A **data user** is the legal entity that has the legal right to use the data of a data owner as specified by the usage policy.
  - o **App providers** develop data apps to be used in a data space.
- Category 2: Intermediaries
  - o A **broker service provider** is an intermediary that stores and manages information about the data sources (e.g., metadata) available in a data space.
  - o A **clearing house** is an intermediary that provides clearing and settlement services for all financial and data exchange transactions.
  - o An **identity provider** offers a service to create, maintain, manage and validate identity information of and for participants in a data space.
  - o An **app store provider** provides data apps, i.e., applications that can be deployed in a data space to facilitate data processing workflows. Data apps might be certified by a certification body.
  - o A **vocabulary provider** manages and offers vocabularies (i.e., ontologies, reference data models, or metadata elements) that can be used to annotate and describe datasets.
- Category 3: Software and Service Providers
  - o A **software provider** provides software for implementing the functionality required by the data space (not just apps, as for app providers).
  - o A **service provider** hosts the data space infrastructure required by other organisations, if these do not deploy it themselves.
- Category 4. Governance bodies
  - o The **Certification Body**, together with selected **Evaluation Facilities**, is in charge of the certification of the participants and the core technical components.

- Finally, it also considers the **International Data Spaces Association**.

Starting from the use cases identified in Step 1, we looked for stakeholders of these types from those identified in the data spaces, use cases or initiatives so as to recruit for interviews. The protocol for the semi-structured interviews is provided in Annex 1. We used purposive sampling to curate a list of diverse stakeholders of different types and working on different data domains and different countries. We contacted participants via email or at selected events related to data spaces. Interviews were semi-structured and lasted a maximum of 30 minutes. They were recorded and transcribed. Two researchers analysed them thematically, first independently and then jointly to cluster similar themes (following a bottom-up approach) and agree on terminology.

In total, we conducted a set of 12 interviews (from an initial set of 19 persons that were contacted), including a varied range of stakeholders from the private sector (data owners, providers and users, vocabulary providers, software providers and broker service providers) on a good selection of domains: mobility, industry 4.0, energy, green deal, and smart cities. A pseudo-anonymised summary of the interviewees is provided next.

<b>Id</b>	<b>Domain</b>	<b>Country</b>	<b>Type of stakeholder</b>	<b>Gender</b>
<b>P1</b>	Mobility	Spain	Data owner Data user	Male
<b>P2</b>	Health	France	Software provider	Male
<b>P3</b>	Cross-domain	Germany	Software provider	Male
<b>P4</b>	Public sector	Belgium	Vocabulary provider	Female
<b>P5</b>	Industry 4.0	Spain	Data provider	Prefer not to say
<b>P6</b>	Geoinformation Public sector	Italy	Service provider	Male
<b>P7</b>	Public sector	Italy	Broker service	Female
<b>P8</b>	Agriculture	Poland	Vocabulary provider Data provider	Female
<b>P9</b>	Cross domain	Spain	Identity provider	Male
<b>P10</b>	Cross domain	France	Software provider	Male
<b>P11</b>	Mobility	France	Data provider	Female
<b>P12</b>	Supply Chain and Logistics	The Netherlands	Vocabulary provider	Male

### 3. Findings

This section summarises the results obtained after our analysis on the role that open data, in general, and data.europa.eu, in particular, is playing in the context of the emerging data spaces. Our main objective is that this analysis can serve those in charge of open data portals, who normally act as a combination of data owners and data providers, in taking decisions with respect to the positioning that their technological infrastructures and their content needs to have in the support of this concept. We expect these conclusions to be also relevant as an input for the upcoming preparatory actions that will be funded by the Digital Europe programme in order to set up the bases and foundations for the further development of the European common data spaces, as well as for the Data Spaces Support Centre.

#### 3.1 Desk research

The detailed results from our desk research can be found in Annex 2. Below we provide a summary table with the aggregation of the main findings organized per domain. We considered a total of 151 initiatives. 21 of them use open data; 2 mentions the data.europa.eu; 19 involve public stakeholders.

Domain	Initiatives where open data is used	Initiatives where data.europa.eu is mentioned	Initiatives with public stakeholders involved	Total number of initiatives
Agriculture/Agri-food	2	1	0	9
Energy	2	0	3	21
Finance	1	0	1	3
Geoinformation	5	1	0	5
Health	0	0	7	37
Industry 4.0/ Manufacturing	0	0	0	27
Automotive	0	0	0	4
Supply Chain and Logistics	0	0	0	8
Mobility	5	0	4	10
Public Sector	1	0	1	9

<b>Smart Living / Smart Cities</b>	5	0	3	10
<b>Other</b>	0	0	0	8
<b>Totals</b>	21	2	19	151

### 3.1.1 General findings

**Priorities for data space development among the most prominent initiatives in this space overlap, but are not entirely aligned:** the Digital Europe and Horizon Europe work programmes, which are part of the European Strategy for Data, the GAIA-X initiative, the International Data Spaces Association and Open DEI. Table 1 shows the list of domains for the data spaces that are identified in these different initiatives.

<b>European common Data Spaces (source: Digital Europe work programme)</b>	<b>Domains for data spaces identified by GAIA-X, IDSA and Open DEI</b>
Green Deal	Geoinformation (partial)
Smart communities	Smart Living and Smart Cities
Mobility	Mobility
Manufacturing / Industrial	Industry 4.0 / Manufacturing / Automotive
Agriculture	Agriculture / Agri-food
Cultural heritage	--
Health (focus on Cancer and Genomics)	Health
Media	--
Financial	Finance
Skills	--
Language	--
Public Procurement	Public Sector (wider coverage and public procurement not explicitly considered)
Security and law enforcement	Public Sector (wider coverage and security and law enforcement not explicitly considered)
Tourism	--

Energy	Energy
--	Supply Chain and Logistics

Table 1. Matching between the European common data spaces identified in different parts of the Horizon Europe and Digital Europe work programmes, and the domains identified in initiatives such as GAIA-X, IDSA and Open DEI.

The differences in domains seem to suggest that the one of data spaces is an area that is still in the process of consolidation. Alternatively, they may be indicative of a diversification of priorities at different administrative levels, depending on the actors involved in each initiative (e.g. private vs public, regions, countries, EU level etc.).

As a result, several of the European common data spaces identified in the current Digital Europe and Horizon Europe calls have not been dealt with in the most relevant initiatives around data spaces. These are related to the Green Deal data space (only partially addressed with in the domain of Geoinformation identified in GAIA-X), and the data spaces related to cultural heritage, media, skills, language and tourism. With the exception of tourism, it is reasonable to assume that the organisations driving these spaces will likely come from the public sector, which is not the focus of GAIA-X, IDSA and OPEN DEI, mostly industry-driven.

The European common data spaces on public procurement and security and law enforcement, which would belong to GAIA-X's public sector domain, are not referenced in other sources beyond the EU ones.

Finally, it is important to mention that the supply chain and logistics domain that can be found in the IDSA Radar does not appear explicitly among the list of European common data spaces.

### 3.1.2 Sector-specific findings

Most of the initiatives (use cases and data spaces) that are included in the IDSA Radar and GAIA-X are still strongly related to consortia with a **majority of French and German organisations, despite the international-by-default nature of these two initiatives**. This is a function of the strong support that the governments of both countries have provided to the promotion of the concept of data sharing and data spaces, as a roll-out of the European Strategy for Data. We expect that in the near future (2022-2023) there will be more use cases and data spaces coming from other regions in Europe (and in the world), especially with the creation of the GAIA-X AISBL<sup>8</sup> and the different national hubs that are being established at the time of writing. For instance, in countries like Spain the GAIA-X developments are only very recent (second half of 2021) and the Spanish GAIA-X association is only being formally created as of March 2022. This bias is a limitation for this study. Yet, we hope that this will become less of an issue for our follow-up report, as the collection of use cases and implementations will have better geographical coverage.

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<sup>8</sup> <https://www.gaia-x.eu/> (last accessed: 28/02/2022)

Only three domains (geoinformation, mobility, and smart cities) identify in the majority of the initiatives the usage of open data sources in the data spaces / use cases. However, in most of these cases, **the specific open data portals, where such data will be retrieved, are not identified**, including the data.europa.eu.

Even in those cases where data spaces include open data, the consortia associated to those **data spaces do not include public data owners or data providers explicitly**.

The initiatives described in GAIA-X, IDSA Radar and OPEN DEI **do not provide a clear catalogue of the datasets** (open and/or closed) that are being or will be used. In many cases it is implied that open data will be used (e.g., agriculture, energy), but the current descriptions of those data spaces or use cases **neither explicitly mention the usage of open data sources**, nor discuss how the open data providers will be involved, if involved at all.

In the **agriculture/agri-food sector**, the analysis of ongoing and recently finished initiatives (e.g., those described in GAIA-X and in the Open DEI related projects) shows a clear intention to focus on the digitalisation of the sector, and data plays an extremely relevant role there. Most use cases are characterised in sub-domains associated to the type of products derived from the carried-out activities (e.g., animal production, aquaculture, arable, dairy, fruit, novel foods, vegetables). In most of them there are references to publicly-available Earth Observation data, as well as other sources of data (including in-situ measurements) that need to be made interoperable so as to promote better data sharing (including references in some cases to INSPIRE-compliant sources). Surprisingly, these descriptions do not contain open data sources to be used or organisations that will act as open data providers in this data sharing context. We could not find any evidence of public administrations<sup>9</sup> directly involved in any of these use cases, data spaces or projects.

In the **energy** sector, there are only a few mentions of open data, including the GAIA-X use case on municipal open data for business models in the energy industry, and no cases referencing data that may be available in data.europa.eu. There are many openly available datasets in use in energy applications: for instance, meteorological data that is relevant for understanding and predicting energy production and consumption; energy consumption data published by public administrations, energy efficiency data related to buildings (e.g., construction dates, energy certificates), etc. Even though many of the initiatives draw on different stakeholders (e.g., Distribution System Operators – DSOs -, Energy Service Companies – ESCOs -, Transmission System Operators – TSOs -, associations, market operators, research institutions) only a few of them involve directly public administrations as a stakeholder. In most cases, these public administrations are municipalities (e.g., Málaga, Upssala, Rome) and just one case concerns a national agency associated to the energy sector (the Spanish IDAE).

The **finance** sector is less represented in terms of use cases and available data spaces, as there are only three initiatives identified in GAIA-X, and none in the other sources we surveyed. As expected, there is not much attention to the inclusion of open data in those data spaces, since many of the initiatives are focused on securing data exchange and sharing in specific transactions (e.g., in supply chain). This said,

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<sup>9</sup> For example, local or regional governments, ministries or agencies around agriculture or food.



one of the use cases (on the creation of a financial big data cluster) does mention open data, but the specific types of data to be included are not discussed. This use case also encompasses several public administrations among the stakeholders.

In the **geoinformation** sector covered by GAIA-X, it is very interesting to see that all initiatives (use cases or data spaces) consider different types of open data (Earth Observation data from satellites, infrastructures – roads, rail, neighbourhoods -, etc.). What is missing, however, are plans to involve relevant public sector stakeholders.

**Health** is the one that is most well represented, with a total of 37 initiatives (counting data spaces, use cases and ongoing and closed projects). In all cases, except for the COVID-19 dashboard and hub, none of the initiatives deals with open data nor involves open data providers as direct stakeholders. This is not surprising as health data spaces are expected to handle very sensitive data for which not much open data is available, not even in an anonymised manner. Whilst some cases include public hospitals and regional or national health services, these do not provide open data for the data space.

From the point of view of **manufacturing and industry 4.0**, as expected, there are no clear mentions of the usage of open data from public administrations. Most of the use cases and data spaces are focused on having shared data schemes among manufacturers of machines used in factories, factories that are using those machines, interconnected factories, etc. Some of these projects make openly available some datasets, but these are not registered as open government data or present in open data portals of public administrations. There is no involvement of public administrations either.

The analysis is similar in the specific case of the **automotive** sector, which may be considered as a special case inside the manufacturing and industry 4.0 sector, applied to the specific case of vehicles.

Another sector that is identified in the IDS Radar is **supply chain and logistics**, with 8 initiatives (including data spaces and use cases). Again, as in the previous case of industry, manufacturing and automotive, much of the data used in this context belong to those private organisations involved in the data spaces. However, our initial expectation was that some of these initiatives would use open data - for example in relation to infrastructures (roads, railway, ports, airports, etc) - and hence would involve public administrations providing this type of data.. However, the analysis of the identified initiatives suggests that this is not the case.

Very related to the case of supply chains and logistics, but mainly focused on the transportation of goods and people, there is the case of **mobility**. This is the sector, from all those that have been analysed in this work, with the largest number of public administrations identified as stakeholders, and not only as data providers. One relevant example is that of the international Mobility Data Space, led by Germany, which requires the involvement of public administrations for the supply of data or for the facilitation of some of the tests that need to be done in those spaces.

The most surprising case in this study relates to the **public sector** use cases in GAIA-X. While expecting a substantial involvement of public administrations as data providers and other stakeholder roles, all of the public sector use cases seem not to involve any specific public administrations or be driven by industries willing to offer services to public administrations. This may imply that public administrations

are in general still far from being more than mere open data providers and participate as active stakeholders in the development of data spaces.

From the point of view of **smart cities and smart living**, we found two different groups of initiatives: those that are focused on offering better services in cities (e.g. parking) as well as allowing different forms of data sharing across companies participating in cities; and those that are more focused on having citizens as some of the main data providers (e.g. by providing personal data from the energy consumption in their households). For the first group, the initiatives generally identify local public administrations or communities of local public administrations both as data providers and as other types of stakeholders. For the second case, however, no explicit references are provided to the open data that may be offered by local municipalities or by other public administrations (e.g. related to housing etc.), nor seem these to be involved explicitly in the initiatives.

## 3.2 Interviews with selected stakeholders

The findings from the previous section were primarily based on our analysis of documentation of key initiatives around data sharing and data spaces. Here we summarise additional findings that emerged from the interviews.

Interviewees confirmed that public sector organisations are underrepresented in ongoing initiatives for data sharing related to by GAIA-X, IDSA Radar and OPEN DEI. The two exceptions at the level of European common data spaces are the Green Deal and public procurement data spaces, for which some of the interviewees had relevant insights.

*“The role of open data portals as data providers is taken for granted in many of the data spaces (and use cases) that are being developed. However, the institutions in charge of open data portals should be more actively involved in the development of data spaces in order to have more representativeness in those developments”. (P6, provides services to public administrations in Italy, male)*

All interviewees confirmed that data spaces as they are today lack a fully-fledged catalogue of open and closed datasets that the space would cover. They broadly agreed that one of the initial steps in the setup of a data space should be the development of a catalogue of datasets, as part of the data governance process, while noting that this is not the case at the moment. They mentioned a focus on technology development rather than data governance, which may explain this. In the words of one participant:

*“Open data portals like data.europa.eu have demonstrated the possibility of federating metadata and providing links to datasets. This type of technology is clearly useful for many data spaces that do not have additional requirements for the collection of the catalogue of datasets, so institutions like data.europa.eu should make an effort to position their open source technology in as many data spaces as possible”. (P3, develops architectures and technology for spaces, Germany, male)*

With no catalogues of datasets in place, there are no clear plans to include specific open datasets either. However, in some cases, there is a high-level understanding of the categories of datasets needed (e.g. meteorology, traffic, infrastructures, etc.).

None of the respondents planned to contribute data to data.europa.eu. They mentioned, again, the Green Deal data space or the public procurement data space as potential cases where this could be the case in the future.

Metadata schema for data spaces are still underspecified, although DCAT-AP is generally considered a good option as it has shown its value in the federation of open data portals. However, most interviewees believe DCAT-AP will require extensions to meet data spaces requirements (level of detail, aspects related to quality of data, geospatial or temporal resolutions, etc.). Some of the respondents were aware about ongoing work on the information model proposed in the IDSA Reference Architecture Model (IDSA-RAM), but did not participate or followed the work in great detail.

Some participants, among whom identifiers and vocabularies, also noted the role of public sector organisations in establishing common standards for data interoperability::

*“Public administrations (e.g., those behind data.europa.eu) may act in some occasions as neutral organisations that can provide support for some of the roles identified in the main architectures. For instance, they may have a relevant role as vocabulary providers, including the participation in the development of data standards and models, or even as identity providers or as part of the data governance managers.” (P12, develops vocabularies for supply chain and logistics, The Netherlands, male)*

## 4. Conclusions and next steps

For this first of two reports we analysed key initiatives related to data spaces. Some of them are directly related to ongoing policy at EU level, some are happening locally. This included official documents about the European Data Strategy, as well as online resources and position papers of three industry initiatives: International Data Spaces Association, GAXA-X and Open DEI. Tellingly, there is no similar initiative with public or third sector representation, despite several core common data spaces targeted by ongoing funding calls which require the buy in of these stakeholders (e.g. skills, cultural heritage, media, Green Deal etc.). Nevertheless, given the sheer number of use cases and implementations available, this analysis was helpful to get a sense of the state of the art and common trends. We also were able to recruit a diverse set of data space stakeholders for semi-structured interviews to add context to our analysis.

The aim of this research is to understand how data.europa.eu, and perhaps more broadly how open government data portals and stakeholders, should position themselves in the context of data spaces. The work was planned in the summer of 2020, post publication of the European Strategy for Data, with the expectation that by the time of this study in Q1 2022, we would be able to have access to several operational data spaces, drawing on complete reference architectures and implementations from IDSA and GAIA-X. Unfortunately, progress on all these fronts has been slower than planned, which meant

that our analysis could only rely on use cases, ongoing development work, and data spaces roadmaps. In addition, there were delays in establishing the network of national hubs for GAIA-X in countries other than Germany and France, which further biases our findings.

The follow-up study will be conducted once some (European common) data spaces become available and work on reference resources by IDSA and GAIA-X is completed. This will allow us to come up with more specific recommendations, informed by characteristics of actual data spaces in operation. Nevertheless, this preliminary analysis suggests that more needs to be done now to ensure that the open data community is represented and considered in data space developments, both from the point of view of content (e.g., data.europa.eu encloses information from the public sector in most vertical sectors) and of technology infrastructure (as it has demonstrated how effective data federation can be done). Activities to be done may include workshops with relevant stakeholders, additional studies assessing the compatibility of reference architectures and implementations with established (federated) open data publishing and use technologies, up to community initiatives equivalent to IDSA and GAIA-X to set up data spaces with a pronounced public sector component, like in cultural heritage or skills.

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## ANNEX 1. Interview protocol

This annex provides the interview protocol that has been used for the semi-structured interviews that have been done in the context of this work. As in any semi-structured interview, the questions that are presented here are mainly acting as a guideline for the conversation with the interviewee.

1. Are you involved in the development of any emergent or well-established data space?

If yes, in which domain or group of domains?

2. Are you involved in the setup of any of the European common data spaces?

If yes, in which one? Are you submitting or have submitted a request for funding under any of the Digital Europe or Horizon Europe programme calls?

3. Do you or the organisation that you represent belong to any of the organisations that are active in the development of frameworks and architectures for data spaces (IDSA, GAIA-X, etc.)?

4. For each of the data spaces that you are involved in, can you tell me...? (no need for specific names, the answers can be similar to “a relevant company in the automotive sector”)

4.1 The private organisations that are involved on it

4.2 The public organisations that are involved on it

4.3 Any other type of organisation or individual that is involved on it

5. Do you already have an initial catalogue of datasets identified for your data space?

5.1 How many of these datasets are from public administrations?

5.1.1 If there are public datasets, are the public administrations that act as data providers or data intermediaries aware of the fact that these datasets will be used in the data space?

5.1.2 Have you thought of using data.europa.eu or any other open data portal as a source for data?

5.1.3 Will the data space contribute any data to data.europa.eu or any other open data portal?

5.2 How many of these datasets are from private institutions?

5.3 Are there any other relevant set of datasets that will be used?

6. Have you decided on the metadata schemas that will be used to describe (and federate) datasets? Something like DCAT or the IDS Information model?

7. Do you know of other similar data spaces in the domain of your data space that we should look at?

8. Would you have any recommendation for data.europa.eu on how to make sure that their datasets are used in the data space?

## ANNEX 2. Open data usage in data space-related initiatives

This annex provides the details on open data usage in the data spaces that were selected during the desk research step, providing for each initiative (be it a use case, data space or project) from the three selected information sources, its name and URL, whether it refers to the usage of any type of open data, whether in that case the open data source may be available in data.europa.eu, and finally whether the open data providers are also included in some form as stakeholders in the initiative, with an indication of which public administrations are involved in that case.

The initiatives that have been revised are in the following sectors, which results from a combination of the sectors/categories identified by the three selected information sources (from GAIA-X, IDSA and OPEN DEI): Agriculture/Agri-food (9), Energy (21), Finance (3), Geoinformation (5), Health (35), Manufacturing and Industry 4.0 (27), Automotive (4), Supply Chain and Logistics (8), Mobility (10), Public Sector (9), and Smart Living and Smart Cities (10). The table also contains some initiatives that are marked as “other” (8) in the IDSA Radar, but may have well been included in any of the previous categories.

Source	Use case / data space / project name and URL	Uses open data?	In data.europa.eu?	Open data providers involved
<b>Agriculture/Agri-food</b>				
<b>GAIA-X</b>	Agri-Gaia ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/agri-gaia.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/agri-gaia.html</a> )	No	No	None
<b>GAIA-X</b>	AgDataHub – Consent and Data Exchange in Agriculture ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/smart-agriculture-data-exchange-in-agriculture.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/smart-agriculture-data-exchange-in-agriculture.html</a> )	No	No	None
<b>GAIA-X</b>	AgriML – Machine Learning for Agriculture in South Tyrol - Automatic crop type recognition with intelligent satellite imagery ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/agriML-automatic-crop-type-recognition-with-intelligent-satellite-imagery.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/agriML-automatic-crop-type-recognition-with-intelligent-satellite-imagery.html</a> )	Yes (Earth Observation data)	No	None
<b>GAIA-X</b>	Soil-X ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/81-soil-x/use-case.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/81-soil-x/use-case.html</a> )	Yes (Earth Observation data)	Yes	None

<b>OpenDEI</b>	Project Demeter ( <a href="https://h2020-demeter.eu/">https://h2020-demeter.eu/</a> )	No	No	None
<b>OpenDEI</b>	Project ATLAS (Agricultural Interoperability and Analysis System) ( <a href="https://www.atlas-h2020.eu/">https://www.atlas-h2020.eu/</a> )	No	No	None
<b>OpenDEI</b>	Project agROBOfood ( <a href="https://agrobofood.eu/project/">https://agrobofood.eu/project/</a> )	No	No	None
<b>OpenDEI</b>	Project IOF (Internet of Food and Farm) ( <a href="https://www.iof2020.eu/">https://www.iof2020.eu/</a> )	No	No	None
<b>OpenDEI</b>	Project SmartAgriHubs ( <a href="https://smartagrihubs.eu/">https://smartagrihubs.eu/</a> )	No	No	None
<b>Energy</b>				
<b>IDS radar</b>	EDF Vehicle Charging	No	No	None
<b>IDS radar</b>	EDF Wind and Solar Assets modeling	No	No	None
<b>IDS radar</b>	Basque Energy Cluster	No	No	None
<b>IDS radar</b>	EnDaSpace (Energy Data Space) ( <a href="https://www.iee.fraunhofer.de/de/projekte/suche/2021/EnDaSpace.html">https://www.iee.fraunhofer.de/de/projekte/suche/2021/EnDaSpace.html</a> )	No	No	None
<b>GAIA-X</b>	Infrastructure data for new business models ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/infrastructure-data-for-new-business-models.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/infrastructure-data-for-new-business-models.html</a> )	Yes	No	None
<b>GAIA-X</b>	Edge Data Centers ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/edge-data-centres.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/edge-data-centres.html</a> )	No	No	None
<b>GAIA-X</b>	Aggregator Services for Energy Communities ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/aggregator-services-for-energy-communities.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/aggregator-services-for-energy-communities.html</a> )	No	No	None
<b>GAIA-X</b>	Municipal Open Data for Business Models in the Energy Industry ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/municipal-open-data-for-business-models-in-the-energy-industry.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/municipal-open-data-for-business-models-in-the-energy-industry.html</a> )	Yes	No	None
<b>GAIA-X</b>	Redispatch 3.0 ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/redispatch-30.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/redispatch-30.html</a> )	No	No	None



<b>GAIA-X</b>	Secure And Agile Cloud Edge Infrastructures ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/energieanlagen.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/energieanlagen.html</a> )	No	No	None
<b>GAIA-X</b>	Optimisation of the services and marketing of decentral renewable energy generators ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/dezentrale-energieerzeuger.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/dezentrale-energieerzeuger.html</a> )	No	No	None
<b>GAIA-X</b>	Smart, Privacy-Preserving Coordination Of Energy Supply And Demand ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/decentralized-energy-trading-infrastructure-and-industrial-residential-energy-agents.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/decentralized-energy-trading-infrastructure-and-industrial-residential-energy-agents.html</a> )	No	No	None
<b>GAIA-X</b>	System for Automated Certification of Renewable Energy and Management of Certificates ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/system-for-automated-certification-of-renewable-energy-and-management-of-certificates.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/system-for-automated-certification-of-renewable-energy-and-management-of-certificates.html</a> )	No	No	None
<b>OpenDEI</b>	Project interconnect (interoperable solutions connecting smart homes, buildings and grids) ( <a href="https://interconnectproject.eu/consortium/">https://interconnectproject.eu/consortium/</a> )	No	No	None
<b>OpenDEI</b>	Project PLATOON (Digital platform and analytics tools for energy) ( <a href="https://platoon-project.eu/">https://platoon-project.eu/</a> )	No	No	Municipality of Rome
<b>OpenDEI</b>	Project INTERRFACE ( <a href="http://www.interrface.eu/">http://www.interrface.eu/</a> )	No	No	None
<b>OpenDEI</b>	Project SYNERGY ( <a href="https://www.synergyh2020.eu/">https://www.synergyh2020.eu/</a> )	No	No	None
<b>OpenDEI</b>	Project coordiNET ( <a href="https://coordinet-project.eu/">https://coordinet-project.eu/</a> )	No	No	Málaga, Uppsala
<b>OpenDEI</b>	Project Platone (Platform for Operation of Distribution Networks) ( <a href="https://www.platone-h2020.eu/">https://www.platone-h2020.eu/</a> )	No	No	None
<b>OpenDEI</b>	Project BDOPEM ( <a href="https://bd4opem.eu/">https://bd4opem.eu/</a> )	No	No	None
<b>OpenDEI</b>	Project ONENET ( <a href="https://onenet-project.eu/">https://onenet-project.eu/</a> )	No	No	IDAE
<b>Finance</b>				

<b>GAIA-X</b>	Financial Big Data Cluster (FBDC) ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/financial-big-data-cluster-fbdc.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/financial-big-data-cluster-fbdc.html</a> )	Yes	No	Deutsche Börs, Deutsche Bundesbank , Hessian Ministry of Economics
<b>GAIA-X</b>	Sustainable Finance ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/sustainable-finance.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/sustainable-finance.html</a> )	No	No	None
<b>GAIA-X</b>	Pay-per-Use Supply Chain Finance ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/pay-per-use-supply-chain-finance.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/pay-per-use-supply-chain-finance.html</a> )	No	No	None
<b>Geoinformation</b>				
<b>GAIA-X</b>	Space4Cities ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/space4cities.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/space4cities.html</a> )	Yes	Yes	None
<b>GAIA-X</b>	Smart Infrastructure Management ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/smart-infrastructure-management.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/smart-infrastructure-management.html</a> )	Yes	No	None
<b>GAIA-X</b>	The Digital Twin As A Basis For 3D Planning And Citizen Participation (Smart Urban Planning) ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/3d-planning-platform.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/3d-planning-platform.html</a> )	Yes	No	None
<b>GAIA-X</b>	Earth observation data analysis in a trustworthy cloud environment ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/earth-observation-data-analysis-in-a-trustworthy-cloud-environment.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/earth-observation-data-analysis-in-a-trustworthy-cloud-environment.html</a> )	Yes	No	None
<b>GAIA-X</b>	Automatic Generation and Update of 3D Surfaces and Objects using Artificial Intelligence ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/automatic-generation-and-update-of-3d-surfaces.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/automatic-generation-and-update-of-3d-surfaces.html</a> )	Yes	No	None
<b>Health</b>				
<b>IDSA Radar</b>	HEALTH-X dataLOFT (categorized as Other in IDSA Radar)	No	No	None

<b>IDSA Radar</b>	NL AI Coalition - Oncology Research (categorized as Other in IDSA Radar)	No	No	None
<b>GAIA-X</b>	AIQNET – Medical Data Ecosystem (previously KIKS) ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/aiqnet.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/aiqnet.html</a> )	No	No	None
<b>GAIA-X</b>	Berlin Health Data Space – AI to beat acute kidney failure ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/berlin-health-data-space.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/berlin-health-data-space.html</a> )	No	No	None
<b>GAIA-X</b>	Smart Health Connect ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/smart-health-connect.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/smart-health-connect.html</a> )	No	No	None
<b>GAIA-X</b>	Research Platform Genomics ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/research-platform-genomics.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/research-platform-genomics.html</a> )	No	No	None
<b>GAIA-X</b>	Future Care Platform ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/future-care-platform.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/future-care-platform.html</a> )	No	No	None
<b>GAIA-X</b>	Surgical Platform for AI-based Risk Identification ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/surgical-platform-for-ai-based-risk-identification.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/surgical-platform-for-ai-based-risk-identification.html</a> )	No	No	None
<b>GAIA-X</b>	Medical Crisis Management and Research Platform "UNITY" ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/medical-crisis-management-and-research-platform-unity.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/medical-crisis-management-and-research-platform-unity.html</a> )	No	No	None
<b>GAIA-X</b>	Patient Empowered, Privacy Secured ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/patient-empowered-privacy-secured.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/patient-empowered-privacy-secured.html</a> )	No	No	None
<b>GAIA-X</b>	Framework of medical records in Europe ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/framework-of-medical-records-in-europe.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/framework-of-medical-records-in-europe.html</a> )	No	No	None
<b>GAIA-X</b>	Improve Chronic Heart Failure Patient Management ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/improve-chronic-heart-failure-patient-management.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/improve-chronic-heart-failure-patient-management.html</a> )	No	No	None

	<a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/improve-chronic-heart-failure-patient-management.html">World/GAIA-X-Use-Cases/improve-chronic-heart-failure-patient-management.html</a> )			
GAIA-X	CarePay ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/carepay.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/carepay.html</a> )	No	No	None
GAIA-X	Image Sharing for Medical Professionals and the Citizen ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/image-sharing-for-medical-professionals-and-the-citizen.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/image-sharing-for-medical-professionals-and-the-citizen.html</a> )	No	No	None
GAIA-X	EMPAIA Marker Quantification ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/empaia-marker-quantification.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/empaia-marker-quantification.html</a> )	No	No	None
GAIA-X	COVID-19 Dashboard & Hub ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/covid-19-dashboard-und-hub.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/covid-19-dashboard-und-hub.html</a> )	Yes	Yes	None
GAIA-X	KAMeri – Cognition-based workplace safety for human-machine interaction ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/kameri-cognition-based-workplace-safety-for-human-machine-interaction.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/kameri-cognition-based-workplace-safety-for-human-machine-interaction.html</a> )	No	No	None
GAIA-X	Recupera REHA ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/recupera-reha.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/recupera-reha.html</a> )	No	No	None
GAIA-X	The digital twin ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/the-digital-twin.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/the-digital-twin.html</a> )	No	No	None
GAIA-X	Differential diagnosis ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/differential-diagnosis.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/differential-diagnosis.html</a> )	No	No	None
GAIA-X	Smart Diabetes Management ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/smart-diabetes-management.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/smart-diabetes-management.html</a> )	No	No	None
GAIA-X	End-to-end Cell & Gene Therapy Orchestration ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/end-to-end-cell-gene-therapy-orchestration.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/end-to-end-cell-gene-therapy-orchestration.html</a> )	No	No	None

	<a href="#">World/GAIA-X-Use-Cases/end-to-end-cell-and-gene-therapy-orchestration.html</a> )			
<b>GAIA-X</b>	Digital End-to-End Data Map in Translational Research and the Medical Industry ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/digital-end-to-end-data-map-in-translational-research-and-the-medical-industry.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/digital-end-to-end-data-map-in-translational-research-and-the-medical-industry.html</a> )	No	No	None
<b>GAIA-X</b>	Data Spaces for the Statutory Health Insurance Companies for Data Analysis ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/data-spaces-for-the-statutory-health-insurance-companies-for-data-analysis.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/data-spaces-for-the-statutory-health-insurance-companies-for-data-analysis.html</a> )	No	No	None
<b>OpenDEI</b>	InteropEHRate ( <a href="https://www.interopehrate.eu/">https://www.interopehrate.eu/</a> )	No	No	None
<b>OpenDEI</b>	Smart4Health ( <a href="https://smart4health.eu/">https://smart4health.eu/</a> )	No	No	Madeira
<b>OpenDEI</b>	Activage ( <a href="http://www.activageproject.eu">http://www.activageproject.eu</a> )	No	No	Parma, Galicia, Leeds
<b>OpenDEI</b>	Pharaon ( <a href="https://www.pharaon.eu/">https://www.pharaon.eu/</a> )	No	No	Andalusia, Diputación de Jaén, Slovenia Public Health Service,
<b>OpenDEI</b>	Smartbear (Smart Big Data Platform to Offer Evidence-based personalized support for healthy and independent living at home ( <a href="https://www.smart-bear.eu/">https://www.smart-bear.eu/</a> )	No	No	Region of Peloponnese
<b>OpenDEI</b>	GateKeeper ( <a href="https://www.gatekeeper-project.eu/">https://www.gatekeeper-project.eu/</a> )	No	No	Several public health services from 6 countries
<b>OpenDEI</b>	SHAPES (Smart and Healthy Ageing through People Engaging in Supportive Systems) ( <a href="https://shapes2020.eu/">https://shapes2020.eu/</a> )	No	No	None

<b>OpenDEI</b>	ADLIFE ( <a href="https://adlifeproject.com/">https://adlifeproject.com/</a> )	No	No	None
<b>OpenDEI</b>	FAITH ( <a href="https://www.h2020-faith.eu/">https://www.h2020-faith.eu/</a> )	No	No	None
<b>OpenDEI</b>	AICCELERATE ( <a href="https://aiccelerate.eu/">https://aiccelerate.eu/</a> )	No	No	None
<b>OpenDEI</b>	AIDPATH (AI powered, Decentralized Production for Advanced Therapies in the Hospital) ( <a href="https://www.sciencrow.com/c/6499?title=AIDPATH">https://www.sciencrow.com/c/6499?title=AIDPATH</a> )	No	No	None
<b>OpenDEI</b>	HOSMARTAI (Hospital Smart development based on AI) ( <a href="https://www.hosmartai.eu/">https://www.hosmartai.eu/</a> )	No	No	Region of Madrid
<b>OpenDEI</b>	TeNDER (affectiVe basEd iNtegrated carE for better Quality of Life) ( <a href="https://www.tender-health.eu/">https://www.tender-health.eu/</a> )	No	No	Region of Madrid
<b>Industry 4.0 / Manufacturing</b>				
<b>IDS radar</b>	Logistics and Product Life Cycle Management	No	No	None
<b>IDS radar</b>	Smart Factory	No	No	None
<b>IDS radar</b>	Plastic Domain Data Space - Market 4.0	No	No	None
<b>IDS radar</b>	Smart Factory Web <a href="https://internationaldataspaces.org/usecases/smart-factory-web/">https://internationaldataspaces.org/usecases/smart-factory-web/</a>	No	No	None
<b>IDS radar</b>	NTT Testbed on Data Governance and Sovereignty Across Countries and Companies <a href="https://internationaldataspaces.org/usecases/ntt-siemens-switzerland-innovation-park-biel-bienne/">https://internationaldataspaces.org/usecases/ntt-siemens-switzerland-innovation-park-biel-bienne/</a>	No	No	None
<b>IDS radar</b>	Metal Domain Data Space – Market 4.0 <a href="https://internationaldataspaces.org/usecases/tecnalia-2/">https://internationaldataspaces.org/usecases/tecnalia-2/</a>	No	No	None
<b>IDS radar</b>	Boost 4.0 - European Industrial Data Space <a href="https://boost40.eu/">https://boost40.eu/</a>	No	No	None
<b>GAIA-X</b>	Collaborative Condition Monitoring ( <a href="https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/collaborative-condition-monitoring.html">https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/collaborative-condition-monitoring.html</a> )	No	No	None
<b>GAIA-X</b>	Smart Manufacturing ( <a href="https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/smart-manufacturing.html">https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/smart-manufacturing.html</a> )	No	No	None

<b>GAIA-X</b>	Supply Chain Collaboration in a Connected Industry ( <a href="https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/supply-chain-collaboration-in-a-connected-industry.html">https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/supply-chain-collaboration-in-a-connected-industry.html</a> )	No	No	None
<b>GAIA-X</b>	Shared Production: Cross-Factory and Cross-Company Production as a Showcase; Smart factory KL Vision 2025 – ‘Production Level 4’ ( <a href="https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/shared-production.html">https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/shared-production.html</a> )	No	No	None
<b>GAIA-X</b>	IIoT Platform with out of the box MES Applications ( <a href="https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/Iiot-platform-with-out-of-the-box-mes-applications.html">https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/Iiot-platform-with-out-of-the-box-mes-applications.html</a> )	No	No	None
<b>GAIA-X</b>	Predictive maintenance (PdM) ( <a href="https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/predict-machines-pdm.html">https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/predict-machines-pdm.html</a> )	No	No	None
<b>GAIA-X</b>	An Ecosystem For Artificial Intelligence ( <a href="https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/ai-marketplace-the-ecosystem-for-artificial-intelligence-in-product-development.html">https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/ai-marketplace-the-ecosystem-for-artificial-intelligence-in-product-development.html</a> )	No	No	None
<b>GAIA-X</b>	Collaboration Platform For The International Development Of Aircraft And Space Vehicles ( <a href="https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/dasc-lab.html">https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/dasc-lab.html</a> )	No	No	None
<b>GAIA-X</b>	Data Interoperability and Data Sovereignty for Food Production ( <a href="https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/fast.html">https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/fast.html</a> )	No	No	None
<b>GAIA-X</b>	Improving the User Experience and developing innovative Forms of User Experience ( <a href="https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/smart-experience-smart-creation.html">https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/smart-experience-smart-creation.html</a> )	No	No	None
<b>GAIA-X</b>	A digitally interconnected production ecosystem for data-driven and sustainable value creation ( <a href="https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/87-euprogigant-european-production-giganet/use-case.html">https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/87-euprogigant-european-production-giganet/use-case.html</a> )	No	No	None

<b>GAIA-X</b>	Integration of Data along the Life Cycle of Production Machines ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/integration-of-data-along-the-life-cycle-of-production-machines.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/integration-of-data-along-the-life-cycle-of-production-machines.html</a> )	No	No	None
<b>GAIA-X</b>	Enabling Full Transparency in the Supply Chain ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/enabling-full-transparency-in-the-supply-chain.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/enabling-full-transparency-in-the-supply-chain.html</a> )	No	No	None
<b>OpenDEI</b>	QUALITY ( <a href="https://qu4lity-project.eu/">https://qu4lity-project.eu/</a> )	No	No	None
<b>OpenDEI</b>	ZDMP – Zero Defects Manufacturing Platform ( <a href="https://www.zdmp.eu/">https://www.zdmp.eu/</a> )	No	No	None
<b>OpenDEI</b>	European Factory Platform ( <a href="https://www.efpf.org/">https://www.efpf.org/</a> )	No	No	None
<b>OpenDEI</b>	Connected Factories ( <a href="https://www.connectedfactories.eu/">https://www.connectedfactories.eu/</a> )	No	No	None
<b>OpenDEI</b>	KYKLOS 4.0 ( <a href="https://kyklos40project.eu/">https://kyklos40project.eu/</a> )	No	No	None
<b>OpenDEI</b>	DigiPrime ( <a href="https://www.digiprime.eu/">https://www.digiprime.eu/</a> )	No	No	None
<b>OpenDEI</b>	SHOP4CF – Smart Human-Oriented Platform to Connected Factories ( <a href="https://shop4cf.eu/">https://shop4cf.eu/</a> )	No	No	None
<b>Automotive</b>				
<b>IDS radar</b>	Collaborative Warranty and Quality Management <a href="https://internationaldataspaces.org/usecases/sap-fraunhofer/">https://internationaldataspaces.org/usecases/sap-fraunhofer/</a>	No	No	None
<b>IDS radar</b>	Catena-X ( <a href="https://catena-x.net/en/">https://catena-x.net/en/</a> )	No	No	None
<b>IDS radar</b>	Supply Chain Manager ( <a href="https://internationaldataspaces.org/usecases/supply-chain-manager-achieving-transparency-in-automotive-supply-chains/">https://internationaldataspaces.org/usecases/supply-chain-manager-achieving-transparency-in-automotive-supply-chains/</a> )	No	No	None
<b>IDS radar</b>	Light Commercial Vehicles	No	No	None
<b>Supply Chain and Logistics</b>				
<b>IDS radar</b>	Silicon Economy <a href="https://www.iml.fraunhofer.de/en/silicon-economy.html">https://www.iml.fraunhofer.de/en/silicon-economy.html</a>	No	No	None



<b>IDS radar</b>	DASLOGIS - Dutch Data Spaces for Logistics <a href="https://www.dinalog.nl/project/daslogis-development-and-valorization-of-a-dutch-data-space-for-logistics/">https://www.dinalog.nl/project/daslogis-development-and-valorization-of-a-dutch-data-space-for-logistics/</a>	No	No	None
<b>IDS radar</b>	ONCITE - German Edge Cloud <a href="https://internationaldataspaces.org/usecases/german-edge-cloud/">https://internationaldataspaces.org/usecases/german-edge-cloud/</a>	No	No	None
<b>IDS radar</b>	Horizontal Supply Chain Collaboration	No	No	None
<b>IDS radar</b>	Industrial Additive Manufacturing Services <a href="https://internationaldataspaces.org/usecases/ibm-thyssenkrupp-fraunhofer/">https://internationaldataspaces.org/usecases/ibm-thyssenkrupp-fraunhofer/</a>	No	No	None
<b>IDS radar</b>	AI.SOV	No	No	None
<b>IDS radar</b>	ECI Gatewise	No	No	None
<b>IDS radar</b>	Smart Connected Supplier Network - Market 4.0 <a href="https://smart-connected-supplier-network.gitbook.io/processmanual/">https://smart-connected-supplier-network.gitbook.io/processmanual/</a>	No	No	None
<b>Mobility</b>				
<b>IDS radar</b>	Rail Data Space	No	No	None
<b>IDS radar</b>	Kiel Mobility Digital Twin	Yes	No	City of Kiel
<b>IDS radar</b>	RealLab Hamburg ( <a href="https://reallab-hamburg.de/en/">https://reallab-hamburg.de/en/</a> )	Yes	No	Hamburg
<b>IDS radar</b>	Mobility Data Space ( <a href="https://mobility-dataspace.eu/">https://mobility-dataspace.eu/</a> and <a href="https://www.mobility-data-space.de/en.html">https://www.mobility-data-space.de/en.html</a> ) . Both a data space and two use cases	Yes	No	North Rhine-Westphalia  Metropolregion Rhein-Neckar
<b>IDS radar</b>	Mobilithek (former MDM - Mobility Data Marketplace) ( <a href="https://www.mdm-portal.de/">https://www.mdm-portal.de/</a> )	Yes	No	Federal Ministry of Transport and Digital Infrastructure
<b>GAIA-X</b>	Mobility - Data Interoperability and Data Sovereignty ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-</a>	Yes	No	None, although it is

	<a href="https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/mobility-data-interopability-and-data-sovereignty.html">World/GAIA-X-Use-Cases/mobility-data-interopability-and-data-sovereignty.html</a> )			acknowledged that they will have to be involved
<b>GAIA-X</b>	Digital Parking Management – Seamless Parking ( <a href="https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/digital-parking-management-seamless-parking.html">https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/digital-parking-management-seamless-parking.html</a> )	No	No	None
<b>GAIA-X</b>	Testbed Lower Saxony ( <a href="https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/the-testbed-lower-saxony-is-ready-for-gaia-x.html">https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/the-testbed-lower-saxony-is-ready-for-gaia-x.html</a> )	No	No	None
<b>GAIA-X</b>	Smart Mobility Innovation along the travel chain ( <a href="https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/smart-mobility-innovation.html">https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/smart-mobility-innovation.html</a> )	Yes	No	None, although it is acknowledged that they will have to be involved
<b>GAIA-X</b>	AI-based solution for optimizing the energy efficiency and consumption of electric vehicles ( <a href="https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/77-gaia-x-decentralized-in-vehicle-mlaas-to-ev-energy-efficiency/use-case.html">https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/77-gaia-x-decentralized-in-vehicle-mlaas-to-ev-energy-efficiency/use-case.html</a> )	No	No	None
<b>Public Sector</b>				
<b>GAIA-X</b>	Digital public administration – Chatbot ( <a href="https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/digital-public-administration-chatbot.html">https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/digital-public-administration-chatbot.html</a> )	No	No	None
<b>GAIA-X</b>	Using the intelligent Chatbot to reduce Helpdesk Tickets ( <a href="https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/chatbot-for-reducing-tickets.html">https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/chatbot-for-reducing-tickets.html</a> )	No	No	None
<b>GAIA-X</b>	High Performance and Quantum Computing as a Service ( <a href="https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/high-performance-and-quantum-computing-as-a-service.html">https://www.bmw.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/high-performance-and-quantum-computing-as-a-service.html</a> )	No	No	None

<b>GAIA-X</b>	Quality Infrastructure 'Digital' (QI-Digital) ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/quality-infrastructure-digital-qi-digital.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/quality-infrastructure-digital-qi-digital.html</a> )	No	No	None
<b>GAIA-X</b>	Phoenix – the open source workplace for the public sector ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/75-phoenix-the-open-source-workplace-for-the-public-sector/use-case.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/75-phoenix-the-open-source-workplace-for-the-public-sector/use-case.html</a> )	No	No	None
<b>GAIA-X</b>	Predictive maintenance for the road infrastructure in South Tyrol ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/predictive-maintenance-for-the-road-infrastructure-in-south-tyrol.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/predictive-maintenance-for-the-road-infrastructure-in-south-tyrol.html</a> )	Yes	No	Autonomous Province of Bolzano
<b>GAIA-X</b>	Innovative EU-wide sovereign "Qit" person control system with checks on residence permits ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/qit-identity-checks.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/qit-identity-checks.html</a> )	No	No	None
<b>GAIA-X</b>	Opening Data Silos In Administration For Usage In Data Science And Machine Learning ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/data-science-and-machine-learning-hub.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/data-science-and-machine-learning-hub.html</a> )	No	No	None
<b>GAIA-X</b>	A Digital Coordination Platform for the Open Source Community ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/a-digital-coordination-platform-for-the-open-source-community.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/a-digital-coordination-platform-for-the-open-source-community.html</a> )	No	No	None
<b>Smart Living / Smart Cities</b>				
<b>IDS radar</b>	MyDataForCities	Yes	No	Helsinki OASC
<b>IDS radar</b>	City DataSpace	Yes	No	Wuppertal Solingen Remscheid
<b>IDS radar</b>	Trusted Data Sharing in Smart Cities <a href="https://internationaldataspaces.org/usecases/vastuu/">https://internationaldataspaces.org/usecases/vastuu/</a>	Yes	No	None
<b>IDS radar</b>	Smart Parking	Yes	No	None

<b>GAIA-X</b>	Cloud-based data platform for smart communities ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/66-smart-city-data-platform/use-case.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/66-smart-city-data-platform/use-case.html</a> )	Yes	No	Hamburg, Darmstadt, Wolfsburg, Ulm, Paderborn, Rhine- Neckar metropolita n region
<b>GAIA-X</b>	Smart Living ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/smart-living.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/smart-living.html</a> )	No	No	None
<b>GAIA-X</b>	Energy Efficiency ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/smart-living-energy-efficiency.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/smart-living-energy-efficiency.html</a> )	No	No	None
<b>GAIA-X</b>	Smart Living AAL (Ambient Assisted Living) ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/smart-living-aal.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/smart-living-aal.html</a> )	No	No	None
<b>GAIA-X</b>	Smart living security ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/smart-living-security.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/smart-living-security.html</a> )	No	No	None
<b>GAIA-X</b>	Automated reading of gas, water and electricity consumption levels for age-appropriate living ( <a href="https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/86-smart-metering-age-appropriate-living/use-case.html">https://www.bmwi.de/Redaktion/EN/Artikel/Digital-World/GAIA-X-Use-Cases/86-smart-metering-age-appropriate-living/use-case.html</a> )	No	No	None
<b>Other</b>				
<b>IDS radar</b>	GAIA-X MERLOT	No	No	None
<b>IDS radar</b>	Privacy-Aware, intelligent and Resilient Crisis Management (PAIRS) ( <a href="https://www.pairs-projekt.de/en/home/">https://www.pairs-projekt.de/en/home/</a> )	No	No	None
<b>IDS radar</b>	DataPorts	No	No	None
<b>IDS radar</b>	Data Sharing Coalition - Green Loans ( <a href="https://datasharingcoalition.eu/use-cases/sharing-energy-information-with-mortgage-providers-to-include-in-mortgage-applications/">https://datasharingcoalition.eu/use-cases/sharing-energy-information-with-mortgage-providers-to-include-in-mortgage-applications/</a> )	No	No	None

<b>IDS radar</b>	Maritime Data Space ( <a href="https://www.sintef.no/projectweb/maritime-data-space-mds/">https://www.sintef.no/projectweb/maritime-data-space-mds/</a> )	No	No	None
<b>IDS radar</b>	Defense Data Space ( <a href="https://www.tno.nl/nl/over-tno/nieuws/2021/9/fedice-laet-defensie-en-haar-partners-eenvoudig-beheersbaar-en-veilig-digitaal-informatie-delen/">https://www.tno.nl/nl/over-tno/nieuws/2021/9/fedice-laet-defensie-en-haar-partners-eenvoudig-beheersbaar-en-veilig-digitaal-informatie-delen/</a> )	No	No	None (although a public administration is involved)
<b>IDS radar</b>	Trusted Space for Aeronautics	No	No	None
<b>IDS radar</b>	MARKET4.0 Marketplace	No	No	None