

Gaia-X

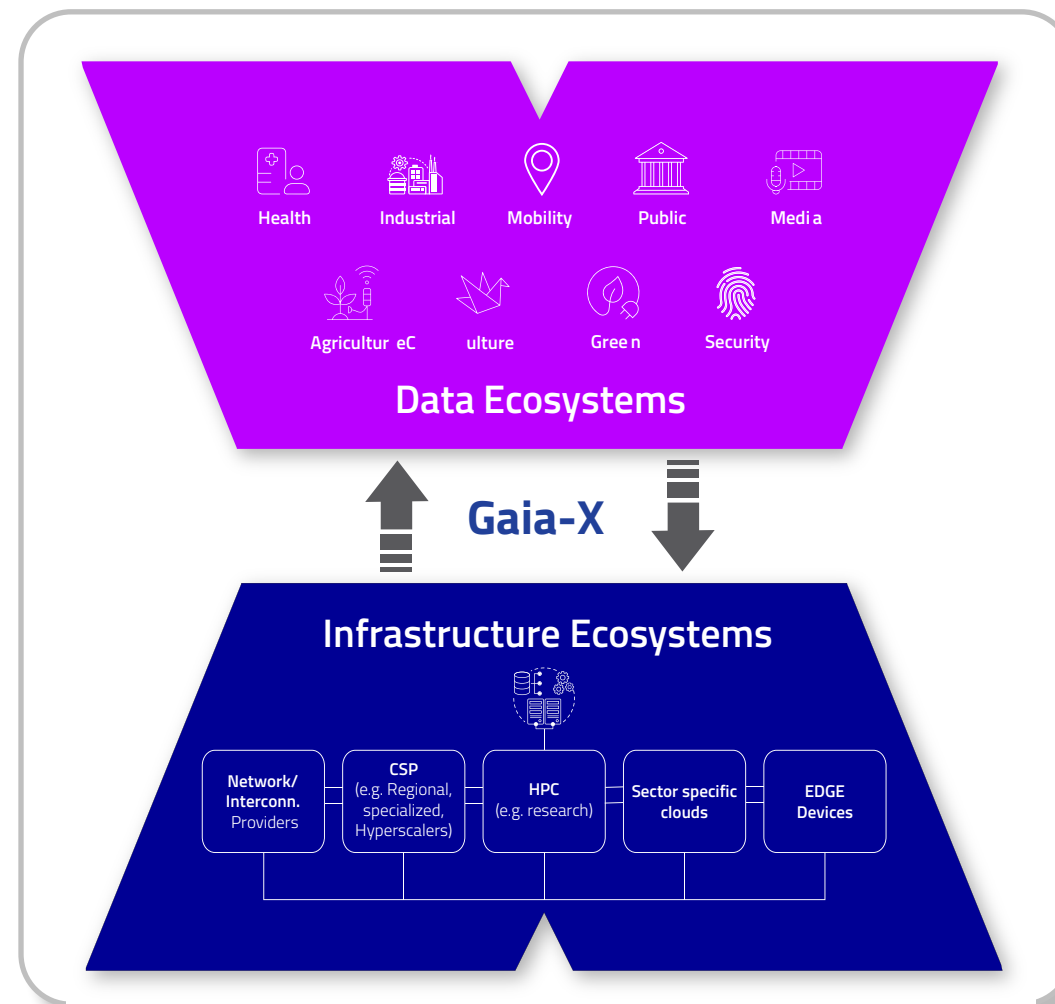
European Association for
Data and Cloud AISBL



**TOGETHER TOWARDS A
FEDERATED & SECURE DATA
INFRASTRUCTURE**

The Demand for Gaia-X

Gaia-X is connecting the current 'Split-X' Model.
The Gaia-X trustworthy environment allows the connection of disjoint data & infrastructure ecosystems.



The Demand for Data Spaces and the Role of Cloud Service and ICT Providers

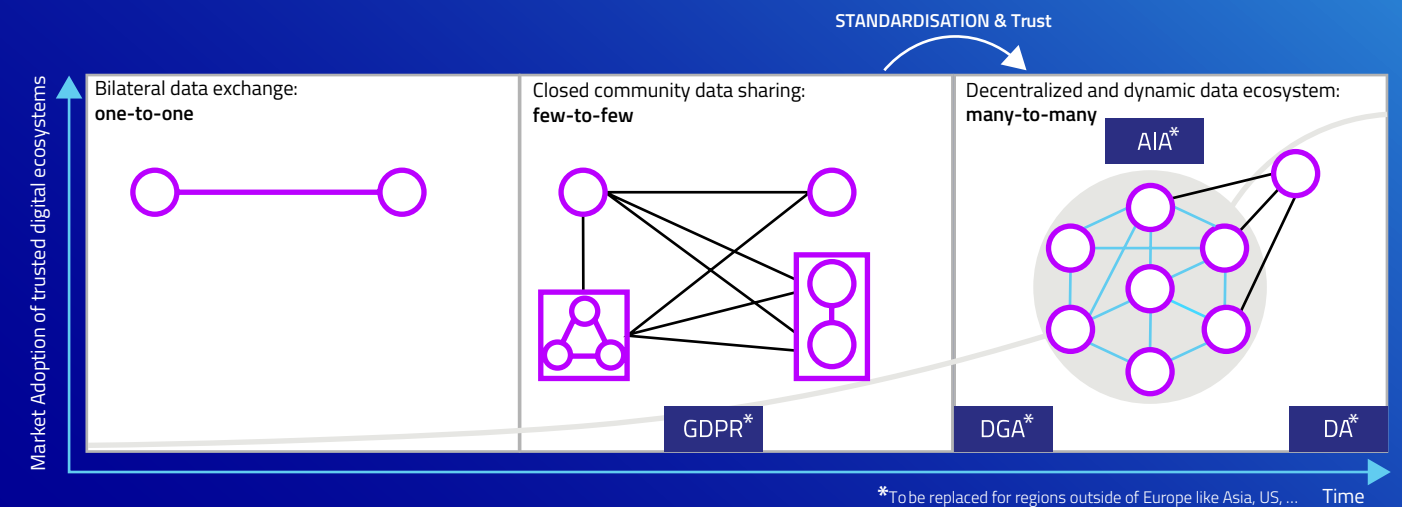
Data exchange began in the 1960s when Ed Guilbert introduced electronic communication for US Army supply chains. Although EDI became widely used in the early 90s and was key to early globalisation through One-to-One exchanges, digital platforms in the last 20 years have enabled Few-to-Few exchanges taking personal digitally-based interrelation to unprecedented levels. Still, connecting various data sources in a noncentralised model remains challenging, in a time when GDPR was enabled/created to instill more trust in the management of personal data .

Now, we are advancing data management also in the realm of industrial machine data, by creating Data Spaces that enable the data exchange of Many-to-Many. This is a challenge of a much broader scope, and in this sense standardisation and a Trust Framework can enable us to automatically identify and authorise sources and users of data, and to connect them to Data Spaces without additional manual effort (that would impair scalability). In Europe, the Data Governance Act and the Data Act are providing the framework for the Gaia-X Compliance Document which enables sovereign data management. Similar policies and rules will be developed for regions

outside of Europe based on their specific legislation. Data Space interoperability is thus a practical avenue so creators can enforce access rights while still monetising data, globally.

However, an often-overlooked aspect in data management is that "Data does not flow on rainbows". This means any data service whatsoever, even data itself, requires an external infrastructure service to operate.

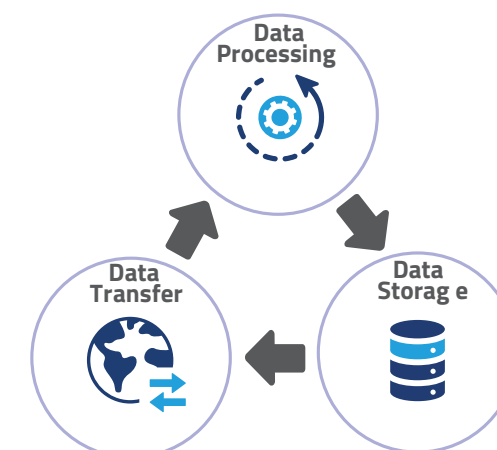
Thus, interoperable Data Spaces, which by virtue are decenrealised, live on top of a federated Cloud-Edge infrastructure. Because by design they interconnect disparate and heterogenous sources, effectively creating critical mass for data around use-cases, these data spaces are poised to become the future of global data management, becoming a cornerstone for more advanced Artificial Intelligence solutions within the frame of the AI Act.



The role of Cloud Service and ICT Providers is paramount to enable Data Sovereignty and Trusted Data Transactions

- ➔ Data is processed, stored or transferred using services, i.e. a running instance of an algorithm.
 - No data can replicate or transfer itself without running a service.
 - The algorithm to process, store, transfer the data can be embedded in the data itself, but still requires an external service to be interpreted and executed.
- ➔ The "Cloud" is someone else's servers, unless you run your own infrastructure on-premises, in your building.
- ➔ The existence of the underlying CSP and ICT services makes those data operations possible.

All 3 main classes of data operations...



...rely on underlying CSP and ICT services



What is Gaia-X?

Gaia-X offers a neutral global digital ecosystem where consumers and providers can conduct business in a trusted, transparent, and secure environment. It provides a competitive alternative to proprietary platforms that impose vendor lock-in and operate in opaque environments regarding data privacy, extraterritorial laws, and security.

The Gaia-X Standard enhances IT systems' interoperability with no lock-in effects. This offers an innovative interlinkage of distributed cloud and data resources, opening new business opportunities yet in compliance with European digital regulations. By adopting the standard, organisations can effortlessly kick-start ecosystem business value chains, future-proofing their investments while retaining digital sovereignty, without worrying about technical details.



Gaia-X MISSION

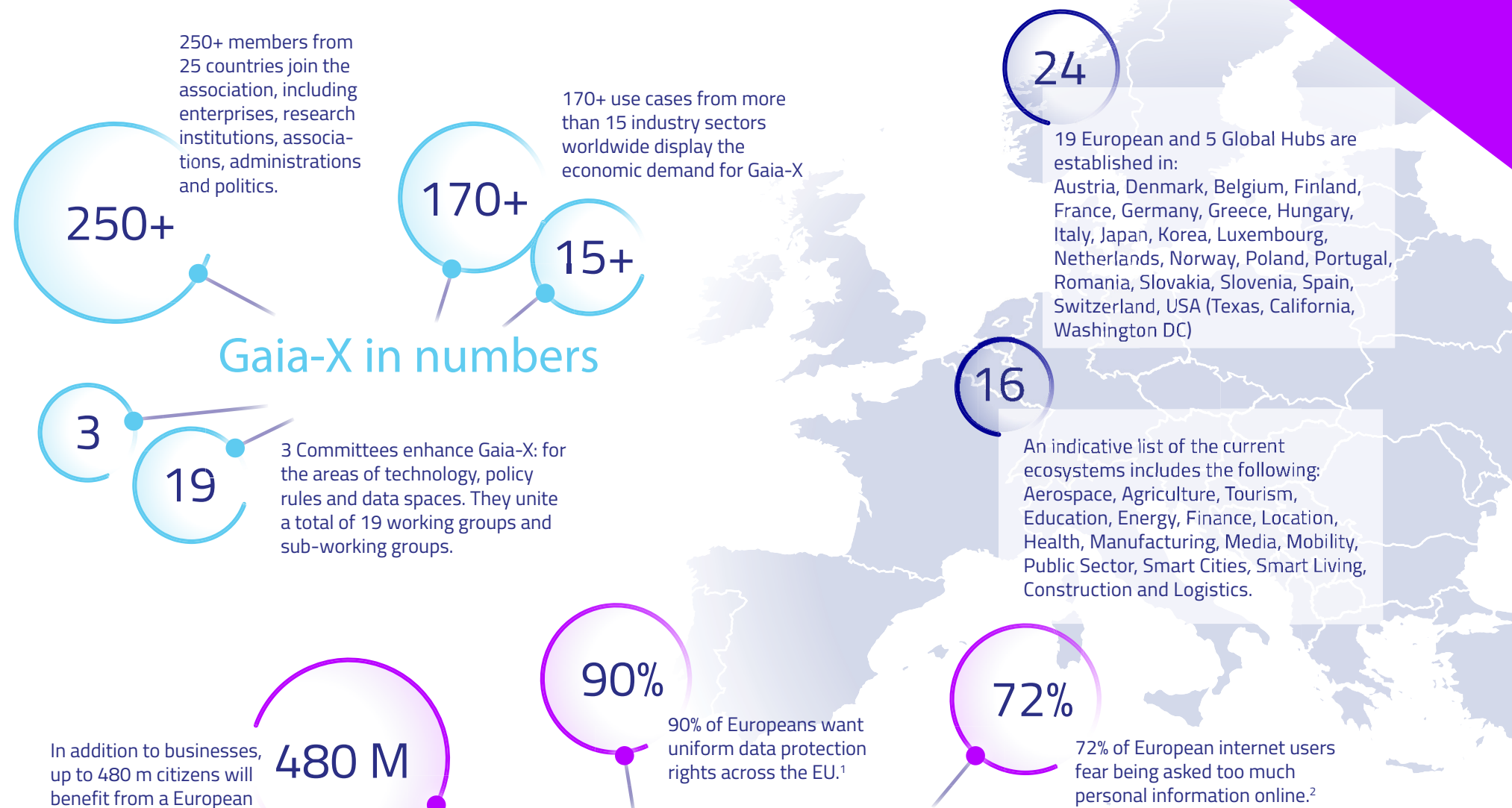
Creating the de facto standard to enable federated and trusted **data and infrastructure ecosystems**, by developing a set of specifications, rules, policies, and a verification framework



Gaia-X VISION

Enable trusted decentralised digital ecosystems.

Gaia-X in numbers



The demand for Gaia-X



1 European Commission (06.05.2020): <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52015DC0192> [last retrieved on 28.10.2020]
2 ibid
3 European Commission (19.02.2020): https://ec.europa.eu/commission/presscorner/detail/de/fs_20_283 [last retrieved on 27.10.2020]
4 European Commission: https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/european-data-strategy_de [last retrieved on 28.10.2020]

Value Proposition of the Gaia-X Standard			End-user		Start-Up	Cloud & ICT provider		Research		Trust & Regulatory		Association
			Large Organisation	SME		System Integrator	SW & Cloud Provider	RTO/ University	Data-driven project	CAB	Government & Agency	
1	End-User Digitalisation	Acceleration of digital business models	✓	✓		✓		✓	✓		✓	
2		Market freedom & flexibility (no lock-in effect)	✓					✓	✓			
3		Interoperability-by-design and future-proofing investments	✓		✓	✓	✓		✓			
4	Ecosystem building	A paradigm to govern decentralised digital ecosystems	✓						✓		✓	
5		Jump start with access to compliant data & cloud services	✓	✓	✓	✓			✓			
6		Automatic verification of Codes of Conduct					✓			✓		✓
7	Innovation	Facilitate the creation of composable systems	✓		✓	✓	✓		✓			
8		Stable & supported technical artifacts				✓	✓					
9	Sales & Marketing	Creation of partnerships (for tenders, strategic, ...)	✓		✓	✓	✓	✓				
10		Monetise on existing assets (via new channels & clients)	✓	✓			✓					
11		New business opportunities			✓	✓	✓		✓	✓		
12		Market leadership				✓		✓				✓
13	Geopolitical	Technically-enforced digital sovereignty	✓						✓			
14		Executing a politically-driven industrial & economical vision									✓	✓

The Gaia-X Strategic Plan in a nutshell

Gaia-X's strategy is built on four fundamental pillars that drive **trust, interoperability, and digital sovereignty**, ensuring the success of a **federated and secure data ecosystem**. These pillars focus on **end-user adoption, market readiness, global expansion, and ecosystem growth**, creating a sustainable and scalable foundation for the future of European and international data spaces.

1 END-USER ADOPTION STRATEGY

- Increase the number of reference stories to enable the community in reference selling
- Policymakers supporting and advocating for the Gaia-X initiative in Europe
- Work with Cloud Service Providers, including Hyperscalers, while maintaining sovereignty through Gaia-X rules
- Establish Hubs in European countries which are not active yet

2 MARKET READINESS OF THE TECHNOLOGY

- Intensify collaboration with DSBA and FOSS communities
- Strengthen partnership with funded projects on EU and member state level, including lighthouse projects to enhance the functionality
- Provide regular deep dive sessions using Gaia-X de-facto standards to demonstrate how Data Spaces based on a federated Cloud infrastructure can be realised
- Validate 'Powered by Gaia-X'

3 GLOBALISATION STRATEGY

- Partner with international members for global regions and align with regulations outside of Europe
- Utilize Gaia-X Hubs as multiplier for Gaia-X in their home regions
- Include other regions to participate in the definition of labels for their territory
- Join global events to increase awareness about Gaia-X
- Foster analyst relations to increase global awareness

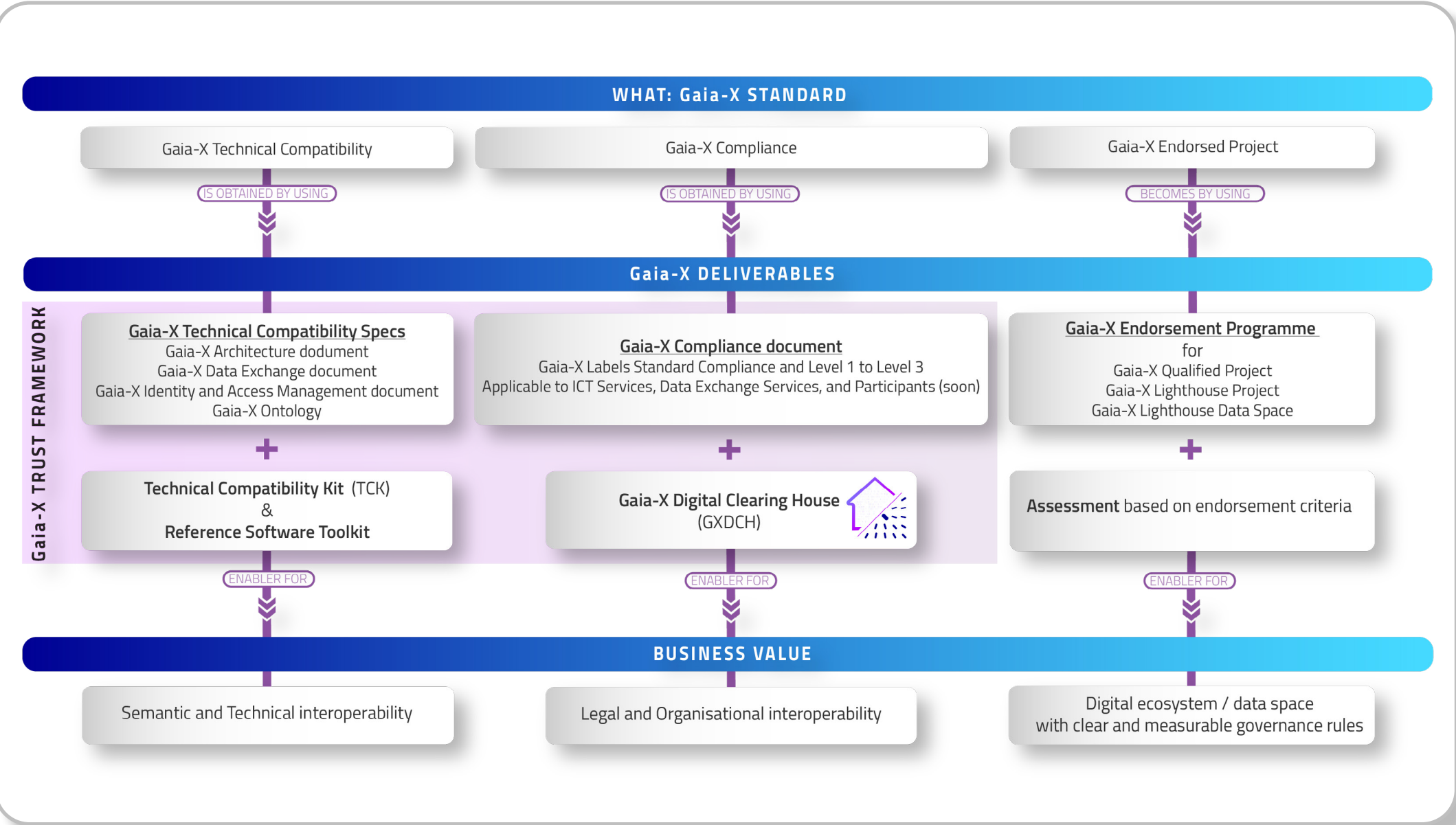
4 GROWTH OF THE Gaia-X ECOSYSTEM

- Demonstrate benefits for existing members
- Provide added values for organisations to join Gaia-X
 - Large corporates for global reach
 - Start-ups and SME for innovative solutions
 - Developers and Universities for technology excellence
- Maximize the efficiency of the Committees and agile sprints
- Grow the number of members

Driven by a growth and service oriented team providing thought leadership to the market



The Gaia-X Trust Framework



The Gaia-X Trust Framework is a comprehensive system designed with three primary goals in mind: empowering users to make informed decisions across various jurisdictions and domains, accommodating specific needs of different regions and industries, and laying the groundwork for automated compliance processes.

Trust is a fundamental aspect of the Framework, defined as the favourable response of a decision-making party assessing the risk regarding another party's ability to fulfil a promise. Trust decisions are nuanced and influenced by various factors, and the Gaia-X Framework provides a methodology and technical specifications for risk assessment.

Interoperability is another key aspect, with a focus on organisational and semantic layers. The Framework provides ontology and logic rules to translate the European values of transparency, openness, self-determination, privacy, and interoperability into machine actionable information. While initially targeting ICT services and data products, the technical protocols and data formats can be adapted for other use cases, such as the EU Digital Product Passport for various industries.

Guidelines are provided for both policy-rules makers and users. Policy-rules makers define assessment schemes and criteria, ensuring compliance with European values and legislation. Users can apply for assessments and procure services/products based on various levels of compliance, ranging from basic conformity to higher levels of cybersecurity and data processing restrictions.



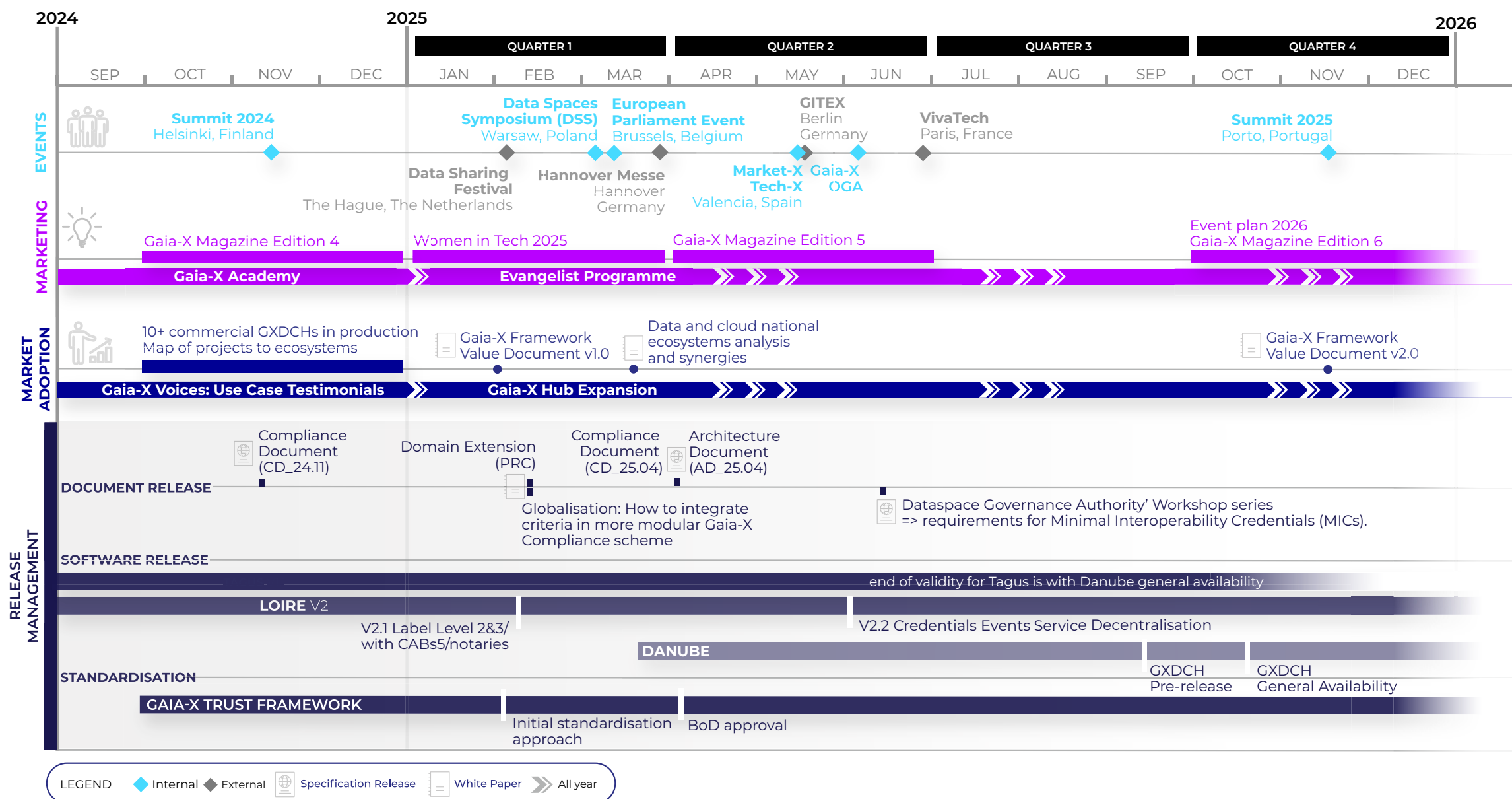
The Gaia-X Academy

The Gaia-X Academy has been established to provide accessible education on the Gaia-X initiative, welcoming both members and non-members. Our courses cater to diverse expertise levels, offering foundational knowledge as well as in-depth technical insights.

The curriculum spans from basic understanding of Gaia-X to advanced levels, covering aspects such as the data economy, Framework structure, and technical components. Participants will gain the ability to lead related initiatives and develop the necessary technical competence to support Gaia-X adoption. Additionally, the academy offers a detailed analysis of Gaia-X architecture, enabling participants to design compliant solutions and support business outcomes effectively.



Gaia-X Roadmap 2025



Gaia-X Evangelist Programme

The Gaia-X Evangelist Program is designed to empower passionate individuals who are eager to share their knowledge and enthusiasm about Gaia-X's mission and vision with the broader community. Evangelists are enthusiastic supporters who spread the word, build community, and help drive engagement and growth. Evangelists play a crucial role in expanding the reach of our message, fostering innovation, and driving the adoption of our solutions.

The Gaia-X evangelist program aims to increase awareness of Gaia-X's deliverables, encourage widespread market adoption, and build an engaged community. This effort will be reflected in membership growth and active participation in Working Groups and Sprints as more individuals and organisations align with Gaia-X's vision and goals. The program seeks to create a network of advocates who promote Gaia-X and contribute to its development and influence within the industry.



Gaia-X Label

A Gaia-X Label is a mark of confidence which reflects the completion of different criteria related to transparency, data protection, security, interoperability, portability, sustainability, and European Control.



Gaia-X Standard Compliance
A service or product offering is certified **Gaia-X Standard Compliance** upon the successful assessment of all the mandatory criteria related to transparency, security, interoperability, portability and sustainability. Not bound to a specific jurisdiction or industry domain.
Value: The provider & consumer can make informed & educated decisions based on information gathered to demonstrate European values.

Gaia-X Label Level 1
A service or product offering is certified **Gaia-X Label Level 1** if the offering is **Gaia-X Standard Compliance** and fulfils additional European rules related to personal data protection.
Value: In addition to the Gaia-X Standard Compliance, the provider & consumer can rely on their mutual declaration of adherence to the European data protection rules.

Gaia-X Label Level 2
A service or product offering is certified **Gaia-X Label Level 2** if the offering is **Gaia-X Label Level 1** and fulfils additional criteria related to cybersecurity and the service offering needs to have an option for the customer's data to be processed and shared exclusively in the Europe Economic Area.
Value: In addition to the Gaia-X Label Level 1, cybersecurity criteria have been verified by impartial third parties & data can be processed exclusively in the EEA.

Gaia-X Label Level 3
A service or product offering is certified **Gaia-X Label Level 3** if the offering is **Gaia-X Label Level 2**, the consumer's data are processed and shared exclusively in the European Economic Area and the headquarters and the main establishments of the service provider are located in the European Economic Area.
Value: On top of the Gaia-X Label Level 2, the data is processed exclusively in the EEA & cannot be accessed by parties from outside the EEA.

	STANDARD COMPLIANCE	LEVEL 1	LEVEL 2	LEVEL 3
Declaration of Service or Product	✓	✓	✓	✓
Signed with verified method (e.g. eIDAS)	✓	✓	✓	✓
Automated validation by GXDCH	✓	✓	✓	✓
Automated verification by GXDCH*	✓	✓	+	+
Data Exchange Policies	✓	✓	✓	✓
Certified Label Logo		✓	✓	✓
Data protection by EU legislation		✓	✓	✓
Manual verification by CAB			✓	✓
Provider Headquarter within EU				✓

*not all criteria can be automated, "+" means automated verification of the evidence issuer (Standard & CAB)

The Gaia-X Digital Clearing House (GXDCH)

The What = Provides Gaia-X Clearance

1. The GXDCH is a node of verification of the Gaia-X rules;
2. It is the go-to place to obtain Gaia-X compliance and become part of the Gaia-X ecosystem;
3. The GXDCH are non-exclusive, interchangeable multiple nodes operated by market operators, acting as a Gaia-X Federator;
4. They operate and run services of the Gaia-X Framework (compulsory and optional), necessary to achieve compliance and support the onboarding of any Gaia-X adopter;
5. They integrate to external TA (Trust Anchors), including CAB (Conformance Assessment Bodies) for external asseverations, Identity Verification (like eIDAS), and other TDS (Trusted Data Sources) as defined by Gaia-X.

The Why = One-Stop-Place for Gaia-X

1. Each GXDCH must provide public services to implement the compulsory elements necessary to achieve Gaia-X compliance (under the sole governance of Gaia-X);
2. Each GXDCH can offer (or resell) services to support the extended adoption of Gaia-X (out of the governance of Gaia-X);
3. Any Gaia-X adopter (user, provider, federator) can use any GXDCH to obtain compliance, join a federation, become a federator (or additional services);
4. GXDCH act as a one-stop place for Gaia-X services facilitating the concentration and match of Demand and Offer.

The how = Operationalise the Gaia-X Framework

1. The Gaia-X Framework has mandatory SW components (those controlling the 'Compliance') as well as optional SW components (referred as the GX Toolset);
2. The code of compulsory components must run into services providing for the compulsory verifications to become GX compliant;
3. These services must be run in a physical compute node accessible to anyone;
4. Each node must be operated by a service provider according to rules defined with and approved by Gaia-X;
5. Gaia-X is not an operator of any node, but it has control on the operators for the operations of compulsory services;
6. Any operator compliant to the requirements defined by Gaia-X and featuring the necessary characteristics as defined by Gaia-X can become a node;
7. Each node is connected in a network to ensure free access and selection by Gaia-X adopters and consistency of the compliance data managed by these nodes.

The Gaia-X Digital Clearing Houses (GXDCH)



Meet our Clearing Houses



GXDCH by
Aire Networks

VISIT WEBSITE

CONTACT



GXDCH by
ARSYS

VISIT WEBSITE

CONTACT



GXDCH by
ARUBA

VISIT WEBSITE

CONTACT



GXDCH by
CISPE

VISIT WEBSITE

CONTACT



GXDCH by
deltaDAO

VISIT WEBSITE

CONTACT



GXDCH by
Neusta aerospace

VISIT WEBSITE

CONTACT



GXDCH by
NTT DATA

VISIT WEBSITE

CONTACT



GXDCH by
OVHcloud

VISIT WEBSITE

CONTACT



GXDCH by
Pfalzkom

VISIT WEBSITE

CONTACT



GXDCH by
Proximus

VISIT WEBSITE

CONTACT



GXDCH by
T-Systems

VISIT WEBSITE

CONTACT



INTERACTIVE

Endorsement Programme

The Gaia-X Endorsement Programme is your gateway to becoming a recognized leader in the Gaia-X community and in the world of Data Spaces. By joining, your project will be at the forefront of adopting Gaia-X principles, gaining visibility, credibility, and access to exclusive resources and networks. With four tailored levels of endorsement, the programme is designed to support projects at all stages of maturity, from early-stage innovators to established leaders.

Lighthouse Data Spaces

Gaia-X Lighthouse Data Spaces represent an exemplary level of alignment with Gaia-X principles and standards, signifying a distinguished commitment to advancing digital sovereignty and European value creation. Only Gaia-X Lighthouse Projects have the privilege to submit a request to Gaia-X Association for endorsement as Lighthouse Data Spaces.

Lighthouse Projects

These projects aim to create a data exchange platform built on transparency, trust, and openness. They target multiple industries, such as Agriculture, Mobility and Manufacturing, to name a few. These projects will help us bring and create a coherent data infrastructure ecosystem. These initial business cases are the front-runners implementing the Gaia-X framework that will equally enable a comprehensive pipeline of future lighthouse projects.

Qualified Projects

A Gaia-X Qualified Project designation signifies a project's solid alignment with Gaia-X principles and technical standards, enhancing its standing within the Gaia-X ecosystem. Only Gaia-X members, acting as project coordinators, are eligible to seek this endorsement, highlighting their commitment to nurturing digital sovereignty and European value creation.



Lighthouse Data Spaces

Catena-X
Automotive Network

Automotive Supply Chain
Catena-X

COOPERANTS

Aeronautics, Space Sector
Cooperants

dynamo

Infrastructure & Technology
Dynamo

PONTUS-X

Manufacturing, Industry 4.0,
AI & Cloud Services
Mobility, Aeronautics & Space,
Agriculture
Pontus-X

Lighthouse Projects

ACCURATE

Manufacturing
Accurate

AgrospAI

Agriculture
AgrospAI

Boot-X

Infrastructure & Technology
Boot-X

DATASPACE 4HEALTH LUXEMBOURG

Health
Dataspace4Health

Data4Industry-X

Manufacturing, Industry 4.0
Data4Industry-X

EONA-X

Mobility, Transport & Tourism
EONA-X

energy data-X

Energy
Energy data-X

EuProGigant

Manufacturing, Industry 4.0
EuProGigant

EuroDaT
The European Data Trust

Finance
EuroDaT

Flex4Res
Co-funded by the European Union

Manufacturing
Flex4Res

gaia-x future mobility

Mobility & Transport
Gaia-X4 Future Mobility

HEALTH-X dataLOFT

Health
HEALTH-X dataLOFT

InfraDS

Cloud Services
Infrastructures Data Space (InfraDS)

Mobility Data Space

Mobility
Mobility Data Space (MDS)

omega-x

Energy
Omega-X

PROMETHEUS-X

Education
PROMETHEUS-X

Sovereign Cloud Stack

Cloud Services
Sovereign Cloud Stack

SCSN
smart connected supplier network

Manufacturing
SCSN

Structura-X

Cloud Services
Structura-X

TEAM-X
Trusted Ecosystem of Applied Medical Data eXchange

Health
TEAM-X

Qualified Projects

DIGITAL TER-X 2050

Construction
Digital TER-X 2050

FAIR Data Spaces

Research, Infrastructure & Technology
FAIR Data Spaces

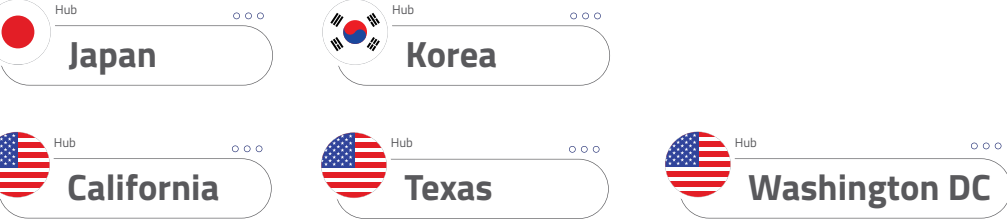
RegenAg-X

Agriculture
RegenAg-X

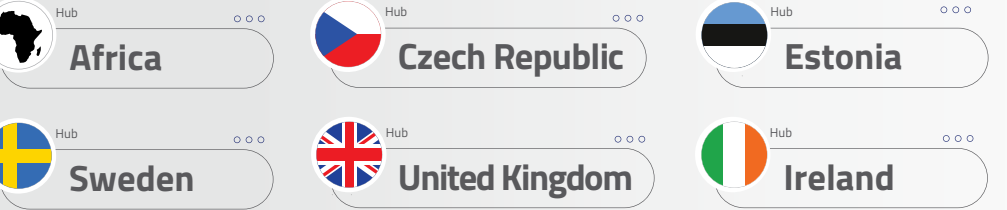
EUROPE 19



INTERNATIONAL 5



IN PROGRESS 6



Gaia-X Hubs

Gaia-X Hubs are the central contact points for interested parties in each country. They may be viewed as think tanks and grass root supporters for the Gaia-X project.

The Association and the national Gaia-X Hubs cooperate. Any organisations and companies that work on and with use cases, create expertise and resources, or are interested to become a stakeholder and create data spaces, are welcome to join the Gaia-X Hub.

Gaia-X hubs have several objectives. Amongst these are:

- Act as a local ambassador for Gaia-X
- Identify territory specific needs and high priority data spaces
- Collaborate with other hubs to develop globally interoperable Data Spaces
- Make Gaia-X real identifying projects and creating Gaia-X services in the market
- Help local governments implementing the Recovery and Resilient Facility (RRF) in the most effective way adopting Gaia-X solutions
- Attract the participation of new members in the association
- Provide feedbacks on specific needs and requirement to be implemented in the Gaia-X Framework



Members Benefits

Cloud Service & IT providers, Research Institutions, Start-ups, End -users, Associations & Logo member ¹ can benefit from Gaia-X in many ways. Here you will find an overview of benefits that apply to you.

Business & Organisational	
1	Invitation to the BoD Meeting shaping the Annual Strategy ²
2	Invitation to BoD VIP Networking Dinners
3	Quarterly CxO calls based on your needs
4	Make use of endorsement letters for EU funding, boosting the probability of successfully receiving it
5	Become a Gaia-X endorsed project for higher visibility and cross-collaboration possibilities
6	Participate in Gaia-X working groups/ sprints, and contribute to the development of the standard
7	Networking opportunities for collaborating on tenders and encouraging partnerships
8	Positive reputation on the market
9	New business opportunities for providing IT support
10	New opportunities for providing governance support
11	Distribute RfIs/ RfPs across members
12	Political insight via the Governmental Advisory Board
13	Capitalising on the value of data
Technological	
1	Contribute to technical specifications via WGs
2	Opportunities to become a Gaia-X Evangelist
3	Opportunities to become a Gaia-X Certified Expert
4	Access to all Gaia-X Academy courses, alongside certificates
5	Provide requirements and input to Gaia-X Academy courses and curricular
6	Logos on the repository source code
7	Tech Helpline
8	Opportunities to become a GXDCH
9	Provide technological requirements to the Gaia-X community
10	Headstart to all releases (Documentation and SW)

Marketing & Communications	
1	News release announcing membership (Website, Members Newsletter, Social Media)
2	Organisation profile added to the Members Directory on Gaia-X Website
3	Exclusive one-on-one meetings with Gaia-X CxOs, available upon request, at the Gaia-X Annual Summit and flagship events (Market-X and Tech-X)
4	Speaking opportunity at the Gaia-X annual Summit and flagship events (all requests to be evaluated and approved by the management team)
5	As a speaker at the Gaia-X Annual Summit, you may be invited to the press conference based on your expertise and contributions to Gaia-X
6	Highlight your event participation through featured statements and quotes in our press releases and across our social media channels
7	Use Case Testimonials featured on the Website, Members' Newsletter, and Social Media in the form of (Brochure, Slides, Podcasts or Videos)
8	Contribute biannually with a featured article in the Gaia-X Magazine
9	Share your activities, news, events, and videos with the Gaia-X Community through our newsletters and social media. Simply email us for seamless dissemination
10	Based on your expertise and contributions to Gaia-X, invitation to a podcast interview. Also proposal of topics for dissemination
11	Free access to Gaia-X Summit and flagship events
12	Discounts on Events Partnerships packages
13	Members webinars, newsletters
14	Curation of contents & documentation under a single members platform
15	Participate in a community of practice, expertise and knowledge transfer, learn and exchange
16	Receive monthly communication on relevant funding opportunities at European and National levels, from basic requirements to evaluation criteria
17	Use Gaia-X Accredited Logo
18	Use Gaia-X Powered Logo
19	Use Gaia-X Member Logo

1. Benefits limited to the use of Gaia-X Member Logo
2. Limited to European Members



Gaia-X

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