



# **TOWARDS A EUROPEAN AI-DATA VALUE ECOSYSTEM**

**BDVA'S RESPONSE TO THE "AI CONTINENT ACTION PLAN"  
POSITION PAPER – JUNE 2025**



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The AI Continent Action Plan provides an ambitious and comprehensive vision to position Europe at the forefront of trustworthy AI development. The launch of InvestAI and the commitment to mobilise €200 billion demonstrate strong political will and strategic foresight. The plan serves as a blueprint and an announcement of intentions that require further information in implementation mechanisms that are crucial for success. **Greater operational clarity, ecosystem awareness and stakeholder engagement strategies are necessary to translate this vision into impactful actions.** The AI Continent Action Plan would, however, benefit from:

- **Stronger integration of AI and data strategies:** The AI Continent Action Plan would benefit from a more integrated approach to AI and data. While the AI Continent Action Plan and the European Data Union Strategy refer to each other, they remain loosely connected and function largely in isolation. Europe should move towards a unified AI and data Strategy, built on a **cohesive ecosystem perspective**. Key elements, such as data, data spaces, AI factories, Apply AI, talent, computing, and regulatory simplification, should be harmonised within broader **AI–Data value ecosystems**. E.g. European Digital Innovation Hubs (EDIHs) should evolve beyond the suggested AI experience centres into AI–data innovation hubs that help companies not only to adopt AI but also to become data-driven and participate in data spaces. The BDVA i-Spaces<sup>[1]</sup>, many already part of the EDIH network, are a very good example to follow.
- **Emphasising societal and economic impact:** The AI Continent Action Plan should place greater focus on AI's broader impact on society, as well as on economic aspects, competitiveness and prosperity overall. AI is set to reshape work, health, education, and many other core aspects of citizens' lives and organisations. While the strategy rightly addresses trustworthiness, skills, and talent, it lacks a clear societal vision for the AI-driven future that Europe wants to create.
- **Industry co-leadership:** The role of private industry is paramount to the success of the ambitions of the Action Plan. This means strengthening direct involvement of large companies, SMEs, and other sectors in governance, co-investment and priority-setting to ensure alignment with real business needs and market realities. Equally important is matching industry demand with the supply of AI infrastructure, and talent development so companies have the tools they need to innovate and grow.

[1] <https://bdva.eu/what-are-i-spaces/>

- **Addressing the end-to-end AI lifecycle, from lab to market:** The Action Plan attempts to address the full AI lifecycle but faces key limitations, especially in timing, stage transitions versus instruments offered, and the alignment between AI and data. AI Factories represent only one step in the journey. The focus must shift toward cloud-edge deployment and delivering market-ready products and services. Timing is critical: companies need access to AI cloud infrastructure now. A consistent connection to data and data spaces must be ensured, from model development through to the operational deployment of systems, products, and services.
- **Ensuring clarity and usability for businesses:** Simplicity is critical for companies, particularly SMEs, to successfully adopt AI. The AI Continent Action Plan, however, falls short in this area. While the regulatory simplification measures are a step in the right direction, they are not yet sufficient. Additionally, the introduction of new instruments, such as data labs, risks creating confusion and slowing down adoption rather than accelerating it. BDVA puts forward some concrete recommendations to make it more accessible and effective.

The Action Plan would also gain impact from defining clear sector priorities or specific missions to guide delivery and outcomes, from looking at the **international dimension** (essential for scaling impact) and from a **sustainable and coordinated implementation** as success depends on consistent policy and faster foundational processes, including streamlined calls and better collaboration between the European Commission, Member States and communities.

## **Call to Action. Role of BDVA**

BDVA is a European non-profit association with over 250 members from industry (including SMEs, startups, and large companies), research, academia, and the public sector, all united by a mission to create value for society and industry through data and AI innovation. The AI Continent Action Plan and the European Data Strategy are central to BDVA's mission and objectives. As a private member of the EuroHPC JU, BDVA actively contributes across all pillars of the Action Plan, from infrastructure and data to applied AI, talent development, and regulatory implementation. This position paper reflects the consolidated input of the community, gathered through targeted workshops, task forces, and expert consultations.

In the following sections, we provide comments on each pillar of the Action Plan, acknowledging strengths, identifying key gaps and opportunities, and offering concrete suggestions for improvement. BDVA stands ready to support the European Commission, Joint Undertakings, Member States, and other partners in turning this ambitious plan into tangible outcomes. **Strong, structured collaboration with community-driven initiatives like BDVA will be essential to ensuring impact on the ground.**

## **Computing infrastructure (AI factories, AI Gigafactories, Cloud and AI development Act)**

Europe's AI Factories and Gigafactories establish necessary computing capacity and infrastructure for Europe. It is a coherent and future-focused approach and offers researchers and startups home-grown computation and helps keep critical workloads under EU law. There are, however, risks, and important considerations that should be addressed and considered:

- While the ambition is noteworthy, particularly in matching global competitors, the plan risks becoming skewed toward hardware investments without a **parallel investment in value ecosystems, data spaces and ecosystems, applied research, and SME support structures** needed to take advantage of this infrastructure.
- This pillar could improve in clarity on governance, sustainability, and equitable access. Additional discussion about how these infrastructures will be operated, who will manage user access, and how public investments will be tied to societal returns is needed. The EU could establish **public dashboards** to track usage and dataset contributions and requiring **private co-investment or financial return** for every euro of public funding are all mechanisms that could enhance impact.
- The plan doesn't fully account for the **risk of failing to serve research institutions and SMEs due to complex administrative processes or lack of operational readiness**. There is a need to create streamlined pathways for small and medium enterprises to leverage these resources with minimal administrative barriers (**SME-accessible infrastructure**).
- A **focus** should be given to **high-potential start-ups, and high-tech/research SMEs** can leverage such infrastructure, build high-impact solutions, that can commercialise rapidly.

As a private member of the EuroHPC JU, and with many of its members actively involved in the AI Factories and in the Gigafactories expressions of interest, BDVA stands ready to contribute to their success. BDVA can help ensure these infrastructures are embedded within the broader data and AI ecosystem, and support networking, collaboration, and user engagement efforts essential for delivering real impact.

## Data for AI

The “Data for AI” pillar provides a strong foundation for Europe’s AI ambitions, highlighting the importance of facilitating the access to trusted and well-organised data in order to unlock the full potential of AI in Europe. This pillar rightly captures some of the essential needs to share and use data across sectors and borders, introduces the “Data Union Strategy” as the response to these needs, leverages on relevant existing data driven initiatives, and introduces a new instrument, the Data Labs, to ensure the access from AI Factories users to, and the sharing of, large volumes of high-quality data. However, there are some gaps, considerations and opportunities worth considering:

- The preview of the “Data Union Strategy” is largely focused on governance aspects of the EU data ecosystem (such as data interoperability, confidentiality, and integrity) but gives limited **attention to incentives for potential data providers** (including content creators). **It lacks references to the economic dimension**, including viable business models and the financial sustainability of key stakeholders. Without addressing these elements, the strategy may face challenges in achieving full implementation.
- While high-quality data is important for AI, an even more critical first step is **ensuring the data is appropriate and valuable for its specific AI-driven purpose** (focusing on the right data, not just the highest quality data). So new mechanisms to identify and mobilise more data appropriate for AI applications are needed. To demonstrate real value, we recommend starting with priority use cases identified by the data holders themselves, using their data in secure, legally controlled environments. This would also include appropriate tools to benchmark the value and quality of data.
- Additionally, in order to further promote data sharing and streamline cross-sector and cross-border data exchange, and ultimately facilitate the connection with Data Labs, **data spaces should evolve** in close collaboration with industry, but also research and innovation communities, focused on building the expertise and governance required to make them **truly interoperable**. In this way, the pillar should also consider streamlined cross-border data exchange frameworks.

- Although interoperability and trustworthiness are considered as key pillars of the Data Union Strategy, there is no mention to current **European efforts on standardisation** on these fields, like those responding to the standardisation request of the European Commission to implement the Data Act (and in particular its article 33), that will result on a set of harmonised European standards on Trusted Data Transactions.
- Current regulations, like GDPR, copyrights law and sector-specific rules, are often perceived as **barriers to innovation** due to its complexity, **rather than safeguards**. In some cases, existing regulation is perceived not to be enough. It is the case of current copyright law not adequately protecting the rights of content creators with respect to generative AI. Or in the case of emerging scenarios where multiple datasets from data products with different obligations, access and usage policies, licenses, etc will undergo many transformation processes. These situations would benefit from greater regulatory interoperability. The initiative to streamline legislation under the European Data Union is expected to help address these challenges.
- The pillar should also recognise the **importance of synthetic data**, particularly for data augmentation during AI model preparation. At the same time, it should address the reverse use case, where AI is employed to generate synthetic data for specific purposes. In both cases, ensuring privacy and regulatory compliance is critical. We strongly recommend developing a **comprehensive framework to govern synthetic data generation and use**.

BDVA is committed to offering its guidance, support and community knowledge to strengthen the implementation of the Data for AI pillar of the AI continent Action Plan, and to bring data and AI ecosystem efforts together.

## Data Labs

BDVA welcomes the inclusion in the Action Plan of elements that intend to address the challenges identified by our community in the BDVA discussion paper **"AI Factories and the Data Challenge"**<sup>[2]</sup>. We acknowledge that the term Data Lab lacks clarity and, for many, overlaps with existing data space efforts, an issue that needs to be addressed. The Action Plan currently offers only a preliminary overview of what the Data Labs will entail, but some key considerations have already emerged. The following points summarise these initial insights, which are extended and further explored in an Annex to this paper:

- The core concept of Data Labs brings with it a range of technical, operational, governance and regulatory challenges, resulting from their intended role: to aggregate data from multiple providers (each with varying access conditions, usage rights, licenses, data models, and quality standards) and to pool, curate, and prepare that data for use by AI practitioners. The required new architecture poses significant challenges mostly about data sovereignty, security and performance.
- The interplay between data providers, data spaces, data labs, AI Factories and AI practitioners deserves a comprehensive explanation that delimits competences, roles, service offerings and responsibilities, in order to avoid overlapping and duplications, foster synergies and ensure seamless collaboration in order to effectively break data silos. This should also clarify how the role of data intermediation services providers impacts the Data Labs.
- The inclusion of Data Labs in the AI factories should come up with a plan that addresses the different needs of all stakeholders and include incentives (monetary or of other type) to all actors in the value chain, under creative and novel business models that also guarantee the sustainability of the whole ecosystem. including what funding mechanisms for Data Labs are envisioned.
- Existing regulations provide key principles and provisions to facilitate secure and trustworthy interactions between data holders and data users, which constitutes a strong basis to build upon in the context of the AI Continent Action Plan. However, as Data Labs enable new forms of connectivity between diverse actors, there is a growing need to ensure that regulation can keep pace with these complex, edge-case scenarios, without introducing further complexity.

## Development of algorithms and adoption

The Development of Algorithms and Adoption pillar focuses on accelerating the uptake of AI across strategic sectors and public services with the objective that AI outcomes delivered bring tangible benefits across society and economy. The development, testing and integration of AI solutions is at the core of this pillar, and we welcome the focus on innovation ecosystems and the link of research to the market, in full alignment with BDVA's perspective. However, there are some gaps, considerations and opportunities worth taking into account for this pillar:

- **Missing strategic sectors and other sectoral considerations:** the strategy focuses on areas where Europe is strong (advanced manufacturing, aerospace, agri-food, health, defense, etc.) instead of vague "AI for all" slogans, however:
  - o It does not include strategic sectors in Europe such as Tourism<sup>[3]</sup> and it does not clearly consider the value of AI in supporting public infrastructure, such as mobility systems and communication networks.
  - o Each sector has specific needs and constraints and practical alignment with end-user requirements is essential to drive AI adoption. Clearer rules on allocation and long-term sustainability are needed, especially in relation to coordination across funding programmes and HEP clusters.
  - o The plan also overlooks how to accelerate algorithm adoption in fragmented sectoral value chains. We recommend supporting targeted initiatives for AI in sustainable ecosystems, ensuring full participation across entire value chains.
- **Amount, timing and type of incentives:** There is a need for **sharper incentives** and simpler delivery otherwise the impact of the program could be compromised reaching and benefiting just a limited number of companies. Similar instruments to the COVID Digital Innovation vouchers where one-page application was enough for a decision taken in two weeks would be of strong value.

[3]According to the European Parliament sources the EU's core tourism industry, comprising traditional holiday and tourism service providers, consists of 2.3 million businesses, mainly small and medium-sized enterprises (SMEs), employing approximately 12.3 million people. Contributing 10% of the EU's GDP, tourism is a vital economic driver, significantly impacting growth, employment and social development, which makes it a valuable asset in addressing economic downturns and unemployment. Source: <https://www.europarl.europa.eu/factsheets/en/sheet/126/tourism>

Another idea is to offer SMEs 5-10K€ vouchers to buy AI proof-of-concept from accredited providers, redeemable at hubs and having a slice on factories computing for Apply AI pilots, so firms see clear benefit. The number of investments over three years across 27 states and a dozen sectors is also very modest. Timing is also very important as SMEs need support now otherwise Europe will lose competitiveness thus impacting the market and economy.

- **Transformation of EDIHs:** The plan does not address how the current EDIHs will be transformed into effective “Experience Centres for AI”; Hubs must now train staff on AI, run sandboxes and broker GPUs, a big change from their current role. Additionally, and as highlighted in the executive summary, the EDIHs should evolve beyond the suggested AI experience centres into AI-data innovation hubs that help companies not only to adopt AI but also to become data-driven and participate in data spaces. The **BDVA i-Spaces**<sup>[4]</sup>, many already part of the EDIH network, are a very good example to follow.
- **Governance of instruments:** BDVA very much welcomes the plan to bring all existing instruments into a cooperation scheme (projects, TEFs, companies, AI Factories, EDIHs, etc). However, it remains **unclear how these initiatives will be governed, sustainably funded, or coordinated among them and across regions and sectors**. One of the key pillars for AI adoption success is access to data that is insufficiently covered.
- **Sustainability, scalable and purposeful European AI:** Not much is said about sustainability or long-term scaling strategies for algorithms beyond pilot projects. In this context this pillar would benefit from connecting AI development directly to addressing Europe's most significant challenges, giving new meaning to European innovation and to real-world use cases and sector-specific challenges. Additionally, AI and AI systems developed in the EU should be ready to be exported to other countries.

[4] <https://bdva.eu/what-are-i-spaces/>

## AI for Science

The use of AI in the sciences is transforming the way we perform science. The awarded Nobel prizes this year in physics and chemistry are illustrative for the scientific breakthrough enabled by AI. Further advances in core AI technology is expected to further accelerate this trend that has the potential to significantly accelerate scientific research for all scientific disciplines. These are likely to lead to (disruptive) scientific breakthroughs discovery beyond the reach of conventional methods. At the same time, there are serious concerns with using AI in the sciences including evaluation, and reproducibility that touch upon the core of the scientific method for knowledge acquisition. Likewise, the raise of AI creates an increased dependency on data, compute, algorithms and expertise limiting the ability to perform research at the frontiers of science to those that have access to these resources. To ensure that Europe remains at the forefront of research and innovation and to safeguard future social-economic prosperity and the European way of living, it is of paramount importance to take measure of the eminent metamorphosis of the scientific process and the consequences it entails in terms of Europe's capacity to perform cutting-edge scientific research.

BDVA acknowledges the impact of the ongoing transformation and very much welcomes the European focus on AI for Science as part of the AI Continent Action Plan in the larger framework of European competitiveness and value creation for industry and society. From this perspective we would like to offer the following considerations leveraging the key priorities and strengths of the association.

- **The innovation gap and sustainable value creation:** AI for science can help us to accelerate scientific discovery and address difficult challenges, but it is equally important to move this knowledge into sustainable value for companies, public sector and society. The innovation gap that already exists in Europe needs to be urgently addressed or it has the risk of becoming ever bigger. Research – industry collaboration remains relevant in the AI for Science and we need to invest in **new ways for collaboration that bring together scientists, the cutting edge Start-ups and the more traditional companies and public sector:** how the enquiry can be already connected to solving issues that the industrial players in any sector (new material materials, manufacturing processes, healthcare, agriculture, mobility, media, space etc).
- **Industrial data and AI for Science:** Advancing AI for Science may require more than data access when talking about industrial or business private data; it demands collaboration between data-holding organisations and scientists. Focus should be on data that is relevant and valuable for specific AI uses and scientific needs, not just high quality. Starting with use cases defined by data holders, in secure environments, is key. Scientists must actively engage with data spaces and data ecosystems as part of broader AI-data value ecosystems.
- **For AI-enabled Science** it is essential to **develop robust frameworks to critically evaluate the performance of LLMs and AI models for ensuring human centricity in AI systems.** The core argument is that AI and LLMs inherently carry biases, as these are embedded in the data used during training. We can only approve their functionality if we have **robust frameworks to critically evaluate** their performance. Evaluation itself is a complex task involving design considerations and human-in-the-loop processes. We need to support the scientific and cross-disciplinary networks collaboration to develop this AI-driven methodology and giving then the opportunity to share at build the new methods at European level.

## Talent and skills for AI

The **skills and talent** pillar of the AI Continent Action Plan is essential for unlocking AI's potential to drive innovation, competitiveness, and social good. It should focus on building an inclusive and adaptive talent ecosystem that meets short-, medium-, and long-term needs through enhanced expertise, digital literacy, and strategic reskilling and upskilling. Key considerations, gaps, and opportunities include:

- Currently, there is no **common definition or structured terminology for AI talent**. The full spectrum of AI roles needs to be better defined and articulated. More specific guidance in this area is needed. Clear **profiling and categorisation of AI talent** are essential to align priorities across stakeholders, avoid duplication of efforts, and prevent misaligned expectations. It is important to distinguish between different types of talent such as AI researchers, AI developers, expert users, and general users.
- **Data skills** must be at the core of AI talent development. All profiles across the data-AI value chain—such as data engineers, data stewards, and data scientists—should be explicitly integrated into the Skills and Talent pillar.
- Greater support is needed for **interdisciplinary education that combines AI with domain-specific expertise**, such as healthcare, energy, and manufacturing. **Critical thinking and soft skills**—essential for building trustworthy AI—should be considered alongside **technical and regulatory training**.
- Emphasis should also be placed on the **quality, and recognition of AI education and training**. This will ensure that skills are recognised across EU countries and sectors, enabling better mobility and matching talent with labor market needs.
- The demands from the Apply AI and AI Continent Action Plan are not sufficiently coupled with long-term STEM and AI education investments. To meet urgent talent needs, emphasising aspects covered in the Action Plan, priority must be given to short- and medium-term **upskilling and reskilling of current workers** and new labor market entrants, as expanding traditional education alone will not satisfy industry demand.
- **Educating company and HR managers:** Rapid changes in required skills make it hard for companies to identify what talent they need and communicate this to training providers. This gap weakens AI talent investments, as companies struggle to build an investment case without clear direction.

- **From capabilities to strategic opportunities:** Beyond building AI-specific skills, Europe has key opportunities to:
  - Train supervisors and workers to collaborate effectively with AI systems (**Agent Management Competencies**).
  - Develop uniquely European models for organisations that evolve continuously through human-AI collaboration (**Learning Organisation Models**) and focus on building adaptive organisations and profiles.
  - Explore how AI can create meaningful new work and roles as traditional jobs change or disappear (**Meaning Creation**).
- **Focusing on women and career transitions:** Supporting women, returnship programs, and career changers—including in leadership roles—can tap into valuable talent pools and significantly boost AI development capacity
- **Role of EDIHs:** European Digital Innovation Hubs (EDIHs) are positioned in the plan as important training providers, but the plan lacks guidance on funding (public or private) and quality standards. Their role should focus on identifying demand and providing access to qualified providers but are themselves not likely to fully cover reskilling and upskilling needs.
- **Investing in trainers:** The current focus is mainly on learners, yet there is a shortage of qualified trainers and educators. Enhancing collaboration between academia and industry, and developing independent, up-to-date curricula are essential to strengthen the training pipeline.
- **Avoiding vendor lock-in:** The public sector must play a role in harmonising training to prevent vendor lock-in, where talent is trained only on specific company products. Openness and skill transferability across platforms should be promoted.
- **Retention of top talent:** Many of the mechanisms proposed offer alternative pipelines of talent in demand, particularly in reference to returning experts from US and available profiles from India through gateways – but there needs to also be an effort to ensure the continued retention through access to world-class research opportunities and longer-term integration into the EU talent pool.

## Regulatory simplification

The emphasis on effective implementation of the AI Act is strongly welcomed. The creation of the AI Office help desk is a step in the right direction. Centralised support is clearly preferable to 27 fragmented access points. However, without sufficient capacity, local language support, and tailored guidance for SMEs, this initiative risks not having the desired impact. Other relevant aspects to consider:

• **Prioritise urgent needs:** Most measures in the Action Plan build on existing efforts. To make real progress, urgent needs must be identified and addressed through fast-track mechanisms with clear timelines and responsibilities.

- **Clarify regulatory landscape:** For companies, in particular SMEs, navigating the regulatory environment remains challenging due to the complexity and overlap of rules, not only in AI and data but also across sector-specific frameworks such as health, mobility, and manufacturing. This fragmentation slows down compliance and increases uncertainty. The Action Plan should take concrete steps to streamline and coordinate regulatory evaluation across AI, data, and sectoral regulations, offering clear and practical guidance for integrated compliance. It is also essential to raise awareness and provide targeted training for SMEs, clarifying that most will not fall under the strictest obligations of the AI Act. Finally, companies still face duplicative administrative requirements across EU and national levels, with little coordination.
- **Enable practical implementation:** The current approach is too top-down and lacks practical tools for implementation. Regulatory simplification must not result in rewording burdens, it must actively reduce them through standardised tools, templates, and local support services. Without this, help desks risk offering generic advice that fails to address real deployment challenges.
- **Mobilise and empower communities:** Many communities are already working to support the AI Act implementation. For example, BDVA's Task Force etami (ethical AI and machine intelligence) brings together industry and academia to co-develop tools, share insights, and tackle compliance challenges. However, isolated initiatives, whether community-driven or institutional, struggle to generate sufficient impact on their own. We recommend that the EC and its AI Pact initiative actively collaborate with bottom-up efforts such as BDVA etami, the Trustworthy AI Foundation, European funded projects and national and regional industrial AI initiatives to co-create common measures and standardised solutions that can scale.



# **ANNEX**

**ANNEX: DATA LABS. CHALLENGES AND RECOMMENDATIONS**

## **Annex: Data Labs. Challenges and recommendations**

After the EC published its AI Innovation Package in July 2024 where AI Factories were introduced, BDVA identified the access of these new instruments to the massive amount of high quality data they would need to accomplish their objectives as a key challenge that included many aspects, that were considered and discussed by BDVA community, and finally reflected in this document: <https://bdva.eu/blog/ai-factories-and-the-data-challenge/>. Within this document, data spaces are identified as instruments to support this access from AI Factories to data, though significant additional challenges remain to be addressed.

The “Data for AI” pillar of the new AI Continent Action Plan rightly addresses these challenges by incorporating a new instrument, the Data Labs, to ensure that AI developers have access to large volumes of high-quality data in different sectors. By integrating both data and AI value chains, Data Labs help bridge the “last mile” of data preparation, playing a vital role in aligning data with AI development needs. As such, they are essential to enabling “AI-ready data” and are crucial to the functioning of AI Factories.

Therefore, BDVA welcomes the inclusion of elements that help to address many of the challenges identified in our discussions and outlined in the previously referenced paper. In this sense, Data Labs and data spaces can complement each other, and their respective solutions and services can be combined for the sake of the final objective. Data Labs would provide a light weight and flexible environment to facilitate, in the short term, access to data (through data spaces or other mechanisms) and preparation for its use by AI applications.

However, this interplay also introduces certain ambiguities and additional challenges, which we explore in the next section, before offering recommendations to help ensure the effective coordination of all instruments involved.

## Challenges

The core concept of Data Labs brings with it a range of technical, operational, and governance challenges, resulting from their intended role: to aggregate data from multiple providers (each with varying access conditions, usage rights, licenses, data models, and quality standards) and to pool, curate, and prepare that data for use by AI practitioners. Many of these challenges are outlined in our paper “AI Factories and the Data Challenge”. This section highlights additional, less explicitly discussed challenges that we believe are equally critical to address for the success of Data Labs:

- Data Labs are expected to combine the value chain of data and AI, hence involve different types of data providers and AI practitioners. Combining both dimensions and views presents a significant challenge, as they operate under different constraints, have distinct requirements and objectives, and often rely on differing terminologies, methodologies, and perspectives.
- We expect that further information about Data Labs will be provided, but for now, there is some unclarity regarding the architecture of Data Labs, including their degree of federation, proximity to data facilities, and storage capacities, which are all critical factors that will influence their intended simplicity and flexibility.
- As mentioned in the introduction, there is broad agreement that additional capabilities are needed to connect large AI models with the vast amounts of data they require. These capabilities are expected to be delivered through a set of services that are, in principle, the scope of the Data Labs. However, the boundaries, differences, complementarities and connections between these new instruments and other existing ones, like data spaces, remain unclear. It is also uncertain how their respective service offerings will align, and how Data Labs will be organised, governed and sustained over time.

- From what has been published, Data Labs involve creating large, centralised pools of data (although balanced with their federated and domain driven approach) to ensure high-capacity, high-performance access from AI Factories, and ideally located close to their computing infrastructure. This represents a shift from the data spaces approach, where data remains under the control of individual providers. This new architecture introduces different challenges, particularly regarding data sovereignty and performance.
- AI models need data through their entire lifecycle, and not only at the stages covered by the AI Factories (model development and training). Data Labs seem to focus on covering just the needs of AI Factories.
- Traditionally, European HPC infrastructures have primarily served research and scientific communities, with limited uptake by industry. This has been due to a combination of low awareness, insufficient incentives, and various technical and organisational barriers. Similarly, the deployment of European Data Spaces is facing reluctance from potential data providers, particularly in the private sector, who are often concerned about data sovereignty, competitive risk, and unclear value propositions. These factors contribute to a broader challenge: the limited engagement of key actors in the overall data-AI value ecosystem.
- The interplay between data providers, data ecosystems, data labs and AI Factories involves many stages in the data flow, that include processing, enrichment, pooling and other transformations. How to ensure compliance, maintain rights of the data holder, respect IP and copyright, etc ... through all steps but mostly about the output data, is not fully solved. While existing regulations provide a foundational framework, they may fall short in addressing edge cases and the evolving needs of AI development, where data is continuously reused or combined in novel ways.
- Finally, a critical factor for ensuring the long-term sustainability of the ecosystem is the development of a clear business model that considers all actors across the data and AI value chain. This remains a complex challenge, as evidenced by the ongoing difficulties in establishing viable models within the European Data Spaces

## Recommendations

To address the previous challenges, we provide the following recommendations:

- More clarity is needed regarding the complementarity between Data Labs and European Data Spaces. Clear delineation of roles is essential to avoid overlapping services, redundant data storage, and inefficiencies. Similarly, the relationship between Data Labs and AI Factories must be operationalised, by defining how they interact, support each other, and fit into a cohesive ecosystem view. This will ensure that Data Labs can be implemented in a timely and coherent manner, aligned with broader strategic goals.
- As an example of this complementarity, data spaces can benefit from the storage capacities of Data Labs, particularly in those cases where data providers lack the necessary storage resources to make data available to potential data users. A multi-tenant set-up, with storage capacities close to AI Factories, could support this need, while ensuring data providers retain full control of their data.
- Although focused on the data value chain, Data Labs should be designed considering needs from AI communities, and according to the language, tools, and interfaces familiar to them. This alignment is essential to attract practitioners and lower the barriers to adoption
- “AI-ready data” in Data Labs should go all the way from the models to the operational deployed applications. This approach would lead to virtuous learning cycles, where AI applications can continuously improve through a feedback loop, moving beyond one-direction data flow (training → algorithm → purpose) towards interactive systems where AI can dynamically access, generate, and refine data (system approach to data).
- It is key to incentive participation, particularly from AI companies and data providers. This requires a thoughtful approach with legal and trust frameworks to reduce perceived risks, clarify data usage rights, and define the roles and responsibilities of all parties across the data lifecycle. These mechanisms are fundamental to creating a secure and trustworthy environment that fosters collaboration

- Complementing the previous point, it is important to clearly define the customer journey, recognising the diversity of user profiles and use cases. Mapping out how different actors interact with the Data Labs will help to identify key points and to streamline the connection with other instruments.
- In parallel to the previous points, it is crucial to articulate a value proposition and a viable business model that considers all stakeholders, mostly data providers and AI developers, but also infrastructure operators and service providers. This includes addressing long-term sustainability, ensuring that economic models are in place to support ongoing operations and future evolution.
- In order to show how all the above is orchestrated under viable sustainability models, it would be interesting to identify flagship AI driven use cases, that reflect real world needs, and that serve as reference implementations for scale-up
- BDVA i-Spaces are consolidated ecosystems that bring together processing and storage infrastructure, access to data, data and AI driven services, and connection with relevant stakeholders in their respective regions. Many are already integrated into European Data Spaces, AI Factories, or both. Given their similar profile to Data Labs, BDVA i-Spaces are well positioned to support AI Factories in accessing data and connecting with data spaces.
- Additionally, a structured set of best practices and recommendations should be developed, drawn from these use cases, and incorporating stakeholder feedback. These will provide valuable guidance and help standardise approaches
- Finally, funding mechanisms for Data Labs should be clearly articulated.



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