AI-hub East Netherlands

Data and AI infrastructure in East Netherlands

AI HUB Oost-Nederland

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Introduction

In 2025, Radboud AI and AI-hub East Netherlands jointly organized the strategic roundtable “AI Factories & the Need for Expertise in East Netherlands”.

Researchers, start-ups, industry leaders, and data infrastructure providers gathered at Radboud University to explore how East Netherlands region can position itself within the rapidly evolving European landscape of data- and AI-related technological infrastructure, including emerging AI Factories.

The strategic roundtable served as an initial exploration of regional needs, available expertise, and opportunities for collaboration. The discussions not only revealed shared ambitions but also several structural challenges that need to be addressed to ensure that East Netherlands continues to play a leading role in the whirlwinds of this evolving AI ecosystem. The present whitepaper not only summarizes the key insights from these discussions, but also reflects on their broader implications for the positioning of East Netherlands. Building on this reflection, a synthesis of recurring themes and considerations is provided as a starting point of further exploration and collaboration on data and AI infrastructure in the region.

The European Momentum

Across Europe, (announced) large-scale investments in AI and technological infrastructure are accelerating. The AI Continent Action Plan outlines Europe’s ambition to become a global leader in human-centered AI, while recognizing that this requires a solid technological foundation, including the development of AI Factories, computing facilities, and shared data infrastructures.

Complementary initiatives such as the European High Performance Computing Joint Undertaking (EuroHPC JU), Important Projects of Common European Interest (IPCEIs), and the European Strategy on Research and Technology Infrastructures focus on strengthening this underlying infrastructure. Together, these efforts aim to enhance Europe’s technological sovereignty, reduce dependence on non-European cloud providers, and enable secure cross-border collaboration.

National Context

At the national level, the Netherlands is home to strong computing facilities such as SURF/Snellius, which provides access to national high-performance computing (HPC) resources. Recently, the announcement of a new AI Factory in Groningen marked another significant step: combining an expertise center with extensive data and computing infrastructure to support research, innovation, and industrial development.

East Netherlands already has a diverse and mature AI ecosystem, built around its strong mix in universities, applied research institutes, high-tech industry, and data infrastructure providers. While this provides a solid foundation for innovation, several key questions remain.

- What are our own (future) needs in terms of computing infrastructure?
- What is the unique position in this field and expertise of our region?
- How should we position our region within these European ambitions, and what expertise, infrastructure, skills and partnerships are needed to make this a reality?

The strategic roundtable brought together multiple perspectives for an initial exploration of these questions.

Summary of key perspectives

Research and Development

Dr. Faegheh Hasibi discussed how the type of research conducted at Radboud University is exceptionally compute-intensive, making it more dependent than other institutes on reliable, large-scale computing infrastructure. Notably, Radboud University already has substantial computing infrastructure available; however, for many compute-intensive research projects this is not sufficient, meaning researchers must rely on external facilities such as the national supercomputer Snellius operated by SURF, and are therefore dependent on third-party availability and access conditions.

While SURF also supports pathways to international facilities, such as the LUMI supercomputer in Finland, several practical bottlenecks remain when accessing these structures, which were also acknowledged by dr. Marijn Martens (Synaptica).

First, reliability and availability are structural bottlenecks. For time-sensitive research projects, interruptions due to maintenance or downtime are highly disruptive. Second, accessibility is another key issue. Other national and international resources are tied to specific grants or temporary consortium projects, which makes it difficult to plan or scale research effectively. This not only constrains the ability to allocate resources efficiently but also limits opportunities for students to gain hands-on experience with high-performance computing, let alone to contribute to projects which rely on these resources. Many research efforts depend on the active involvement and training of students. These bottlenecks can cause substantial delays in analyses and long-term research continuity, therefore hindering scientific progress.

Together, these challenges demonstrate how access to computing infrastructure is multi-dimensional, emphasizing the need for centralized, long-term coordination mechanisms to support continuous access to computing infrastructure, data, and expertise. Drawing parallels with large-scale collaborative models such as CERN or Nikhef, dr. Hasibi suggested that a similar structure for AI could truly position Europe in human-centered AI research.

Key challenge: Unreliable and fragmented access to high-end GPU computing and technological infrastructure.
Key opportunity: Establishing a centralized, long-term coordination mechanism for pooling expertise and resources.

Start-ups

Dr. Martens put forward the perspective from startups, representing not only Synaptica but also others based at Mercator Launch (Bronscode, Spacecific, Saddlepoint, Picard, Morfics, Zatoona). Startups typically operate under tight financial constraints, with a need for low recurring costs and predictable access to computing resources.

In practice, on-demand cloud computing is relatively expensive, while grant-based funding for infrastructure is difficult to obtain and often too inflexible to align with the fast pace of early-stage innovation. Therefore, startups frequently invest in their own hardware, often located in office spaces that are not designed for this purpose, leading to issues with cooling, noise, safety and energy efficiency. Another disadvantage is that hardware quickly becomes outdated as new technologies emerge, meaning that systems may lose both value and relative performance within a relatively short time.

Furthermore, restricted access to sufficient computing power forces teams to spend a disproportionate amount of time on code optimization to make models run within their available hardware limits. While this can improve efficiency in the long term, it slows down innovation and extends development cycle.

Consequently, dr. Martens argued for a shared local facility where startups could set up and maintain their own hardware within a properly equipped environment, without facing the high costs of commercial data centers. A satellite AI Factory linked to an incubator could provide such a shared infrastructure while allowing startups to maintain control of their own systems at relatively low costs. In turn, this could increase the regional attractiveness of incubators and stimulate AI innovation and entrepreneurship in Eastern Netherlands. Furthermore, these could serve as a steppingstone for start-ups to later connect with national or European-scale AI factories, bridging the gap between regional and continental infrastructure.

Key challenge: High costs and limited access to suitable computing environments for start-ups.
Key opportunity: Creation of regional satellite AI factories at incubators.

Industry

Marcel Rijnsburger from NXP Semiconductors presented the industry perspective, highlighting how AI is rapidly moving to become an integral part of our everyday life. He illustrated a paradigm shift in which humans are no longer in the loop but increasingly on the loop, supervising, rather than directly steering, autonomous AI systems.

Looking ahead to 2035, he predicted that over 80% of AI applications will be run on the edge, outside centralized cloud data centers. This evolution will bring far greater performance, energy efficiency, and specialization, embedding AI across all sectors of society.

In this context, AI literacy will be key. Drawing a historical parallel, Rijnsburger compared the coming decade to the centuries it took for general literacy to spread after the invention of the printing press. However, the gap between technological capability and societal adaptation now appears to be the largest in human history. Building broad AI literacy, i.e., within companies, institutions, and among citizens, therefore is of crucial importance.

He also offered a pragmatic reflection on Europe's position: a regional or national AI Factory will never achieve the cost efficiency or scale of hyperscalers (e.g., AWS). Nevertheless, such initiatives are vital to retain control over European values, autonomy, and societal priorities in AI development. As he put it, "People do not fear change, they fear loss." The goal is therefore not to resist technological change, but to decide what must be preserved while embracing innovation.

Key challenge: European and national initiatives are unable to match the scale of US/Chinese hyperscalers.
Key opportunity: Focus on strategic, value-driven AI ecosystems, including AI literacy, rather than cost-based competition.

Data center service providers

Wido Potters opened his perspective by building on the previous perspective: AI factories will never reach the scale of global hyperscalers and therefore should focus on strategic positioning rather than merely computing capacity. Furthermore, looking at the ecosystem in the Netherlands, Potters identified multiple systemic issues that limit innovation capacity.

First, investments in infrastructure are fragmented, spread across multiple programs and funding streams without long-term coordination or a clear national roadmap. This creates inefficiencies and uncertainty for companies and research institutions that depend on continuity. Second, while funding initiatives (e.g., AI factories, IPCEI projects, and regional data infrastructure efforts) share similar objectives, these are poorly aligned. This fragmentation leads to duplication of effort and missed opportunities for synergy.

Furthermore, electricity net congestion and energy availability have become major bottlenecks for existing data infrastructure, let alone for new developments. Aside from the high cost of electricity, data centers increasingly struggle to secure a power supply with sufficient capacity, which threatens both operational continuity and future expansion.

Finally, there is still a limited culture of open collaboration. Too little of the research and technological development in the Netherlands translates into open infrastructure, open-source software, or shared data ecosystems.

To address these challenges, Potters argued for a federated model of AI infrastructure. Rather than building a single, centralized facility, Europe could establish a network of interconnected regional hubs that share resources, data, and governance. This model would also make it possible to develop sustainable, locally integrated infrastructure solutions, for example, by connecting data centers locally with regional heat exchange systems or renewable energy sources to balance energy demand and re-use excess heat. Furthermore, this approach allows local initiatives to focus on their specific strengths while remaining part of a larger, integrated ecosystem. Visibility and accessibility are key to ensuring that research institutions, SMEs, and start-ups can fully participate in and benefit from this network.

Key challenge: Fragmented investments in AI development, infrastructure and incoherent policy alignment.
Key opportunity: Working towards a federated infrastructure model.

Positioning East Netherlands

East Netherlands has a distinctive position within the national and European AI landscape. The region combines world-class universities, applied research institutes, and a strong industrial base, providing a solid foundation for innovation. However, realizing this potential also requires adequate access to the technological infrastructure needed for AI research and development.

Technically speaking, a substantial body of infrastructure and data centers is already available to the region. Decisions on which infrastructure to use depend on multiple factors, including organizational context, workload characteristics, and available resources. For example, while the start-up perspective highlighted during the roundtable referred to the use of locally owned hardware, it should be noted that others primarily rely on cloud-based computing resources. For early-stage companies with high or fluctuating computing demands, (commercial) cloud computing can be more attractive due to its flexibility, pay-as-you-go cost structure, access to state-of-the-art GPU capacity, and the ability to scale experiments without large upfront investments.

When local capacity falls short, national and European facilities can provide additional computing power. However, making optimal use of these resources requires careful strategic allocation, i.e., deciding which workloads are best suited for local systems, national or European facilities, or commercial environments.

At the same time, the allocation of workloads across different infrastructure layers is complicated by coordination, planning, and administrative requirements. While commercial cloud providers often offer low-threshold access models, including credit schemes and integrated tooling, access to national or European facilities is frequently organized through project-based or time-limited programs. While these measures ensure the responsible use of public resources, this does significantly lengthen research and innovation cycles. With AI models becoming larger, and increasingly data-intensive, the limitations of current facilities become increasingly evident, both in terms of capacity and flexibility.

AI ready data is key

Furthermore, the availability, quality and governance of (AI ready) data emerged as equally important factors. In many sectors (e.g. medical, molecular, and industrial applications), the main limitation is not computing power but the availability of reliable, well-annotated data. Without such data, even the most advanced model will not be able to produce meaningful results.

Moreover, data storage and processing increasingly involve questions of location and sovereignty. Placing sensitive data with hyperscalers introduces significant concerns regarding privacy, long-term accessibility, and strategic dependence. This emphasizes the need for secure and ethically governed data ecosystems, of which much expertise is evident in this region.

Balancing what we need and what we have

While emerging funding schemes offer the opportunity to strengthen the technological infrastructure of our region, a key question is: how should this take shape? In this context, the balance between affordability, flexibility, usability and stability is key. However, a hypothetical AI factory would never match the scale or investment of global hyperscalers. If we are unable to complete in terms of money or computing capacity, we must focus on what truly distinguishes our region *("We don't have the money, we don't have the chips, we must collaborate")*.

One opportunity lies in the focus on domain-specific AI models trained on unique, high-quality datasets from sectors such as agrifood, health, chemistry and energy. These fields combine strong local expertise with clear societal relevance, enabling the region to lead in human-centered AI applications. Leveraging distinctive data sources and specialized scientific knowledge, such as physics-, chemistry-, or biology-informed models, would further strengthen this position. In other words, the comparative advantage of East Netherlands could lie in the quality of its data and its expertise, from data acquisition to model training and validation.

Another promising opportunity lies in linking AI innovation to sustainable computing infrastructure. Advances in neuromorphic computing and energy-efficient AI algorithms suggest that certain AI workloads may, over time, require substantially less computing power and, in some cases, may become less dependent on traditional GPU-based systems. At the same time, the development of edge AI (i.e., where AI processing is performed on local devices) can reduce the need for large-scale data transport and centralized processing, thereby lowering the associated energy and water footprint of AI applications. In this context, East Netherlands has unique expertise when it comes to neuromorphic computing, edge AI, photonics, as well as the design and integration of AI and data infrastructure. This provides a strong basis for targeted research and innovation efforts to further position the region as a frontrunner on these themes.

Regional expertise within a federated framework

These discussions collectively point to the need for a coordinated approach, connecting regional, national, and European instruments, is needed to sustain long-term AI development and innovation capacity. While substantial infrastructure may be technically available, this does not automatically translate to effective access. In this context, access should therefore be understood not only in terms of the physical availability of infrastructure, but also in terms of the practical ability of users to make productive and sustained use of it.

In contrast to large capital investments in physical infrastructure, targeted investments in skill development can contribute by lowering the barriers to the effective use of national and European resources. This includes hands-on, practice-oriented training in areas such as cloud-based AI workflows, distributed training, and production-level deployment.

One way in which this could take shape involves the establishment of a regional expertise center, providing both technical support (e.g., access to computing resources and data) and strategic guidance (e.g., roadmaps for sustainable, inclusive AI development).

Such a center could serve as a gateway for coordinated access, linking local expertise to national and European initiatives, while ensuring that the region's infrastructure and talent remain visible, connected, and accessible. In parallel, the center could support access to existing funding instruments or explore targeted grant, voucher, or credit schemes aimed at reducing financial and administrative barriers for experimentation, skills development, and early-stage innovation, including for start-ups.

Concluding remarks

This strategic roundtable marked an initial exploration of how East Netherlands can position itself within the evolving European AI infrastructure landscape. The challenge for East Netherlands is not a lack of ambition or expertise, but the need to better organize how existing capabilities are accessed, combined, and sustained over time.

Across perspectives, there was broad recognition that future progress will depend on effective access to infrastructure, the development of relevant skills, and improved coordination across regional, national, and European instruments. In this sense, the roundtable should be seen as the starting point for a broader, ongoing collaboration among our research institutions, industry, start-ups, infrastructure providers, and public stakeholders. Further engagement will be essential to translate these insights into future actions, and to ensure that regional initiatives remain connected to ongoing national and European developments.

We therefore invite all stakeholders to contribute ideas, ongoing initiatives, and perspectives on AI and data infrastructure in East Netherlands. In this context, AI-hub East Netherlands serves as a point of contact for collecting and further aligning these inputs.

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