REPUBLIC OF SLOVENIA
GOVERNMENT OF THE REPUBLIC OF SLOVENIA

NSAI 2030

National Strategy for Artificial Intelligence 2030

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Summary

With its National Strategy for Artificial Intelligence until 2030 (NSAI 2030), Slovenia is entering a new phase of development, in which artificial intelligence will become one of the key drivers of societal progress, economic competitiveness and the well-being of its population. The strategy treats artificial intelligence as a tool for a human-centric society and as a strategic resource which, when governed prudently, enables innovation, strengthens the resilience of society as a whole, and promotes inclusive, safe, ethical and trustworthy development.

The document is intended as a strategic framework for advancing the public interest and strengthening technological and linguistic sovereignty, trust, and innovation in the field of artificial intelligence. In this approach, it follows the European direction set by the AI Continent Action Plan, the Apply AI Strategy and the European AI in Science Strategy – paving the way for the Resource for AI Science in Europe (RAISE) –, which have established a common strategic framework for the responsible and human-centric use of artificial intelligence that enhances the EU's competitiveness while leaving implementation details to action plans, sectoral strategies and funding programmes at the Union and Member State levels. In this spirit, NSAI 2030 is aligned with the overarching Digital Slovenia 2030 Strategy and the European Digital Decade Policy Programme 2030 as a guiding document setting out the vision, strategic objectives and key systemic building blocks, while the measures, projects and financial instruments deriving from the priorities defined in the strategy will be elaborated in greater detail in action plans.

The vision for 2030 is clear: in order to reduce dependence on commercial providers, Slovenia will develop its own capacities to enable the sovereign use of advanced technologies, support high-quality services, promote research and development excellence, and, above all, protect and develop the Slovenian language and cultural identity.

The strategy is based on a set of guiding principles that underpin the entire strategic framework: sovereignty and resilience; accountability; safety and trust; the public interest and societal well-being; language and culture; sustainability and quality of life; innovation capacity; knowledge for the economy; the efficiency of the public sector; smart governance; and cooperation and openness.

At the core of the strategy are the strategic objectives, which together form a comprehensive and interconnected development framework. NSAI 2030 sets out five strategic objectives: to develop sovereign and trustworthy artificial intelligence; to increase the use of artificial intelligence in the economy, science, the public sector and civil society; to strengthen Slovenian expertise, innovation and the AI ecosystem; to ensure security, defence and resilience through artificial intelligence; and to enhance Slovenia's international engagement and standing in the field of artificial intelligence. These objectives combine core capabilities, application and safeguards and have been designed to be measurable and oriented towards the public interest.

The achievement of the strategic objectives is underpinned by six horizontal building blocks forming the backbone of the national AI ecosystem: data and computing infrastructure; data; software infrastructure; talent and competences; ethics and regulation; and an enabling environment.

The implementation of the strategy relies on a transparent and effective governance framework ensuring coherence of measures, alignment with European and international frameworks, and data-driven monitoring of progress. NSAI 2030 emphasises the importance of coordinated, transparent and goal-oriented governance, currently carried out by the Ministry of Digital Transformation as the national managing authority for the strategy; the Ministry will also chair the interministerial coordination group and ensure interministerial cooperation, alignment with the legal and strategic framework, and the continuous evaluation of progress towards the objectives. The operation of the national AI observatory ensures the systematic collection of data, the monitoring of indicators and the preparation of proposals for measures in line with technological developments and broader trends in artificial intelligence and the identified needs of society. The Council of the Government of the Republic of Slovenia for Artificial Intelligence will ensure dialogue with civil society and the involvement of all stakeholder groups in the governance of artificial intelligence.

The strategy is based on a broad and open preparation process involving the scientific research community, the business sector, the public sector and civil society. Joint discussions have identified clear priorities: technological, data and linguistic sovereignty; safe and ethical use of artificial intelligence; strengthening research and development; and digital transformation to enhance prosperity. This process ensures broad legitimacy and compliance with the fundamental principles of responsible technology development.

The expected impacts of NSAI 2030 are clear: strengthening basic science to support research and innovation; enhancing the competitiveness of the economy; improving the quality and accessibility of public services and increasing their use; strengthening the security and resilience of digital systems and infrastructure; fostering trust in artificial intelligence; and using artificial intelligence as a tool for social and economic development and increasing the well-being of both society and individuals. The strategy provides a strategic framework that enables the coordinated, responsible and inclusive development of artificial intelligence in Slovenia in accordance with European and international commitments and standards and in the spirit of human rights, ethics, democratic values, improved well-being and sustainable progress.

NSAI 2030 will be complemented by appropriate action plans, which will define measures, responsible authorities, timelines, funding sources and performance indicators.

How to read this document: the introductory chapters outline the mandate and the strategic framework, followed by the guiding principles, which serve as the basis for interpreting the content; these are followed by the strategic objectives, the horizontal building blocks across

the areas of action, and the governance and management structure. The basis for the document's development, a description of its preparation process, a set of supporting reports, more detailed extended tables, methodological descriptions and technical bases are provided in the appendix.

1. Introduction and mandate

The National Programme to Promote the Development and Use of Artificial Intelligence by 2025 (NPAI 2025), adopted in May 2021, was the first comprehensive framework defining strategic orientations, institutional roles and the broader ecosystem of artificial intelligence (AI) in Slovenia. It laid the foundations for promoting research, innovation and the introduction of AI in key segments of society, established interdisciplinary links between the public sector, the scientific research and academic community, and the business sector, and introduced instruments and mechanisms supporting the full lifecycle of solutions – from concept and prototype to deployment in practice.

Following the adoption of NPAI 2025, the field of AI has entered a new phase, characterised not merely by gradual development but by exceptionally rapid and significant changes: the emergence of generative AI models; breakthrough advances in multilingual language technologies; the proliferation of general-purpose AI models; accelerated development of supercomputing; rapid development of foundation models; debate on existential risks; efforts by countries and regions to achieve strategic technological autonomy; the emergence of advanced regulatory frameworks; and global competition for leadership in the development, deployment and oversight of AI.

NSAI 2030 is designed as a review, update and upgrade of the initial programme and sets a bold vision for the future. It builds on the findings, experiences and lessons of the previous period and, on that basis, introduces new paradigms. Its mission remains faithful to the original ambitions: to accelerate the development and responsible use of AI across the economy, science, civil society and the public sector; to strengthen the competences of citizens and institutions; to ensure compliance with regulatory frameworks while consistently upholding ethics and human rights; and to build data and computing infrastructure that, at full capacity, supports economic growth, improves well-being and quality of life, and strengthens the sovereignty and resilience of the state, individuals and society as a whole.

This time, the strategy places additional emphasis on an aspect that has previously received less attention: technological, infrastructural, data, regulatory and linguistic sovereignty. In a world dominated by global platform players, where key decisions about models, infrastructure and algorithms are often made beyond national borders, Slovenia has a duty to ensure its citizens a permanent, sovereign and autonomous place within the global AI ecosystem, based primarily on the priority use of the Slovenian language. In this context, special attention and comprehensive consideration must be given to the Slovenian language, Slovenian national and cultural identity, and Slovenian cultural heritage. Considering the expected significant role and specific importance of AI in the further development of human society, it is essential to ensure all the necessary and sufficient conditions for the preservation, continued use and development of the Slovenian language within the entire AI framework. Failure to ensure this

at the highest level of quality would mark the beginning of the erosion, marginalisation and disappearance of the Slovenian language, and with it, the Slovenian nation and state.

With this strategy, we are not merely responding to the challenges of the present, but also paving the way for the future. A future in which AI is beneficial to people, in accordance with the highest ethical standards, democratic principles and respect for human rights. A future in which the state actively co-creates technological foundations and standards, supports researchers and innovators, and simultaneously builds trust by safeguarding transparency, ethics and security.

In NSAI 2030, we strive to:

- clearly define sovereignty mechanisms as a strategic component;
- expand the horizontal foundations for achieving the strategic objectives (infrastructure, data, software infrastructure, competences, ethics and regulation, and the enabling environment);
- reshape partnership and governance mechanisms to be flexible and responsive to rapidly changing circumstances;
- incorporate regulatory obligations and the use of the Slovenian language already at the design stage of programmes and pilot projects;
- incorporate continuous experimentation with clear mechanisms for safety, accountability and transparency as elements of strategic advantage; and
- introduce a dynamic system of performance indicators and evaluation that enables ongoing learning and effective adaptation during intermediate phases.

Given the rapid pace of global technological development, it is essential for Slovenia to move beyond rigid strategic cycles and adopt a hybrid planning model – a strategic development framework that allows for continuous adaptation, improvement and flexible responsiveness. Time is critical: establishing a swift, effective and stable regulatory framework is essential for maintaining productivity and competitiveness and keeping pace with the global development of AI. Only in this way will Slovenia be able to transition from a phase of imitation to a phase of co-creation and influence within the global AI ecosystem and, most importantly, consolidate, empower and steer the development of its own AI ecosystem.

2. Strategic framework, vision and ten guiding principles

2.1 Slovenian Development Strategy 2030 and Digital Slovenia 2030

The development of AI in Slovenia is based on the coordinated implementation of multiple strategic documents, both overarching and sectoral. The Slovenian Development Strategy 2030[1] defines quality of life for all as its central objective. In doing so, it recognises that rapid technological progress is fundamentally reshaping society's expectations, often outpacing society's capacity to adapt. The Fourth Industrial Revolution, of which AI is a key component, therefore requires new competences and adaptations in many areas of economic, social and environmental development.

NSAI 2030 builds on this strategic framework and follows the vision of a society that uses technology to improve quality of life, promote sustainable development and increase resilience.[2]The strategy draws on the objectives of the overarching strategy,[3] including:

- knowledge and skills for a high quality of life and work,
- a dignified life for all,
- culture and language as the foundation of national identity,
- economic stability and competitiveness,
- an inclusive and responsible business and research sector,
- quality jobs and an inclusive labour market,
- a low-carbon circular economy,
- sustainable management of natural resources,
- a trustworthy legal system,
- a safe and globally responsible Slovenia, and
- effective governance alongside high-quality public services.

NSAI 2030 serves as a bridge between the national development vision and the AI-driven technological transformation. It is focused on the responsible use of technologies for the benefit of people, communities and the environment, while strengthening trust in their application. In this way, Slovenia is solidifying its position among countries that view AI as a tool for well-being, creativity and sustainable progress.

As a guiding framework, NSAI 2030 also draws on the overarching Digital Slovenia 2030 (DSI 2030) strategy, which provides the comprehensive development framework for Slovenia's

[1] Government of the Republic of Slovenia (2017). The Slovenian Development Strategy 2030. Available at: https://www.gov.si/assets/ministrstva/MKRR/Strategija-razvoja-Slovenije-2030/Strategija_razvoja_Slovenije_2030.pdf (10 October 2025).

[2] The goal of NPAI 2025 is to support the achievement of the objectives set out in the Slovenian Development Strategy 2030: to establish a system for the coherent support of research, innovation, deployment and use of AI technologies, and to accelerate digitalisation in Slovenia for the benefit of its citizens.

[3] Cf. The Slovenian Development Strategy 2030, p. 21.

digital transformation to the end of this decade. Its vision is to create an inclusive, safe and trustworthy digital society that uses advanced technologies to improve quality of life, stimulate economic growth, ensure environmental sustainability and enhance the efficiency of the public sector. In this strategy, digital transformation is understood as a means to achieve well-being – as a path towards a society in which technology benefits both individuals and the community.

DSI 2030 emphasises that AI must be a tool in the service of people – aimed at improving quality of life, ensuring equal access to services and promoting greater inclusion for all citizens. The key to the successful implementation of AI is trust: the public must believe that responsible AI use will deliver tangible benefits for both individuals and society as a whole. Therefore, the strategy is built on a solid legal and ethical framework that ensures the protection of human rights, fundamental freedoms and democratic values in the digital age.

DSI 2030 envisages strengthening the capacity to use AI at all levels of the state – through the development of data spaces, support for research and innovation, the introduction of smart public services, and the construction of a secure and trustworthy digital infrastructure. Slovenia has thus committed to the development of interoperable systems, open standards, and strategic investment in data sources and computing infrastructure that enable the development of sovereign digital AI.

Language sovereignty holds a special place in DSI 2030. The Slovenian language is the foundation of national identity and a key factor in an inclusive digital society. The strategy emphasises that the Slovenian language must have a priority role in the digital environment – in user interfaces, datasets, language models and AI solutions through which citizens communicate with the state on a daily basis.[4] The aim is to increase accessibility, comprehensibility and user trust and to ensure that Slovenia's digital future is based on respect for and the priority use of the Slovenian language as a fundamental value and a constitutional category. Indeed, AI opens up new opportunities for the development of advanced language technologies in the Slovenian language,[5] which goes beyond a technical issue and becomes an expression of cultural identity and democratic parity with other developed nations.

NSAI 2030 directly supports the achievement of the DSI 2030 goals through the responsible use of AI in the public interest, strengthening trust in the functioning of the state, developing a data-driven society, and creating an inclusive, ethical and secure digital environment capable of anticipating citizens' needs and responding to them in a timely and fair manner.

[4] In this context, the Ministry of Digital Transformation supports the European Digital Infrastructure Consortium ALT-EDIC (AI Language Technology EDIC), which is dedicated to the development of open-source and multilingual large language models in the EU; this opens the door for Slovenia to develop its own artificial intelligence solutions that will take into account the specific cultural, linguistic and legal environment.
[5] Compare the objective "The Road to a Smart Society 5.0", DSI 2030.

Other national documents on which NSAI 2030 is based include the Digital Public Services Strategy,[6] the Strategy of Digital Transformation of the Economy[7] and the Slovenian Strategy for Sustainable Smart Specialisation S5.[8]

2.2 Vision 2030

With NSAI 2030, we aim to continue the vision set out in NPAI 2025 – to support the achievement of objectives from national and European strategic documents and to build on over 50 years of AI research in Slovenia, which is intended to gain international recognition for its mastery in "transferring knowledge and cutting-edge, ethical and safe AI technologies into human-centric and trustworthy services and products while preserving national cultural identity".[9] We also strive for Slovenia to establish itself as an innovative, green and inclusive society that develops, deploys and uses AI responsibly, safely and ethically for the benefit of all citizens.

Consultations results have shown that Slovenia continues to believe in this vision, while both the wider public and stakeholders have expressed new expectations regarding a greater emphasis on language and technological sovereignty, central capabilities within the state administration, leadership in niche areas, and the preservation of the Slovenian language and culture.

In this spirit, NSAI 2030 welcomes the vision and builds upon it:

> *Building on more than five decades of research achievements in the field of AI, Slovenia will responsibly establish AI as a driver of well-being and progress by 2030: through its own sustainable capacities for data, computing power and language technologies; through safe and human- and environmentally-friendly use in the economy, science, the public sector and civil society; through outstanding excellence in niche areas; and by strengthening the Slovenian language and cultural identity in the European and international digital space. With a focus on respect for fundamental human rights, Slovenia will develop and use AI in the public interest, with the aim of building public trust.*

[6] Ministry of Digital Transformation (2022). The Digital Public Services Strategy 2030. Available at https://nio.gov.si/products/strategija%2Bdigitalnih%2Bjavnih%2Bstoritev?rele- ase=2.0 (30 May 2025).
[7] Ministry of Economic Development and Technology (2022). The Strategy of Digital Transformation of the Economy. Available at: https://www.gov.si/assets/ministrstva/MGTS/Dokumenti/DIPT/Digitalizacija/Strategija-digitalne-transformacije-gospodarstva.pdf (10 October 2025).
[8] Ministry of Cohesion and Regional Development (2021). The Slovenian Strategy for Sustainable Smart Specialisation S5. Available at: https://evropskasredstva.si/app/uploads/2024/02/Strategija-S5_verzija_1_1.pdf (10 October 2025).
[9] Cf. the vision of NPAI 2025, p. 26.

2.3 Ten guiding principles of NSAI 2030

The guiding principles of NSAI 2030 stem from the updated vision and are embedded within the overarching framework of DSI 2030, which focuses on an inclusive and trustworthy digital society and the responsible use of advanced technologies to enhance quality of life, foster growth and ensure an efficient public sector.

The foundations for these guiding principles are based on three implementation pillars: (a) core building blocks: data, computing capacity, software infrastructure, competencies and talent, and the enabling environment; (b) safeguards: compliance with the EU legal framework, ethics, transparency and cybersecurity; and (c) engagement: co-creation with stakeholders and language equality.[10] This approach is grounded in Slovenia's actual needs, while also reflecting an awareness of international recommendations on the fundamental building blocks, enablers and safeguards for the trustworthy use of AI.

On this basis, NSAI 2030 defines ten guiding principles that steer the implementation of the vision – from sovereignty and resilience to innovation breakthroughs and smart governance.

Table: 10 guiding principles of NSAI 2030

No.	Principle	Description
GP1	**Sovereignty and resilience**	Slovenia is building a trustworthy and resilient AI ecosystem that will be based on its own and European computing capacity, high-quality data sources, and the richness of the Slovenian language and cultural heritage. Through systematic investments in infrastructure, personnel and standards, and in close cooperation with European partners, it ensures sovereignty and readiness for the challenges of the future.
GP2	**Accountability and trust**	AI is developed and used in accordance with Slovenian, European and international legal frameworks, ethical principles, and the highest standards of security, transparency, explainability and data integrity. Particular attention is paid to the protection of privacy, ensuring non-discrimination, and to effective mechanisms for explaining decisions and providing legal protection in the use of AI, including in workplace settings. This strengthens the legitimacy of the state and public trust in digital technologies.

[10] Cf. OECD, Governing with Artificial Intelligence: The State of Play and Way Forward in Core Government Functions.

No.	Principle	Description
GP3	**Public interest and societal well-being**	AI is developed in the public interest and for the public good, in full respect of fundamental ethical principles and human rights. Priority is given to societal and sustainable impacts and to improving the quality of life for all citizens. At the same time, AI should serve as a driver of development, contributing to greater well-being and strengthening the strategic technological sovereignty of the Republic of Slovenia.
GP4	**Language and culture**	Given the expected significant and specific role of AI in the future development of human society, special attention is devoted to the preservation and development of the Slovenian language, culture and cultural identity in the digital age.
GP5	**Sustainability and quality of life**	AI is deployed to improve people's lives – through faster access to medical treatment, a cleaner environment, safer systems and more user-friendly public services – while protecting natural resources, preserving and developing the Slovenian language and cultural identity, and upholding environmental and social responsibility.
GP6	**Innovation capacity**	The focus is on ambitious projects with a clear mission and global potential which position Slovenia as a breakthrough "Europe in miniature". In niche areas, reference projects are developed that demonstrate our creativity and scientific excellence.
GP7	**Knowledge for the economy**	Science and research form the foundation of knowledge development. In Slovenia, we invest in both fundamental and applied research, translating knowledge into practice: promoting the use of AI in small and medium-sized enterprises, strengthening economic competitiveness, and supporting start-up initiatives. This generates new jobs, increases productivity and economic growth, and enhances the international visibility of the Slovenian economy.
GP8	**Efficiency of the public sector**	AI is a tool for transforming public administration into a modern, adaptable and efficient organisation. Through process automation, intelligent assistants and data-driven decision-making, we ensure greater efficiency and more citizen- and business-friendly services.

No.	Principle	Description
GP9	**Smart governance**	Institutional capacities are being established for the strategic and adaptive management of AI development, including risk assessment, monitoring of impacts and effective regulation. Particular attention is given to AI's impact on employment and working conditions and to preventing harmful practices in algorithmic management and workplace monitoring that could undermine privacy, autonomy or human dignity or increase psychosocial risks. AI governance is based on speed, iteration and continuous learning, and the pace of adaptation is regarded as a strategic value for competitiveness, innovation, and the responsible response to technological and societal change.
GP10	**Cooperation and openness**	Progress is based on collaboration between institutions, sectors and countries. Slovenia is building an open, interoperable and trustworthy data and innovation ecosystem where knowledge, data and technologies are shared responsibly and for the common good. Through open standards, publicly accessible research results and the engagement of stakeholders, including social partners, we strengthen transparency, partnership and European cohesion.

3. Five strategic objectives of the national strategy

In developing its strategic objectives (SOs) between 2020 and 2025, NPAI 2025 was guided by the following mission: "By providing comprehensive support to Slovenian research and innovation stakeholders in the development of AI-based technologies and solutions, by deploying and establishing AI-based reference solutions in cooperation with all social groups in Slovenia, and by supporting the recognition of Slovenian stakeholders in AI in the international environment, we aim to accelerate economic growth and, on this basis, to establish Slovenia's visibility as a credible partner in the further deployment and regulation of AI in society in a human-centred manner and for its own benefit."[11]

NSAI 2030 builds on the achievements and strategic directions of its predecessor. It is based on an in-depth analysis of the situation in Slovenia, the results of consultations and the positions expressed by stakeholders and follows both global technological trends and European and international guidelines.

The strategy defines five strategic objectives, which are aligned with its guiding principles. Each objective includes a brief description and the main challenges, which represent potential obstacles to its implementation.

The implementation of the strategic objectives relies on the development of six horizontal building blocks (data and computing infrastructure, data, software infrastructure, competences and talent, ethics and regulation, and the enabling environment), which are presented in more detail in the following chapter, together with the corresponding areas of action. These building blocks provide a common foundation for the development ecosystem on which all sectors can successfully build.

Throughout the strategy, the strategic objectives are linked with the guiding principles and horizontal building blocks to form a coherent framework. Together, they form a vision through which Slovenia will, by 2030, responsibly and ambitiously harness the potential of AI for social progress, prosperity and the well-being of all its citizens.

SO1: Developing capabilities for sovereign and trustworthy AI

AI sovereignty, as a new strategic objective of NSAI 2030, reflects the clearly expressed will of the public and stakeholders and is consistent with European guidelines. At the heart of this strategic objective is the principle of striving to achieve the highest possible level of technological sovereignty. In the digital age, where data, algorithms and digital platforms have become sources of geopolitical power, possessing independent capabilities is of strategic importance for national security, sovereignty, competitiveness and resilience.

Sovereign AI entails strategic control over key AI elements, including data, computing capacity, software infrastructure and public policies, so that AI development and use in Slovenia remain

[11] NPAI 2025, p. 26.

consistent with national values, security interests and the legal order, while also enabling interoperability and cooperation within the European and global AI ecosystems. In this context, sovereignty does not necessarily imply ownership of all technologies, but rather the state's ability to maintain control, choice and influence over critical AI elements in accordance with national and European standards and values.

The primary purpose of this strategic objective is to ensure an autonomous, secure, trustworthy and comprehensive national AI infrastructure, integrating computing capacity data platforms and support services into a unified and accessible system. Such infrastructure will be available to research organisations, the business sector, public administration, citizens and other stakeholders and will enable the efficient sharing of resources, reduce duplication and provide greater control over the country's technological capabilities. This infrastructure includes high-performance computing, sovereign cloud services, language models and software tools based on open, ethical and transparent technologies.

The core of the established infrastructure will be a national AI platform, designed as an open, connective gateway layer that provides access to the most advanced models, computing capacity and data sources. The platform will serve as a supportive infrastructure for the development, testing and use of AI solutions, providing users in the country with secure, unified and reliable access to powerful tools and resources, without interfering with the competitive market for commercial solutions or replacing existing providers.

The national inference infrastructure will be built on the principles of open standards and, where technically feasible and secure, on open-source technologies. This approach will enable greater transparency, flexibility and interoperability, while reducing long-term dependence on closed and proprietary solutions. Special attention will be paid to ensuring that the platform supports the Slovenian language at the highest level; it will operate in compliance with relevant European and national legislation while ensuring appropriate protection of personal data.

NSAI 2030 is also committed to establishing appropriate mechanisms for the systematic involvement of domestic technology companies, research organisations and other stakeholders in the development, upgrading and management of the national inference infrastructure, thereby strengthening domestic knowledge, innovation capacity and the country's technological sovereignty. Until the national infrastructure is established, the national AI platform will be hosted on infrastructure located outside Slovenia, but necessarily within the EU.

For its effective use, it is essential that the state simultaneously develops a broad base of domestic experts, strengthens the digital competences of the population and fosters a supportive environment for the development and deployment of AI solutions. These human and institutional resources are the fundamental building blocks of national AI sovereignty and ensure the long-term realisation of the vision set forth.

The telecommunications sector also plays a key role in developing capabilities for sovereign and trustworthy AI as it provides connectivity, network capacity and support for the establishment of data spaces and distributed computing capacity. Reliable and high-performance telecommunications infrastructure is therefore a key enabler of the development, deployment and use of AI solutions in all sectors. In planning major infrastructure and data projects, early and meaningful involvement of representatives from the business sector, research institutions and public sector organisations is ensured already at the design stage in order to enhance the practical applicability of solutions and strengthen a competitive national environment in Europe.

In addition to openness, the development of AI in Slovenia is also based on European and global interconnectedness. Slovenia prioritises the development of digital solutions based on open data, open source and open standards and actively participates in European and global initiatives that strengthen collective resilience, security, trust and technological independence. In this way, it enables the realisation of its innovation potential and strengthens competitiveness, while also contributing to Europe's AI sovereignty. Such an approach ensures that AI development relies as much as possible on domestic knowledge and resources, while remaining open, connected and aligned with best European and global practices.

To realise these ambitions, Slovenia must also develop and manage its own advanced AI models. Cooperation with leading global AI laboratories forms an important part of this development vision, as such partnerships can deliver added value, facilitate knowledge transfer and accelerate progress.

Models, tools and other key outcomes of AI development that are funded or co-funded by public funds will, as a rule, be made available to the public in a form that allows for their testing, adaptation and further development within the Slovenian research, development and innovation ecosystem. Such an approach does not necessarily imply that all components must be fully open source, but rather a thoughtful and proportionate opening of key building blocks, enabling independent verification, community collaboration and further development on existing foundations, while taking into account security requirements, the protection of sensitive information and legitimate business interests. In this way, NSAI 2030 ensures that public investments generate lasting added value, strengthen domestic knowledge and innovation capacity, and are aligned with European practices and requirements for transparency and verifiability of AI systems.

A particular emphasis of this strategic objective is placed on linguistic and cultural sovereignty, ensuring that Slovenian AI fully and preferentially supports the Slovenian language, reflects Slovenian cultural identity, understands Slovenian cultural characteristics, and is familiar with Slovenian history and cultural heritage. This includes strengthening and upgrading datasets, digitising archival, library and museum materials and other elements of Slovenian cultural heritage, establishing a national data space for the Slovenian language to enable the

development of high-quality language models, tools and data sources in Slovenian, and ensuring consistent compliance with the Act on the Public Use of the Slovenian Language.

The developed and deployed AI language models must ensure a high level of linguistic quality in their outputs, enable communication in functional and regional variants of the Slovenian language, and, as a rule, use natural sounding Slovenian in accordance with the current linguistic norm of the standard Slovenian language, with as little foreign language influence as possible.

It will also be crucial to develop AI tools specifically adapted to the Slovenian language, so that the Slovenian language, national identity and cultural heritage remain vibrant, recognisable and competitive and continue to develop comprehensively in the digital age to such an extent that their presence in the AI environment is on par with the world's major languages. This will enable the preservation and further development of the Slovenian language and with it the Slovenian nation and state.

Slovenia will consolidate its technological sovereignty by strengthening public research infrastructures and fostering partnerships that bring together the state, the business sector, research and academic institutions, and civil society in a common interest: to create a reliable and secure environment for AI development that serves the public interest and supports the strategic autonomy of the state. By achieving this strategic objective, Slovenia will ensure that AI is developed and used transparently, safely, fairly and in accordance with ethical principles, while ensuring full respect for fundamental human rights, democratic values and the rule of law. The key objective is to create an environment in which AI serves the public interest and the well-being of citizens and in which built-in safety and ethics strengthen people's trust in AI technology.

The 2025 National Programme has already recognised the legal and ethical framework and the need to strengthen public trust as a priority. NSAI 2030 builds on this framework by establishing a comprehensive system of ethical AI governance, which will ensure transparent, explainable, fair, safe and trustworthy technologies. International authors have highlighted in reports that a lack of transparency and accountability can cause harm, discrimination and a decline in trust in AI. Slovenia will therefore establish legal protection mechanisms for users, ensuring that AI in the country serves people, society and the public interest.

Challenges

Financial and energy constraints

- The high costs of establishing and maintaining AI infrastructure, and limited financial resources.
- High energy consumption for operating computing infrastructure, environmental impacts and limited energy resources.

- The need to align the development of AI infrastructure into an energy-efficient system with green transition commitments and sustainability goals.

Shortage of experts and knowledge for operating AI infrastructure

- A shortage of experts for the development, deployment, management and maintenance of advanced infrastructure systems.
- Staff shortages also in other key AI areas (e.g. AI research, data science, ethics and regulation).

Data challenges: quality, accessibility and management

- The lack of high-quality, diverse and ethically collected data for developing language models.
- Insufficient digitisation of archival, library and museum materials and other Slovenian cultural heritage.
- Inconsistent structures, incomplete metadata and insufficient standardisation of data hinder their use in AI models.
- Limited access to private sector data that could accelerate innovation and development.
- The lack of a unified governance model for coordination between state authorities and dataset owners.

Interoperability and connectivity with the European AI ecosystem

- Limited interoperability between national data systems and European data spaces.
- The need for alignment with European and international technical standards and European regulatory frameworks.
- Maintaining a balance between national sovereignty and openness to participation in the European and global AI ecosystem.

Regulatory and ethical challenges

- Challenges in understanding, interpreting and enforcing rules on intellectual property protection and data privacy in AI development and use.
- A lack of unified standards and methodologies for risk assessment, ethics and explainability of algorithms.
- Difficulties in explaining AI decisions and ensuring transparency in complex models.
- Challenges in supervising cross-border and open-source solutions that fall outside national jurisdiction.

Safety, trust, fairness and social inclusion

- A risk of unequal access to services if digital solutions do not take account of the needs of vulnerable groups.

- Public and institutional trust in systems responsible for overseeing and deciding on the safety and compliance of AI.
- The need for transparent and trustworthy procedures to verify compliance and operation of AI systems.
- Limited public awareness of the benefits and risks associated with AI use.

SO2: Increasing the use of AI in the economy, science, the public sector and civil society

Economy

Increasing the added value and competitiveness of the Slovenian economy over the next five years will depend significantly on the successful adoption of AI in companies, particularly in small and medium-sized enterprises (SMEs), which form the backbone of the national economy. In recent years, Slovenia has made notable progress in this area; nevertheless, the objective remains ambitious: by 2030, at least 75% of enterprises are expected to use AI and advanced data analytics, in accordance with the Digital Decade Policy Programme 2030.

The development and use of AI in companies, and thereby the strengthening of the competitiveness of the domestic economy, constitute one of the central priority areas of this strategic objective. SO2 comprehensively addresses both users of AI in the economy and providers of AI solutions and information and communications technology (ICT), including micro, small and medium-sized enterprises, product-based companies, as well as start-ups and scale-ups, with a view to increasing productivity, developing high value-added solutions, promoting internationalisation and ensuring the long-term technological competitiveness of Slovenia.

To achieve this objective, NSAI 2030 provides for a comprehensive framework of incentives, tools and partnerships, including access to sovereign infrastructure, data, the software stack, AI experts and an enabling environment, designed to facilitate companies' transition to a digital and data-driven economy supported by AI.

Particular emphasis will be placed on the development of fast and administratively simple support mechanisms, enabling companies and other organisations to widely and in a timely manner test, pilot and gradually adopt AI solutions.

Special attention will also be given to strengthening coordinated and accessible support for companies' participation in European AI programmes and initiatives in order to enhance their international engagement, performance and impact. In this context, Slovenia will promote the active participation of companies in European data spaces and related initiatives as a key lever for access to interoperable data, the development of advanced AI solutions and integration into European value chains. At the same time, particular emphasis will be placed on the development and alignment of common baseline rules for the governance of industrial data, including requirements for interoperability, quality, metadata, traceability and security, in line

with European and international standards and data spaces. Attention will also be given to strengthening companies' data readiness as a fundamental prerequisite for the use of AI, including the establishment of integrated data flows and the connectivity of production and business systems. Support for collaborative projects will be directed towards the development of solutions that have a clearly defined path to practical application and contribute to the effective deployment of AI in business and production processes.

Within the enabling environment, companies, particularly SMEs, will have access to accessible testing, pilot and demonstration environments for the use of AI, designed to enable the testing and gradual deployment of AI solutions in real business and production settings, including integration into companies' data, production and information systems. The strategy also promotes the establishment of coordinated support mechanisms to finance transitions between different stages of AI development – from research and prototyping to pilot, demonstration and commercial use – in order to reduce development gaps and accelerate the emergence of market and globally competitive AI solutions. Priority will be given to companies that develop or use high-value-added solutions and contribute to sustainable growth, increased energy efficiency and the smart transformation of the business sector. Through incentives for the development and use of AI solutions, companies will increase productivity and added value, create new business models, and introduce innovative services and products. Such an approach will strengthen the Slovenian economy as a whole and enable Slovenian companies to compete more effectively in European and global markets.

We would like to emphasise that, when integrating AI into work processes and services, it is essential to ensure respect for workers' rights, particularly the right to decent work, non-discrimination and privacy. The use of AI in companies must be transparent, and workers' organisations must have access to information about how AI is used in the company, which models employers use and which decisions are automated.

Science

AI is becoming increasingly important in science and holds exceptional potential to transform and accelerate scientific development, which will in turn impact competitiveness and the addressing of current societal challenges. AI offers the benefits of more efficient and higher-quality research, but its pitfalls must also be acknowledged.

The use of AI in science and AI research, both basic and applied, should be encouraged. In this regard, Slovenia can leverage its research excellence in the field of AI and, as a smaller country, further benefit from the close ties between individual research groups and institutions to strengthen multidisciplinary collaboration. Through participation in the European High Performance Computing Joint Undertaking (EuroHPC Joint Undertaking[12]) and the European

[12] Available at: https://www.eurohpc-ju.europa.eu/index_en (1 October 2025).

Open Science Cloud initiatives[13], we are already developing a modern computing and data environment for science, which we are adapting for AI use. The development of the computing and data environment complements the Action Plan for Open Science and the activities carried out on that basis. Efforts to develop talent through excellent science and to fund multidisciplinary research that supports the integration of AI into research work must be further strengthened.

Public sector

AI also has enormous potential to improve and modernise the functioning of the state and enhance the quality of public services. Over the next five years, Slovenia aims to establish AI as a key driver of the digital transformation of public administration, enabling citizens to access higher-quality, more efficient and more personalised services. By 2030, most services for individuals and businesses are expected to be based on data- and AI-driven, trustworthy and secure information systems, which will improve the efficiency, transparency and responsiveness of the state.

An analysis of the situation has shown that Slovenia is still below the European average in the adoption of AI in the public sector. Its use is largely limited to pilot projects, and systemic integration has not yet been achieved. NSAI 2030 therefore aims to reduce this gap through a clear plan for the gradual, ethical and responsible integration of AI into the operation of public administration and key public services and to transition from limited pilot projects to the regular and sustainable use of AI solutions as a key driver of higher-quality, more transparent and user-oriented public services.

To accelerate the adoption of AI in the public sector, the state will promote the use of innovative public procurement, pilot projects and other flexible forms of collaboration that allow testing of new AI solutions in real-world environments. Such approaches will enable companies and development teams to assess the practical effectiveness of solutions and obtain references. Successful pilot projects may receive further support for the transition to production use and wider implementation, in accordance with the applicable legal framework. In this way, the state will contribute to the faster transfer of innovations into practice, the strengthening of the domestic AI ecosystem, and the improvement of the quality and efficiency of public administration.

In adopting AI in the public sector, particular attention will be given to solutions that provide sovereign control over data, models and key processes, comply with European legal, technical and ethical standards, and facilitate the transfer of knowledge and competences to the domestic AI ecosystem. The strategy encourages the use of solutions that are based on interoperable architectures, open standards and transparent governance models and contribute to the long-term strengthening of national AI capabilities, while consistently

[13] Available at: https://research-and-innovation.ec.europa.eu/strategy/strategy-research-and-innovation/our-digital-future/open-science/european-open-science-cloud-eosc_en (8 October 2025).

complying with public procurement rules and respecting the competitive environment. In the development and deployment of AI solutions in the public sector, the involvement of end users and relevant experts is encouraged from the early stages to ensure accessibility, usability, and consideration of the needs of vulnerable groups and persons with various forms of disabilities.

The strategy emphasises the consistent protection of personal data and fundamental rights, the prevention of discrimination, the ethical and transparent use of algorithms and their appropriate explainability, and the preservation of human oversight over decisions. Such an approach will help Slovenia strengthen citizens' trust in the functioning of the state and the quality of public services supported by AI.

In the public sector, AI can perform numerous roles – automating repetitive administrative procedures, improving data-driven decision-making, detecting irregularities, and enabling personalised and predictive services for users. Examples include:

- virtual assistants that help citizens use e-services;
- intelligent agents that assist officials in preparing documents and analyses;
- artificial intelligence systems to support diagnostics, treatment planning and monitoring and ensure compliance with ethical standards and to optimise clinical, logistical and operational processes in healthcare institutions;
- artificial intelligence solutions to support long-term care, including assistive technologies, support for independent living, optimisation of care processes, support for decision-making in care planning, support for family caregivers through digital assistants, tools for care coordination, and easier access to information, rights and guidance, while ensuring human oversight and the protection of the rights of care recipients and other involved persons;
- solutions for the digital transformation of the justice system that can help shorten proceedings, improve case management, increase the accessibility of services, and improve the quality of analytics and support for decision-making;
- algorithms for optimising the allocation of resources such as ambulances or school buses;
- local digital twins, which are key to data-driven decision-making and enable simulations, impact forecasting and support for planning, management, administrative burden reduction and the development of sustainable communities;
- systems for monitoring the environment, including air and water quality, and for the early warning of disasters;
- systems for monitoring, analysing, forecasting and managing traffic flows;
- systems for the automatic detection of damage to transport and energy infrastructure based on computer vision and sensor data analysis;
- integration of AI with the Internet of Things, particularly in the areas of transport, infrastructure management, environmental monitoring and smart communities.

Within this objective, priority will be given to certain areas of deployment of AI – healthcare, education, justice, transport, long-term care, smart communities, environmental protection and support for administrative decision-making – that align with the priorities of the state's digital transformation. It will also be essential to strengthen the digital competences of public officials, modernise organisational processes and support changes in work habits.

The state must lead by example through the development and use of its own trustworthy AI solutions and by actively promoting the systematic deployment of AI in its processes. To this end, it will also prepare guidelines for the development and use of AI, which will contribute to more uniform practices and will also support the private sector.

Non-governmental organisations and civil society

NSAI 2030 also envisages incentives to support the adoption of AI in non-governmental organisations (NGOs), where AI can deliver benefits in terms of both optimising internal processes and achieving societal impacts. The strategy places particular emphasis on the latter, recognising non-governmental organisations as key partners in raising awareness and educating the wider public about the opportunities and risks associated with AI and its use.

Libraries, as a trusted and extensive public knowledge infrastructure, also play an important role in promoting the use of AI in the wider society. NSAI 2030 recognises them as local access points to AI tools and as providers of educational and awareness-raising activities for the general public and tailored target groups, including older people, pupils and secondary school students, and persons with various disabilities. In this way, libraries contribute to improved accessibility, AI literacy, and the reduction of digital divides within and between local communities.

NSAI 2030 specifically emphasises that AI can significantly improve the inclusion of people with disabilities and strengthen their opportunities for learning, communication, participation and independent living. Solutions such as speech-to-text conversion, speech and image recognition, eye-tracking, and voice control of devices facilitate easier access to information and digital services, while adaptive learning platforms support learners with learning or language difficulties. Progress is also enabled by systems that support mobility and independence, for example by identifying accessible routes or assisting with the control of one's environment. Such technologies contribute to a more inclusive and equitable society, based on the principles of equal accessibility and non-discrimination. NSAI 2030 fully follows the recommendations of the Human Rights Ombudsman and emphasises the obligation to protect the rights of persons with disabilities: it explicitly rejects discriminatory or harmful uses of AI and supports both the development of a legislative framework that takes into account the specific circumstances of this group and the development of reasonable accommodations in AI systems.

All sectors, from the economy and science to non-governmental organisations and the public sector, require personnel with appropriate competences for working with AI and a substantial number of experts for the development, deployment and use of AI. NSAI 2030 also recognises that the introduction of AI in working environments has significant implications for jobs, working conditions and employment relationships in the economy, the public sector and other organisations. The use of AI in the workplace must be transparent and responsible and must fully respect employees' rights, particularly with regard to the protection of privacy and personal data, cybersecurity, and the protection of intellectual property. Particular attention will be given to issues of algorithmic management and the use of AI in decision-making related to recruitment, work allocation, performance evaluation, workplace monitoring and other processes affecting the position of employees, with a key focus on ensuring human oversight over automated decision-making systems and compliance with the national and European legal frameworks.

Challenges

Mismatch between education and the needs of the market and society

- The mismatch between the formal education system and the actual needs of the economy and the public and scientific research sectors.
- The shortage of appropriately trained specialists to implement and use AI across all sectors.
- Insufficiently trained employees for the adoption and use of AI in all sectors.
- Low participation of adults in lifelong learning and retraining, particularly among older adults.

Lack of an enabling environment for SMEs and digitalisation

- The financial constraints of SMEs in investing in digitalisation and AI technologies.
- The shortage of specialised advisors for AI use in SMEs.
- The digital divide between large and small enterprises regarding access to infrastructure, data and skilled personnel.

Limited access to technologies, data and infrastructure

- The lack of accessible and locally adapted AI technologies for the Slovenian context and language.
- Limited access to high-quality and extensive data sources in the Slovenian language datasets for developing and testing solutions.
- The lack of incentives for the business sector to participate in the sharing of infrastructure and the joint development of solutions.
- The uneven development of broadband and fibre optic interregional connectivity, particularly in remote regions, restricting the use of data- and compute-intensive AI solutions.

- The limited availability of data and computing centres suitable for AI needs, particularly for training and running complex models and for sovereign and secure data processing.

Fragmented and incohesive AI ecosystem

- The fragmentation of support programmes and the absence of a single entry point for assistance in AI adoption.
- The lack of mechanisms for the transfer of knowledge and innovation between research, economic and public sector actors and between AI researchers and domain scientists.
- The lack of structured collaboration in the development and deployment of AI solutions.
- The fragmented approach and lack of central coordination in the introduction of AI in the public sector.

Regulatory and administrative barriers

- Regulatory and administrative barriers to the procurement and adoption of innovative technologies.
- The lack of common standards and guidelines for the quality, safety and ethics of AI use.
- The lack of alignment with European initiatives for creating synergies and securing funding.

Culture of innovation and technology acceptance

- Weak culture of innovation and caution in taking technological risks.
- Hesitancy to use AI due to ethical and security concerns and fear of losing control.

Lack of reference cases and trust in AI

- The lack of tested models and good practices for AI use in specific sectors.
- Low trust among companies and public sector actors in the effectiveness and safety of AI solutions.

Inadequate coordination and knowledge transfer

- The lack of mechanisms for the transfer of knowledge and innovation between research, economic and public sector actors.
- The lack of structured collaboration in the development and deployment of AI solutions.

Demographic trends, future competences and the risk of polarisation

- Population ageing reduces the availability of labour and increases pressure on economic productivity and the sustainability of public systems.

- Inadequate digital and data skills, particularly among older employees, limit the effective integration of AI into work processes.
- The divide between highly digitally skilled individuals and those with limited digital competences increases the risk of labour market polarisation and social exclusion.
- The slow adaptation of competency models and educational programmes reduces the readiness of organisations and individuals for AI adoption and broader digital transformation.
- Rapid changes in tasks and professions, particularly in the building blocks of knowledge, indicate that inappropriate or uncontrolled AI use may lead to deterioration in the quality of services and the replacement of key professional standards.
- The accelerated adoption of generative AI in media and creative professions may lead to reduction in jobs and the loss of specialised human knowledge, which is essential for producing high-quality art, professional content and verifiable information.
- Widespread daily use of AI in work environments, education and leisure can affect individuals' mental and psychological well-being. Digital systems, the automation of tasks and personalised content may increase risks of information overload, social isolation, and reduced critical thinking and attention.
- Special attention must be devoted to vulnerable groups which face challenges related to digital competences and demographic changes. The impacts of AI on these groups may lead to increased social polarisation and hinder access to quality education and employment and undermine social inclusion.

SO3: Development of Slovenian knowledge, innovation and the AI ecosystem

Slovenia is building the future of its AI on more than 50 years of research excellence. In the coming decade, this legacy will be further strengthened through the development of a dynamic and interconnected ecosystem of research, development and innovation, open to international cooperation. The objective is to promote top-level Slovenian scientific research and the transfer of results into practice, particularly in priority areas such as the Slovenian language and Slovenia's national and cultural identity and cultural heritage and in niche areas in which Slovenia possesses established expertise and competitive advantages.

SC3 will be implemented through action plans based on a selective approach, focusing on areas where Slovenia has demonstrated research excellence, possesses established expertise, and has realistic potential for transfer into economic and societal applications. The definition of measures will be based on scientific excellence, societal and economic needs, and the developmental maturity of technologies, with active involvement of researchers, developers and end users already in the early stages of development. Within niche areas, special attention

will also be given to the development of robotics and “physical AI”, including autonomous and assistive systems that integrate sensing, decision-making and action in the physical environment and have significant potential for application in industry, transport, healthcare and long-term care.

The national vision emphasises that Slovenia aims to become internationally recognised for the development of high-quality, ethical and trustworthy AI technologies that, in practice, contribute to delivering sustainable products and services beneficial to people and society. Achieving this vision will require increased investment in research and development projects, both through public funding and by promoting public–private partnerships and private investment.

SO3 specifically addresses the strengthening of manufacturing companies in the area of AI and the effective transfer of research and innovation achievements into market applications. The strategy promotes partnerships and consortia between companies (particularly SMEs), research institutions, public institutions, universities, and innovation and consulting organisations to ensure effective knowledge transfer into practice and the development of market-relevant AI solutions. To drive innovation and transfer Slovenian AI technologies into products and services with export potential, it will be necessary to strengthen technology implementers in the private sector and the supportive environment for start-ups.

The strategy supports the development of the domestic AI ecosystem, including the creation of new companies and their growth into scale-up enterprises and the internationalisation of competitive solutions, with particular emphasis on the transfer of knowledge to the economy and the development of industrial pilot projects. To this end, SO3 systematically encourages building bridges between research achievements and the actual needs of the modern economy, including through interdisciplinary research projects that integrate AI approaches and involve active participation of practitioners from the business sector. Collaboration between academia and the business sector is based on partnerships of equal stakeholders, with the research sector contributing theoretical depth and methodological rigour and the business sector providing understanding of real-world needs, rapid adoption and market perspective. This systematically reduces the gap between research and the market, creating conditions for sustainable integration of research potential, entrepreneurship and the business sector and for the long-term strengthening of Slovenia’s technological and innovation competitiveness.

Special emphasis will be placed on interdisciplinary research collaboration and the development of interdisciplinary profiles that combine technical knowledge with the social sciences, the humanities and language expertise, particularly in terms of developing solutions in the Slovenian language and interpretative understanding of the societal impacts of AI. The strategy also encourages faster adaptation of study programmes to the needs of the labour

market and society, including the use of micro-credentials and other flexible forms of knowledge acquisition.

An enabling environment has a crucial role in this, facilitating knowledge transfer into practice and connecting domestic scientists, researchers and developers within companies – both among themselves and with European and other international networks. The enabling environment links research, the business sector and the public sector through pilot projects, regulatory sandboxes and a network of support institutions, enabling the rapid transfer of knowledge into innovations and the development and implementation of new business models and solutions.

Such an environment promotes a growing cycle of supply and demand for AI solutions – research enables the development of new technologies, the business sector generates demand for innovation, and the state supports stable growth and the global recognition of Slovenia's innovation ecosystem through smart policies, funding and the procurement of developed solutions.

The successful development of Slovenian knowledge and innovation requires a national research infrastructure that functions as a development, testing and learning platform for students, researchers and companies, enabling the development of practical skills and innovations. The Slovenian AI Factory and a supercomputer, as core research infrastructures, enable the development of new models and the testing and validation of AI solutions. In this context, large-scale and high-quality data are essential, benefiting education and research as well as innovation development, while also promoting emerging professions such as data scientists, data ethics specialists and data stewards in companies and institutions.

The state will support Slovenian companies in participating in Important Projects of Common European Interest (IPCEI) in the field of AI. Companies will engage in development partnerships at the EU level and jointly contribute to innovative solutions that go beyond the state of the art, supporting a more integrated, digitally sovereign and strategically autonomous Europe.

Challenges

Workforce challenges and brain drain

- The limited attractiveness of academic and research careers due to their lower salaries compared to the business sector.
- The outflow of experts abroad and insufficient incentives for their return.
- The lack of developers and implementers of AI technologies who would be able to quickly put solutions into practice and then maintain them.

Inequality and social diversity in research

- Unequal gender representation among experts, resulting in reduced innovation potential of society.
- The lack of incentives for interdisciplinary research that connects technological sciences, social sciences and humanities, particularly the integration of AI with other scientific disciplines.

Insufficient investment in and support for research and development

- Low investment in research and development compared to leading European countries.
- An unfavourable business environment for start-ups and limited access to venture capital.
- Low levels of commercialisation of research results.

Weak links between the research sector, the business sector and the public sector

- Limited and insufficient links between research institutions and the business sector and public institutions hinder and slow down the transfer of knowledge into use.
- The limited role of the public sector as an innovation partner – too few pilot projects and testing environments for testing AI solutions.
- Industry and researchers have limited access to state-of-the-art development capacities for research, development and innovation.
- The absence of a system for measuring the impact of research on society, the economy and sustainable development.

SO4: Ensuring security, resilience and defence through AI

AI will play a key role in ensuring national security and defence, strengthening the resilience of critical infrastructure[14] and enhancing cybersecurity. Advanced AI solutions enable faster detection and prevention of and response to threats in both physical and digital environments, thereby significantly contributing to the protection of people, the state, data and strategic systems. This strategic objective directs the development and use of AI for security, defence and crisis management purposes, with the aim of establishing an effective, intelligent, responsive, proactive and interconnected system of protection.

Stakeholders have identified the field of security and defence as one of the priority areas for the use of AI. This includes:

- cybersecurity: the development and deployment of AI systems that monitor the security situation in real time in public sector and critical infrastructure networks, detect anomalies and automatically alert to intrusion attempts or attacks, and provide assessments while reducing security risks in AI development through the

[14] As defined by the Critical Infrastructure Act (Official Gazette of the Republic of Slovenia [*Uradni list RS*], Nos. 75/17 and 189/21).

establishment of security standards for AI models and the introduction of security testing;

- the police: the establishment of secure and responsible use of AI to enhance the efficiency, resilience and quality of operations. This includes process optimisation and support for forensic analysis, big data processing, and the investigation and prevention of crime, while respecting human rights, legality and ethics;
- defence: the integration of AI to build a more effective defence system that continues to operate in full respect of human rights, in accordance with ethical principles and international law;
- crisis management and leadership: the use of AI to support situational awareness, the early detection and management of complex crises, and decision-making within crisis management and leadership structures, including the operation of the National Crisis Management Centre, in full compliance with security, legal and ethical requirements.

In so doing, it is essential to ensure the reliability, ethics and security of all solutions and control over them. Since errors or misuse in such systems may endanger lives, strict procedures for the testing, validation and certification of AI solutions in the field of security will be established. Close cooperation with national and European supervisory authorities will ensure that all technologies comply with ethical and safety standards and with the legal order. Even when AI is used in security-sensitive areas, including in cases exempt from the direct application of certain provisions of the AI Act, Slovenia will ensure respect for constitutional principles, human rights, the principle of proportionality and mandatory human oversight, while establishing appropriate national oversight and accountability mechanisms.

Slovenia will also support the development of domestic reference AI solutions in the fields of security, defence, crisis management and crime prevention, thereby contributing to the development of its own capabilities and the training of domestic experts.

At the same time, it is necessary to strengthen the security culture and competences of employees in both the public and private sectors, particularly with regard to the use of AI for security, defence and crisis management purposes. Organisations within the national security system must cooperate more closely to enable continuous exchange of information, data and good practices among institutions, thereby strengthening the resilience of citizens, the state and critical infrastructure.

Particular attention should be paid to the broader resilience of the democratic system, society and individuals to the influence of AI, particularly its malicious use. AI has already been used for years to manipulate public opinion and create synthetic realities, and research shows that, since the emergence of generative AI, uncritical use of AI can impair brain function and, consequently, critical thinking. Democracy and critical thinking are two legacies of the Enlightenment that must be protected and preserved in the age of AI.

Special attention must also be given to information integrity. The integrity of media and information is a strategic security issue; it is therefore necessary to ensure the principled protection of journalism, media content and data on media users within data environments, as well as protection against algorithmic curation. Algorithms that affect content visibility, ranking and moderation must be transparent. Unauthorised use of media content and user data for AI algorithm training must also be prevented. In this way, AI is placed within the broader framework of democratic resilience.

High-performance and highly autonomous AI systems, also referred to as artificial general intelligence, pose a particular risk in relation to the security and defence challenges outlined above. Although there is no consensus in the expert community on when, if ever, AI will be developed to this level, preventive measures require strengthening national expertise, guidelines and governance mechanisms for the early detection, assessment and management of risks associated with high-performance and highly autonomous AI systems.

This will help Slovenia develop into a resilient society with a secure digital environment in which AI acts as a safe shield that is transparent and under the sovereign control of the state. This approach strengthens public trust in technology, improves overall preparedness for crisis situations, and consolidates Slovenia's position as a trustworthy and secure digital community.

Challenges

Reliability and safety of AI use in critical infrastructure

- Ensuring the reliability of AI use in sensitive security environments where errors can endanger human lives or rights.
- Reliance on the accuracy of AI's initial outputs and trust in that accuracy.
- Ensuring safety and reliability in the use of AI models, particularly in critical infrastructure.
- The risk of excessive automation of decisions in the field of national security without appropriate human oversight.

Cybersecurity and skills capacity

- The shortage of specialists with expertise in AI and cybersecurity.
- The high costs and complexity of establishing and operating local AI systems.
- Ensuring that data used by AI remain on-site.

Connectivity and cooperation among institutions in the field of security

- The need for greater connectivity between systems and institutions operating in the fields of security, defence, civil protection and disaster relief, and crime prevention.
- The lack of national coordination and common mechanisms for the governance of AI in security environments.

Risk of misuse and the impact on democracy

- The risk of misuse of AI for malicious purposes (e.g. deepfakes, automated cyberattacks and information manipulation).
- The risk that AI may be used to undermine democratic processes and social cohesion and to manipulate public opinion.
- The rapid and large-scale spread of disinformation generated by generative AI tools may lead to destabilisation of society and the fabrication of reality and make it more difficult to distinguish between verified information and manipulative content.
- Advanced AI technologies enable new forms of influence on electoral processes, from microtargeting to automated campaigns, thereby increasing the risk of undue influence on political decisions and election results.

Public trust and the resilience of society

- Low public trust in the use of AI in the areas of security, defence and law enforcement.
- The need to protect and strengthen critical thinking, media literacy, information integrity and the mental health of the population as key aspects of societal resilience.

SO5: Strengthening Slovenia's international engagement and reputation in the field of AI

AI is a global field and its development transcends national borders; a successful strategy therefore requires active participation in international flows: knowledge exchange, joint standard-setting, and strengthening Slovenia's presence in Europe and elsewhere in the world. International cooperation does not reduce sovereignty; rather, it reinforces it by enabling the co-creation of rules that protect national interests and ensure that Slovenia helps shape global solutions in the digital age, rather than merely using them. Strengthening Slovenia's international engagement in the field of AI will also contribute to achieving its foreign policy objectives, particularly regarding scientific collaboration and the country's international reputation.

Slovenia has already demonstrated ambition and capability to cooperate and organise high-level events: as one of the first EU Member States to sign the 2018 Declaration on Cooperation on Artificial Intelligence,[15] committing to joint development and responsible use of AI, in 2024 it hosted the 2nd UNESCO Global Forum on the Ethics of Artificial Intelligence. By 2030, Slovenia will build on this foundation to strengthen its voice, contribution and visibility within the international community.

This strategic objective focuses on four areas of action:

- Participation in European programmes: Slovenia will actively participate in EU research and innovation programmes and initiatives (such as Horizon Europe, the EuroHPC Joint Undertaking and Digital Europe) to increase the number of international projects

[15] Available at: https://pisrs.si/mednarodniAkt?id=MA82__2018 (7 October 2025).

involving Slovenian partners and to secure more European funding for research and innovation in the field of AI;

- Leadership in global initiatives: Slovenia will strive to play a leading role in selected international organisations and initiatives, such as the OECD AI Policy Observatory, the Global Partnership on Artificial Intelligence, UNESCO's Recommendation on the Ethics of Artificial Intelligence and standardisation bodies (ISO/IEC). This will allow Slovenia to actively help shape global guidelines for the ethical and safe use of AI;
- Regional integration: Initiatives for cooperation in Central and Eastern Europe and the Mediterranean will continue or be newly established. The goal is to create a Central European AI hub that promotes joint research projects, innovation and the exchange of best practices;
- Attracting talent and investment: By strengthening its international visibility, Slovenia will become a more attractive environment for foreign experts, researchers and investors. By hosting high-level events, such as international conferences, and participating in global networks, Slovenia will establish itself as a recognised destination on the AI map, where top-tier teams operate and globally relevant solutions are developed.

In international forums, Slovenia will advocate for global standards that strengthen the protection of workers' rights in the use of AI and safeguard cultural diversity, copyright and media integrity.

Participation in the international arena will enable Slovenia to monitor trends and promptly adopt best practices – from generative AI to new regulatory approaches. At the same time, it will increase access to knowledge, tools and financial resources that strengthen the domestic AI ecosystem. In this context, Slovenia will also use AI as a tool for science diplomacy within European and global initiatives.

Challenges

Limited capacity for international cooperation

- Limited financial and institutional ability to actively participate in international initiatives and projects.
- Insufficient presence of Slovenian institutions, companies and experts at international AI events.

Coordination and continuity of cooperation

- The lack of coordination among ministries and institutions participating in international forums.
- Ensuring continuity of cooperation despite changes in political or institutional priorities.

- The lack of permanent diplomatic and expert representatives in key international organisations and standardisation bodies.

Unequal representation and global influence of smaller countries

- Unequal representation of smaller countries in global decision-making processes on AI development and regulation.
- Challenges in maintaining Slovenia's strategic influence within international structures dominated by technologically stronger countries.

Competition for talent and investment

- Competition for talent and investment with technologically more advanced countries.
- The lack of mechanisms for attracting foreign experts and retaining domestic experts in a competitive international environment.

Lack of a strategic approach to international presence and promotion

- The need for a long-term strategy for international presence that connects research, the economy, diplomacy and security interests.
- Insufficient promotion and export of Slovenian AI solutions, knowledge and companies to the global market.

4. Horizontal building blocks

AI is a transformative tool that connects people, data, infrastructure, knowledge and responsibility. In order to achieve its strategic objectives in the field of AI, Slovenia must establish robust horizontal building blocks – core components that enable potential to be translated into effects for individuals, society and the state. These building blocks provide a common foundation for the AI development ecosystem on which all sectors can successfully build.

The role of horizontal building blocks (HBBs) is to provide powerful computing, data and software infrastructure, high-quality data, competences and talent, regulatory foundations for innovative and ethical technology use, and an effective enabling environment. They are conceived as an interweaving of technological, scientific, human and societal factors that enable the transformation of vision into effective practice.

HBBs are also the basis for competitiveness and a guarantee of sovereignty, enabling AI to develop on domestic foundations, in the Slovenian language and in the interest of Slovenian society and the state. Their establishment and enhancement mark a transition from fragmented projects to a coordinated national system that connects research excellence, innovation capacity and the public interest. The task of HBBs is therefore not only technical but also cultural and societal: to enable open, ethical, safe and inclusive AI development that supports people and society, strengthens the economy and science, and builds trust in the country's digital future.

In this spirit, NSAI 2030 builds on six mutually interconnected HBBs, which together form the framework of the Slovenian AI ecosystem and define the systemic path along which Slovenia will develop, use and manage AI over the next five years. Each is a critical foundation, without which AI development cannot be safe, sustainable or sovereign. These horizontal building blocks are:

HBB1: Data and computing infrastructure

HBB2: Data

HBB3: Software infrastructure

HBB4: Competences and talent

HBB5: Ethics and regulation

HBB6: Enabling environment.

Together, these building blocks form an integrated national framework for the development of responsible and sovereign AI, based on openness, cooperation and sustainable progress, and supporting the implementation of measures to achieve the defined strategic objectives.

HBB1: Data and computing infrastructure

A high-performance, accessible, secure infrastructure located within Slovenia is the cornerstone of a sovereign AI.[16] Without adequate computing, data and network capabilities, AI remains merely a promise, not a real possibility.

By 2030, Slovenia must build a national infrastructure foundation that will also be used for AI – an infrastructure that will connect supercomputing and cloud capabilities, edge nodes, data centres, testing and experimental environments, and regulatory sandboxes. In doing so, it will establish minimum technical standards for the security of AI systems, including a verification system. This will ensure their security until they are incorporated into the NIS3 regulation.

AI infrastructure is not merely a technical system, but a strategic foundation of national digital sovereignty that ensures control over data and algorithms, supports the development and use of language models as well as AI research and the integration of AI into science, enables innovation in the public sector and the economy, and reduces dependence on global platforms. In this way, Slovenia will protect national systems and critical infrastructure from the effects of disruptions in foreign cloud services and build resilience, competitiveness and trust – key values underpinning the European approach to AI. As emphasised by the European Commission and the OECD, national infrastructure is crucial for the competitiveness of countries with limited market capacity, as it enables the sharing of resources, the development and use of open standards, and faster transfer of knowledge into practice.

In the development of data, computing and network infrastructure for AI, collaboration with large companies plays an important role, as their investments, expertise and capabilities significantly contribute to ensuring national connectivity, sovereign data storage and a robust infrastructural foundation. Such investments are a key support pillar for the functioning of the business and public sectors, enabling the effective complementing of public infrastructure capacities.

The development of data and computing infrastructure also requires an appropriate investment and regulatory environment. Within the limits of its competence, the state will actively contribute to removing administrative barriers to the establishment of data and computing centres and to improving the predictability and efficiency of procedures, thereby encouraging private investments in this type of infrastructure. Simultaneously, in cooperation with relevant ministries, it will strategically address the provision of competitive, stable and sustainable energy supply for the needs of AI infrastructure, taking into account the objectives of the green and digital transition. Where appropriate, the development of data and computing infrastructure will also be based on public–private partnership models, ensuring

[16] In this document, the term “data and computing infrastructure” refers to the capabilities for processing data and performing the complex computational operations required for the development and use of AI (e.g. data and computing centres, cloud infrastructure, and high-performance computing). The term is used only exceptionally when referring to the broader information technology framework.

the systematic accessibility and easy use of infrastructure for the business sector, particularly micro, small and medium-sized enterprises, as part of a shared national AI platform.

In planning and upgrading data and computing infrastructure for AI, it is necessary to systematically consider various risks, including climate-related risks associated with the operation of digital infrastructure. This includes assessing the exposure of data centres and critical information systems to the effects of climate change, ensuring energy resilience, and maintaining continuous operation during crises. Such an approach contributes to the long-term security, reliability and sustainability of the AI ecosystem and supports the objectives of resilience of critical infrastructure outlined in the strategy.

In recent years, Slovenia has already taken significant steps in this area. The Slovenian AI Factory is a national initiative co-financed under the EuroHPC Joint Undertaking call for proposals. It will enable companies, researchers and the public sector to acquire information, competences and professional support for accessing high-performance computing capacity, datasets and AI development resources. At the same time, it serves as the research and development core of the Slovenian AI ecosystem, enabling the training of models, the development of algorithms and the testing of new approaches in collaboration with research institutions, companies and the public sector. By upgrading capabilities and connecting with European partners, it strengthens domestic scientific excellence and innovation capacity. In addition to new investments, existing capacities – particularly the Arnes cluster, which already enables the use of high-performance computers and AI services – will be utilised until new systems are established.

In 2025, construction began on the new Arnes data centre, which will house the future supercomputer (the successor to the high-performance Vega computer). This centre is a key infrastructure pillar of the national AI ecosystem: in addition to providing computing power for training advanced AI models, it will offer secure data storage, infrastructure for a national research data space and the possibility for eligible organisations to install their own equipment. This will give advanced Slovenian users easier access to high-performance, AI-optimised computing infrastructure and useful AI tools, models, data, workflows, etc.

The planned national AI infrastructure will establish an operational core for the practical use of AI, designed for the safe, stable and cost-effective use of AI models by all stakeholders: companies, public institutions, researchers and non-governmental organisations alike. It will operate under the principle of “AI in the public interest”, through a single access portal, a transparent model of services and billing, and clear standards for security, quality and transparency. The infrastructure will support the running of domestic, European and customised most advanced foundational models on the Slovenian AI infrastructure, thereby reducing costs of access to computing power for all stakeholders, particularly SMEs and the public sector.

Together, the Slovenian AI Factory and the national AI infrastructure will form the two pillars of sovereign AI in Slovenia: the first promotes the development and use of the most advanced AI models and innovations, while the second enables the broadest possible use by society, strengthening the country's digital and technological sovereignty, competitiveness and resilience.

These infrastructure investments directly contribute to achieving the strategic objectives of NSAI 2030.

HBB2: Data

Data are a fundamental resource for AI and critically important for a country's digital sovereignty. Their value is further enhanced when they are accessible, interoperable and held in trusted environments. They are a key foundation for training and adapting AI models and for the development of data-driven services and solutions.

Increasing the availability of data sources – from the national open data portal (OPSI) to the new FAIR research data infrastructure in the new Arnes data centre in Maribor – supports the objective of building AI data spaces. These data spaces will enable the integration of high-quality data from multiple sectors (the science, business and public sectors) in an interoperable and legally compliant manner. At the same time, it is important to ensure that access to such data, including anonymised language resources created and collected with public funding, is available under equal conditions to all legal persons registered in the Republic of Slovenia.

In this regard, NSAI 2030 also follows the European approach:[17] ensuring access to data while fully respecting the legal framework for the protection of personal data, privacy and ethical principles in the use of data. These aspects are an integral part of the European legal framework, particularly in accordance with the General Data Protection Regulation, the Data Governance Act, the Data Act, the Directive on open data and the re-use of public sector information, and the European Data Union Strategy,[18] and are systematically embedded in the principles governing the development and use of AI data infrastructure.

[17] Slovenia's vision for the development of AI infrastructure is aligned with European strategic orientations. The EuroHPC Joint Undertaking has selected Slovenia as one of the host countries for new AI factories – specialised centres for AI development – alongside five other countries (Austria, Bulgaria, France, Germany and Poland), thereby expanding the network of European AI centres. At the EU level, within the framework of the Digital Decade Policy Programme and initiatives such as the AI Continent Action Plan, five key pillars of development are being established: infrastructure (AI factories), access to data, sectoral deployment, talent development and an adapted regulatory framework. Slovenian projects, such as the Slovenian AI Factory and the new supercomputer, fit within this framework – they strengthen the European network of high-performance computing and data centres and contribute datasets in priority areas such as health, the environment and cybersecurity. Examples of good practice confirm that cross-sectoral cooperation and investment in infrastructure are essential for the success of national AI strategies – a direction also followed by Slovenia.

[18] European Commission (2025). The European Data Union Strategy. Available at: https://digital-strategy.ec.europa.eu/sl/policies/data-union (8 October 2025).

We aim to create an interconnected and interoperable ecosystem of data spaces at both the national and European levels, ensuring high-quality, securely and ethically managed, and semantically harmonised data for AI use. Within the existing legal framework, the state will systematically enable access to public data, thereby promoting the development and use of trustworthy AI solutions. This includes national data spaces in priority areas (tourism, mobility, the environment, spatial planning, agriculture, energy, public administration, cultural heritage, smart communities, science, industry, healthcare, long-term care, finance, competences and media) and Slovenia's integration into European data and scientific networks, such as the European Open Science Cloud and the European virtual institute for artificial intelligence (the Resource for Artificial Intelligence Science in Europe, RAISE).[19]

National thematic data spaces will be designed in accordance with the European model of common data spaces and will be interoperable with corresponding European data spaces, ensuring technical, semantic and legal compliance while preventing data fragmentation. This will involve the use of semantic profiles, ontologies, international data spaces and data space connectors, and Gaia-X standards and the European Open Science Cloud.

Within this framework, particular attention will also be given to data related to sustainable development, the environment, and environmental, social and governance (ESG) aspects, with a view to promoting the standardised and lawful use of relevant data sources to support the green transition, sustainable policies, corporate reporting and data-driven decision-making in the public sector, in accordance with European initiatives such as the European Green Deal Data Space. At the same time, it is important to distinguish between research data environments and administrative and economic data flows; therefore, in addition to participation in research infrastructures, the development of integrated national approaches to the reuse of data from public registers and administrative datasets will also be encouraged, particularly for corporate reporting purposes under the Corporate Sustainability Reporting Directive, the European Sustainability Reporting Standards and voluntary sustainability reporting for SMEs.[20] Slovenia's integration into the European Open Science Cloud will take place via a national node provided by the public institution Arnes in cooperation with research and educational institutions.

As a horizontal and priority task under HBB2, a Slovenian language data space will be established to support the development, training and use of AI in the Slovenian language. It will bring together high-quality, legally and ethically compliant language resources from the

[19] The aim of RAISE is to operate as a network rather than a single centre – by bringing together AI factories, supercomputing centres, research capacities and data platforms. The strategy highlights the roles of infrastructure access, talent development, policy coordination and synergies with other initiatives, meaning that RAISE will serve as a key mechanism for the operational implementation of AI strategic objectives in science. Cf. above.

[20] The European Financial Reporting Advisory Group. (2025). Mapping of Digital Platforms and Initiatives for SME Sustainability Reporting (October 2025). Available at: https://www.efrag.org/sites/default/files/media/document/202510/EFRAG%20Mapping%20of%20Digital%20Platforms%20and%20Initiatives%20for%20SME%20Sustainability%20Reporting%20Report%20%282%29.pdf.

public sector, research and educational institutions, and, where appropriate, the private sector. Taking into account copyright and related rights, personal data protection, and the principles of trusted data sharing, it will serve as a key infrastructure foundation for the development of language models, support for public services, research and the economy, and the strengthening of Slovenia's digital and linguistic sovereignty. When incorporating linguistic and cultural content, it is explicitly ensured that the use of copyright protected works is permitted only with the express consent of the rights holders and under conditions that preserve their economic interests and enable sustainable creation.

The establishment of sectoral data spaces will take place in phases, taking into account the development potential, data maturity and multiplier effects of individual sectors. In the first phase, priority will be given to developing data spaces in the areas of tourism, mobility, the environment, agriculture, energy and spatial planning. The second phase will focus on public administration, cultural heritage, smart communities and open science, and the third phase on industry, healthcare, long-term care, finance, competences and media. Such an approach enables a focused and gradual establishment of data spaces and faster achievement of developmental and societal impacts. The sequencing of the phases may be adjusted depending on the readiness of sectors and European initiatives.

In the development of data spaces, particular attention will need to be paid to sectors involving legally and substantively sensitive content, particularly in culture, where copyright and related rights, as well as the right to remuneration, are essential for sustainable creation. NSAI 2030 specifically emphasises that the inclusion of copyright protected works in data spaces or data altruism schemes requires the explicit consent of rights holders and that conditions for data sharing must be defined in a way that does not undermine their economic interests. Data altruism is thus understood as an option – not an obligation – and the sharing of cultural content must be based on voluntariness, transparency and the possibility of retaining remuneration.

The strategy envisages the development of tailored and standardised models for trustworthy data sharing, particularly within the framework of the Slovenian language data space, which will enable the voluntary inclusion of linguistic and cultural content – primarily for research, educational or other non-commercial purposes – while consistently respecting copyright and related rights. These models will be based on clear legal, organisational and technical frameworks and may include licensing, the use of open or adapted licences, or other mechanisms defined by the creators or holders of copyright or related rights or collective management organisations. This approach allows the integration of cultural content into AI development in a way that promotes innovation, open science and linguistic sovereignty, while preserving creative potential, economic interest and stakeholder trust.

At the same time, standards must be established and enforced for the secure collection and processing of data and for safe AI training on the basis of data according to the "data protection by design" principle. In the context of sensitive data, a differential privacy

framework must be observed and secure federated learning must be ensured when learning on distributed data sources. Synthetic data should also be properly labelled and filtered to provide protection against data poisoning attacks.

The establishment of common rules, trusted intermediaries and data exchange mechanisms will enable the transition from fragmented databases to a unified and interoperable data ecosystem, combining public and private data sources. The key principles of this approach are derived from the European concept of common data spaces, [21] which are based on interoperability, security, privacy and data reuse, in accordance with the Data Governance Act and the Data Act. In this way, Slovenia will lay the foundations for the development of responsible AI, accelerate innovation and strengthen its role in the emerging European data union.

An important aspect is the strengthening of data literacy and governance structures. A framework will be established for managing metadata, security policies and licences, enabling high-quality, ethical and lawful data exchange among stakeholders. European Digital Innovation Hubs, research organisations and public institutions will play a key role as connectors, mentors and data stewards.

The establishment of such a data ecosystem will enable Slovenia to become a hub of trustworthy data practices in the region, strengthen its own innovation capacity, and ensure that AI is based on high-quality, transparent and inclusive data.

HBB3: Software infrastructure

The AI technological stack encompasses the full range of essential software solutions that enable the development, training, testing, deployment and use of AI – from algorithms, foundational and domain-specific models, workflows and machine learning tools to open-source libraries,[22] standards and user interfaces. It is a multi-layered software infrastructure that connects data sources, models and applications into an integrated system tailored to local needs. Together with datasets and high-performance hardware, the AI software infrastructure stack forms the technological backbone of Slovenian AI, which will increase independence in the deployment of AI solutions.

In the context of HBB3, an open national AI platform is being established as the central software and integrative building block of NSAI 2030. The platform is designed as a shared national infrastructure that goes beyond individual projects and connects foundational and

[21] Available at: https://digital-strategy.ec.europa.eu/en/policies/data-spaces (9 January 2026).

[22] The term “open-source library” is used in this document as a technical term for a collection of reusable software components (e.g. functions, classes and modules), together with documentation, intended for integration into other software solutions. Open source means that the source code is publicly available and published under an open-source licence, which, under certain conditions, permits its use, inspection, modification and further distribution.

sectoral models, data services, and development and operational tools for AI. It will provide secure and inclusive access both to state-of-the-art models from commercial providers and to the development of AI models based on open data, open-source code and open standards. Special attention will be paid to ensuring that the platform supports the Slovenian language at the highest level; it will operate in compliance with relevant European and national legislation while ensuring appropriate protection of personal data. It will be developed and managed in cooperation with the private sector, including through public–private partnership models, while ensuring simple, secure and interoperable access to key AI capabilities for the public sector and the economy, particularly for micro, small and medium-sized enterprises and providers of AI and ICT solutions, under clear and transparent conditions of use. The platform will function as a supporting and integrative infrastructure and will not interfere with the competitive market for commercial AI solutions. Until domestic infrastructure is established, the national AI platform will be hosted on infrastructure located outside Slovenia, but necessarily within the EU.

One of the key aspects of the national AI technological stack is the adaptation of global technologies to local needs. To preserve linguistic and cultural identity, Slovenia will ensure that foundational AI models appropriately incorporate the Slovenian language, including as many of its variants as possible, while remaining aligned with the current standards of the standard Slovenian language, socio-cultural characteristics and the legal framework. This will ensure that AI solutions (e.g. virtual assistants) are effective and in accordance with Slovenian legislation, culture and values. Effective use of AI in e-government, healthcare, education, the judiciary and other public systems requires solutions that understand the Slovenian language and its rules (e.g. decision-support models) and that have been trained on Slovenian legal data. Our own set of AI technologies also ensures that AI solutions are developed safely and in compliance with regulations (e.g. in accordance with the requirements of the AI Act and Slovenian legal and ethical standards), thereby strengthening user trust and security.

Another important aspect is open source, which, through open models and software tools, enables transparency, democracy, faster progress and decentralised control of development. In a national sense, this means that domestic experts and organisations can study, supplement, adapt and improve models and thus more quickly meet specific national requirements, such as support for the Slovenian language, the inclusion of legal rules and the consideration of local social characteristics. An open and repeatable design also increases trust in AI systems, as it enables their verifiability and compliance with European guidelines on transparency and ethics. The strategy therefore stipulates that AI software solutions, models and tools developed with mostly public funds are, as a rule, publicly available as open-source or open-access prototypes, when this is technically feasible, legally permissible and secure. Public institutions and the research sector will, where possible, give priority to the use of such solutions, thereby strengthening the transfer of knowledge, the participation of the professional community and the long-term value of public investments in AI development.

To this end, a national catalogue of open AI software building blocks will be established, which will bring together in one place publicly available AI models, software components and tools developed or co-financed with public funds. In the public procurement of AI solutions, the use of open standards, interoperable architectures and technologies that enable transparency and independent verification and reduce the risk of being tied to a particular provider shall be evaluated, where appropriate and possible, as part of the quality and sustainability criteria, while fully respecting the rules of public procurement and non-discriminatory treatment of providers.

The third important aspect is the technical security of technologies. It is essential to establish a system for assessing and managing security risks in the development and use of AI, including security tests and verification of the robustness of AI models. These will be part of the certification procedures in accordance with the AI Act and the future European certification scheme for AI cybersecurity.

Establishing our own AI technological stack is of strategic importance for accelerating innovation, improving the competitiveness of the economy, increasing national security and sovereignty, and the digital transformation of the public sector. A one-stop AI software infrastructure will make it easier for domestic (start-up) companies and researchers to develop new artificial intelligence applications, as they will have access to proven components (models, algorithms, tools) without licensing barriers. This will reduce entry barriers and development costs and encourage more domestic innovations in the field of AI, including those adapted to the Slovenian environment. At the same time, it will enable the state to integrate AI into public services in a way tailored to the needs of its citizens.

The most important open-source software building blocks of the Slovenian national software infrastructure include the standard general software building block for Slovenian speech recognition and the standard general software building block for Slovenian speech synthesis. Both are included among the top-priority national development tools.

In its AI Continent Action Plan, the European Commission specifically highlights the development of algorithms and their use in key industries as one of the five strategic areas. In addition, the Apply AI Strategy specifically promotes the introduction of AI solutions in the public sector (e.g. healthcare, justice and administration) to improve the quality and accessibility of services; the fundamental condition for this is the establishment of a national software infrastructure that will enable the development and use of appropriate domestic solutions in practice.

Some of the necessary measures in this area are already partially addressed by the Slovenian AI Factory, for example with the planned central AI platform, which will be a centralised hub for models, databases, tools and workflows. The factory is also expected to develop a workflow routing infrastructure that connects national supercomputing and cloud resources,

which will allow the entire AI development process (from data preparation to the training and validation of models) to be carried out in a national environment. Language technologies are also among the priority areas, as the factory will support the development and use of advanced models for Slovenian, intended for media, culture and education. It should be emphasised that for systems affecting decisions about people or creative content, principles of transparency and explainability are applied to prevent biased or discriminatory treatment and to ensure respect for copyright and related rights.

The Slovenian approach to establishing an AI software stack must also be well aligned with broader European efforts. The EU is establishing and co-financing a network of AI factories, of which the Slovenian AI Factory is a part, which, together with other AI factories, will strengthen the European ecosystem through the exchange of resources, models and tools. Advanced EU countries are investing in national AI platforms and open-source code to enhance their competitiveness. Numerous best practices from EU Member States that are advanced in AI (France, Germany, Sweden, Estonia) show that developing a domestic, open and locally adapted AI stack is essential for any country that wants to maintain competitiveness, cultural identity and autonomy in the field of AI. Slovenia will strive for sovereignty while simultaneously following European guidelines and aiming to be integrated into the wider EU AI ecosystem, as this will allow it to more effectively develop a comprehensive ecosystem of safe and as independent as possible national AI software infrastructure.

HBB4: Competences and talent

Human capital is a central resource for competitiveness and progress in the digital age. AI is only as capable as the people who create, use and understand it are trained and skilled. Strengthening competences and developing talent for AI is a cornerstone of a sovereign and responsible digital future, as it ensures that AI development and use are based on domestic knowledge and values while also accelerating AI adoption in all sectors. Slovenia will foster an environment where AI knowledge is combined with creativity, entrepreneurship and social responsibility.

Slovenia, for its size, has an exceptionally strong core of expertise in the field of AI, which is also internationally recognised. However, research and experience in companies (especially SMEs), public administration and civil society show that a lack of competences, experts and interdisciplinary profiles is one of the main barriers to the wider adoption of AI technologies.

HBB4: Competences and talent brings together five key priorities:

- the systematic introduction of educational content in the fields of computer science, digital literacy (including data literacy), understanding of algorithmic processes and AI at all levels of education, particularly in primary and secondary schools;

- the development of competences for future professions;
- the continued promotion of AI research and the development of incentives for the adoption of AI in science;
- the building of research, development and innovation capacities that enable the development of domestic AI solutions; and
- attracting, connecting and retaining experts in AI and related fields, including language professionals, to ensure Slovenia's long-term competitiveness in the international environment.

Slovenia will continue to develop a comprehensive education system that promotes digital literacy, understanding of AI, and the ethical and security aspects of technologies, while strengthening links between science, the economy and the public sector.

By 2030, Slovenia aims to significantly increase the number of highly skilled ICT and language professionals, as well as the share of the population with at least basic digital competences. To achieve this, the education system must be adapted at all levels, with programmes being strengthened to attract leading international experts and encourage Slovenian researchers to return from abroad.

Programmes for upskilling employees must be established to help them adapt to changes in the labour market and strengthen resilience to technological change. Reskilling programmes should also be established to enable unemployed persons and employees interested in this field to find employment in the sector. Micro-credentials will play an important role in this regard, as they constitute a system for the rapid acquisition and recognition of knowledge and skills. In this way, Slovenia will build a broad, dynamic and inclusive pool of professionals capable of developing and responsibly using advanced technologies for the benefit of people, the economy and society.

The strategy emphasises the importance of social dialogue and the active role of social partners in addressing the impact of AI on jobs, working conditions and the organisation of work. The involvement of representatives of employers and employees in discussions, training and the development of guidelines for the responsible use of AI in the workplace will be encouraged, particularly with regard to issues of algorithmic management, privacy and personal data protection, cybersecurity, and ensuring human oversight of automated decision-making systems. Strengthening knowledge and understanding of AI among social partners is an important basis for informed consultation, co-management and, where appropriate, collective regulation of issues related to the use of AI, in accordance with the national and European legal framework.

Special attention will continue to be given to inclusion and equal opportunities, particularly by ensuring access to lifelong learning and strengthening the digital competences of older people and vulnerable groups. To increase the effectiveness of educational measures, target

groups will be segmented, on the basis of which tailored content and vertically structured learning packages will be developed, while also striving to reduce digital divides, including regional disparities. In this context, attention will also be given to groups that play important supportive and care-giving roles in everyday life, particularly in home and community settings, and who require appropriate support in using digital and AI-supported services. The development of accessible educational content, tools and support solutions will be encouraged to strengthen their ability to use AI independently and safely when accessing information, rights and public services and communicating with institutions.

The development of research capabilities and competences must be oriented towards scientific excellence, strengthening collaboration between research institutes, universities, centres of excellence, the competence centre and the business sector, while also providing incentives for interdisciplinary research and support for young researchers.[23]

This will enable Slovenia to create conditions for sustainable growth in areas of expertise and research excellence and for the development of innovations that are based as much as possible on domestic expertise.

HBB5: Ethics and regulation

AI can only be beneficial to people and the public interest if its use is transparent, ethical, safe, responsible and compliant with the legal order. NSAI 2030 therefore includes this building block, which ensures that the development and use of AI in Slovenia are based on respect for human rights, the rule of law and fundamental democratic values.

The objective of HBB5 is to establish a comprehensive framework of trust – an integrated system of legislation, ethical and safety standards, oversight mechanisms, and institutional accountability – that enables the ethical, safe, transparent and responsible use of AI in all sectors. Ethical and regulatory governance of AI in Slovenia is based on the applicable European legal framework, with national mechanisms designed to support the implementation, understanding and effective practical application of these rules, without duplicating or creating parallel regulatory obligations. Through its implementation, Slovenia will become part of the common European environment of trustworthy AI, in which technology serves people, respects human rights and mitigates risks, thereby strengthening citizens' trust in the country's digital future.

Slovenia will implement the EU AI Act and give priority to the introduction of mechanisms that strengthen the protection of fundamental rights and ensure responsible AI use in practice, including the establishment of a national framework for risk management, assessments of impacts on fundamental rights, ensuring the traceability of AI systems and labelling content in accordance with the requirements of the AI Act, particularly in the use of AI in the public sector.It will promote the development of trustworthy innovations and an "Ethics by Design"

[23] Cf. EIT Digital, AI4Europe, Horizon Europe.

approach. In this context, it is also essential to ensure technically secure and trustworthy AI systems through the application of appropriate technical standards for reliability and security, where security is understood as an integral part of system reliability, in accordance with relevant EU technical standards (e.g. EN ISO/IEC 27001, 23894 and 42001).

To support the effective implementation of the EU AI Act and to ensure trustworthy AI use within the Slovenian linguistic and legal environment, a national reference function for AI quality will be established within the framework of NSAI 2030, with a particular focus on language and foundational models. This function will serve as an expert and operational support mechanism for the public sector, regulators and contracting authorities in assessing the quality, reliability, transparency and appropriateness of AI use, particularly in public and regulated environments. It will serve as a bridge between European standards and the national framework and will not create additional regulation or a national standard, but will support the implementation of the European framework.

Particular attention will also be given to the security of AI systems, including addressing their vulnerabilities, risks of misuse, and the protection of privacy and data throughout the entire lifecycle of AI systems. The strategy promotes the strengthening and alignment of national capacities for testing, monitoring security risks, handling incidents and developing guidance for the secure use of AI.

Regulatory sandboxes will be designed as part of a comprehensive framework that enables a clear, transparent and proportionate transition of AI from the testing phase to actual use, in accordance with requirements for security, reliability and ethics and applicable legislation. The sandboxes will also enable targeted testing of AI systems in sectors where there is a high risk to fundamental rights, particularly in healthcare and long-term care, supported by strengthened mechanisms for ethical review, personal data protection and the involvement of competent sectoral authorities. Attention will also be given to supporting standardisation, including the use of appropriate documentation, certification approaches, ensuring interoperability between systems, and promoting open or hybrid architectures that enable reliable and secure AI development in practice. The strategy also promotes the use of established Industry 4.0 reference architectures, open standards and semantic approaches as recommended practices to ensure interoperability and broader adoption of AI in industrial environments.

Within HBB5, particular attention will be devoted to supporting compliance with AI-related requirements. The state will establish targeted support mechanisms to facilitate the understanding and implementation of regulatory, ethical and technical requirements related to the use of AI, including those set out in the AI Act. These mechanisms may include voucher schemes, subsidised conformity assessment services, support in the preparation of documentation, and co-financing of certification and evaluation procedures, with a view to reducing administrative and financial burdens and promoting the responsible adoption of AI. To this end, Slovenia will also strengthen national expert capacities in the fields of ethical

review, security testing and AI compliance and will promote the development of interdisciplinary competences tailored to the Slovenian legal and societal environment.

The envisaged National Council for AI Ethics will operate as an advisory and oversight body responsible for monitoring compliance of systems with ethical principles, preparing guidelines and ensuring human oversight over the development and use of AI.

In parallel, Slovenia will develop resources for ethical and safe AI – including codes of conduct, guidelines for responsible innovation and the technical reliability of technologies, impact assessment procedures that will also include recommendations of UNESCO and the Council of Europe, and a methodology for assessing impacts on human rights, democracy and the rule of law. This methodology, developed by the Council of Europe, enables the assessment of AI-related risks to human rights, democracy and the rule of law and promotes an inclusive and transparent approach to risk management. In the development and use of AI, a holistic approach to risk assessment will be applied, taking into account not only human rights, but also impacts on privacy, cyber resilience, national security, and the quality and reliability of public services, in proportion to the purpose and use of AI.

Slovenia will further strengthen capacities for AI security, risk assessment and oversight. It will increase sovereignty over algorithms and models operating on domestic infrastructure. In addition, it will introduce mechanisms for the ethical and lawful use of data within the framework of the Data Governance Act and ensure the protection of privacy and rights in data sharing within open data spaces. Public procurement will be recognised as an important lever for promoting secure, reliable and responsibly designed AI solutions in the public sector.

Particular attention will be given to system robustness, bias testing, data protection and cybersecurity, including the introduction of standardised procedures for algorithmic auditing and incident handling. This will reduce cyber and societal risks associated with the use of AI.

HBB5 connects Slovenia with the European and international framework for trustworthy AI (the EU AI Act, UNESCO, the Council of Europe, the European Artificial Intelligence Board) and contributes to Slovenia's recognition as a country with a responsible approach to AI.

HBB6: Enabling environment

AI does not develop in isolation from its environment – it is embedded in an ecosystem that connects science, innovation, entrepreneurship, public policy, individuals and society as a whole. To support the accelerated and responsible development of AI, Slovenia must ensure a comprehensive enabling environment that allows ideas to move rapidly from concept to tested solutions and supports their safe testing, deployment and use in both the public and private sectors. This building block therefore constitutes the connective tissue linking all other building blocks – physical and software infrastructure, data, knowledge, and regulation – and creates the conditions for effective governance and the sustainable growth of the AI ecosystem.

Slovenia is developing and strengthening a coordinated system of support mechanisms that brings together, within a single framework for AI development and use, competence centres, European Digital Innovation Hubs, accelerators, research and technology parks, clusters, incubators, and public agencies.

Within this framework, a key role will be played by the Competence Centre for Artificial Intelligence (CCAI), which is being established as a single entry point and the central national hub for knowledge, technologies and services in the field of AI. The CCAI will systematically connect the research environment, the business sector, the public sector and the enabling environment, thereby providing comprehensive support for the development, testing and deployment of AI solutions. Its mission is to strengthen competences in the field of AI, build trust, and position Slovenia as a recognisable and sovereign AI ecosystem in the international environment. As part of its activities, it will also provide access to expert, technical and legal information to ensure compliance, in close cooperation with the competent regulatory authorities, including the authority responsible for implementing regulatory sandboxes. In addition to its advisory role, it will also provide practical implementation support, particularly to micro, small and medium-sized enterprises and other organisations with limited internal capacities, in developing AI strategies, ensuring the compliant and effective deployment of AI solutions, preparing technical and process documentation, conducting risk and impact assessments, and supporting conformity assessment and certification procedures for AI systems, in accordance with the European legal framework. It will operate in close cooperation with European Digital Innovation Hubs and other stakeholders in the enabling environment, serving as the operational foundation of the support ecosystem and a key tool for translating research results into practice. The CCAI will also act as a contact point for participation in European and international competence networks.

In the next phase, Slovenia will gradually upgrade European Digital Innovation Hubs into AI experience centres, in accordance with the Apply AI Strategy. These experience centres will operate as regional hubs for the practical use of AI, enabling the testing, piloting, demonstration and gradual deployment of AI solutions in real-world environments in the business, public and research sectors. They will provide companies and public organisations with access to infrastructure, data, tools and expert support and will assist them in transitioning from experimental use to operational use of AI, particularly with regard to the technical, organisational and regulatory aspects of deployment. Particular emphasis will be placed on supporting micro, small and medium-sized enterprises and public institutions with limited in-house capabilities. The experience centres will be closely connected with national and European initiatives for AI use and will complement the role of the CCAI as the central national entry point, thereby strengthening the capacity of the business and public sectors to adopt AI and enhancing the international competitiveness of Slovenia’s AI ecosystem.

Through the development of regulatory sandboxes, the safe testing of innovations will be enabled, in accordance with the European "test first, regulate smartly" approach.[24] This will encourage the adoption of innovative solutions in the public sector, while creating conditions for collaboration between start-ups, researchers and companies in the development of public services using AI.

As part of the enabling environment, the state will systematically promote the use of innovative public procurement, pilot projects and pre-commercial procurement as mechanisms to accelerate the deployment of AI in the public sector. Public institutions will facilitate the testing of AI solutions in real-world environments in collaboration with domestic AI providers, research organisations and start-ups. Particular emphasis will be placed on supporting successfully implemented pilot projects in their transition to operational use, thereby enabling the creation of reference solutions, the transfer of knowledge to the public sector and the strengthening of the competitiveness of the domestic AI ecosystem. This approach will enable the public sector to become a "first user", facilitating faster transfer of innovations into practice while ensuring compliance with public procurement rules, the principles of transparency and EU legislation.

The development of the enabling environment in NSAI 2030 is aligned with the Apply AI Strategy, which promotes the practical adoption of AI in both the economy and the public sector and strengthens the competitiveness of European companies. By participating in European networks and funding programmes, Slovenia will contribute to the common European objective of increasing the practical use of AI and achieving a responsible digital transformation of the economy.

The enabling environment will also include financial and advisory mechanisms aimed at projects that are based on responsible, sustainable and trustworthy AI. These instruments will be complemented by the enabling environment of the CCAI and European Digital Innovation Hubs, which will assist businesses and public institutions in adopting AI solutions, accessing data, infrastructure and expertise, and ensuring compliance with legislation. Special attention within the enabling environment will be given to deploying AI solutions that address the needs of users of public and community services and individuals performing supportive and care roles in home settings. Projects and services that enhance information accessibility, service coordination and digital inclusion and relieve users and care providers will be encouraged, while ensuring human oversight, protection of rights and trustworthy AI use.

HBB6: In this way, the enabling environment will allow the strategic objectives of NSAI 2030 to be realised in practice – through a connected, supportive and open network of institutions

[24] Cf., for example, European Commission (2021). Coordinated Plan on Artificial Intelligence 2021 Review. Annexes to the Communication from the Commission, Fostering a European approach to Artificial Intelligence, COM(2021) 205 final.

that facilitate the transition from research to innovation and from innovation to social and economic impact.

5 Governance structure of NSAI 2030

The successful achievement of all strategic objectives depends on effective, transparent and inclusive governance and implementation of NSAI 2030.

NPAI 2025 established solid foundations for its implementation. It envisaged unified planning and coordination at the national level, while sectoral implementation of activities was entrusted to the competent ministries. The importance of effective coordination at the level of the Government of the Republic of Slovenia and the ministries involved was emphasised, along with the need for regular monitoring and appropriate responses to changes through the upgrading or adjustment of implementation instruments. NSAI 2025 also rightly highlighted the risk of overlapping measures and shortcomings in the planning of their implementation phases.

During the implementation of the programme, significant challenges emerged precisely in this area: the lack of central coordination, the absence of a unified system for monitoring progress towards the achievement of objectives, the fragmentation of responsibilities for implementing measures, and disconnected indicators and data sources prevented a comprehensive overview of the programme's performance. Ministries implemented measures largely independently, which led to fragmented projects and a slow pace of implementation. Due to these limitations, it was not possible to clearly assess the effects of NPAI 2025 or to address gaps in its implementation in a timely manner.

Experience from recent years shows that, for the next phase of AI development in Slovenia, it is essential to establish more integrated, transparent and goal-oriented governance. A step in this direction was taken at the beginning of 2023 with the establishment of the Ministry of Digital Transformation, which has been assigned a central coordinating role in the field of artificial intelligence, while line ministries are responsible for implementing individual measures within their respective areas of competence. In the future, the Government may decide to take a further decisive step by establishing an independent government service that would carry out tasks in the field of AI as defined by law, European Union legislation on AI, ratified international agreements in the field of AI and other regulations.

A centralised model of governance enables clearer prioritisation, faster and more coordinated action, and more effective monitoring of achievements in the field of AI. The establishment of such a model is intended to address the fragmentation of powers and ensure decisive governance with a clear mandate, adequate human and organisational capacities, and political support, thereby enabling strategically aligned and timely decision-making at the national level. The Ministry of Digital Transformation is thus responsible for the strategic direction of all activities, monitoring progress and coordinating policies among stakeholders in the field of

AI (through the interministerial coordination group and the AI Council, which are presented below). The governance structure is based on the principle of streamlined and transparent decision-making, with a clearly designated responsible institution and a single entry point for stakeholders, while individual bodies are functionally delineated and limited to tasks of strategic coordination, expert support and implementation monitoring.

Such an approach is not based solely on domestic experience,[25] but is also aligned with the latest international guidelines for the governance of AI development. In its report *Governing with Artificial Intelligence*, the OECD emphasises that the deployment of AI in the public sector must be comprehensive and strategically driven, and that whole-of-government coordination is essential for success. Governments should actively involve all stakeholders, from experts and academics to industry and civil society, and establish clear, proportionate rules and oversight mechanisms to ensure the safe and ethical use of AI. Particular emphasis is also placed on transparency and accountability: the public sector must ensure that AI is used in an ethical and trustworthy manner, with high standards of transparency and accountability in the management of data and algorithms.

In addition to OECD recommendations, NSAI 2030 also relies on European development guidelines. The new, ambitious *Apply AI Strategy*, which aims to accelerate and broaden adoption in key sectors, also envisages the establishment of a new governance framework: the forum of the *Apply AI Alliance*, bringing together providers of AI solutions, leading industrial companies, the academic community and the public sector, is being established to ensure that AI policies are developed in a coordinated manner and based on actual needs and trends. Alongside it, a European AI observatory is being set up to continuously monitor development trends and evaluate the impacts of AI across sectors.

With NSAI 2030, Slovenia is following these guidelines – the role of the Ministry of Digital Transformation, including leading the interministerial coordination group and cooperating with the AI Council, will strengthen the strategic governance of AI at the national level; the establishment of unified monitoring and evaluation mechanisms will enable systematic monitoring and ongoing adjustment of the strategy, ensuring that measures are implemented in a targeted, data-driven manner and in continuous dialogue with all stakeholders. At the same time, the central role of the Ministry of Digital Transformation will also simplify participation in European initiatives and accelerate access to development funding; this will enable the state to make better use of its strengths in the field of AI.

5.1 Interministerial coordination group for the implementation of NSAI 2030

For the effective implementation of NSAI 2030, a permanent interministerial coordination group will be established as the central mechanism for coordinating, monitoring and adjusting

[25] For details see Appendix 2. About this document.

the implementation of the strategy across ministries. It builds on the experience of NPAI 2025 and on recommendations from international organisations that the successful governance of AI development depends on comprehensive whole-of-government coordination, a clear division of responsibilities and regular evaluation of impacts.

The group operates under the leadership of the Ministry of Digital Transformation, which plays a central role in the strategic governance and direction of AI policy in Slovenia.

The group is responsible for:

- coordinating the implementation of measures among competent ministries, public agencies and other implementing bodies;
- systematically monitoring progress towards the achievement of strategic objectives and performance indicators;
- preparing annual reports on the implementation of the strategy and proposals for adjusting measures;
- ensuring alignment with European policies and mechanisms, in particular within the framework of the Apply AI Strategy and the initiative for a European AI observatory.

The group includes representatives of all state authorities responsible for the implementation of measures under NSAI 2030. The Ministry of Digital Transformation is responsible for preparing materials, monitoring the implementation of decisions and communicating with stakeholders.

The operation of the group is based on the principles of:

- unified accountability and transparency – each strategic objective and measure has a clearly designated responsible authority and measurable indicators;
- data-driven decision-making – decisions are based on data collected within the national AI observatory;
- inclusive dialogue – ensuring space for continuous discussion with the research, business and civil society communities;
- efficiency and adaptability – regular evaluation of achievements and adjustment of measures in line with developments in AI.

Such a coordination arrangement follows European guidelines for a unified governance architecture and continuous evaluation of AI impacts within the framework of the Apply AI Strategy.

Conclusion: The interministerial coordination group, led by the Ministry of Digital Transformation, will serve as the central hub where policy, knowledge and implementation come together – a space for cooperation, coordination and learning that ensures that AI in Slovenia develops in a responsible and integrated manner, serving the well-being of citizens and society.

5.2 AI Council

To complement the coordination of implementation with the views of external stakeholders, the establishment of the Council of the Government of the Republic of Slovenia for Artificial Intelligence (AI Council) as an independent advisory body is envisaged under NSAI 2030. The AI Council will play a key role in providing expert assessment, monitoring the impacts of measures on the market and society, facilitating critical debate, and shaping the strategic vision in a period of rapid technological change.

The AI Council will operate as an advisory body to the Government of the Republic of Slovenia and will monitor, advise and promote improvements in the implementation of policies and measures in the field of AI.

The objective of the AI Council is to ensure diverse external perspectives from academic and research institutions, including professional associations acting in the public interest in the fields of science, technology and AI, and from the business sector, the public sector, civil society and user groups for the responsible, sustainable and socially aligned development of AI. It will also promote discussion on the social and labour law aspects of AI use, including impacts on employees, working conditions and the organisation of work. Within the forum, cooperation with social partners on these issues and the exchange of best practices will be ensured, in accordance with the national and European legal framework.

Permanent members of the AI Council will include representatives of:

- the Ministry of Digital Transformation,
- academic and research communities,
- the business sector and employers' organisations,
- civil society,
- trade unions,
- culture,
- media,
- local self-government,
- public organisations of the enabling environment.

Where appropriate, the AI Council may also include ad hoc or guest members (e.g. representatives of line ministries and subject-matter experts in areas where AI has a disproportionate impact). Administrative support for the work of the AI Council will be provided by the Ministry of Digital Transformation.

The AI Council will meet regularly, at least three times a year, and may establish working groups on specific topics, such as cybersecurity. The manner of its operation will be regulated in more detail in the rules of procedure.

Principles of operation:

- independence and independent opinion: the Council acts as an external voice, with the possibility of providing critical assessment;
- transparency and participation: most materials, decisions and recommendations are publicly accessible, and the Council also holds public consultations;
- diversity of expertise: inclusion of a broad range of disciplines and sectors;
- proactive monitoring of trends and risks: the Council coordinates its work with the national AI observatory and monitors international developments;
- alignment with implementation measures: the Council coordinates its recommendations with line ministries and the coordination group.

Conclusion: The AI Council will play a key advisory role in the implementation of NSAI 2030 – through independent assessment, expert insight and consultation with stakeholders, it will support the Ministry of Digital Transformation in making balanced decisions while also acting as a bridge between policy, technology and society.

5.3 AI observatory

For successful implementation and ongoing adaptation of NSAI 2030, it is essential to ensure a single, professional and independent framework for monitoring progress and impacts. To this end, an AI observatory will be established at the Ministry of Digital Transformation. Its aim will be to ensure that policy, investment and regulatory decisions are supported by reliable data and analyses.

The AI observatory will collect, analyse and integrate data on the implementation of the strategy, providing a basis for timely and informed adaptation of policies. It will serve as the central source of data, enabling efficient and transparent implementation and evaluation of NSAI 2030 measures in accordance with international standards.

Slovenia thus follows the OECD recommendations that impact assessment and ongoing evaluation are crucial for the success of digital strategies. They provide us with a comprehensive overview of not only the achievement of individual objectives, but also the overall impact of the strategy and the efficient use of public resources.

The main tasks of the AI observatory will be to:

- collect and process data on performance indicators for all the NSAI 2030 strategic objectives;
- provide international comparative monitoring and position Slovenia in European and global AI development;
- support decision-makers with analytical tools, data insights and recommendations for strategy adaptations.

One of the ten strategic objectives (SO10) of NPAI 2025 was to establish such an observatory. At that time, the core idea was to create a national platform for monitoring AI development and impacts. Implementation showed that inadequate assessment structures and insufficiently connected data sources hindered the possibility of systematically assessing impacts. NSAI 2030 therefore builds on the original concept that the observatory should become a permanent institutionalised mechanism.

NSAI 2030 also builds on the new European governance framework introduced by the Apply AI Strategy that established a European AI observatory to monitor AI development, indicators and impacts across sectors and to support policymaking at the EU level. The Slovenian AI observatory will be closely linked to this framework – through participation in the Apply AI Alliance, it will exchange national data, best practice and assessment results, while also drawing on comparative indicators and analyses at the European level. Hence the AI observatory will act as a link between national and European monitoring systems, ensuring indicator alignment and contributing to a uniform methodology for measuring AI impacts.

It will operate independently of line ministries, with the Ministry of Digital Transformation providing the conditions for its operation.

Data and analysis results will be published on an online platform providing the general public with access to:

- updated indicators for each of the strategic objectives of NSAI 2030,
- comparative charts and analyses by sector,
- open data for research and innovation.

The AI observatory will:

- enable the measurement of the overall impact of the strategy, not just individual measures,
- provide transparency and accountability in the implementation of NSAI 2030,
- contribute to more efficient use of public resources, and
- strengthen public trust through open and comprehensible reporting on progress and results.

Conclusion: The AI observatory will be the central source for AI data development in Slovenia – a platform linking research, policy and society and enabling evidence-based implementation of NSAI 2030 with measurable impacts and in line with the highest standards of transparency and accountability.

5.4 Implementation monitoring and revision of NSAI 2030

To ensure the lasting relevance and effectiveness of NSAI 2030, ongoing monitoring and regular updates will be carried out during its implementation. NSAI 2030 is a living document, evolving alongside technological progress, societal changes and new information on the impacts of AI.

Monitoring will be based on a system of key performance indicators (KPIs) determined by the AI observatory in collaboration with the interministerial coordination group. The KPIs will include not only input and process indicators, but also output and impact indicators, enabling the monitoring of the actual impacts of NSAI 2030, primarily in terms of the economy's productivity and competitiveness, the quality, efficiency and accessibility of public services, and user trust in AI. The development and use of these indicators will follow the methodologies and recommendations of the OECD and the European Commission to guarantee international comparability and strategic relevance of measurements.

The indicators will support data-driven decision-making, the alignment of priorities and the timely reallocation of resources to areas where impacts will be greatest. The monitoring system will also provide separate analysis of progress and impacts for each strategic objective and area of AI use, including language technologies and industrial and manufacturing use of AI. In addition to these strategic indicators, monitoring of the implementation will be complemented in implementing documents by action- and sector-specific indicators that are time-bound and linked to individual areas of AI use. A substantive evaluation of the effectiveness of measures will be based on the results of monitoring. When deviations from the set objectives are identified, measures in the implementing documents will be revised and, if necessary, adapted, enhanced or redirected to achieve the strategic objectives of NSAI 2030.

For the efficient and measurable implementation of NSAI 2030, the strategy will be complemented by periodic action plans that will constitute the core implementing documents of NSAI 2030. The action plans will define concrete measures for achieving the strategic objectives, responsible entities, implementation timelines, financial resources and measurable performance indicators. They are aimed at ensuring transparent, coordinated and result-oriented implementation of the strategy across the country. Furthermore, they will also systematically define mechanisms for complementary and blended financing, including European programmes and instruments (e.g. Horizon Europe, Digital Europe, Cohesion Policy and Important Projects of Common European Interest), financial instruments of the European Investment Bank, and public–private partnership models in order to provide sufficient funds for achieving the objectives of NSAI 2030.

The first action plan will be prepared within nine months of the adoption of NSAI 2030 and will be regularly updated in line with technological development, changes in the European regulatory framework, and the needs of the economy, the public sector and other

stakeholders. The Ministry of Digital Transformation, in cooperation with the interministerial coordination group, the AI Council and other relevant stakeholders, will be responsible for drawing up, coordinating, monitoring the implementation of and updating the action plan. This approach enables flexible, data-driven and inclusive governance of the implementation of NSAI 2030 and the timely adaptation of measures to the actual circumstances.

The financing of the implementation of NSAI 2030 will be based on coordinated action by ministries and public institutions within their respective powers and on a combination of funding sources. As a strategic framework, NSAI 2030 does not define a single budgetary breakdown but instead determines areas and directions that will be financially specified in implementing documents. In practice, measures will be financed through a combination of public sources (the state budget and dedicated programmes), European and other international programmes, and, where appropriate, legally permissible and economically justified, the mobilisation of private sources and partnership models, including public–private partnerships. For content implemented at the local level, the possibility of co-financing and partnerships with local communities is also taken into account. Financing will be planned in a way that aligns with the objectives of NSAI 2030, strengthens synergies and reduces investment fragmentation, with the link between impact indicators and the allocation of funds serving as a key mechanism for efficient investment.

In 2028, a comprehensive review of NSAI 2030 will be carried out, including an assessment of:

- the alignment of strategic objectives with new technological, economic and societal circumstances,
- the effectiveness of implemented measures,
- the adequacy of the institutional framework and available resources.

The monitoring and review processes are based on the following principles:

- transparency and accountability: all results and recommendations will be published,
- engagement of stakeholders: representatives of the academic and research community, local self-government authorities, the economy, civil society, the public sector, and users will participate in the evaluation processes,
- international comparability: measurement methodologies will be aligned with European and OECD standards to enable comparative analyses,
- learning approach: the strategy will evolve based on experience, collected data and good practice.

Conclusion: The mechanism for monitoring and regular reviews will guarantee that NSAI 2030 remains a dynamic, flexible and sustainable strategic framework. Such an approach enables Slovenia

to respond in a timely manner to new challenges and opportunities while maintaining public trust in efficient, accountable and transparent governance of AI development.

6 Appendices

Appendix 1: Areas of action by horizontal building blocks

HBB1: Data and computing infrastructure

AREA OF ACTION	DESCRIPTION AND RESPONSIBLE INSTITUTIONS	EXPECTED IMPACTS	PERFORMANCE INDICATORS
1.1 National inference infrastructure	A sovereign inference infrastructure is set up, enabling secure, affordable and technologically up-to-date cloud computing for national AI needs and simple and user-friendly access for various target groups. It will provide access to advanced AI models for all stakeholders, including businesses, the public sector and NGOs. The infrastructure will have a single access portal, a transparent model of services and billing, and security, safety and quality standards. It will also support the running of domestic, European and adapted state-of-the-art AI models on Slovenian infrastructure. To remove administrative and operational barriers to access to computing and data infrastructure, simplified access models will be examined, including the possibility of voucher schemes for SMEs and other target groups. Responsible institution: Ministry of Digital Transformation	• Increased accessibility and use of sovereign computing infrastructure for all stakeholders. • Strengthened digital and technological sovereignty of the country. • Reduced cost of access to computing capacity for SMEs and the public sector.	* Number of users of the national inference infrastructure. * Number of deployed AI models on the national infrastructure. * Average availability of infrastructure. * Share of SMEs accessing the public inference infrastructure.
1.2 Slovenian national supercomputing network	Further development of the national research supercomputing infrastructure, which is primarily based on support for the Slovenian National Supercomputing Network (SLING), the setting up of a new supercomputer in Maribor as the central infrastructure for AI training and development, and the development of the necessary capacities in public research and infrastructure institutions. The strengthened infrastructure will enable better integration with international AI infrastructures, such as the EuroHPC Joint Undertaking and AI gigafactories. It	• Strengthened scientific and research excellence, sovereignty and innovation potential of Slovenia. • Enhanced international visibility and participation in European networks (EuroHPC	* Number of scientific research and innovation projects using the services of a Slovenian AI factory.

	will support the training of large models, the development of Slovenian language technologies, the testing of model robustness and safety, and experimental deployment. Responsible institution: Ministry of Higher Education, Science and Innovation	Joint Undertaking, AI factories and gigafactories). • Faster development of Slovenian language models and AI technologies.	* Number of companies using the services of a Slovenian AI factory.
1.3 Expansion of data centres	Measures include predefined energy and security standards and environmental requirements, while simultaneously aiming to simplify the procedures for siting data and computing infrastructure and improve the predictability of the regulatory environment. The objective is to accelerate investment in data centres, reduce administrative barriers, and ensure alignment with the green and digital transition. The implementation of these measures will promote collaboration with the private sector and the use of incentives for infrastructure investment, including measures making the environment more attractive for investors, in accordance with the powers and other relevant sectoral policies. Responsible institutions: Ministry of Digital Transformation, Ministry of Natural Resources and Spatial Planning, Ministry of the Environment, Climate and Energy	• Increased data storage and processing capacities for AI applications.	* Number of new or upgraded AI data centres.
1.4 Energy efficiency and environmental sustainability of AI infrastructure	Promotion of energy-efficient and environmentally sustainable development of AI infrastructure in accordance with the National Energy and Climate Plan (NECP). The objective of this measure is to foster the development of energy-efficient and environmentally friendly digital infrastructure that reduces carbon footprint, optimises the use of energy and (drinking) water, and – where technically and economically feasible – enables the utilisation of waste heat and other synergies with local energy systems. Responsible institution: Ministry of the Environment, Climate and Energy	• Reduced carbon footprint of AI infrastructure. • Increased energy efficiency of data and computing centres, including cooling efficiency and workload management. • Enhanced resilience and reliability of AI infrastructure at facility level through appropriate technical	* Average carbon footprint of AI infrastructure. * Number or share of AI infrastructure facilities with local energy optimisation measures in place, if technically and economically feasible. * Share of new or upgraded AI

		measures for uninterrupted power supply. • Potentially reduced (drinking) water consumption of infrastructure operations. • Enhanced use of waste heat and local energy synergies, if technically and economically feasible.	infrastructure facilities meeting high energy efficiency standards. * Average energy efficiency (kWh per TFlop).
1.5 Network and edge infrastructure for AI	A multi-layered architecture is set up, connecting central computing centres with regional edge nodes via a high-performance, low-latency and secure backbone. The state acts as an enabler of network connectivity through investment in core networks, 5G/6G coverage, fibre optic connections, regional edge nodes and coordination with operators. The objective is to provide balanced access to computing capacity and AI services, reduce latency, and enable the real-time use of AI in the economy and public services across Slovenia. In the design and deployment of network and edge infrastructure for AI, energy efficiency and environmental impact, including the optimisation of energy consumption and the reduction of the carbon footprint, will be taken into consideration in proportion to the purpose and scope of use of such networks and edge infrastructure. Responsible institution: Ministry of Digital Transformation	• Balanced regional access to computing capacity. • Enhanced resilience and low latency for real-time AI applications. • Enhanced regional digital nodes and connectivity to 5G/6G networks. • Promotion of energy-efficient and sustainably designed edge infrastructure.	* Number of edge nodes set up. * Average latency for AI applications. * Energy efficiency indicators for edge infrastructure (e.g. energy consumption per unit of processing), where appropriate.
1.6 Minimum technical requirements for the national AI infrastructure and mandatory security	Preparation of guidelines for minimum technical requirements for AI systems used by Slovenia's critical entities and critical infrastructure. Responsible institutions: Government Information Security Office (URSIV), Ministry of Digital Transformation	• Provision of security of AI systems and critical infrastructure. • Faster detection and more effective remediation of security vulnerabilities.	* Number of identified and eliminated cases of non-compliance per year.

inspections of AI environments			
1.7 Active participation in the Important Project of Common European Interest in the domain of the computing infrastructure continuum	The objective of the Important Project of Common European Interest in the domain of computing infrastructure continuum is to deploy sovereign computing infrastructure in Europe, provided by a multi-provider architecture and not limited to but focusing on the adoption of AI solutions. The project primarily covers two areas of work: (1) deployment and use of infrastructure and (2) federation and interconnection in a network of sovereign EU-wide cross-border infrastructures functioning as a computing continuum. Responsible institution: Ministry of the Economy, Tourism and Sport	• Strengthened digital sovereignty and strategic autonomy and access to increased computing capacity.	* Number of participating companies.

HBB2: Data

AREA OF ACTION	DESCRIPTION AND RESPONSIBLE INSTITUTIONS	EXPECTED IMPACTS	PERFORMANCE INDICATORS
2.1 National framework for data space governance	Establishment of a national coordination framework for the planning, governance and control of data spaces in line with the common European data space (sectoral spaces + horizontal services), focusing on the legal basis, roles (controller, intermediary), access rules and model contractual clauses. The framework does not introduce centralised governance or control of data spaces but enables coordination across sectors in accordance with legal bases and intended data uses. Research data spaces are explicitly excluded from governance and control under this measure. Responsible institution: Ministry of Digital Transformation (in cooperation with the line ministries)	• Established national governance framework for data spaces that defines roles, access rules, contractual framework and standards in accordance with EU legislation, while maintaining the autonomy of sectors and the research community.	* Adoption of the national coordination framework. * Number of institutions with clearly defined roles (controller, intermediary). * Adoption of a model contract and access for public administration.
2.2 Data Act – fair access, business-	The implementation of the Data Act: procedures for accessing data in connected devices, formats ensuring interoperability, model contractual	• Fair, ethical, transparent and secure access to data in	* Number of business-to-business and

to-business and business-to-government data sharing, intermediaries, and data altruism	clauses for business-to-business data sharing, business-to-government mechanisms in situations of exceptional need, alignment with personal data protection, registration and use of trusted providers of data intermediation services, and a framework for data altruism enabling voluntary data sharing in the public interest (health, mobility, the environment). Responsible institution: Ministry of Digital Transformation	business-to-business and business-to-government data sharing. • Promotion of innovation and more efficient use of data in business and crisis management processes. • Increased trust in data sharing through trusted providers of data intermediation services and data altruism frameworks in the public interest.	business-to-government cases of data sharing. * Number of businesses participating in business-to-business data sharing. * Adoption of a model contract and access for public administration. * Number of registered providers of data intermediation services by 2028. * Number of operational data altruism frameworks. * Number of organisations sharing data.
2.3 Establishment of trusted data co-use models for the creative sector	Establishment of tailored mechanisms to integrate creative content into national data spaces in a manner that respects copyright and related rights and the applicable legal framework for their use, while ensuring voluntary data sharing. The use of copyright works and objects protected by related rights for research and non-commercial AI development is subject to the applicable exceptions and limitations in relation to copyright and related rights laid down by national and European legislation. Responsible institutions: Ministry of Culture, Ministry of the Economy, Tourism and Sport, Ministry of Digital Transformation	• Safe, transparent and legally compliant use of creative sector data for research, education, digitalisation, AI development and innovation, while preserving creative potential and maintaining the trust of authors and rights holders.	* Number of established trusted data co-use models. * Number of standard licensing frameworks for integrating content into data spaces. * Number of institutions, rights holders or collective management organisations participating in the

			development of data co-use models. * The mechanism for labelling, traceability and access governance of copyright protected data is established. The indicator does not apply to the use of data for research purposes that is regulated by statutory exceptions.
2.4 Semantic interoperability and standards	Promotion and coordination of the use of reference profiles (semantic models, ontologies, international data spaces and the Eclipse data space connectors, the Gaia-X trust framework, the European Open Science Cloud standards) to enable cross-sectoral connection of data spaces based on professional assessment and in collaboration with domain and technical experts. The measure does not envisage centralised management of interoperability but coordination and exchange of good practices while respecting sector-specific requirements and research autonomy. Responsible institutions: Ministry of Digital Transformation, Ministry of Higher Education, Science and Innovation, participating ministries and institutions within their powers	• Connected and interoperable national data spaces in accordance with the relevant legislation, European standards and trust architectures.	* Number of sectors voluntarily using harmonised semantic profiles. * Number of organisations with an integrated Eclipse data space connector. * Established national set of reference recommendations for compliance with the Gaia-X framework (optional).
2.5 Data quality and stewardship	Empowerment of data stewards in institutions, data quality improvement programme for the public sector and businesses, promotion of transparent recording and description of data sources with metadata, including the establishment of a national catalogue of data sources with an AI suitability label, using national, sectoral and European solutions, and the introduction of rules for findable, accessible, interoperable and re-usable data (FAIR).	• Enhanced data quality, traceability and re-use. • Strengthened role of data stewards in the public and research sectors.	* Number of trained data stewards by 2030. * Share of data sources described in accordance with the FAIR principles.

	Responsible institutions: Ministry of Digital Transformation (coordination), participating ministries and institutions within their powers		
2.6 Sectoral data spaces – priority areas	Alignment with European data spaces and pilot projects. Individual sectoral data spaces are developed and governed in accordance with their legal bases, intended purposes and institutional powers, while ensuring coordination at the national level. Research data spaces are not subject to governance and control under this measure. For data spaces for smart communities and the environment, the local level is taken into account, enabling the integration of Internet of Things (IoT) systems to support spatial, environmental and public service management. In the development of sectoral data spaces, particularly in the areas of the environment, spatial planning and mobility, technical support is provided and the standardisation and interoperability of specific data formats are promoted in line with European and international standards. Phase 1: tourism, mobility, the environment, agriculture, energy and spatial planning; Phase 2: public administration, cultural heritage, smart communities, research and science; Phase 3: industry, healthcare, long-term care, finance, competences and media. Responsible institutions: Ministry of Digital Transformation, Ministry of Health, Ministry of Agriculture, Forestry and Food, Ministry of Finance, Ministry of Culture, Ministry of the Economy, Tourism and Sport, Ministry of the Environment, Climate and Energy, Ministry of Infrastructure, Ministry of Public Administration, Ministry of the Interior, Ministry of Higher Education, Science and Innovation, Ministry of Natural Resources and Spatial Planning, and SMEs	• Established data spaces in key sectors. • Integration into European data networks.	* Number of established sectoral data spaces. * Number of participating partners.

2.7 Research and science data spaces and RAISE	Integration of national research repositories and services into the European Open Science Cloud (EOSC), and Slovenia's active participation in RAISE activities and the European Research Area (ERA) initiatives on AI use in science. The public institution Arnes (Academic and Research Network of Slovenia) is the national EOSC node, supporting the integration of Slovenian researchers into European data and service ecosystems for open science. Responsible institution: Ministry of Higher Education, Science and Innovation	• Improved access for researchers to interoperable research data, services and computing infrastructure in the EOSC. • Strengthened role of Slovenia in the European Research Area and support for open and responsible science.	* Established and operational national EOSC node. * Number of Slovenian research organisations connected to the EOSC via the national node. * Number of Slovenian research organisations participating in RAISE activities in the area of data.
2.8 Establishment of a Slovenian language data space	The measure envisages the creation of a corpus of annotated language resources for large language models for Slovenian. Written and spoken materials in Slovenian created by humans will be digitised (and, if necessary, access will be provided to already digitised materials that are not publicly available) for use in large language models. Developers of AI models and solutions will be able to access the corpus free of charge. Responsible institutions: Ministry of Culture, Ministry of Digital Transformation	• Increased volume of datasets and training corpora in Slovenian consisting of human-generated texts. • Easier access to high-quality texts in Slovenian for developers of AI models and solutions. • Greater digital independence of Slovenian and its equal integration into modern digital technologies.	* Quantity of integrated language data.
2.9 Definition of standards for secure data collection and processing and data-driven learning	Minimum technical measures: differential privacy for sensitive attributes, federated learning for distributed data sources, integrity verification of training sets, verification of data flows, filtering and labelling of synthetic data. Due to the increased risk of identification, sensitive data is subject to enhanced standards for anonymisation, pseudonymisation, security management and access control.	• Better protection of data used for AI training and operation. • Better integrated training sets.	* Share of public AI projects using at least one privacy-preserving technique for sensitive data.

	Responsible institutions: Ministry of Digital Transformation, Government Information Security Office, Information Commissioner		* 100% of sensitive training sets with a data stewardship chain.
2.10 Digitisation of library, archival and museum collections	Systematic digitisation of library, archival and museum collections and their preparation and integration into national data and language resources supporting the development and use of AI. The measure is implemented in accordance with the applicable legal and ethical framework in the field of copyright and related rights and is based on the use of freely accessible, licensed and legally obtained content. Within the framework of the measures, financial incentives are envisaged and, if necessary, legislative amendments. Responsible institutions: Ministry of Culture, Ministry of Digital Transformation	• Increased availability of high-quality and legally accessible language data in Slovenian. • Improved and culturally grounded language models. • Strengthened role of libraries, museums and archives as trustworthy intermediaries in the data and AI ecosystem. • Long-term preservation and digital use of cultural heritage.	* Volume of digitised library, archival and museum collections prepared for use in AI tools. * Number of language resources used in the development of language models. * Number of research and development projects using these data.

HBB3: Software infrastructure

AREA OF ACTION	DESCRIPTION AND RESPONSIBLE INSTITUTIONS	EXPECTED IMPACTS	PERFORMANCE INDICATORS
3.1 National AI platform	The national AI platform will provide secure and inclusive access to state-of-the-art models from commercial providers and support the development of AI solutions based on open data, open-source code and standards. The national platform will enable the use of the Slovenian language and use in compliance with relevant European and national legislation. Responsible institutions: Ministry of Higher Education, Science and Innovation, Ministry of Digital Transformation	• Accelerated development of Slovenian AI. • Strengthened Slovenian ICT sector. • Reduced digital divide. • Increased use of AI by companies and people.	* Number of accesses via the chat interface. * Number of accesses via application programming interfaces (APIs).
3.2 Incentives for the development of a Slovenian stack of AI	Financing and other incentives will support the development of Slovenian AI software building blocks and services – from speech and text recognition, speech synthesis, machine translation, and image and video analysis to anonymisation, summarisation and cybersecurity – while ensuring	• Development of AI components adapted to the Slovenian environment (speech, language, translation,	* Number of developed AI building blocks and API services. * Share of public

technologies and services	appropriate output data quality, particularly with regard to the use of Slovenian in as many variants as possible, its linguistic norms, and sociocultural and legal contexts. Priority in accessing public funding will be given to the development of open-source solutions. An overview of EU solutions, adaptation of EU building blocks and deployment of components in the Slovenian pillar. The services will be hosted on sovereign national inference infrastructure and offered to the public and private sectors via standardised APIs in accordance with the legislation and relevant standards. This will enable Slovenia to develop its own AI building blocks, adapted to its language and culture, for the purposes of public services and innovation. Responsible institutions: Ministry of Digital Transformation, Ministry of Higher Education, Science and Innovation, Ministry of the Economy, Tourism and Sport, Ministry of Defence, Slovenian Sovereign Holding, Ministry of Public Administration, Ministry of Culture	images). • Strengthened use of AI in public services and the digital economy. • Establishment of an ecosystem of open-source building blocks compliant with EU standards.	services using national AI building blocks. * Number of companies using Slovenian AI building blocks in commercial products and services.
3.3 "Apply AI Slovenia" – package of incentives for AI deployment in companies and the public sector based on public–private partnerships and partnerships between ICT providers and users	Introduction of a comprehensive package of incentives for AI deployment in companies and the public sector that includes calls for proposals, vouchers, public procurement and consultancy, and fostering partnerships between technology providers and users, in order to support the transition from pilot projects to operational deployment and reduce the gap between the development and deployment of AI solutions. The instrument may specifically focus on AI or AI may be included as part of instruments supporting advanced digital technologies in the economy. Responsible institutions: Ministry of Digital Transformation, Ministry of the Economy, Tourism and Sport, Ministry of Public Administration, Ministry of Health, Ministry of Defence, Ministry of Culture, Ministry of Natural Resources and Spatial Planning	• Increased use of AI by companies and people. • Accelerated digital transformation of key sectors. • Strengthened domestic market for AI solutions.	* Number of beneficiaries. * Number of public procurement cases with an AI component. * Number of sectoral reference partnerships. * Level of AI adoption by economic entities.
3.4 Standardisation of algorithm safety	Introduction of national procedures and safety tests for the review, testing and updating of algorithms, along with response mechanisms for cases of violations, bias or misuse of AI systems.	• Strengthened accountability, transparency and traceability.	* National plan of reviews and safety tests is in place.

and auditing and incident response	Responsible institutions: Ministry of Digital Transformation, Government Information Security Office, Ministry of Defence, Ministry of the Interior	• Improved reliability and safety of systems. • Effective incident management.	* Number of certified auditors of AI systems. * 100% of incidents are registered and processed. * Share of new AI systems with a report on risk assessment. * Time needed to remediate critical vulnerabilities ≤ 30 days.
3.5 Knowledge transfer to the economy	Promotion of the transfer of R&D results and foreign state-of-the-art technologies to applications and the market, support for pilot and demonstration projects, public–private partnerships and innovation collaboration between Slovenian researchers and companies, including targeted support for transitions between research, pilot and commercial phases of development of AI solutions. The instrument may be specifically focused on AI or AI may be included as part of instruments supporting advanced digital technologies in the economy. Measures within the framework of the Strategic Technologies for Europe Platform (STEP) are envisaged for demonstration projects. Responsible institutions: Ministry of the Economy, Tourism and Sport, Ministry of Higher Education, Science and Innovation	• Accelerated transfer of innovation to the economy. • Increased commercialisation of R&D results. • Strengthened collaboration between science and the economy.	* Number of pilot projects by 2030. * Number of new AI business models. * Number of applied AI research projects by 2030.
3.6 Establishment of a single access portal, a catalogue of Slovenian AI solutions, and a national catalogue	Establishment and operation of a single access portal with an integrated catalogue of Slovenian AI solutions and providers and a national catalogue of open AI software building blocks developed or co-financed with public funds. Presentation of sectoral solutions, including demonstrators (presentation of AI use in the relevant environment), documentation and use cases.	• Increased visibility of domestic AI solutions. • Simplified access for users to verified solutions.	* At least one catalogue of AI solutions is in place. * Number of solutions with validated descriptions and

of open AI software building blocks and a cluster of providers	Collaboration with the Competence Centre for Artificial Intelligence (KCUI) is envisaged. Responsible institutions: Ministry of Digital Transformation, Ministry of the Economy, Tourism and Sport	• Greater integration of solutions into the economy and public sector. • Enhanced re-use, adaptation and upgrading of open AI software building blocks developed or co-funded with public funds and increased knowledge transfer and long-term value of public investment.	demonstrators for at least five sectors. * A catalogue of open AI software building blocks with documented examples of re-use is in place and operational.
3.7 Support for the participation of Slovenian companies in an Important Project of Common European Interest in the AI domain	The purpose of an Important Project of Common European Interest in the AI domain is to develop the next-generation AI ecosystem for the EU, providing access to the latest AI training and development technologies. Responsible institution: Ministry of the Economy, Tourism and Sport	• Increased integration of Slovenian companies into international (European) value chains. • Improved market access. • Increased digital sovereignty and strategic autonomy through accelerated development of domestic solutions.	* Number of projects supported at the national level.

HBB4: Competences and talent

AREA OF ACTION	DESCRIPTION AND RESPONSIBLE INSTITUTIONS	EXPECTED IMPACTS	PERFORMANCE INDICATORS
4.1 Population competences for AI use	Implementation of informal education programmes that enable participants to acquire and strengthen digital competences, including AI. Responsible institution: Ministry of Digital Transformation	• Enhanced knowledge of AI among the population, their use of AI and trust in AI.	* Higher percentage of the population with at least basic and advanced digital competences. * Increased public trust in AI.

4.2 Equal access and inclusive competences	Provision of access to AI education for the older population, geographically remote communities and vulnerable groups. Special attention will also be paid to groups with caregiving and support roles in the community, particularly in long-term care, by developing tailored forms of digital literacy and AI use for everyday tasks and access to public services. Responsible institutions: Ministry of Digital Transformation, Ministry of Culture and SMEs	• Reduced digital divide. • Greater diversity of talent. • Balanced regional representation in the AI ecosystem.	* Numbers of participants aged 55 and over, from geographically remote communities and from vulnerable groups.
4.3 Incentives for retraining	A functioning system of micro-credentials in higher education to support lifelong learning, enabling individuals in the labour market to quickly acquire competences in AI, data science and automation. Responsible institutions: Ministry of Higher Education, Science and Innovation, Ministry of Labour, Family, Social Affairs and Equal Opportunities	• Reduced digital divide. • Increased diversification of experts. • Balanced regional representation in the AI ecosystem.	* Number of short-term education and training programmes for micro-credentials. * Number of micro-credential certificates issued.
4.4 Competences for AI use in the public sector, the economy, science and NGOs	Implementation of targeted training programmes for public employees, researchers, managers of companies and employees of NGOs (covering AI governance, ethics and safety, and use of AI tools). Responsible institutions: Ministry of Public Administration, Ministry of the Economy, Tourism and Sport, Ministry of Digital Transformation, Ministry of Higher Education, Science and Innovation	• Increased use of AI in public institutions and SMEs. • Improved process efficiency. • Enhanced understanding of AI governance, safety and responsibility.	* Number of public employees trained annually. * Number of trained experts from SMEs. * Number of higher education researchers and teachers trained. * Number of NGO employees trained.
4.5 Capacity building for compliance and oversight	Training of experts to ensure compliance with the AI Act, fundamental rights impact assessment and ethical standards. Responsible institution: Ministry of Digital Transformation	• Strengthened human capacity in public administration and the economy. • More effective compliance control and increased legal certainty.	* At least 100 experts trained by 2030.

4.6 Modernisation of curricula and content in primary and secondary schools and teacher education	Integration of mandatory content on AI, algorithms, ethics, and data and digital literacy into primary, secondary, short-cycle higher and higher education. Development of education programmes for teachers and professors in this area. Responsible institutions: Ministry of Education, Ministry of Higher Education, Science and Innovation, National Education Institute	• Enhanced understanding of AI among young people and digital literacy. • Development of a critical, safe, ethical and responsible approach to technology. • Increased participation of teachers in digital literacy programmes with a focus on AI.	* Modernised curricula. * Number of participating teachers and professors.
4.7 Attracting, retaining and repatriating AI and related experts	Introduction of incentives and programmes to attract AI and related experts from abroad, further implementation of incentives for career development and mobility of AI researchers, and identification of synergies with EU programmes and initiatives (MSCA, ERC, RAISE). Responsible institutions: Ministry of Higher Education, Science and Innovation, Ministry of the Interior, Ministry of the Economy, Tourism and Sport, Ministry of Foreign and European Affairs	• Greater international attractiveness of Slovenia as an AI destination. • Reduced brain drain. • Increased number of top experts in research and the economy. • Improved career opportunities and mobility for researchers.	* Developed programme for attracting experts. * Number of participating experts by 2030. * Number of experts repatriated from abroad. * Number of Slovenian research organisations participating in RAISE activities in the field of talent. * Number of new cases of employment of foreign experts in AI and related fields by Slovenian companies.
4.8 Strengthening AI research and AI adoption in science	Continuation and enhancement of funding for AI research, development of incentives for AI adoption in science and support for interdisciplinary research that connects AI researchers with domain-specific researchers, including	• Increased scientific excellence in AI.	* Number of AI research projects.

	active participation in the ERA initiative on AI in science, and support for research organisations to participate in RAISE. Responsible institution: Ministry of Higher Education, Science and Innovation	• Enhanced interdisciplinary collaboration among domain-specific researchers of AI.	* Level of funding for AI research projects. * Number of Slovenian research organisations participating in RAISE.

HBB5: Ethics and regulations

AREA OF ACTION	DESCRIPTION AND RESPONSIBLE INSTITUTIONS	EXPECTED IMPACTS	PERFORMANCE INDICATORS
5.1 National framework implementing the AI Act	Establishment of a legal, institutional and technical system for the implementation of the AI Act in accordance with the Act Implementing the Regulation (EU) laying down harmonised rules on artificial intelligence. Responsible institution: Ministry of Digital Transformation	• Effective and compliant implementation of the AI Act. • Increased legal certainty for developers and users. • Greater compliance of AI solutions with EU rules.	* National framework adopted by 2026. * National competent authorities established. * Regulatory sandboxes established.
5.2 Establishment of the National Council for AI Ethics	Establishment of an independent advisory body on the ethical aspects of AI development and use, as envisaged by the draft Act Implementing the AI Act. The Council will serve as a forum for social oversight, ethical guidance and coordination. Responsible institution: Ministry of Digital Transformation	• National control mechanism for AI ethics is in place. • Increased public trust in AI. • Harmonised ethical guidelines in the public and private sectors.	* The Council is established in 2026. * Number of guidelines and opinions issued per year.
5.3 Implementing mechanisms for fundamental rights impact assessment	Application of Article 27 of the AI Act (fundamental rights impact assessment for high-risk AI systems) to high-risk systems in accordance with the methodological guidelines of the Council of Europe for assessing impacts on human rights, democracy and the rule of law, including procedures and reporting requirements. Responsible institutions: Ministry of Digital Transformation and institutions from other areas	• Systematic fundamental rights impact assessments. • Reduced risk of misuse. • Human rights compliance of AI systems.	* National guidelines on fundamental rights impact assessment are adopted by 2027. * Number of reports on fundamental rights impact assessment compiled by 2030. * 100% compliance of

			high-risk systems in the public sector.
5.4 Development of ethical codes and technical guidelines for safe and responsible AI use	Preparation of codes of conduct and ethical and technical guidelines for specific areas to ensure responsible, ethical and safe use of AI, including protocols for risk management and algorithmic transparency, in line with UNESCO, OECD and EU principles. Within the framework of this measure, special ethical codes, technical guidelines and recommended practices for AI use in areas with high risks to fundamental rights, particularly in security-sensitive domains. The focus will be on proportionality, strengthened internal controls, transparency, traceability and mechanisms for responding to detected violations. Responsible institutions: Ministry of Digital Transformation and institutions from other areas	• Clear and uniform ethical and safety criteria. • Increased legal predictability and transparency. • Broader adoption of a responsible AI culture.	* Number of sectoral ethical codes adopted by 2030. * Number of organisations adopting a voluntary ethical framework. * Share of stakeholders familiar with the code's principles. * Number of new public AI solutions that underwent prior safety testing. * Number of systems with established machine learning safety controls.
5.5 Guidelines, tools and support mechanisms for ensuring AI compliance	Preparation of practical guidelines, tools and support mechanisms to assist in ensuring that AI systems comply with the AI Act and related regulations. Support includes both professional and financial assistance tailored to stakeholders' capacities. The measure may include advisory services, voucher schemes, subsidised compliance assessment services, support for risk and impact assessments, methodological guidance on understanding regulatory requirements, and co-funding for certification or other procedures related to responsible AI use. Within the framework of the measure, support mechanisms are introduced to assess the quality, reliability and suitability of language models and other foundational AI models in the Slovenian linguistic and legal context, as operational support for implementing EU standards and the AI Act. Special	• Increased legal certainty for companies and users of AI. • Reduced risk of irregularities in the development and deployment of AI solutions. • Reduced compliance burden, especially for SMEs, NGOs and other small users of AI. • Enhanced compliance of AI systems with European rules and ethical principles.	* Number of published guidelines and tools. * Number of organisations receiving compliance advice. * Number of annual events on compliance with the AI Act. * Detected reduction in administrative and cost compliance burdens

	emphasis will be placed on providing proportionate, accessible and practically oriented support for stakeholders with limited human or financial resources. Responsible institutions: Ministry of Digital Transformation, Ministry of Public Administration	• Promotion of broader and responsible AI use across all sectors. • Possibility to certify solutions and services for the EU market.	(measured via user evaluations). * Number of evaluation or reference tools prepared for assessing the quality of language and foundational AI models.

HBB6: Enabling environment

AREA OF ACTION	DESCRIPTION AND RESPONSIBLE INSTITUTIONS	EXPECTED IMPACTS	PERFORMANCE INDICATORS
6.1 Operation of the Competence Centre for Artificial Intelligence	The Competence Centre for Artificial Intelligence (KCUI) connects research organisations, companies and the public sector, providing access to AI knowledge, training, consultancy and services. Responsible institutions: Ministry of Digital Transformation, Ministry of Higher Education, Science and Innovation	• More effective transfer of knowledge into practice. • Strengthened cooperation between research and the economy. • Enhanced AI competences of stakeholders.	* The Competence Centre for Artificial Intelligence is established by 2026. * Number of companies participating in the programmes. * User satisfaction with services.
6.2 Transformation of European Digital Innovation Hubs into AI experience centres	Gradual upgrading of European Digital Innovation Hubs into AI experience centres. The centres will serve as regional hubs for AI application, pilot and demonstration projects and provide support for AI deployment in the economy, the public sector and research, in connection with European initiatives for AI use. Responsible institution: Ministry of Digital Transformation	• Strengthened regional enabling environment for AI use. • Increased AI use in the economy, the public sector and local self-government. • Accelerated transfer of innovation from testing environments into practice. • Enhanced integration of Slovenia into the European ecosystem of AI use.	* 2 European Digital Innovation Hubs are transformed into an AI Demonstration Centre by 2028. * Number of companies and public institutions receiving support per year.

6.3 Establishment of regulatory sandboxes	Establishment of regulatory sandboxes for testing solutions in real-world environments, following the principle "test first, regulate smartly afterwards". Connection with the competent authorities for safe experimentation in accordance with the AI Act and the Act Implementing the AI Act. Responsible institutions: Ministry of Digital Transformation, Agency for Communication Networks and Services of the Republic of Slovenia (AKOS)	• Increased trust in AI use. • Safe testing of innovations. • Greater number of tested and certified solutions for the public and private sectors.	* Number of regulatory sandboxes established by 2030. * Number of AI tested solutions. * Full compliance with the guidelines of the AI Act.
6.4 International cooperation and participation in European networks	Active participation of Slovenia in EU and international networks in the area of AI. Responsible institutions: Ministry of Digital Transformation and institutions from other areas	• Increased recognition of Slovenia as a trustworthy partner in the EU. • Access to best practices and joint investment. • Enhanced internationalisation of the AI ecosystem.	* Number of active memberships in European networks. * Number of joint EU projects per year. * Growth rate of international partnerships.
6.5 Support for participation of Slovenian companies and research institutions in international events, project consortia and organisations	Calls for co-financing the participation of Slovenian companies in international conferences and fairs, support for Slovenian stakeholders to join international consortia, projects and organisations, including a network of National Contact Points for the EU Framework Programme for Research and Innovation. Within the framework of measures for co-financing the participation of Slovenian companies in international conferences and fairs, AI is treated as one of the technological areas for the international engagement of Slovenian companies. Responsible institutions: Ministry of Digital Transformation, Ministry of the Economy, Tourism and Sport, Ministry of Higher Education, Science and Innovation, Ministry of Foreign and European Affairs, Ministry of Defence	• Securing additional funding for AI research, development, innovation and deployment. • Greater international recognition of Slovenia and Slovenian companies and research institutions.	* Number of international consortia and projects with Slovenian stakeholders. * Number of Slovenian companies that received support for their participation in international events. * Number of successfully completed digital transformation projects with an AI component under national or European public calls for proposals.

			* Number of AI projects under the EU Framework Programme with at least one Slovenian partner.
6.6 Strengthening the capabilities of the CSIRT group	Support for CSIRTs in using AI for real-time monitoring, analysis and defence of state and critical infrastructure systems and for exchanging key information with other stakeholders in cybersecurity, defence and law enforcement. Responsible institution: Government Information Security Office	• Strengthened cybersecurity of companies, the state and critical infrastructure. • Strengthened cooperation among stakeholders in the field of security and defence.	* Number of detected and resolved AI incidents.
6.7 Organisation of national and international events in the field of AI	Organisation of conferences, consultations, and professional and other events on the topic of AI in Slovenia, aimed at strengthening the Slovenian AI ecosystem and its integration into international developments. Within the framework of measures for organising international and national events for Slovenian companies, AI is treated as one of the technological areas for the international engagement of Slovenian companies. Responsible institutions: Ministry of Digital Transformation, Ministry of Higher Education, Science and Innovation, Ministry of Foreign and European Affairs, Ministry of the Economy, Tourism and Sport, European Digital Innovation Hubs (EDIH) Network, Competence Centre for Artificial Intelligence	• Strengthened domestic AI ecosystem. • Enhanced international engagement of Slovenian AI stakeholders.	* Number of events organised. * Number of event participants. * Number of event participants from abroad.
6.8 Diplomacy for AI	The use of diplomacy to enable development and provide business opportunities for Slovenian companies and researchers abroad and to attract foreign direct investment in AI to Slovenia. International promotion of Slovenian achievements in the field of AI and enhancement of Slovenia's reputation worldwide. Activities of science diplomacy, linked to participation in international ethical, political and scientific initiatives in the field of AI. Responsible institution: Ministry of Foreign and European Affairs	• Enhanced international reputation of Slovenia in the field of AI. • Increased exports by Slovenian companies. • Strengthened international cooperation of Slovenian companies and researchers. • A growing number of international incentives and	* Amount of foreign direct investment in AI in Slovenia. * Number of delegations with representatives of the Slovenian AI ecosystem. * Number of international incentives involving Slovenia.

		activities in the field of AI with the involvement of Slovenia.	
6.9 Support for companies and NGOs in implementing AI public awareness projects and programmes	Calls for proposals for companies, NGOs and other relevant public institutions, including libraries, to perform information and public awareness activities on the advantages and risks of AI and to promote an interdisciplinary understanding of AI at two levels: at the societal level (digital literacy, business culture, understanding of social and democratic impacts, including issues such as disinformation and deepfakes) and at the level of application. The measure also includes support for NGOs and other stakeholders in research, development, deployment and the responsible use of AI at national and European levels. The objective of the calls is to strengthen trust, critical thinking, overall AI literacy and competences for the responsible use of new technologies. Responsible institution: Ministry of Digital Transformation	• Enhanced societal resilience to changes brought about by AI. • Increased public trust in AI. • Enhanced capacity for critical assessment of AI. • More robust democracy. • Strengthened cooperation and coordination among NGOs within the national and European AI ecosystem.	* Number of events, trainings and campaigns conducted. * Level of public trust in AI, measured through opinion polls and credible international trust indices.

Appendix 2: About this document

1. Purpose, basis and relevant documents

With its clear and long-term commitment, Slovenia is one of the countries aspiring to build a sustainable future through the use of AI – a future that will not only follow global trends, but also help shape them in the spirit of ethics, European values, democracy, respect for human rights and principles of responsible governance. This national strategy is Slovenia's response to real challenges and key initiatives in the European and international context, emphasising the importance of safe, ethical and human-centric AI.

1.1 NPAI 2025 – Foundation for the future

In May 2021, the Government of the Republic of Slovenia adopted the National Programme to Promote the Development and Use of Artificial Intelligence by 2025 (NPAI 2025). This document established a strategic foundation, providing guidance for AI development across all key sectors. It outlines Slovenia's comprehensive approach to AI, which is not limited to AI as a technology of the future, but considers AI as a driver of research, innovation and societal progress.

The programme was designed horizontally, based on the concept of the innovation lifecycle, connecting research, knowledge transfer, and development and deployment of solutions. It was integrated into broader sectoral strategies and enabled breakthroughs in areas with the greatest social and economic impact.

It focused on six priority areas: health, Industry 4.0, digital public services, language technologies, sustainable food production and the environment, and spatial planning. It set a clear vision: to build on over 40 years of achievements in AI research in Slovenia and "to gain international recognition for its competences in transferring knowledge and cutting-edge, ethical and safe AI technologies into human-centric and trustworthy services and products while preserving national cultural identity".

To achieve this vision, the programme defined ten strategic objectives: establishment of a dynamic ecosystem of stakeholders for AI research, innovation and deployment; education and capacity-building of human resources; support for AI research and innovation; deployment of reference AI solutions in the economy, public sector, public and state administration, and society; establishment of technological infrastructure for AI research, development and use; enhanced security through the use of AI; increased public trust in AI; provision of a relevant legal and ethical framework; enhanced international cooperation; and establishment of a national AI observatory in Slovenia.

The programme was originally designed as a five-year framework, but rapidly evolving technological circumstances and the increasing strategic role of AI dictated the need to review, supplement and upgrade the programme.

NSAI 2030 thus addresses new dimensions of global security and technological geopolitics, reinforced by recent international developments, while placing increased emphasis on digital sovereignty and the need for strategic autonomy and resilience of the state. With this approach, Slovenia provides sovereignty, security, stability and a clear development vision – a vision based on accountability, inclusiveness and the public interest – while actively positioning itself within the broader European and international environment and strengthening its commitment to shared ethical and democratic values, strategic autonomy, and the trustworthy development of AI for the benefit and well-being of individuals and society.

1.2 Preparation process and stakeholder involvement

NSAI 2030 was co-created in partnership between ministries and their bodies, with broad engagement of stakeholders from the business sector, the research community, the public sector and civil society. From the outset, the process followed the principle of openness: the document was drafted on the basis of open access to information, involvement of all interested parties and transparent formulation of orientations. It was designed as a bottom-up approach, grounded in the real needs and expectations of society.

Timeline and methodology for the preparation of NSAI 2030

Month	Step, event	Details and stakeholder involvement
February 2025	Public call for appointment of members of the interministerial working group (IWG)	The Ministry of Digital Transformation published the call on 18 February 2025. The time limit for submitting nominations of members and their deputies was 28 February 2025. The goal was to include representatives of all interested ministries, organisations, the business sector and civil society and external AI specialists.
March 2025	Adoption of the decision on appointment of the IWG and publication of the analysis of needs for support to AI development and deployment	The decision on appointment of the IWG members tasked with the preparation of a national programme was issued. The IWG, composed of representatives of line ministries and their bodies, was officially operational following the appointment of its members. The decision was issued on 24 March 2025. The analysis of needs for support to AI development and deployment commissioned by the Ministry of Digital Transformation was finalised in March.

April 2025	The first meeting of the IWG and establishment of the editorial board	The first meeting of the IWG was held on 9 April 2025. The role of the group, the vision of the national programme and the key priority task, i.e. the development of NSAI 2030 and a strategic plan for AI deployment in public administration, were presented. The members were asked to nominate additional experts from the public administration to join the group.
May 2025	Expansion of the IWG and definition of indicators[26]	The composition of the IWG was expanded. The members or representatives of the following institutions attended the second meeting: the Financial Administration of the Republic of Slovenia, the Slovenian Environment Agency, the Pension and Disability Insurance Institute of Slovenia, the Employment Service of the Republic of Slovenia, and the Health Insurance Institute of Slovenia.
June 2025	First online consultation with the IWG	As part of the NSAI 2030 drafting process, an internal online survey was carried out and its results presented at the July meeting. The survey confirmed that the vision and strategic objectives are relevant.
July 2025	The second meeting of the IWG, publication of the final report on the study on support for AI deployment and online public consultation	The second meeting of the IWG was held on 10 July 2025. The draft strategic plan for AI deployment in the public sector was presented. The head presented a summary of the findings of a public survey, in which stakeholders suggested that emphasis should be placed on technological sovereignty, the development of AI for societal well-being and the inclusion of topics such as cyber defence. The study on support for AI deployment in the economy, public administration and society provided within the framework of the European Cohesion Policy for the period 2021–2027 was completed; this study

[26] Indicators were defined as part of the project "Study on support for AI deployment provided within the framework of the European Cohesion Policy for the period 2021–2027".

		was commissioned by the Ministry of Cohesion and Regional Development.
August 2025	A consultation on NSAI 2030 was organised and the work on the readiness assessment according to UNESCO Readiness Assessment Methodology (RAM) intensified.	On 20 August 2025, the Ministry of Digital Transformation issued an invitation for collaboration in the preparation of NSAI 2030. Representatives of all research and academic institutions, the economy (the Chamber of Commerce and Industry of Slovenia, the Technology Forum), and civil society (CNVOS – Centre for Information, Cooperation and Development of Non-Governmental Organisations) were invited. Intensive preparations for the public consultation were carried out.
September 2025	Public consultation on NSAI 2030 at Brdo pri Kranju and the third meeting of the IWG	The public consultation on NSAI 2030 with speeches, a panel discussion and thematic workshops was held on 16 September 2025 at Brdo pri Kranju. Participants had the possibility to attend in person or online. The third meeting of the IWG was held on 25 September 2025. The results of the consultation and the public online survey were presented. The key strategic priorities (sovereign infrastructure, ethics, regulation, and support for human resources, science, the economy and public administration) were agreed.
October 2025	Presentation at the Government Council for Digital Transformation, workshop for thematic networks of NGOs	The work on NSAI 2030 was presented at the third meeting of the Government Council for Digital Transformation on 6 October as part of the “AI Breakthrough” presentation. On 9 October, a workshop for the thematic networks of NGOs involved in the preparation of NSAI 2030 was held at the Computer History Museum in Ljubljana.
November 2025	Public discussion	The draft NSAI 2030 was sent to the IWG members for review and potential amendments. On 17 November 2025, the proposed NSAI 2030

		was submitted for public discussion, which lasted for 30 days.
December 2025	Public consultations and interministerial discussion	In December, four public consultations on the proposed NSAI 2030 were held: on 1 December at the invitation of the Chamber of Commerce and Industry of Slovenia and the Faculty of Electrical Engineering of the University of Ljubljana; on 5 and 8 December two consultations with AI specialists; and on 4 December an online workshop for the general public. On 8 December, the proposal was submitted for interministerial coordination.
January 2026	Coordination, discussed at the session of the Economic and Social Council, and envisaged adoption at the session of the Government	Following the public discussion and interministerial coordination, the draft NSAI 2030 was amended. On 12 January, the final proposal was submitted for an additional round of interministerial coordination. The proposal will be discussed at the session of the Economic and Social Council on 16 January and is expected to be adopted at the Government session on 22 January.

Two open surveys were carried out to evaluate NPAI 2025 and collect proposals for its upgrade. The first was carried out within the IWG to test the questions and collect targeted feedback from representatives of ministries and their bodies. The second or general survey was publicly accessible to all interested stakeholders – from researchers and developers to NGOs, companies, ethics experts and representatives of international organisations. Their answers indicated that stakeholders expect strengthened technological sovereignty and a greater emphasis on ethics and safety and the preservation of cultural identity, particularly the Slovenian language. These insights were directly used to co-create the content of the strategy.

The strategy also incorporates the substantive conclusions of the consultation on NSAI 2030 held in September 2025 – both the plenary findings and the results of workshops within focus groups.[27]The consultation highlighted the following key strategic orientations: AI sovereignty, economic competitiveness and efficiency, knowledge and science, and the necessity of the ethical development and use of AI. Stakeholders unanimously emphasised the importance of

[27] The report on thematic workshops is part of Appendix B.

modern sovereign infrastructure, the development of Slovenian language models, and the establishment of robust regulatory and ethical frameworks to ensure that AI operates and is used for the benefit of individuals and society. This broad engagement makes it possible to:

- bridge the gap between ambition and actual implementation,
- develop a clear roadmap for generative AI that embraces opportunities, mitigates risks, and ensures respect for fundamental human rights, ethical principles, and the European and international legal order,
- enhance the accessibility, user-friendliness and efficiency of public services and build a trustworthy AI ecosystem.

To permanently ensure the broadest possible consensus on AI development in Slovenia and the implementation of NSAI 2030, the strategy also envisages the establishment of an AI Council – an advisory body to the Government. Its main tasks will include coordination, the exchange of best practices, monitoring key performance indicators and proposing improvements.

1.3 Methodological summary

The methodology for preparing NSAI 2030 is based on two complementary principles: evidence-based policymaking and stakeholder co-creation. Such an approach ensures that the national strategy is not merely an analytical study, but a practical framework grounded in the identified and real needs of citizens, society, the economy and public administration.

1.3.1 Analytical pillar

The first pillar of the methodology is an in-depth analytical basis. It includes the preparation of analyses of the state of play in Slovenia[28] and a systematic review of European and global reference frameworks – ranging from the objectives of the Digital Decade 2030, the AI Continent Action Plan and its strategies, the Strategy for the Use of Artificial Intelligence and the European Strategy for Artificial Intelligence in Science, the AI Act, and the foundations of the revised Coordinated Plan on AI[29] to the recommendations of UNESCO, the OECD and the Council of Europe. On this basis, quantitative indicators for the period 2025–2030 were

[28] Cedars (2025). *Študija o podpori uvajanja umetne inteligence v gospodarstvo, javno upravo in družbo, ki se bo izvajala v okviru Evropske kohezijske politike v obdobju 2021-2027, končno poročilo* (Study on support for AI deployment in the economy, public administration and society provided within the framework of the European Cohesion Policy for the period 2021–2027). Available at: https://evropskasredstva.si/app/uploads/2025/08/Studija-o-podpori-uvajanju-umetne-inteligence.pdf (30 September 2025), Digitalno inovacijske stičišče Slovenije (2025). *Analiza potreb za podporo razvoju in uvajanju umetne inteligence* (Analysis of needs for support to AI development and deployment). Available at: https://dihslovenia.si/assets/images/Poro%C4%8Dilo_Analiza-uvajanja-UI-v-Slo.pdf (30 September 2025); European Commission (2025), Digital Decade 2025 Country Reports: Slovenia.

[29] European Commission (2021). Coordinated Plan on Artificial Intelligence 2021 Review. Available at: https://digital-strategy.ec.europa.eu/en/library/coordinated-plan-artificial-intelligence-2021-review (30 September 2025).

developed, combining European sources and national statistics. The analysis is complemented by the mapping of infrastructural and data capabilities and competences in the public sector and enabling environments, providing an objective assessment of Slovenia's baseline position.

1.3.2 Comparative pillar

The second pillar introduces a new dimension – comparison. A comparative assessment was conducted using a calibrated approach in relation to prevailing and leading practices, with analysis carried out across three dimensions:

- governance and alignment,
- realisation and uptake,
- risks and trust.

The comparative review was further complemented by expert reviews of legal and institutional frameworks and solutions, enabling the positioning of the Slovenian strategy within the context of international standards and actual practices.

1.3.3 Collaborative pillar

The third pillar encompasses the co-creation of the strategy with the support of stakeholders and the interested public. Interministerial workshops and focus groups were organised for individual verticals of public services (healthcare, education, mobility, etc.). These were complemented by public consultations using an open online survey, which enabled the general public to contribute their initiatives.

The process was designed iteratively, with coordination within the IWG and a dialogue with NGOs, business associations and other organisations.

1.3.4 Risk and ethics management

The fourth pillar addresses risks and ethical aspects. The Council of Europe's methodology for assessing impacts on human rights, democracy and the rule of law was used as a reference, alongside [30]the U.S. National Institute of Standards and Technology's Artificial Intelligence Risk Management Framework (identify – asses – manage – measure),[31] complemented by UNESCO principles on human rights, transparency, accountability and human oversight [32] . The methodology incorporates the concept of integrated reliability and oversight, envisaging

[30] Council of Europe (2024). Methodology for the Risk and Impact Assessment of Artificial Intelligence Systems (Rev2), CAI(2024)16rev2. Strasbourg: Council of Europe. Available at: https://rm.coe.int/cai-2024-16rev2-methodology-for-the-risk-and-impact-assessment-of-arti/1680b2a09f (30 September 2025).
[31] National Institute of Standards and Technology (2023). Artificial Intelligence Risk Management Framework (AI RMF 1.0). U.S. Department of Commerce. Available at: https://www.nist.gov/itl/ai-risk-management-framework (30 September 2025).
[32] UNESCO (2021). Recommendation on the Ethics of Artificial Intelligence, Paris: United Nations Educational, Scientific and Cultural Organisation. Available at: https://unesdoc.unesco.org/ark:/48-223/pf0000381137 (30 September 2025).

ongoing impact assessments, internal oversight mechanisms and safeguards to detect and manage deviations in a timely manner.

1.3.5 Measuring impacts

The fifth pillar deals with measurability and transparency. It is based on the theory of change, linking measures to direct outcomes and long-term impacts. A regular reporting cycle has been established, aligned with data from the State of the Digital Decade report. The results and lessons learned will be published to strengthen transparency, trust and the potential for continuous improvement.

1.3.6 International dimension

The sixth pillar adds a global perspective. UNESCO is developing a supporting tool, its Readiness Assessment Methodology[33], providing a globally comparable framework for assessing countries' readiness to apply AI ethically and responsibly. The methodology covers five dimensions: legal and regulatory, social and cultural, economic, scientific and educational, and technological and infrastructural. This tool will enable Slovenia to strategically position itself in the international environment and to identify gaps and opportunities for engagement at the global level in a timely manner.

2. European and global AI environment

The development of AI transcends national borders and is becoming one of the key issues in global politics, economies and security. The dynamics arising from advances in enabling technologies, geopolitical rivalries, and international initiatives for the ethical and safe use of AI are shaping a new reality in which individual countries can no longer function in isolation. Slovenia therefore builds its strategic orientations in close dialogue with European policies and global trends, as this is the only way to ensure a sustainable and sovereign future.

The updated NSAI 2030 comprehensively addresses the dimensions of global security and geopolitics of technology, which have been adversely affected by recent events, ranging from the war on Europe's doorstep to the advancement of new digital strategies by leading world powers. At the forefront is the promotion of Slovenia's national interest, particularly in the areas of digital and language sovereignty, progress, competitiveness, prosperity, and strategic resilience.

This section provides an overview of key European legal and policy frameworks, global geopolitical shifts, international initiatives, and technological trends that will shape AI

[33] UNESCO (2023). Readiness Assessment Methodology for Artificial Intelligence. Available at: https://www.gcedclearinghouse.org/sites/default/files/resources/230070eng_0.pdf (29 September 2025).

development and determine the conditions for the implementation of Slovenia's national strategy over the next five years.

2.1 European Union: Vision of digital sovereignty and the AI continent

The European Union (EU) is establishing itself as a leading force in AI regulation. Its key legislative initiative, the AI Act, is the first legally binding act of its kind worldwide. It introduces a uniform European framework for the safe and trustworthy use of AI, grounded in respect for fundamental rights and European values. The EU thus set a global standard, ranging from systematic categorisation of risks to binding rules on the safe use of AI in both the public and private sectors.

Alongside its legislative framework, the EU is also strengthening its strategies. The AI Continent Action Plan, implemented by the European Commission together with EU Member States, reinforces the foundations of European sovereignty and competitiveness. The plan channels joint investment in advanced infrastructure, the development of European language models and the establishment of secure data spaces, while enabling innovation and responsible use of generative AI.[34]Key highlights of the document include:

- building an open and trustworthy European AI ecosystem,
- joint investment in a network of AI factories, including the planned Slovenian AI factory,
- strengthening digital competences and supporting innovation in the field of generative AI.

A key component of the European approach to AI is the strengthening of talent. The EU seeks to retain top researchers and attract experts from abroad through various scholarship schemes, research networks and centres of excellence. It is also actively building partnerships beyond the EU, in particular in the Western Balkans, Africa and Latin America, where cooperation is based on democratic values and the joint shaping of rules. In this way, the EU is increasingly positioning itself as a global normative actor, not only regulating its internal market but also influencing the development of global standards for safe, ethical and sustainable AI.

Particular attention is given to SMEs and industrial clusters, which form the backbone of the European economy and are often drivers of breakthrough innovation in strategic sectors such as healthcare, mobility, energy and manufacturing. The InvestAI[35] facility provides access to

[34] The plan is based on five pillars: the development of computing infrastructure and data spaces, strengthening of digital competences, simplification of the regulatory environment, promoting the use of AI in strategic sectors, and accelerating innovation and investment through the new InvestAI facility. The goal is to mobilise up to EUR 200 billion of public and private funds to develop the European AI ecosystem. Cf. https://digital-strategy.ec.europa.eu/en/library/ai-continent-action-plan (1October 2025).

[35] Cf., for instance, https://digital-strategy.ec.europa.eu/sl/news/eu-launches-investai-initiative-mobilise-eu200-billion-investment-artificial-intelligence (1 October 2025).

financing and strengthens public–private partnerships, accelerating the transfer of innovation from laboratories into practice. The Digital Europe Programme and [36]Horizon Europe [37]also include targeted calls that enable SMEs to test solutions in regulatory sandboxes, co-finance pilot projects, and join international research and innovation networks. Slovenia will further strengthen its engagement in the European research and innovation area through active participation in other key EU initiatives, such as Important Projects of Common European Interest in the field of AI and the Strategic Technologies for Europe Platform (STEP), which connects funding instruments, including the Digital Europe Programme and Horizon Europe, and supports the development of strategic infrastructure and technological sovereignty.

Finally, the AI Continent Action Plan is compatible with European sustainability objectives. As EU policies view the green transition and digital transformation as two sides of the same coin, all new investments in AI must be [38]aligned with the EU sustainable finance framework[39] and the objectives of the European Green Deal. The energy efficiency of supercomputers, the reduction of the carbon footprint of data centres and the use of low-carbon energy sources are conceived as integral components of future AI infrastructure and are becoming an important factor of the EU's competitiveness.

The European Commission has also published the European Strategy for Artificial Intelligence in Science, paving the way for the Resource for AI Science in Europe (RAISE), which complements the European AI package. The purpose of the strategy is to strengthen Europe's technological and scientific leadership and its competitiveness by leveraging the potential of AI technologies in science and to support researchers in applying AI in their work. It introduces RAISE, a virtual institute that brings together talent and resources to promote excellence in AI research.

In this context, the European Declaration on Digital Rights and Principles [40]also plays an important role, establishing a value-based framework for digital transformation and emphasising human dignity, freedom and inclusion as well as security and safety in the digital space. The Declaration is linked to the implementation of the Digital Decade Policy Programme 2030, through which the EU monitors the progress of Member States in key areas of digital transformation.

[36] https://digital-strategy.ec.europa.eu/sl/activities/digital-programme (30 September 2025).
[37] Available at: https://www.gov.si/zbirke/projekti-in-programi/obzorje-evropa/ (30 September 2025).
[38] Cf. EU Taxonomy – Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment and amending Regulation (EU) 2019/2088. Available at: https://eur-lex.europa.eu/legal-content/SL/TXT/?uri=CELEX%3A32020R0852 (1 October 2025).
[39] Cf. https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_sl.
[40] European Commission, European Parliament and the Council of the European Union, European Declaration on Digital Rights and Principles for the Digital Decade, 2023/C 23/01, of 23 January 2023, available at: https://eur-lex.europa.eu/legal-content/SL/TXT/PDF/?uri=CELEX:32023C0123(01) (30 September 2025).

Slovenia plays an important role in this process as a co-creator of the European legal and strategic framework. The European AI ecosystem presents an opportunity for Slovenia to directly align its projects with European priorities, strengthen support for SMEs and innovators, participate in cross-border initiatives, such as the network of AI factories and the EuroHPC Joint Undertaking, and secure greater access to the single market and EU funding. These measures not only enhance Slovenia's resilience and innovation potential, but also contribute to the EU's strategic autonomy, which is particularly important in the current intensified global competition for technological supremacy.

2.2 Geopolitical framework

Between 2025 and 2030, AI is emerging as a key area in the global strategic race, where technological progress, economic power, military capabilities and soft diplomacy intersect. Countries are investing hundreds of billions of euros in the development of supercomputers, semiconductors, data centres and the most advanced foundational models, while competing for talent, innovation clusters and partnership networks. AI is becoming a central factor in global competitiveness, shaping new alliances, accelerating shifts in international value chains and influencing the balance of power in international relations.

The U.S. is building an ecosystem based on close integration between research, industry and the military–technological complex. Its programme Winning the Race – America's AI Action Plan channels hundreds of billions in investment towards the development of the most advanced models, the strengthening of supercomputing capacities, and the construction of national and regional data centres. Through strategic cooperation among leading technology companies, universities and innovation clusters and the formation of international technological partnerships, the U.S. is consolidating its dominance in the development and use of AI. China, by contrast, is developing a self-sufficient, vertically integrated ecosystem in which research, models, chips, data infrastructure and applications form part of a unified state strategy. The revised national AI strategy[41] highlights the development of general-purpose models and their integration into industry and use for defence and surveillance purposes and expansion along the Digital Silk Road. China is building its own supercomputers, investing in semiconductors and global research centres, and increasing its influence in the Global South. Other actors are also rapidly scaling up their capabilities: With its AI 2.0[42] strategy, South Korea is investing in language models, humanoid robotics and exascale computing, while participating in the Chip 4 Alliance (U.S., Japan, South Korea and Taiwan), which goes beyond semiconductors to include research, model development and standardisation. The Middle East, in particular Saudi Arabia, the United Arab Emirates and Qatar, is emerging as a new AI

[41] People's Republic of China, Ministry of Foreign Affairs, AI Capacity-Building Action Plan for Good and for All. Available at: https://www.fmprc.gov.cn/eng/wjb/zzjg_663340/jks_665232/jkxw_66523-4/202505/t20250521_11629968.html (28 September 2025).

[42] Source: Ministry of Science and ICT of South Korea, cf. also ttps://euraxess.ec.europa.eu/worldwide/south-korea/news/korea-establishes-national-ai-strategy-committee-propel-nation-global-ai (1 October 2025).

hub with multi-billion-dollar investments in AI models, data infrastructure and talent from around the world, establishing the region as a nexus between Asia, Europe and Africa and enhancing its geopolitical significance in the AI era.

2.3 International incentives and recommendations

International initiatives and recommendations place AI safety and ethics at the forefront, with Slovenia acting as a reliable and responsible partner in the European and international AI environment.

In the Bletchley Declaration[43] (2023), the international community undertook to cooperate on AI safety research and establish institutes dedicated to AI safety. The Declaration provides that AI should be designed, developed, deployed and used in a manner that is safe and in such a way as to be human-centric, trustworthy and responsible. The Seoul Declaration[44] (2024) emphasised the importance of interoperability, open scientific collaboration and responsible use of AI, reflecting South Korea's aspirations in robotics and smart systems. In February 2025, a high-level AI summit in Paris brought together countries, including Slovenia, that firmly endorsed the principles of fairness, sustainability and inclusivity.

In addition to political declarations, international organisations have taken concrete steps: the United Nations adopted the Resolution on Safe and Trustworthy Artificial Intelligence in March 2024 and[45] established an independent international scientific panel on AI[46] and opened a global dialogue on AI governance[47] in 2025, all aimed at ensuring scientific risk assessment and creating a forum for collaboration among governments, industry and civil society. Slovenia's development of AI is based on values that are central in this global framework: respect for human rights, democratic principles and the rule of law and technological progress serving people and society. Slovenia is active in initiatives of the OECD, Council of Europe, UNESCO and others, responsibly following their recommendations and normative guidelines. NSAI 2030 is a product of such cooperation, representing not merely a

[43] The Bletchley Declaration by Countries Attending the AI Safety Summit, 1–2 November 2023, available at https://www.gov.uk/government/publications/ai-safety-summit-2023-the-bletchley-declaration/the-bletchley-declaration-by-countries-attending-the-ai-safety-summit-1-2-november-2023 (1 October 2025).

[44] The Seoul Declaration by countries attending the AI Seoul Summit, 21–22 May 2024, available at https://www.mofa.go.kr/eng/brd/m_5674/view.do?page=1&seq=321007 (1 October 2025).

[45] Seizing the opportunities of safe, secure and trustworthy artificial intelligence systems for sustainable development, A/RES/78/265, adopted on 21 March 2024, available at https://docs.un.org/en/A/78/L.49 (1 October 2025).

[46] Resolution A/RES/79/325, adopted by the UN General Assembly on 26 August 2025, provided for the establishment of an Independent International Scientific Panel on Artificial Intelligence as a permanent scientific body issuing evidence-based scientific assessments of the opportunities, risks and impacts of AI. Cf., for instance, https://www.un.org/independent-international-scientific-panel-ai/en (1 October 2025).

[47] Resolution A/RES/79/325 also established a Global Dialogue on Artificial Intelligence Governance as an inclusive platform where states and stakeholders can address key issues of safe, secure, trustworthy and interoperable AI. Cf., for instance, https://press.un.org/en/2025/sgsm22839.doc.htm (1 October 2025).

political formality, but a reflection of Slovenia's maturity and commitment to play a reliable and credible role in the digital future of Europe and the world.

2.3.1 OECD: Principles of human-centric AI

Slovenia has long been actively contributing to the shaping of international norms guiding AI development in line with universal values. An important milestone is its engagement in the preparation of the OECD Recommendation of the Council on Artificial Intelligence[48], setting high standards for the use of AI in a manner that is:

- innovative and trustworthy,
- robust, safe and transparent, and
- grounded in a high level of accountability.

These recommendations are not merely declarative, but serve as implementing guidelines, which Slovenia has clearly incorporated into its NPAI 2025 and continues to reference as one of the key foundations in NSAI 2030.

Slovenia continues its commitment through active participation in OECD working groups on digital policy and AI, where it helps develop common standards and exchange best practices and contributes to shaping an international environment in which AI is developed in line with legality, safety, ethics, fairness and sustainable progress.

2.3.2 Council of Europe: Protection of human rights in the digital age

Slovenia has played an active and responsible role in shaping the first legally binding international treaty on AI, the Framework Convention on Artificial Intelligence and Human Rights, Democracy and [49]the Rule of Law adopted by the Council of Europe in May 2024.The aim of this Convention is to ensure that activities within the lifecycle of AI systems are fully consistent with human rights, democracy and the rule of law.

The Convention provides an ethical compass for all those who develop, use or regulate AI. Its goals are clear: to ensure that AI serves people and comes under democratic oversight and within a framework of legal accountability.

To support implementation, the Council of Europe has also developed a methodology for assessing impacts on human rights, democracy and the rule of law, helping states systematically evaluate the impacts of AI systems on human rights, democracy and the rule of law.

[48] OECD (2019), Recommendation of the Council on Artificial Intelligence, OECD/LEGAL/0449. Available at: https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449 (30 May 2025).

[49] Council of Europe Framework Convention on Artificial Intelligence and Human Rights, Democracy and the Rule of Law, adopted on 17 May 2024, open for signature on 5 September 2024, Vilnius, available at: https://www.coe.int/en/web/artificial-intelligence/the-framework-convention-on-artificial-intelligence (30 May 2025).

Through NSAI 2030, Slovenia aims to integrate this methodology into domestic policies and practices, particularly in the public administration, where accountability to citizens is an especially sensitive issue. The methodology complements ethical guidelines, such as those in the UNESCO Recommendation, and enables coordinated, proactive action in the digital age.

2.3.3 UNESCO: Ethics of AI as a global responsibility

Slovenia is actively engaged in implementing the UNESCO Recommendation on the Ethics of Artificial Intelligence,[50] the first global document of its kind. The ministry responsible for the information society coordinates its implementation in Slovenia. The principles enshrined in the Recommendation have also meaningfully contributed to the preparation and understanding of NSAI 2030.

The main principles that Slovenia enacts through policies and measures include:

- respect for human dignity,
- non-discrimination and fairness,
- environmental sustainability,
- inclusion of all members of society in digital development.

As part of the implementation of the Recommendation, Slovenia has prepared a national report on implementation, highlighting steps for ethical and inclusive AI use, including education programmes, guidelines for the public sector and stronger public engagement.

International recommendations serve not only as a framework, but also as a compass for NSAI 2030, guiding Slovenia in developing AI as a beneficial tool to people and society. Through active participation, transfer of principles into practice, and cooperation with European and global partners, Slovenia maintains its role as a credible, ethical and innovative member of the digital community, capable of combining technological progress with human rights, transparency and accountability.

2.4 Technological trends in the period 2025–2030

In the coming years, AI will enter a new phase of development, becoming a direct driver of economic growth, productivity, global competitiveness and profound societal change.

The fastest-growing area is expected to be intelligent agents, i.e. software assistants that will no longer be limited to answering questions, but will independently perform tasks, connect information solutions and systems, and act as virtual co-workers in offices, factories and public administration. The assistants will automate administrative processes, reporting, basic

[50] UNESCO (2021). Recommendation on the Ethics of Artificial Intelligence, adopted on 23 November 2021 at the 41st General Conference in Paris, available at: https://unesdoc.unesco.org/ark:/48223/pf0000381137 (30 May 2025).

analytics and user support, with studies projecting a 30–40% increase in productivity in specific sectors.[51]

The second key development direction will be the most advanced foundational models – the largest and most capable multimodal systems that integrate text, images, audio and video into comprehensive solutions. Their application will enable breakthroughs in medical diagnostics, personalised treatment and medicine development and in education, scientific research and national security. The models will play a particularly important role in addressing challenges related to an ageing population [52] – from improving healthcare and enabling longer independent living for older people to increasing the efficiency of social protection systems. However, their development requires access to vast amounts of data and cutting-edge computing infrastructure, which intensifies the international race for supercomputers, chips and data centres.

At the same time, the trend towards edge AI or on-device AI is growing stronger, and AI use is moving from the cloud directly to phones, cars, robots and other devices. This enables cost reduction, faster processing and better privacy protection, while also opening up new possibilities for both industry and consumers. In the coming years, most AI interactions will occur in a hybrid manner, partly in the cloud and partly at the network edge.

Another very important and specific aspect is open-source models, enabling faster innovation, greater transparency and broader access to advanced tools, while also encouraging discussions about safety and oversight. In the European environment, these models are also linked to the concept of digital sovereignty, as they reduce dependence on American and Chinese providers and support the growth of domestic innovation ecosystems.

The development of computing infrastructure remains crucial. The global race for exascale supercomputers, energy-efficient data centres and advanced semiconductors will determine who has access to the most advanced capabilities. At the same time, synthetic data and European data spaces are becoming increasingly important, enabling safe and trustworthy training of models in accordance with European legal and ethical standards.

Another important development direction is physical AI or AI embodied in robots, machinery and smart devices. Advances in sensor technology, humanoid robotics and autonomous systems will enable new forms of human–machine collaboration. Its use will expand across industry, logistics, healthcare and social care, directly affecting the organisation of work and the daily lives of individuals.

Questions of trust and oversight are also becoming increasingly important. The European AI Act introduces a system of certification, mandatory standards and regulatory sandboxes,

[51] McKinsey (2025), Gartner (2025).

[52] Cf. Institute of Macroeconomic Analysis and Development, *Kakovost življenja v Sloveniji – Poročilo o razvoju* (Quality of Life in Slovenia – Development Report).

enabling testing and promoting the development of innovative AI solutions within a safe and legally clear framework. Simultaneously, methods for verifying reliability are being developed, such as stress testing, data provenance tracking, international performance benchmarks and standardised evaluations. Establishment of these benchmarks is creating a new area of global competition: countries are competing to determine the rules for the safe and trustworthy use of AI.

Furthermore, sustainability remains a central consideration. Due to the enormous energy consumption associated with the training and use of the most advanced foundational models, the field of green AI is growing – the development of algorithms and infrastructure that reduce energy use and carbon footprint per unit of computing capacity.

AI is expected to become increasingly intertwined with other breakthrough technologies. Quantum computing promises a revolution in optimisation, simulation and scientific research. Fusion energy represents a strategic breakthrough in sustainable energy, potentially providing sustainable power for energy-intensive AI processes. AI also accelerates progress in biotechnology, synthetic biology and nanotechnology, as it enables faster development of new medicines, materials, advanced chips, batteries and infrastructure. AI thus acts as a connecting layer for the technologies of the future that will decisively shape the global economic and social dynamics.

Last but not least, the development of AI will also have a profound impact on the labour market and the future of work. Routine tasks will be automated and digital assistants will replace or supplement certain administrative tasks. This will require extensive reskilling programmes, the development of new competences and the modernisation of curricula. With appropriate public policy support, AI could become a driver of productivity and quality of life. However, lack of such support could increase social inequalities.

AI technologies also have the potential to bring about broader societal changes. They are already influencing how we communicate with one another as well as which and how information reaches us. Generative AI is a tool for creating synthetic realities. Its text, images and videos, including deepfakes, will become increasingly difficult to distinguish from authentic content. Hence AI can be misused to create false realities and manipulate public opinion, placing pressure on democratic systems and potentially posing risks to democracy.

Current advances in memory, reasoning and autonomous behaviour are paving the way for artificial general intelligence (AGI), which the European Commission defines in its Apply AI Strategy as AI capable of performing any cognitive task that humans can. AGI has the potential to drive profound scientific, technological and societal progress, while also posing risks such as job displacement, the concentration of political power, enabling manipulation or authoritarian control, and, if not aligned with human values, potentially threatening the survival of humanity.

NSAI 2030 directly addresses these technological and societal trends. It is based on the recognition that by 2030 AI will be simultaneously a fundamental infrastructure, an economic advantage and a societal challenge. It puts Slovenia on the path of integrating innovation, regulation, sustainable development and citizen protection and strengthens the foundations for the country's and the EU's competitiveness and digital sovereignty within the international AI ecosystem.

3. Overview of the state of play in Slovenia

In Slovenia, there is a noticeable gap between strategic objectives and the current situation. The European Commission's State of the Digital Decade 2025 report[53] indicates an increase in the share of Slovenian companies using AI, from 11.4% in 2023 to 20.9% in 2024. This places Slovenia above the EU average of 13.5%, but the figure remains below the target value of 33% in 2024 set in the National Digital Decade Strategic Roadmap. The report identifies broadband infrastructure and digital public services as Slovenia's strengths, while highlighting two main areas of weakness, namely the shortage of ICT specialists and the population's low level of basic digital skills. According to the report, the share of ICT specialists in total employment increased from 3.8% in 2023 to 4.3% in 2024. However, this still places Slovenia below the EU average of 5%, with the target set at 10% by 2030. In the area of basic digital skills, Slovenia continues to lag significantly despite ongoing efforts. According to the latest data from the Statistical Office of the Republic of Slovenia (December 2025), 47% of the population has basic digital skills. This indicates that the situation has not improved substantially compared to 2023 and remains below the EU average (54%) and well short of the targets set in the National Digital Decade Strategic Roadmap, which envisages 60% of the population with at least basic digital skills by 2024 and 80% by 2030. The second major area of weakness in Slovenia's digital transformation, as identified by the report, is the digitalisation of SMEs. With 44.7%, Slovenia falls below the EU average (54.7%) in terms of the share of companies using AI, data analytics or cloud services. Similarly, at 67.6%, it also lags behind the EU average (72.9%) in SME digital maturity and remains below the national targets, which foresee 54% of SMEs reaching digital maturity by 2024 and 90% by 2030.

Both shortcomings were identified in the analysis of needs for support to AI development and deployment in Slovenia carried out in 2025 by the Ministry of Digital Transformation with the support of the Digital Innovation Hub Slovenia. The results for AI adoption revealed that companies in Slovenia face a shortage of knowledge (66% of survey respondents), financial resources (55% of survey respondents) and data (47% of survey respondents). The analysis also indicated a shortage of highly skilled AI professionals in both the private sector and public administration. Companies reported a shortage of data specialists (46%), natural language processing specialists (24%) and algorithm developers (22%), representing a significant barrier to AI adoption. Public organisations indicated a greater need for specialists in data analytics

[53] European Commission (2025). Digital Decade Country Reports: Slovenia.

and AI system management. The analysis also found that only just over one-fifth of companies cooperate with research institutions in the development and deployment of AI, pointing to weak links between the business and research sectors.

That Slovenian companies lag behind in the adoption of AI and related technologies has also been confirmed by a report from the Institute of Macroeconomic Analysis and Development of the Republic of Slovenia entitled “Quality of Life in Slovenia – Development Report 2025”. The Institute established that the number of AI specialists was increasing too slowly, which hampered the wider adoption of AI. At the same time, the growth trend in the number of specialists was considered insufficient to meet the expected rise in demand for such skills, both in the economy and in public administration. According to the analysis, Slovenia ranks 37th out of 83 countries in the global AI index.

Data from the Statistical Office of the Republic of Slovenia show that 6.15% of all students in tertiary education in the 2024/2025 academic year were enrolled in programmes related to ICT technologies. When students of natural sciences, mathematics and statistics are also included, the share of such students rises to 12.2% of total enrolment.

A low level of competences is also evident in the general use of AI. A study[54] conducted in May 2025 by the Faculty of Social Sciences of the University of Ljubljana found that 44% of users of generative AI have a low level of competence in its use and a limited understanding of the technology. This is reflected in a correspondingly low level of public trust in AI.

The Slovenian Public Opinion[55] survey conducted in 2024 by the Public Opinion and Mass Communication Research Centre at the Faculty of Social Sciences showed that nearly 45% of respondents are concerned that machines, computer programmes and AI will take over many jobs currently performed by humans within the next ten years, while only 18% of respondents are not worried. The survey also revealed that the Slovenian public has a negative attitude towards AI in automated medical procedures and driving and in communication with AI instead of a human when they are forced to do so. It is further evident that there is considerable interest among respondents in AI development, but the technology is not well understood. Less than a third of respondents have used AI in their work, education or leisure activities.

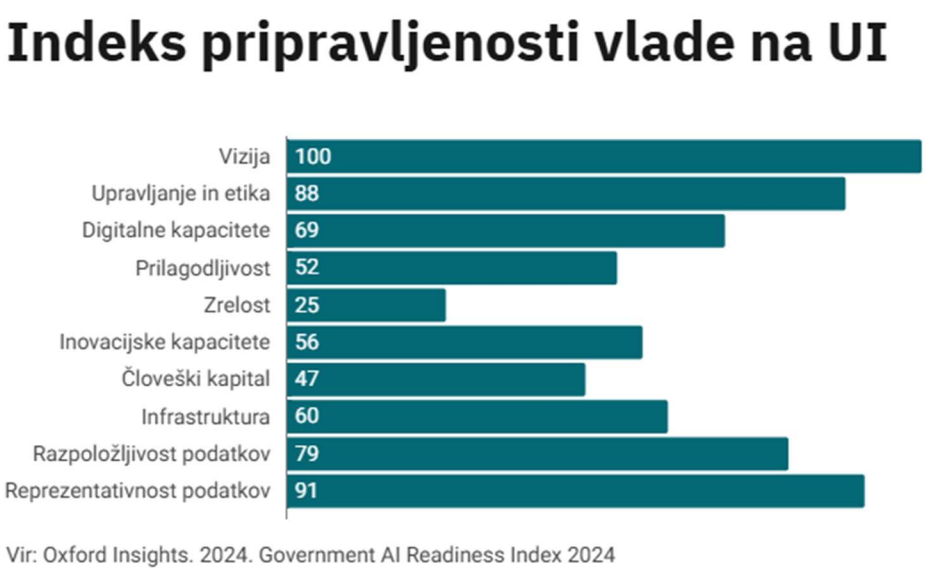
[54] Centre for Social Informatics, Faculty of Social Sciences, University of Ljubljana (2025). *Umetna inteligenca v Sloveniji 2025/I* (Artificial Intelligence in Slovenia 2025/I): *Uporabniki GenUI* (GenAI users). Available at: https://www.1ka.si/uploadi/editor/doc/1752039286-Umetnainteligenca-analiza1KA-finalV.pdf (10 October 2025).

[55] Public Opinion and Mass Communications Research Centre, Faculty of Social Sciences, University of Ljubljana (2025). *Slovensko javno mnenje 2024/1* (Slovenian Public Opinion 2024/I): Available at: https://www.cjm.si/ul/SJM_24_1.pdf (10 October 2025).

The Safe.si[56] survey showed that 88% of primary school pupils in the third triennium, aged 12 to 15, and 92% of secondary school students, aged 15 to 19, have already used AI tools. Among those who use AI, nearly half access it several times a week or daily, while among teenagers in primary schools, about a third do so. Most users use AI tools to help them with schoolwork: 75% of primary school pupils in the third triennium and 89% of secondary school students. Nearly twice as many primary school users as secondary school users use these tools for entertainment (27% of primary school pupils and 15% of secondary school students) and to pass the time (18% of primary school pupils and 10% of secondary school students).

The Government AI Readiness Index, measured by [57]Oxford Insights, ranks Slovenia 37th globally in the field of AI, but below the OECD average. Compared to other OECD countries, Slovenia ranks higher in areas of vision and digital capacity, while lagging most in maturity and human capital.

Chart 1: Government AI Readiness Index for Slovenia



Vir: Oxford Insights. 2024. Government AI Readiness Index 2024

3.1 Achieved objectives of NPAI 2025

NPAI 2025 defines 69 measures and 86 indicators. The final report on the study on support for AI deployment in the economy, public administration and society provided within the framework of the European Cohesion Policy for the period 2021–2027, prepared by consulting company Cedars for the Ministry of Cohesion and Regional Development, noted that, during the implementation of NPAI 2025, Slovenia did not reach the target value of all the indicators.

[56] Safe.si (2025). *Raziskava Najstniki in umetna inteligenca* (Teenagers and Artificial Intelligence Survey). Available at: https://safe.si/raziskave-in-trendi/safesi-raziskava-sid-2025-najstniki-in-umetna-inteligenca (25 October 2025).
[57] Oxford Insights (2024). Government AI Readiness Index. Available at: https://oxfordinsights.com/ai-readiness/ai-readiness-index/ (10 October 2025).

When analysing the situation in Slovenia, the authors of the study identified the following issues: financing is fragmented and does not provide sufficient strategic support for the introduction of AI solutions; in the public sector, the deployment of AI is dispersed, levels of maturity vary, and there is a lack of knowledge transfer, common guidelines and approaches; Slovenia offers a number of educational programmes in the field of AI, both at universities and within adult education, and public awareness programmes; in recent years, significant investments in digital infrastructure have been made in Slovenia but they are dispersed across ministries and not integrated into a unified national infrastructure that would comprehensively support the needs of both the public sector and the economy; Slovenia has a well-developed support system for digitalisation, research and innovation in the economy; Slovenia lags behind the European average in the adoption of AI solutions in the public sector, with only 11 solutions compared to the European average of 27; and in terms of its objectives, Slovenia is also falling behind in the adoption of AI in the economy.

Nevertheless, significant developments in science and AI have taken place in Slovenia during the implementation of NPAI 2025. The year 2021 saw the launch of the Vega supercomputer, which was funded by the 2014–2020 European Cohesion Policy and was among the 50 most powerful computers in the European Union at the time. In March 2025, the Institute of Information Science (IZUM), in cooperation with the Jožef Stefan Institute and a consortium of research organisations and industry representatives, secured European funding from the EuroHPC Joint Undertaking to set up a Slovenian AI factory and a new supercomputer. In May 2025, the foundation stone was laid in Maribor for the construction of a data centre of the Arnes public infrastructure institute. The new data centre, which is the largest infrastructure of its kind in Slovenia, is co-financed by the Recovery and Resilience Facility. It will enable the establishment of an open research data space, which is a prerequisite for further AI development. The data centre will also host a new AI-optimised supercomputer. The supercomputer, co-financed from European and national funds, is part of the pan-European supercomputing infrastructure established with co-financing from the EuroHPC Joint Undertaking.

The Slovenian AI factory will strengthen Slovenia’s AI capabilities by establishing a state-of-the-art supercomputer that is optimised for AI and supports industry, research and public institutions. The factory will provide a comprehensive support framework, including access to pre-trained AI models, data and tailored AI services in the cloud.

The supercomputer will enable the development of AI algorithms and language models, such as GaMS. In 2024, the Slovenian consortium PoVeJMo (Povejmo.si), under the leadership of the Faculty of Computer and Information Science of the University of Ljubljana, launched a research project to develop the GaMS LLM for Slovenian, which is trained on a corpus of texts in Slovenian. Research measures include targeted Gravitacija (Gravitation) calls for proposals published by the Public Agency for Research, Development and Innovation of the Republic of Slovenia (ARIS) and providing funds for projects of research consortia focused on innovative

and impactful research. Priority areas included AI and language technologies. In the field of AI, the project Artificial Intelligence in Science, which is coordinated by the Jožef Stefan Institute, was launched in October 2024. The consortium partners include the University of Ljubljana, the University of Maribor, the National Institute of Chemistry and the National Institute of Biology. The project aims to develop AI tools to support research in new materials, mathematics, immunology and broader medicine, plant biology, environmental biology, and ecology. In the field of language technologies, the project Large Language Models for Digital Humanities, which is coordinated by the Faculty of Computer and Information Science, University of Ljubljana, has been launched. This project builds on the aforementioned PoVeJMo project.

In the field of infrastructure, plans are underway to set up a state computing infrastructure, which will serve as the foundation for a single AI platform for public administration. Slovenia is successfully developing and deploying AI in state administration and public services, ranging from the Pladenj information system and the Skrinja business intelligence system to the upgrade of the Krpan document management system with AI and smart assistants, a pilot version of which has been successfully deployed by the Financial Administration of the Republic of Slovenia.

An enabling environment is also being developed, including technology parks, regional development agencies, business incubators and European Digital Innovation Hubs under the European AI Continent Action Plan becoming key enablers for AI adoption by SMEs. In June 2025, ARIS launched a public call for proposals to establish a National Competence Centre for AI, which will serve as a hub of AI expertise, technologies, services and specialists. Its task will be to strengthen stakeholders in the enabling and innovation environments through knowledge in areas that are crucial for the development of AI solutions and business models.

The regulatory environment is also being strengthened. Following the adoption of the AI Act at the EU level, the Slovenian Government approved the Act Implementing the Regulation (EU) laying down harmonised rules on artificial intelligence[58], which was adopted by the National Assembly in October 2025. The Act defines the competent authorities for the implementation of the European Regulation in Slovenia and its supervision, along with minor offences and fines. It designates the following market supervision authorities: the Agency for Communication Networks and Services of the Republic of Slovenia (AKOS), the Information Commissioner, the Insurance Supervision Agency, Banka Slovenije, and the Market Inspectorate. The Act also introduces a single contact point, a competent authority responsible for maintaining the registry of high-risk AI systems in critical infrastructure and an authority responsible for establishing AI regulatory sandboxes, whose tasks it also defines. Furthermore, measures planned by the ministry include campaigns to disseminate

[58] Act Implementing the Regulation (EU) laying down harmonised rules on artificial intelligence. Available at: https://pisrs.si/pregledPredpisa?id=ZAKO9225 (10 October 2025).

information about the Act that are tailored for SMEs, start-ups, AI adopters and local government authorities.

Furthermore, the Act establishes regulatory sandboxes, i.e. controlled environments created for a limited period of time and facilitating the development of AI technologies in real-world conditions under regulatory supervision, while also allowing regulators to learn about the characteristics of such technologies.Based on the results of testing in a regulatory sandbox, the technology developer adapts their product to the regulatory frameworks, while the regulator uses the knowledge gained to adopt more appropriate regulatory frameworks. In this way, the development of innovative solutions is monitored throughout their lifecycle, and regulatory compliance is achieved in real time.

Slovenia is also active in the field of international cooperation on AI. In 2021, the International Research Centre on Artificial Intelligence (IRCAI) was established under the auspices of UNESCO; it is hosted by the Jožef Stefan Institute. Its activities span AI, healthcare, education, enabling technologies, climate and the circular economy. IRCAI represents one of Slovenia's greatest international achievements in the field of AI.

OECD data for Slovenia[59] show an increase in venture capital investments in AI start-ups. The annual average between 2017 and 2021 was USD 5 million, but in 2023, the figure rose to USD 40 million.

3.2 SWOT analysis

STRENGTHS	**WEAKNESSES**
− tradition of research excellence and its international recognition − strong strategic and legislative framework − relatively high adoption of AI in companies compared to the EU average − relatively good infrastructure (supercomputing ecosystem) − political consensus on promoting AI development and use	− low level of trust in AI technologies − dependence on foreign technology providers − low level of employee knowledge and competences − fragmented state funding and lack of coordination across fields − poor cooperation between the economy and research institutions - rigidity of rules and regulations on data access − shortage of IT and AI specialists − not enough IT and AI content in the curricula of educational institutions at all levels
OPPORTUNITIES	**THREATS**
− establishment of new data spaces and national data centres	− brain drain − NSAI 2030 objectives are not attained

[59] Available at: https://oecd.ai/en/dashboards/national/slovenia (10 October 2025).

- funding for the development and deployment of reference AI solutions - new supercomputer and AI factory - establishment of regulatory sandboxes - strengthening the enabling environment (European Digital Innovation Hubs, competence centre, Slovenian AI factory) - development of the Slovenian GaMS large language model - increase in venture capital investment in AI in Slovenia - strengthening technological sovereignty - accelerated introduction of AI content in the education system - awareness-raising and education of the general public - incentives for cooperation between the economy and researchers - enhancement of international cooperation	- capital outflow due to an unfavourable business environment - negative public attitude towards AI - reduction in public investment in AI - escalating geopolitical tensions and the resulting restrictions on access to foreign technology - slowdown in the development and adoption of AI by businesses and the public sector

3.3 Implications for NSAI 2030

The results of focus groups and structured interviews conducted by Cedars with stakeholders from the public and private sectors as part of the study have shown that the main challenges in AI adoption include infrastructure limitations, regulatory constraints, a lack of employee knowledge and competences, and a lack of exchanges and coordination among stakeholders. Providers of AI solutions are faced with a lack of competitiveness compared to companies that benefit from economies of scale, a lack of implementation guidelines, fragmented infrastructure and data, a shortage of practical experts, and brain drain. Large companies have identified challenges such as the fact that AI deployment depends on management's motivation to adopt AI, the absence of a structured approach to AI deployment, rigid governance structures and an unfavourable business environment in Slovenia.

Based on these results and an analysis of other relevant data, the authors of the study prepared the following recommendations:

- in relation to governance, the competent ministry should improve coordination among the public sector stakeholders,
- appointment of AI ambassadors in every public sector organisation,
- establishment of a central repository of AI solutions in the Slovenian public sector, modelled on the European Public Sector Tech Watch,

- targeted incentives for projects deploying AI solutions in Slovenian companies, thereby addressing the challenges of economies of scale and return on investment in AI,
- focus of the enabling environment should be on improving cooperation and establishing access to experts for companies lacking such expertise,
- development of guidelines on how to approach the implementation of a major AI project, which would assist both public and private sector organisations,
- amendments to the regulatory framework to make it less restrictive in terms of data access, the ability to connect databases and the creation of an appropriate business environment,
- further development of a network of data stewards providing an adequate level of access to high-quality data within their institutions,
- establishment of a uniform infrastructure provision system to ensure synergies and, above all, sufficient capacity for users,
- establishment of regulatory sandboxes for AI solutions that are accessible to as wide a range of companies as possible, and
- strengthen efforts to raise general awareness among the public, companies and public sector employees regarding AI use and the management of key risks associated with it.

An analysis by Digital Innovation Hub Slovenia has shown that the following state support measures would be most beneficial to companies (based on a survey questionnaire) and the public sector (based on focus group findings) when deploying AI:

- financial incentives for the development of AI solutions, as organisations noted funding as one of the main barriers to AI adoption,
- establishment of a national service infrastructure that will enable standardised, reliable and controlled access to distributed high-quality data sources in line with the concept of data spaces for better access to high-quality data,
- promotion of investment in high-performance computing infrastructure, as few organisations opt for high-performance computing,
- coordination of initiatives and exchanges among stakeholders to improve cooperation among research institutions, companies and state bodies, and
- establishment of national data spaces to support AI in Slovenia and provide secure access to high-quality data.

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