Italy

National Strategy for AI

In July 2020, the Italian Ministry of Economic Development issued the National Strategy for Artificial Intelligence.[508] The document is the result of the public consultation closed in September 2019 on the draft version,[509] and a background paper providing initial guiding principles and policy recommendations as a basis for Italy's AI strategy.[510] The Italian strategy fits within the lines of the White Paper on Artificial Intelligence of the European Commission. The National Strategy is part of the European Coordinated Plan for Artificial Intelligence and must be placed in the context of a synergy between Member States and European institutions. It therefore arises from the awareness that only with joint and coordinated actions Europe will be able to compete with the most advanced countries. Besides, the strategy is the result of the debate and negotiation at the international level like the OECD and cooperation within the G7 and G20, precisely the Global Partnership on AI, in which Italy participates together with 13 other states and the European Union.

It is worth mentioning the White Paper on Artificial Intelligence, presented by the Agency for Digital Italy (AgID) in 2018, underlining the opportunities offered by AI for improvement of public services and the relationship between public administration and citizens.[511] The Italian Ministry of Economic Development will monitor and evaluate the progress of the national AI strategy on a continuous basis and update its implementation where needed.

---

[508] Italian Ministry of Economic Development, Proposte per una strategia nazionale per l'intelligenza artificiale (2019),

[509] Italian Ministry of Economic Development, *Strategia Nazionale per l'Intelligenza Artificiale. Ministero dello Sviluppo Economico* (2019), https://www.mise.gov.it/images/stories/documenti/Strategia-Nazionale-Intelligenza-Artificiale-Bozza-Consultazione.pdf

[510] Italian Ministry of Economic Development, *Proposte per una strategia italiana per l'intelligenza artificiale. Gruppo di Esperti MISE sull'intelligenza artificiale* (2019), https://www.mise.gov.it/images/stories/documenti/Proposte-per-una-strategia-italiana-2019.pdf

[511] Agency for Digital Italy, White Paper on Artificial Intelligence (2018), https://ia.italia.it/assets/librobianco.pdf.

The document provided 82 recommendations which will constitute the Italian strategy within the European Coordinated Plan on Artificial Intelligence.[512] The document is structured in three parts:

1) analysis of the global, European and national market of artificial intelligence;
2) description of the national strategy on artificial intelligence;
3) policy recommendations monitoring of the national strategy.

The strategy on AI aims to achieve not only industrial competitiveness in the aforementioned sectors but also the well-being of humanity and the planet, the so called "RenAIssance." The strategy calls for anthropocentric approach to AI based on three pillars driving the development of technologies and policies:

- AI for human beings: The first level concerns the individual and the relationship with "the machine." AI technologies must be at the service of people, guaranteeing human supervision, preventing social and territorial imbalances deriving from unaware and inappropriate uses. It is about defining and implementing initiatives related to safety, public administration, health and medicine, education, new skills, policies for work and digital humanities, media and the cultural and creative industry.

- AI for a reliable, productive and sustainable digital ecosystem: The second level includes industrial policies for the manufacturing sector (Industry 4.0). AI must be designed and implemented in a reliable and transparent way, so that it can be adopted in any area productive. This concerns the promotion of robotics and autonomous systems, software, data processing, IoT, finance, pharmaceuticals and biotech.

- AI for sustainable development: The third level focuses on sustainability. AI technologies must generate opportunities of growth and well-being for all individuals, in line with the principles contained in Article 3 of Italian Constitution and the United Nations Sustainable Development Goals. This goal includes actions related

[512] Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions, Coordinated Plan on Artificial Intelligence COM(2018) 795 final.

to environmental protection and sustainable infrastructures such as smart cities, transport, agriculture, space.

The budget provides a starting point based on a mixed public and private investment which amounts to 888 million euros in 5 years. Besides, the strategy underlines the need of 605 million (121 million per year) of private contributions. There are six areas of investment: 1) IoT, manufacturing and robotics; 2) services, health and finance; 3) transports, agriculture and energy; 4) aerospace and defense; 5) public administration; 6) culture, creativity and digital humanities.

National AI Ecosystem

Several centers of excellence characterize the Italian AI research ecosystem, precisely, the Artificial Intelligence and Intelligent Systems Laboratory (AIIS) of the Italian Interuniversity Consortium for Informatics (CINI), the Italian Institute of Technology (IIT) and the Institute for Calculation and Networks for High Services (ICAR) of the National Research Council (CNR). The Italian government will reinforce public funding and encourage public-private venture capital support in the field of artificial intelligence, blockchain and Internet of Things. For instance, Smart&Start Italia is government-funded scheme for new businesses in the digital economy.[513] The National Innovation Fund established in 2019 is another source of resources up to €1 billion.[514] The government is also setting up advisory services through the appointment of innovation managers that will help SMEs during the technological and digital transformation process. Concerning the public sector, the Agency for Digital Italy recently released a white paper on artificial intelligence at the service of citizens (see below).

In terms of networking, 8 Competence Centers, established by the Ministry of Economic Development, and 12 European Technology Clusters, set up by the Ministry of Education, will form the basis for a national network for knowledge exchange and collaboration. These integrate the Digital Europe Programme for the period 2021-2027,[515]

---

[513] https://www.mise.gov.it/index.php/it/incentivi/impresa/smart-start.
[514] https://www.mise.gov.it/index.php/it/incentivi/impresa/fondo-nazionale-innovazione.
[515] *Proposal for a regulation of the European Parliament and of the Council establishing the Digital Europe programme for the period 2021-2027,* COM/2018/434 final (June 6, 2018), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2018%3A434%3AFIN

together with the establishment of Digital Innovation Hubs. The Italian strategy mentions its proactive support to European initiatives like the Confederation of Artificial Intelligence Laboratories in Europe (CLAIRE) and the public-private partnerships for electronic components and systems (ECSEL).

The strategy also aims to encourage the development of the data economy by supporting the creation of a Common European Data Space.[516] This is based, for instance, on improving the interoperability and accessibility of public administration data through API interfaces. To facilitate data exchanges, it is proposed to focus on Data Sharing Agreements, in particular in strategic sectors, and Data Trust models to ensure data sharing in a fair, safe and equitable way.

Concerning the development of digital infrastructures, the Italian government is participating in the Joint Undertaking to develop a competitive European computing ecosystem (EuroHPC).[517] Italy is further expanding its ultra-broadband optical fibre network and 5G network. The plan also considers high-performance computing (HPC). The worldwide excellences such as Eni's Green Data Center in Ferrera Erbognone and Cineca's Leonardo supercomputer are two examples showing how Italy weighs 1.2% in the global HPC panorama (around 50 petaflops). The plan proposes to double this capacity by investing € 70 million in 5 years.

The OECD notes that Italy has an increasing number of healthcare applications and AI technologies, leveraging data in the research sector, hospital medical records, reports and laboratory tests. Italy's Ministry for University and Research has launched a National AI Doctoral Program which aims at recruiting around 200 doctoral candidates all over the country. There is now a Memorandum of Understanding between the Minister of Technological Innovation and Digitization and Fondazione Leonardo to shape the framework and boundaries for AI adoption in Public Administration. There is also exploration of a specific platform to improve the level of citizen education on AI matters, with a view to fostering idea

[516] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Towards a common European data space, COM/2018/232 final* (April 25, 2018), https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A52018DC0232
[517] https://ec.europa.eu/digital-single-market/en/eurohpc-joint-undertaking

generation for future adoption and ensuring a better understanding of trustworthiness on use cases where AI is used.[518]

Human capital

The development and implementation of AI technologies firmly depends on skills and competences. The Government has already shown its intention to strengthen the provision of AI competences at all education levels. At the primary and secondary education level, the government has launched the National Plan for the Digital School to update school curricula and promote new skills in digital education and AI-related courses.[519] At higher education levels, the government is encouraging the integration of courses with AI-related themes in bachelors, masters and doctoral programs. The planned budget also aims to support projects among PhDs, researchers and professors.

Besides, literacy campaigns will be fostered via broadcasting and multimedia. Special attention will be devoted to informing about fake news and issues of cyber security. At the same time, the strategy underlines the need of new plans to support small and mid-size business in the AI deployment and update the skills of the workforce. To increase the international attractiveness of Italy in the field of AI, Italy will focus on attracting foreign talents through instruments such as the EU Blue card,[520] and the Italian Startup Visa.[521]

The Italian Institute for Artificial Intelligence (I3A)

The strategy also includes the creation of the Italian Institute for Artificial Intelligence as a single point of contact at the international level which can collect different interests and perspectives on AI technologies. The Institute aims to become one of the leading research institutes in Europe. It will consist of a hub with central laboratories and 7 centers specialized in the priority sectors identified by the Strategy who will work in connection with universities or other institutes already active.

---

[518] At 61-62. https://www.mcit.gov.sa/sites/default/files/examples-of-ai-national-policies.pdf
[519] https://www.istruzione.it/scuola_digitale/allegati/Materiali/pnsd-layout-30.10-WEB.pdf
[520] https://www.apply.eu/BlueCard/Italy/
[521] http://italiastartupvisa.mise.gov.it/#homepage

The Institute will work according to a multi-year strategic plan with periodically updated objectives and an autonomous governance but synchronized with the strategic lines of national governance and with universities and other centers of excellence already active also to be able to seize opportunities for development in connection with other technological trends (e.g., 5G, Industry 4.0, cybersecurity).

White Paper on Public Administration

In 2018, the AgID launched the White Paper on Artificial Intelligence. The objective is to give an important impulse to innovation in the public sector. The White Paper defines a plan to facilitate the adoption of AI technologies in the Italian Public Administration and improve the quality of public services. Artificial intelligence technologies can indeed be implemented in healthcare, education, security, urban management. The White Paper includes a set of recommendations defining the challenges for developing and implementing AI technologies in the public sector. The White paper defines nine challenges:

- The ethical challenge: the anthropocentric vision on artificial intelligence technologies leads to look at AI technologies as at the service of humans. In this case, it is important to ensure that these technologies meet universal needs. The characteristics of AI technologies leads to raising questions concerning the quality of data, transparency and accountability, as well as protection of rights and freedoms. This step is critical in the public sector to ensure transparency and the respect of individuals' rights and freedoms.

- The technological challenge: AI technologies cannot still replicate the functioning of the human mind. There is the interest in improving and implementing these technologies to make the work of the Public Administration more effective.

- The skills challenge: citizens increasingly deal with digital technologies. Therefore, it is critical they understand how the Public Administration implements and uses artificial intelligence technologies to take decisions or provide public services. Civil servants need to constantly improve their skills to ensure they can effectively be aware of the opportunities and challenges of the implementation of AI technologies in the public sector.

- The data challenge: data quality is one of the primary issues when implementing artificial intelligence technologies. Open data of public bodies can provide important information that would be very useful to generate applications of artificial intelligence at the service of the citizens. Therefore, it is critical to ensure equal and non-discriminatory access to public data.

- The legal challenge: in the field of AI technologies, is necessary to reconcile the principle of transparency of administrative acts and procedures with the protection of privacy and personal data. A second issue of transparency concerns intellectual property rights over algorithms. Moreover, when the public administration implements decision-making process, it is necessary to deal with accountability.

- The implementation challenge: training public employees, particularly officials and managers, on the functioning, benefits, as well as ethical and technical implications on the use of AI technologies is critical to ensure the development of the public sector.

- The inequalities challenge: AI solutions can reduce social inequalities in the field of education and training, health and disability, knowledge and human rights. However, AI technologies can also increase inequalities like in the case of biased outputs. Therefore, the Public Administration should focus on implementing these technologies ensuring inclusiveness, accessibility, transparency, non-discrimination.

- The measurement challenge: The implementation of new technologies impact on citizens and institution. The Public Administration has not always the instruments to measure these effects. However, the introduction of AI technologies in the public sector can provide more information while requiring an impact assessment.

- The human being challenge: citizens and institutions should be aware of the effects of automated systems. Artificial intelligence systems are not only a matter of technology but also social innovation.

The Rome Call for Ethics

This initiative is aimed at increasing awareness of the role of ethics in AI.[522] The document was signed in February 2020 by the Pontificia Accademia per la Vita, Microsoft, IBM, FAO and the Italian Government and proposes a more human-centric approach to AI. The Declaration sets out a program of "Algorithm Ethics" according to the "fundamental principles of good innovation," including Transparency, Responsibility, Impartiality, Reliability, Security and privacy. The Call is based on three principles:

- Ethics: All human beings are born free and equal in dignity and rights.

- Education: Transforming the world through the innovation of AI means undertaking to build a future for and with younger generations.

- Rights: The development of AI in the service of humankind and the planet must be reflected in regulations and principles that protect people – particularly the weak and the underprivileged – and natural environments.

Public Participation and Access to Documents

The national AI strategy followed a 2018 consultation. The Italian Ministry of Economic Development formed a 30-member group of experts to draft a national strategy on AI.[523] The group was comprised of ten representatives of enterprises operating in the field of AI, ten representatives of research centres / think tanks or academia, and ten representatives of the labour market, professions, consumers and civil society.[524] The group was tasked with developing recommendations on:

---

[522] http://www.academyforlife.va/content/pav/it/events/workshop-intelligenza-artificiale.html

[523] Governo Italiano, Ministry of Economic Development, *Artificial intelligence (AI): call for experts* (Sept. 14, 2018), https://www.mise.gov.it/index.php/en/news/2038605-artificial-intelligence-ai-call-for-experts

[524] At 14-15. https://www.mcit.gov.sa/sites/default/files/examples-of-ai-national-policies.pdf

- improving, coordinating and strengthening the research in the AI field;

- promoting public and private investments in AI, also benefitting from the dedicated EU funds;

- attracting talent and developing business in the field of AI;

- encouraging the development of the data-economy, paying particular attention to the spreading and valorisation of non-personal data, adopting the better standards of interoperability and cybersecurity;

- the legal framework with specific regard to safety and responsibility related to AI-based products and services;

- the socio-economic impact of development and widespread adoption of AI-based systems, along with proposals for tools to mitigate the encountered issues.

A 2020 survey of Italian consumers by BEUC, the European Consumer organization, found substantial public concern about the deployment of AI.[525] More than half of respondents disagreed or strongly disagreed that current regulation is adequate to efficiently regulate AI. Over 70% of respondents in Italy "strongly agreed that users should be able to say 'no' to automated decision-making." More than half "(strongly) agreed that companies use AI to manipulate consumer decisions."

Facial Recognition

According to Privacy International, the municipality of Como, Italy, purchased a facial recognition system "with little transparency and despite the lack of a clear legal framework."[526] Privacy International reported that Como "embraced a narrative of technological innovation pushed by

[525] BEUC, *Artificial Intelligence: what consumers say – Finding and policy recommendations of a multi-country survey on AI* (2020), https://www.beuc.eu/publications/beuc-x-2020-078_artificial_intelligence_what_consumers_say_report.pdf

[526] Privacy International, *How facial recognition is spreading in Italy: the case of Como* (Sept. 17, 2020), https://privacyinternational.org/case-study/4166/how-facial-recognition-spreading-italy-case-como

Huawei" within the broader concept of smart city and innovation tech, but was forced, after the intervention of the Italian Data Protection Authority, to suspend the system. The Garanti determined that there was no legal basis to collect facial images. Subsequent reporting by Wired indicated that the municipality had changed vendors and also that the system installed most recently failed to work as proposed.[527] In September 2020, AlgorithmWatch also reported that Italy is exploring the use of facial recognition in football stadiums.[528]

OECD/G20 AI Principles

Italy endorsed the OECD and the G20 AI Principles and is a founding member of the Global Partnership for AI. Italy will host the G20 Ministers in 2021. Progress on the implementation of the AI Principles will be considered.

Algorithmic Transparency

Italy is a member of the European Union and has ratified Council of Europe Convention 108+. Italians have a general right to obtain access to information about automated decision-making and to the factors and logic of an algorithm. There is a data protection agency in Italy with independent authority.

Human Rights

Italy is a signatory to the major international human rights instruments, and generally ranks highly for the defense of human rights. Freedom House rated Italy 89/100 in 2020 for political rights and civil liberties.[529]

---

[527] Laura Carrer, *The Municipality of Como has discovered that his facial recognition system is not what he had bought: The testing of the video surveillance system with facial recognition revealed inconsistencies and discrepancies with the tender specifications* (Sept. 28, 2020), https://www.wired.it/attualita/tech/2020/09/28/como-riconoscimento-facciale-collaudo/

[528] AlgorithmWatch, *In Italy, an appetite for face recognition in football stadiums* (Sept. 16, 2020), https://algorithmwatch.org/en/story/italy-stadium-face-recognition/

[529] Freedom House, *Freedom in the World 2020 – Italy* (2020), https://freedomhouse.org/country/italy/freedom-world/2020

Evaluation

Italy has emerged as a leader in the field of AI policy. Italy has endorsed the OECD/G20 AI Principles. The national strategy incorporates a strong commitment to fundamental rights and reflects the active participation of many public and private constituencies. Italy is subject to the GDPR and has ratified the modernized Council of Europe Convention 108, providing a high level of protection for personal data and specific right of algorithmic transparency. Moreover, the Rome Call for AI Ethics, undertaken by Pope Francis with the support of the Italian government and private companies, sets out a powerful vision for AI that is human-centric and that diminishes social inequality.