



# NATIONAL AI STRATEGY OF TURKIYE

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# Vision

- ▶ creating value on a global scale with an agile and sustainable AI ecosystem for a prosperous Türkiye.

In order to realize this vision, NAIS was designed around 6 strategic priorities in line with both national policies and needs along with the AI strategy recommendations of international organizations:

- ▶ **Training AI Experts and Increasing Employment:**
- ▶ **Supporting Research, Entrepreneurship, and Innovation:**
- ▶ **Facilitating Access to Quality Data and Technical Infrastructure:**
- ▶ **Regulating to Accelerate Socioeconomic Adaptation:**
- ▶ **Strengthening International Cooperation:**
- ▶ **Accelerating Structural and Labor Transformation:**

Within the framework of these strategic priorities, 24 objectives and 119 measures were formulated.




# P1: Training AI Experts and Increasing Employment:

- ▶ Increase AI expert employment to meet sectoral demands.
- ▶ Enhance the academic and technical capacity of universities with new AI programs.
- ▶ Develop AI education for students at all levels, including algorithmic thinking and applied AI training.




## P2.Supporting Research, Entrepreneurship, and Innovation:

- ▶ Promote public and private sector research in AI.
  - ▶ Encourage entrepreneurship with AI-oriented venture capital and innovation clusters.
  - ▶ Foster public-private partnerships to facilitate innovation in AI technologies.
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## **P3: Facilitating Access to Quality Data and Technical Infrastructure:**

- ▶ Create shared access to high-performance computing for researchers.
- ▶ Establish a governance mechanism for secure data sharing and utilization.
- ▶ Develop open-source libraries and platforms to support AI applications.




## P4: Regulating to Accelerate Socioeconomic Adaptation:

- ▶ An agile and inclusive legal harmonization process will be implemented so that ethical and legal scenarios can be tested and discussed.
- ▶ In order to support reliability in AI studies, a governance mechanism that will facilitate fairness, data privacy and ethical values audits and algorithmic accountability will be implemented.
- ▶ Scientific research and awareness on the effects and risks of AI technologies and systems on the socioeconomic structure will be increased.

**Action:** Statistics adopted on international platforms in the field of AI and national policies will be reviewed, and the Official Statistics Program will be updated if deemed necessary. Turkish Statistical Institute

**Action:** Research and analysis studies will be conducted within the scope of indicators in international studies on the Socio-economic Impact Measurement of AI. Scientific and Technological Research Council of Türkiye



# P5: Strengthening International Cooperation:

- ▶ Active participation in global data governance, trustworthy and responsible AI studies will be ensured.
- ▶ Participation in cross-border projects in the domain will be ensured, with a priority in the multi-annual financial frameworks of the European Union.
- ▶ Joint projects and cooperation activities will be carried out at the international level with leading organizations in the field and strategically priority countries.

**Action:** An "International AI Studies Monitoring and Coordination Committee" will be established to track international studies in the field of AI, ensure active participation by our country, and contribute to these efforts. Ministry of Science, Industry and Technology

**Action:** Collaborations will be developed with countries that have created their own large language models or with global companies in this field to share knowledge and experience. Ministry of Science, Industry and Technology

**Action:** Efforts related to the secure free flow of data will be monitored. Digital Transformation Office



## P6. Accelerating Structural and Labor Transformation:

- ▶ DTO will establish a public AI ecosystem and technical infrastructure to speed up AI and advanced analytics studies in public institutions.
- ▶ The structural and competency transformation towards the effective use of AI technologies in public institutions will be accelerated.
- ▶ TÜBİTAK Artificial Intelligence Institute will be structured in a way that cuts horizontally across sectors and research areas in order to play an accelerating role in the development of the AI ecosystem.
- ▶ Works focusing on sectoral implementation domains, prioritizing experience sharing, and being public to all stakeholders will be carried out.
- ▶ With regard to new professions, training and certification programs for the existing workforce will be carried out and compliance will be accelerated with sectoral cooperation.

**Action:** "AI Risk Management System Certification Program" will be implemented for risk-oriented evaluation of AI. Turkish Standards Institution, Türkiye Digital Transformation Office

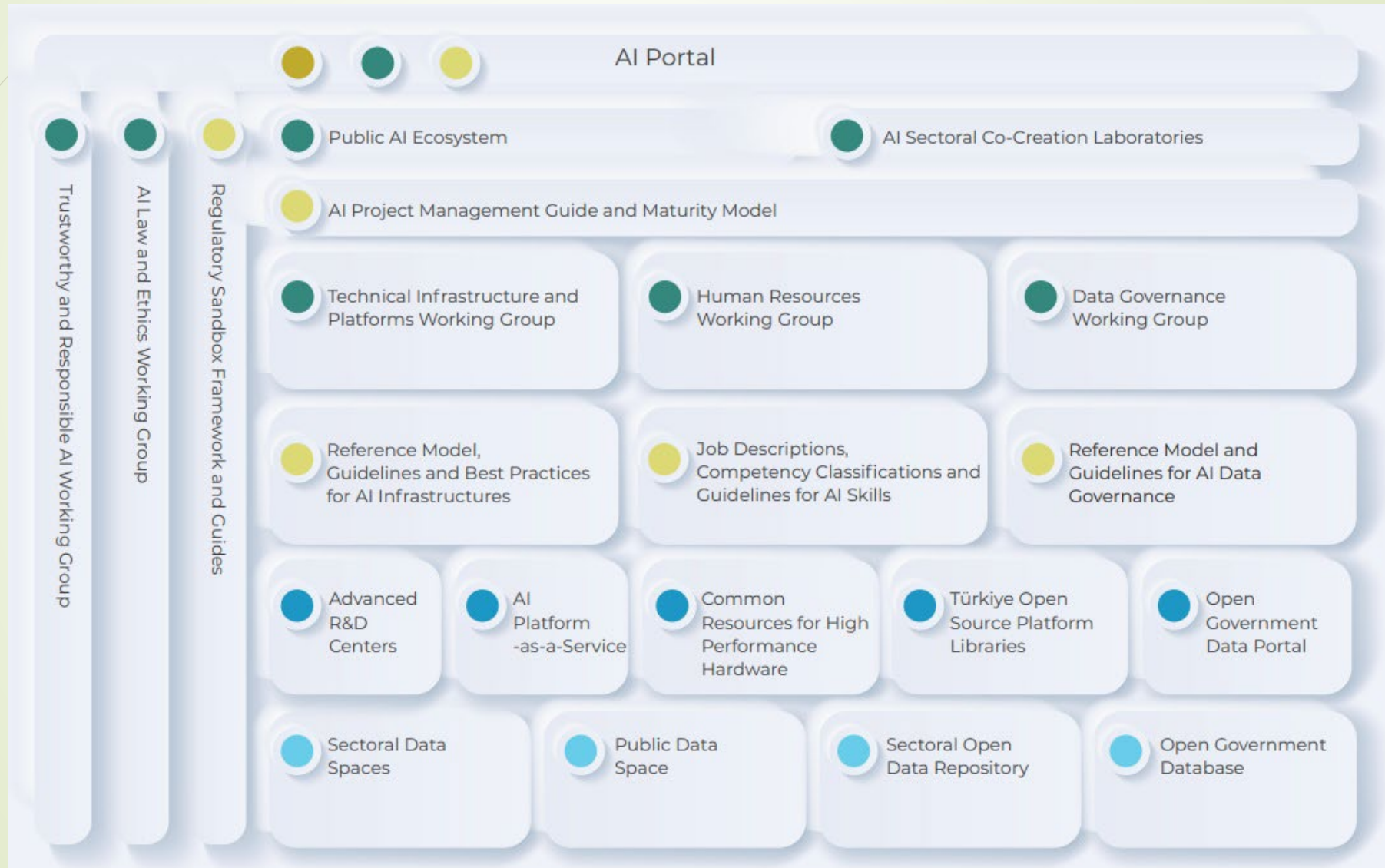
**Action:** A "Trustworthy Artificial Intelligence Seal" will be established in line with the certification mechanism for the audit and legal compliance of AI applications. Türkiye Digital Transformation Office, Scientific and Technological Research Council of Türkiye



# AI Ecosystem Administrative Mechanism




# AI Ecosystem Technical Governance





# Projects on the AI-Climate Technologies in Türkiye

- ▶ Türkiye submitted the “**Digitalization Initiative for Climate Action**” in COP29 in Azerbaijan. This Initiative aims to increase the capacity of stakeholders in digital technologies and contribute to the climate action through strengthening the cooperation. The Initiative aims to support the preparation and implementation of Nationally Determined Contributions (NDCs) and Long-Term Strategies (LTS) under the Paris Agreement with a focus on digitalization.
- ▶ 2 main components: (a) Capacity building (b) Increasing collaboration for joint R&D and implementation of digital technologies. The Initiative is important in terms of strengthening Türkiye’s international status in climate action, and establishing cooperation with other states.
- ▶ Türkiye signifies not only the South-North cooperation but also the South-South cooperation and triangular cooperation. We mainly address the association of climate technologies and digital technologies in 3 perspectives: a) decreasing the causes of climate change, b) increasing the adaptation to climate change, and c) technologies managing the results of climate change.




# Air Quality Monitoring Portal and NEFES Software Program:

- ▶ Türkiye improved systems to monitor and ameliorate the air quality. Since 2005, the air quality monitoring stations have started. Currently, we have 306 stations to monitor the air quality, and we aim to increase it to 410. These stations are used not only to monitor air quality but also to cross-check the algorithmic modelling with real-time data.
- ▶ The air quality monitoring portal (HEY) offers the emission management, modelling and scenario analysis using GIS. The NEFES Portal provides the visualization of the air quality of urban areas by using the 3D digital twins of cities. Through these mechanisms, we can monitor the fundamental CO<sub>2</sub> emissions caused by industry, transportation and house heating, etc.
- ▶ Besides, these systems include a health index module to evaluate the impact of air quality on health. Analysing the cost of air pollution on health, it offers a significant tool for policymakers. On the other hand, we aim to offer to open this system to citizens via mobile devices in order to be informed about the air quality of their dwellings.



# MARMOD: Marmara Sea Protection Integrated Modelling

- ▶ This Project is an initiative to decrease the impact of climate change and anthropogenic effects in Marmara Sea, and thus to maintain the ecological balance of Marmara Sea. The Project aims to offer an automated decision-making system through utilizing digital twin technologies. It is aimed to prevent environmental problems such as mucilage before they occur and to improve the marine ecosystem in a sustainable manner.
- ▶ This Project has been conducted in cooperation with universities (METU) and the public research centres (TÜBİTAK MAM) under the leadership of the Ministry of Environment and Climate Change. The Project have 3 main phases as summarized below:
- ▶ **Objective:** Address climate and human impacts using a "Marmara Digital Twin."
- ▶ **Phase 1:** Identified oxygen depletion with 1D models.
- ▶ **Phase 2:** Shifted to 3D models for accurate nutrient analysis.
- ▶ **Phase 3:** Update models, add decision tools to prevent issues like mucilage.



# The Bosphorus University-Tsunami Monitoring

- Türkiye have developed the monitoring and early warning systems against tsunami risk. Due to being at high-risk for the tsunami, the early warning period was reduced from 15 minutes to 7 minutes in Marmara region. In that regard, 20 stations were established in Marmara region. Besides, we aim to set up new stations for the Aegean Sea (7 stations) and the Blacksea region (3 stations).
- The tsunami monitoring system has been designed to give early-warning for the earthquakes of magnitude 5.5. and above. Further, the communication network has been established in order to cooperate and react in real-time.
- The Project is also being conducted in cooperation with municipalities regarding using the data of the system in their strategies. In that regard, raising awareness across municipalities have been conducted.
- **Marmara Focus:** 20 stations; warning time reduced from 15 to 7 minutes.
- **Expansion:** 10 new stations planned for 2024 (3 Black Sea, 7 Aegean).
- **Collaboration:** Municipal integration, risk reduction, and global partnerships.



# Policy Recommendations

- ▶ Data

- ▶ Supporting Gaia-X ecosystem and contributing standard development in the areas related to climate change (Transportation, weather data, river data, INSPIRE data,)

*Gaia-X is a federated and secure data infrastructure, whereby data are shared openly, with users retaining control over their data. It links many cloud service providers in a wider, transparent and open ecosystem to drive the European Data economy of tomorrow.*

- ▶ GEOE3 (Geospatially Enabled Ecosystem for Europe) develops tools and APIs that will merge available information from national sources.

- ▶ Model

- ▶ AI research initiative similar to CERN in order to support multi discipline research and researchers who have limited access to data and computational infrastructure. Finding best AI models for climate change studies.



**THANK YOU**