

UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT



CSTD 2025-2026 Intersessional panel

Science, Technology and Innovation in the Age of AI

17 November 2025



Science, Technology and Innovation in the Age of AI

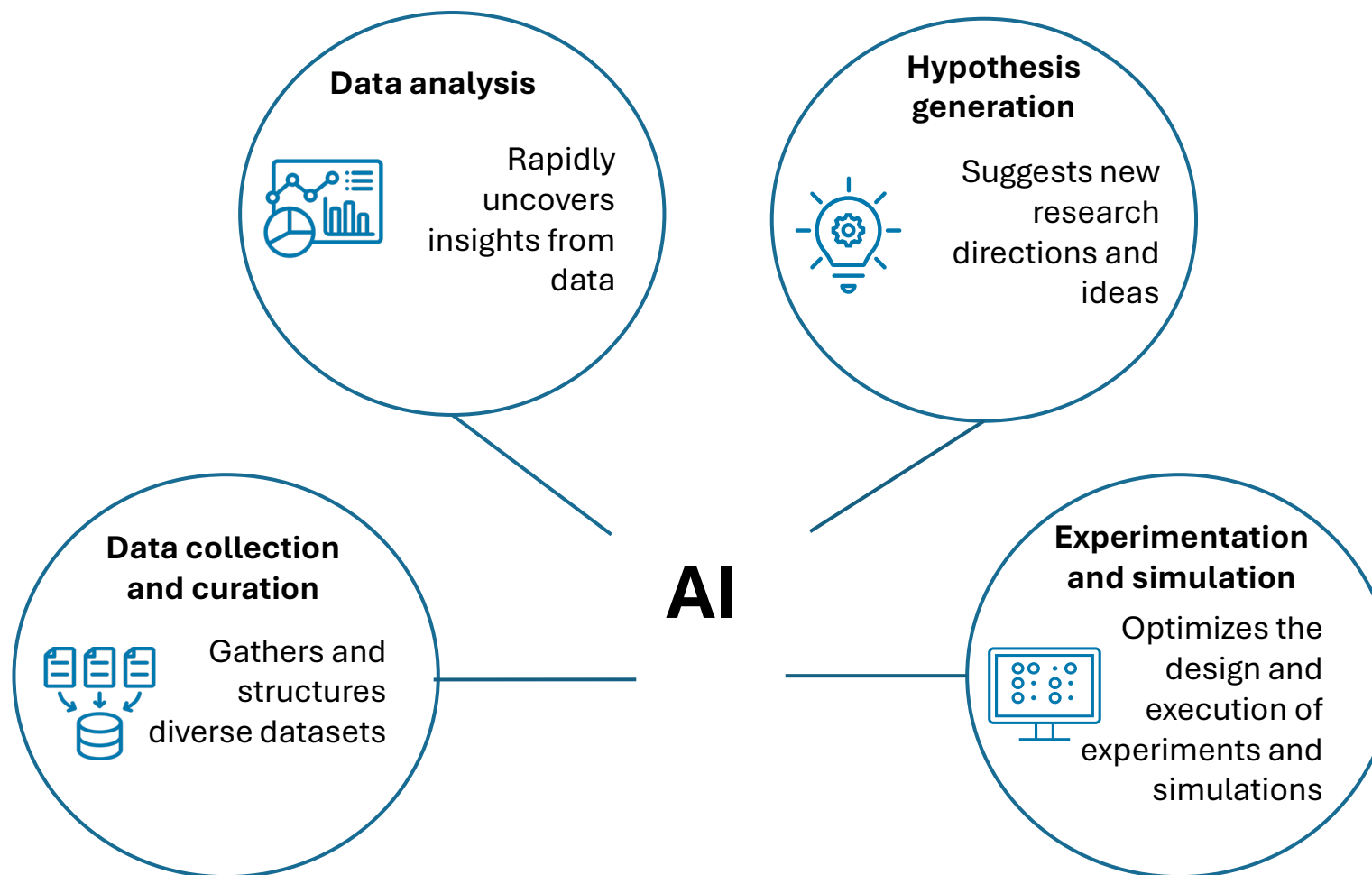


- I. **AI-driven transformation in R&D**
- II. **Rethinking innovation policy in the AI era**
- III. **Global collaboration for inclusive AI and research development**



➤ AI-driven transformation in R&D

AI influences R&D through four key channels



➤ Examples of AI applications in R&D



Bioscience

- Predict protein folding
- Combat antimicrobial resistance
- Improve diagnosis and treatment



Materials science

- Accelerate the discovery, prediction, design and testing of new materials
- Fosters the synergy between bioscience and materials science



Climate science

- Enhance forecasting, simulation and environmental modelling
- Support climate adaptation planning

➤ Technical challenges and ethical concerns

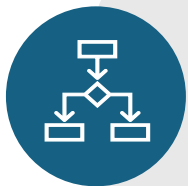
Technical Challenges



Data availability and quality



Explainability



Reproducibility

Ethical Concerns

Scientific fraud and fabrication



Data privacy



Deskilling of researchers



➤ Rethinking innovation policy in the AI era

Traditional innovation policy

Linear, science-push approach

Top-down, rigid regulatory frameworks

Disconnected disciplines

Narrow focus on promoting economic growth

Transformative innovation policy

Dynamic, interconnected innovation ecosystem

Adaptive regulation with continuous evaluation

Open, collaborative approach

Mission-oriented emphasizing sustainability and inclusivity



➤ 3 key approaches to capitalize on AI's potential



Flexibility and responsiveness

- Continuous data collection, stakeholder feedback, real-time monitoring and analysis
- Adaptive to the changes posed by AI (e.g. IP laws related to AI-assisted inventions)

Enacting agile and adaptive innovation policies



Collaboration and inclusivity

- Exchange of knowledge and skills across institutional and disciplinary boundaries
- Democratizing the scientific process through public participation in R&D

Fostering collaboration and inclusivity



Ethics and governance

- Process-centric, guided by principles of transparency, explainability, ethics and accountability in AI systems
- Enabling access to and use of high-quality data, while safeguarding privacy and individual rights

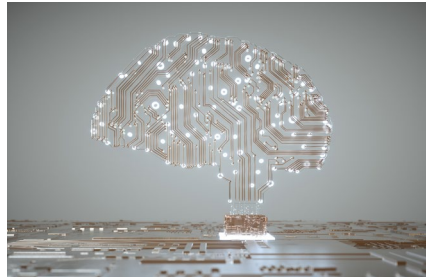
Strengthening responsible AI and data governance

➤ Enacting agile and adaptive innovation policies



Establish regulatory sandboxes

- **Kenya:** ICT Regulatory Sandbox
- **Brazil:** Regulatory Sandbox on AI and Data Protection



Modify IP laws to provide clarity and guidance

- **China:** Guidelines for AI-related patent applications
- **India:** Guidelines for Examination of Computer Related Inventions
- **Pakistan:** A Centre of Excellence in AI to support patent registration



Employ AI to support real-time, evidence-based policymaking

- **Brazil:** AI and satellite imagery for agricultural policy
- **Latvia/Switzerland:** AI tools for adaptive energy policy

➤ Fostering collaboration and inclusivity



Interdisciplinary funding models

- **Pakistan:** Grants to support industry-academia, and Pakistan-UK collaborations
- **Türkiye:** AI ecosystem funding for private-public consortiums



AI-focused research centers

- **Austria:** Graz Centre for machine learning
- **Republic of Congo:** African Research Centre for AI
- **Brazil:** The Institute for AI
- **Algeria:** Sidi Abdellah Tech Park



Integrating AI with R&D

- **China:** AI for Science Initiative
- **Indonesia:** The Indonesian AI Consortium
- **Colombia:** ColombIA Inteligente programme



Capacity-building

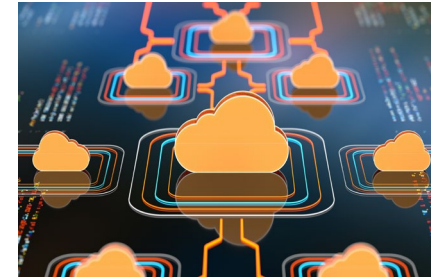
- **Malaysia:** Faculty of AI at Universiti Teknologi Malaysia
- **Ecuador:** ÉPICO AI and Data Science programme
- **Burkina Faso:** Interdisciplinary Centre of Excellence in AI for Development

➤ Strengthening responsible AI and data governance



Promote ethics and accountability in AI systems

- **India:** IndiaAI Safety Institute aimed at building safety, security and trust in AI
- **Cambodia:** National AI Strategy centring ethical considerations in innovation policy



Improve data management while adhering to privacy principles

- **Republic of Korea:** Data Dam initiative
- **Japan:** Research Data Ecosystem
- **Portugal:** National Programme for Open Science and Research Data



Global collaboration for inclusive AI and research development



Promoting open science and open innovation

- Foster knowledge exchange and interdisciplinary research through open science
- Accelerate partnerships for real-world solutions via open innovation



Building global AI capacity

- Strengthen institutional and human capabilities in AI for R&D
- Expand access to AI education, training and participation



Safeguarding AI with ethics and accountability

- Develop robust ethical frameworks to guide responsible AI development
- Strengthen accountability to uphold human rights, safeguard privacy and foster trust in AI systems

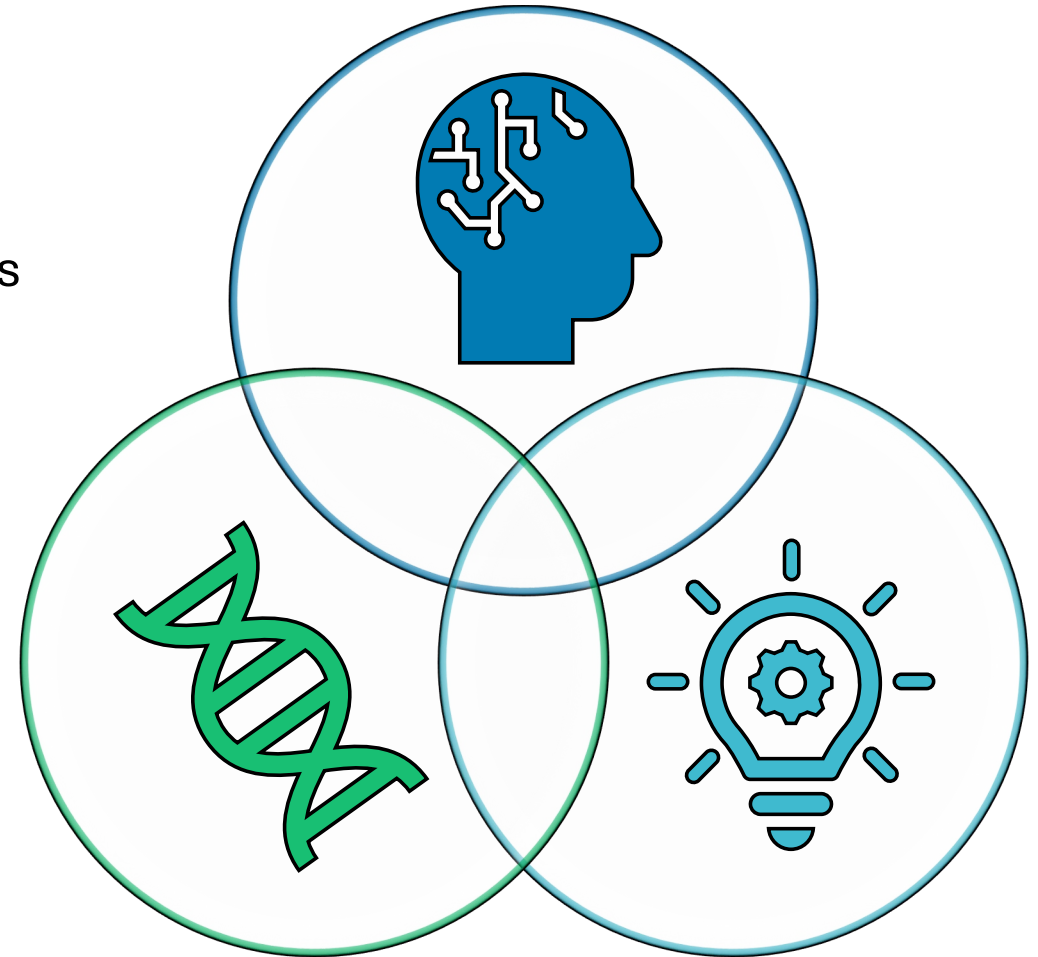
➤ Promoting open science and open innovation

Open Science, open Innovation and AI

- Open science: led by academia, aims to make scientific knowledge openly available
- Open innovation: led by firms, seeks to harness external resources for market-oriented solutions
- A paradigm shift from proprietary control to shared innovation ecosystems is needed

UNCTAD could support

- Advocating for international agreements promoting openness and inclusivity
- Developing policy toolkits for integrating open approaches into national and regional strategies



➤ Building global AI capacity



© UNCTAD | Fresthel Climacosa (left) from the Philippines and Menatallah Elserafy from Egypt are working to break the glass ceiling in their scientific fields

Ensuring access and participation

- Expanding digital literacy
- Upskilling and reskilling
- Enhancing institutional capacity
- Fostering knowledge exchange and technology transfer

UNCTAD could support

- Establishing AI-focused research fellowships
- Conducting technology assessment and foresight exercises

➤ Safeguarding AI with ethics and accountability

Current governance frameworks

- Fragmented
- Uneven enforcement
- Limited operational guidance
- Lack of accountability



UNCTAD could support

- Harmonizing national and global standards
- Align regulatory approaches
- Strengthening accountability frameworks



Recommendations

Developing countries are encouraged to:

- Enact agile and adaptive innovation policies
- Foster collaboration and inclusivity
- Strengthen responsible AI and data governance

The international community is urged to:

- Promote open science and open innovation
- Build global AI capacity
- Safeguard AI with ethics and accountability

Thank you

