

The impact of rapid technological change on sustainable development

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2018-2019 CSTD Intersessional Panel

15-17 January 2019, Vienna

AGENDA

1. Context
2. Rapid technological change and SDGs
3. Transformative and disruptive potential
4. National strategies and policies
5. International Cooperation and Multistakeholder Partnerships
6. Role of the United Nations
7. Conclusion

The impact of rapid technological change on sustainable development

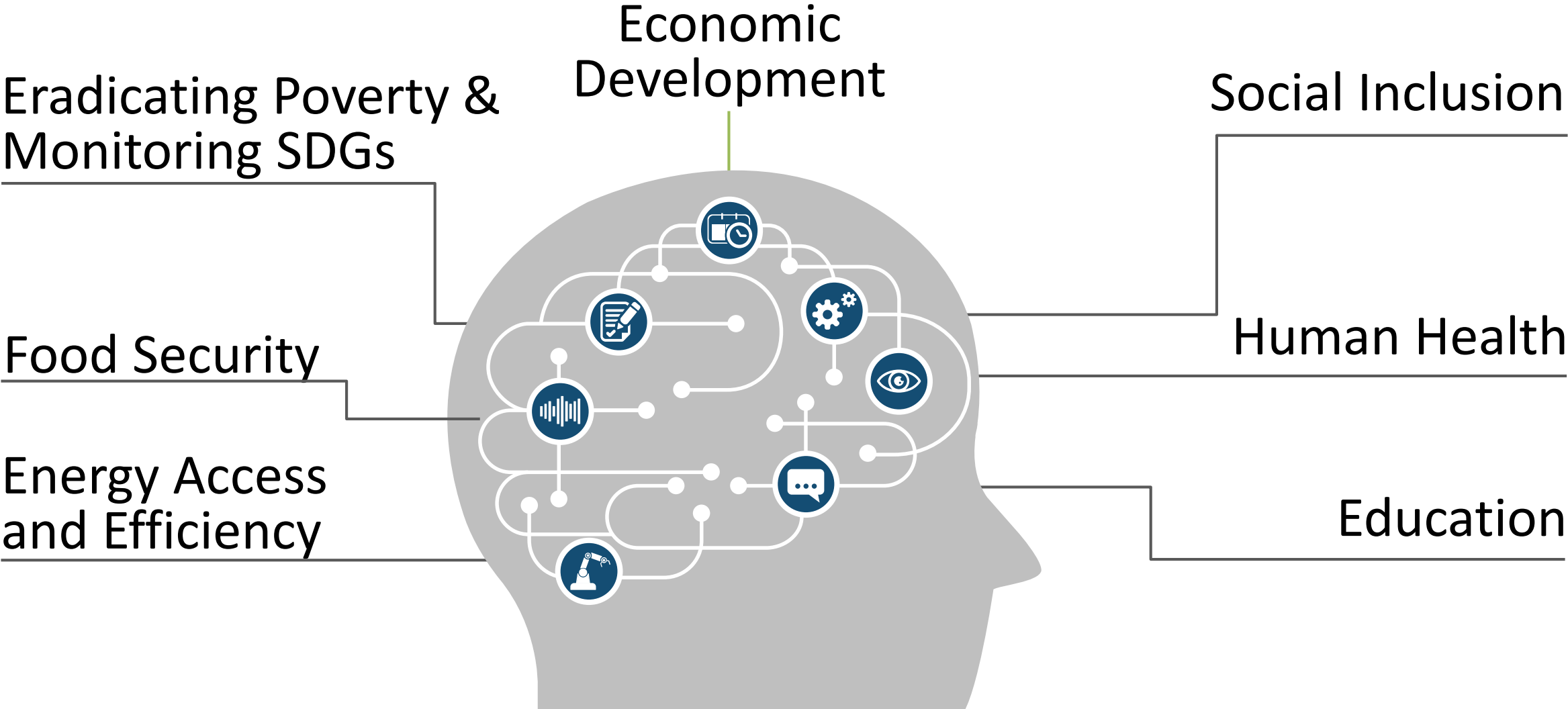
CONTEXT



Requests... the **Commission on Science and Technology for Development**, through the Economic and Social Council, to give due consideration to the impact of key rapid technological changes on the achievement of the Sustainable Development Goals...

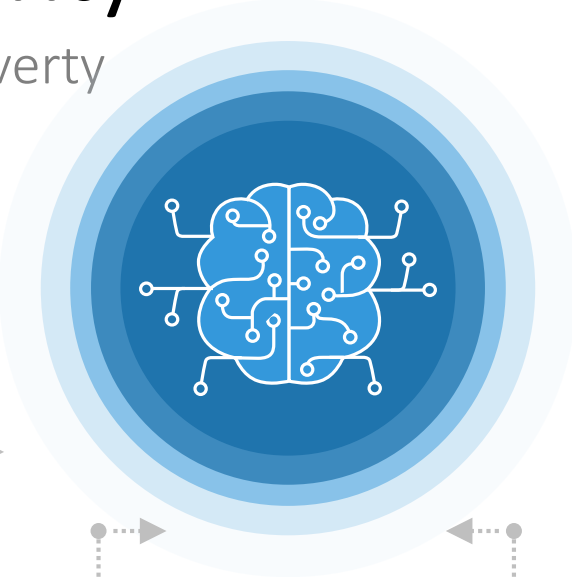
UN General Assembly Resolution 72/242

Opportunities of Rapid Technological Change for the SDGs



Poverty and Food Security

New tools for fighting hunger and poverty



Nowcasting and predicting poverty



New measures for poverty and economic development



New statistical indicators from remotely sensed imagery



Precision agriculture using IoT and machine learning



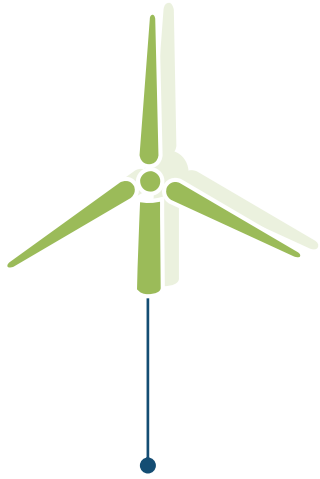
Early warning systems to predict food disruptions



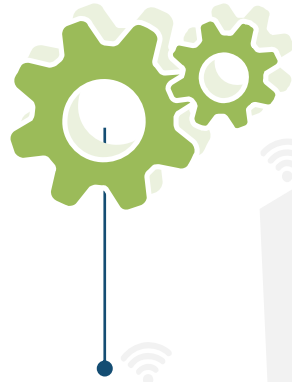
Genetic modification techniques for agricultural productivity

Renewable Energy

New technologies to address energy access and efficiency



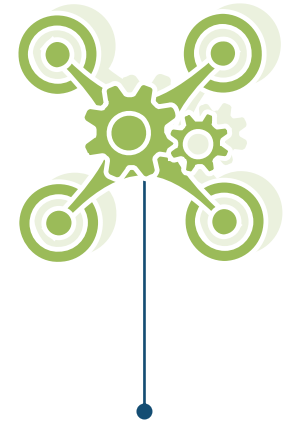
Sensors and machine learning can maximize generation efficiency by quickly adjusting to changes, e.g., wind conditions.



Machine learning makes it possible to predict peaks in supply and demand and can maximize the use of short-term renewable energy.



Smart wires can be combined with machine learning to optimize real-time power supplies to the current grid load and existing asset portfolios of buildings.



Drones and insect-sized robots can detect faults, predict failures, and monitor systems without interrupting production.

Healthcare

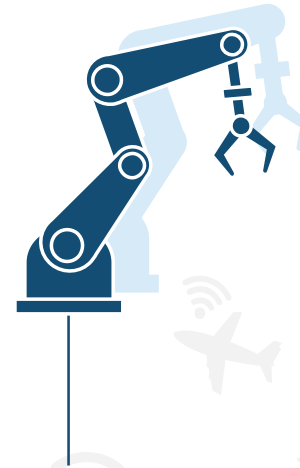
New waves of innovations to improve human and animal health



A machine learning program can analyze the patients' health remotely via mobile device, compare it to medical records, and recommend a suitable program or warn of possible illness.



AI-equipped diagnostic tools can identify diseases faster and with greater accuracy by analyzing medical data and patient records.



Autonomous diagnostic devices that use machine learning and other AI technologies, perform simple medical tests without human support and relieve doctors and nurses from routine activities.



CRISPR/Cas9 and related genome editing techniques have potential to improve human health, assuming ethical and safety issues are adequately addressed.

Other Sustainable Development Applications

Economic Development, Social Inclusion, Access to Education, etc.



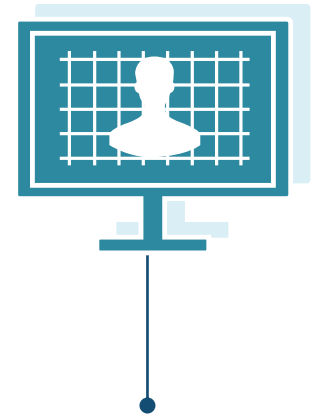
New digital learning platforms have the potential to expand access to quality education to underserved regions, provided that adequate infrastructure and appropriate curricula are provided.



Mobile and blockchain technologies are being used to encourage civic engagement, promote financial inclusion, and create digital identities.



New economic development opportunities through Industry 4.0 and smart manufacturing, 3D printing, drones, and other technologies.



Remote sensing and computer-vision algorithms can support interventions for disaster risk reduction and relief as well as monitor deforestation and other environmental issues.

Transformative and Disruptive Potential

Rapid technological change also poses new challenges for policy makers and society:

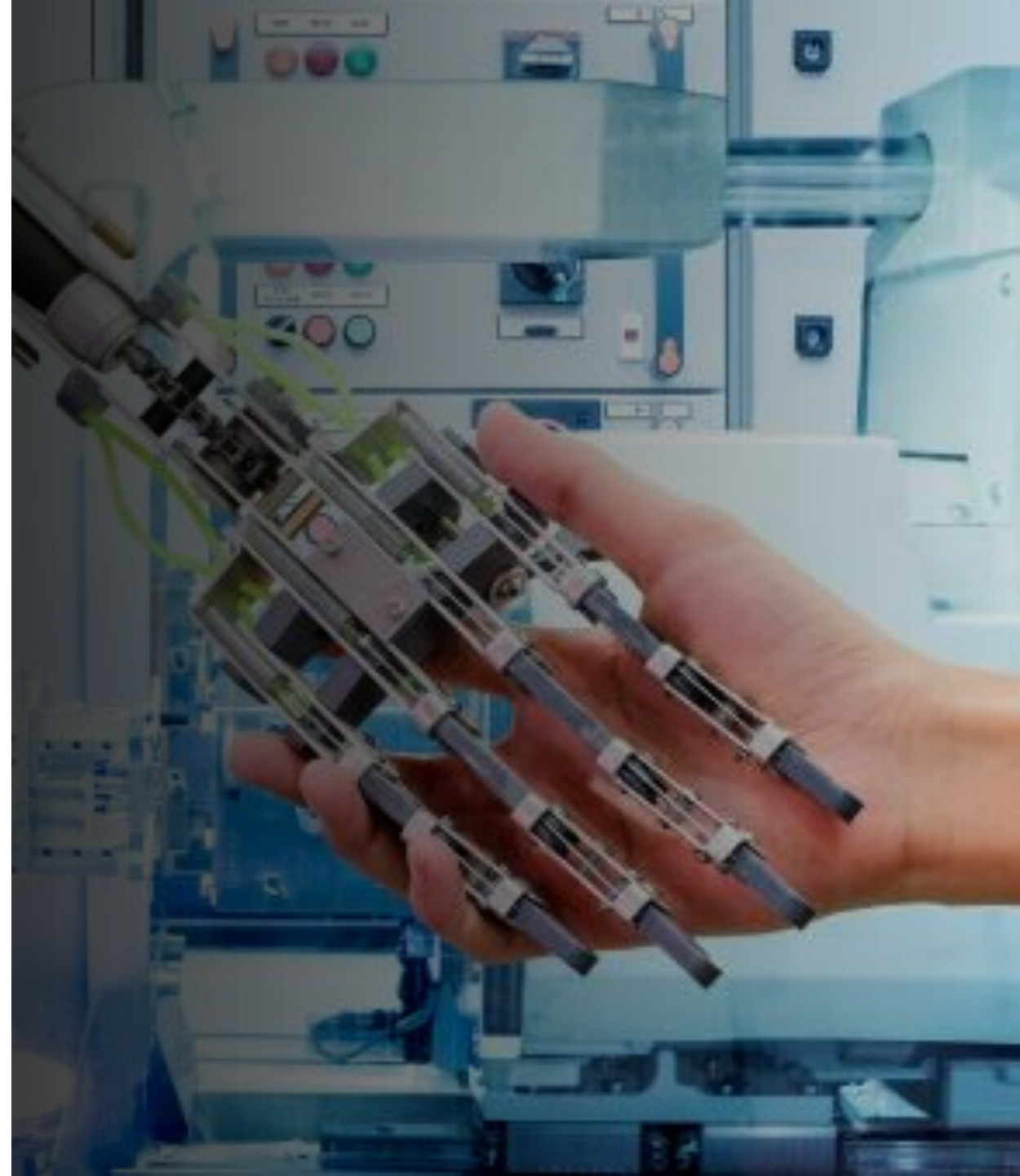
Unclear economic impacts involving employment, productivity, and competition

Potentially increasing divides between women and men, rural and urban populations, and rich and poor

Bioethical concerns involving the use of synthetic biology and gene editing techniques

Data privacy and security challenges that threaten consumer safety and protection

Potentially biased and non-transparent algorithms with impacts on underrepresented communities



National Policies and Strategies

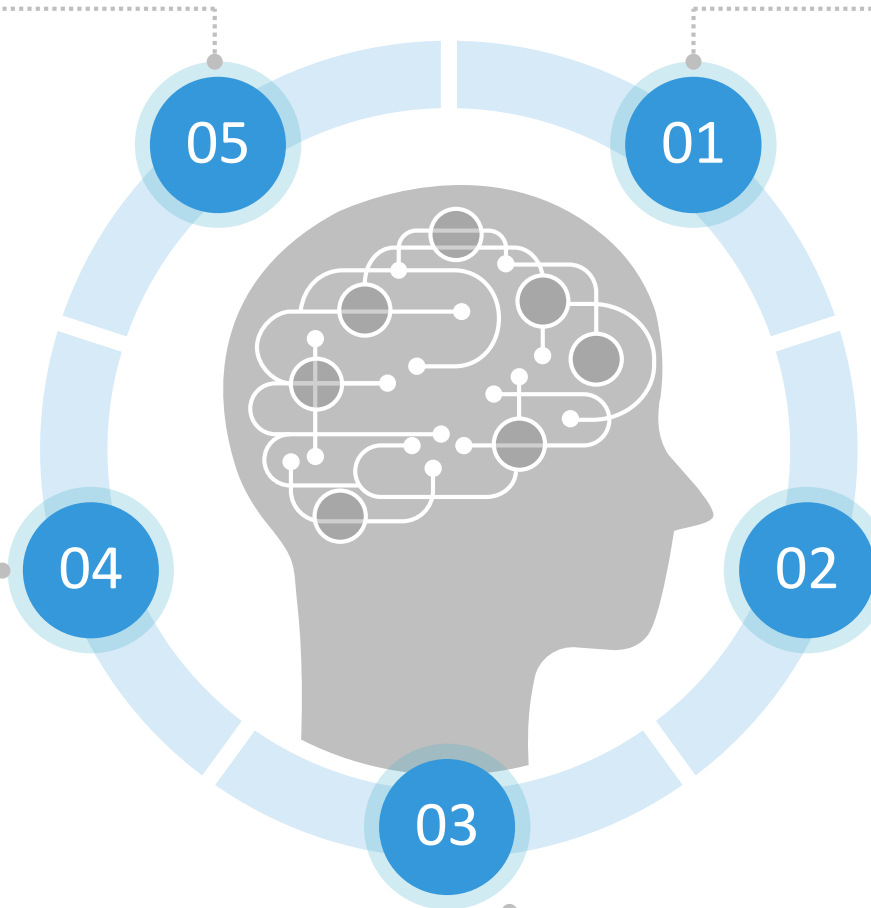
Building and Managing Effective Innovation Systems

Strengthening Technology Foresight and Assessment Capacities

Identifying key technologies and assessing their likely impact on sectors and issues of national concern

Closing Digital Divides

Investing in digital infrastructure, skills, and readiness, with a focus on accessibility and inclusion



Improving Education-Employment Nexus

Improving the educational base to take advantage of rapid technological change with tight alignment to employment structures

Strengthening National Innovation Systems

Cultivating capabilities, connections, and the enabling environment

Developing Technology-Specific Strategies

Industry 4.0, AI, Big Data, and related plans and strategies by national governments

International and Multi-stakeholder Cooperation

Leveraging international networks and partnerships to advance the SDGs

International Cooperation



North-South
Cooperation

South-South
Cooperation

Triangular
Cooperation

Multi-stakeholder Partnerships



Engaging the private sector,
academic and technical
communities, and civil society



Role of the United Nations

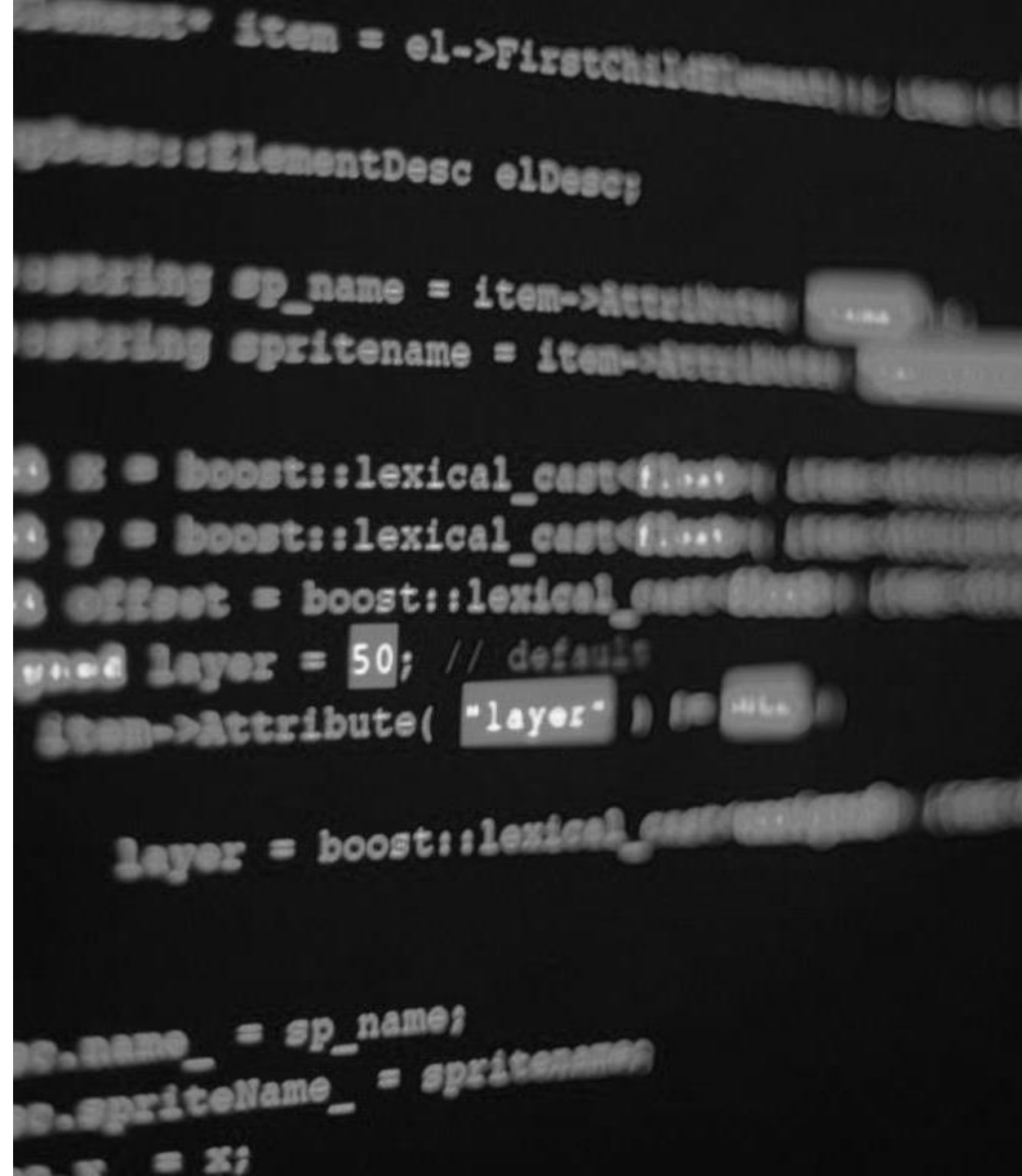
Growing interest by UN Member States to examine the impact of rapid technological change on sustainable development.

The United Nations could...

Support **capacity-building** initiatives on new and emerging technologies

Facilitate **global technology assessment and foresight** exercises on technological trends of broad interest

Provide a forum to discuss **normative and ethical frameworks** for the appropriate application of rapid technological change.





Thank you!

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