



2030 Agenda and the SDGs

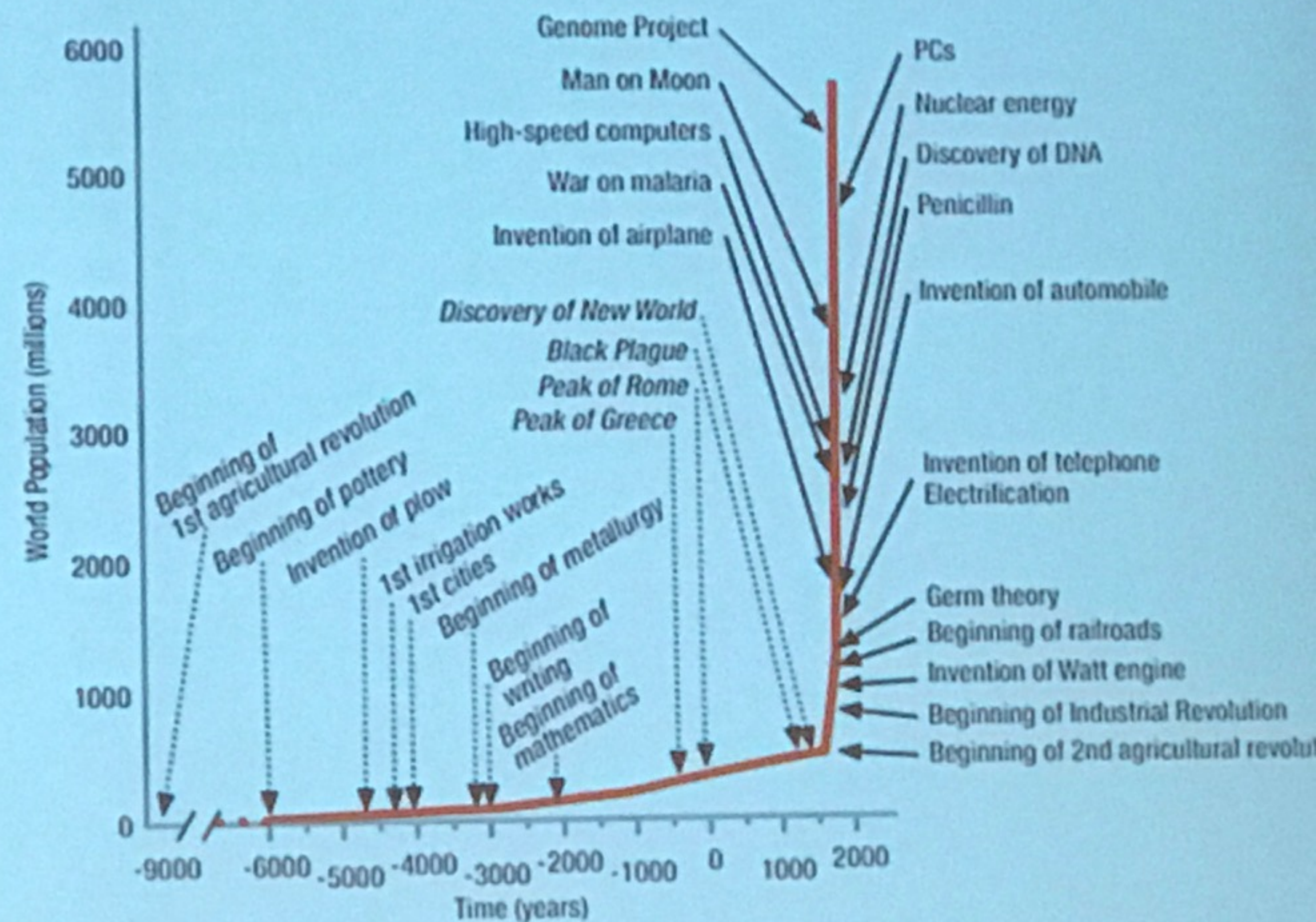
Science, technology and innovation **must play a central role** in achieving the SDGs



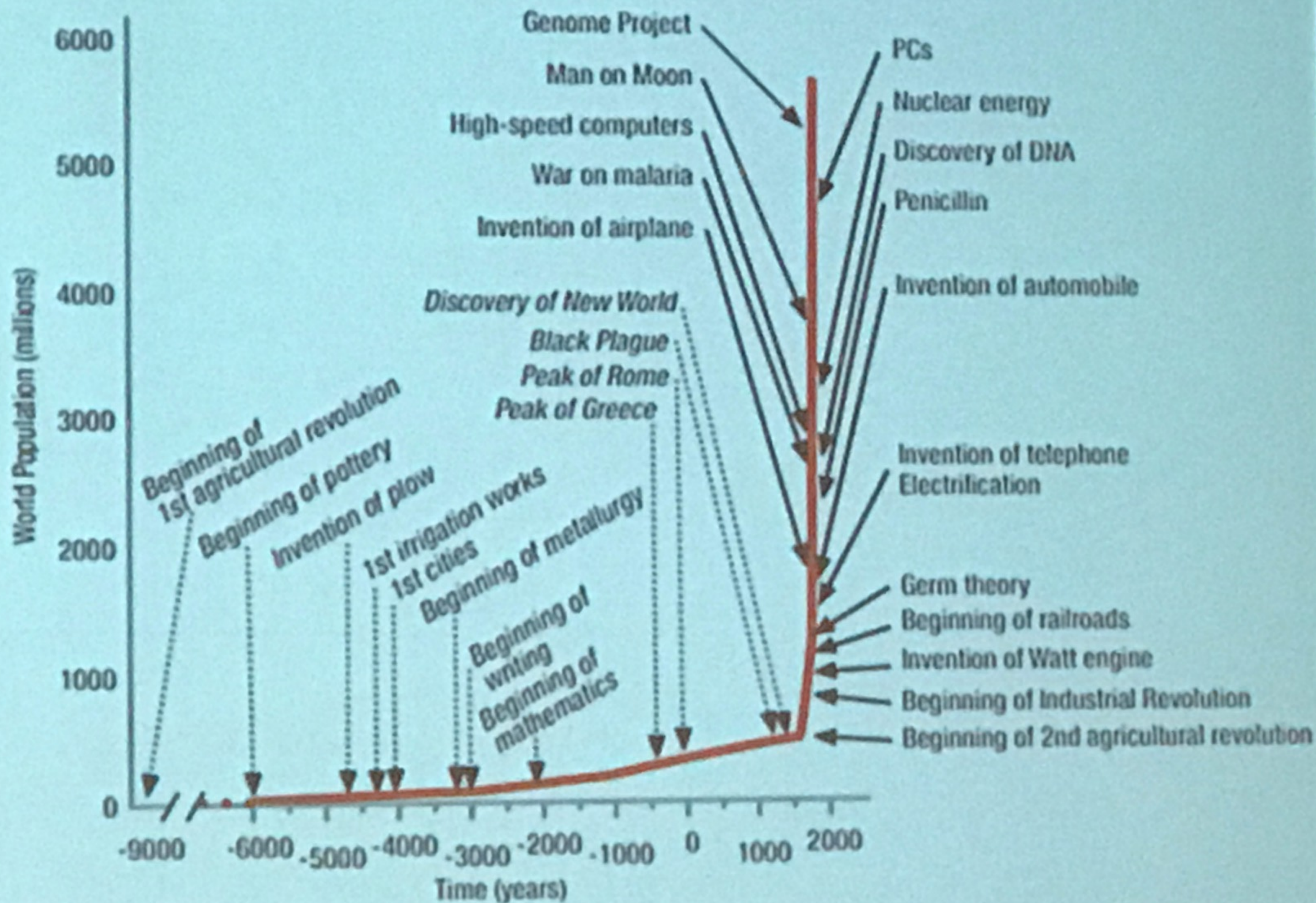
What drives rapid technological change?

- Convergence of technologies into new combinations
- Technologies building on each other
- Emergence of digital “platforms of platforms”
- Exponential nature of some technologies
- Dramatic reductions in costs
- Declining entry costs

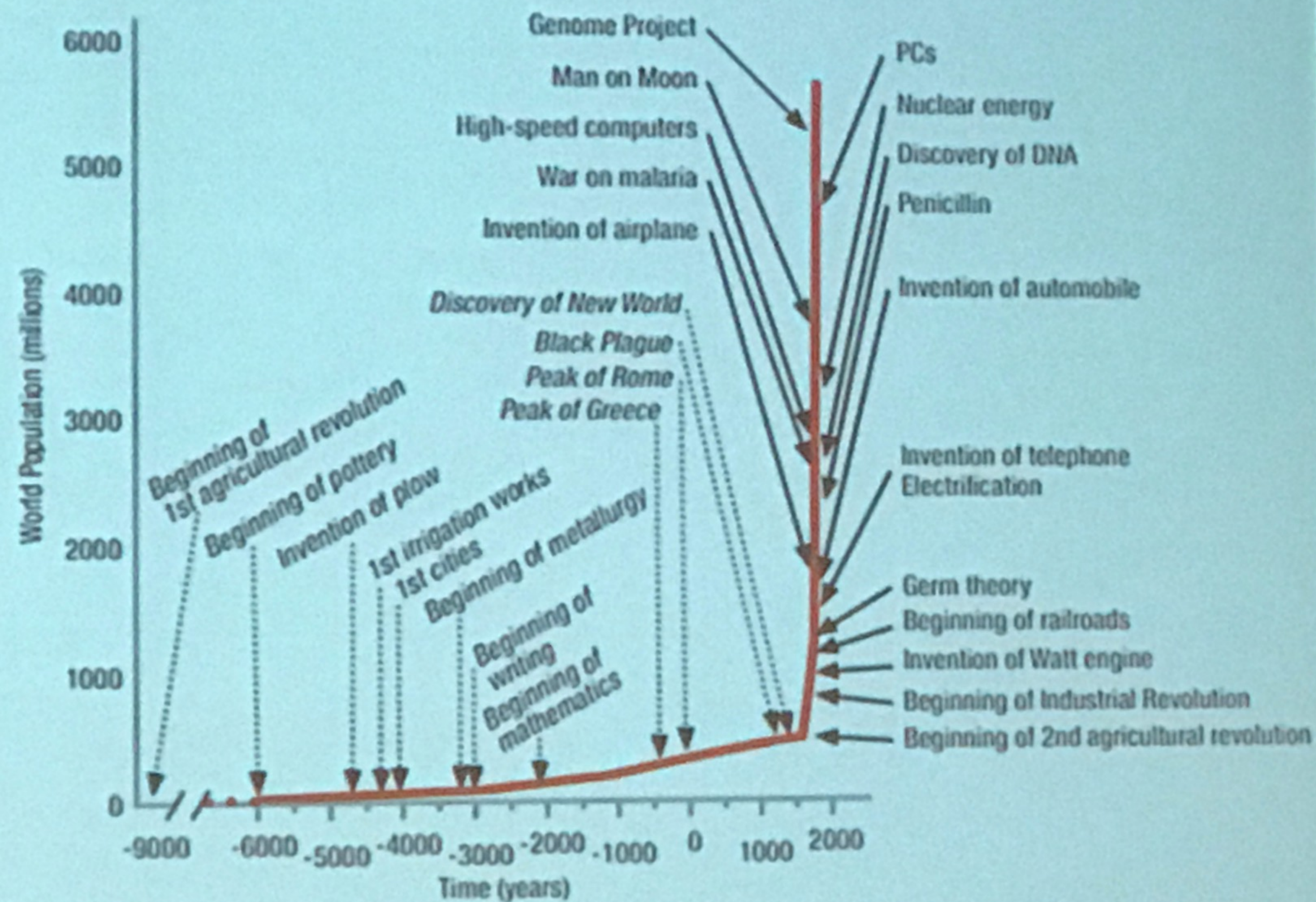
Technological advances build on previous technological advances



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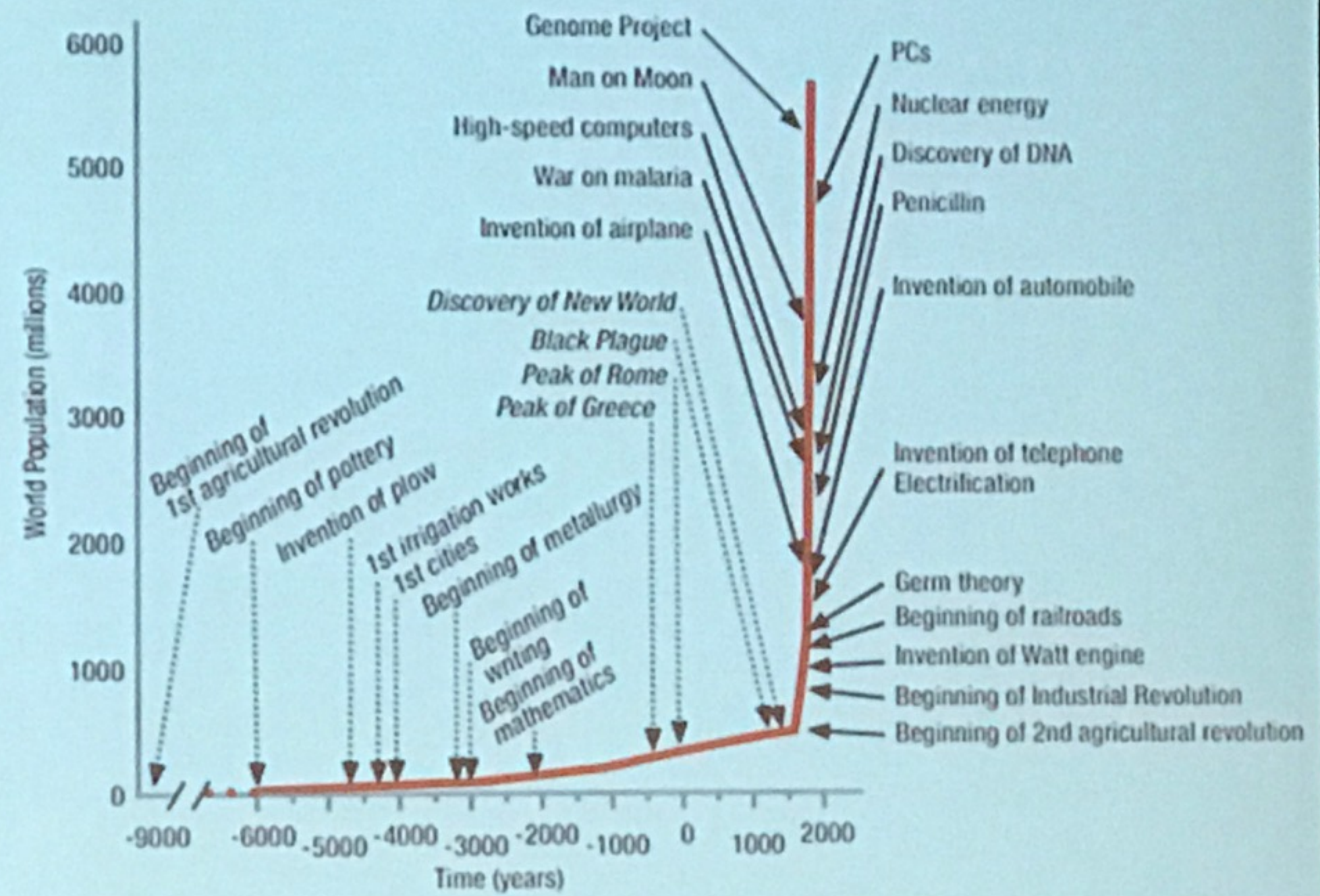


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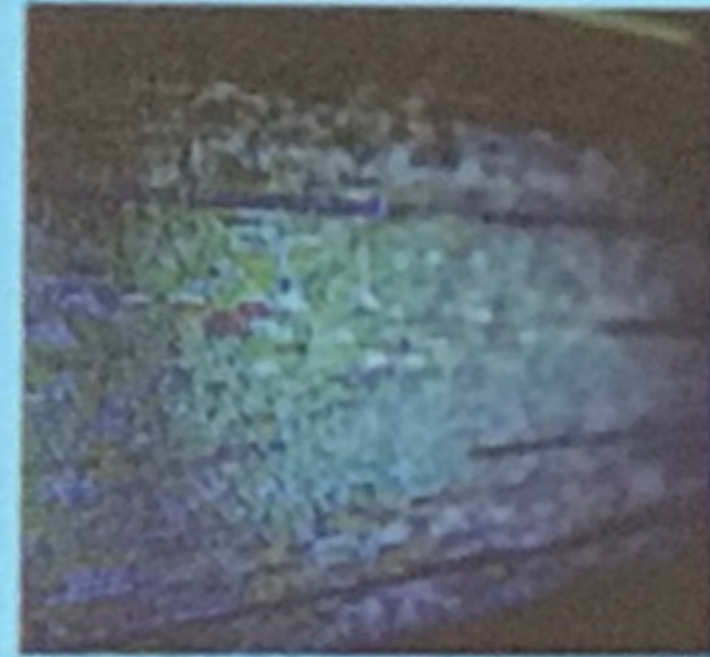
Technological advances build on previous technological advances



WCC
2018
POZNAŃ
THE 24th IFIP
World Computer Congress



Key technologies and their contribution to the SDGs



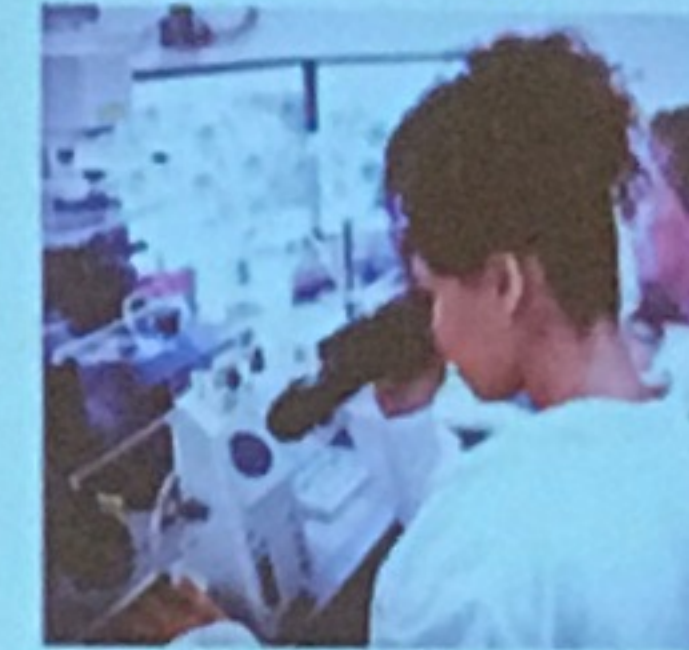
Big data, IoT, AI

Improved decision making, real time data, problem solving



3D printing

Faster and cheaper production



Biotechnology

Gene editing



Nanotechnology

Heat resistance, nanoelectronics, medical applications



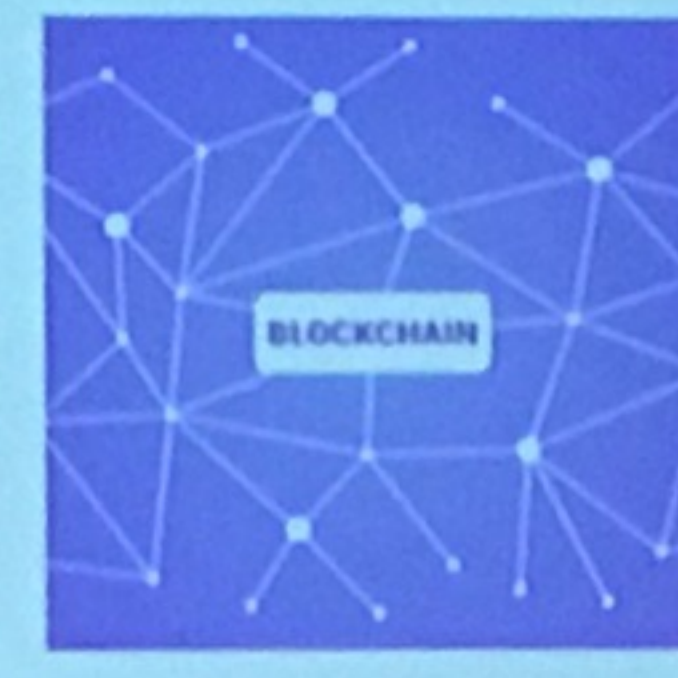
RET

Mini-grid and off-grid solutions, smart grids



Satellites & drones

Communication, crop monitoring, supply delivery



Blockchain

Smart contracts, land registration, finance

Leapfrogging: accelerating paths to sustainable development

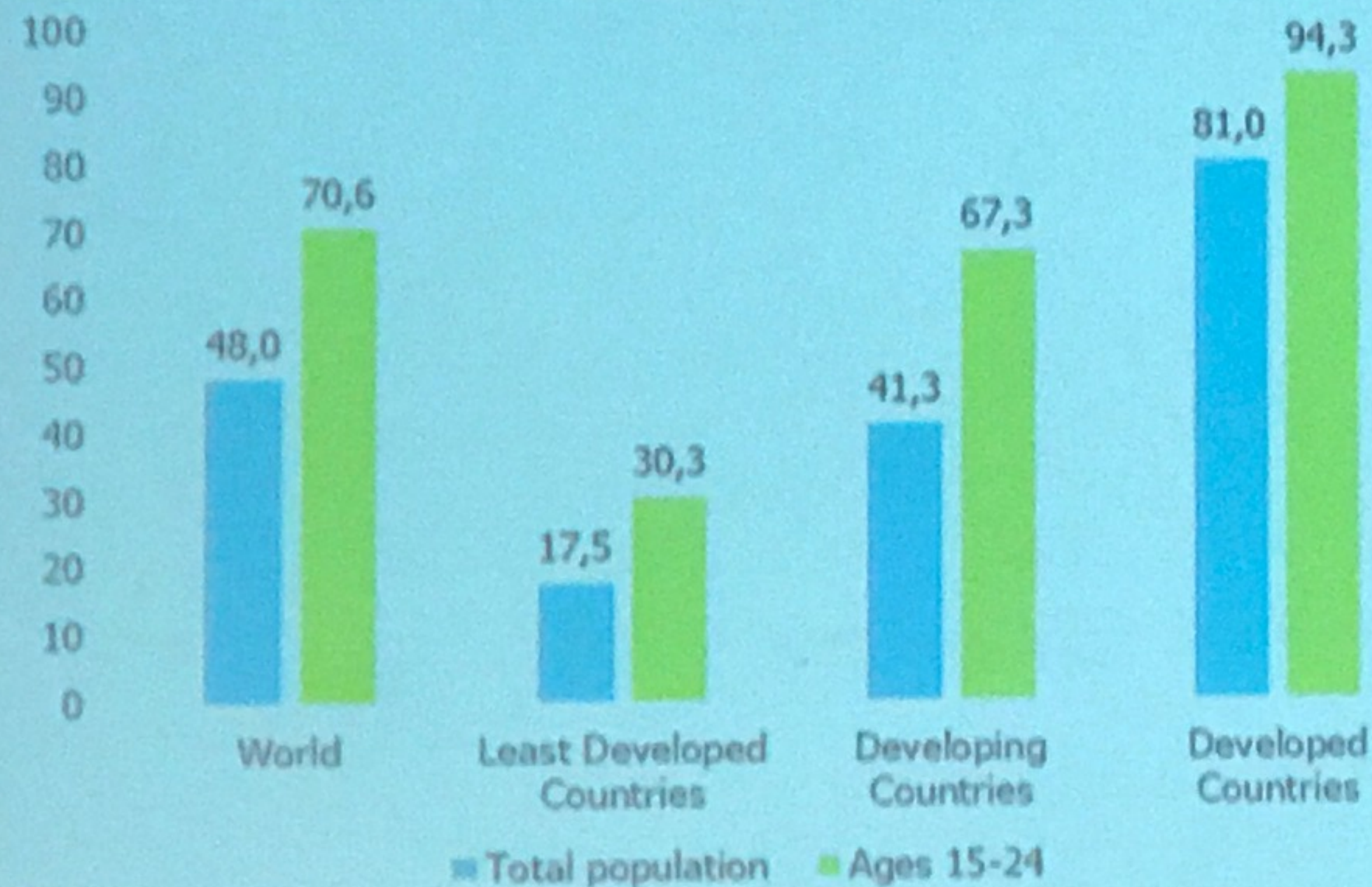
- Bypass intermediate stages of technology through which countries have historically passed during development process
- Examples
 - Digital mobile telecommunications and mobile money
 - Biotechnologies like gene editing and synthetic biology
 - Renewable energy technologies
- Leapfrogging and long-term technological innovation
 - Leapfrogging requires both hard and soft infrastructure
 - Need for widespread technological capabilities to bring countries closer to frontier technologies



Source: World Bank/Simone D. McCourtie

Economic and societal challenges

Proportion of individuals using the Internet, by age, 2017



Source: ITU

- AI and automation could create and destroy jobs
- Risk of exacerbating economic, social and technological, including digital divides
 - Geographical digital divides
 - Gender digital divides

Ethical issues and considerations



Source: Nature

- Increasing availability of data raises issues of data privacy, confidentiality, security, ownership and access
 - Health, agriculture, energy
- Biased data and opaque algorithms may reinforce discrimination
- Opaque AI and machine learning algorithms may lack transparency
- Synthetic biology and genome editing raise safety and ethical issues
- Renewable energy projects may involve land disputes

How countries can benefit from frontier technologies?

Innovation systems

Capabilities of actors

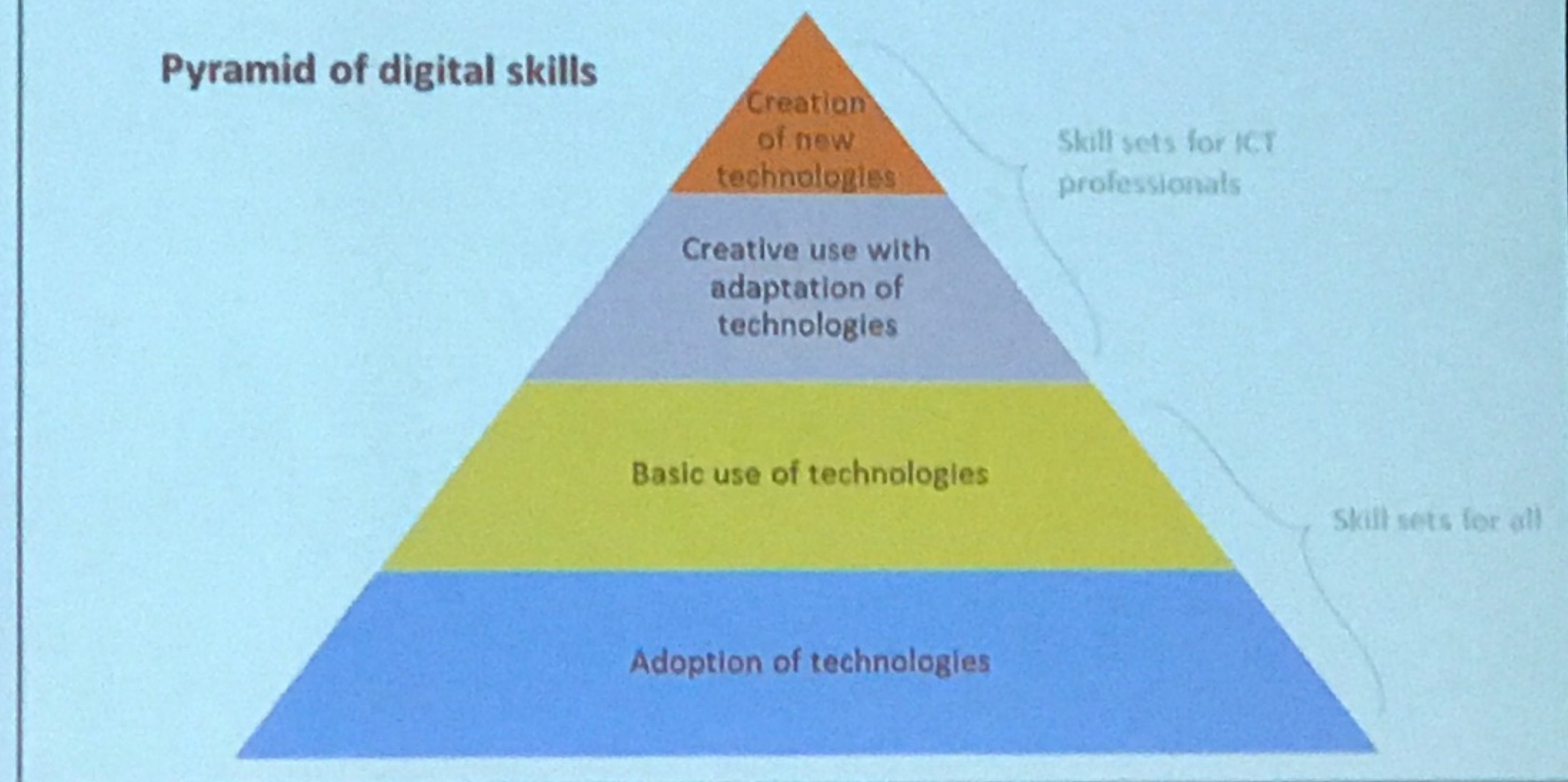
- Firms & entrepreneurs, governments, civil society & citizens

Connections in the innovation system

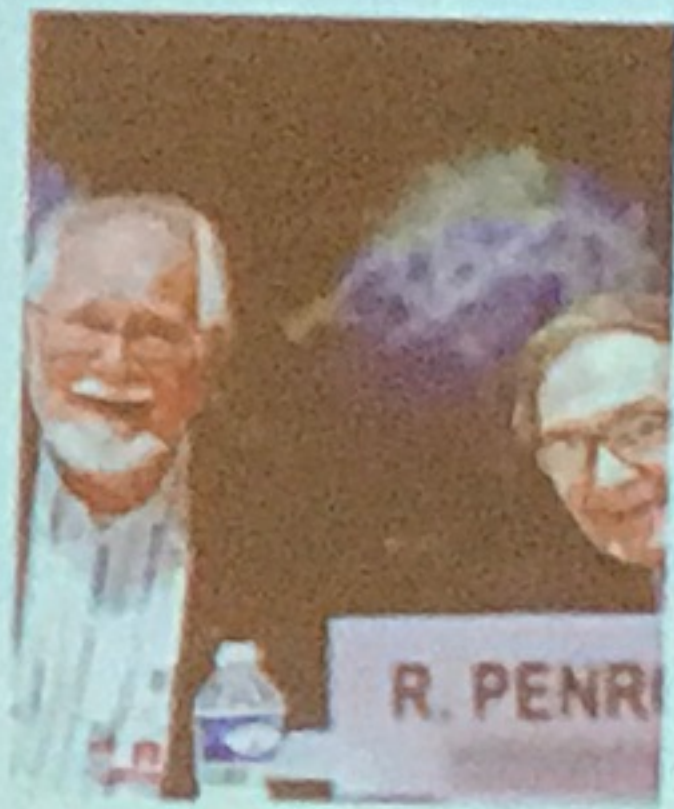
Enabling environment

- Human capital
- Infrastructure
- Regulatory and policy framework
- Institutional setting
- Entrepreneurial ecosystem

Pyramid of digital skills

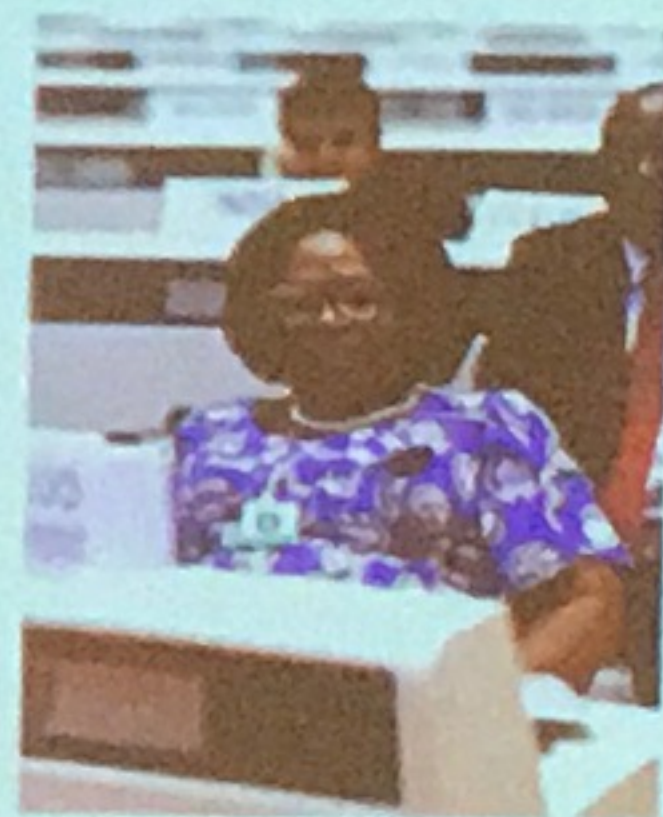


United Nations Commission on Science and Technology for Development



Scientists and scientific leaders

Conversation with Great Minds



Ministerial roundtables

Feeding into ECOSOC and HLPF



Priority themes

Rapid technological change

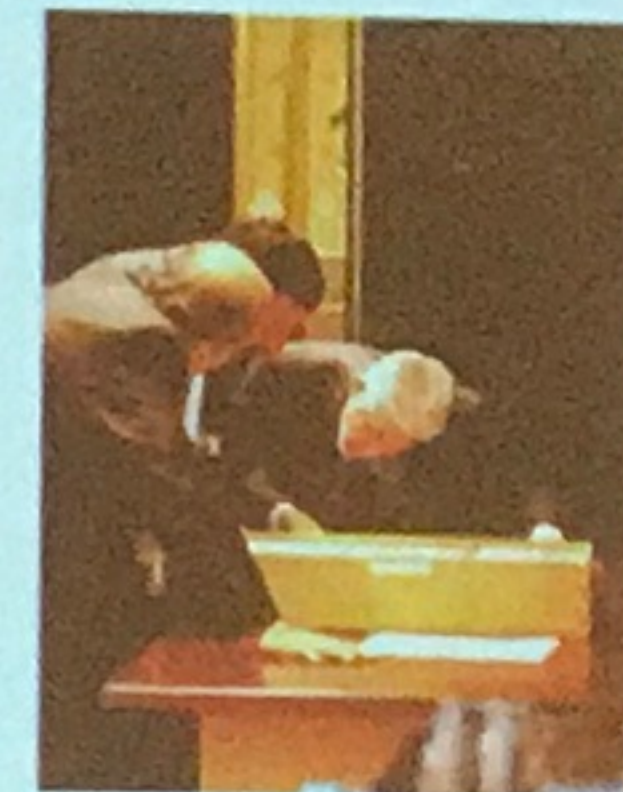
Role of STI in building resilient communities



STIP reviews

Recent: Iran, Rwanda, Thailand

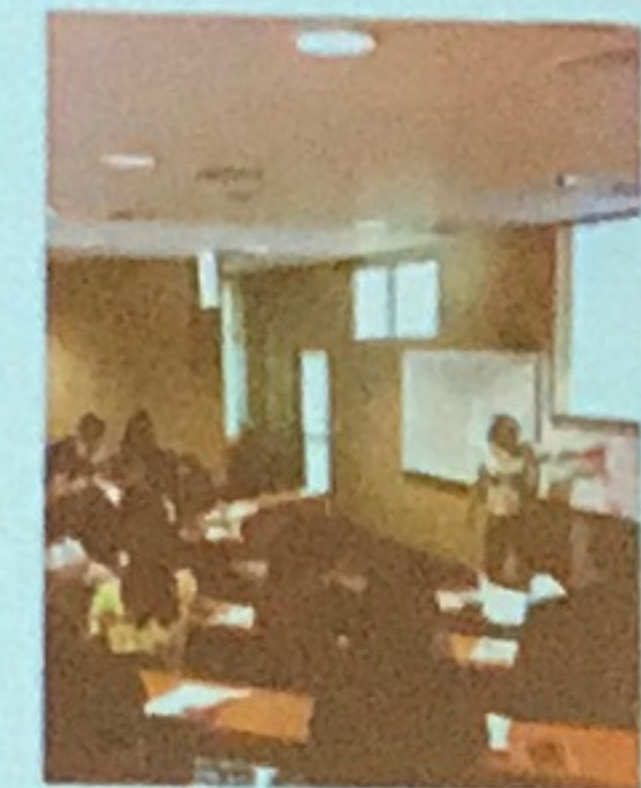
Upcoming: Ethiopia, Sri Lanka, Uganda



Consensus building

Resolution on STI for development

Resolution on WSIS follow-up



International collaboration

Joint workshops

Capacity building

Potential collaboration



- Collaborate with the UN Commission on Science and Technology for Development
 - 22nd session of the CSTD: 13-17 May 2019, Geneva
 - Two priority themes:
 1. The impact of rapid technological change on sustainable development
 2. The role of science, technology and innovation in building resilient communities, including through the contribution of citizen science
 - Provide expert technical input into annual priority themes and global technology assessment and foresight activities
 - Link with the UN intergovernmental machinery

- Collaborate with UNCTAD on the e-commerce and the digital economy

What IFIP can do?



- Lead the development of appropriate regulatory frameworks
 - How regulatory frameworks can balance private sector innovation and individual creative freedom?
 - Identify ways to work with governments to develop standards
- Build consensus on best practices for developing and deploying frontier technologies
 - Explore frameworks and institutions for monitoring AI and machine learning algorithms
 - Identify ways that frontier technologies can increase/decrease existing digital divides
- Serve as a technical network that UNCTAD can tap into for targeted technical expertise