FORESIGHT FOR DIGITAL DEVELOPMENT

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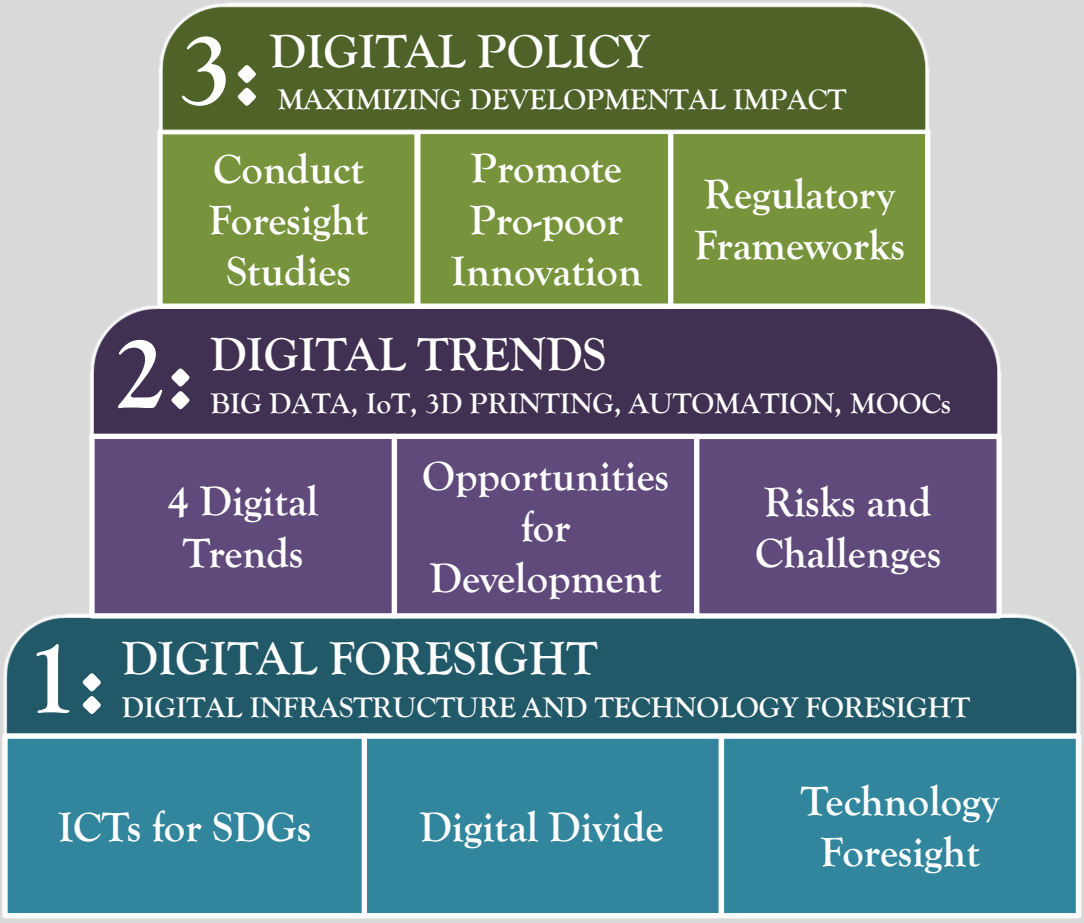
UNCTAD

2015-2016 Inter-Sessional Panel Meeting

Commission on Science and Technology for Development

Budapest, Hungary

January 12, 2016



ICTs AS ENABLER FOR SUSTAINABLE DEVELOPMENT

ICTs are critical for achieving the SDGs.

HOWEVER, ICTs bring both opportunity and risks.

ENVIRONMENT

DECOUPLING GOOD AND SERVICES PRODUCTION FROM CARBON EMISSIONS

SOCIETY

INCREASED SOCIAL INCLUSION AND INTEGRATION

ECONOMY

HIGHER PRODUCTIVITY AND INDUSTRIAL TRANSFORMATION

ADDRESSING THE CONTINUING DIGITAL DIVIDE

2000-2015

GROWTH IN MOBILE NETWORKS

SIGNIFICANT DIGITAL CHALLENGES

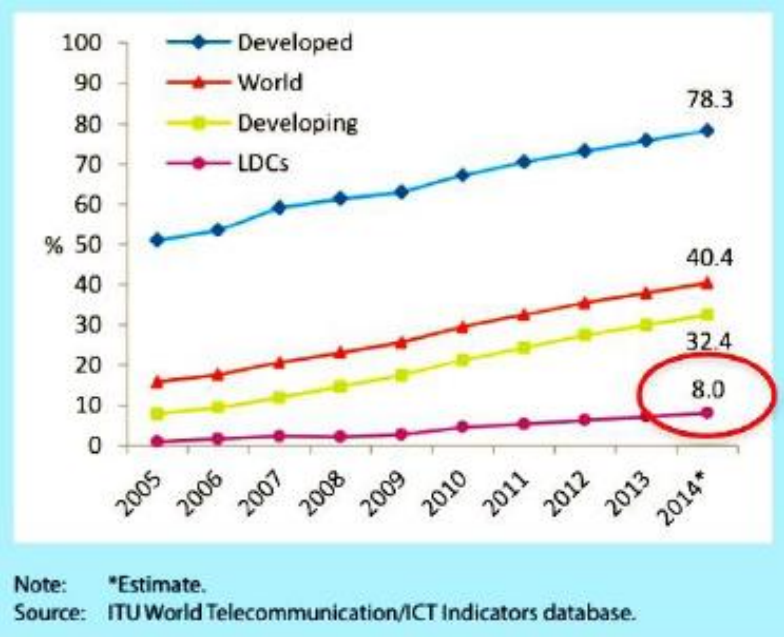
EXPANSION OF EXISTING BROADBAND INFRASTRUCTURE

NEED FOR LARGE CAPITAL INVESTMENTS

LACK OF DIGITAL CONTENT

SHORTAGES OF RELEVANT SKILLS

DIGITAL DIVIDE REMAINS



Note: *Estimate.
Source: ITU World Telecommunication/ICT Indicators database.

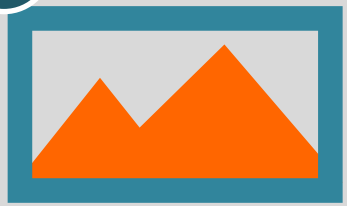
SDG 9C states to "Significantly increase access to information and communication technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020."

TECHNOLOGY FORESIGHT FOR POLICY MAKING

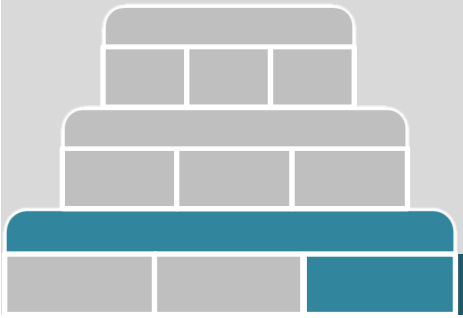
1 WHAT IS TECHNOLOGY FORESIGHT?

FORECASTING EVOLUTION OF TECHNOLOGIES AND THEIR IMPACT ON SOCIETY FOR POLICY MAKING AND FIRM-LEVEL STRATEGY.

2 THERE ARE MANY FORESIGHT METHODS



FOCUS GROUPS
DELPHI METHOD
SIMULATIONS
SCENARIO BUILDING
INTERVIEWS



3 1970s

JAPAN CONDUCTED FORESIGHT STUDIES ON ELECTRONICS SECTOR

4 SINCE WSIS SUMMIT IN 2003 & 2005, LOTS OF CHANGES IN THE INFORMATION SOCIETY

- Web 2.0
- Cloud Computing
- Social Media
- Broadband
- Mass Mobile
- Big Data

FOUR BROAD DIGITAL TRENDS

1

Big Data & IoT

- Big Data: Huge volumes of data and data analysis.
- Internet of Things: Internet-enabled sensor devices

2

MOOCs

- Online courses that allow open access and unlimited participation.
- Social sharing, interactive learning

Big Data & IoT

MOOCs

Automation

3D Printing

3

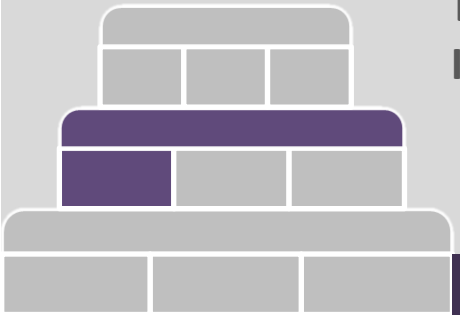
3D Printing

- Printing physical items with ink layer by layer
- Additive – rather than subtractive – manufacturing

4

Automation

- Ability of computers to take over cognitive – and not just physical – tasks.
- Productivity growth without job growth



Builds on current ICT infrastructure

Could lead to new digital divides

Digital Trends

HOW DIGITAL TRENDS CONTRIBUTE TO DEVELOPMENT

BIG DATA: Insurance for small scale farmers in Africa

IoT: Water Quality Monitoring in Bangladesh

Automation: Election Monitoring in Kenya with Ushahidi Platform

MOOCs: Kepler University in Kigali, Rwanda

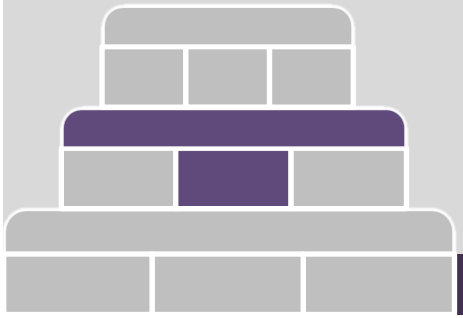
Digital trends can potentially contribute to sustainable development

However, development dimension must be prioritized for SDGs

3D Printing can produce products in one process, without multitudes of parts, and with recycled materials

=

DECOUPLING **CARBON** EMISSIONS FROM PRODUCTION



RISKS AND CHALLENGES OF DIGITAL TRENDS

Digital trends come with potential developmental benefits

HOWEVER, these digital trends come with potential risks and challenges.

DATA

PRIVACY & SECURITY:

Big Data and IoT technologies can endanger consumer privacy and security and compromise confidentiality.

DATA SHARING:

Illegal sharing of 3D printed data can potentially pose risks for national security as well as economic sectors.

REGULATION:

Lack of regulatory standards for data interoperability may minimize potential benefits.

PEOPLE

POTENTIAL JOB LOSS:

Automation and MOOCs can potentially reduce need for labor in spite of rising productivity.

HUMAN CAPITAL:

Emerging digital trends require skilled labor to maximize benefits.

DISCRIMINATION:

Digital automation algorithms and big data analysis can potentially reinforce discriminatory biases.

CONDUCTING FORESIGHT STUDIES

Countries may consider foresight as policy tool.

Foresight can potentially shape funding and decision-making processes.

SINGAPORE TECH FORESIGHT ON AUTOMATION

- Conducted study by Ctr. for Strategic Foresight and Min.of Manpower
- How will big data and automation affect jobs?
- Recommend incentivizing automation
- Recommend up-skilling citizens for future jobs

GOVERNMENTS MAY CONSIDER:

1. Developing institutional capacity for foresight.
2. Prioritizing foresight for S&T policy-making and relevant sectoral strategy.
3. Conducting foresight on technologies, even if they are not locally adopted.
4. Sharing relevant lessons through global platforms like CSTD.

PROMOTING PRO-POOR INCLUSIVE INNOVATION

Digital developments can be part of national development plans

HOWEVER, without pro-poor focus the benefits are not likely to be inclusive

GOVERNMENTS MAY CONSIDER:

- Developing capacity for digital development as "knowledge aid. "
- Forging North-South and South-South partnerships to harness digital developments for the poor.

- Adapting free and open source digital technologies for locally-relevant, pro-poor applications.
- Supporting local innovators who create applications with an inclusive, pro-poor focus

GOVERNMENT CAN ENCOURAGE PARTICIPATION OF MILLENIALS.

GOVERNMENT CAN LINK POVERTY REDUCTION TO DIGITAL TRENDS.

DEVELOPING REGULATORY AND POLICY FRAMEWORKS

To maximize the developmental impact of digital trends, governments can consider the following:

DATA
REGULATION

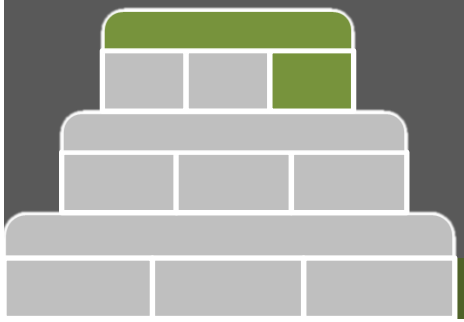
Ensure Privacy & Security and Encourage Innovation

HUMAN
CAPITAL

Invest in Human Capital and Up-Skilling Workers.

DIGITAL
DIVIDE

Continue to Bridge Digital Divides and Ensure Inclusive Access.



FORESIGHT FOR

DIGITAL DEVELOPMENT

1: DIGITAL FORESIGHT

ICTs ARE IMPORTANT FOR ACHIEVING SDG'S AND TECHNOLOGY FORESIGHT CAN AID POLICYMAKING

2: DIGITAL TRENDS

BIG DATA, IoT, 3D PRINTING, AUTOMATION, & MOOCs PRESENT OPPORTUNITIES AND CHALLENGES FOR SDGs

3: DIGITAL POLICY

NATIONAL POLICIES CAN MAXIMIZE DEVELOPMENTAL IMPACTS AND MINIMIZE RISKS OF DIGITAL TRENDS

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