

Sectoral Module: Digitalisation for the Green Deal

TRAINING
28 February 2020

Pros & Cons of Digitalisation



Key takeaways

Digital transformation effects all dimensions of our lives. This also changes work and stakeholders of Development Cooperation

DG DEVCO is **getting structured** on digital topics as we speak

- Most Development Cooperation actors have developed specific digital strategies
- Wide variety of instruments to achieve aims in the field of digital for development
- Cooperations through donor alliances including private sector-based actors and multi-stakeholder approaches are quite common

ICT plays a role in the achievement of all of the **SDGs**

The **Principles for Digital Development** can help to ask the right questions



10 min

Group Discussion

Context:

The government of *Hogwarts* wants to develop a customized management information system (MIS) that allows all staff to better track and manage health data of rural communities.

While discussing the concept, the implementation team faced decisions, such as whether to buy or build a product; whether work should be outsourced or done in-house; and whether a partnership with a global tech provider should be signed to accelerate the delivery of the MIS.

Question: What are Pros/Cons of the different options?

Discuss the questions applying the Digital Principles!

Modules / Agenda

Day 2

- Module 5: Introduction to D4theGreenDeal
- Module 6: Impact of digital transformation on the environment and clean technologies
- Module 7: Digitalisation as an enabler for the green deal
- Module 8: Case studies and practical applications

Agenda

Module 5: Introduction to D4theGreenDeal

5.1 Introduction to D4theGreenDeal

5.2 Key actors

5.3 Key processes and functions in the
D4theGreenDeal

Digitalisation for the Green Deal

Module 5.1: Introduction to D4theGreenDeal

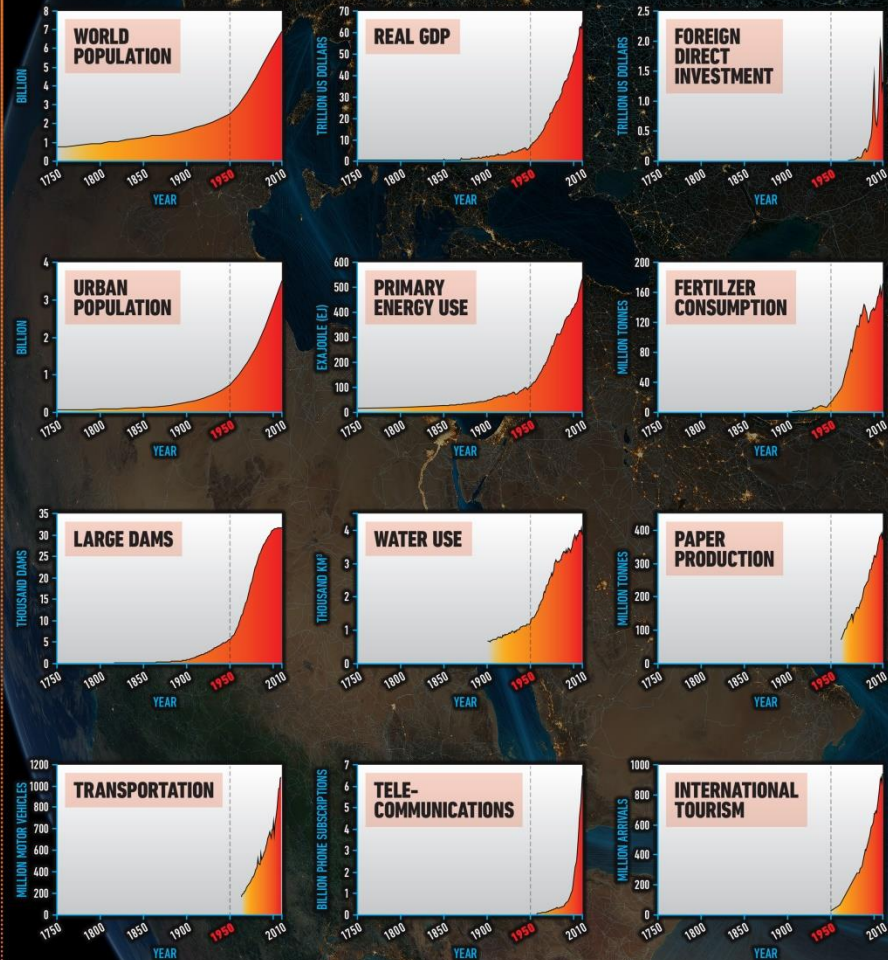
Agenda

Module 5.1: Introduction to D4theGreen Deal

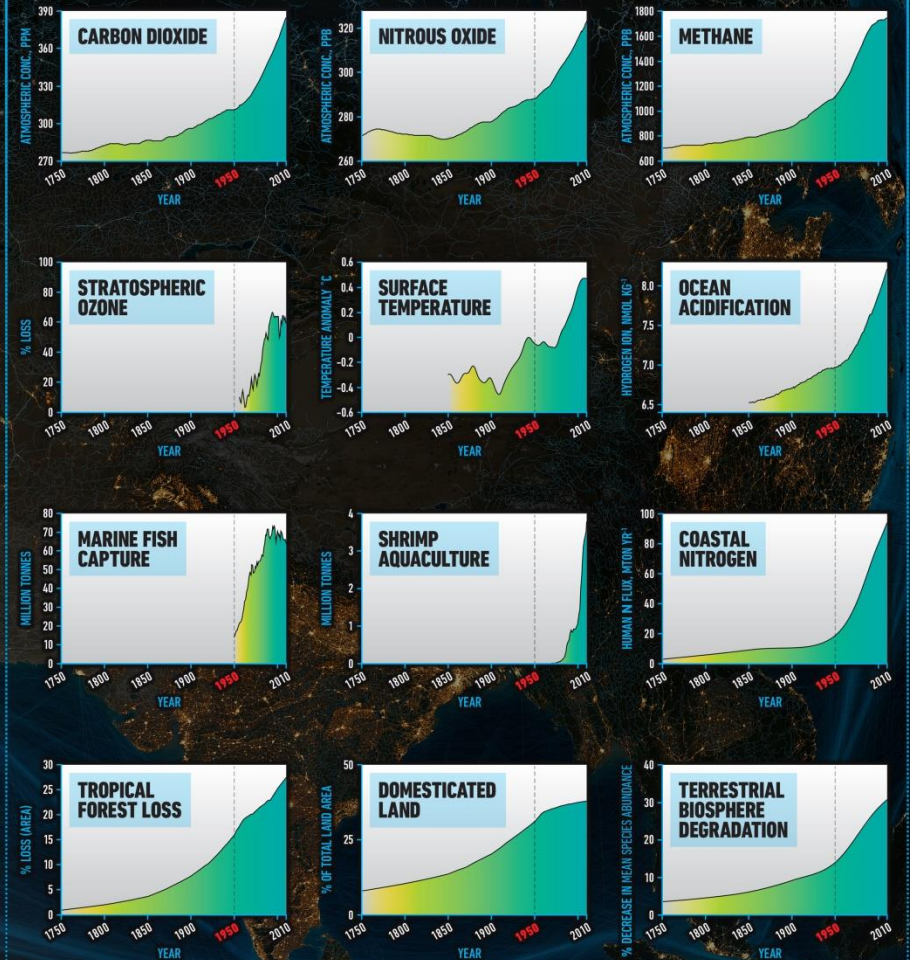
- The European Green Deal
- Green Deal & Development Cooperation
- Digitalisation for the Green Deal

THE GREAT ACCELERATION

SOCIO-ECONOMIC TRENDS



EARTH SYSTEM TRENDS



REFERENCE: Steffen, W., W. Broadgate, L. Deutsch, O. Gaffney and C. Ludwig (2015), The Trajectory of the Anthropocene: the Great Acceleration, Submitted to *The Anthropocene Review*.

MAP & DESIGN: Félix Pharand-Deschênes / Globaïa

Climate Change – where do we stand? (i)

- We are on the brink of missing the opportunity to limit global warming to 1.5°C.
- Temperatures have already increased 1.1°C.
- If we rely only on the current climate commitments of the Paris Agreement, temperatures can be expected to rise to 3.2°C this century.
- Every fraction of additional warming beyond 1.5°C will result in increasingly severe and expensive impacts.

Climate Change – where do we stand? (ii)

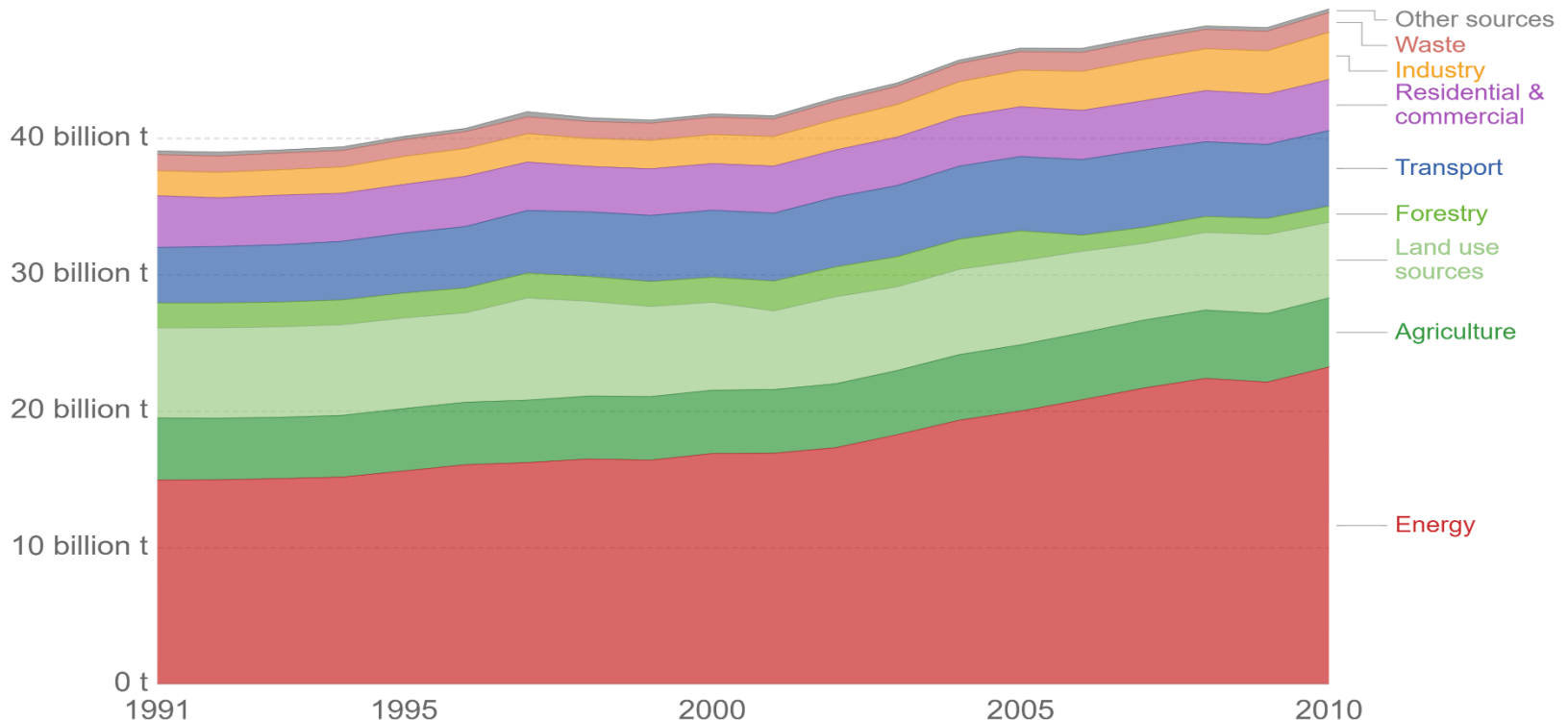
- To get on track to limit global temperature rise to 1.5°C, emissions must drop rapidly to 25 gigatons by 2030.
- Based on today's commitments, emissions are on track to reach 56 Gt CO₂ by 2030, over twice what they should be.
- Today, we need to reduce emissions by 7.6% every year to stay below 1.5°C increase.

Climate change – what to tackle?

Greenhouse gas emissions by sector

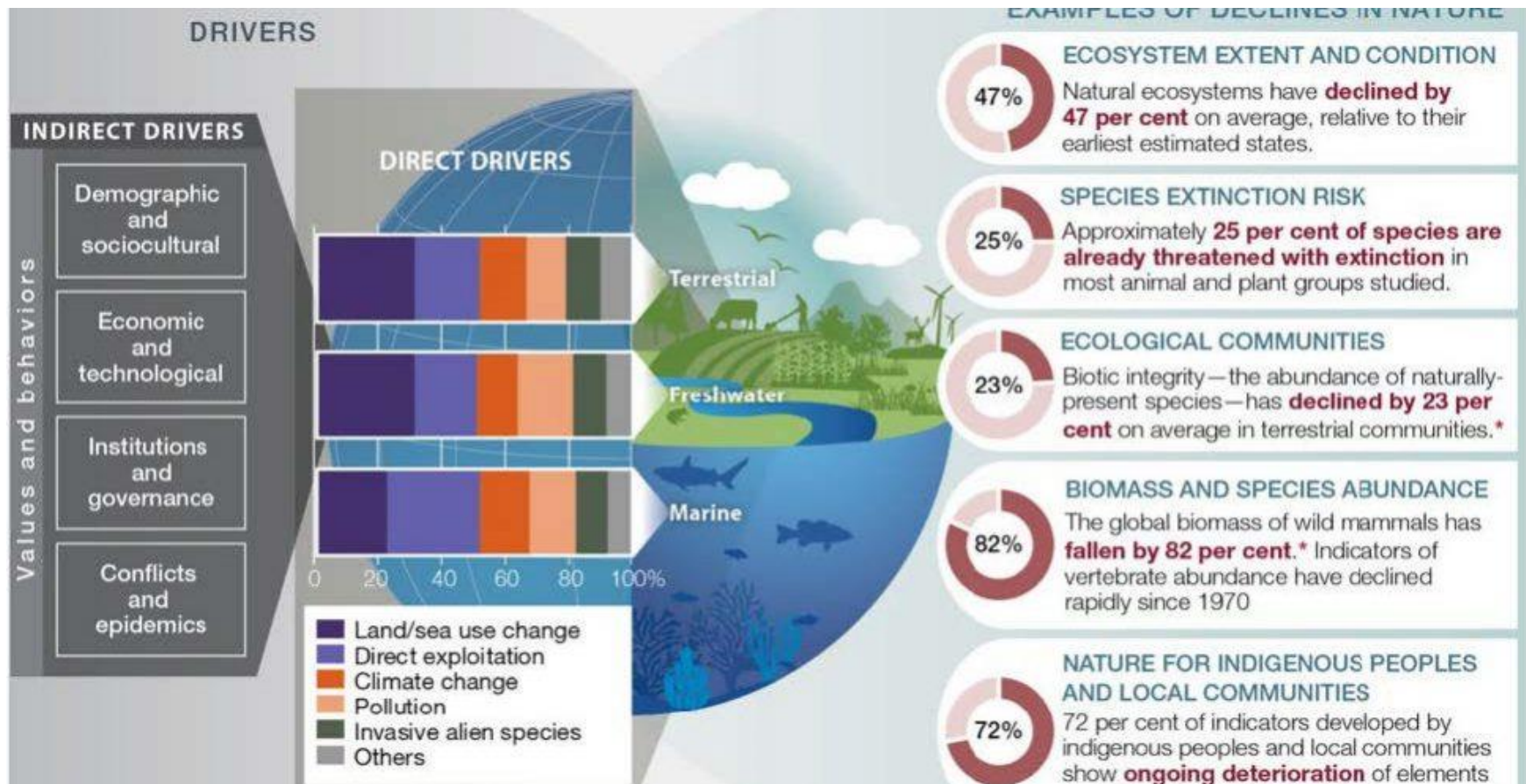
Breakdown of total greenhouse gas emissions by sector, measured in tonnes of carbon-dioxide equivalents (CO₂e). Carbon dioxide equivalents measures the total greenhouse gas potential of the full combination of gases, weighted by their relative warming impacts.

Our World
in Data



Nature's dangerous decline

IPBES - Global Assessment Report on Biodiversity and Ecosystem Services



We are depleting our natural capital and crossing the Planet ecological boundaries

Moving beyond the Planet's safe operating space and risking irreversible change

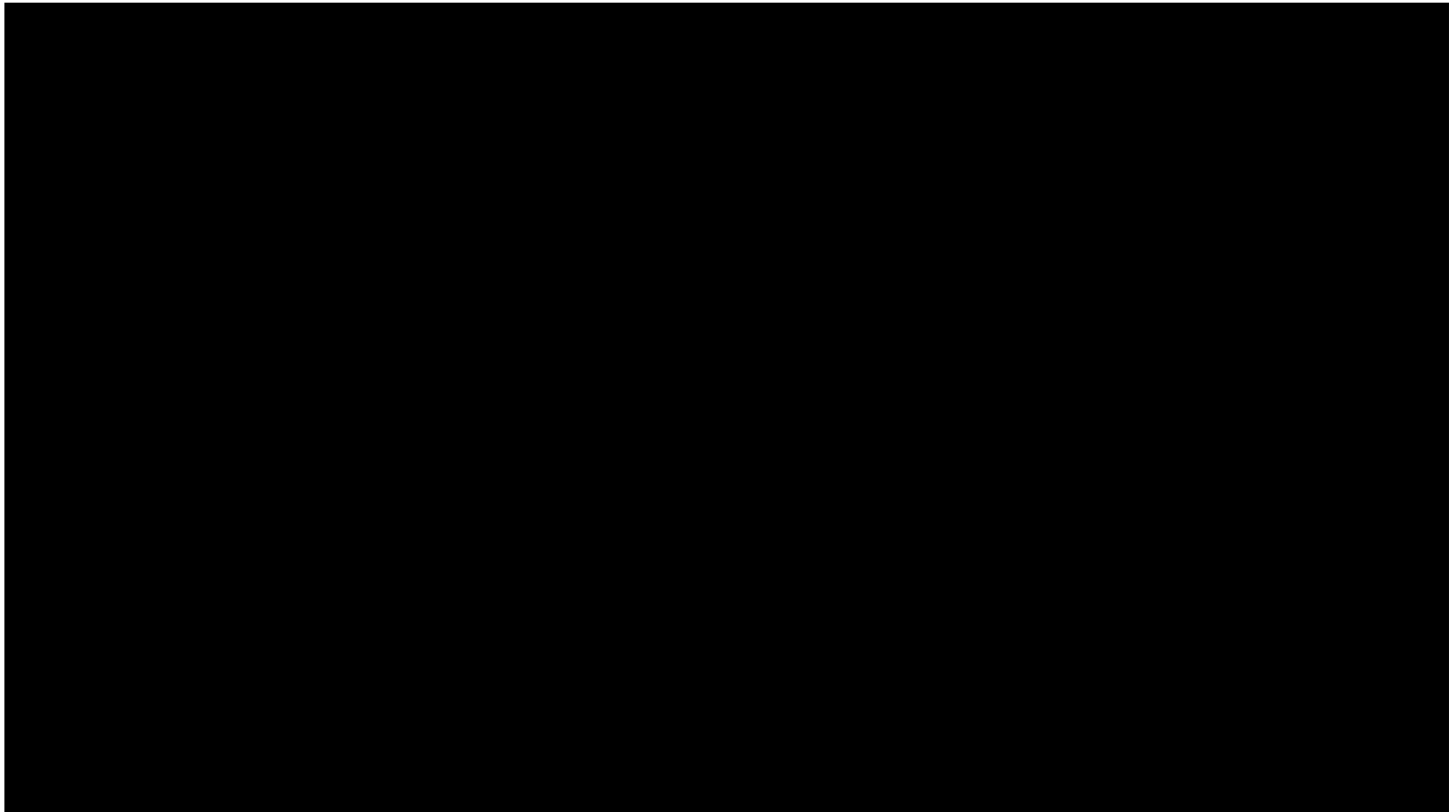


Top 10 risks by likelihood **Environment & Digital forces**

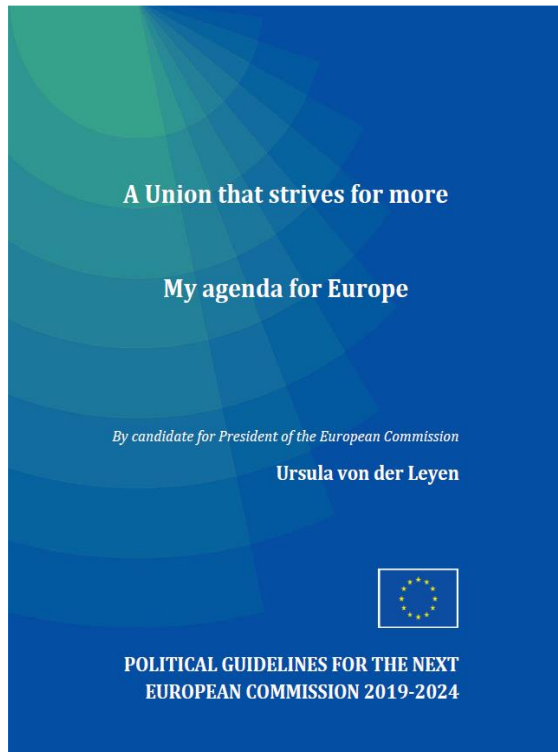
- | | | |
|----------|--|-----------|
| 1 | Extreme weather events (e.g. floods, storms, etc.) | |
| | Failure of climate-change mitigation and adaptation | 2 |
| 3 | Major natural disasters (e.g. earthquake, tsunami, volcanic eruption, geomagnetic storms) | |
| | Massive incident of data fraud/theft | 4 |
| 5 | Large-scale cyberattacks | |
| | Man-made environmental damage and disasters (e.g. oil spills, radioactive contamination, etc.) | 6 |
| 7 | Large-scale involuntary migration | |
| | Major biodiversity loss and ecosystem collapse (terrestrial or marine) | 8 |
| 9 | Water crises | |
| | Asset bubbles in a major economy | 10 |

Top
10
Risks by
Likelihood
Global Risks Report

The European Green Deal: one of the key answers



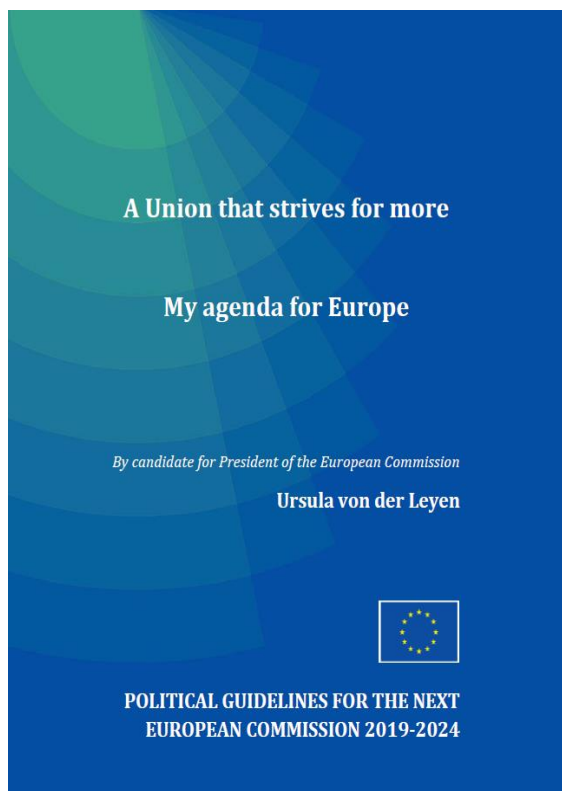
The European Green Deal



- Make Europe the world's first **climate-neutral continent** -> first European Climate Law to enshrine the 2050 climate-neutrality target into law; extend ETS; carbon border tax
- Turn the EIB into a **climate bank**.
- **Reduce emissions** by at least 50% [and up to 55%] by 2030. The EU will lead international negotiations to increase the level of ambition of other major emitters by 2021.
- This plan will be based on **social, economic and environmental impact assessments** that ensure a level playing field and stimulate innovation, competitiveness and jobs.

A transformative agenda -> Transition to carbon neutral, resource-efficient green economies

The European Green Deal



- New **Circular Economy Action Plan** focusing on sustainable resource use, especially in resource-intensive and high-impact sectors such as textiles and construction.
- Move towards a **zero-pollution ambition** and to lead on the issue of single-use plastics.
- **Biodiversity Strategy** for Europe
« We need to change the way we produce, consume and trade. Preserving and restoring our ecosystems needs to guide all of our work. We must set standards for biodiversity cutting across trade, industry, agriculture and economic policy. »
- A **Farm to Fork Strategy** on sustainable food along the whole value chains.
- **EU Strategy for green financing** (EU Action Plan on Sustainable Finance)

A transformative agenda -> Transition to carbon neutral, resource-efficient green economies

DEVCO priorities

Objective: Poverty eradication and sustainable development

A Geopolitical Commission



Methods of Implementation

Innovative financing • Budget support • Projects • Twinning • Technical assistance • Joint Programming

External dimension of the Green Deal

Digital and
Data
Technologies

Alliances for
Sustainable
Growth and
Jobs

Green Deals

Climate Change

- Circular economy
- Biodiversity
- Green and smart cities
- Sustainable energy
- Food systems:
from farms to fork
- Water and Oceans

Migration
Partnerships

Governance,
Peace and
Security



15 min

Group Discussion

Think about a key sectoral challenge you would have to face within the Green Deal domain.

- Can digital technologies help tackling it?
- If yes, how?

Digitalisation for the Green Deal

Module 5.2: Key Actors

Key Actors

With the digital transformation..

- actors and roles are shifting
- cooperation between different actors is often multilateral and can span from global to regional, national and local levels
- many actors follow their own agendas.

PRIVATE SECTOR

**POLITICAL
ACTORS**

**RESEARCH
INSTITUTIONS**

CIVIL SOCIETY

STARTUP-ECOSYSTEMS



Key Actors - Private Sector

Data-driven allrounder



Google, Amazon, Microsoft, Facebook and **IBM** transformed into multipurpose data-driven allrounders shaping the future.

Value: Provide free tools and services across different work sectors and act as potential partners.

Others: SAP, Baidu | Vodafone, Safricom → **Telecommunication companies** (**GSMA** is their trade body) and **Internet Service Providers** are important actors on a national level

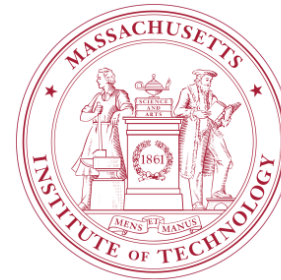
Key Actors - Research Institutions

Measuring the digital transformation I

McKinsey
&Company

KPMG

Deloitte.



EY
Building a better
working world

Consultancies like **McKinsey**, **E&Y**, **Deloitte** and **KPMG**; **Universities** like **MIT** and **Think Tanks** research how the digital transformation is impacting society, economy and politics.

Value: Many reports and case studies are published online and provide insights in how digitalisation is shaping the world.

Key Actors - Research Institutions

Measuring the digital transformation II



Example:
World Development
Report 2016 –
Digital Dividends



Global development banks like **World Bank** or **ADB**; Regional dev. banks like **East African Development Bank** and international Organisations like **OECD** research how the digital transformation is impacting the society, economy and politics.

Value: Many reports, toolkits and case studies are published online and provide insights in how digitalisation is shaping the world.

Key Actors - Startup Ecosystems

Innovation empowerment



Global networks are essential key actors that spur (grass-roots) innovation and thereby often find local solutions for global challenges. **Startup Ecosystems** can provide the supporting **infrastructure** to do so.

Value: Harnessing innovation sometimes even on a grassroots level and therefore providing the appropriate infrastructure: **networks, capital, tools** (3D-Printers in Fab Labs)

Key Actors - Civil Society

Typing for the people!



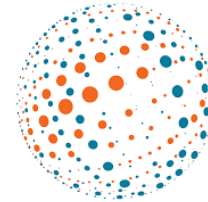
OPEN KNOWLEDGE



WORLD WIDE WEB
FOUNDATION



ALLIANCE
FOR
AFFORDABLE
INTERNET



NETHOPE



**Internet
Society**

Actors like the **World Wide Web Foundation**, **Alliance for Affordable Internet**, **Internet Society**, **Net Hope** and **Open Knowledge Foundation** tackle global „digital“ challenges from a user perspective and on a global, regional and national scale.

Value: Privacy, access, open and free internet, gender divide, democracy and human rights need the same attention like taxation, regulation and digital economy. These NGOs provide case studies, advocacy and in-depth reports

Key Actors - Political Actors

Setting the Agenda - International



International actors like the **ITU**, **Broadband Commission for Sustainable Development** and the **World Intellectual Property Organization** tackle challenges including infrastructure, property rights, international policy frameworks and standard setting. **ICANN** coordinates the Internet's system including IP addresses. The UN established a **High-level Panel on Digital Cooperation** to advance cooperation on Digital Cooperation, and through agencies like **UNCTAD** provide support to countries in the area of digital economy.

Value: In-depth reports and indices (ICT4Development Index), highlevel conferences including ICT4D Conference, agenda/policy setting.

Key Actors - Political Actors

Setting the Agenda - National



**National Ministry of
Communication**



**National Ministry of
Infrastructure**

National political actors are the **National Ministry of Communication, National Ministry of Infrastructure** and **visionary processes** and stakeholder linked to them (like Rwanda Vision 2020)

Value: First hand information on telecommunication and telecommunication infrastructure in respective context, can provide open data, can provide overview of other actors e.g. digital economy, startup hubs etc.

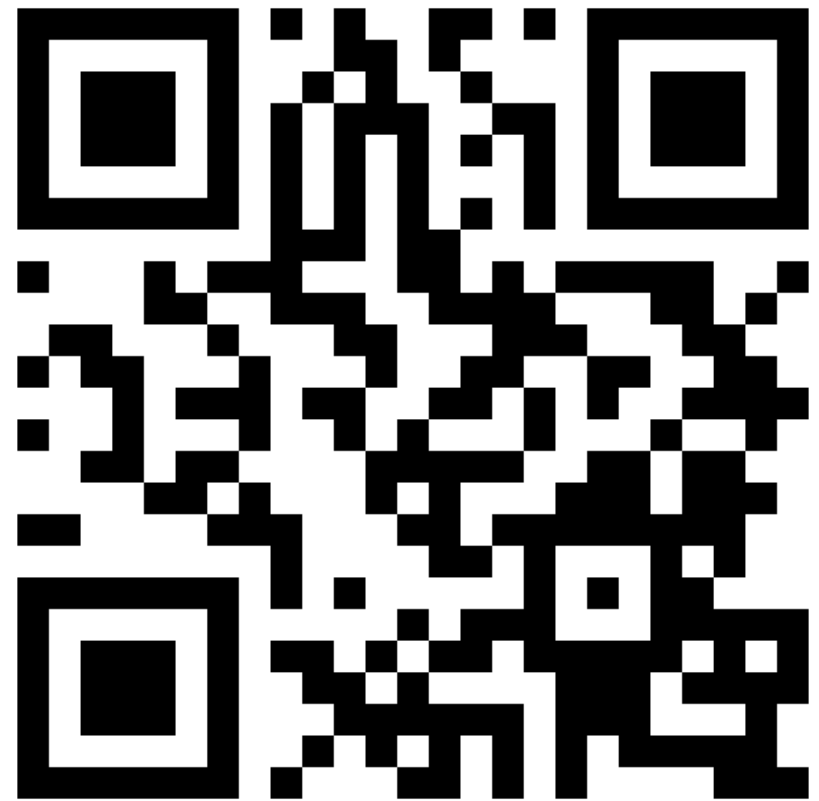


10 min

Poll

Who are the most relevant actors and stakeholder you would approach in your country to launch a Digital for Development initiative?

<http://etc.ch/ToFE>



Digitalisation for the Green Deal

Module 5.3: Data, Information, Knowledge, Functions of D4theGreenDeal solutions



2 min

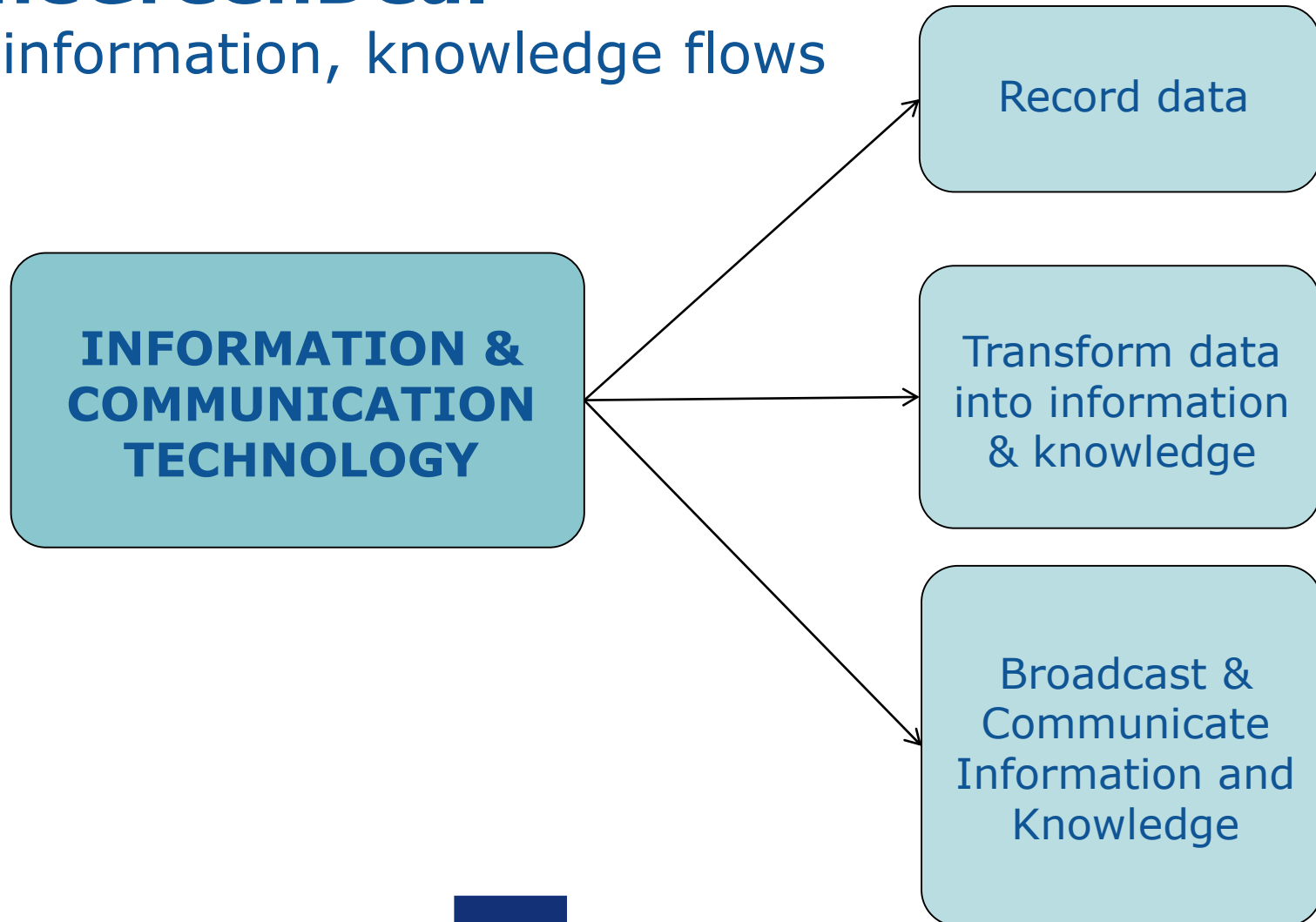
Quick fire round

Digital solutions

- What do they allow us to do?

D4TheGreenDeal

Data, information, knowledge flows



D4TheGreenDeal

Data, information, knowledge flows

**Record
data**



**Transform data
into information
& knowledge**



**Broadcast &
Communicate
Information and
Knowledge**

Observation



**Analysis &
Strategic
Planning**



**Implementation
&
Management**



**Capacity
Building &
Networking**

**Natural
Resources
Monitoring**



**Territorial
Planning**



**Decision
Support**



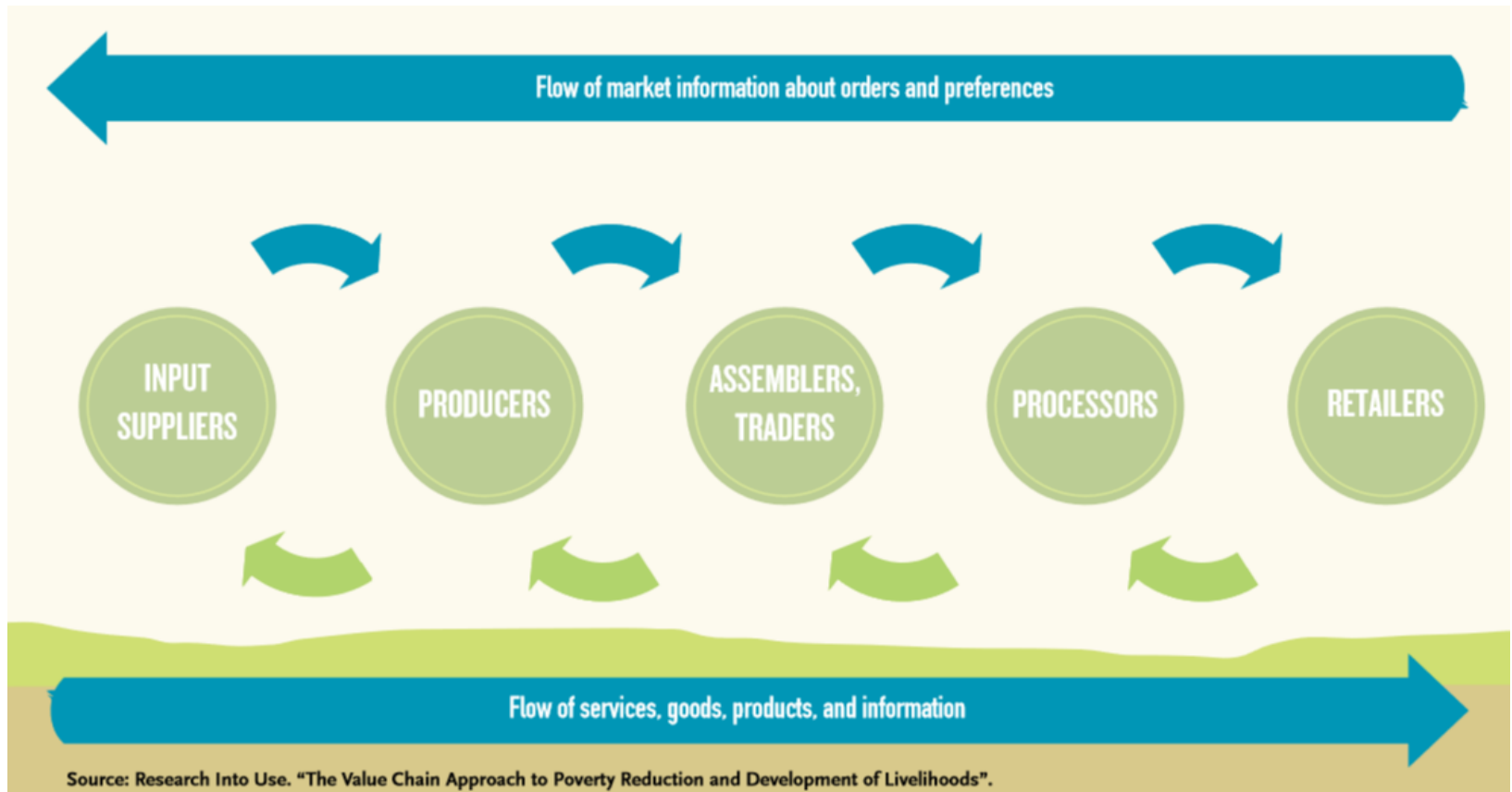
**Knowledge
Sharing**

**Resources
Management**

**Upscaling
Replicating**

Data, information, knowledge flows

Example from the agriculture sector



Main Takeaways of D4GD solutions

- Positive **impact**
- A **variety** of digital solutions
- Significant **variations** in the adoption of solutions across and within countries
- Several **risks**
- Digital technologies: magnifier of human intent, not a substitute

Main functions

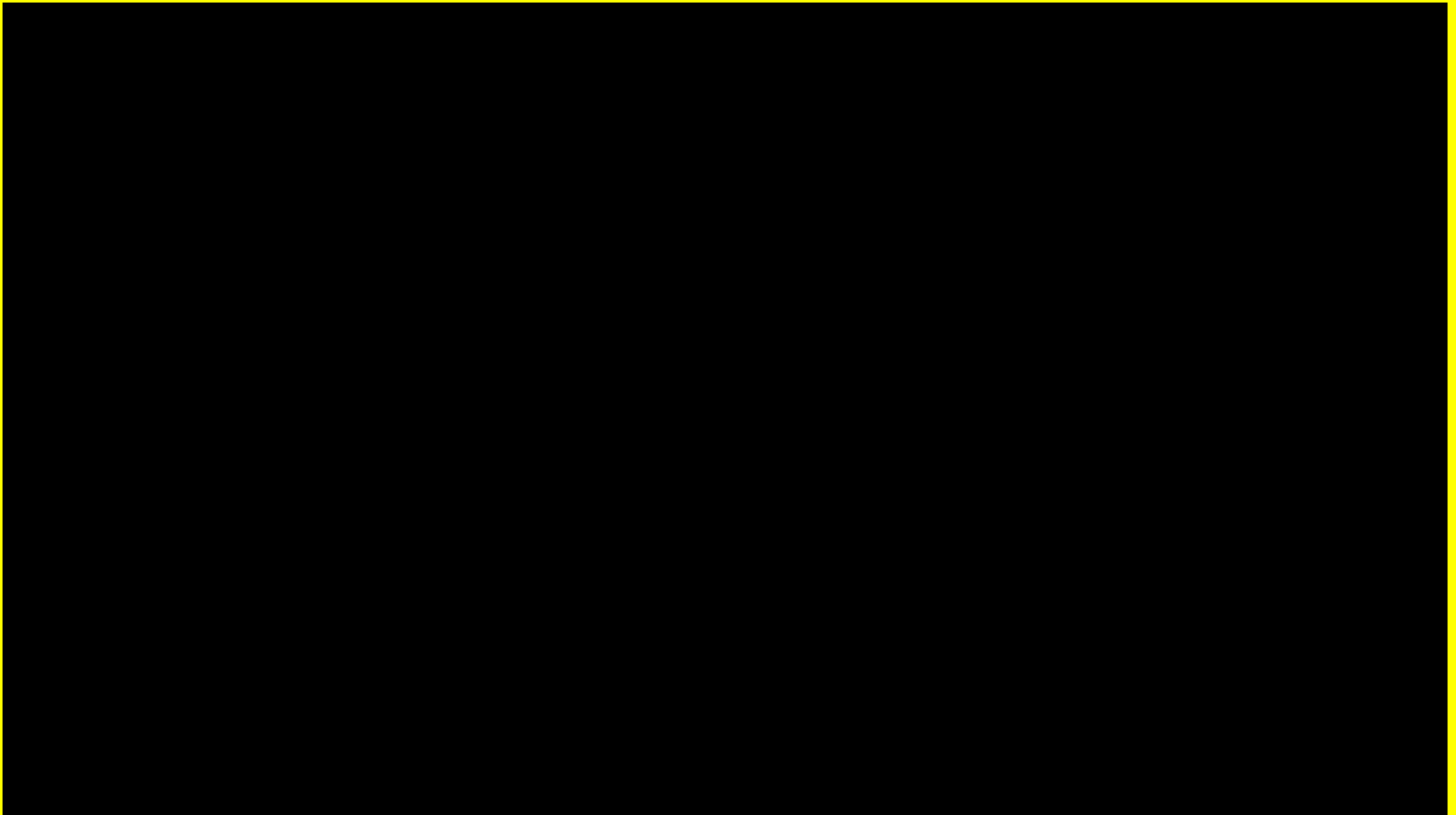
- Enable **monitoring** of key parameters (e.g. environmental ones) and Earth Observation
- Support the development of **mitigation** and **adaptation** strategies
- Support **Early Warning** and **Early Action**
- Support **risk management**
- Improve **land** and **natural resource management** and addressing **environmental pressures**
- Improve services and **governance** – especially for the rural poor
- Increase **productivity** and **incomes** of the poor
- Link rural and urban **territories** and **markets**
- Raise sectoral **efficiency** and **transparency**

Additional key functions

- Overcome **non-technical issues**
 - Rarely the problem is technology per se
 - ICT can also be a very good excuse to *facilitate dialogue* to tackle a development problem
 - **E.g. deal with intractable problems in environmental diplomacy**

Discussion

Participatory Mapping





8 min

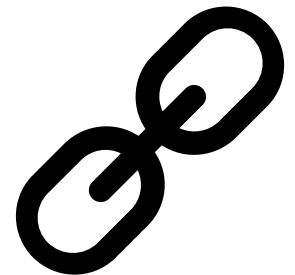
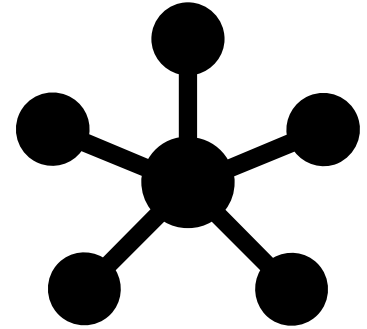
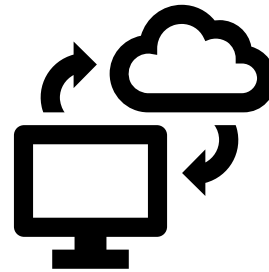
Quick fire round

Participatory Mapping Solutions

- What are their main functions?

Key Technologies

- 3D-Printing
- Internet of Things (IoT)
- Mobile Technology
- DTS & Blockchain
- **Deep Dive: Artificial Intelligence**





2 min

Quick fire round

Artificial Intelligence (AI):

What is your definition of Artificial Intelligence?

Which examples of application for development do you know?

What do I need to know when talking about **Artificial Intelligence (AI)**?

Short definition

AI refers to the capability of machines to imitate intelligent human behaviour. This involves performing various cognitive tasks such as:

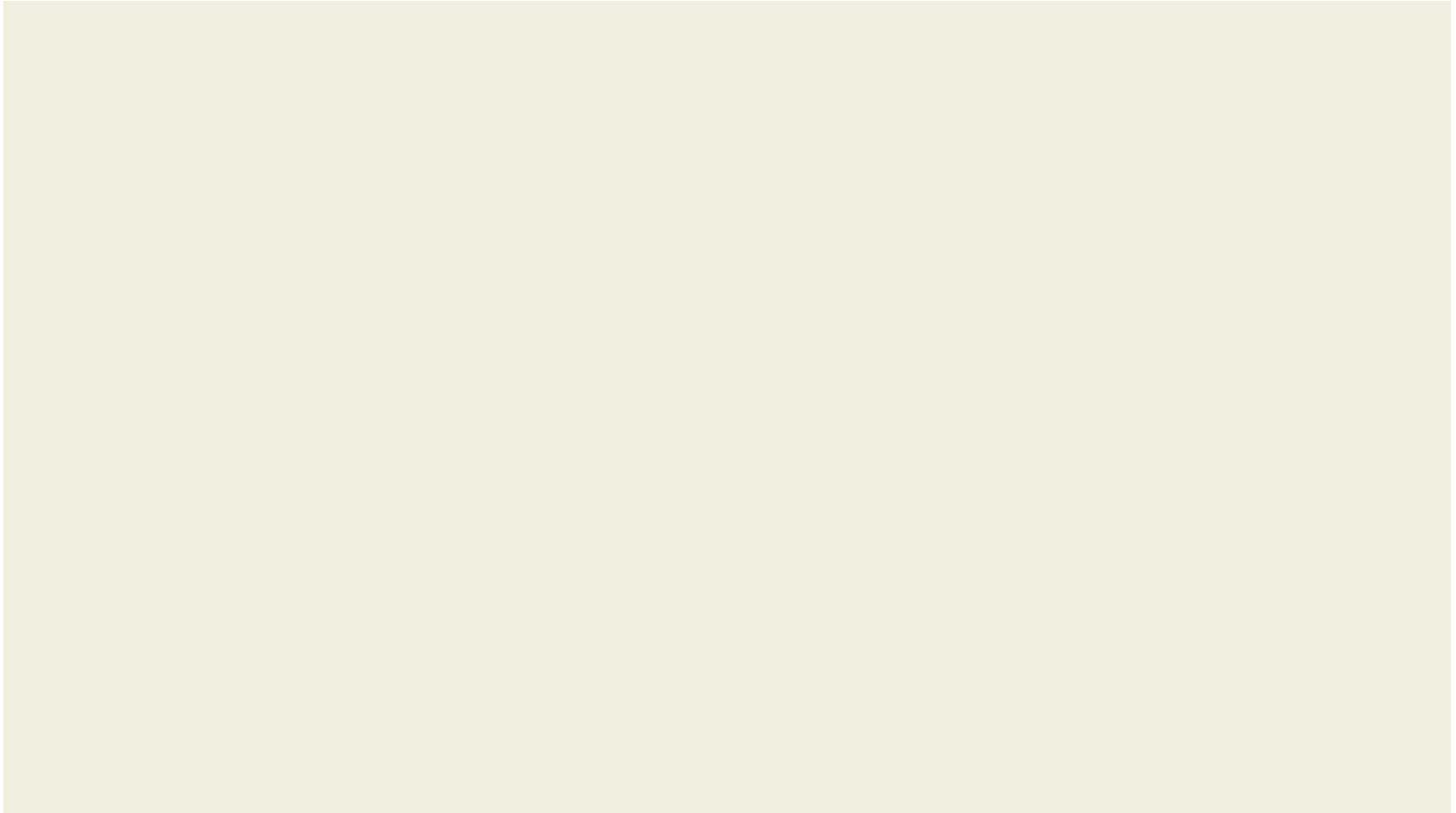
- sensing
- processing and translating language
- reasoning
- learning
- making decisions.

AI works better the more information and data – **BigData** - is available.

Examples

Self-Driving Cars, real-time translation, detect malnutrition via app

AI and Big Data



How can we trust AI?

Ethics guidelines for trustworthy AI from the EU

On 8 April 2019, the High-Level Expert Group on AI presented Ethics Guidelines for Trustworthy Artificial Intelligence.

According to the Guidelines, trustworthy AI should be:

- (1) lawful** - respecting all applicable laws and regulations
- (2) ethical** - respecting ethical principles and values
- (3) robust** - both from a technical perspective while taking into account its social environment

How can we trust AI?

Key requirements

The Guidelines put forward a set of 7 key requirements that AI systems should meet in order to be deemed trustworthy. A specific assessment list aims to help verify the application of each of the key requirements:

- **Human agency and oversight**
- **Technical Robustness and safety**
- **Transparency**
- **Diversity, non-discrimination and fairness**
- **Societal and environmental well-being**
- **Accountability**