

Introduction to the dimensions of digitalisation

Module 1.3: Key Technologies

Agenda

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- Apps
- Artificial Intelligence
- Internet of Things (IoT)
- 3D-Printing
- ICT & Climate
- Deep Dive: Blockchain

Apps:

What is your definition of *App*?

Which examples of applications for development do you know?

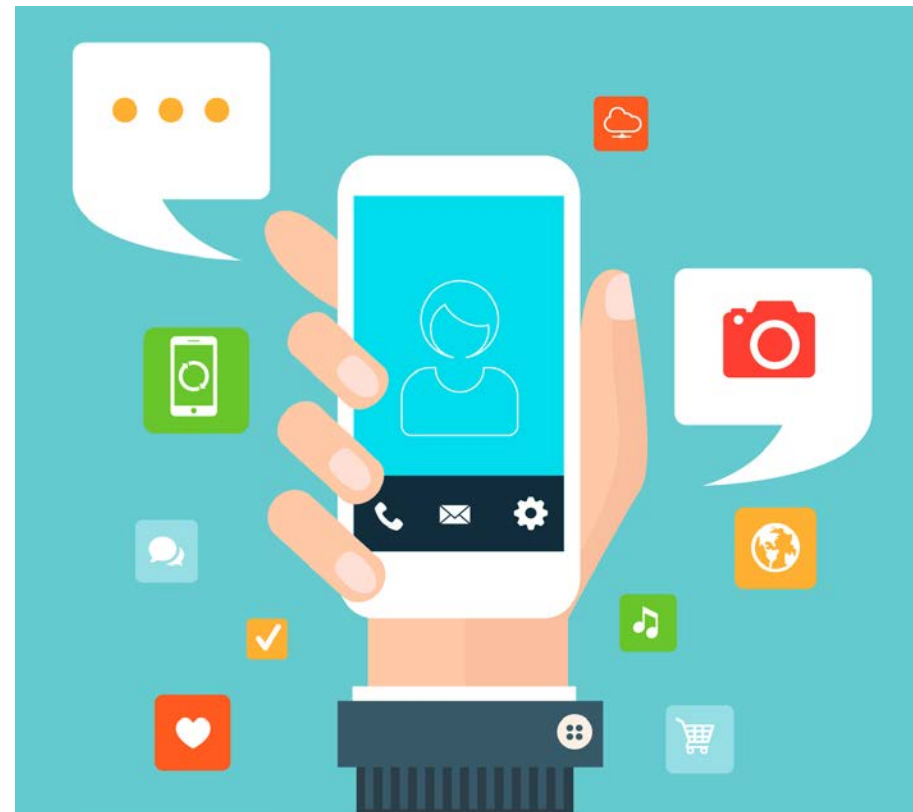
What do I need to know when talking about **Apps**?

Short definition

An application (commonly abbreviated to “app”) is an add-on program or piece of software for smartphones, tablets and/or desktop computers.

Examples

Messenger (WhatsApp, WeChat),
Barcode Scanner, Google Translator
or Farm-Apps.



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



Internet of Things (IoT):

What is your definition of IoT?

Which examples of application for development do you know?

What do I need to know when talking about **Internet of Things (IoT)**?

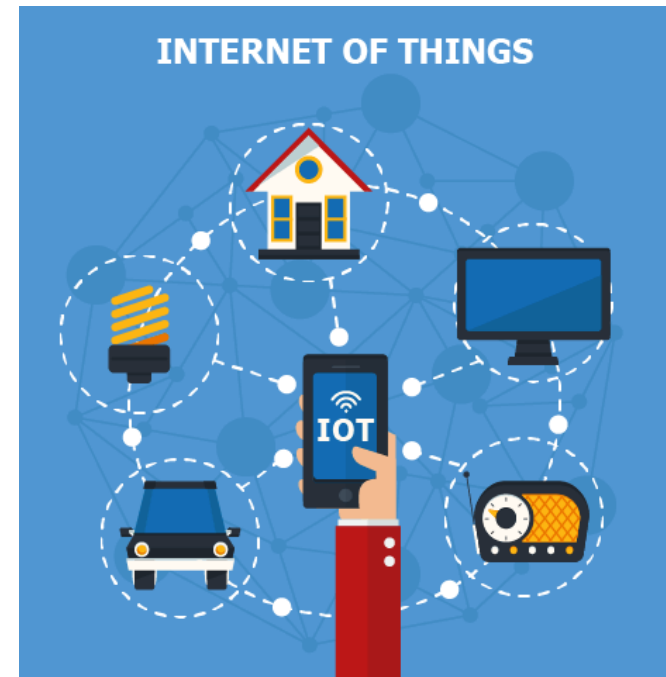
Short definition

The term “things” refers to a wide variety of devices like cars with builtin sensors, heart monitoring implants or smart thermostats in private homes. Sensors and network connectivity allow these things to:

- monitor their environment,
- report their status and location,
- receive instructions
- execute actions based on the data they receive.

Examples

Tracking parcels, fitness bands that transmit body data, fridges that tell us when we need to buy milk, sensors that measure the right time to sow



Challenge:

What do you see?



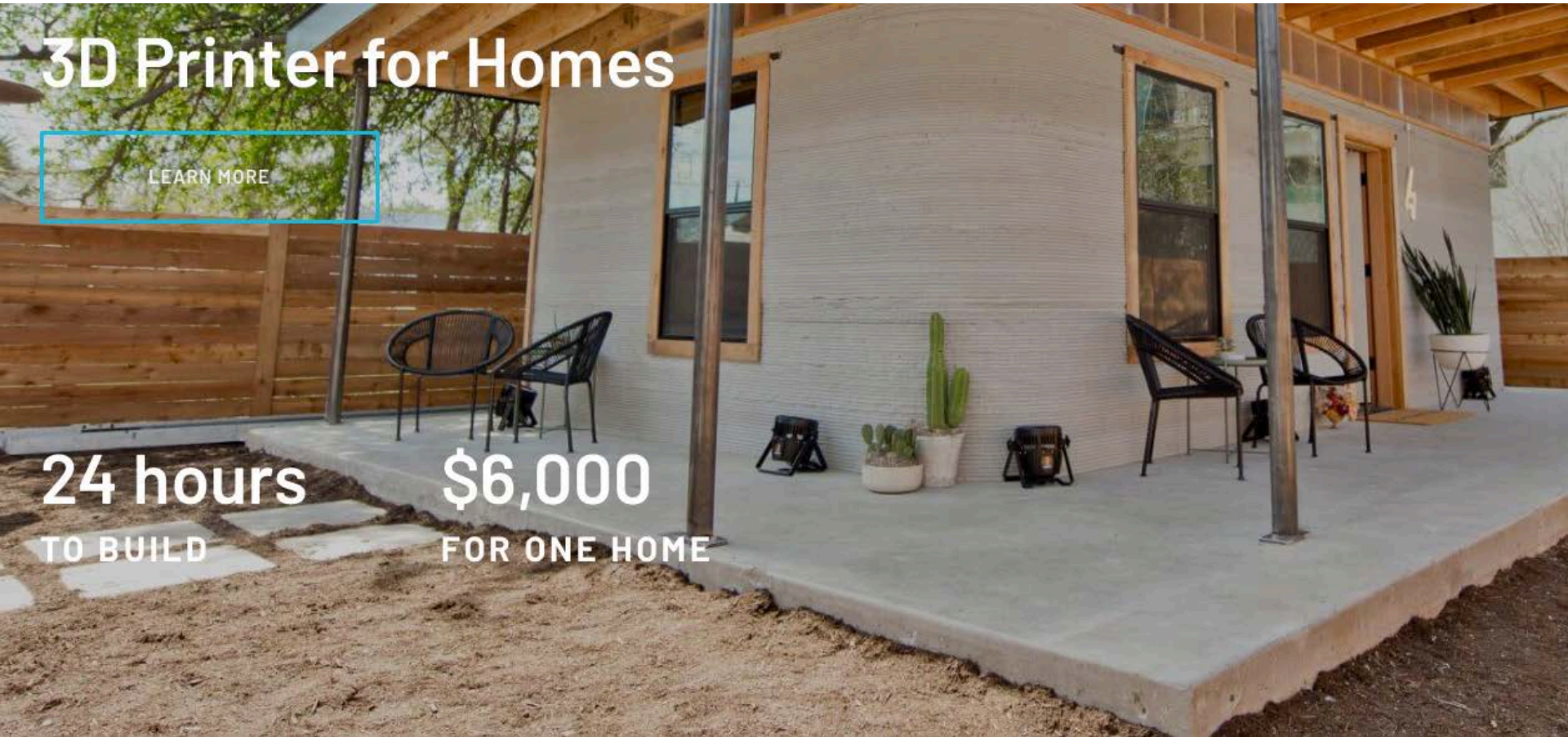


3D Printer for Homes

LEARN MORE

24 hours
TO BUILD

\$6,000
FOR ONE HOME



What do I need to know when talking about **3D-Printing**?

Short definition

3-D printer works by manufacturing items layer by layer. For example, when using plastic the printer works like a hot glue gun. The 3D printer is controlled by a computer following pre-programmed 3D models. Its revolutionary aspect lies in its digital nature: physical objects become digital information that can be:

- remixed
- reformulated
- improved
- shared.

Examples

Prostheses, specific spare parts, models, individual items or components (e.g. a single shoe or screw) and even houses and human organs.

ICT & Climate

What is the effect?



- **Energy consumption**
- **Consumption of resources** (e.g. „rare earths“)
- **Electronic waste** is polluting the environment + „recycle“ under extremely bad circumstances
- **eCommerce** increasing postal deliveries



- **Smart devices:** reduce energy need for devices
- **Smart-grids** allow for flexible and decentral energy-grids + renewable energy sources
- **Teleconference-systems** reduce need for travel
- **Control and transparency**



Understanding digitalisation means to acknowledge and to comprehend its dual nature.

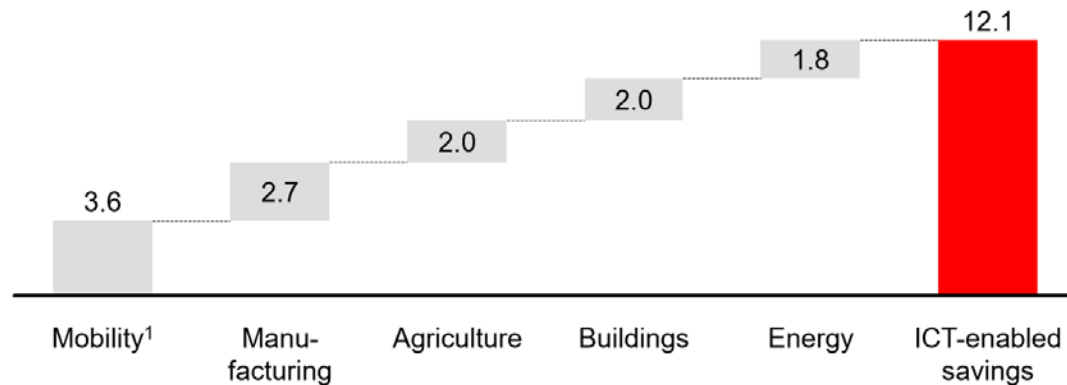
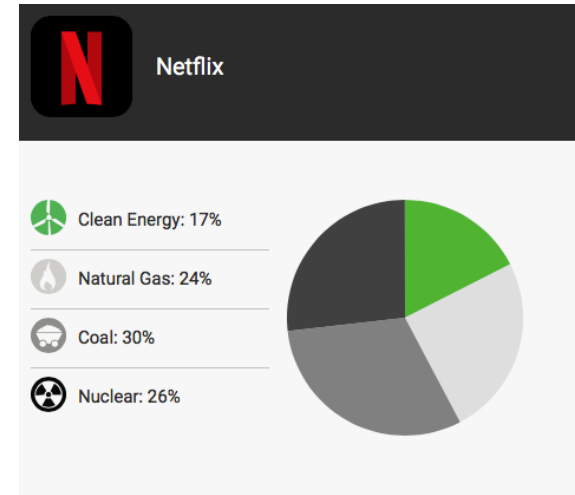
ICT & Climate

What is the effect?



Across the tech sector we need to recognize that data centers will rank by the middle of the next decade among the large users of electrical power on the planet.”

- Brad Smith, President Microsoft -



**CO2 abatement
potential by sector
(2030)**

Blockchain:

What is your definition of Blockchain?

Which examples of application for development do you know?

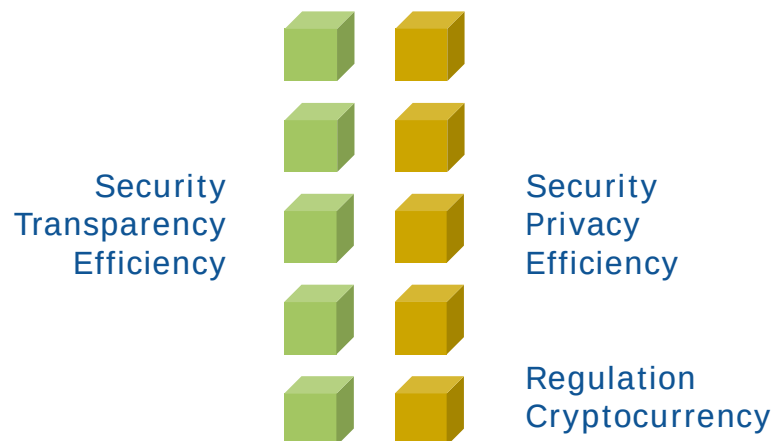
A short introduction to Blockchain



Blockchain

Take aways

- **A Blockchain is a database (DB)**, stored redundantly
- Its regulated by algorithms and can be public or private
- It has – above Bitcoin – many applications, there are many Blochains
- Therefore it is better to speak of **Digital Ledger Technologies (DLT)** instead of just the Blockchain.



Blockchain Applications



BUT

Check if DLTs really make sense in your case



10 min

Discussion

What challenges would you face if you would like to use the presented key technologies in your field of work/context as an advisor for policy development and processes?

- Can you include it as part of your role as an advisor?
- Can you procure it?
- Can you set it up as part of your role in the delegation?