# Session 1. Introduction

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Digital Transformation of the World Economy

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# Plan

- Introductions, course overview, expectations
- What is digital?
- What is digital transformation?
- What is digital transformation of the economy?
- Why study digital economy?

# Introductions, course overview, expectations .1

- Language and communication
  - we'll prefer definitions, not translations
  - develop digital economy vocabulary
  - professional communication is a key to success
    - the 100 most useful emailing phrases: www.usingenglish.com/articles/100-most-useful-emailing-phrases.html
    - politeness strategies in English grammar: www.thoughtco.com/politeness-strategies-conversation-1691516
  - how to address your instructor

# Introductions, course overview, expectations .2

- Length and speed of this course
  - Module 3-4,16 sessions, including 1 trip to Skolkovo startup village, 10 seminars
- Attendance
  - Meetings on Saturdays
    - 3rd module: 02/09, 02/16, 03/02, 03/09, 03/16, 03/23
- Course grade (50/50)
  - Startup idea proposal draft
  - Final startup proposal

# What is digital? .1

- All numbers are digits, aren't they?
- Binary numeral system: 0 and 1
  - we call a 1 or a 0 a **bit**
  - a **bit can store a discrete information** - two separate states: Yes/No, True/False, Boy/Girl, North/South

# What is digital? .2

- Digits as **elements of information**
  - count , but skip the numbers that have anything except 1 or 0 in them
  - 0, 1, 10, 11, 100, 101, 110, 111, …

# What is digital? .3

- Digits as **elements of information**
  - 0, 1, 10, 11, 100, 101, 110, 111, …

    these are binary representations of numbers:

  - 0, 2, 3, 4, 5,    6,      7,      8,      9, …

# What is digital? .4

- A bit is the smallest unit of storage

- D**igital** is a representation of data as a series of the smallest units of information - bits (the digits 0 or 1)

- A **byte** is a string of 8 bits

  - it has 256 permutations: from 00000000, 00000001, 00000011 …  to 11111111

- One byte stores one character

# **What is digital transformation?**

- If a binary representations of numbers renders numbers into 0 and 1
  1, 10, 11, 100, 101, 110, 111
  1   2    3    4     5      6      7

- We can similarly render any information into 0 & 1
  - Audio, Video, Images

- Transforming information into 0 and 1 is digital transformation

# Video material 1

https://www.youtube.com/watch?v=ystdF6jN7hc

# Digital economy – themes .1

- Everything is connected
- Space to innovate is you – human being
- Digitization
- Augmentation
- Disintermediation
- Automation
- New technologies
  – self-driving cars; computers can learn & think; everything is wired- cars, cities, ports, farms, bodies (**and will talk to each other - IoT**)

**changes are combinatorial**
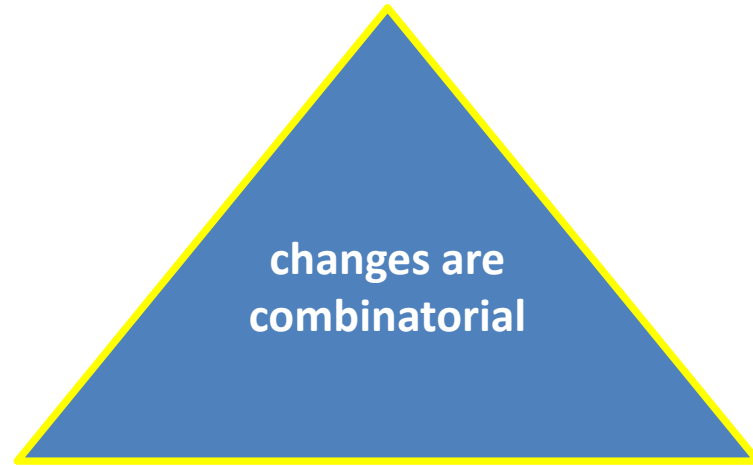
# Digital economy – themes .2

- What becomes extremely valuable?
  - anything that cannot be digitized or automated
    - imagination
    - creativity
    - emotion
    - intuition
    - ethics
- Engage with **what might be, not what just is**
  - **your startup idea**

# What is digital transformation of the economy?

- How businesses are structured, firms interact, consumers obtain goods, services, and information, - is **very different from the conventional notions** (*as in XX century*)

- Digital technologies **are changing** how information is transferred and processed

- The economy is being changed – **transformed** - (from the conventional XX century) by the digital technologies

# Digital economy

- An economic activity that results from billions of everyday online connections enabled by <span style="color:red">digital transformation</span>
- The backbone of the digital economy is
  - big data
  - computing power
  - hyperconnectivity
    - growing interconnectedness of people, organizations, and machines resulting from the Internet, mobile technology and the internet of things (IoT)

# What's new in the digital economy?

**Traditional factors of production (inputs used in the creation of goods or services)**

- Land
- Capital
- Labor

- Entrepreneurship in combination with new knowledge become the main driving force, not traditional factors

**New factors of production**

- Capital
- Time
- Information
  - 4 "V's" of data: volume, velocity, variety and veracity
  - Big Data becomes a factors of production
- Land, labor still there, but primary relevance has diminished

*Examples:* valuation of Microsoft, Apple, Facebook

# Why we study digital transformation?

- AI, robotics, networks, analytics, and digitization <u>affect more and more of the economy and society exponentially</u>

- Can the societies <u>capitalize</u> on technological advancements?
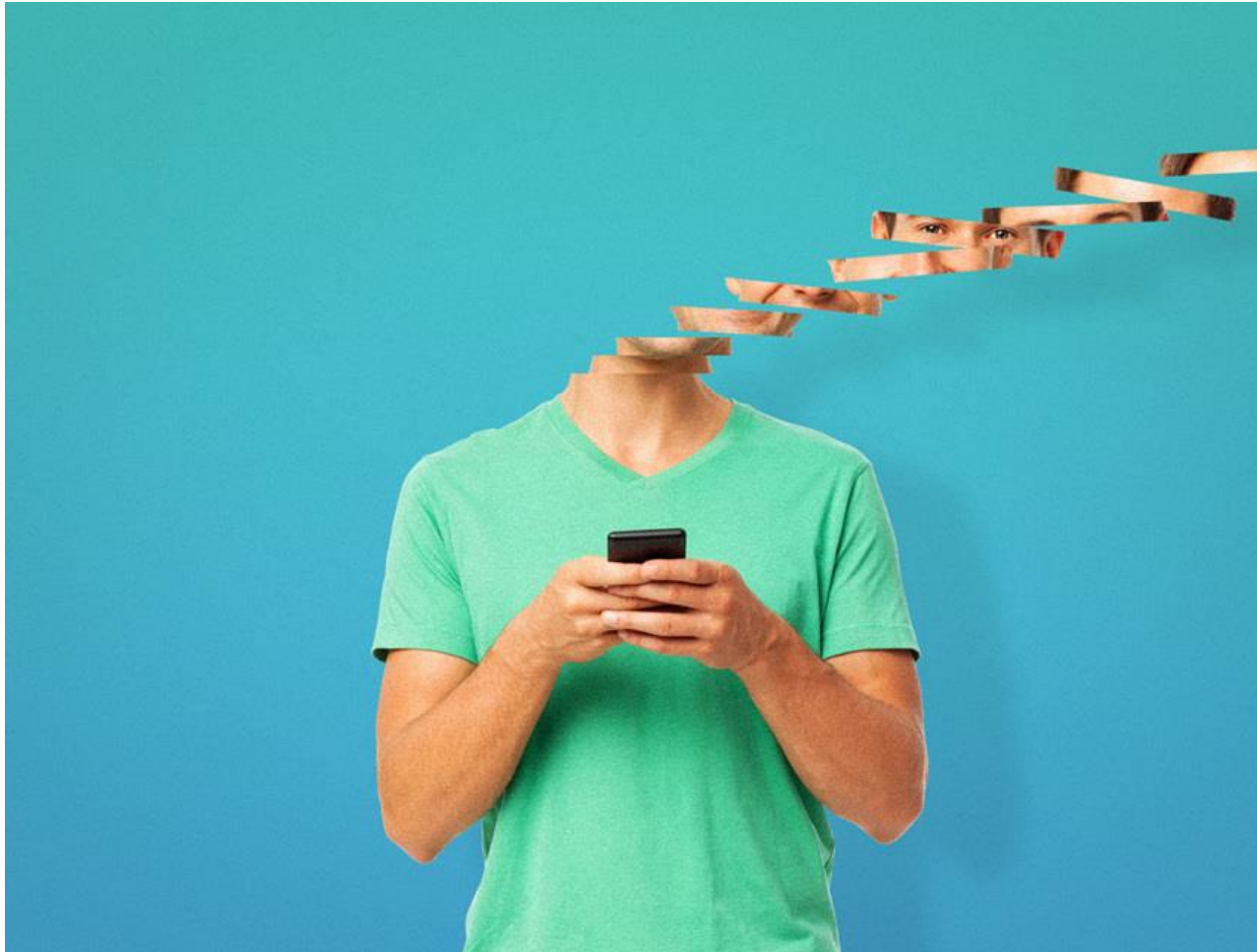
   **OR**

- Will the <u>digital divide grow wider </u>in the coming decades?

  - Did the invention of electricity make only the electricians wealthy?

# Video material 2

Film 'Do you trust this computer?' (1hr 17 min)

# Write and turn in 3 take-home points

1.

2.

3.

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