

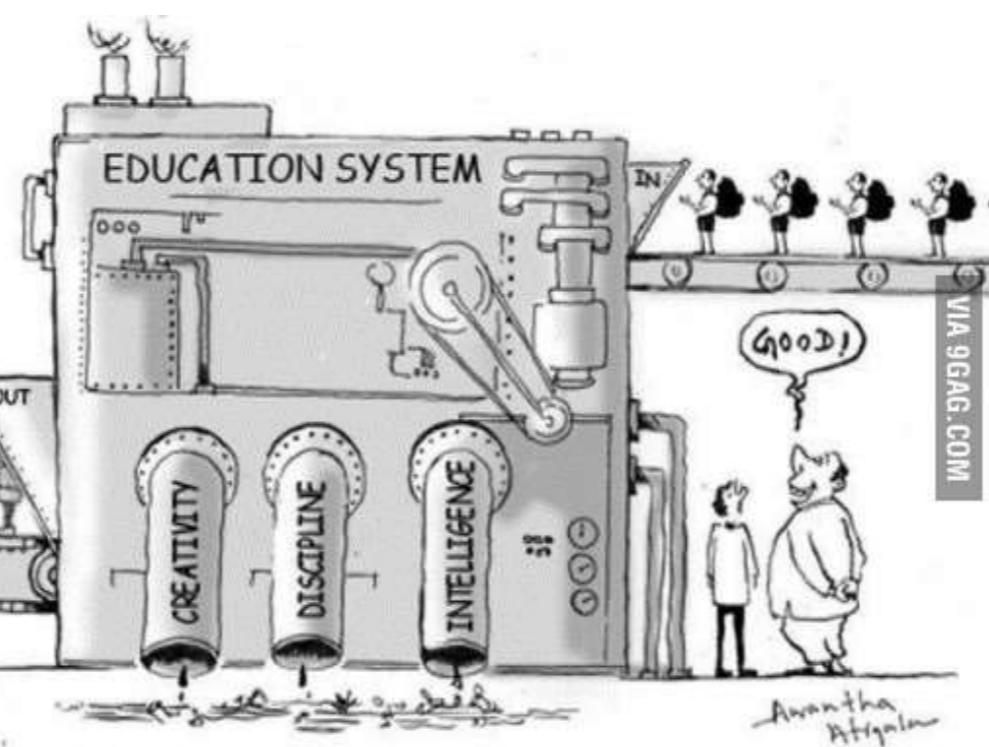
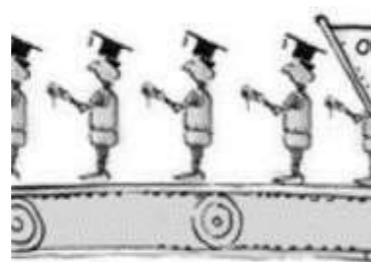
6 global trends in education

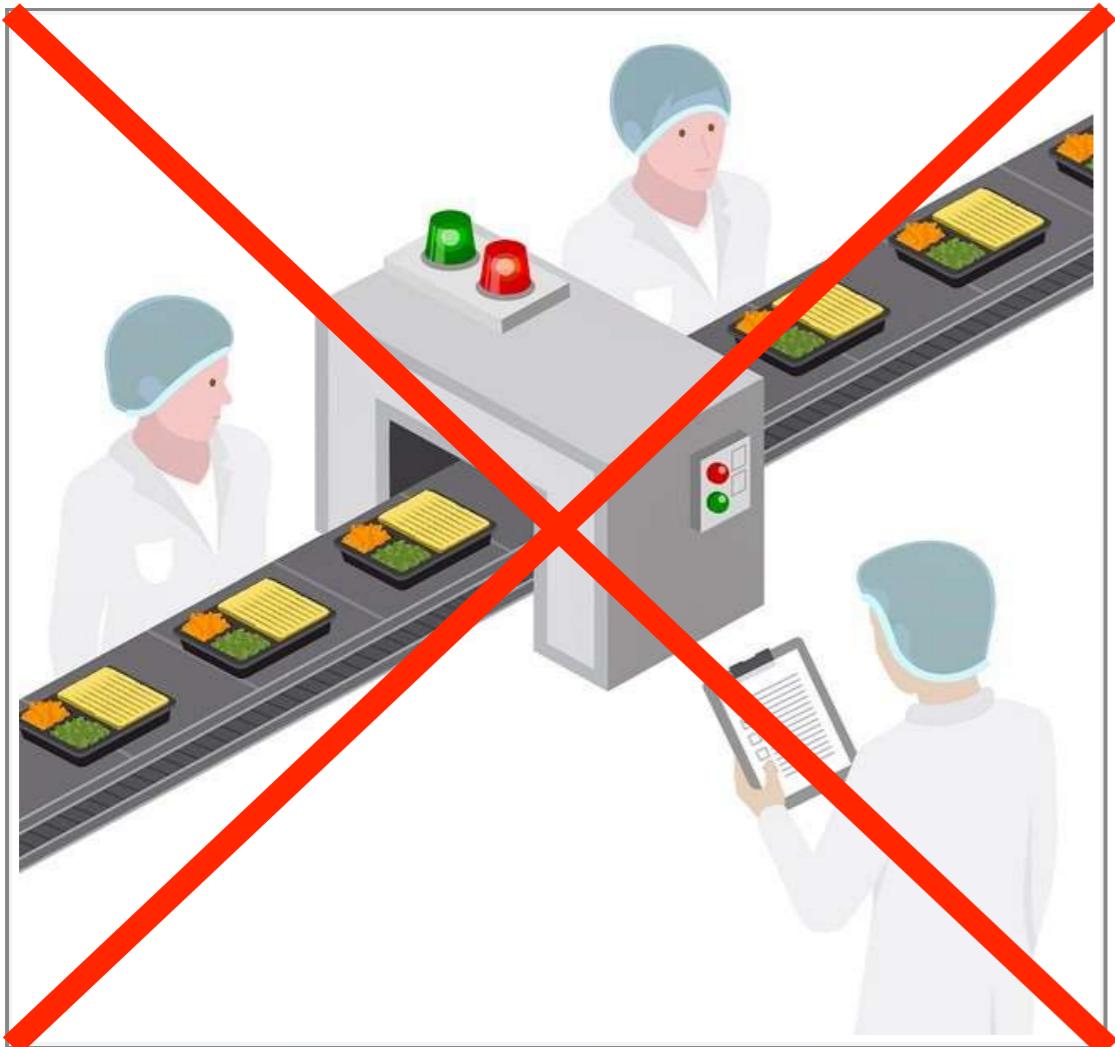
How technology will change the learning process in
the next few years





TARAZ, Rabad, XII c.





Production Based Economy

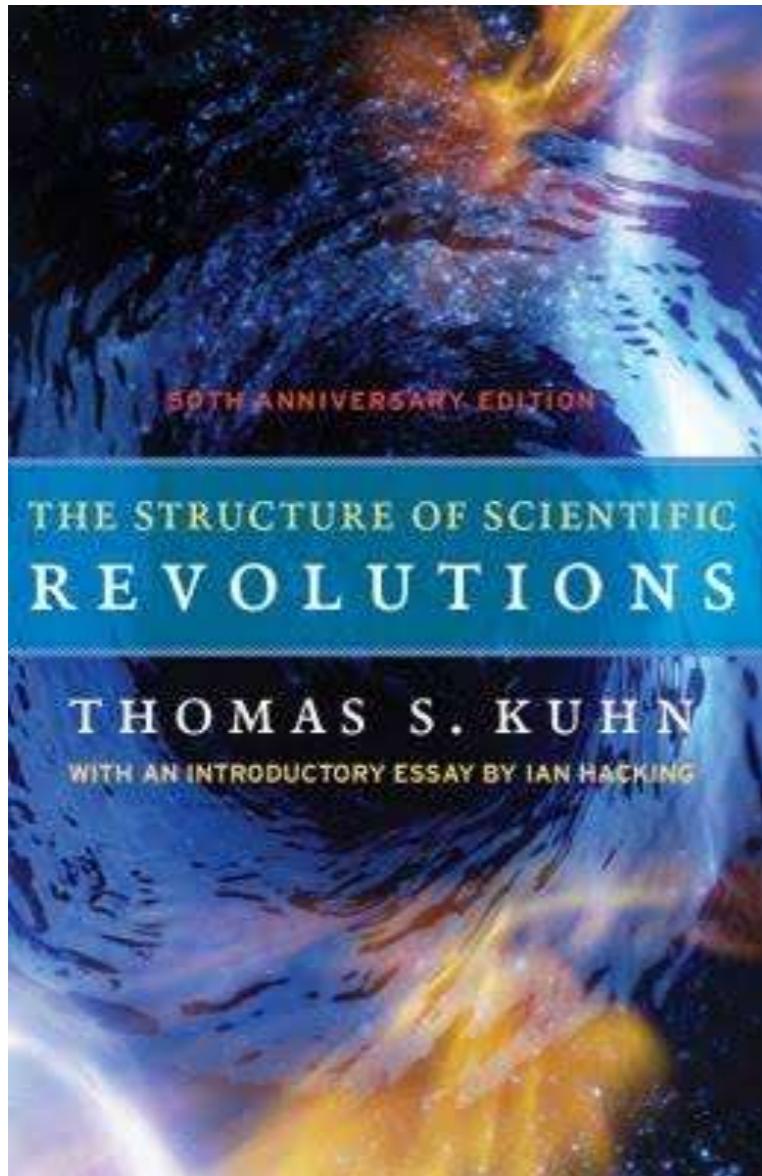
Outsourced or automated



Creativity Based Economy

Value Added

**Why is it important to talk
about the future, or Where is
the time machine going?**

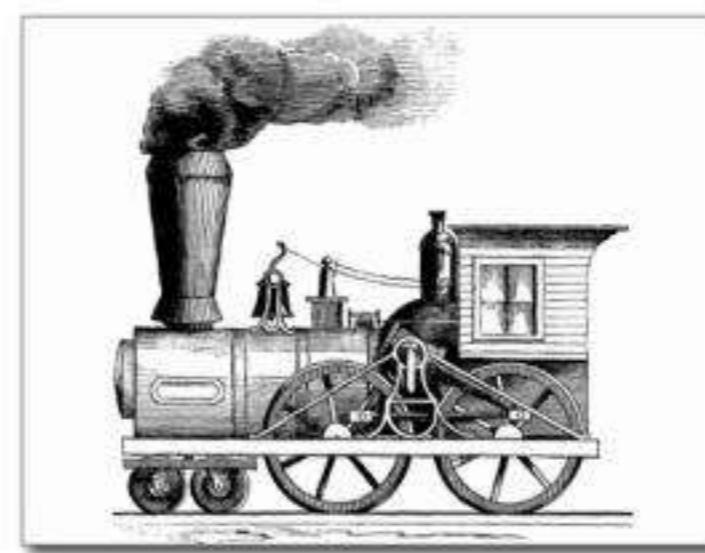
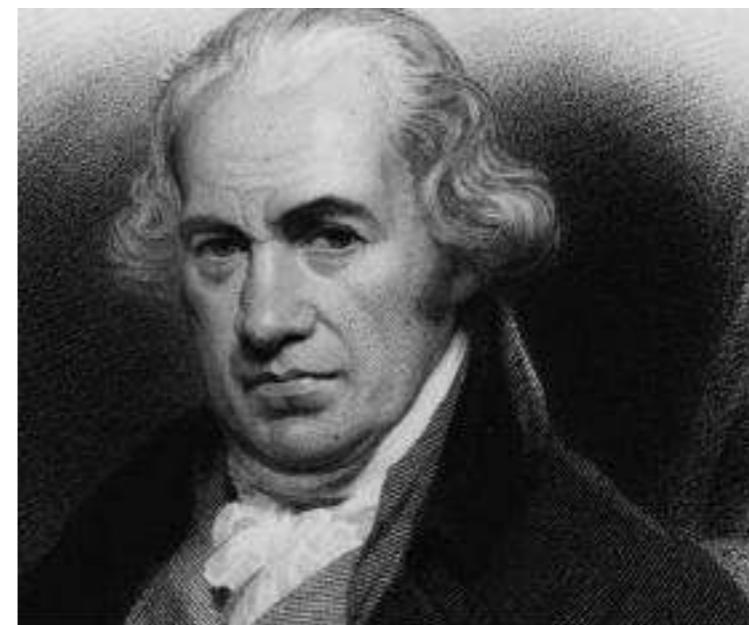
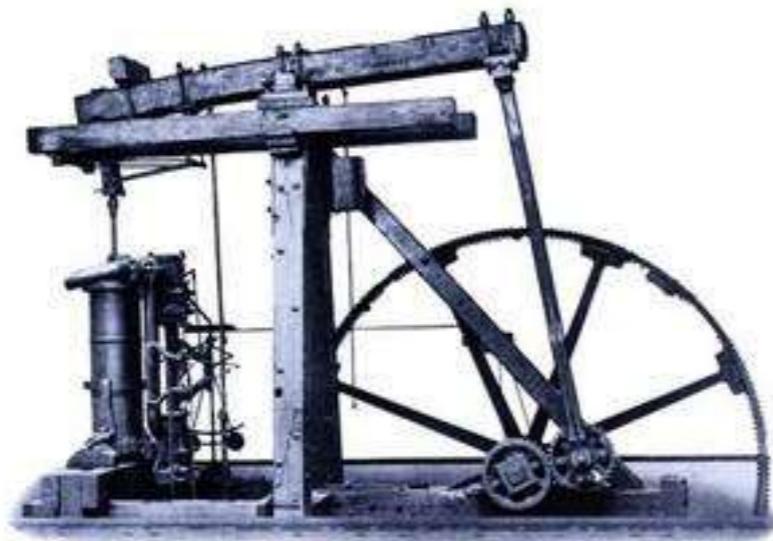


The Structure of Scientific Revolutions
(1962) - Thomas Kuhn's book, an analysis of the history of science. Its publication was a significant event in the sociology of knowledge, introduced the terms paradigm and paradigm shift.



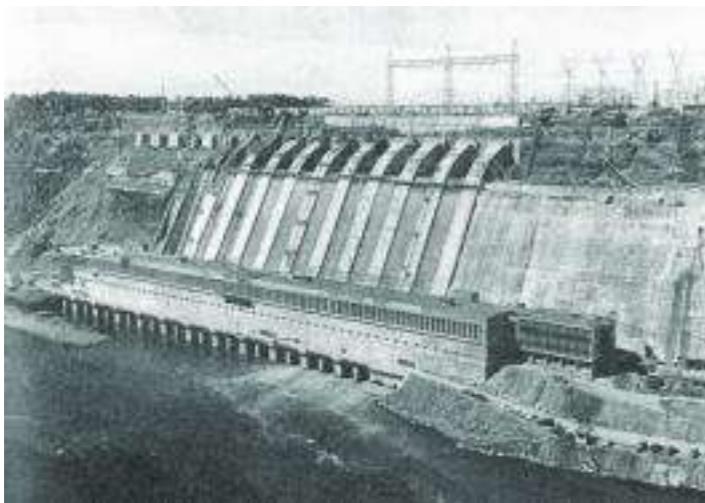
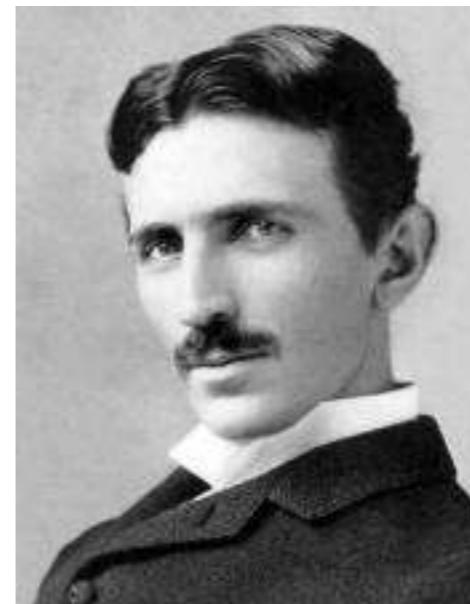
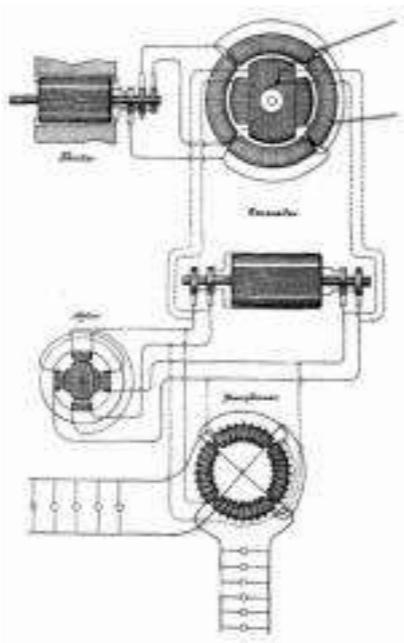
1. Industrial Revolution

1766. The first useful steam engine:
inventor James Watt, 1736. – 1819.



2. Industrial Revolution

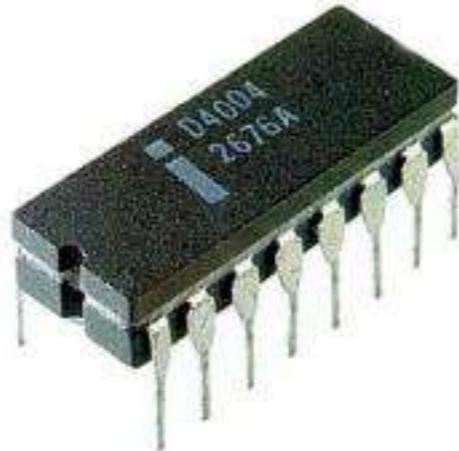
1895. the first AC Hydroelectric power plants in the US at Niagara Falls:
inventor Nikola Tesla, 1856. – 1943.



3. Industrial Revolution

1971. Garret AiResearch's Central Air Data Computer (**CADC**) September, Texas Instruments(TI) **TMS 1000** (September,1971), Intel **4004** (November,1971).

Birthday of the first computer on one chip



1971.

2015.





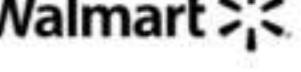
Klaus Martin Schwab – a German engineer and economist, best known as the founder and executive chairman of the World Economic Forum

«We stand on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another. In its scale, scope, and complexity, the transformation will be unlike anything humankind has experienced before.»

1

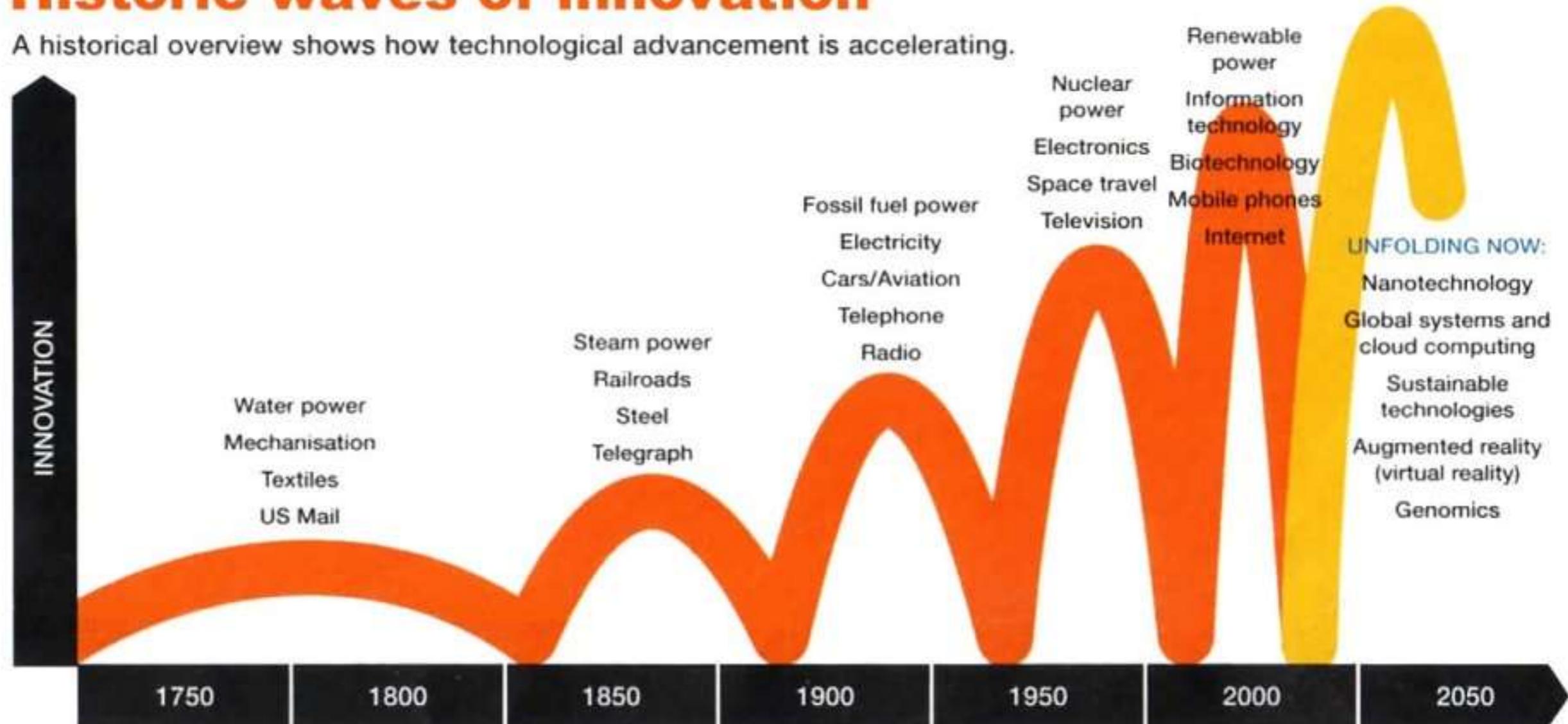
Рейтинг самых дорогих компаний

В 2016 г. наблюдается доминирование технологических компаний;

	#1	#2	#3	#4	#5
2016		Google	 Microsoft	 amazon	 facebook
	\$582 млрд	\$556 млрд	\$452 млрд	\$364 млрд	\$359 млрд
2011			PetroChina	 Shell	
	\$406 млрд	\$376 млрд	\$277 млрд	\$237 млрд	\$228 млрд
2006			 TOTAL	 Microsoft	
	\$446 млрд	\$383 млрд	\$327 млрд	\$293 млрд	\$273 млрд
2001		 Microsoft	 EXXON		 Walmart
	\$406 млрд	\$365 млрд	\$272 млрд	\$261 млрд	\$260 млрд

Historic waves of innovation

A historical overview shows how technological advancement is accelerating.



ADAPTED FROM WAVES OF INNOVATION MODEL, THE NATURAL ADVANTAGE OF NATIONS, K. HARGROVES AND M. SMITH, (2005)

1. Artificial intelligence goes to education

Formation of a new standard: what to teach children from the point of view of artificial intelligence and what to do about it at the level of teacher training. It's about how to teach teachers to teach children how to learn machines.

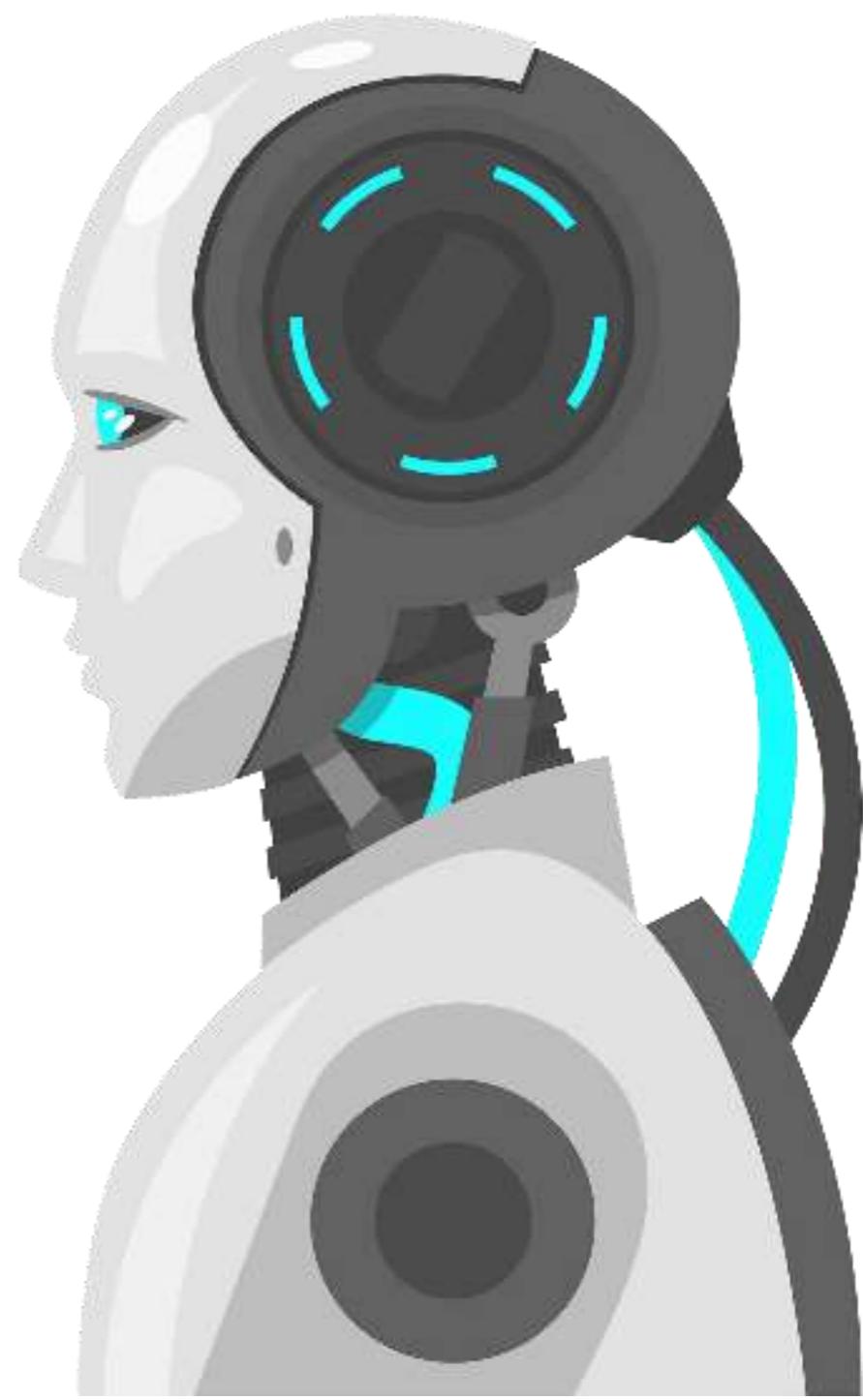
This is a pretty discussed topic, because today artificial intelligence is beginning to be perceived not just as a superstructure over all computer technologies. It is becoming more significant and is widely used.

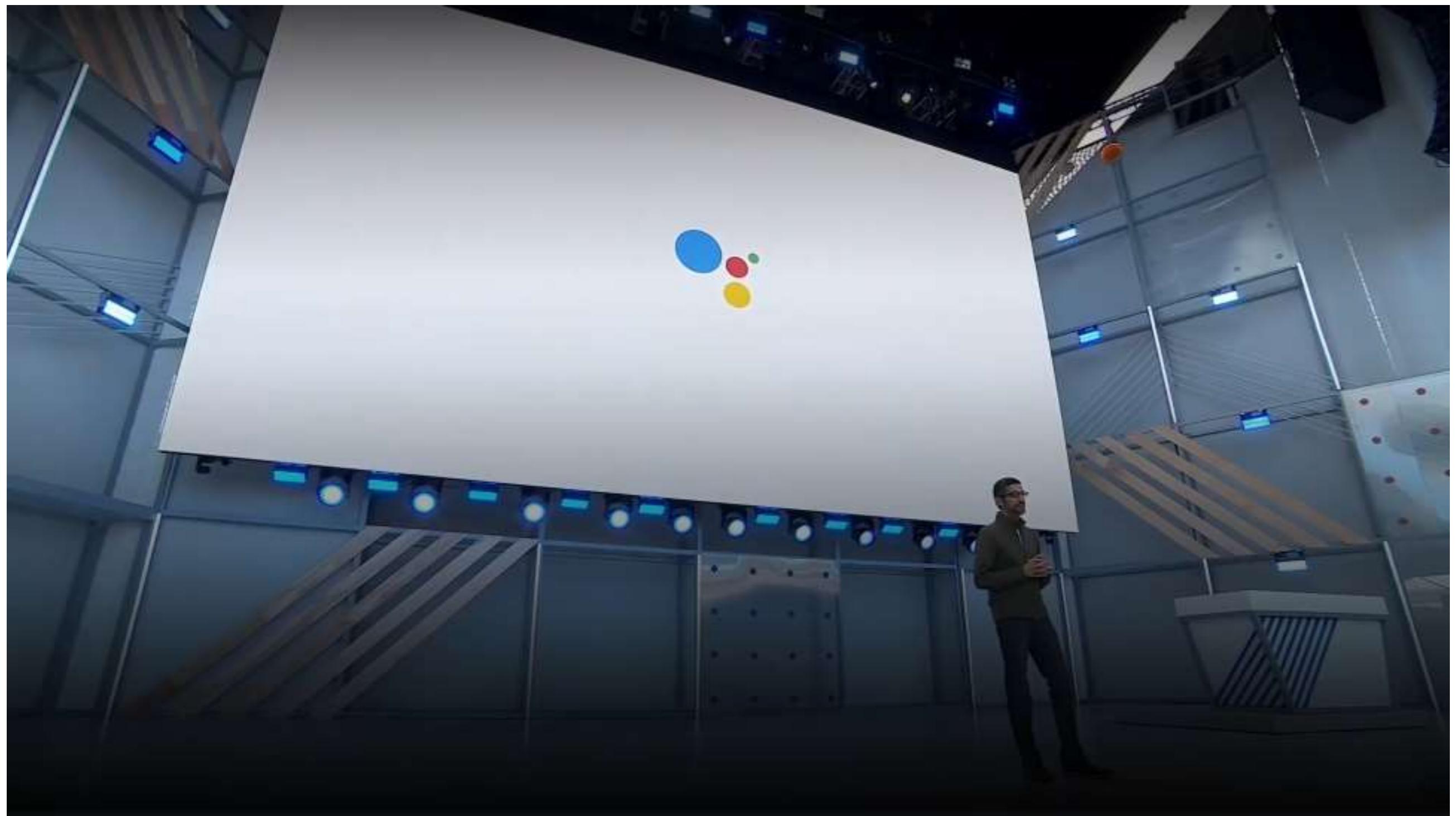




“Why AI Is the New Electricity”

Andrew Ng, a Chinese-American computer scientist and statistician, an adjunct professor at Stanford University, focusing on machine learning and AI. Co-founder of Coursera.





2. We are all digital citizens

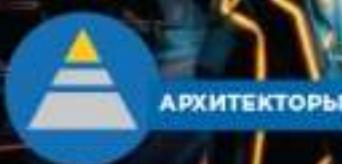
Among the useful trends in digital fluency, digital citizenship can be singled out. We can confidently say that today in Europe and the USA, most people have two parallel lives: one in the real world, and the other online. And the online state is as real as the one whose name is written on your passport.

It has its own rules and laws, opinion leaders, and any person who has a profile on social networks is a citizen of this digital state. He has a face, he himself creates and consumes information. Digital citizenship interests everyone because everyone wants to understand how to live a "digital citizen."



Digital World

Real World



АРХИТЕКТОРЫ

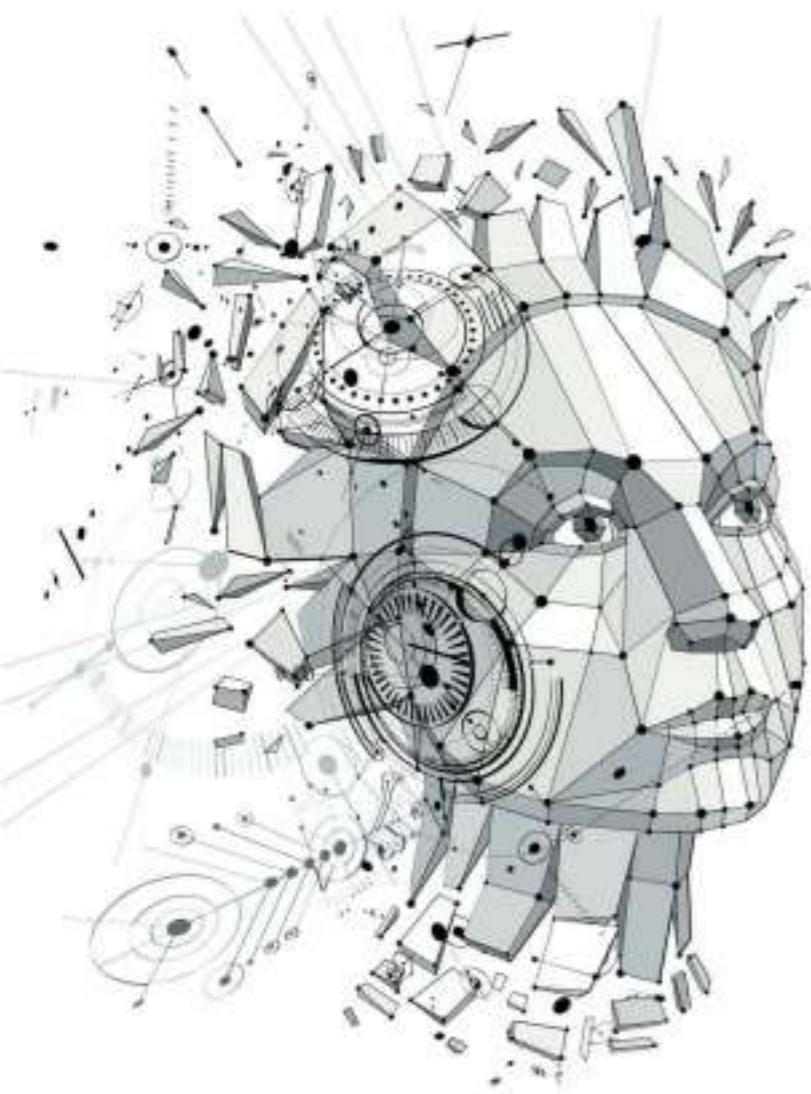


КРЕАТИВНЫЙ КЛАСС



ПОЛЬЗОВАТЕЛИ

3. Computers aren't just for boys



Critical thinking and problem solving skills are what both girls and boys will need in life equally. Computer Science is responsible for their development in the school.

The stereotype that technology was not interesting to girls for many years limited their ability to study Computer Science. Now everything is changing. Teachers seek (and find) ways to involve schoolgirls in computer technology classes. And society seems to be ready to support them en masse.

4. It's possible to stick to screens for good

Fighting the TV is useless, but you need to use this resource by investing in it useful content. So the children, “stuck in a box”, began to learn social patterns through games and fairy tales. What neither parents nor teachers could properly convey was managed to be done at Sesame Street, putting screen time at the service of the children.

The creators of Minecraft have found a way with thematic projects that mix history, research, art and programming.

Revolution in Education

Everything goes to smartphone

Today, a person spends an average of 5 hours a day on a smartphone. *

The goal is to transfer learning to any knowledge into a smartphone and turn learning into a daily process - fun and easy.

Individual learning paths

Educational trajectories should adapt to each person and his features.

All people are different, and we study according to age, place of residence, position, work experience, desire to develop and other parameters.

* Survey of the company Flurry, 2017

** Data of the survey of the company Gamification Now!

*** Cognitive survey ACTNext

Game mechanics and gamification

Game mechanics are increasingly being used in absolutely serious areas of business - in marketing, training and other processes.

"Every fourth on our planet is a player"**

Interval Learning Methodology

A modern person is not ready to spend a lot of time on taking courses.

Regular study of small amounts of information and the active use of acquired information is much more effective than simply repeating***.

5. Learning from mistakes is getting easier

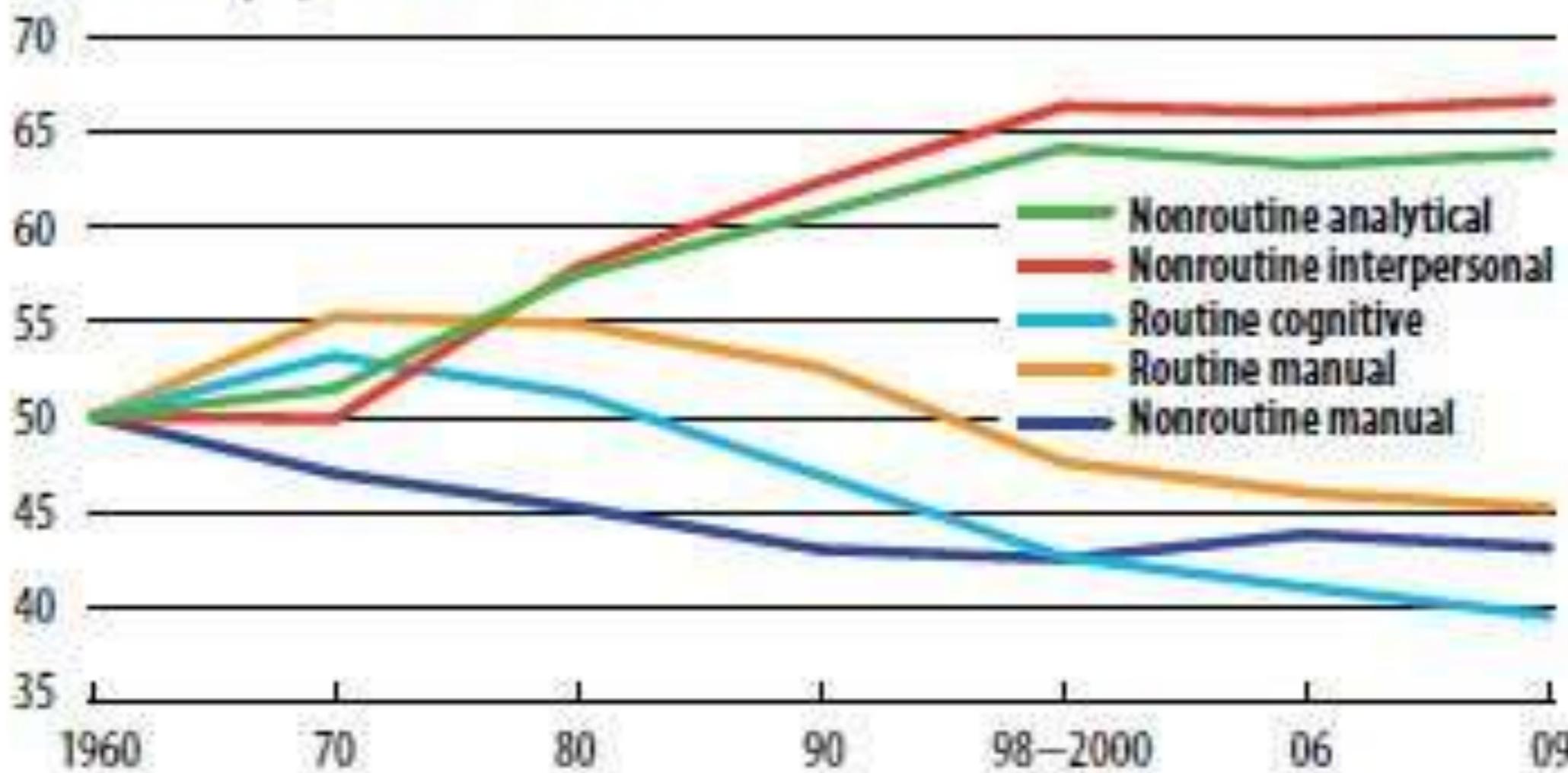
Neuroscience helps to realize an important point that is almost never found in the classical approach: learning through error. A situation is created in which an error helps to draw a solution scheme and at the same time becomes a kind of hidden clue. At this moment, the update of the thinking apparatus, which is responsible for critical thinking, is triggered through the Perception-Action Cycle (cycle “perception - action”). For a child, this works the same way as the classic endorphin-dopamine loop in game design - “The joy of how you understood how to solve the problem,” as Nobel laureate Richard Feynman said in his lectures. Only without any stars and virtual rewards.

Previously, an approach with visualization of a solution scheme through errors was very difficult to recreate in textbooks and an offline environment. But thanks to numbers, interactivity and animation, completely different possibilities appeared. It seems that this is some kind of too courageous approach, but if you think about it, in life we only learn for real.

Out of the ordinary

Demand for nonroutine analytical and interpersonal skills continues to rise in the US labor market, while that for manual and routine tasks falls or stagnates.

(mean task input, variation from 1960)



Source: Autor, David, and Brendan Price. 2013. "The Changing Task Composition of the US Labor Market: An Update of Autor, Levy and Murnane." MIT Working Paper, Massachusetts Institute of Technology, Cambridge, MA.

Massive disappearance of jobs



Over 2 billion jobs (approx. 50%) worldwide until 2030 endangered by automation



New
Profession
s for the
New
Economy

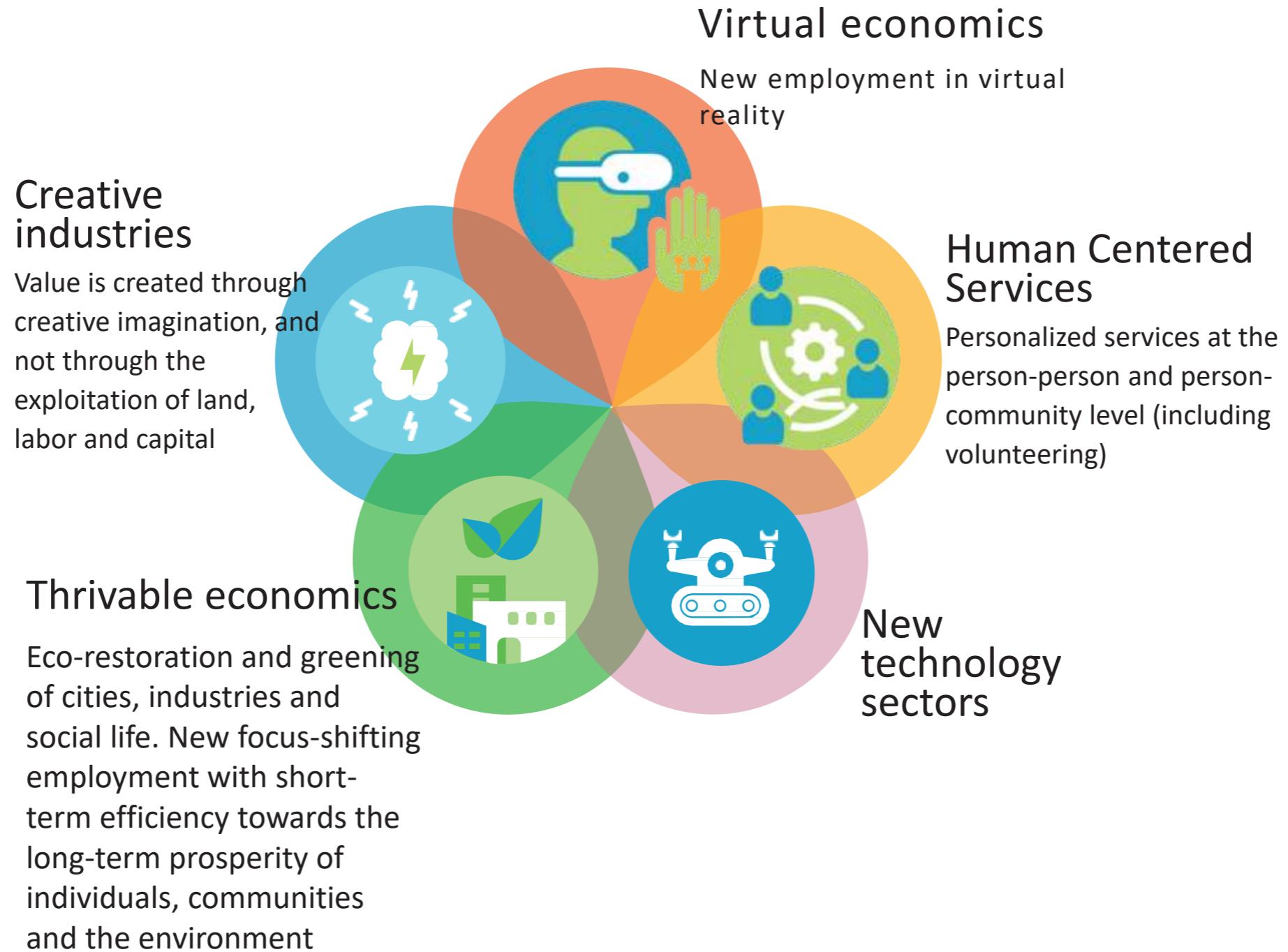


Transforming
Changing under
pressure of
technology



Outdated
«extra
people»

New employment sectors



Top 10 Skills (WEF, 2016)¹

2015	No	2020
Solving complex problems	1	Solving complex problems
Human interaction	2	Critical Thinking
Personnel Management	3	Creativity
Critical Thinking	4	Personnel Management
Negotiation	5	Human interaction
Quality control	6	Emotional intelligence
Service Oriented	7	Evaluation and Decision Making
Evaluation and Decision Making	8	Service Oriented
Active listening	9	Negotiation
Creativity	10	Cognitive flexibility

¹<https://www.weforum.org/agenda/2016/01/the-10-skills-you-need-to-thrive-in-the-fourth-industrial-revolution/>

Need to revise skills model



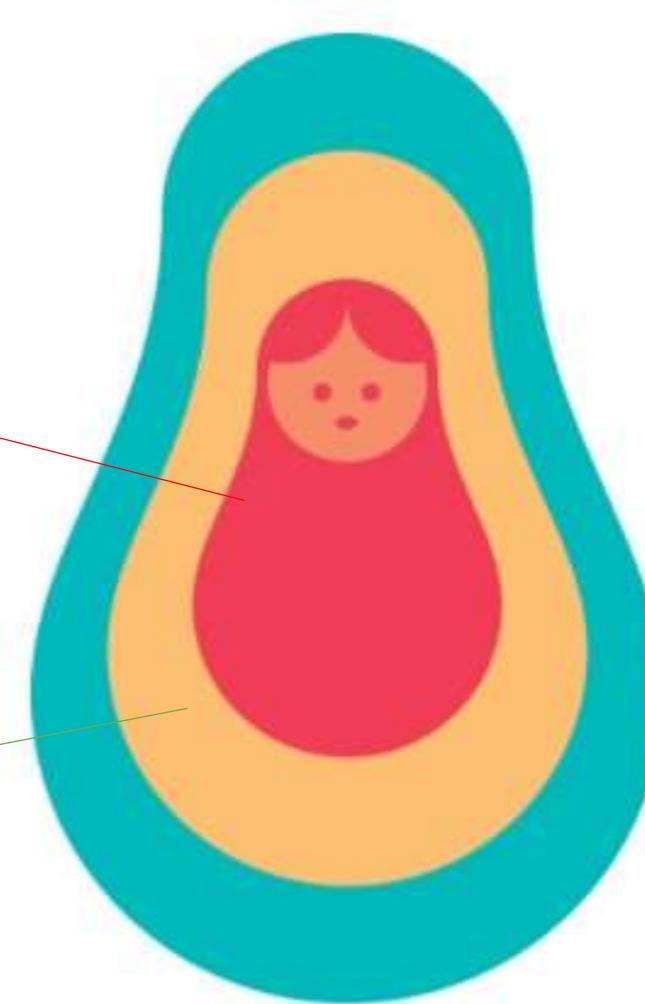
“Competences of the future” for a complex society

Readiness for a complex society of strategic uncertainty

- Mindfulness, attention management
- Resilience
- Willingness to act / determination
- Openness and a focus on development
- Creative skills
- Empathy / compassion

«New literacy»

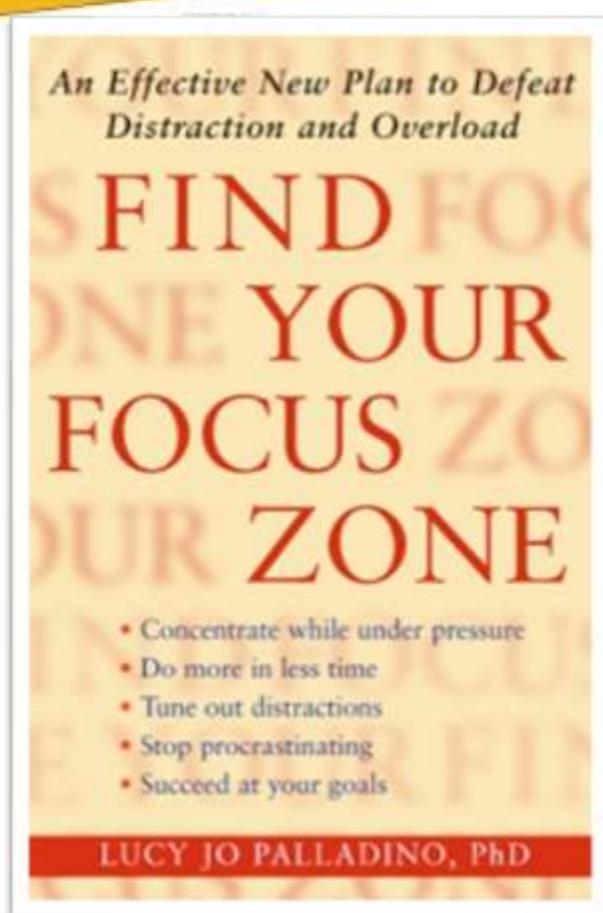
- Digital Literacy / Digital Hygiene
- Environmental thinking
- Ability to collaborate and collaborate
- Cross-cultural competency



● contextual / specialized skills

○ cross context skills

○ Existential skills



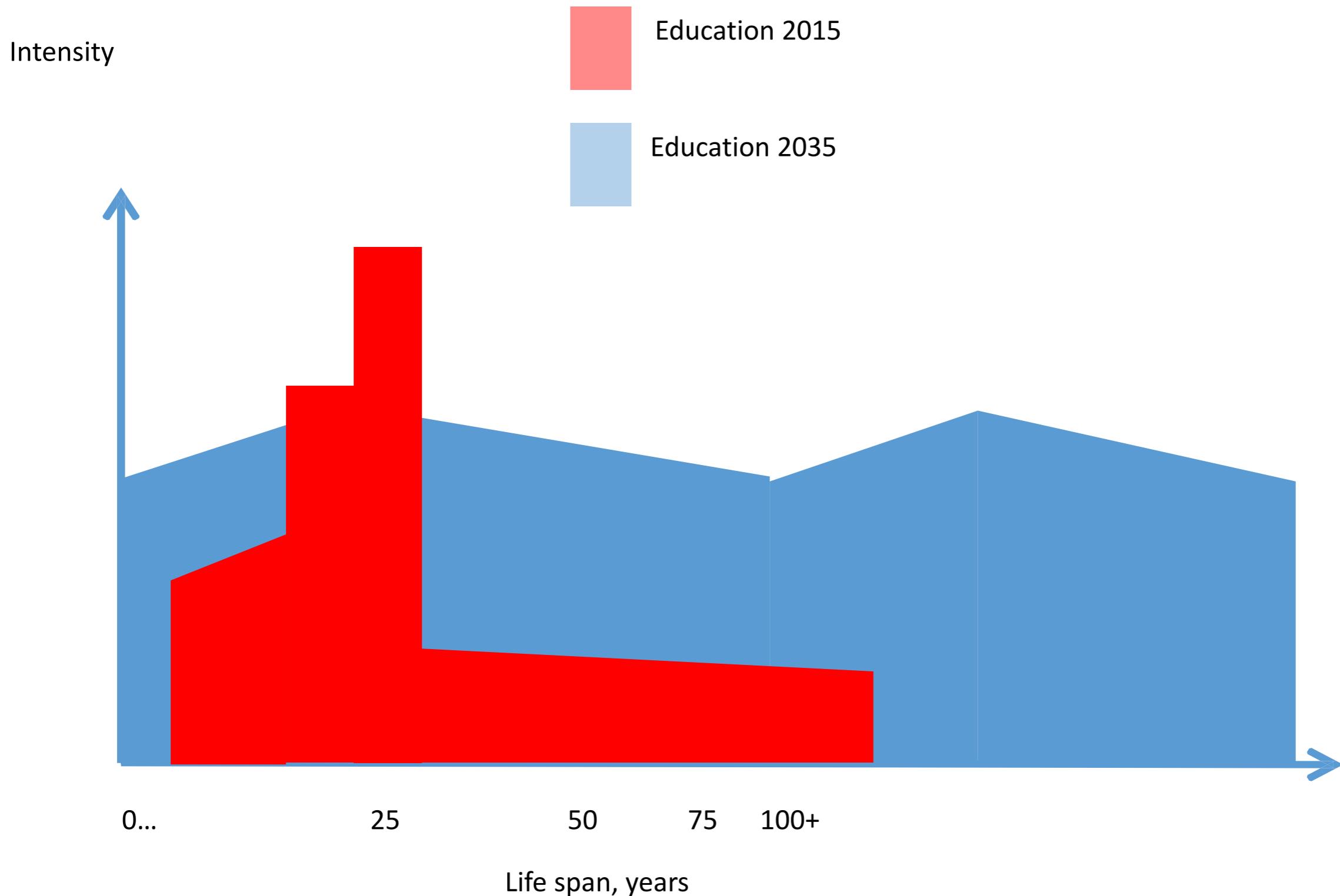
Find Your Focus Zione (2011)

author
Люси Джо Палладино

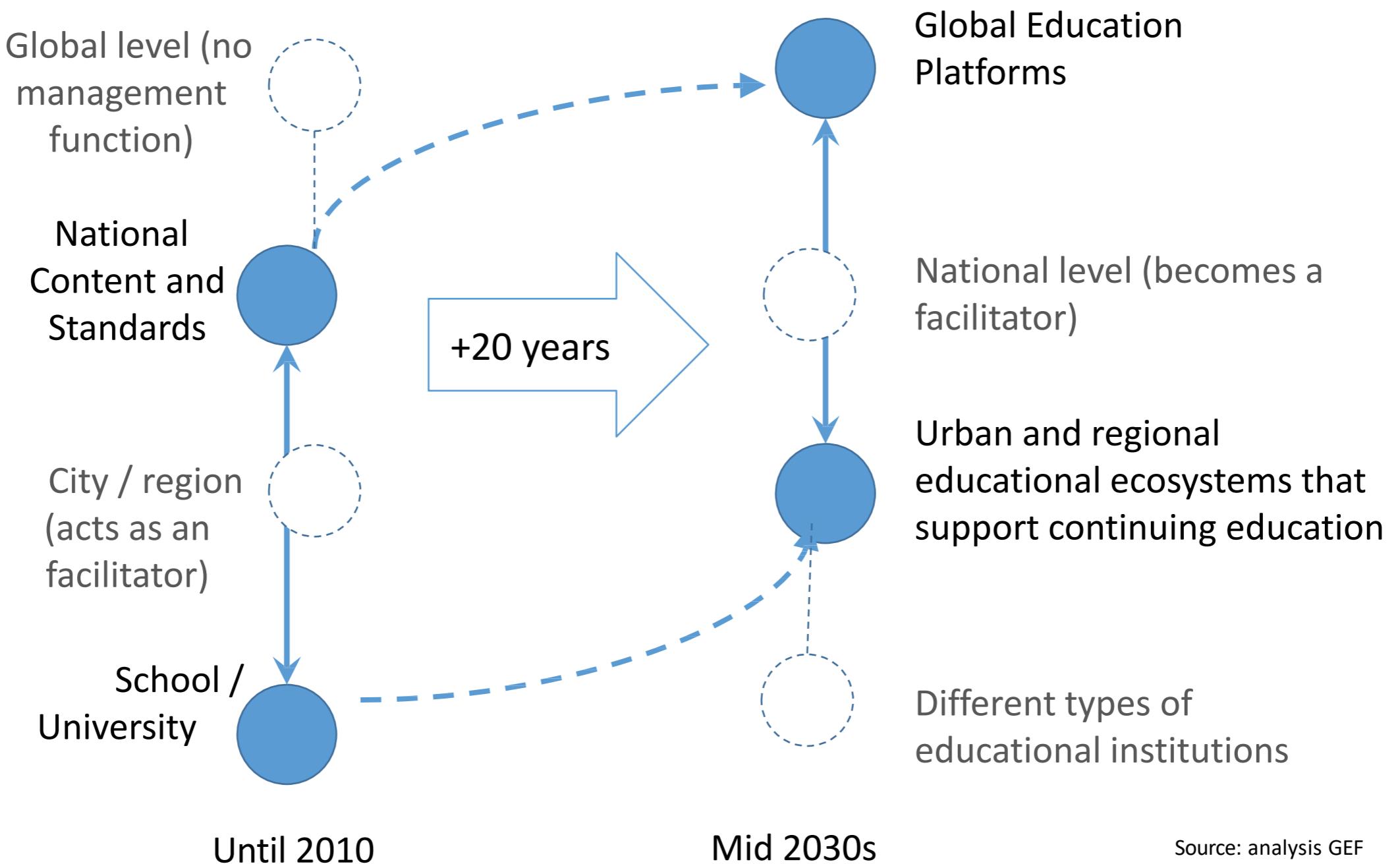
The ability to fully concentrate on the current task is a serious challenge in the modern world with its mobile phones, social networks and other distractions. We don't even notice how we lose the focusing skill due to the increase in the speed of life and the amount of information and news that require our attention.



Learn, Unlearn And Relearn: Transition to lifelong learning



A cardinal shift in the organization of educational systems: the transition from a combination of “local / national” to “territorial / global”



- **They will be big:** the ambition of EdX is 1 billion students by 2020. Some will be created by existing players (Facebook and LinkedIn are likely candidates)
- **New environments and interfaces :**
 - Mobile 24/7 (already now)
 - It is not YouTube! (era of augmented reality и customizable scripts for 10 years)
 - Integration with game universes (such as WoW), urban scenarios, etc..
- **Digital pedagogy :**
 - Affordable personal education for all
 - Wearable devices allow you to adjust to the psychophysical state of the student
- **Adaptive :** own list of competencies throughout life (“character leveling”)
- **Global Problem Solving – Platforms for Activism**



In the new (networked) economy, ecosystems are built around “integrators” who serve as an “entry point” for end users and integrate ecosystems around themselves (eg Google for search, Facebook for social networks, AppStore for smartphone applications, etc.). For a “new” education, such “integrators” must become providers of long-term personal educational trajectories (the key role of a school or university).

