



GLOBAL
EDUCATION
FUTURES

Preparing for the tide: future of education in the 21st century

Pavel Luksha,
Director, Global Education Futures

Vision summary
June 2016





Global Education Futures: what is it



Global Education Futures is:

frontier perspective + collaborative vision building

by real leaders of global education (= thought leadership + international action)

The client of this project is we educational innovators ourselves



California, Moscow, Kazan, Berlin, Sao Paulo, Eindhoven, New Dehli, Johannesburg, Prague, Buenos Aires ...





Some of ca. 500 leaders that committed their time to our sessions...



Valerie Hannon,
Director, Innovation Unit
Leading UK agency for social & educational innovation. Coordinator of GELP, largest ed leadership training program involving 12 countries



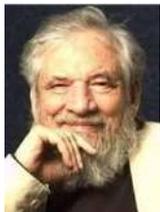
Dirk Van Damme,
Director, CERI OECD
OECD division responsible for research & support of educational innovations in OECD. Coordinators of PISA exam and OECD education foresights



Alexander Laszlo,
Chairman, ISSS Board of Trustees
Leading professional community of system thinkers that address global social, technological & environmental challenges



Simon Bartley,
President, World Skills International
Leading global organization promoting skills development & blue collar jobs through competitions, standardization & dialogue with business



Claudio Naranjo,
Founder, SAT Institute
World famous Gestalt psychologist and founder of psychedelic psychotherapy, originator of holistic education system



Ji Oh Song,
Executive Vice-President, Samsung Electronics
Samsung Electronics strategic development and Samsung Skills Institute coordination



Dilip Chenoy,
Managing Director, NSDC
Indian state corporation responsible for skill training of 150+ Mil Indians for 20 growing industries up till 2025



Kelvin Liu,
CEO, XuetangX
Chinese leading online platform for university level learning



How can we understand the future of education?

How will the world change in next 20 years?



How will this change affect our jobs and daily lives?



What skills & knowledge do we need to survive and prosper in the changing world?



How can these skills be acquired?

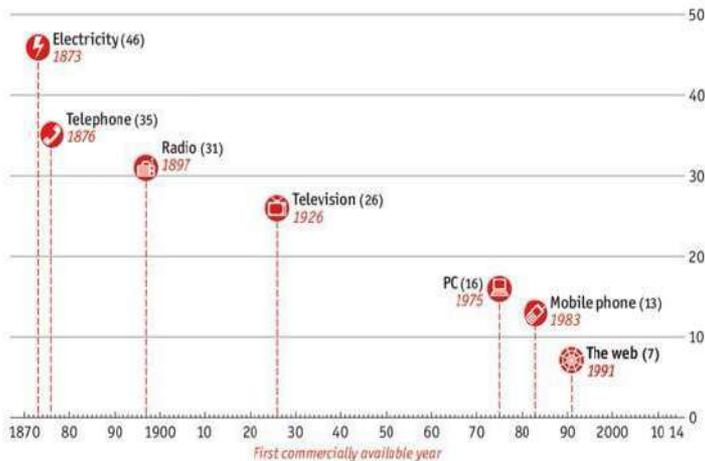


The world: acceleration of technological & social change

Increased speed of critical technology adoption

Technology adoption

Years until used by one-quarter of American population

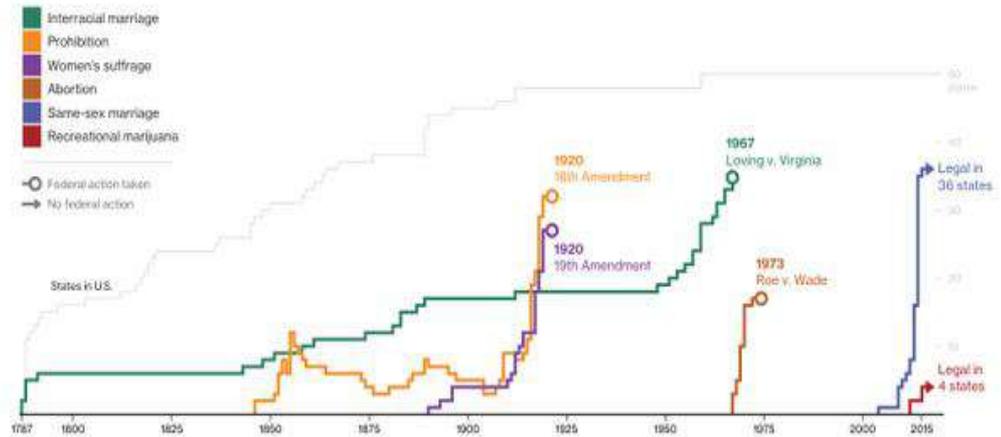


Source: Singularity.com
Economist.com/graphicdetail

Increased speed of new social norm adoption

Tracking the Pace of Social Change

Number of states that have removed a ban, by year
(Prohibition shows the number of states that enacted)





Key trend #1: Digitalization of Economy & Society

- **IT is everywhere:**
 - Data, more data
 - Everyone connected, everyone mobile
 - Intense use of AI / artificial agents (PA for everyone)
 - Hybrid reality (AR / VR) after 2020
 - Wide use of brain-machine communication (BCI) after 2030
- **Smart / adaptive human-centered technological environments:** smart homes & cities, home & street robotics, Internet of Things



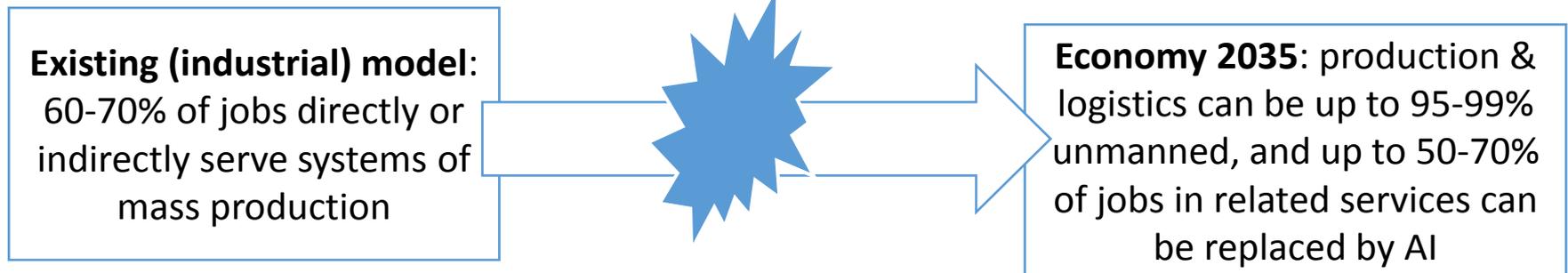
Major challenge of digitalization:

Balance between 'analogue' and 'digital' worlds: reducing negative impact on individual & collective mind (nociolasing, ADHD & beyond)



Key trend #2: Automation of Industrial World

Technologies of automation & autonomization (2015-30): robotics, Internet of Things, Big Data & Artificial Intelligence, autonomous energy generation & smart grids, unmanned transportation & logistics, designed bio ecosystems, etc.



Major challenge of automation / autonomization: high speed of displacement (less than one generation) that requires

- Creating new jobs, esp. self-employment & human-centered services
- Reducing effects of inequality created by new technologies
- New models of living: moving to sharing / coop economies



Key trend #3: Greening of Human Practices

- **High localization & customization** to achieve adaptability & efficient resource utilization:
 - 3D printing & similar manufacturing
 - Local food production
 - Local energy generation on demand
- **Green / renewable production, energy, transportation & services**
 - Sustainable energy, biofuels, biomaterials, ...
 - Cities as territories that re-create nature (artificial ecosystems)



Major challenge of greening:

- Greening of economy & society:
 - New R&D to reduce human impact on nature or to make it beneficial
 - Rebuilding of cities
- Transition to thrivable eco-civilization by changing thinking (ecology of mind) + personal & collective habits



Key trend #4: Rise of the net-centric society

- **‘Focus on what robots will not do’:** highly personalized services in wellness & healthcare, education, entertainment etc., provided with authentic serving ethics
- **Dynamic fluid social environments:** VUCA (hence everyone is entrepreneurial)
- **Removal of artificial boundaries:** ‘ludic’ communities that naturally blend working, living, and creativity
- Collective network-centered organizations that solve problems on local & global scale
- **New ‘finance’** to support new social relations through ‘reputation management’ (cryptocurrencies etc.)



Change of values & motivation
(‘beyond money’): human
attention, authenticity, wisdom,
care & compassion & love

Major challenge of social transformation: Increased complexity of society and accelerated change of technologies & social practices

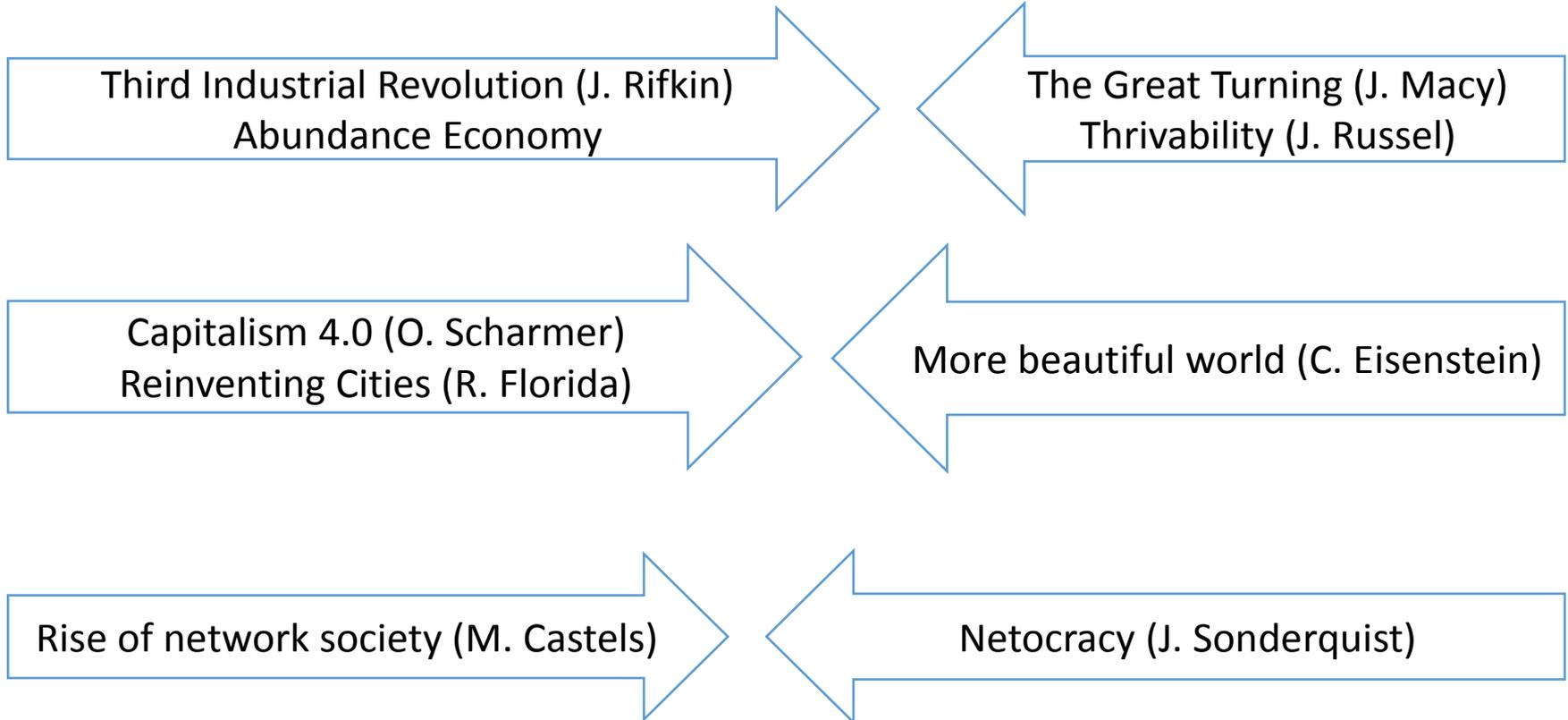
- What worked before may not work in the future (new practices / skills / professions)
- We need new systems of governance: collective intelligence + AI
- Complex but fragile: global security depends on grassroots resilience & peacemaking



Alteration of the old or rise of the new?

Transformation perspective

Emergence perspective



PRESENT

TRANSITION

FUTURE

(desirable, not guaranteed)



Future skills: what do 21 century economy & society want?

Skills of the future are needed not only for employability & successful career-building, but also for good citizenship and higher quality of personal life.

Management + knowledge work as complex problem solving with dynamic collective intelligence

Domain of support to **lifelong education** (that expands to include personal development, body & mind fitness, therapy etc.) becomes a new large economic sector with dozens of new types of jobs

Expanding domain of **'new service economy'**

focused on creating unique human experiences through

- personal connection (empathy / bonding)
- creativity

21 century literacies:

- attention management / mindfulness
- information hygiene
- programming (as task-setting)

Omnipresent
ICT

Robotics / IoT /
autonomous
energy / ...

New urban jobs created around

- green cities
- healthy cities
- distributed & connected cities

Design, coordination & maintenance of complex tech environments (ca.5% of jobs)



What is How: adaptation of education to future skill demand

The current educational model is flawed by design: it prepares people for skills of the past, not skills of the future!

- We cannot teach people to be creative by giving them standard tasks
- We cannot teach people to be collaborative by putting them in competition against each other
- We cannot teach people to be lifelong learners if we deprive them of self-exploration and courage to learn, if we blame them for mistakes
- We cannot teach people to be empathic / emotionally intelligent by removing emotion and focusing on cognitive abilities only
- We cannot teach people to use IT properly if we remove it from the school
- We cannot teach people to be mindful if we are not mindful



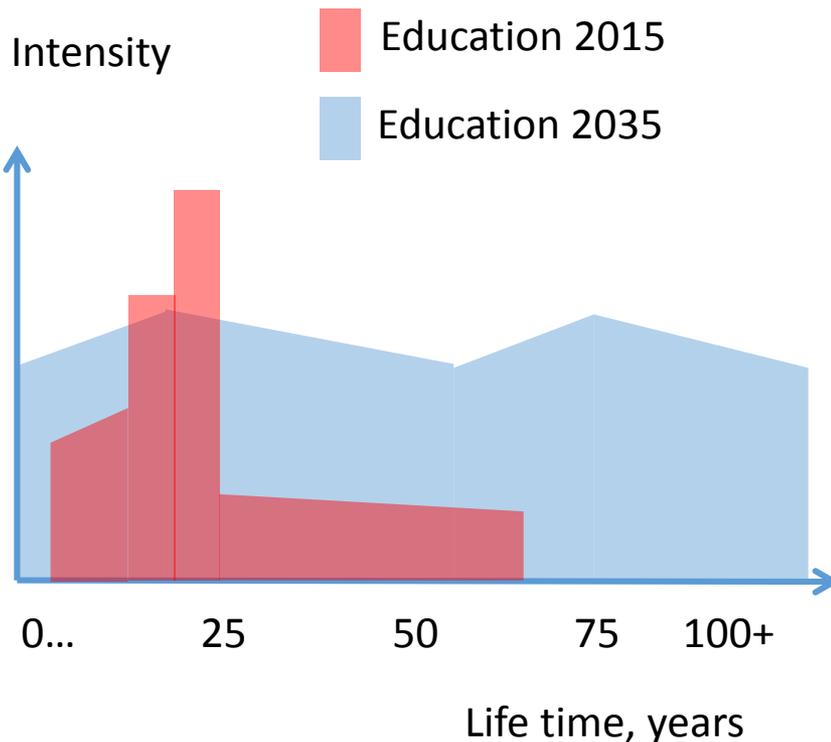
Educational processes and formats need to be redefined to enable the development of 21 century workers / citizens / humans



Transition to lifelong learning

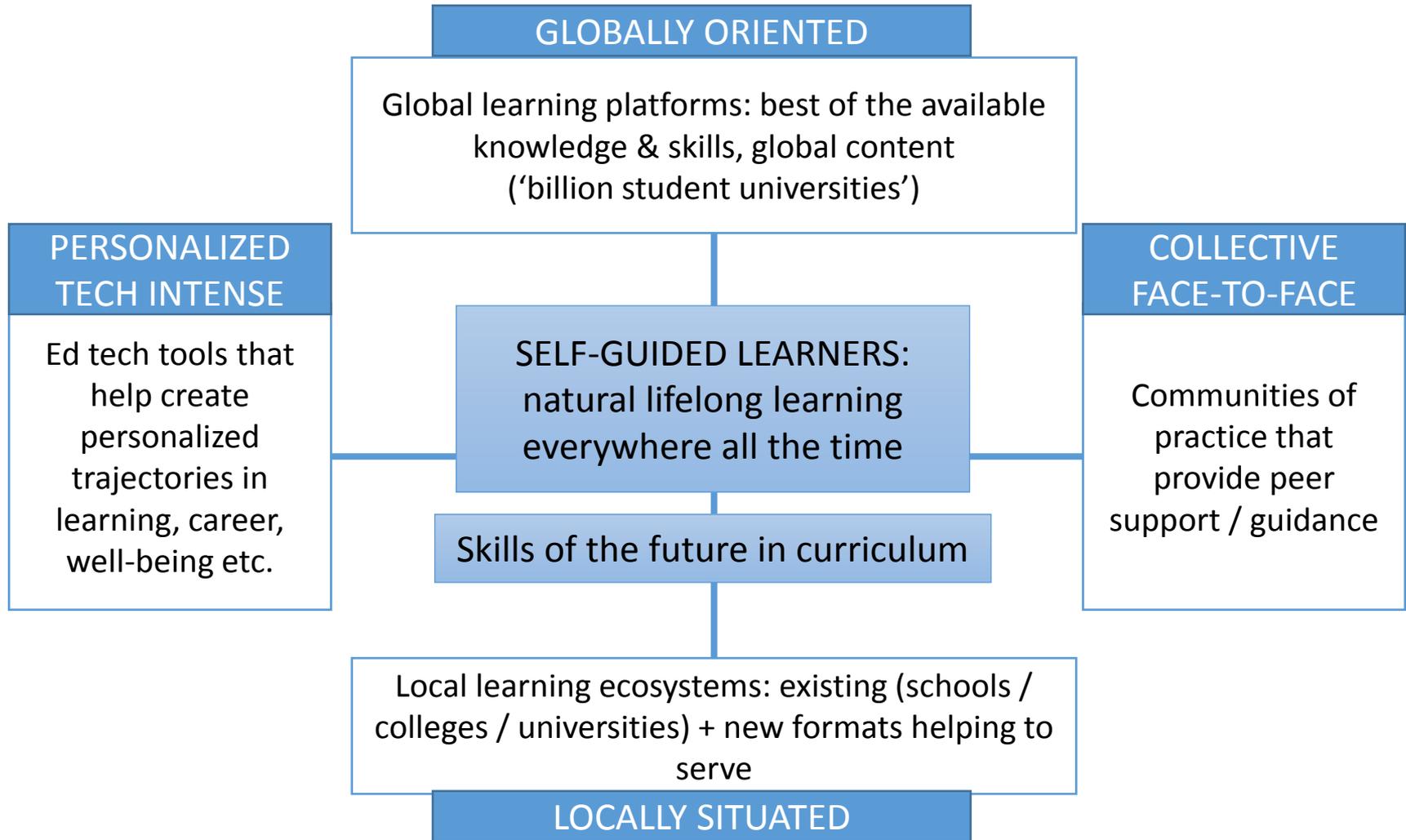
Key transformations:

- There is no way to prepare for life in the increasingly uncertain world
- (Thus) education is not about the start of life, it is about all of life
- Education is not about getting a professional skill, it is about living through your life
- Nobody can own or control your development & growth - but you. So you need to learn to become your own master, you need to learn how to learn
- If learning is a lifetime journey, then it is not about goals, it is about quality of the process. Enjoy the way





Big shifts ahead: learner-centered lifelong education





Age of global online learning platforms

- **They will be big:** EdX ambition is 1 BN students by 2020
- Some of them will be built by existing players (Facebook & LinkedIn among likely candidates)
- **New environments / interfaces:**
 - Mobile 24/7 (now)
 - This is not YouTube! (age of AR & AI-assisted scenario building in 10 years)
 - Integration with online gaming (WoW), urban behavior etc.
- **Digital pedagogy:**
 - Enabling personalized learning for everyone
 - Wearables to fine-tune for the state of body&mind
- **Adaptable:** building your own set of competencies for life
- Action-based global problem-solvers



lynda.com





Education spreading through our cities

- **Lifelong learning happens everywhere across cities** (not only in schools & universities): civic centers, fitness clubs, parks, city tours, ...
- **Communities** (united by territory, profession, hobby, style of life, ...) **become venues of learning** around shared interests & real-life problems (e.g. food, from growing to cooking & sharing, or environmental protection)
- **Instant formats** that use public spaces: 'Starbucks Agoras', spontaneous public art to connect people, ...
- **Families connection**, family re-integration, community health, peacemaking / mediation
- **City navigators** that connect people to learning opportunities
- **Augmented reality** will be able to convert any space into learning space

Okayama Kyoyama ESD Environment Project, Japan





Design of learning environments & skills of teachers

Learning environments & pedagogy principles

- Transition from competitive to collaborative learning processes
- Focus on self-development & self-guidance, collaborative design of learning process & content to be explored
- Personalized learning trajectory that combines
 - Learning in virtual environments (online courses, virtual reality lectures, social & AR simulators etc.)
 - Practice-based learning in real-life settings
 - Peer-based learning (face-to-face & online) with mentors & community
- Learning built around real-life problems & challenges rather than subjects
- Environment for physical exercises & interaction, emotional / artistic interaction etc.

Skills of teachers

- Blended pedagogy
- Collaborative & connected pedagogy, including peer-type instruction (collaborative exploration rather than 'schooling')
- Gamification of learning:
 - game-design
 - game-based teaching
 - in-game acting (teacher as NPC)
- Mentorship & coaching (based on learner's own goals)
- Entrepreneurship
- Research-driven pedagogy
- Project-based pedagogy
- 'Holistic' teaching that recognizes various needs of learner's mind & body
- 'Skills archive': practice of storying disappearing skills and retrieving them when necessary



Key areas of change in education: what regulators & administrators should do

Industrial / national / international qualification & competence systems:

getting ready for self-guided lifelong learning, incl. lifelong 'competence passports' / personal portfolios / unbundling of degrees etc.

Traditional education system (schools / TVET / higher education):

- rebuilding curriculum for 21 century skills (incl. collaborative not competitive design of education processes)
- opening to practical, socially embedded, sustainability-minded, cross-generational learning
 - learning is flipped
- teacher & learner(s) as partners
 - new teacher skillset

Online learning:

- take over routine elements of flipped school / university
- create opportunities for mobile 24/7 personalized learning
- integrate with game universes & social media & professional networks

Urban / community learning:

- integrate opportunities for lifelong learning & development (incl. family, personal crises etc.)
- urban learning innovation labs as social innovation labs + urban entrepreneurship hubs



Crossing the chasm: how to overcome institutional lock-in?



Current design:

- Hierarchical system of educational 'levels' largely controlled by national governments
- Focuses on socializing & professional skills during first 15-25 years of life
- Learning happens in specific locations in specific times only

Blockage: existing system design, although inefficient, is based on several *interdependent locked-in arrangements* (e.g. degree & certification system, teacher qualifications & job market arrangements, etc.) that has high 'reassembly' cost that no individual agent (not even government) is ready to pay

'Reassembled' design:

- Network-based dynamically evolving eco-system of multiple types of providers
- Supports lifelong learning
- Supports learning everywhere, all the time



Moving from machine to eco-system is a challenge that is not unique to education. In fact, it is the main challenge of civilizational transformation

	Industrial 'machine'	Network / ecosystem
ENERGY	Centralized energy generation + hierarchically structured distribution	EnergyNet = distributed generation + smart grids
TRANSPORTATION	Transport hubs serviced by transport fleets	TransportNet = self-organized transport nets dominated by UAVs
HEALTHCARE	Hierarchy of hospitals & agencies that statistically control population health	HealthNet = distributed digitalized personalized health control
EDUCATION	Hierarchy of educational institution that statistically control literacy & skills	EduNet = distributed digitalized personalized learning



Strategies for getting through the chasm

Building a bridge to the other side

- Provide complimentary services (e.g. teaching how to code & write games)
- Take over roles that are not taken by existing system (summer schools, startup accelerators, ...)
- Start building connections that integrate new learning trajectories



- Don't expect governments or business to tell you what to do – most often they anchor the past, not build the future. Be proactive in building your own part of the bridge

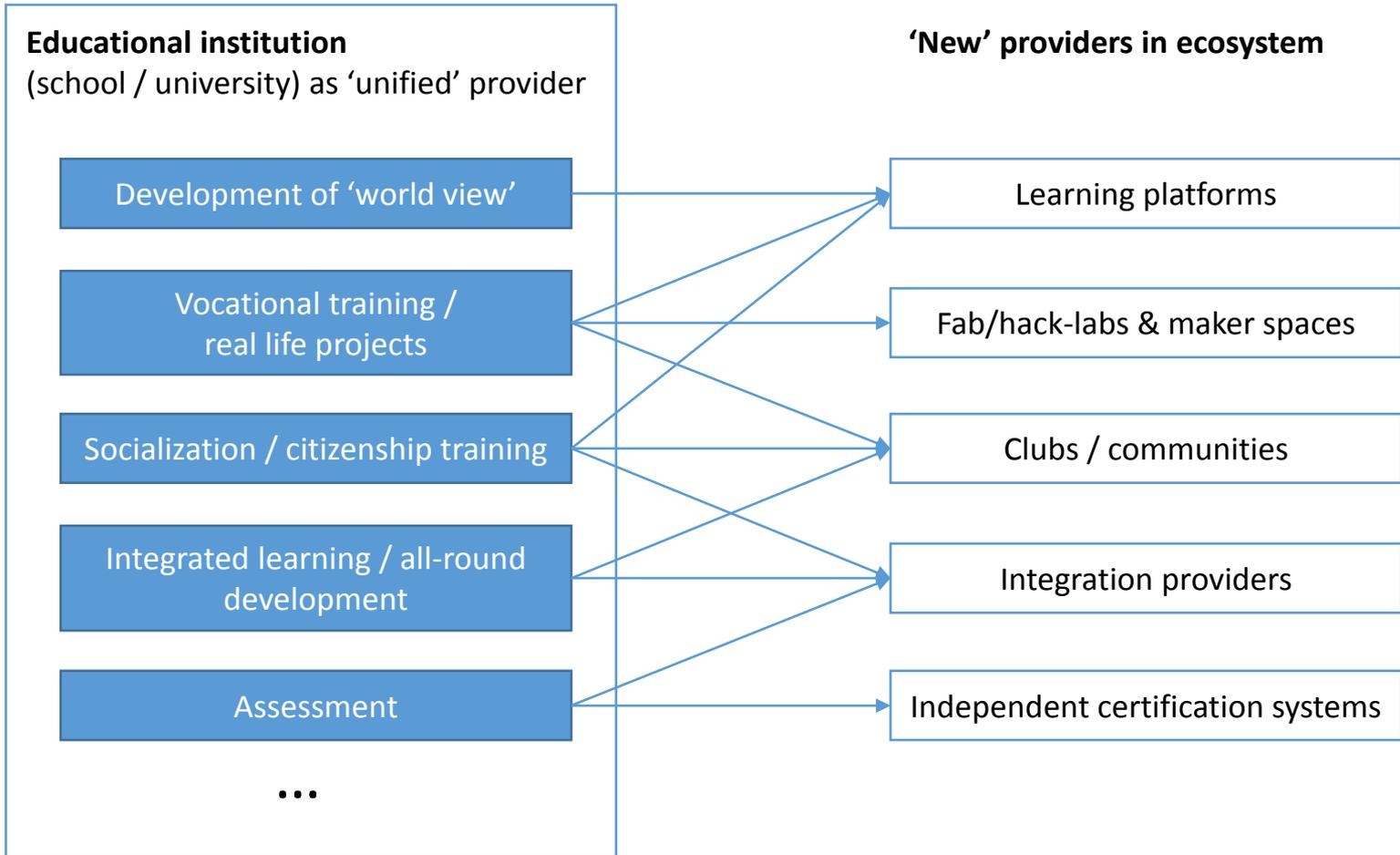
To get to the other side

- Bridge-builders: people that have vision of the future & can act accordingly
- Projects that 'anchor' new reality
- Ethics & rules of the future (!)
- Leveraging our local resources by making global connections (Internet is the key)



What are (some) key roles that ‘new’ education providers have to undertake?

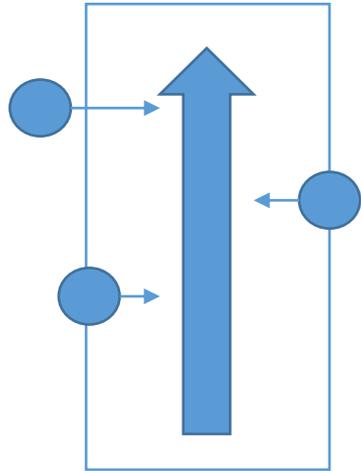
Functions of traditional ‘integrated’ educational providers can be ‘unbundled’ by networks of ‘new’ providers within learning ecosystems





How can 'beautiful exceptions' become 'new systemic norm': a possible scenario

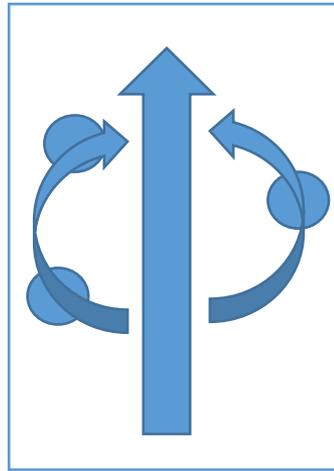
Stage 1: support to existing system
Up till 2010s



Educational system largely dominated by traditional institutions (schools / colleges / universities), while new providers focus on supporting services

Majority of ed tech companies that see schools & universities as their target market and work on specific improvements for existing educational processes: e.g. Blackboard, Promethean etc.

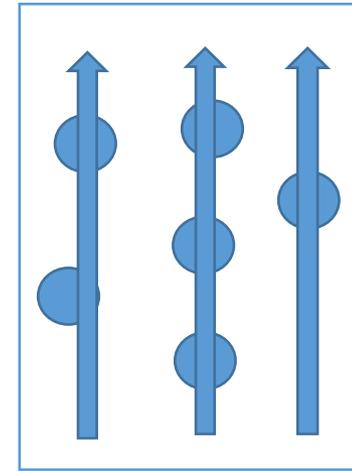
Stage 2: system expansion
2010s-2020s



New educational providers attempt to take over parts of the key educational processes in areas that are complimentary to existing schools / universities

Providers that seek to create additional skills / knowledge outside or adjacent to standard curriculum: e.g. EdModo, PresenceLearning, Lego Mindstorm clubs etc.

Stage 3: emergence of ecosystem
Late 2020s and onwards



New educational providers can support all-round process on par with existing educational system (and can provide new functionality such as personalized learning)

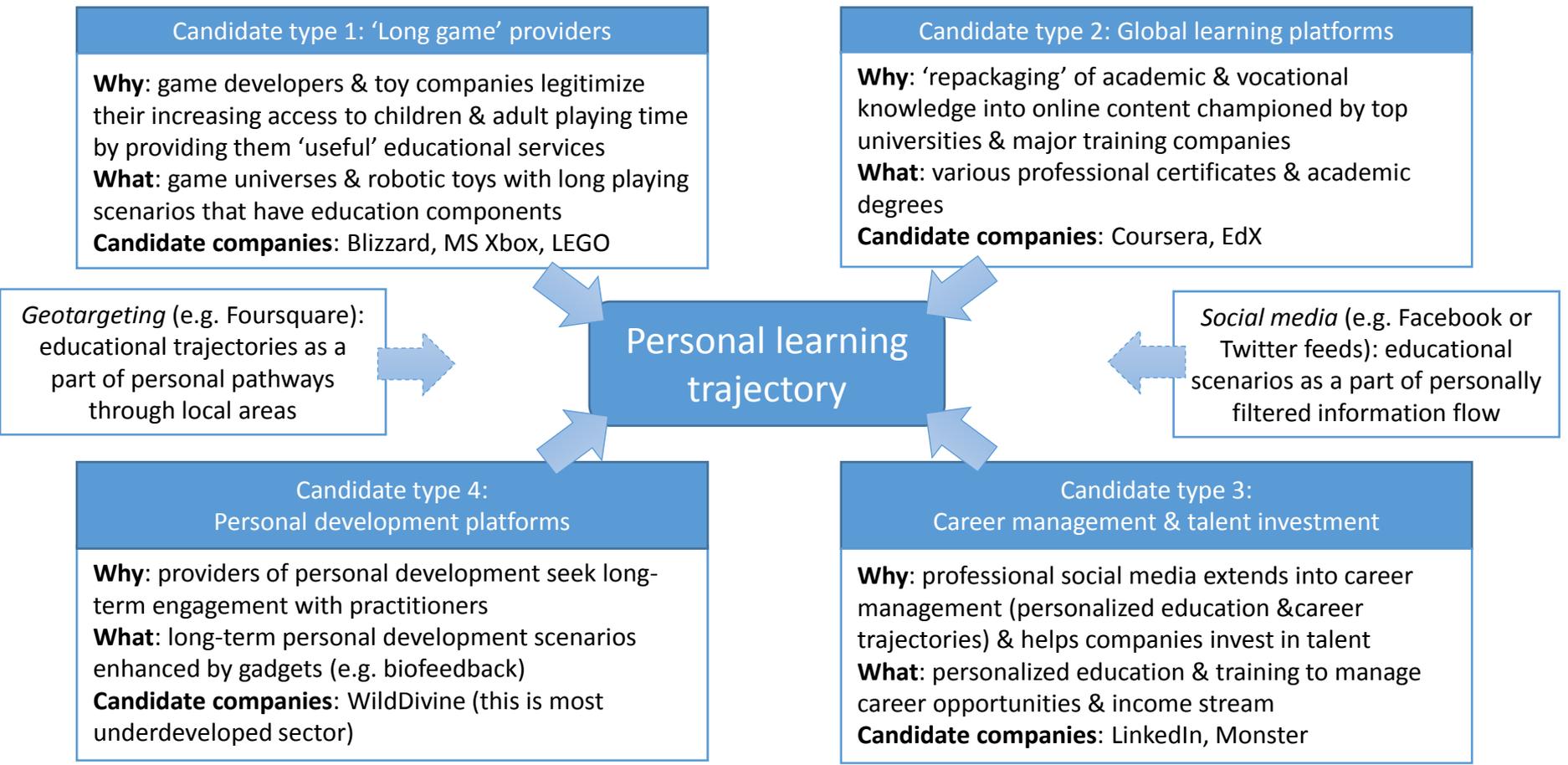
None of the existing players at the moment; multiple candidate technologies exist (global learning platforms such as Coursera and EdCast, etc.)

Source:
GEF
analysis



New integrators: who are the candidates?

In the new (network) economy, ecosystems are built around 'integrators' that serve as 'entry point' to end users (e.g. Google in searching, Facebook in social media, AppStore in smartphone applications, etc.). In 'new' education, such integrators must become long-term providers of personalized learning trajectories





The future of education: scratching the surface

“

We have only just begun the process of discovering and inventing the new organizational forms that will inhabit the 21st Century. We need the courage to let go of the old world, to relinquish most of what we have cherished, to abandon our interpretations about what does and doesn't work.

”

Margaret Wheatley



Last but not least: sense of urgency

Within next couple of decades, effects of technological, economic and social transformation may bring us into a series of painful crises

- Information swamping or/and artificial intelligence beyond our understanding
- Destruction of 60-70 % jobs in industries & industry-related sectors due to automation & artificial intelligence
- Destruction of sectors and national economies dependent on non-sustainable energy & materials
- Cumulative environmental problems (incl. climate change, industrial pollution and destruction of biodiversity) that render large territories uninhabitable: 'climate refugees', 'water wars', etc.
- Financial, political & military crises as a result of these massive transformations

The answer to these global challenges is **skills that workers / citizen / humans should acquire.**

The creation of new skills on mass-scale depends on **rebuilding, upgrading and expanding our local, national and global educational eco-systems.**

We only have years, not decades, to start the transformation.

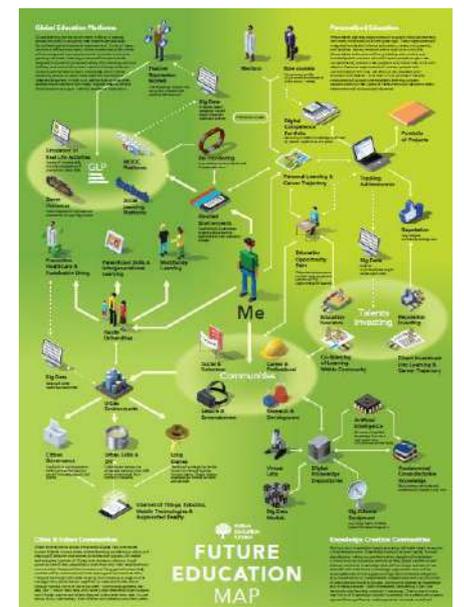
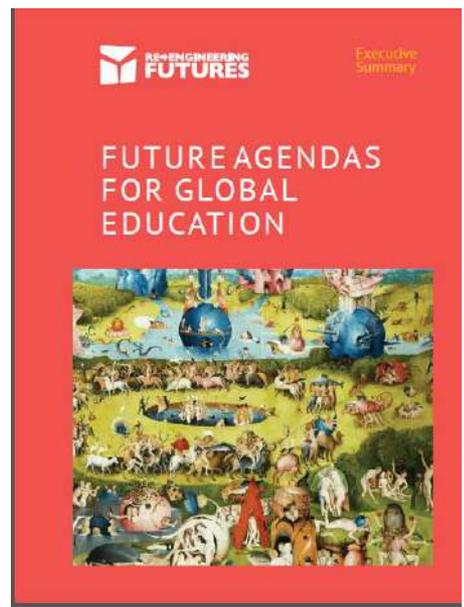
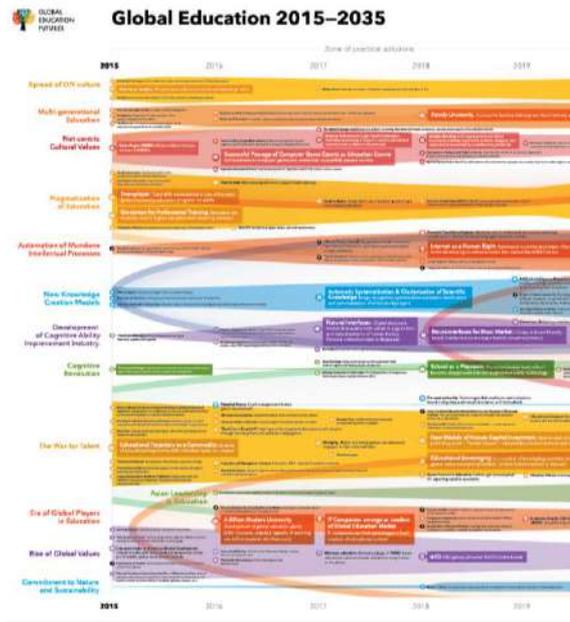


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Map of Global Education 2035

Future Agendas for Global Education report

GEF Infographics



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