Coping with Global (Evolutionary) Crisis of 21st century through Education & New Culture

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Our work in “future-making”

Skills Foresight 2030 & Atlas of Emerging Jobs:
vision of future of jobs from ca. 30 economic sectors, largest international compendium of “jobs of tomorrow”, projects in Russia, South Africa, Argentina, Armenia, Vietnam, Tunisia, Tanzania, etc.

Global Education Futures & Protopia Labs:
since 2014, a global vision building initiative that involved over 500 top world educational experts from over 50 countries, converted into a global movement of educational innovators & changemakers in 2016, focused on rebuilding education for the new society (based on Thrivability principles). This work is based on earlier Education Foresight 2035 that runs since 2008

Foresight Fleet: world-largest ship-based “travelling” learning lab developing future awareness, exploring collective futures and making them real, running since 2012

Vision-driven growth of economic “sectors of tomorrow” (e.g. NeuroNet: solutions based around brain-computer communication networks) and future of cities
Part 1: Evolutionary Crisis in Megahistory Perspective
Space-view perspective on human history & future
For the major part of human history, we were not (too) different from other species on the planet.

- **Tool use**
- **Animal husbandry / agriculture**
- **Complex diversified societies**
- **Artistic creativity**
Humans exist on this planet for 2.5 million years.

Where things really begin to change:
- Industrial age
- Modern school
- Internet age

1. **Behaviorally Modern Humans** (60,000 BC - Present)
   - Humans Migrate Out of Africa for the First Time
   - Humans widely considered to have language by this point (50,000 BC)
   - First humans migrate over the Bering land bridge into the Americas (the debate over when this first happened ranges from 40,000 – 15,000 BC)
   - Humans First Cultivate Wheat (9,000 BC)

2. **Recorded History** (3,500 BC - Present)
   - Earliest Evidence of Writing; Oldest Wheeled Vehicle Found
   - Bronze Age (3200 – 1200 BC)
   - Ancient Egyptian Civilization (3150 – 30 BC)
   - Roman Empire (27 BC – 470 AD)
   - Middle Ages (400 – 1500)
   - The great Pyramid of Giza (2500 BC)
   - The beginning of writing around 3,500 BC marks the beginning of us knowing anything about what went on in history.
Anthropocene: human impact visible on the planet

Great Oxygenation Event
(2.3 Bn years ago)
Planetary connectivity of the species

<table>
<thead>
<tr>
<th>World Population</th>
<th>Connected Devices</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.3 Billion</td>
<td>500 Million</td>
</tr>
<tr>
<td>6.8 Billion</td>
<td>12.5 Billion</td>
</tr>
<tr>
<td>7.2 Billion</td>
<td>25 Billion</td>
</tr>
<tr>
<td>7.6 Billion</td>
<td>50 Billion</td>
</tr>
</tbody>
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- More connected devices than people
- 2003: 0.08
- 2010: 1.84
- 2015: 3.47
- 2020: 6.58
Self-augmentation / self-guided evolution of the species

Brain-computer-network interfaces: augmented mind

Genome-editing (incl. CRISPR): augmented body
Self-guided evolution of technosphere
Yes, all of this impacts ourselves: major rebuilding of our society due to massive job destruction

<table>
<thead>
<tr>
<th>Rank*</th>
<th>Job title</th>
<th>Automation Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Telephone salesperson</td>
<td>99.0%</td>
</tr>
<tr>
<td>2</td>
<td>Typist or related keyboard worker</td>
<td>98.5%</td>
</tr>
<tr>
<td>3</td>
<td>Legal secretary</td>
<td>97.6%</td>
</tr>
<tr>
<td>4</td>
<td>Financial accounts manager</td>
<td>97.6%</td>
</tr>
<tr>
<td>5</td>
<td>Weigher, grader or sorter</td>
<td>97.6%</td>
</tr>
<tr>
<td>5</td>
<td>Routine inspector and tester</td>
<td>97.6%</td>
</tr>
<tr>
<td>7</td>
<td>Sales administrator</td>
<td>97.2%</td>
</tr>
<tr>
<td>8</td>
<td>Book-keeper, payroll manager or wages clerk</td>
<td>97.0%</td>
</tr>
<tr>
<td>8</td>
<td>Finance officer</td>
<td>97.0%</td>
</tr>
</tbody>
</table>

“Over 2 billion jobs (roughly 50% of all jobs on the planet) will disappear by 2030” (Frey, Osborn, 2013)
Yes, all of this impacts ourselves: growing polarities, growing risks.
Why are we so poor with cumulative crises: accelerated growth of complexity

Acceleration of change is accompanied by growing complexity of technological and social processes that produces new yet unresolved problems. A dominant share of these “problems” faced by the humanity is created by choices earlier made by humans themselves – from traffic jams and industrial pollution, to financial, political, and environmental crises.

Growing complexity of industrial manufacturing to be solved by advanced (automated) engineering systems.

Growing complexity of mega-city traffic system to be solved by advanced (automated) systems of traffic monitoring & coordination.
Several researchers independently concluded that the humanity since its birth has been constantly passing through systemic crises and responded to these crises with systemic innovations that transformed its way of living ("phase transitions"). The time span between crises has been decreasing with growth of society, and we are now experiencing the exponential acceleration of crises rate, rapidly moving into the world of "permanent revolution".
Self-organized criticality

We may have reduced the external existential pressures for our species, but we have immersed ourselves in the cycle of self-organized crises through a positive feedback loop.

- External problems
  - (increased complexity of) hard & soft technologies
  - +
  - internal problems
    - +
Five top challenges of the 21st century (ranked by the level of existential risk)

1. Preventing violent conflicts using WMDs (nuclear, nano, cyber etc.), especially those that can be used by smaller groups, capable of sufficiently damaging or destroying the majority of population & vital infrastructure of the world society
2. Maintaining control over increasingly complex technological environment (IT and IoT, energy generation, new materials, biotech, neural technologies, etc.)
3. Overcoming negative effects of technological development, including environmental, social, and psychological problems
4. Overcoming risk of complexity collapsing due to stagnation: reserving momentum of socio-economic development by maintaining motivation and competences of the population
5. Addressing issues of civilization’s long-term sustainable coexistence with Nature

Sources: Moscow Technological Ethics Group, Institute of Ethics of Emerging Technologies
Socio-technical balance: the sandwich of technologies

Technologies of ‘extraction’ from nature

Technologies of material production

Communication & Transport Infrastructure

Institutes / Norms / Rules / Soft tech

Psycho-technologies (including spirituality & religion)

Logistics / Economics

Higher (soft) technologies (coordination & control)

Lower (hard) technologies (resource provision)

CONTROL

ENABLING / SUPPORT
Sandwich of technologies: comparative rate of transformation

- Psycho-technologies (including spirituality & religion)
- Institutes / Norms / Rules / Soft tech
- Logistics / Economics
- Communication & Transport Infrastructure
- Technologies of material production
- Technologies of ‘extraction’ from nature

Higher (soft) technologies (coordination & control)

Lower (hard) technologies (resource provision)

Comparative rate of transformation:
- SLOW
- MEDIUM
- HIGH
Rate of transformation implies...

Our civilization has been very efficient at coping with world’s problems through technologies.

But it is very bad at keeping the pace with its own solutions (Sorcerer’s Apprentice?)

The main threat (and the main challenge) lies with the organization of our individual & collective minds.

The frontier of evolution of the humanity is thus the self-guided evolution of consciousness.
Coping with growing complexity?

“Silicon Valley solution”: technologies that may solve our problems, even if not massively supported by people. The “big idea” is to achieve the breakthrough for a small group of technological elites that will become super-humanity (transhumans).

Techno-socio-sphere: an answer & a source of challenges

Self-improving Artificial Intelligence to manage the constantly increasing complexity

Improving collective understanding & collaboration capacity of human groups through new modes of (collective) consciousness

“Thrivability” or “Wisdom-Based Society”: shifting to “horizontal”, net-centric world “working for 100% of humanity... without ecological damage or disadvantage of anyone” (B. Fuller), implies involving everyone and all in a “revolution of consciousness”. Technological advancement is necessary but secondary to the development of individual and collective human potential.
What world scenario are we living into?

Two key questions define the choice of global scenarios

Question #1: Will we be able to deal with increasingly complex & volatile global society?

Mosaic world (unequal development with increasing instability that leads to either collapse or breakthrough)

Singularity (AI to solve it all, but not for all)

Question #2: Can we make the world work for 100% of population and acting to the benefit of our planet?

Thrivable / Wisdom Based Society

Dark Ages or Death of Humanity (collapse of complex civilization due to internal fragility & existential risks)

Timeline

2017-2030s

2030s - mid 21\textsuperscript{st} cent.
“Tuning into the Thrivability”

Shifting towards the scenario of “Thrivable Society” requires the coherence of several action vectors: changing model of production, managerial paradigm, relationship with natural environment, habits of living, and (most fundamentally) the ethics and the worldview that will enable all of the above. An impossible task? But humanity has already accomplished such tasks several times in the past!
“Tuning into the Thrivability”: technologies that establish foundation for the transition

Humanity needs to move towards a “package” of new technologies that will allow to create environments for mass scale (all-human) cooperation, will reduce the pressure of civilization on Nature, and will provide autonomization and gradual re-biologization of technosphere.

- **“New” IT**: clouds, AI, NeuroNet
- **Connectivity and interfaces**
- **Robotics for work, transport, city, home**
- **Energy**: autonomous / renewable + smart grid
- **New materials / 3D printing revolution**
- **Biotech and ecosystem design (new agro industry, medicine, city environments, etc.)**
- **Healthcare**: digital, personalization, prevention
“Tuning into the Thrivability”: shift of social & psychological practices

But at the same time we need to embrace some of the emerging social and psychological practices that will make us more adaptive to new challenges and will provide opportunities for happy and fulfilled life in a world of increasing complexity.

- Net-centric coordination structures and collective management of uncertainty
- Omni-present leadership & entrepreneurship (business, social, cultural, institutional)
- Post-finance that captures “human values”
- Change of family models: reintegration on the new grounds
- Intertwining of life, work, play, and development
- Lean & green, re-use, eco-cities
- Mindfulness and authenticity practices
- New practices of conflict mediation and peacemaking
# Ethics of 21st century: values that guide us through global evolutionary crisis

<table>
<thead>
<tr>
<th>Evolutionary risk</th>
<th>Values that help overcome it</th>
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| Loss of collective control over dangerous technologies, incl. violent conflicts & slow processes that may destroy the humankind & biosphere | • Life preservation & life creation  
• Golden Rule of Ethics for communities  
• Technological asceticism: withdrawal from exploration of technological lines that have high potential of destroying life |
| Stagnation that leads to degradation of complex society                             | • Experiment & innovation  
• Trust & collaboration  
• Embracing complexity                                                                 |
| Loss of diversity that leads to long-term lack of resilience                       | • Embracing diversity & other-ness  
• Horizontal / net-centric communications & coordination structures  
• Creating feedback loops                                                             |
Part 2: New Role of Education
On our way to Thrivable society

Industrial Society

20th century

(Post) Informational Thrivable / Wisdom-Based Society

mid-21st century

(Ultra) complexity
Strategic uncertainty
Finding new balance with Technosphere
Creating eco-friendly (eco-centered?) society
Human-centered society
On our way to Thrivable society

Industrial Society  
20th century
(Ultra) complexity  
Strategic uncertainty  
New balance with Technosphere  
Creating eco-friendly society  
Human-centered society

Key metaphor: machine  
Key competence: engineer

Thrivable Society  
mid-21st century
Key metaphor: forest, or garden  
Key competence: gardener  
or ecosystem creator
On our way to new human being: “complex”, or “organic”, person

**Industrial Society**

- **20th century**
- Key metaphor: **machine**
- Key competence: **engineer**

**“Modular person”**
(“assembled” according to the standard specification using knowledge & skill modules)

**Thrivable Society**

- **mid-21st century**
- Key metaphor: **forest**, or **garden**
- Key competence: **gardener**
  or **ecosystem creator**

**“Complex person”**
(nurtured as a unique personality with an unique development path)
New skills for new human being: coping with complexity + empathy / living ethics

- Various types of intelligence (e.g. Gardner’s types) – creativity in all of them!
- Cooperative mindset
- “Organic” attitude & ecological mindset (Bateson) – including opportunity oriented thinking
- Growth mindset (Dweck) & meta-cognition (learning how to learn)
- Physical & psychological self-regulation, ability to stay healthy
- Living “ethical core”
The current educational model is flawed by design: it prepares people for the past, not for 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 if we remove emotions, in particular positive ones of joy, love & happiness, and focusing on cognitive abilities only
- We cannot teach people to be growth-oriented if we are afraid of change

Educational processes and formats need to be redefined to enable the development of 21 century workers / citizens / humans
Totality of education as condition for Transition

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
Glocal ecosystem of human centered lifelong learning

Global educational ecosystem
Online platforms provide education across many ecosystems

Personal & collective needs within learning lifecycle

Local educational ecosystem
Existing institutions
Integration tools

Required (future) institution
Learning journeys of individuals & communities

- Collective goal-setting
  - EdTech that enhances collective learning
  - Collective learning journey (holistic learning experiences)
  - Collective learning outcomes
  - Indicators of the quality of individual / collective process

- Personal goal-setting
  - EdTech that enhances personal learning
  - Personal learning journey (holistic learning experiences)
  - Personal learning outcomes

- Learner’s motivation / style of learning
  - EdTech / online learning spaces that connect personal learning journeys with challenges / goals of the community

- EdTech that enhances collective learning
- EdTech that enhances personal learning
Shift towards learner-centered lifelong education

- **GLOBALLY ORIENTED**
  - Global learning platforms: best of the available knowledge & skills, global content (‘billion student universities’)

- **PERSONALIZED**
  - Ed tech tools that help create personalized trajectories in learning, career, well-being etc.

- **COLLECTIVE**
  - Communities of practice that provide peer support / guidance

- **TECH INTENSE**
  - SELF-GUIDED LEARNERS & LEARNING COMMUNITIES:
    - natural lifelong learning everywhere all the time

- **FACE-TO-FACE**
  - Skills of the future in curriculum

- **LOCALLY SITUATED**
  - Local learning ecosystems: existing (schools / colleges / universities) + new formats helping to serve learner needs

Source: Global Education Futures
New role of schools & universities as “community of communities”

- Competence-based education (modular programs, skill not degree)
- Integration hub of educational ecosystem for lifelong learning (blended, rebundled)
- Great diversity of learner types (incl. multiple ages) with variety of life experiences
- Personalization (focused on lifelong career building)
- “Opening up” to the society: hub of technological & socio-cultural innovations
- Team-based education (project & play-based learning)
- Passion-driven education
- Incubation of future sectoral ecosystems / networks / platforms
- Transforming society

Community of Communities of Practice
Cultural Educational Hubs for urban community based lifelong learning

“Core” of community: collective learning & constant renewal of collective vision & purpose

- Family life (children-elders)
- Art / cultural expression
- Economy / entrepreneurship
- Leadership / personal development
- Spirituality
- Physical / emotional health
- Food systems
- Ecology

Artistic & ecological projects that improve urban environment

Innovations & new ventures

Interested citizens of all generations

[Diagram showing the interconnection of various aspects such as family life, art, ecology, etc., and how they contribute to the core of community learning and renewal.]
Last but not least: moving as a network of networks

A community of Protopia Labs = hierarchy-free groups within collaborative spaces that (1) experiment with new education practices, (2) create and maintain their vision, (3) identify new “transformational leaders” that can create elements of new education, and (4) help scale up promising projects. The Community of Communities serves as a vehicle for exchange of best practices and a convention to maintain the coherence of visions.
Last but not least: our task is massive

Global Education Futures is one of the founding partners of Global Change Leaders Collaborative, a network of transformational leaders that aim to change global model of education at scale.

- 100 Educational ecosystems
- 1,000 Transformational leaders
- 10,000 Systemic innovators
- 100,000 Teachers with “new paradigm”
- 100,000,000 Young people involved
- 1,000,000,000 Young people whose life is affected
“You never change things by fighting the existing reality. To change something, build a new model that makes the existing model obsolete.”

- Buckminster Fuller