Strategic Foresight for the Post-2015 Development Agenda

Dr. Ozcan Saritas
Professor of Innovation and Business, National Research University, Higher School of Economics, Moscow
Senior Research Fellow, Manchester Institute of Innovation Research, University of Manchester, UK
Editor-in-chief, Foresight: The journal of futures, strategic thinking and policy

osaritas@hse.ru
Some ‘drivers of change’

- Printing, gunpowder and the compass have changed the whole face and state of things throughout the world... (Francis Bacon, 1620).
- Improvements in machinery go hand in hand with the division of labor, and very pretty machines ... facilitate and quicken production... (Adam Smith, 1776).
- The bourgeoisie cannot exist without constantly revolutionizing the means of production! (Karl Marx, 1848).
- Knowledge is the chief engine of progress in the economy (Alfred Marshall, 1897).
- The entrepreneur and his search for new combinations is the driving force in all economic development... (Joseph Schumpeter, 1911).
- Science and basic research are incredibly powerful sources of future economic and societal development... (Vannevar Bush, 1945).
The existence of human on the earth surface: The act of anticipation as an unavoidable human characteristic

1950s: The principles of trend extrapolation and social indicators, and the methods of expert analysis (e.g. Delphi & cross-impact). First computer simulations become well-known

‘60s: Narrowly focused technology-oriented forecasting activities – the probabilistic assessment of what is likely to happen in the future

‘70s: Change in the understanding of forecasting due to increasing complexity and uncertainty of societies and economies (e.g. unpredicted oil shocks in the ‘70s)

‘80s: Multiple futures thinking, participatory activities, where both processes (i.e. networks, tacit outcomes) and products (i.e. codified outputs) were given emphasis
Foresight - ’90s

• Foresight for **S&T policy making** by government, industry and other organisations

• The key elements of Foresight in the 1990s:
  – S&T is central focus
  – Systematic process
  – Longer timeframe than in existing S&T planning
  – S&T in relation to economic and social developments

• “Foresight is the process involved in systematically attempting to look into the longer term future of science, technology, the economy, and society with the aim of identifying areas of strategic research and the emerging new technologies likely to yield the greatest economic and social benefits” (Martin, 1995).
Change in the S&T dominated appearance with increasing concerns on social aspects due to:

- **The increasing importance of innovation** (both technological and organisational)

- **The development of service economies.** Considerable portions of economic activity, employment and output have started taking place in service sectors of the economy

- **Other developments** including globalisation, changes in demographic structures and in cultural practices, and environmental affairs

- **Recognition of the close relationship between S&T and society**
Foresight

• “the application of
  – ‘systematic’,
  – ‘participatory’,
  – ‘future-intelligence-gathering and medium-to-long-term vision building process’ to
  – ‘informing present-day decisions and mobilising joint actions’”
Policy problems and how Foresight might help

- Disconnection of STI from socio-economic problems
  - Links STI to wider issues signalling its relevance
- Lack of funding for STI
  - Creative and disturbing encouraging innovation
- System linkages failures
- Low industrial STI intensity
- Disconnection of science from innovation
  - Discursive enabling strategic conversations
- Brain drain
- Weak STI planning capabilities
  - Builds consensus increasing likelihood of implementation
- Short-term thinking
  - Forward-looking building future-proofing and agility
- Little interdisciplinarity
  - Participative bringing in new perspectives
- Implementation failures
  - Transparent structured process providing legitimate priorities
- Disconnection of science from innovation
  - Builds consensus increasing likelihood of implementation
  - Creative and disturbing encouraging innovation
  - Participative bringing in new perspectives
  - Transparent structured process providing legitimate priorities
<table>
<thead>
<tr>
<th>Region</th>
<th>Cases Mapped</th>
</tr>
</thead>
<tbody>
<tr>
<td>International</td>
<td>58</td>
</tr>
<tr>
<td>Europe</td>
<td>621</td>
</tr>
<tr>
<td>Latin America</td>
<td>105</td>
</tr>
<tr>
<td>North America</td>
<td>95</td>
</tr>
<tr>
<td>Asia</td>
<td>78</td>
</tr>
<tr>
<td>Oceania</td>
<td>13</td>
</tr>
</tbody>
</table>

### Policy Recommendations
- International: 145
- Europe: 83
- Latin America: 0
- North America: 0
- Asia: 0
- Oceania: 0

### Analysis of Trends and Drivers
- International: 153
- Europe: 87
- Latin America: 1
- North America: 1
- Asia: 1
- Oceania: 1

### Scenarios
- International: 15
- Europe: 8
- Latin America: 1
- North America: 1
- Asia: 1
- Oceania: 1

### Research and Other Priorities
- International: 15
- Europe: 8
- Latin America: 1
- North America: 1
- Asia: 1
- Oceania: 1

### Lists of Key Technologies
- International: 15
- Europe: 8
- Latin America: 1
- North America: 1
- Asia: 1
- Oceania: 1

### Forecasts
- International: 15
- Europe: 8
- Latin America: 1
- North America: 1
- Asia: 1
- Oceania: 1

### Technology Roadmaps
- International: 15
- Europe: 8
- Latin America: 1
- North America: 1
- Asia: 1
- Oceania: 1

### Others
- International: 15
- Europe: 8
- Latin America: 1
- North America: 1
- Asia: 1
- Oceania: 1
Foresight process

1. **Intelligence**: Creates shared understanding and mutual appreciation of issues by scanning
2. **Imagination**: The input from scanning is synthesised into conceptual models of alternative futures
3. **Integration**: Analyses the alternative models of the future and ‘prioritises’ them
4. **Interpretation**: Translates future visions into long-, medium-, and short-term actions for a successful change programme
5. **Intervention**: Creates plans to inform present day decisions for immediate change to provide structural and behavioural transformations
6. **Impact**: Evaluates the results and impacts of Foresight exercise, learns from experience and provides input for next round
7. **Interaction**: Mutual learning and collective visioning through intensive negotiations among system actors and stakeholders
# Foresight methods

<table>
<thead>
<tr>
<th>Phases</th>
<th>Intelligence</th>
<th>Imagination</th>
<th>Integration</th>
<th>Interpretation</th>
<th>Intervention</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functions</td>
<td>Scoping / surveying</td>
<td>Creative phase</td>
<td>Ordering phase</td>
<td>Strategy phase</td>
<td>Action phase</td>
<td>Evaluation phase</td>
</tr>
<tr>
<td>Activities</td>
<td>Survey, scan, evidence</td>
<td>Concept model, visions, scenarios</td>
<td>Priorities, analysis, negotiations</td>
<td>Agendas, strategies</td>
<td>Plans, policies, actions</td>
<td>Review, revision, renewal</td>
</tr>
</tbody>
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## Divergent Methods (more open, creative)

- **Horizon scanning**
- **Scenario stories / images**
- **Delphi**
- **Roadmapping**
- **Critical / key technologies**

## Convergent methods (more specific, quantitative)

- **Knowledge / research map**
- **Visioning**
- **Success scenarios**
- **Multi-criteria analysis**
- **Cross-impact analysis**
- **Risk assessment**
- **Logic framework**
- **Cost-benefit analysis**
- **Linear programming**
- **Priority lists**
- **Bibliometric analysis**

## Interaction

- Panels, workshops, conferences, training courses, dissemination, awareness raising, surveys, interviews
Systemic Foresight

What is feasible?
Technology & Economics

What is possible?
Science & Ecology

What is desirable?
Socioeconomics, Politics & Values
Thank you for your attention!

“Designing scientifically possible, technologically feasible & socially desirable futures”

Osaritas@hse.ru