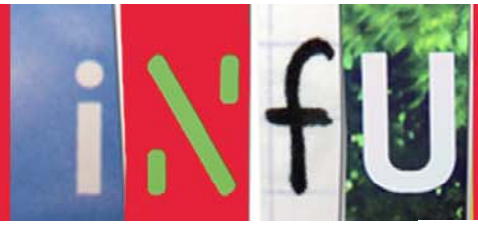
innovation-futures.org

A Foresight Exercise on Emerging Patterns of Innovation

Visions, Scenarios and implications for Policy and Practice



SEVENTH FRAMEWORK PROGRAMME

Innovation Futures: How emerging innovation patterns change the European innovation landscape

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SDS STRATEGIC DESIGN SCENARIOS

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How will innovation be organised in the future?

- We are interested in the question how the process of the creation, development and introduction of innovation is changing …
- A innovation pattern is the underlying principle how the innovation process is organised
- With “new innovation patterns” we mean novel emerging concepts, ideas and strategies how innovation is organised but also well-known trends, which are of importance in specific industries or areas but may have a larger impact or potential for other areas in the future. In that sense, specific concepts and strategies may be “new” for specific industries.
- We deal also with social innovation and public sector innovations…

Project approach

- Scanning of weak signals for changing innovation patterns with a potentially disruptive impact for European S&T in the long run
- Systematic exploration of relevant and plausible future innovation landscapes through participative scenario building
- Assessment of scenario implications for:
  - key policy goals such as sustainability and quality of life
  - nature and content of academic and industrial research and technology development
- Deriving strategic options and guidelines for European research policy and relevant multipliers

Overview of the innovation literature

- Open Innovation (Chesbrough)
- User Innovation (von Hippel)
- Virtual Customer Methods (Dahan and Hauser)
- Innovation communities
- Commons-based Peer-Production (Benkler, Herstatt and Raasch)
- Crowdsourcing (Howe, Brabham)
- Personal Fabrication (Gershenfeld)
- Soft Innovation and Design Innovation (NESTA, Stoneman, Verganti)
- User Created Content (OECD)
- Value innovation (Kim and Malbourgne)
- Eco-Innovation Models (Stahel, Braungarth, Lovins)
- Service Innovation Patterns
- State-driven Innovation
- Innovation in the Public Sector (Windrum and Koch)
- Social Innovation

Weak signal scanning

- Idea Generation / Fuzzy Front End
- Innovation Culture
- Customer / User Integration
- Crowdsourcing
- Closing Innovation
- Innovation Policy
- Public Innovation
- Social Innovation
- Open Design / Open Objects
- Global Knowledge Sharing
- Attitude Towards / Awareness of Innovation
- Non – Western Innovation / Shift in Innovation Gravity
- Lifecycle Thinking in Innovation

Characterising Innovation: different dimensions…

- Innovation initiative: demand-driven or supply driven
- Innovation's relation to production: separated or integrated with manufacturing
- Innovation involvement: Who is involved?
- Innovation intensity: Pace of innovation
- Innovation skills: specialised or distributed
- Innovation openness: within or outside the firm
- Innovation continuity: permanent or occasional
- Innovation tangibility: tangible or intangible outputs
- Innovation accessibility: public or private goods
- Innovation motivation: economic or mission
- Innovation idea generation mode: random or controlled

Development of innovation visions

- Clustering, selection and integration of weak signals by amplification
- Applying three principles for amplification:
  i) radicalisation
  ii) transfer
  iii) generalisation

1_Open Source Society...

What if innovation is directed at population living in poverty?

2_Virtual-Only Innovation...

What if many innovations would be enjoyed only virtually?

3_Negotio-Vation...

What if innovation becomes publicly negotiated?

4_Innovation on request...

What if companies generate innovations from user communities?

5_Public Experimentation...

What if experimentation would be at the core of innovation?

6_No-innovation...

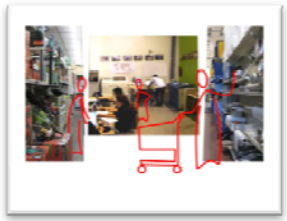
What if innovation fatigue takes over and No-Innovation is en-vogue?

7_Innocamps...

What if people innovate together in proper places?

8_90% Innovation...

What if innovation is directed at population living in poverty?



9_CIY Create It Yourself...

What if people produce products themselves in fabrication laboratories ?

10_Innovation Imperative...

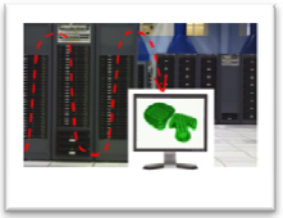
What if the emphasis on innovation spreads to all workplaces?

11_Innovation Marketplace...

What if companies externalise innovation to an open innovation marketplace?

12_Innovation Campus...

What if companies would collaborate in joint innovation places?



13_Darwin's Innovation...

What if companies use digital systems to randomly create and test innovation?

14_Web-Extracted Innovation...

What if we scan the internet for ideas and automatically pick the best ones?

15_Innovation meets Education...

What if innovation skills would be on the education agenda of kindergarden?

16_Relocated Innovation...

What if the bulk of innovation were to come from today's emerging markets?

17_Waste-based Innovation...

hat if the principle of "Waste e d"/"cradle to cradle" would be adopted?

18_Laboratory Stores...

What if stores were to become laboratori where companies and customers co-deve innovations?

19_City driven Innovation...

What if cities became stronger actors in the field of innovation?

Innocamps

- What if innovation camps, where people gather for a few days to innovate together, become widely established as a means of problem solving?
  Innovation camps are used by companies, the public sector and civil society to solve problems from high-tech challenges to neighbourhood facilities. Most people regularly join innovation camps.
- *Potential impacts on the economic, social and environmental dimensions:*
  - Camps are systematically integrated in the education system as new means to foster innovation culture, and to increase interest in science and research in order to meet demand from knowledge based industry. The participation is organised as a reward for young people that have been participating in contests before. The camps give also way to future perspectives and personal development (career, grants, job, education, etc.) chances.
  - Companies innovations processes could be totally externalised in the form of creative workshops focused on emerging topics joined by participants form all sorts of backgrounds and organised by third independent parties.

90% Innovation

- What if innovation is primarily directed at the “other 90%” of the world population living in poverty?
  Extreme low cost/high innovation strategies prevail. Rich world companies struggle as they lack the competences and culture required. Innovators from today’ emerging markets do much better due to their longstanding experience.
- *Potential impacts on the economic, social and environmental dimensions:*
  - Western companies will certainly have more difficulties to adapt and compete with companies from emerging/developing countries that have always had this focus, that are near the demand of low cost, which negative consequences for Europe.
  - The 'less culture' could both mean sustainability and price reduction but it is more likely that rush for price reduction in less controlled/sustainability aware contexts as developing/emerging countries induces to use whatever may cut prices even if damaging the environment.

CIY – Create it Yourself

- What if fabrication laboratories for everybody with flexible manufacturing equipment, become widely available and allow people to produce ever more products themselves?
  Self-production of personalised objects is the standard way of producing commodities directly at home or in “create it yourself shops/malls” with optional professional support. Companies just deliver materials, components, equipment and design tools. Brands do hardly play a role any more.
- *Potential impacts on the economic, social and environmental dimensions:*
  - Opportunities:
    - Quality of Life: Personalised products, widespread unlocking of creativity
    - Society: Enabling of local solutions, strenghtening of inclusion
    - Environment: Reduction of transport due to localisation
  - Threats:
    - Economy: Economic crisis due to lack of adequate business models
    - Environment: Increase of waste, less reduced energy efficiency of production

Web-extracted Innovation

- What if we scan the internet for ideas and automatically pick the ones that best answer to current customer needs?
  Sophisticated semantic web-filters track changes in consumer preferences and new ideas in real time, and automatically extract innovations with outstanding market potential.
- *Potential impacts on the economic, social and environmental dimensions:*
  - Crowdsourcing offers the possibilities to find a great number of people worldwide who are interested in the same things, this should have an enormous impact on the idea generation. Efficiency of innovation processes might be increased if the filtering of the results of extensive experiments will be available immediately all over the world. Some types of market research would no longer be necessary, e.g. the lead-user approach would belong to the past, meaning that taste, fashion and customer demands would no longer be predetermined by a small group of users.
  - Intellectual property rights could become an obstacle on this way. Data protection becomes more important as “hacking” becomes more interesting; hackers are hired and paid for highly private data (a signal in this direction: data on bank accounts in Switzerland).

Innovation meets Education

- What if innovation skills would be high on the education agenda right from kindergarden?
  Children are motivated to maintain their “discovery spirits” and learn how to question facts and think things differently. Learning is project oriented with a high emphasis on bricolage. Innovation becomes something that is taught as a matter of course, just like the ABC.
- *Potential impacts on the economic, social and environmental dimensions:*
  - The described development would lead to a better access to qualified and creative workforce and thus be a locational advantage not only for companies but for Europe as a whole. However, pressure to be innovative / to catch up with innovation culture could increase. What would happen to the non-innovative?
  - If sustainable thinking and problem solving would be a part of the innovation culture it could lead to better solutions for ecological problems.

Waste-based Innovation

- What if the principle of “cradle to cradle” would be widely adopted?
  Instead of raw material databases with used components and materials serve as a starting point for innovations. The whole world becomes one eternal circle. Everything that is made of something is part of making something.
- *Potential impacts on the economic, social and environmental dimensions:*
  - A change towards waste-based innovation would lead to a highly environmental-friendly economy. However, it depends on the specific product, if recycling makes sense, as in some cases recycling or reuse may have higher environmental costs. Some products might have to be banned entirely.
  - Waste-based innovation would probably lead to a radicalisation of material awareness and could open the door for the advancement of recycling technologies and production.
  - Trading of waste would become a highly profitable business. The environmental benefits are large.

Relocated Innovation...

- What if the bulk of successful and disruptive innovations were to come from today's emerging markets?
  The West adopts the role of a follower and has to face products primarily designed for different cultural context. Western companies wishfully look to Asia, often with the help of industrial espionage. Creative people migrate to the new innovation hot spots in Asia and send back their money home to the US and Europe.
- *Potential impacts on the economic, social and environmental dimensions:*
  - Economy: Western companies would loose market shares and competitiveness in international markets. Need for restructuring of Western markets: economies focus on local needs and local products with a high quality standard and no longer on front running products. The current tendencies: "globalisation of wisdom", and "technological convergence" would be limited by specialised regional innovation clusters.
  - Social: While people in the Middle East / Asia profit. Social welfare systems in the West would no longer be fundable due to tax losses and a rise of "unproductive" shares of people in society (ageing and unemployment). The migration of highly educated people as well as industrial workers to new markets would increase.

No-Innovation

Since 2004....

- What if innovation fatigue takes over and No-Innovation is en-vogue?
  The innovation rush is finally slowing down. Product cycles are becoming longer again. For market success, unchanging quality is more important than ever new offers.
- *Potential impacts on the economic, social and environmental dimensions:*
  - Economy: focus is on process innovation to ensure especially quality and efficiency but not new “High value added” in products.
  - Social: People enjoy good quality in less “speedy” private surroundings, but at the same time are forced to be very productive and efficient.
  - Ecology: slow down of innovation culture is accompanied by longer consumption cycles and therefore less waste. The focus on efficient production processes ensures high quality, which in turn, ensures also high resource efficiency.

Next steps

- Elaboration of innovation visions
- Analysis of socio-economic factors influencing the different visions
- Assessment of visions
- Implications and options for busines strategy
- Implications for innovation policy: IPR, regulation, human resources, etc.

Information and contact

See for more information, a questionnaire and a trailer of the innovation visions:
www.innovation-futures.org

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