



EUROPEAN COMMISSION
European Research Area



SEVENTH FRAMEWORK
PROGRAMME

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Foresight to align research and innovation with longer term policy needs in Europe

Presentation for the European Foresight Platform

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<http://farhorizon.portals.mbs.ac.uk>

Goals and aims

- The aim of this project has been to pilot the use of foresight to align research with longer-term policy needs in Europe. It seeks to advance knowledge on:
 - Differences across policy domains in the European Research and Innovation Ecosystem (also further articulating this concept) in terms of the role and the integration of research agendas in long-term policies and vice-versa; and
 - Appropriate foresight designs needed to get engagement and secure follow-up across policy domains/areas
- The project seeks to produce immediately useful results by selecting areas and participants with a view to stimulating action

Project rationale

- 1) Research at European level needs to be better aligned with European policy and regulatory competences
- 2) View research in Europe as a part of a wider ecosystem embracing innovation and other policy domains and the actors within them
 - Building a coordination envelope
 - Integration, coordination and resources envisaged in the ERA concept only likely to be achieved via engagement in Grand Challenges and other mission-oriented Joint Programming
- 3) Essential prerequisite is formation of a common vision among key actors resulting in a single commitment to joint implementation
- 4) Foresight approaches used to build such a vision
 - To help the process of translation from broadly desirable socio-economic goals to concrete proposals for action ...
 - ...including recommendation on realignment of the research system

Domains

- Four pilot domains selected with advice of independent panel
 - Agriculture and adaptation to climate change
 - Dynamising innovation policy: giving innovation a central role in European policy
 - Education in an ICT-revolutionised society
 - Breakthrough technologies for the security of supply of critical minerals and metals in the EU economy

Approach combining success scenarios with R&I ecosystem

- Create vision of success to set a stretch target for all stakeholders
- Those who take part are in a position to influence the policy/strategy outcomes
- Workshop for each domain with HL experts and decision-makers to design success scenarios
- During the workshop a wild card exercise was done to challenge the robustness of the scenarios
 - Participants were invited to imagine **wild cards** coming from all STEEP areas with high + or - impact on the scenario's
 - Wild cards were grouped around different types of impact, and a rough assessment of robustness was made



Example of workshop structure

First plenary – Introduction, briefing and Presentation on Raw Materials Issues and foresight method

Break-out 1: Key drivers and challenges for raw materials (notably **strategic metals**) supply for Europe

Global geology and mineral intelligence

Mining, processing & metallurgy

Sustainability, recycling & reuse

Plenary report

Before meeting – document prepared (mainly questions) circulated for criticism

Break-out 2 Breakthrough technologies or other innovations that could transform the picture

Substitution

New sources (EU and overseas)

Changes in demand

New applications

Participants identify potential breakthroughs and the context of application

Break-out 3 Innovation strategy for the sector

Research programme

Creating innovation friendly market

Governance : social, environmental and political dimensions

Working in plenary

After meeting – document prepared, circulated for comment, finalised and disseminated

Third plenary -

1. Towards a Roadmap for a European Critical minerals innovation strategy
2. Closing summary

Wild cards on Innovation

	Wildcard event	Likelihood	General Impact	Total score
Social	1. Society positively changing towards innovation	8	6	14
	2. Society becomes hostile towards innovation	3	5	8
	3. Social Unrest: immigrants scapegoat and/or elderly scapegoats	11	12	23
Technological	4. Large Technology/Science Failure	8	22	30
	5. Amazing Innovation success	3	11	14
Economic	6. A long recession, deepening	14	21	35
	7. Sectorial innovation crisis	13	14	27
	8. Decreasing mutual economic trust	9	6	15
Environment	9. Man-made ecological disasters	17	16	33
	10. Non man made eco-disasters	6	8	14
	11. Shortage of basic resources	5	12	17
Political	12. Not handling the financial crisis	16	23	39
	13. Large War	3	7	10
	14. New Alliances	7	7	10

Wild cards on agriculture and climate

- Society
 - Drastic changes in consumption - reduction of consumers population- we all go vegetarian
- Technology and Science
 - Trust in Science goes down (climate change swops in the opposite direction as predicted by the modellers)
 - Innovative solutions by merging of new and traditional knowledge (transfers)
 - **Innovative solutions via biotechnologies to utilise the genomic resources (of plants and animals) to improve the efficiency of input to output – extending the surface**
 - (high) risks from new technologies – found out too late
 - Artificial food (the poor eat oil)

Wild cards on agriculture and climate

- Environment
 - Crop or live stock Pandemic (like BSE) – trade stop & hunger
 - **Climate change faster of leading to completely unpredictable local weather, alternating heavy rainfall, hail , drought, heat and freezing cold are alternating frequently in a year**
 - **Major natural eco-disaster like volcanic eruption – dimming of sun light for long period**
- Economic
 - **Financial crisis blocking world trade (China stops to buy for US debt)**
 - Decentralisation
- Political
 - Tensions between nations (on resources and security) and cultures (on religion and values) trade and trust block
 - **(Nuclear) War causing immense crop losses and radioactive contamination or destroying soil structures**
 - Resource shortages of basic nutrients as N₂O, P and K. Remind the very narrow food basis

Discussion

- In the innovation scenario's it was concluded that some of the wild cards could create additional challenges (extra demand) for innovative solution, other could lead to less financial means for innovations
- In agriculture many wild cards point in the direction of enhancing the capacity and resilience of the agricultural system , to create buffers against local and global shortages

Discussion

- In the Farhorizon project imaginative “wild cards” were produced by participants focused on the scenario’s to develop
- The present day problems are reflected in the choice of the wild cards
- The wild cards had some influence on the scenario’s that were developed