Anticipating the future: scenarios for resilient institutions in agricultural research and innovation

Foresight study EU SCAR SWG AKIS 3

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Back to the Future...

"FACTORY" FARMS

Agriculture in the world of tomorrow will be so mechanized that farms will actually resemble factories. Crops and livestock will be raised on regular schedules under uniform and carefully controlled conditions.

"Sensors," those automatic control devices for today's wonder machines, will be adapted to the requirements of precision agriculture. They will take the place of human judgment in deciding and reacting to soil conditions, crop maturity, moisture levels, weather forecasting, feeding needs, etc. Bendix researcher W. E. Kock has reported that instruments to do this already exist or will soon be developed.

The final part of the job for tomorrow's farms will involve the packaging of the grown foodstuffs and their shipment to market—accomplished just as automatically as the growing itself.

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Methodology and approach

- Scenario Planning Shell (Van der Heijden, 2004)
- Horizon Scan (STT, 2015): societal challenges and signals for change
- **Scope**: 2030 for AKIS, based on signals for change towards 2050
- Workshop Bari, Italy with AKIS experts -> 59 drivers for AKIS
- Internet survey: 120 experts scored drivers on impact and relevance
- Workshop SCAR-AKIS, 30 experts: mini-scenario’s were built based on the results. Developed into 3 scenarios
- Analysis, including interaction with the Foresight Expert Group (SCAR) on the bio economy
Societal challenges: 59 drivers for change

1. Societal signals, for instance:
   - Emergence of 3D printers, also for food
   - Reduction of solidarity and welfare state

2. Technological signals, for instance:
   - Robots outperforming humans
   - Food and Pharma integrate

3. Ecological signals, for instance:
   - Desertification due to sudden climate change

4. Economic signals, for instance:
   - Growth of the experience economy

5. Political signals, for instance: falling apart of the EU
Scenario 1: High Tech
multinationals, advanced technology, strong EU, industry driven
Scenario 2: Self organisation
new business models, regions and cities rule, diversification
Scenario 3: Collapse

climate change, migration, political tension, falling apart of EU
AKIS in the scenarios: economic and political

- **High Tech:**
  - International, specialized technological orientation, large private R&D, IPR
  - AKIS centralised, privatised, minor role for governments

- **Self organisation:**
  - Regional, general orientation food and non-food, diverse business models, mix public-private + regional finances
  - AKIS decentralised, dynamic regional food policies

- **Collapse:**
  - Individualistic, local, holistic orientation, food is a basic priority, small private R&D, rising community thinking
  - AKIS fragmented but influential, agri-food societal challenge 1
AKIS - technology, knowledge and innovation

- **High Tech:**
  - ‘Up-skilling’, product oriented, JPI + KIC survive, no ERA-nets
  - 3rd generation university, no public extension, gap between academic and basic education job opportunities

- **Self organisation:**
  - ‘Multi-skilling’, agro system oriented, differentiated landscape of subsidies and instruments, role EU is to connect dots
  - 2nd generation university, mix public-private extension/advice, exchange programmes and minors between schools

- **Collapse:**
  - Basic skills, farming oriented, Asian donors ‘Orient-ation 2060’
  - 1st generation university, farmers + teachers for extension and advice, much attention to higher and basic level education
Ten recommendations for more robust AKIS

1. Research on ICT and particularly its governance
2. Big Data are expected to have much influence on AKIS
3. Cross-over collaboration agri-food and other sectors
4. Social sciences, economics, M&E for reflection and learning
5. Stimulate interactive, transdisciplinary innovation
6. Public-private partnerships, triple helix
7. Involve regional authorities and cities with agri-food related agendas
8. Focus on excellent research infrastructures
9. International collaboration
10. A real European Research Area is a prerequisite
Some final remarks

- Scenarios are not predictions
- But a tool for strategic conversation: how can we make our world more resilient?
- Over the last 20 years many countries have decided to make changes in their AKIS
- Scenario studies like this one could help to be prepared for future changes
Thank you for your attention

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