Quality criteria for systemic foresight activities - individual investment decisions tackling grand societal challenges

The case of a German Spitzencluster

Dr. Björn Sautter
Research Cooperations
Festo AG & Co. KG

Sabine Hafner-Zimmermann
Regional Strategies & Innovation
Steinbeis-Europa-Zentrum
Structure of Presentation

1. Systemic Foresight – Understanding and Implication

2. Quality Criteria for Systemic Foresight Activities

3. Exemplification: the Case of a German Spitzencluster
Systemic Foresight

Taking into account the whole (RTDI)* system

...with the relevant stakeholders
... and their specific activities
... in relation to each other

... to jointly tackle the grand societal challenges.

* Research, Technological Development and Innovation
The Quintuple Helix (five-helix model) innovation system

Source: Carayannis/Campbell, 2014

Tackling „Grand Societal Challenges“

strategically align

Individual Investment Decisions

Source: Carayannis/Campbell, 2014
Strategically Aligning Future Investment Decisions
Structure of Presentation

1. Systemic Foresight – Understanding and Implication

2. Quality Criteria for Systemic Foresight Activities

3. Exemplification: the Case of a German Spitzencluster
Quality Criteria for Systemic Foresight Activities

... derived from our practical experiences in applying strategic policy intelligence tools

... related to the Excellence Criteria of the European Foundation for Quality Management (EFQM) Model

© Clar/Hafner-Zimmermann/Sautter 2014
Quality Criteria for Systemic Foresight Activities

- Stakeholder involvement & motivation
- Systems-orientation (‘outward-looking’)  
- Envisioning and target-setting/aligning
- Action and impact-orientation
- Efficient process management with circular approach (2\textsuperscript{nd} order learning)
- Knowledge-based decision-making with motivating, creative procedures
- ...

\(\Rightarrow\) Systemic foresight as locally driven and globally focused exercise
Structure of Presentation

1. Systemic Foresight – Understanding and Implication

2. Quality Criteria for Systemic Foresight Activities

3. Exemplification: the Case of a German Spitzencluster
Clusters as promising focal points for strategically aligning individual investment decisions tackling grand societal challenges

© Clar/Hafner-Zimmermann/Sautter 2014
Strategy Processes for MicroTEC Südwest

Cluster Strategy Process

- **Cluster Audit:** Cluster Position in the Global Context

Technology Foresight & Impact Assessment

- Global Trends and Developments relevant for Future MST-based Smart Solutions
- Prioritizing Strategic Impacts, Challenges & Opportunities (Scenarios)
- Developing joint Options for Action for prioritized Future Action Areas

Roadmapping

- Developing Cluster-Roadmap 2020+
- Completing Cluster-Roadmap 2020+, Steps for Implementation

Strategy Process for Prioritized Action Areas

Concretizing & Adapting for selected Future Action Area:
- Selecting trends & factors for an area-specific SWOT
- Developing RTDI Priorities & Innovation Roadmap
- Transferring Knowledge & Building Strategic Capacities

Starting a new Strategy Cycle (with evaluation) to adjust & renew the Roadmap
Agenda 2020+ as a step towards strategic Roadmaps

Application-oriented Fields (national priorities)

- Health
- Mobility
- Energy
- Security
- Communication

Venture & Innovation
- Smart Health

Research & Technology Development
- Human-Technology Interaction (=> functional systems)
- System-of-Systems (=> cross-linked/networked systems)
- Micro Energy from Environment (=> self-sustaining systems)
- Cradle to Cradle (=> sustainable systems)
- MST-Lego/Prosumer 2.0 (=> well-customised & cost-efficient systems)

Cross-Industry Innovation

Innovation Roadmaps
e.g. for
- smart implants
- PoC diagnostics
- service robotics
- ...

© Clar/Sautter 2012

MicroTEC Südwest priority fields along the „knowledge triangle“

MicroTECAcademy
Business Opportunity Management & Business Modeling

- **Roadmaps**
- **Trends and Scenarios**
- **Technology Push**

- Competences of Cluster Stakeholders
- Framework Conditions, „Agenda Setting“ etc.

- Business Opportunity Mngmt.

  1. Evaluation Paper
  2. Business Concept
  3. Business Plan

- Implementation
Smart Service Robotics as strategic action line

- Flexible polyamide structure from additive manufacturing
- Motion control thanks to integrated image recognition
Thank You for Your Attention!