Roadmapping

Break-out Groups: Policy Planning Methods and How They Can Be Used in Policy-making

Ondřej Valenta
Technology Centre CAS

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## Roadmapping

### Contents of this break-out session:

- **Introduction to Roadmapping**: 20 mins
- **Group exercise**: 40 mins
- **Discussions and conclusions**: 15 mins
What is Roadmapping?

- Strategic planning and action-oriented tool
  - Create and deliver strategies or innovations at various levels
    - Organizational level
    - Industry level
  - Visual tool for:
    - Graphical representation, framework of the topic of interest
    - Structured view on the given topic
  - Communicate the strategy to wider audience
  - Monitor the progress of the strategy
What is Roadmapping?

- In foresight context:
  - Forward-looking/foresight method
  - Participatory, semi-quantitative approach
    - Normative (drives the user to the vision/goal)
    - Exploratory (following the possible technological developments)
Some definitions

- "A roadmap is an extended look at the future for a chosen field of enquiry composed from the collective knowledge and imagination of the brightest drivers of change in that field."
  
  (Galvin 1998)

- "(Technology) roadmap is a tool that brings important support to the innovation manager, letting them define the firm’s technological evolution in advance. The tool takes the relationship between technologies, their products and services as well as the relationship with the target markets into account. Roadmaps communicate visions, attract resources from business and government, stimulate investigations and monitor progress. They become the inventory of possibilities for a particular field..."
  
  (Dornberger 2009)
Roadmapping – history

- Originated in the business sector in the late 1940s
  - Support to technology or innovation management

International Technology Roadmap for Semiconductors (ITRS) as a result of collaboration of semi-conductor sector

- Business advice on the directions of research and time-lines up to about 15 years into the future for selected areas of technology
- Influence standards and research investment policies
Roadmapping

• Wide-spread use of roadmapping in the private and public sector

➢ Many different:
   o Approaches for developing roadmaps
   o Representational formats

➢ High flexibility of roadmapping, ability to be adopted to various contexts
➢ Confusing/blurred picture of the status of roadmapping as a management technique
Generic roadmap

Functional perspectives
(Roadmap architecture)

Typical viewpoints
commercial & strategic perspectives
Design, development & production perspectives
Technology & research perspectives

Roadmap framework
(Supports integrated and aligned strategic and innovation planning)

Knowledge types
When?

Information types
Why?
Pull

Drivers
Strategy Needs

Form
Function Performance

Solutions Capabilities Resources

How?
Push

Past Short-term Medium-term Long-term Vision

Three key questions: 1) Where do we want to go? 2) Where are we now? 3) How can we get there?
Application of roadmapping in the public sector?  YES

• E.g. US Department of Energy
  Ministry of Industry, Canada
  Various public bodies in United Kingdom

• Provision of intelligence to support the policy-making process
  (leading to e.g. optimization of public R&D investments and
  ensure their relevance to society)
  • Adoption of (technology) roadmaps designed by certain
    industries into policies
  • Public sector as a manager of the roadmapping process

• Adjustment of the technology roadmaps to the purpose of
  policy-making
Roadmapping in the Public Sector

Context

Trends and drivers

Relevant sectors

Current state of affairs

Actors

Vision

Goal

Technologies

Resources

Time
The Measurement and Standards for Emerging Technologies (MSET) 2006

- Identification of technology needs and research themes in a number of key UK sectors:
  - Environmentally friendly transport
  - Secure environment
  - Sustainable consumption & production
  - Emerging energy technologies
  - Healthcare & bio-science
  - Intelligent connected world
  - Design, engineering & advanced manufacture
  - Built environment
Roadmapping in the Public Sector

Executive summary roadmap for Environmentally friendly transport

- Social
- Technological
- Economic
- Environmental
- Political

- Fuel efficiency
- Reduced environmental impact
- Alternative fuels
- Other (Airframe Health, System management, etc.)

Knowledge base

|
| Engineering & Flow |
| Materials & Thermal |
| Physical |
| Ionising Radiation |
| Chemical & Biological |
| Software for Metrology |
| Other |

Resources

- Infrastructure, skills, finance, government support, alliances, etc.
- Public education on environmental impact of travel & alternative
- Material coding for re-cycling
- Promote awareness
- Inform Policy
- Change Behaviour
- Universal measures for transport emissions

A “common currency”
Planning for Roadmapping

**Context**
- Exploration of the issue
- Defining scope and aim
- Identification of key actors/people involved

**Architecture**
- Design of the roadmap (timeframe, structure)
- Defining a common framework/language

**Process**
- Set of activities to built a roadmap content
- Activities to make decisions, identify and agree actions and maintain the roadmap
Roadmapping Process

- Participatory approach (workshops with selected key actors)
- Iterative, continuous activity, update

**Step 1: Strategic Landscape**
- Identification and prioritization of key current and anticipated trends and drivers, constraints, assumptions

**Step 2: Clarify vision and objectives**
- Clear definition of the vision or goal
- Quantification

**Step 3: Summarization of current situation**
- Assessment of current capacities, resources, state-of-the-art
Step 4: Roadmapping

- Structuring to map the route forward

Step 5: Highlighting

- Key milestones along the way
- Also risks, barriers, enablers, options, decision points, knowledge gaps, ...
Roadmapping Process

Step 6: Communication and implementation
• Shared understanding and commitment of the users/producers
• Assigned tasks, responsibilities, deadlines
• Visual presentation of the roadmap
  o Development of a strategic narrative
  o Allows for monitoring of the progress
• Iterative process – need for constant update

Critical factors for a successful implementation:
• Roadmap embedded in a broader policy strategy, existing network
• The importance of a momentum, creating a sense of urgency
• High level of commitment: involvement of the „right“ people, clear link to decision-makers
• Maintaining a degree of flexibility
Visualizing Roadmaps
Visualizing Roadmaps
Goal:
• Framing the selected topic for roadmapping

Sustainable cities and communities
Provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons
• Indicator: Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities

• Territorial level: Europe
• Time-horizon: 2030
Group Exercise on Roadmapping

In 3 working groups:

1. Identification of sectors (and actors within the sectors) relevant to achievement of the Sustainable Development Goal 11.2

2. Identification of main technologies and resources

If there's some time left:

3. Identification of main risks and barriers along the way
Roadmapping

Thank you and let’s get to work!

Ondrej Valenta

Strategic Studies
Technology Centre CAS
valenta@tc.cz