Scenario building and risk characterisation

Abdulqadir M. Suleiman

Norwegian Labour Inspection Authority/

OSH Pro Services

Content

- Introduction to scenario building
  - Definitions,
  - Objectives
  - Approaches, outcomes, and decision-making
  - Scenario vs. Vision
- Emerging risks characterisation/categorisation



What are Scenarios?

- An internally consistent view of what the future might turn out to be (Michael Porter 1985).
- A tool [for] ordering one's perceptions about alternative future environments in which one's decision might be played outright (Peter Schwartz 1991).
- That part of strategic planning which relates to the tools and technologies for managing the uncertainties of the future (Gill Ringland 1998).
- A disciplined method for imaging possible futures in which organizational decisions may be played out (Paul Shoemaker1995).

Scenario Building Objectives

- Demonstrating a multitude of possible futures
- Development of a common understanding of future challenges
- Active involvement as an instrument for managing reform
- Strengthen preparedness for readjustment and development in relation to long-term challenges



Scenarios, cont’d

- The scenarios should demonstrate real alternatives
- The scenarios should demonstrate clearly what perspective the scenario is founded on
- Important to demonstrate counter forces
- Scenarios, are not universal, but situational and special, or contextual



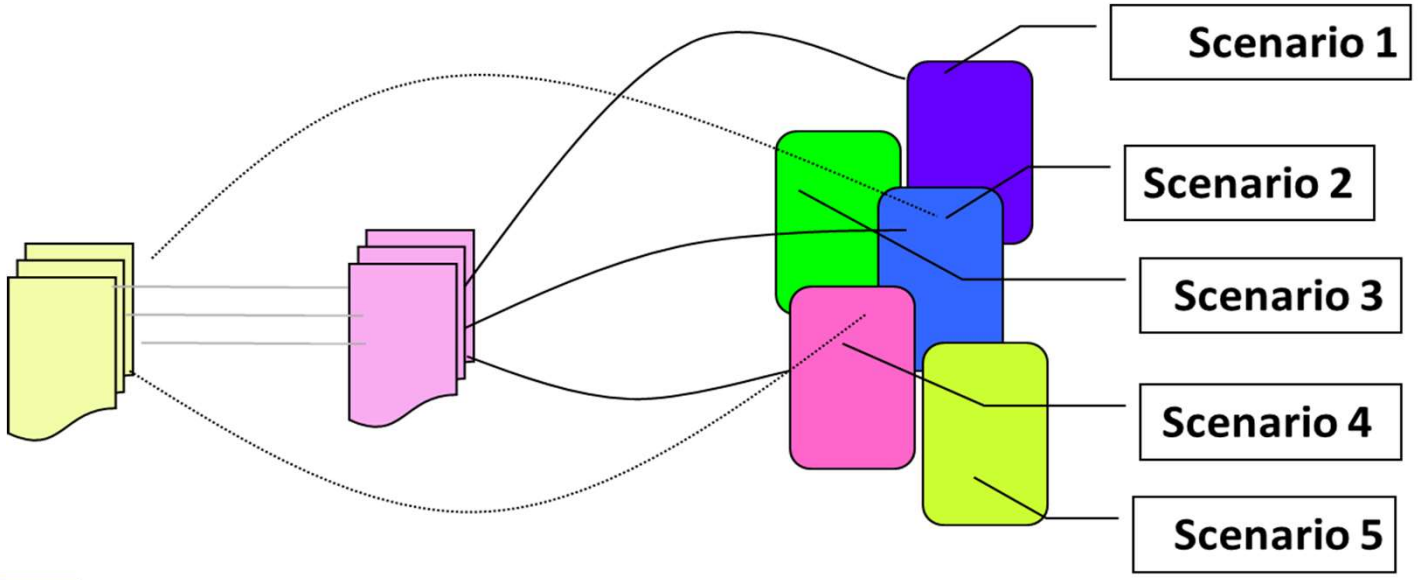
Approaches & Outcome

1. Extrapolative data analysis
   - Trend modelling
   - Each scenario given specific probability
   - Forecasting oriented
2. Qualitatively and organizationally focused
   - Constructed within the organisation
   - Inductive and deductive processes
3. Computer-based modelling
   - Qualitatively and quantitively focused
   - Intuitively run workshops
   - Complex mathematical models

1. Extrapolative data analysis
   A document explaining the produced quantitative data with a short storyline for three to six scenarios
2. Qualitatively and organizationally focused
   Logically, qualitatively and discursively described set of two to four scenarios, all being equally probable
3. Computer-based modelling
   Extensive set of data-driven scenarios supported by an extensive storyline as well as possible actions and their consequences

Backcasting as ex ante evaluation

Past Present Future



Decisions from Scenario Building

- 'This is what we have to do'
  (developing new opportunities)
- 'We better think again'
  (understanding outcomes of plans better)
- 'We better watch those dots on the horizon'
  (perceiving weak signals of new developments)
- 'We are in the right track'
  (moving forward with more confidence)



Elements in Scenarios Building

1. Identify the issue or decision of concern and horizon year
2. Identify driving forces on the issue of concern
3. Identify and rank critical uncertainties
4. Identify whether trends and uncertainties have a negative or positive impact on issue of concern
5. Create extreme worlds
6. Select indicators for monitoring
7. Assess impacts for different scenarios and evaluate alternative strategies
8. Add in actions of individuals and organizations

Emerging Risks Characterisation, 1

High uncertainty and a lack of knowledge about potential impacts and interactions*

Uncertain impacts

- Uncertainty resulting from new products, services or behaviours

The dominant feature

- Lack of scientific knowledge/experience on consequences especially in interaction with already existing technologies and practices.

Governance activities include

- Deciding whether to authorise certain products, services, behaviours or technologies
- Implementing appropriate risk management measures to avoid/mitigate potential adverse consequences

Examples include

- Product and processes in nanotechnology

*According to Int. Risks Governance Council

Emerging Risks Characterisation, 2

Increasing complexity, emerging interactions and systemic dependencies that can lead to non-linear impacts and surprises

Risks with systemic impacts

- Stem from systems with multiple interactions and adaptive behaviours.

The defining feature

- The loss of safety margins or a lack of knowledge about the way familiar risks are connected to other risks.

Example

- Complex interconnected systems in the fields of energy and transportation.

Emerging Risks Characterisation, 3

Changes in context that may alter the nature, probability and magnitude of expected impacts

New/unexpected risks

- Emerging from established scenarios in evolving contexts.
- Social and behavioural trends, organisational settings, regulations, natural environments

The main issue

- Impact on familiar processes challenging well-established governance practices.
- Changes in organisational settings, ageing infrastructures, complacency and/or overconfidence in the ability to deal with unexpected events.

Examples

- Commercial aviation industry provides a useful example of the importance of effectively managing this type of risk.

Conclusion

We looked at:

- What scenarios are
- Building scenarios, approaches, outcomes and decisions
- Three categories of emerging risk
  - Lack of knowledge
  - Increasing complexities and emerging interactions
  - Changes in context affecting expected impacts

Call for action

- Need to look at SB as a tool to envisage OSH challenges/ practices
  - Improve preparedness
  - Avoid complacency
  - Confirmation
- For OSH Policy development
  - Improving standards
  - Market surveillance



Thank you for your attention