



Making Sense of Climate Risks: Organizational Adaptation to Climate Change

ECCA

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Content

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Introduction

- Climate change impacts in the energy and railway sector
 - Weather as well as climatic conditions influence companies' supply chains, infrastructure and production processes
 - Societal relevance of critical infrastructure
 - Long-living infrastructure assets call for anticipatory adaptation
- Adaptation decision-making and action starts with understanding the problem
 - Organizations need to recognize potential risks resulting from climate change before they can act on them ("problem detection", Moser & Ekstrom 2010)
 - A lack of awareness is a substantial constraint to organizational adaptation (Berkhout et al. 2006, Arnell & Delaney 2006)

Research Questions

- How do organizations make sense of climate change related risks?
- How does organisational sensemaking and interpretation influence adaptation action and decision making?

Conceptual Background – Literature Streams

- Sensemaking
 - Sensemaking is the basis of organizational adaptation (Linnenluecke et al. 2011)
 - Sensemaking is the link between noticing changes and developing action
 - “ongoing retrospective development of plausible images that rationalize what people are doing” (Weick et al. 2005)
 - Changes in the natural environment can be cues for sensemaking (Whiteman & Cooper 2011)
- Learning from rare events
 - Rare events are unique, unprecedented and infrequent (Beck & Plowman 2009; March et al. 1991)
 - Organizations have difficulties to sense rare events as signals to broader environmental change (Barr 1998; Starbuck 2009)
 - In learning from rare events actors tend to engage in wishful thinking, search for more data, act cautiously, try to develop credible explanations for their decisions (Starbuck 2009)

Conceptual Background – Summary

- Experienced damages resulting from extreme weather events can be perceived as significant cues for climate-related risks
- Whether these experiences are interpreted as antecedents of a changing climate and whether this interpretation leads to action depends on organizational sensemaking processes
- Interpretation and sensemaking occur by multiple actors at different scales within organizations
- Different actors have diverse perceptions of risks, resulting in a lack of consensus as to what constitutes effective response strategies
- Identification of climate-related risks is not a matter of a single decision based on certainty about impacts and their relevance
- It is a continuous sensemaking and interpretation process between actors within the different departments and levels of an organization.

Case Studies – Method and Approach

- Group discussion and semi-structured expert interviews within companies
- Sectoral stakeholder workshops
- Case 1: Large German Railway Company
 - Group discussion with middle and senior managers from different units (8)
 - 4 Interviews and 4 group interviews with middle managers from different company units (8 interviewees)
- Case 2: Large German Energy Company
 - Group discussion with middle managers from different units (8)
 - 3 Group interviews with middle managers from different company units (8 interviewees)
- Content analysis of interview transcripts and workshop protocols

Patterns of climate risks related sensemaking

- The increase of frequency and intensity of extreme weather events needs more evidence
 - Interviewees do not perceive experienced extreme events as a clear cue for climate related risks
 - Extreme weather events remain to be considered as single and low-probability events that have already existed in the past
- Technical assets are well prepared for future impacts
 - Technical standards use high safety margins
 - Climate change is perceived as technical challenge that can be technically handled
- Rely on standardization bodies
 - Standardization organizations should do risk analysis and adapt technical standards

Patterns of climate risks related sensemaking

- Corporate values (security of supply vs. cost-effectiveness)
 - Railway case: disruptions and delays are to a certain extent accepted
 - Energy case: strives to buffer disruptions through redundancy
 - Goal conflicts between cost-effectiveness and security of supply
 - Current regulation rather supports an efficient infrastructure
- Occasional interruptions must be accepted by customers and society
 - Energy case: currently expectations towards security of supply are high but this might have to be changed through a societal or political debate

Patterns of response strategies

- Postponing adaptation action
 - Adaptation to climate change is in conflict with economic goals
 - Energy case: Other priorities (“Energiewende”, transition of the energy system)
- Adaptation actions resulting from external triggers (regulation)
 - Energy case: changes in standardization
 - Railway case: Analysis of internal standards resulting from an inquiry by the Federal Railway Agency
- Learning from a hypothetical event
 - Energy case: assessment of flood risks for all national divisions

Discussion

- Experienced extreme weather events
 - Were more severe in the railway case
 - Their impact was however too low to raise a willingness to learn
- Highly regulated environment
 - Reliance on external actors (regulators, standardization bodies) as frame-setters for adaptation
 - Some examples of external triggers were observable
- Both companies act cautiously and rely on existing strategies
 - Aim to avoid the risk of maladaptation
- Climate change as an external problem
 - Cannot be influenced by internal action

Conclusions

- Companies have difficulties in translating future risks of climate change to current decision-making
 - Climate change is perceived as a distant and not as a current threat
 - Climate change will lead to discontinuities and significant changes but currently this risk is denied by corporate decision-makers
 - Decision makers use their experience with the current environment as background and ignore the risks of unfamiliar events
- Sensemaking is influenced by corporate values and frames of reference
- Decision-makers show typical patterns of reacting to rare events:
 - Wishful thinking
 - Cautious action
 - Search for more data
 - Additional: shifting responsibility to other actors



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Thank you for your attention!

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