



University
of Victoria
Business

*The world looks
different from here.*

Organizational Resilience to the Physical Impacts of Climate Change



Dr. Monika Winn, UVic Business



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Outline



1. Background: The Organizational Resilience Research Group
2. Why adaptation to climate change impacts is relevant for business
3. Understanding climate change impacts: context, dimensions, categories
4. What current knowledge and approaches are applicable?
5. Building a general framework and a specific model for adaptation

The Organizational Resilience Research Network



The research group

- Dr. Andrew Griffiths, UQ Business School, Brisbane, Australia
- Dr. Elmar Guenther, HHL Leipzig, Germany
- Dr. Manfred Kirchgeorg, HHL Leipzig, Germany
- Martina Linnenluecke, UQ Business School, Brisbane, Australia
- Dr. Monika Winn, UVic Business, Canada

Formed in 2004

International group of management professors and doctoral students

Intent: To raise the profile of adaptation to climate-change induced discontinuities in management research, to develop robust theoretical frameworks based on multi-disciplinary knowledge (management, ecology, psychology, etc.), and to turn these into effective, practical adaptation tools for organizational decision makers.

Questions for you



1. How is climate change viewed in your organization?

2. Has the topic of climate impacts surfaced? In what way?

3. What actions have been taken to prepare for climate change?

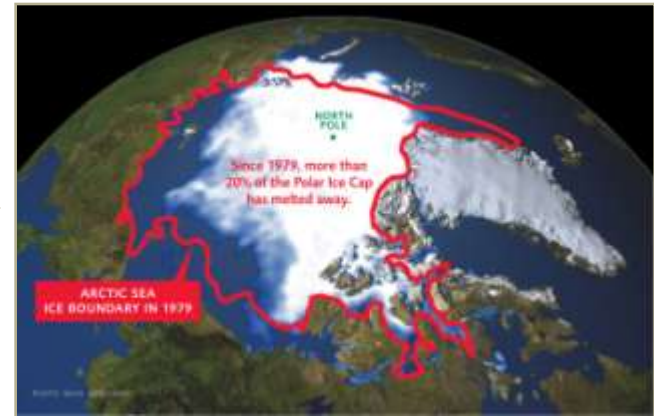
4. Which group handles (should handle) climate change adaptation?

5. What other questions need to be asked?

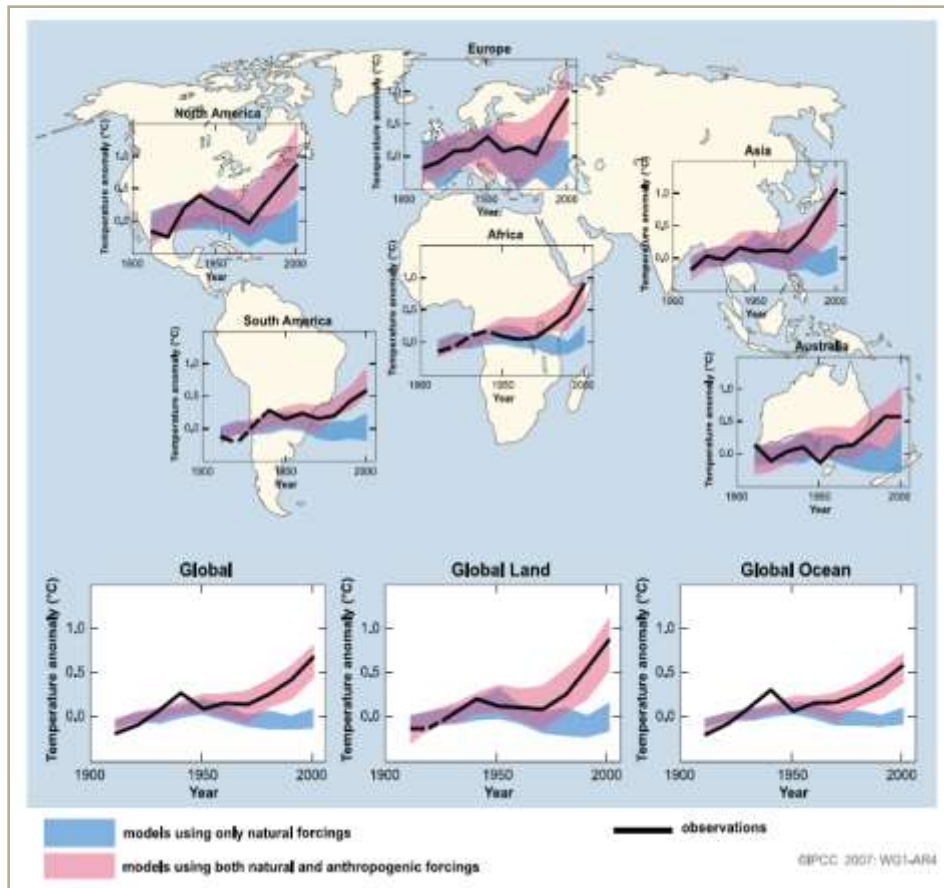
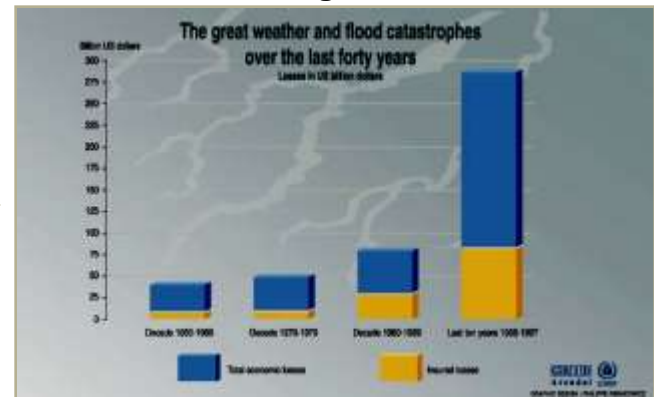
Climate change, global warming, climate variability



Gradual changes



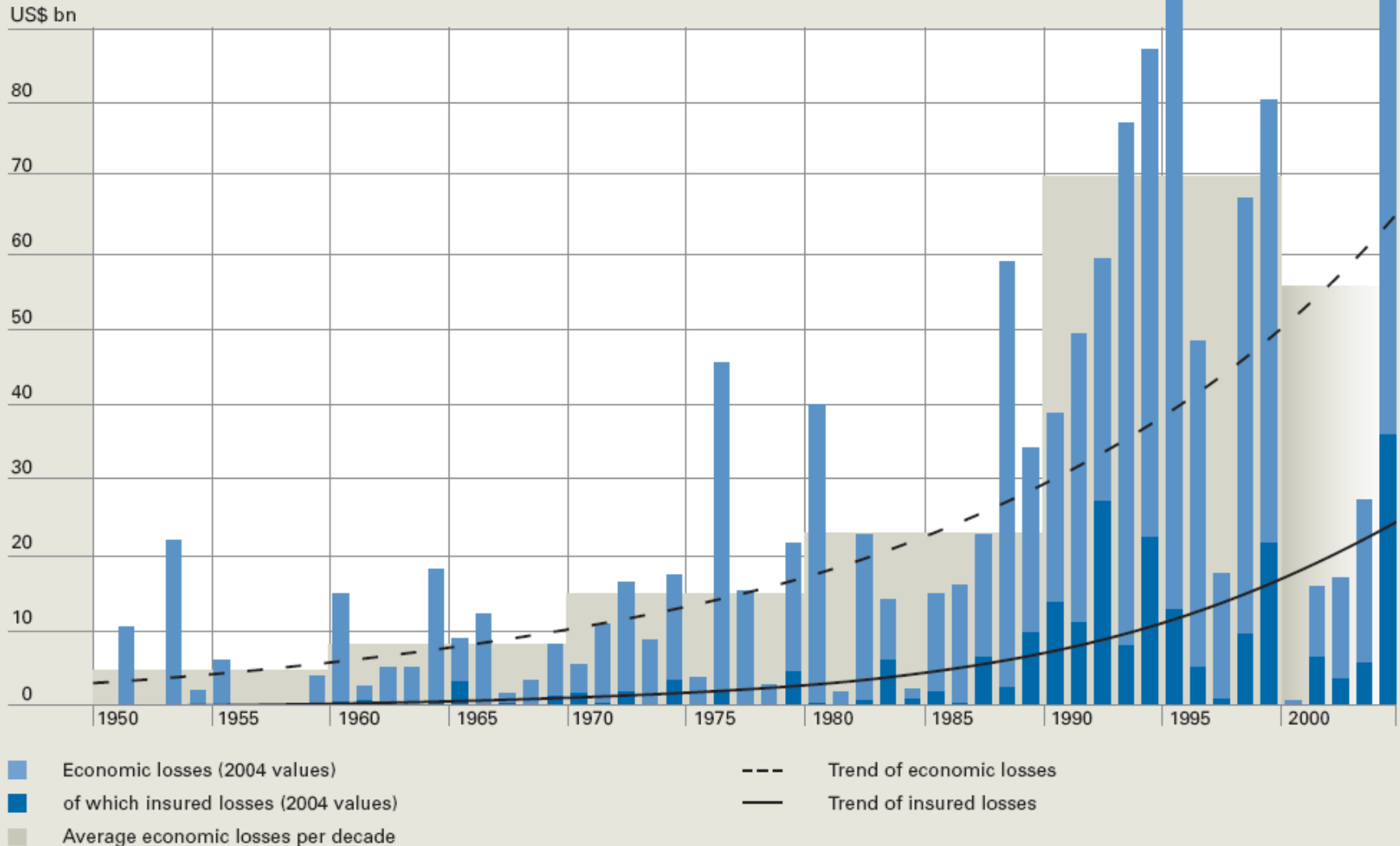
Discontinuous changes



Source: Headley Center (2003); IPCC (2007); Muenchner Rueck (2003); NASA (2003); Swiss Re (2003)

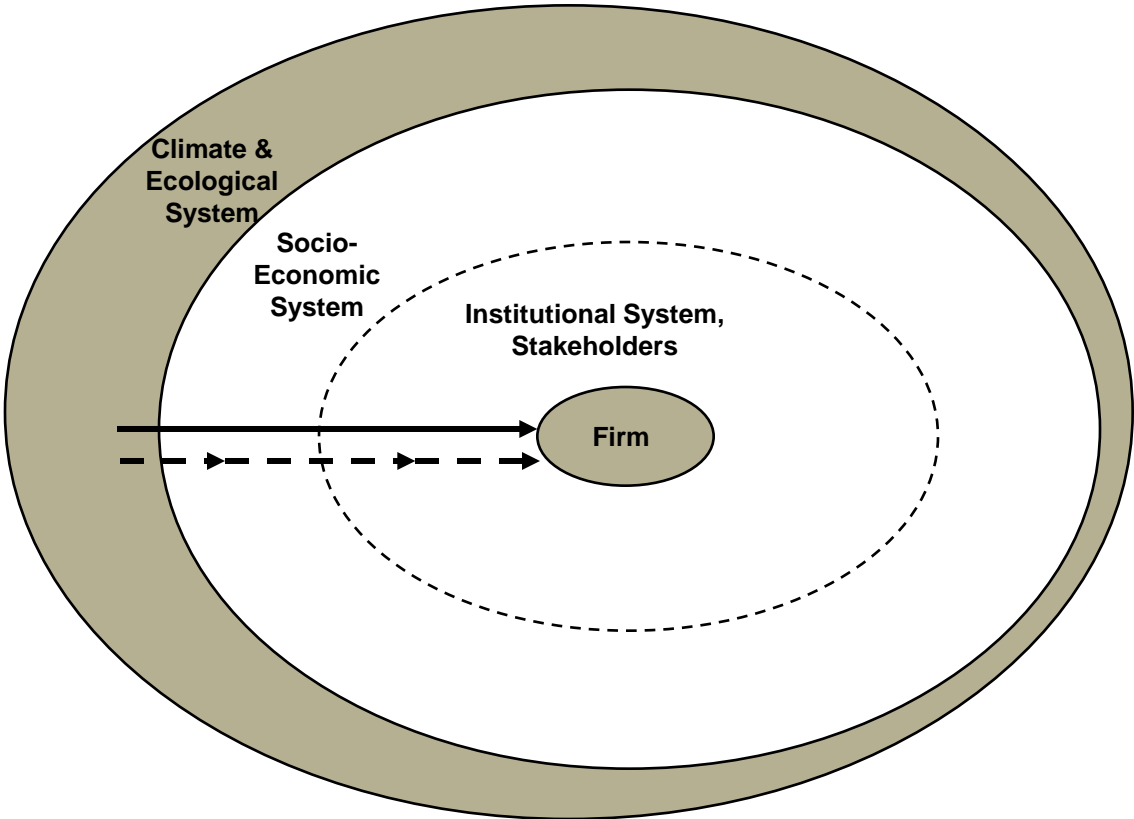
Insurance Trends

Great Natural Disasters Worldwide 1950 – 2006



Source: Geo Risks Research, Munich Re

Direct and indirect effects of climate change on the firm



Systems context of the firm

- Gladwin, Kennelly and Krause (1995)
- Meffert and Kirchgeorg (1992)
- Sauter-Sachs (1992)
- Starik and Rands (1995)
- Stead and Stead (2003)
- Uzzi (2000)
- Walmsley (1972)

Our understanding of impacts is growing

E.g., IPCC (2001); IPCC (2007), Muenchner Rueck (2005), Stern Review (2006), The Carbon Trust (2005), From Impacts to Adaptation, NRCAN (2007)

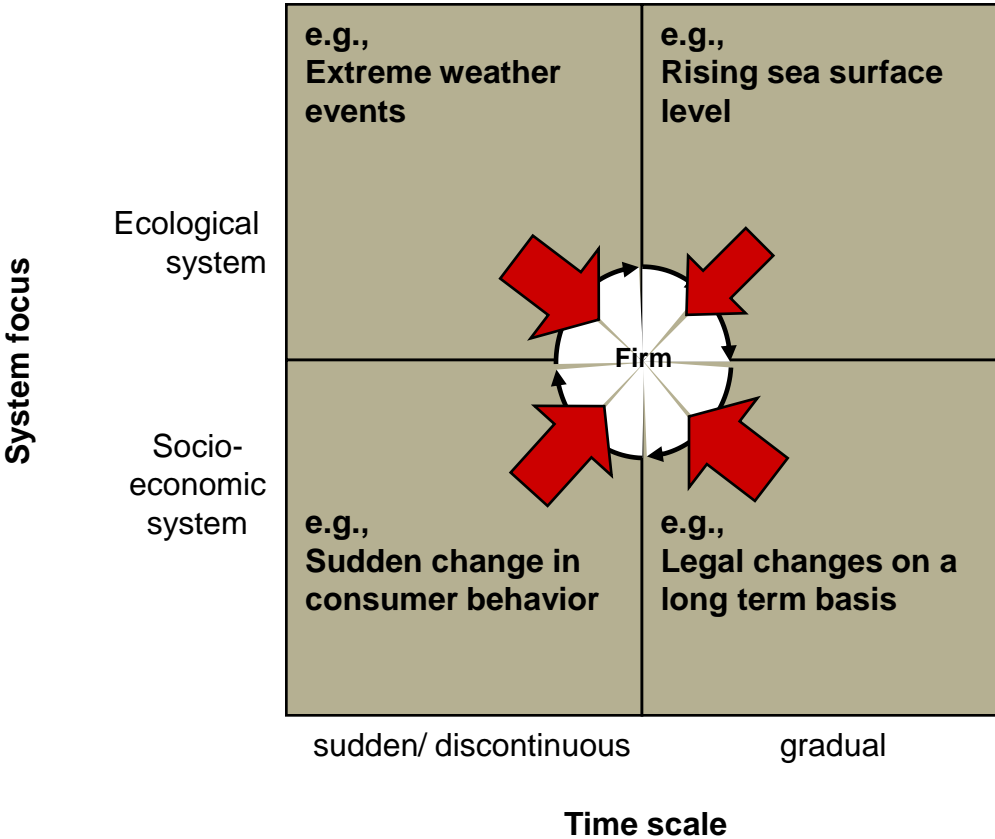
Types of impacts

Direct	Indirect		
Bio-physical	Competitive	Psychographical	Legal
Losses due to <ul style="list-style-type: none">▪ Storms▪ Floods▪ Droughts▪ Sea level rise▪ etc.	Changing competitive environment may offer strategic advantages/disadvantages <ul style="list-style-type: none">▪ Product innovation▪ Costs in goods and services produced▪ etc.	Changing needs and behavior of stakeholders, e.g. in <ul style="list-style-type: none">▪ Involvement in climate change issue▪ Stakeholder attitude▪ Brand image▪ etc.	Changes in laws, etc. E.g., law suit of the state of California against six US car manufacturers, September 2006

Specific sectors are being studied (e.g. in Canadian National Climate Change Impact Assessment)

Agriculture, Fisheries, Forestry, Water Management, Health, Insurance, Real estate, Infrastructure, Tourism, Transportation and Aviation, Energy

Dynamics and complexity of climate change impacts

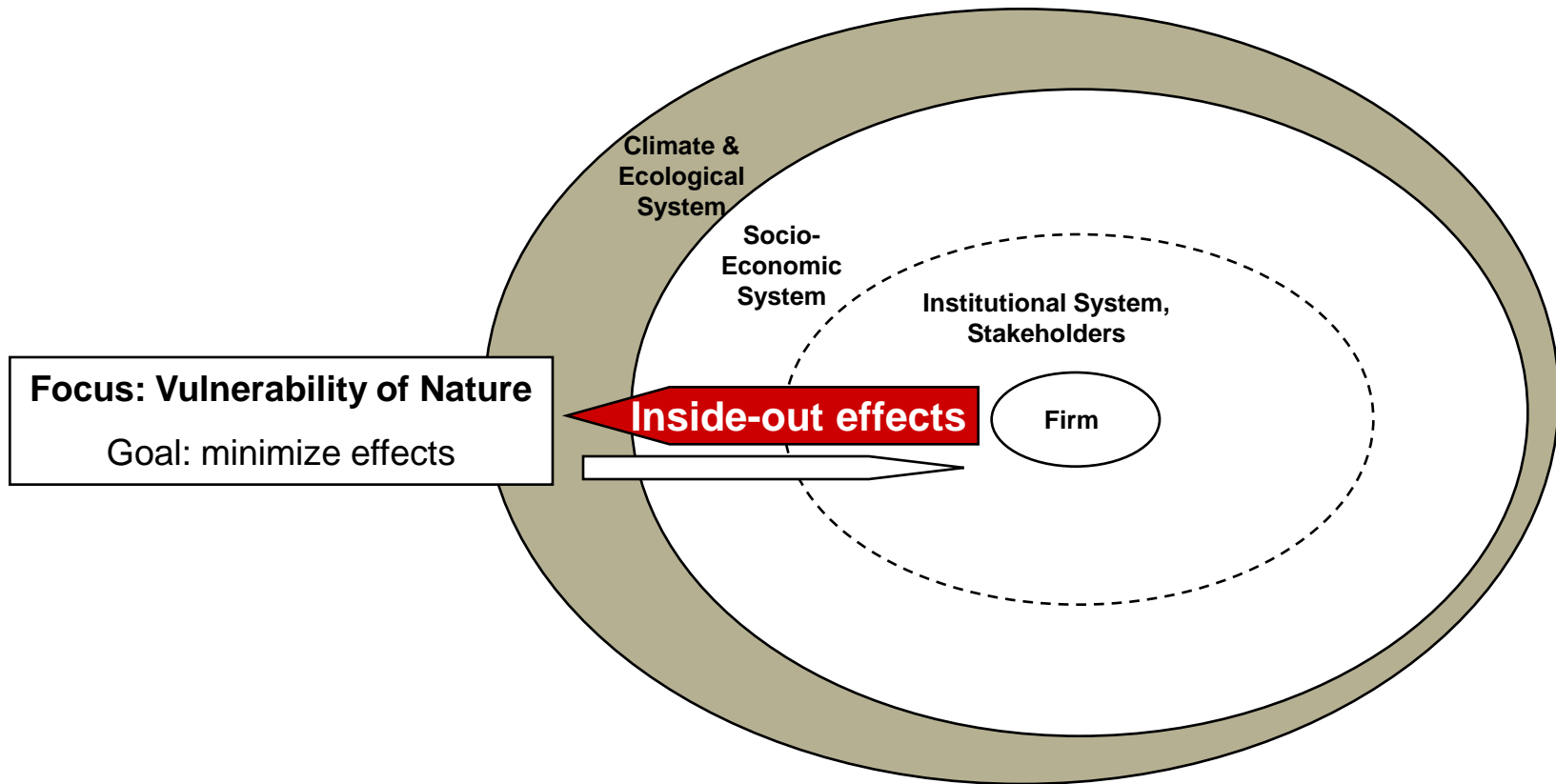


What does the management literature tell us?



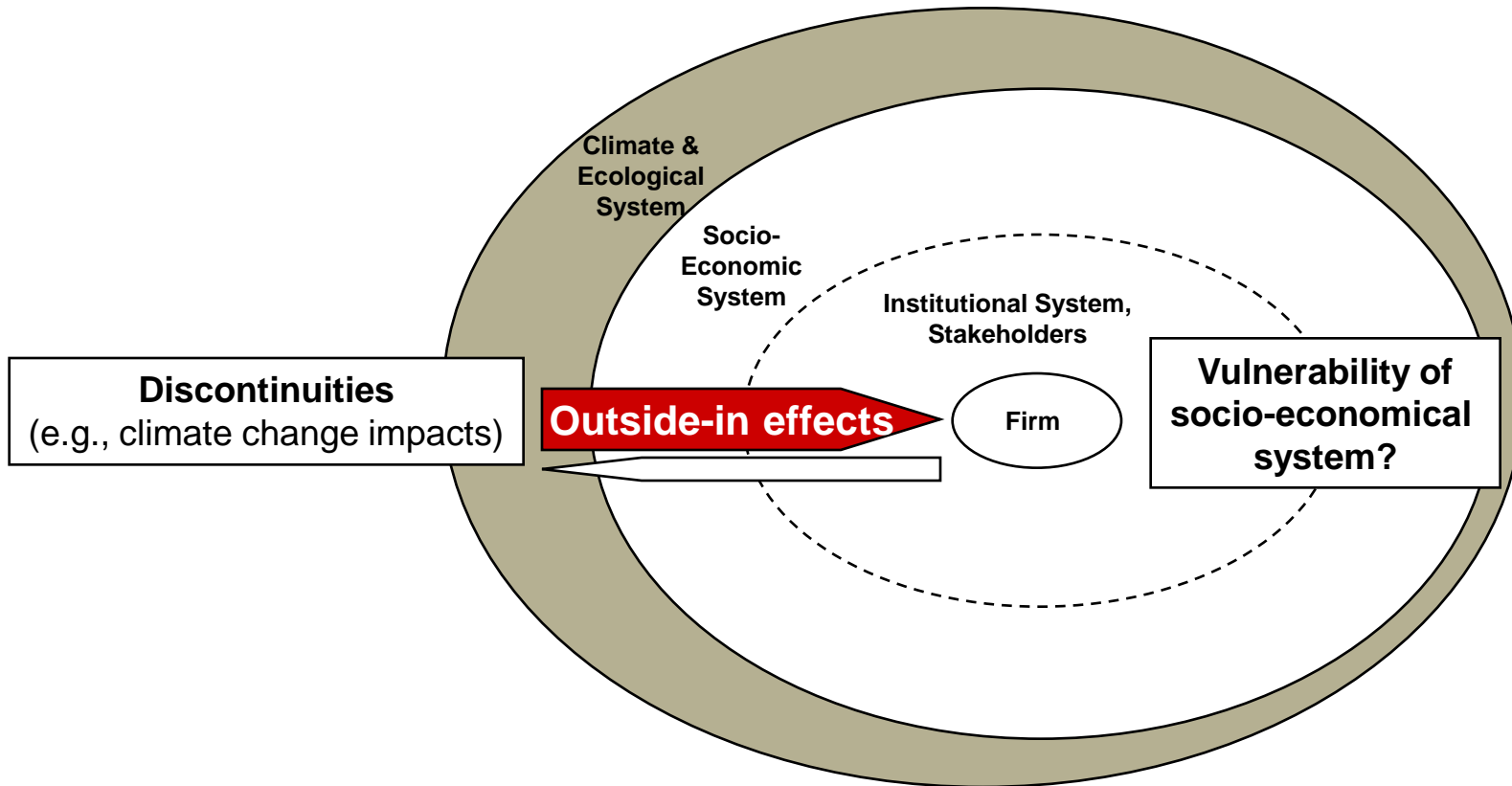
- Hoffman, A. J. (2004): Climate Change Strategy: The Business Logic behind Voluntary Greenhouse Gas Reductions
 - Kolk, A./ Pinkse, J. (2005): Business Responses to Climate Change: Identifying Emergent Strategies
 - Winn, M.I. / Kirchgeorg, M. (2005): Sustainability Myopia
 - Porter, M. E./ Reinhardt, F. L. (2007): A Strategic Approach to Climate
 - Balderjahn, I. (2007): Ist der globale Klimawandel ein Thema für die Betriebswirtschaftslehre?
 - Maier, B. (2002): Klimaänderungen und betriebswirtschaftliches Risikomanagement
 - ...
-
- Research on climate change and management generally is in early stages (e.g., Goodall, A. H. (2008): *Why Have the Leading Journals in Management (and Other Social Sciences) Failed to Respond to Climate Change?*)
 - Mitigation is the main focus in literature (this mirrors the inside-out focus of sustainability management, see next slides)
 - Incorporating the challenges of adaptation into management research has barely begun (e.g. risk management)

The perspective of sustainability management



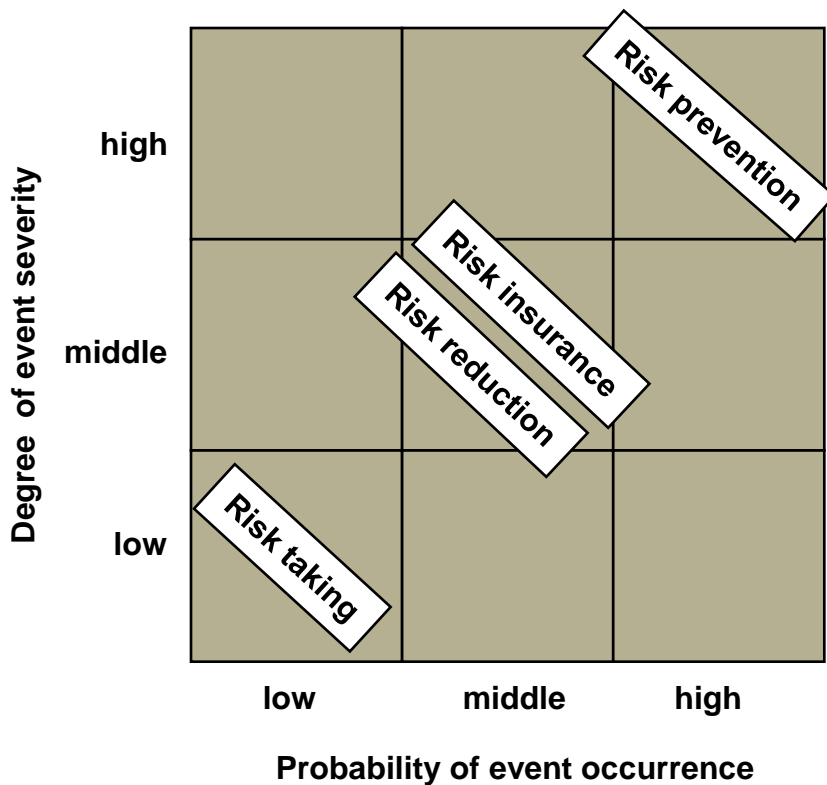
Source: Winn/ Kirchgeorg (2005)

Impacts require a switch in focus



Source: Winn/ Kirchgeorg (2005)

Risk management: A good starting point, but...



- Risk management is primary focus in management literature on climate change
 - Rich literature stream integrating insights from natural risks/ hazards research e.g. Amendola, A. et al. (2007); Cruz, A. M./ Okada, N. (2008); Jones, R. N. (2001); Jones, R. N. et al. (2007); O'Brien, G. et al. (2006)
 - Probability assessment of event severity and event occurrence is a critical prerequisite
- The complexity of climate change effects and lack of information (data, models, etc.) are primary obstacles to applying risk management tools
- We need new, robust models for new types of impacts and uncertainty

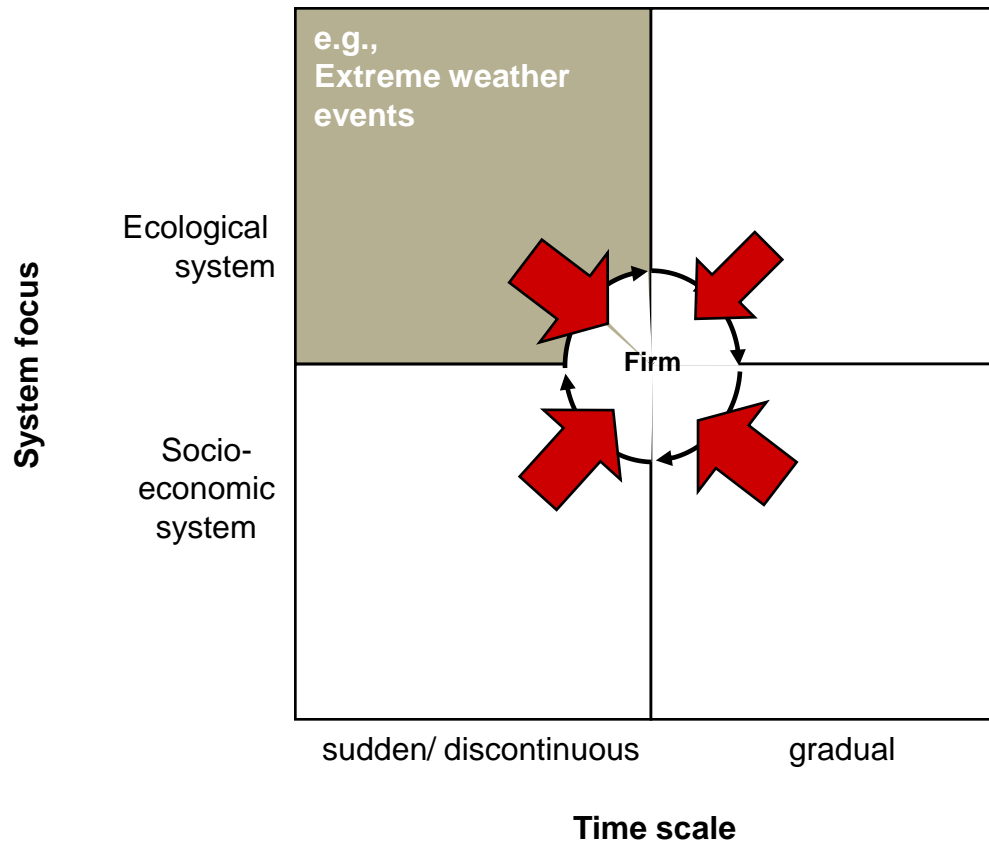
Source: e.g., Mehr/Hedges (1974)

Framework for resilience management



Please contact Monika Winn for the framework: miwinn@uvic.ca

Focus on discontinuous climate change impacts



Theoretical model for extreme weather events



How can organizations adapt to and build resilience against extreme weather events?



What does the literature have to offer?



Adaptation Literature

- Deals primarily with incremental adaptation to relatively continuous environmental changes.
- Analysis of adaptation to changing industry structures or institutional conditions, e.g. technological discontinuities, environmental jolts due to strikes (e.g. Meyer, 1981).

Sustainability Literature

- Much of the literature assumes an "inside-out perspective", i.e. the impact that organizations have on the natural environment.
- Little research on the impact on the natural environment on organizational activities, i.e. an "outside-in perspective" (Winn & Kirchgeorg, 2005).

Crisis Management Literature

- Identification, forecasting, and prevention of low-probability, high-impact events that threaten the viability of the organization (e.g. Mitroff, 1994).
- Immediate responses to crises and mitigation of risk and losses; focus on defensive capabilities rather than on longer-term need for adaptation and resilience.



Organizational Resilience

Origins of Concept

- Concept of resilience has received considerable attention in psychology and ecology; these disciplines have defined the concept at an individual and system level.
- Popularity of concept in popular press and after recent catastrophic events (e.g. Katrina, the 9/11 terrorist attacks).

Applications in Organization Theory

- Understanding of how organizations can exist in a complex environment.
- Initial organizational studies on resilience focus on moral purpose and personal relationships as sources of resilience (Freeman et al., 2003; Gittell, Cameron, Lim, & Rivas, 2006).

Framework for climate change-based extreme weather impacts

Please contact Monika Winn for the framework: miwinn@uvic.ca

Contribution and next steps



Contributions

- Theoretical insights that lay the foundation for understanding how organizations can develop strategic responses to the impacts of extreme weather events.
- Preparedness for increasingly frequent and/or intense extreme weather events through the identification of areas of organizational exposure.

Avenues for future research

- **Joint research with practitioners is needed to find answers to questions such as:**
- How do decision-makers and management of an organization understand and interpret the likelihood of exposure to an extreme weather event?
- How is this information is translated into specific resources, capabilities and strategies?
- How have organizations dealt with an exposure to extreme weather events and how has this experience been translated into organizational adaptation or resilience?

Contact



We welcome your comments!

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