Seminar SS 2020

“Current topics in risk management”

Risk Management Research Group

1. Models in crisis response

Large-scale crisis events require strategic planning in advance. Therefore, modelling and simulation approaches can be very helpful. The task of this seminar thesis is to present an overview of disaster response models by finding a suitable categorizing system.

In particular, the following questions should be addressed:

- Which types of problems are discussed with respect to crisis response and what type of models are used for analyzing them (optimization, simulation frameworks, …)? Categorize them along different key characteristics as considered disaster phase, time period, inclusion of uncertainties, …
- Compare strength and weaknesses of the models themselves and with regard to their applications
- The problem assessment and model review should be based on quality journals in the disciplines of disaster management and/or Operations Research.

This seminar topic is embedded in the current research project INCA, a decision support framework for strengthening disaster resilience in cross-border areas.

Supervisor:

M.Sc. Miriam Klein

Literature (as a starting point):

- Literature will be given in the kick-off meeting.

2. Empirical research in risk and crisis management

Large-scale crisis events require strategic planning in advance. Therefore, empirical research can give helpful insights. The task of this seminar thesis is to present an overview of empirical research designs in disaster response.

In particular, the following questions should be addressed:

- What type of problems are addressed and by which methods of empirical social research (qualitative, quantitative, …)? Categorize surveys and interviews along different key characteristics as considered disaster phase, data set, type of information (e.g. real-time), …
- What can be achieved by empirical research and what are the issues that need to be considered in empirical research design?
- The problem assessment and research design review should be based on quality journals in the disciplines of disaster management, Social Sciences and/or Operations Research.
This seminar topic is embedded in the current research project INCA, a decision support framework for strengthening disaster resilience in cross-border areas.

**Supervisor:**  
M.Sc. Miriam Klein

**Literature (as a starting point):**  
- Literature will be given in the kick-off meeting.

### 3. Deprivation costs of unavailable transport infrastructures

Transport infrastructures form the backbone of today's interconnected society. Therefore, the unavailability of transport infrastructures can cause several types of suffering. The assessment of those arising costs should consider the concept of deprivation costs. Deprivation costs are a negative externality resulting from the loss of welfare experienced by individuals due to the lack of access to essential goods or services.

The resulting work should include the following points:

- Short literature review about attempts to assess deprivation costs that arise from disruptions in transport infrastructures (focus on quality journals)
- Analysis and implementation of a proposed model (Cantillo et al., 2019)
- Critical discussion of shortcomings

**Supervisor:**  
M.Sc. Rebecca Wehrle

**Literature (as a starting point):**


### 4. Consideration of reliability of transport infrastructure in location decisions

Since transport infrastructures are heavily used for freight traffic, manufacturing companies are highly dependent on these parameters. Increasing deterioration of transport infrastructures and an increase in the required transport capacities may lead to the fact that supposedly available transport capacities cannot be used sufficiently. If this problem is not just a transient issue but rather occurs on a more and more regular basis, this can result in the necessity of a relocation of existing production facilities. For this reason, decision-makers must not only check for infrastructure availability and quality at the time when they decide about the choice of location when opening a facility but must also continuously monitor the state of the infrastructure.

The resulting work should include the following points:

- Short literature review (focus on quality journals) about approaches to combine the revision of facility location decisions and infrastructural deterioration
- Analysis and implementation of a proposed model
- Critical discussion of shortcomings

**Supervisor:**  
M.Sc. Rebecca Wehrle
5. Public-Private Collaboration during Hurricane Katrina

When Hurricane Katrina made landfall in 2005, a large part of the population of the south-eastern United States was affected and the damages to the infrastructure were significant. In the aftermath of the disaster, disaster management authorities – especially the Federal Emergency Management Agency (FEMA) – were severely criticised for their preparation and relief management. On the other hand, private actors like Walmart received a lot of credit for stepping in to support the population.

This thesis should include:

- An overview of the actions of public and private actors during the disaster
- A collection of examples where FEMA failed and the private sector stepped in
- A collection of examples where the private sector failed and FEMA stepped in
- A classification of areas where cooperation worked well or badly

6. Private sector engagement during flooding in Passau

When the flooding in Passau took place in 2013, a large part of the population was affected and the damages to the infrastructure were significant. During the disaster, several private firms stepped into the crisis management and supported the population individually or in cooperation with public actors. Some of the firms were able to positively promote their engagement.

The literature research and analytical work of this thesis should include:

- An overview and classification of the actions of public and private actions during the disaster
- An overview of experiences of private firms during the crisis:
  - From which actor did the contact start?
  - Who contacted whom?
  - What was offered?
  - ...
- A collection of examples (Passau-case or comparable crises in Germany) where public actors failed and the private sector stepped in
- A classification of areas where cooperation worked well or poorly

As a lot of the underlying research will be in German, good knowledge of this language is necessary.
7. Private sector engagement during Indian Ocean earthquake and tsunami 2004

When a series of Tsunamis in 2004 hit Southeast Asian countries, a large part of the population was affected and the damages to the infrastructure were significant. During the disaster, several private firms stepped into the crisis management and supported the population individually or in cooperation with public actors. Some of the firms were able to positively promote their engagement.

The literature research and analytical work of this thesis should include:

- An overview and classification of the actions of public and regional private actors during the disaster
- An overview of experiences of regional private firms during the crisis:
  - From which actor did the contact started?
  - Who contacted whom?
  - What was offered?
  - …
- A collection of examples where public actors failed and regional private sector stepped in
- A classification of areas where cooperation worked well or poorly
- An overview of foreign private sector engagement in the affected area

8. How does the Corona virus affect global supply chains?

The coronavirus Sars-CoV-2, which has been on the rampage for several weeks now, not only poses a threat to humans but also has an already significant impact on global value chains. In China, the situation has since worsened with the blockade of 13 cities in Hubei province. Against this background, Deutsche Post, among others, stopped parcel traffic to China, Hong Kong and Macao. Although the future development is difficult to predict, it is at least possible to guess what short, medium and long-term effects the corona virus crisis has and will have on supply chains.

The thesis should include the following aspects:

- Provide a conceptual overview of how pandemic risks affected global value chains in the past.
- An in-depth description of at least one (but not more than two) modelling approaches of pandemic risks in supply chains. An own (simplified) simulation would be a plus but is no hard requirement. The picked model must be taken from the literature and should be published in a quality journal in the area of supply chain (risk) management.
- Based on news and first available reports provide a brief description of how the coronavirus already
affected global supply chains with a link to the first two tasks.

**Supervisor:**
Dr. Marcus Wiens

**Literature (as a starting point):**

**9. The importance of the right digitalization strategy for corporate competitiveness**

Cyberrisks pose the question of how necessary digitalizing strategies are for corporate performance. This is due to the fact that digitalization on the one hand induces new threats to companies. These threats may negatively influence corporate performance. On the other hand, the right digitalization strategy may also increase competitiveness and thus corporate performance.

The thesis should include the following aspects:
- Develop a model illustrating the necessity of digitalization for companies in a competitive environment taking the cost-benefit calculation referring to cyberrisks into account
- Provide some cases were companies failed to digitize their businesses (show at least one case for mistakes in digitalization, wrong approaches, underestimating developments/incorrect priorities).

**Supervisor:**
M.Sc. Florian Kaiser

**Literature (as a starting point):**
- Literature will be given in the kick-off meeting.

**10. Modelling the effects of reputation spillover**

“It takes 20 years to build a reputation and five minutes to ruin it” (Warren Buffet). This quote highlights the importance of reputation for risk management. However reputation is not entirely built from organizations decisions. In fact reputation can spread from one company to another.

The thesis should include the following aspects:
- Provide a conceptual overview of how reputation is built and spreads in a network.
- Provide a modelling approach of how reputation spreads in a branch.
- Give a framework of how reputation affects organizational performance

**Supervisor:**
M.Sc. Florian Kaiser

**Literature (as a starting point):**
- Literature will be given in the kick-off meeting
Seminar Kick-Off: 21.04.2020
Seminar Workshop: 12.05.2020
Seminar Presentations: 07.07.2020