

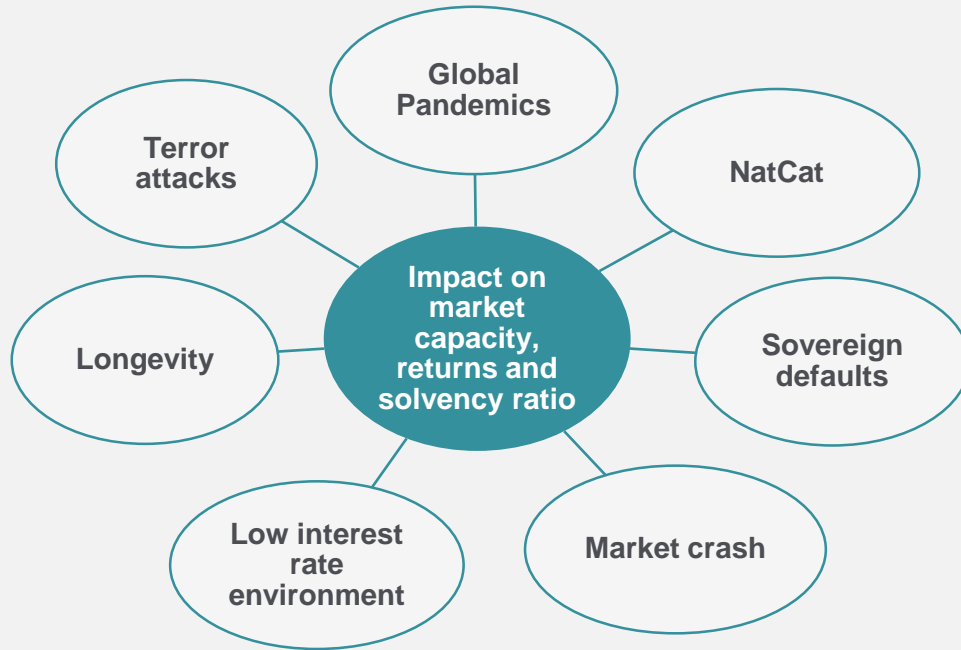


# Managing Emerging Risks and Uncertainty

Dr. Bernhard Kaufmann  
Group Chief Risk Officer

Presentation at the „International Congress of Actuaries“  
Berlin, 8 June 2018

Well-known risk drivers in the insurance industry are adequately addressed by our risk management approaches

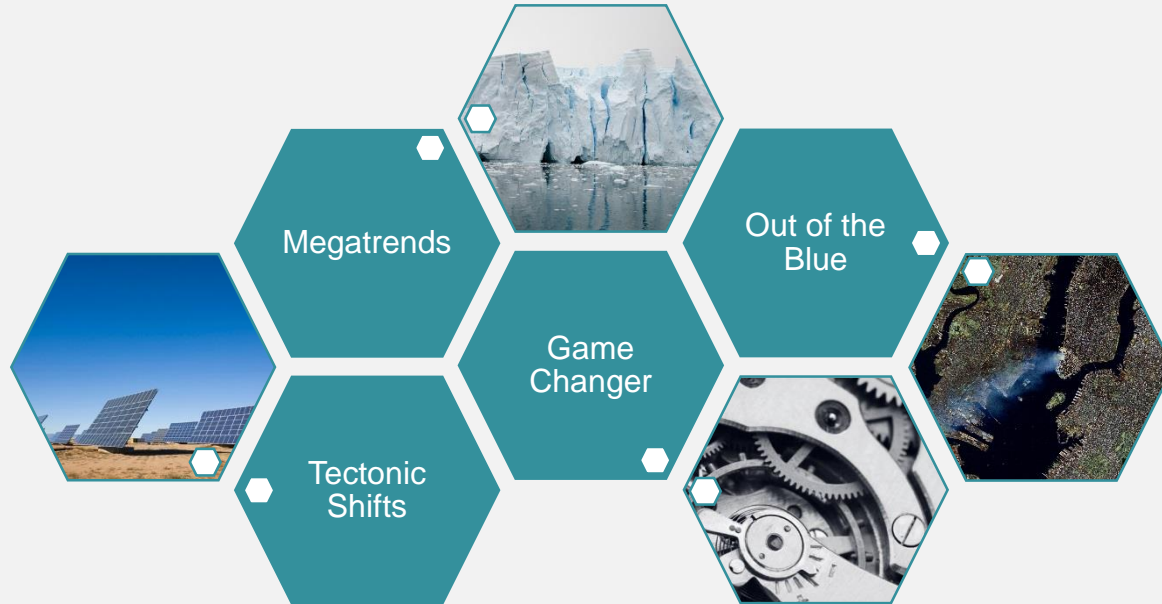


### Risk management approaches

- Defined risk appetite including limits and triggers, e.g. for concentration risk management
- Quantification in our Internal Model
- Development of worst-case scenarios and stress-testing
- Emergency planning, e.g. BCM, liquidity crisis

▶ Major challenge: How should we deal with new, developing risks?

There is a wide spectrum of emerging risks, which are relevant for the insurance industry now or in the future



## Emerging risks

The spectrum includes

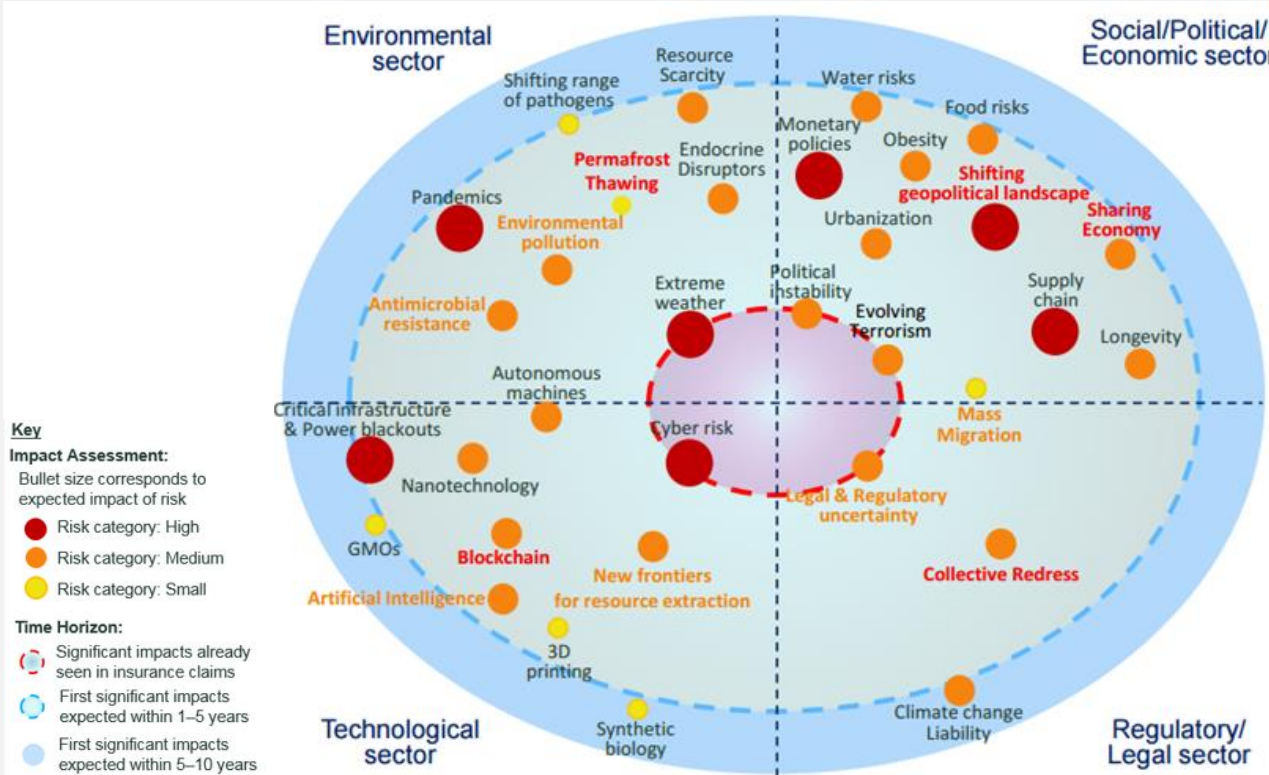
- trends, and
- events that happen suddenly.

They are characterised by a high degree of uncertainty in terms of

- their occurrence probability,
- the loss amount that can be expected from them,
- and their potential impact.

► Identification and analysis is a challenge for tools, people and organizations

# Munich Re is engaged in the Emerging Risk Initiative of the CRO Forum



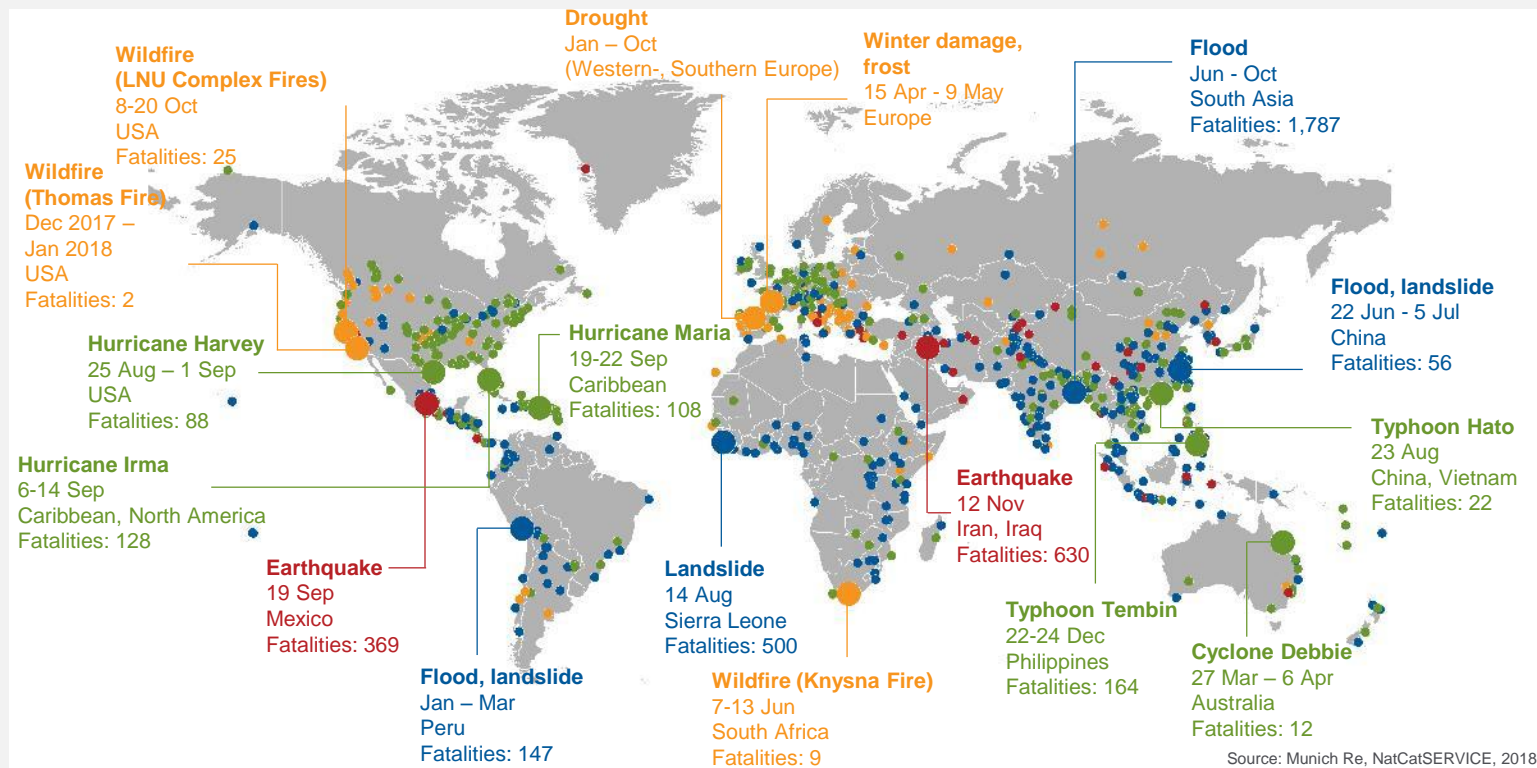
ER Radar  
[www.thecroforum.org](http://www.thecroforum.org)

Selected Topics:

- Cyber Risks
- Extreme Weather/ Climate Change
- Critical infrastructure
- Autonomous machines
- (Geo-) Political instability

# NatCat Risk: Loss events worldwide 2017

## Geographical overview

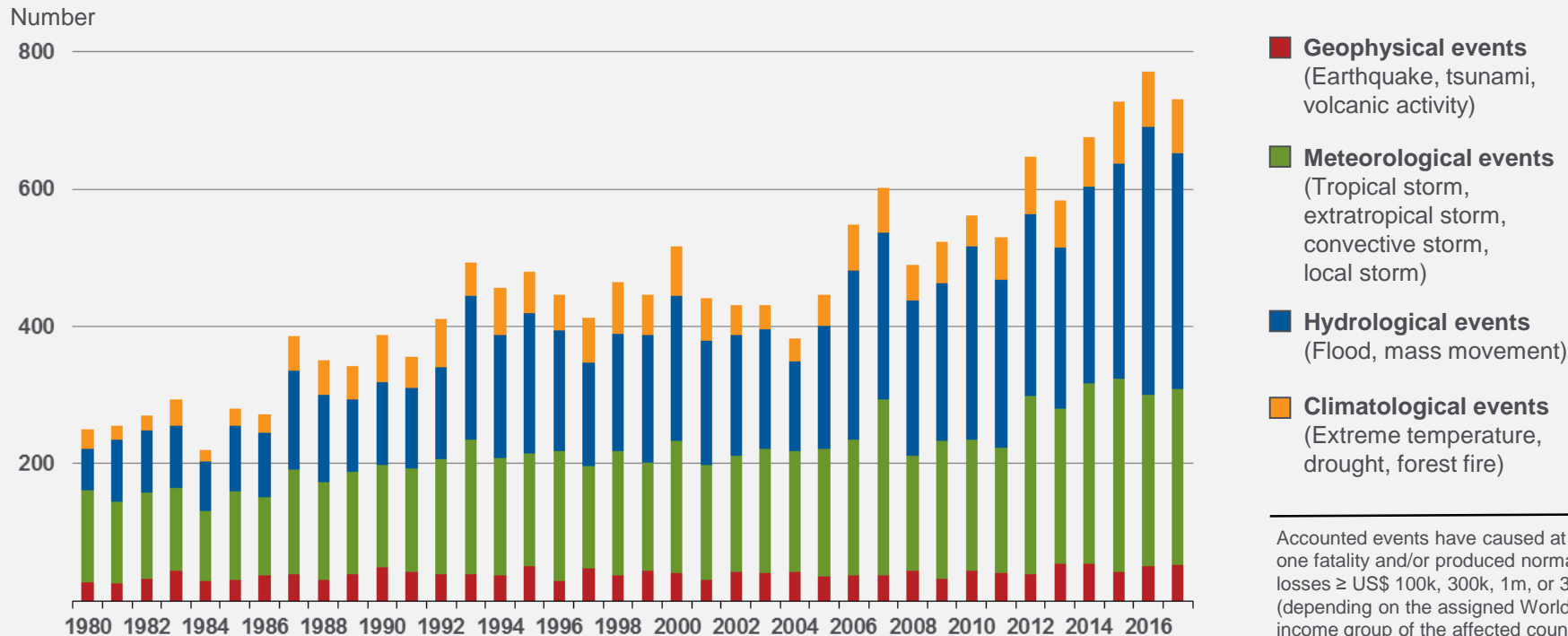


Source: Munich Re, NatCatSERVICE, 2018

- **Geophysical events**  
(Earthquake, tsunami, volcanic activity)
- **Meteorological events**  
(Tropical storm, extratropical storm, convective storm, local storm)
- **Hydrological events**  
(Flood, mass movement)
- **Climatological events**  
(Extreme temperature, drought, wildfire)
- **Loss events**
- **Selection of catastrophes**

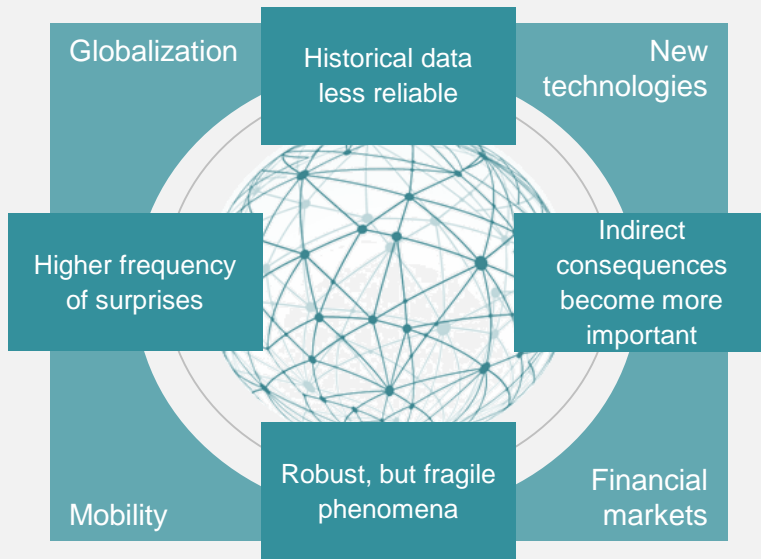
# NatCat Risk: Loss events worldwide 1980 – 2017

## Number of relevant events by peril



# Current risk landscape reflects increased uncertainty of economic and political scenarios

**Decade of change:** Globalization, digitalization and uncertainty present massive challenges. Populist movements harvest the anti-establishments sentiments to disrupt the political agenda.



## Economic

- Ongoing expansionary ECB and low interest rates in Europe
- Sovereign debt crisis in Europe
- Inflation risk

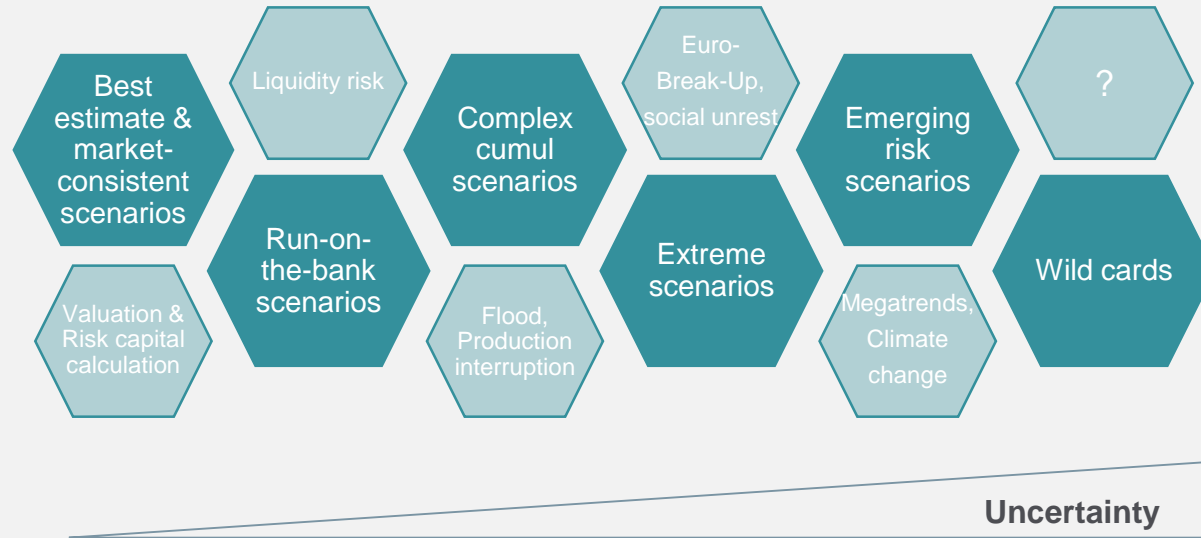
## Political

- Brexit: Risk of disorderly process and severe frictions
- Heightened uncertainty and adverse policies under Trump presidency
- Migration and Vox populi risk

## Preparedness and resilience

- Ongoing development of risk management toolbox for these risks
- Risk assessment has to be based on forward-looking scenarios
- Active exposure management and risk mitigation

# Classification and examples of scenario types to analyze emerging risks

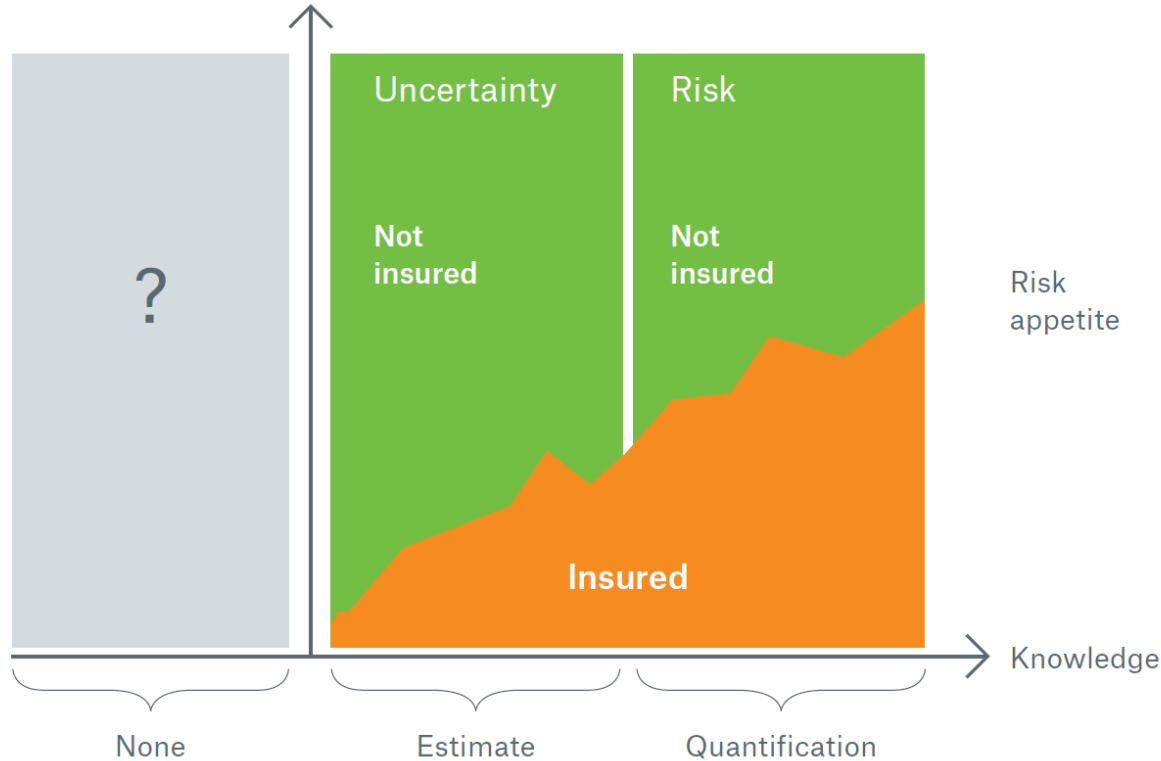


## Use case for scenarios

- Economic balance sheet & Risk Capital
- Strategic business planning
- Liquidity crisis plan
- Basic- and Large-Loss-Models
- NatCat modelling
- Assessment of operational risk
- ORSA

▶ Certain scenarios (e.g. Euro-Break-Up) have developed from „wild cards“ to concrete scenarios with moderate likelihood

# More fundamental: Why is it so difficult to deal with uncertainty – even for actuaries?



# The fundamental challenge – and potential pathways towards improvement

## Thinking the unthinkable – Why is it so difficult?

“Being overwhelmed by multiple, intense pressures”

“Cognitive overload and dissonance”

“Reactionary mind-sets”



“Institutional conformity”

“Groupthink”

“Fear of career-limiting moves”



“Wilful blindness”

“Denial”

“Risk aversion”



## Domain

SITUATIONAL  
COMPLEXITY

ORGANISATIONAL  
STRUCTURES

HUMAN FACTOR

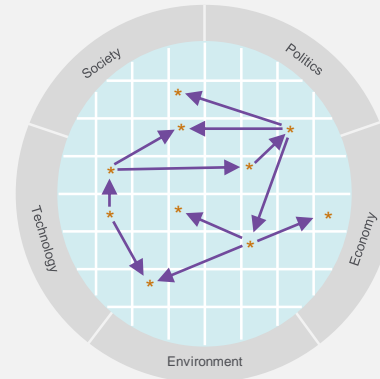
"It is not a matter of predicting the future, but of being prepared for it." *Pericles* (~ 495 – 429 BC)

## The use of scenarios...

- ...enables a more concrete quantification of some risk categories (e.g. operational risk)
- ...ensures a concrete analysis of potential threats
- ...generates an understanding of the financial vulnerability and viability and of the financial position of the company in an unexpected event
- ...shows the connectiveness of different risk drivers
- ...validates the models and the risk strategy

## Example

### CARE – Complex accumulation risk explorer

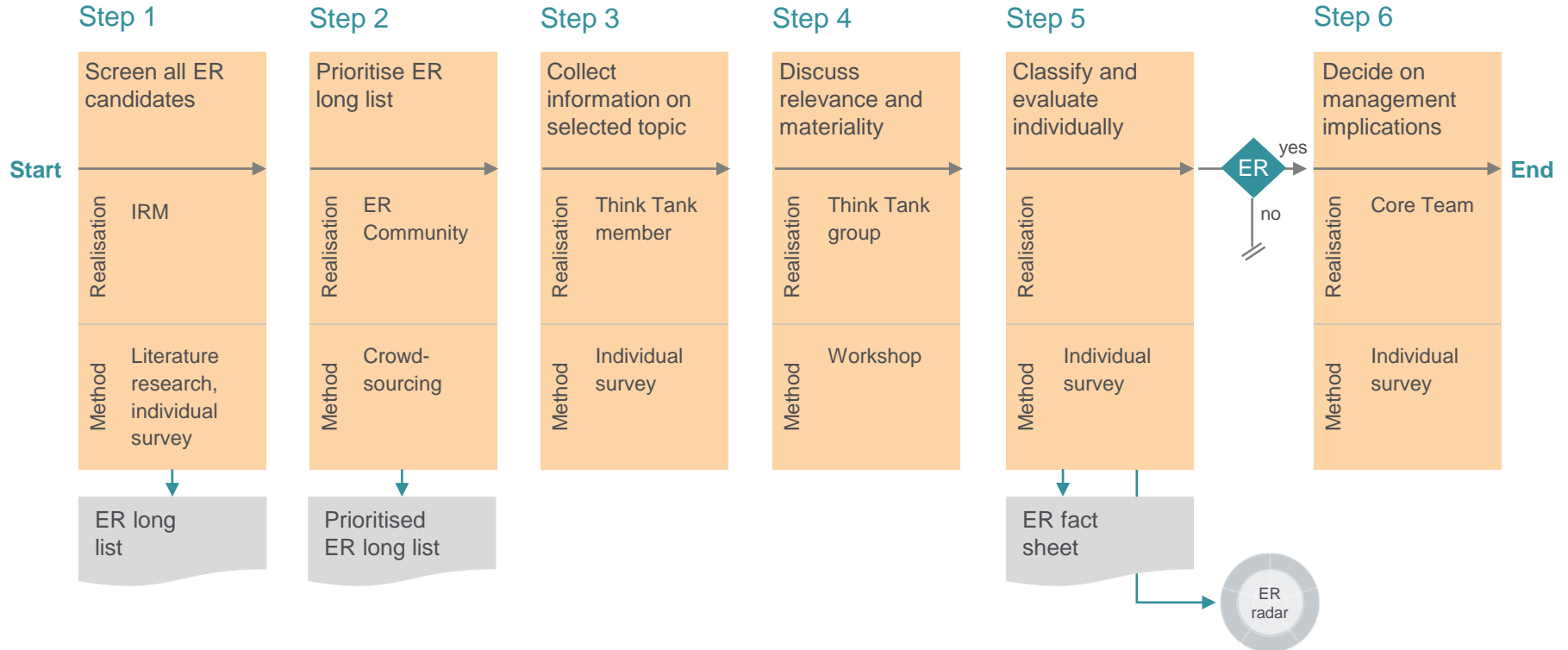


- Systematic risk landscape for events and interactions
- Structured data base of potential trigger-consequence relations between critical events
- Identification and analyses of complex loss scenarios
- Based on interdisciplinary expert knowledge
- Current database: ~350 events and 1200 relations

 **Scenarios make dependencies and complexities in the business model accessible**



# Organisational structure – Emerging risk management process



# Human factor in risk management –

## We tend to underestimate or even ignore risks, if ...

Observation / Situation	Effect / Heuristic at work
... others are engaged in the same activity or invest in same risks	social proof, peer pressure
... key people (CEO, CRO) have been successful in the past, also in unrelated fields	expert halo
... we focus on successful examples only and ignore the failures	availability heuristic, base rate neglect
... we have already invested into the project (time, money, resources)	sunk cost effect, prospect theory
... we have positive feelings about the risk, technology, people	affect heuristic
... the decision is consistent with past decisions and successful results	hindsight bias, escalation of commitment
... responsibility is distributed within groups (committee decisions)	risky shift, social loafing

▶ If these effects occur in the process, mitigation is required for unbiased risk assessments

# What should good emerging risk management look like?



## What does “good” mean?

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- Transparent process
- Informed decisions
- Unbiased assessments
- Balance stakeholder interests

## How can we get there?

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### People

- Detailed explanation of procedure steps
- Clarification of roles and responsibilities
- Training regarding known human behavioural issues

### Process

- Systematic and structured approach
- All relevant information is available and part of the discussion
- Address complexity and increase transparency

▶ No perfect answer yet – but working towards better results



Thank you!

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