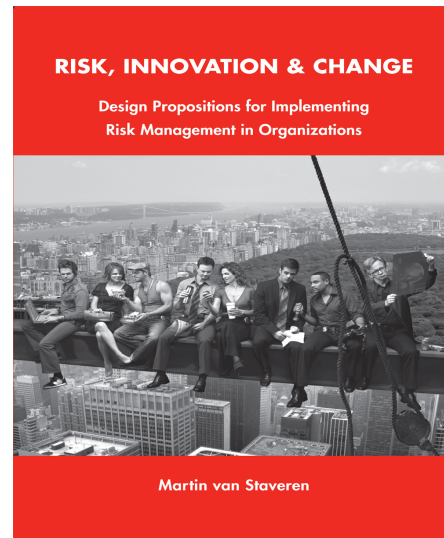


Risk, Innovation & Change

Design Propositions for Implementing Risk Management in Organizations

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Summary

Managing risk is difficult. Applying risk management is more difficult. Implementing risk management in organizations is the most difficult. Risks are inherently subjective and intangible. Risk management is about handling uncertainty, with which most people feel rather uncomfortable. Moreover, risk management has a preventive character. This means doing something to *avoid* something else happening. However, in most situations there is *no* direct relationship between the application and benefits of risk management. Otherwise, commercial and public organizations operating in our globalizing world *are* highly vulnerable to risk. Therefore, an increasing number of managers acknowledge that the risk of *not* routinely applying risk management is unacceptable for their own organizations, as well as for shareholders and other stakeholders.

Realizing actually implemented risk management in an organization is however by far not easy. Failure is more the rule than success. Consequently, large sums of money, seemingly invested in implementing risk management, are actually wasted. This appears an ill-defined and messy problem in a lot of industries, for risk management as well as for (other) innovations.

This research focussed on the Dutch construction industry. Within engineering and construction, complexity, safety, failure costs, and integrity are four key problems. By many, applying risk management is meanwhile considered a promising part of the solution. Nevertheless, there exists hardly scientifically validated and practically applicable knowledge about *how to implement* risk management in organizations. This situation occurs despite, or because of, the raised risk management problems. Therefore, the main research question of this research was:

How to implement risk management in organizations in the construction industry?

Within this research, *implementation* means the routinized application of risk management within an organization. The design science approach appeared to be the most appropriate research methodology. Subsequently, a number of exploration research and development research steps were taken. Comprehensive literature surveys and field research has been performed. Experts, from academia and the professional practice, in the disciplines of risk management, innovation management, and change management from The Netherlands, the United States, the United Kingdom, and South Africa, were interviewed. The results served as foundation for the development research part. Synthesizing concepts and variables about risk, innovation, and change generated four practically applicable research products. These were developed in three subsequent steps, validated in four case studies, and evaluated by an expert panel. Together, these research results provide unique design propositions for implementing risk management in organizations.

Research conclusions

Based on the research of implementing risk management in organizations, four general conclusions are drawn:

- Conclusion 1: Form, function and meaning of risk management are largely intangible and subjective, which makes effective, efficient, and persistent implementation in organizations highly complex;
- Conclusion 2: Implementing risk management in organizations requires a design approach that synthesizes risk management, innovation management, and change management concepts and practices;
- Conclusion 3: Specific attention to routinize the use of risk management methodologies, defined implementation, is highly underdeveloped;
- Conclusion 4: For real implementation, risk management methodologies need to be adapted to organizational social systems with their distinct risk management user groups.

Conclusion 1 and Conclusion 3 represent the ill-defined and messy problems with implementing risk management in the professional practice, for which Conclusion 2 and Conclusion 4 provide solutions.

The high degree of *complexity* has been revealed by identifying 480 variables. All of these are, in one way or another, influencing the implementation of risk management in organizations. For being able to handle this complexity, design propositions for implementation have been developed. These reduced the original number of nearly 500 variables with a factor 10 to 50 well-structured and workable key variables.

When starting with risk management, most organizations tend to focus almost entirely on *developing* risk management principles, processes, and tools. Giving specific attention to *routinizing* the use of these methodologies is underdeveloped. Commonly, two fundamental dimensions for implementing risk management, organisational *social systems* and distinct types of risk management *users*, are largely neglected. Amongst others, this appears from four cases studies. These were performed in a geotechnical institute, a project management consultant, a contractor, and a public client organization, over a three-year period. Within the Dutch construction industry, these four organizations are leading with regard to applying risk management in their activities.

Research products

The research products are two models and two instruments for implementing risk management:

1. A *conceptual model* that gives insight in the relevant *mechanisms* for effective, efficient, and persistent implementation of risk management in organizations. The three dimensions of the model are (1) risk management users, (2) risk management methodologies, and (3) social systems;
2. A *design process model* for context-specific design of risk management implementation *processes*. The model distinguishes the *feasibility* phase, the *decision* phase, and the *execution* phase. Moreover, it defines *roles, tasks, and responsibilities* of actors during the risk management implementation process;
3. An *audit instrument* for measuring implementation *readiness* of organizations. In addition, it can measure implementation *progress* over time. The audit instrument consists of three questionnaires. Completed questionnaires reveal individual perceptions of actors before, during, and after risk management implementation processes.
4. An *intervention proposition* for selecting adequate *key interventions* with supporting activities. These aim to increase individual motivation and commitment of risk management users.

All of the developed products facilitate designing, preparing, executing, and monitoring risk management implementation processes in organizations. Knowing about the conceptual model is relevant for any *researcher, manager, and professional*, who is or will become involved in implementing risk management in organizations. The design process model, the audit instrument, and the intervention proposition are specifically developed for *consultants* involved in implementation processes.

Scientific research contribution

The scientifically developed design propositions for implementing *risk management* in organizations are the *first* of its kind, and therefore unique. Moreover, from a *scientific* point of view, the research results have four other distinguishing features:

1. The developed products are the results of *synthesizing* state-of-the-art risk management, innovation management, and change management concepts and variables;
2. The results *combine* three fundamental dimensions for implementation: risk management users, methodologies, and social systems;

3. Five levels of motivation and commitment for implementing risk management have been *combined* with five different types of risk management users, according to five so-called aspect systems for interventions;
4. Despite the still considerable number, the fifty key variables for implementing risk management are well-applicable by their simple framework. Existing models in the discipline of *innovation management* either are restricted by just a few variables, or are so complicated that they are not workable anymore.

Based on these distinguishing features it has been concluded that the research results have a considerable scientific relevance for *researchers* of risk management, innovation management, and change management.

Practical research contribution

From a *professional practice* point of view, the overall usefulness of the research products has been specified by eight criteria: (1) state-of-the-artness, (2) completeness, (3) suitability, (4) applicability, (5) flexibility, (6) effectiveness, (7) efficiency, and (8) transferability. A vast majority (74 percent) of the expert panel agreed that the research products satisfy the eight criteria. Therefore, in conclusion, the research results have a substantially practical relevance for *consultants, managers, and professionals* who are or become involved in implementation issues.

Final remarks

This Ph.D. research generates a unique approach for implementing risk management in organizations. Due to the professional background of the researcher, the research started in the specialized discipline of geotechnical engineering. However, during the research process the area of interest widened largely. Implementing risk management appeared being a particular type of organizational innovation that needs change management approaches. Consequently, the research results have an organizational and rather generic character. Therefore, other technical as well as organizational disciplines are expected to benefit from the developed knowledge base and research products.

Worldwide, many public and private organizations, in a lot of industries, struggle with implementation issues. This is by far not restricted to risk management. For instance, also the implementation of information and communication technology, quality management, and safety management inhibits lots of opportunities for improvement. Implementation does usually involve considerable costs, while the targeted objectives are often not (fully) realized. Based on this research, it is expected that applying the developed knowledge base contributes considerably to more effective, efficient, and persistent implementation of risk management and (other) innovations. For *employees* at all levels within organizations this may increase their job satisfaction and productivity. For *organizations*, public as well as private ones, better implementation processes will reduce implementation costs and increase the material and immaterial benefits of routinely used innovations.