Summary

Towards a risk management framework for construction projects

Introduction
In the construction industry today, projects are exposed to many risks. It is important to manage risks because the success of a project is essential to both client and contractor.

Problem definition
When considering the practical aspects of risk management, the construction industry generally shows low risk awareness. Although many tools and techniques exist for dealing with risks, there is a clear gap between what the literature suggests on the application of these techniques, and how particular tools and techniques can fit an individual company. The research focused on the analysis of risk management practices at a company level, namely within the practices of the consultancy & engineering company Tebodin.

Research
My research consisted of analyzing and improving Tebodin's current risk procedures for construction projects and focused on the development of a risk management framework that can be implemented at Tebodin. To achieve my goal, a special approach was developed. The approach was divided in three phases:

1. A gap analysis of the problem: theory from both a literature review and the risk management description in the Tebodin manuals are compared with the reality acquired through interviews with project managers from Tebodin.
2. The second phase was to develop a suitable risk management framework to provide insight into which techniques and tools can be used to integrate risk management into project management, and which offers guidance to manage risks during the entire project.
3. The third phase explained how to integrate the framework into the organization.

Results

1. The analysis concluded that the gap between the theory and practice of risk management is not caused by the techniques or methods but by the individuals who put it into practice. Many different risk management tools and techniques exist, but there is no specific guideline on *how* to apply risk management and apply the tools and techniques coherently.
2. The risk management framework that is developed consists of three layers, namely a timeline presentation of risk-related techniques, linking the techniques and in-depth development of the techniques.
3. The plan developed for implementing the framework suggests how to integrate the techniques from literature, and explains who needs to be involved in the organization, and what should be implemented on the short term and long term.

Conclusions and recommendations
The framework suggests adapting currently used techniques and introduces some techniques from literature. The limitation of the suggested techniques is that these do not change the culture of an organization. In order to benefit from the added value of risk management techniques, and to close the gap between theory and practice, a change in culture needs to be developed to be able to embed these techniques in the organization. To create risk awareness, it is recommended to involve members of the project team early in the project. Explaining tools and techniques can help to create awareness, as well as learning from each other.

Student: **I.V. Italianer**
Committee: **Prof. dr. ir. A. Verbraeck, dr. J.L.M. Vrancken, dr. ir. M.G.C. Bosch-Rekveldt, D. Goodall (Tebodin)**