



Mid-Term Review Meeting

RiMaCon's Mid-term review meeting was hosted by Vettorazzo Costruzioni at Fenice Park, Padova on 25th March 2015.

Many of the project researchers attended in addition to the project LEARs, Project Officer (Gianluca Coluccio based at the Research Executive Agency) and Project Support Manager (Stephanie Hall based at the University of Wolverhampton).

All researchers gave a presentation of their work carried out to date on behalf of the RiMaCon project and an overview of the project and its progression to date was given by Project Co-Ordinator Professor Chike Oduoza from the University of Wolverhampton.

It was concluded that despite the withdrawal of one of the original partners at the beginning of the project, RiMaCon had made great progress and was on track to be completed on time.

Top photo - left to right: Subashini Suresh-UniWolv, Marco Vettorazzo-Vetto, Jiri Tupa-UniWest, Rob Pinner-Thyme, Daniele Pretto-Vetto, Chike Oduoza-UniWolv, Gianluca Coluccio-REA, Ali Rostami-Vetto, Emeka Amalu-UniWolv, Nengi Odumabio-UniWolv, Frantisek Steiner-UniWest.

Bottom photo - left to right: Rob Pinner-Thyme, Daniele Pretto-Vetto, Gianluca Coluccio-REA, Stephanie Hall-UniWolv, Chike Oduoza-UniWolv, Jiri Tupa-UniWest.



PROJECT PARTNERS:

DID YOU KNOW ????

- 99.9% of the European construction sector is composed of small and medium-sized enterprises
 - In the EU, the average size of construction enterprises is 4 workers
 - Small and medium businesses produce 80% of the construction industry's output

Source: European Builders Confederation (2014)

Our second Recruited Researcher has been selected and will start work on the project on 12th October 2015. Dr. Alexios Tamparopoulos will be based at the University of Wolverhampton and will work closely with the software developer over the next 18 months. We would like to take this opportunity to welcome Alexios to the team and look forward to him moving the project on to the next stage.



RiMaCon's Publishable Summary as Submitted to the EU in the Periodic Report (August 2015)

Small and medium-sized enterprises (SMEs) especially in the construction sector are vulnerable, facing daily exposure to a wide variety of business risks, whilst they operate without a risk management system in place. There is abundant evidence both from informal market research and industry surveys to confirm that SMEs are continuously handicapped and therefore underperforming due to their inability to manage operational risk challenges facing them on a daily basis. RiMaCon consortium has been constituted to address this problem by developing a robust risk management software system that will proactively identify, analyse and manage a large variety of risks faced by SMEs in the construction sector.

The goal of the project therefore is to implement a collaborative effort to promote the sharing of knowledge and competencies in a long-term strategic research partnership around the development, testing and validation

of a cost-effective and user-friendly risk management system for SMEs in the construction sector. This system will improve productivity based on risk identification, analysis and proactive management. The objectives of the RiMaCon project have been defined to respond to this problem in a flexible way, with a top-down approach as follows:

- Development of conceptual framework model targeted at the construction sector based on the balanced score card (WP1-WP2):
- Quantitative analysis of impacts and risk monitoring achieved through modelling and simulation (WP3)
- Development, testing and validation of new robust risk management tool (WP4-WP5)

Over the last two years, the first two objectives are being achieved

through organised, systematic secondment of researchers between industry and academia during which primary and secondary data were collected and knowledge transferred. Seventy percent of the scheduled secondments have been achieved so far, and a post doctoral researcher was recruited and has been based at a partner site for one year. In terms of dissemination, five research papers on various aspects of the study have been published and presented at International conferences, a workshop run for stakeholders in the construction sector and a risk management symposium proposed for Flexible Automation and Intelligent Manufacturing (2015) international conference. Two newsletters have been produced so far for outreach activities and a functional website (RiMaCon Wiki) is in place to market the project and also to serve as a medium for communication and interaction with consortium members.

RESEARCH OUTPUTS



The University of Wolverhampton hosted the 25th Annual Conference for Flexible Automation and Intelligent Manufacturing from the 23rd - 26th June 2015. Over 170 delegates from 32 different countries attended the conference.



FAIM 2015 Registration



Keynote Speaker David Danger from UTC Aerospace Systems



One of the presenting delegates



Social trip for all delegates to the Black Country Living Museum

One of the parallel sessions was purely dedicated to Engineering, Risk Management and Quality Control as an opportunity for dissemination of RiMaCon research to date. Two RiMaCon based researchers gave presentations; Jan Simota from the University of West Bohemia and Nengi Odimabo from the University of Wolverhampton and an overview of their presentations are as follows:

RESEARCH OUTPUTS (Contd.)

Nengi Odimabo - RiMaCon PhD Researcher based at the University of Wolverhampton, UK

Paper title: CRITICAL RISK FACTORS AFFECTING BUILDING CONSTRUCTION PROJECTS IN NIGERIA- AN EMPIRICAL STUDY

An investment in building construction projects is not without risks. Construction works in developing countries suffer from administrative and inefficiencies because of the lack of a sound management framework. This paper identified key critical risks factors in building construction projects in Nigeria. Seventy six risk factors were identified through literature review and classified into nine groups as physical, environmental, design, logistical, financial, legal, construction, political and management risks.

A questionnaire survey was conducted of randomly selected samples responses from 343 construction professionals which was drawn from 305 contractors/subcontractors and 38 clients or owners (private and public) within the Nigerian construction sector. The respondents assessed each risk factor based on their likelihood of occurrence and impact on projects using a five point scale. Response data was subjected to descriptive statistics and subsequently, the Risk Acceptability Matrix (RAM) was adopted to categorise and prioritise risk factors in order to determine the top 5 critical risks that affect building construction projects in Nigeria.

The result showed the critical risk affecting building construction projects were supplies of defective materials, defective design, delayed payments on contract, awarding the design to unqualified designers and poor site management/supervision. The study further suggested risk response strategies appropriate for each of the identified critical risk factors. This research outcome contributes to both practice and research in risk management for the construction industry. Consequently, enterprises that intend to provide building construction projects in environments identical to Nigeria will access comprehensive information of the main risks they might face.



Nengi Odimabo
University of
Wolverhampton

RESEARCH OUTPUTS (Contd.)

Jan Simota - RiMaCon Recruited Researcher based at the University of West Bohemia, Czech Republic

Paper title: CONCEPT OF RISK MODELLING FOR SMEs

AIM: To present discussion about constraints and barriers for implementation of risk management and risk modelling in the SME and based on this study describes a concept which covers suitable selected tools and techniques for risk modelling in SME companies.

RESEARCH METHODOLOGY: This was demonstrated using a case study. For data collections the methods used were Participation/Observation and Interview techniques.

DESIGN CONCEPT: The design concept tried to combine a process of objective modelling with risk and qualitative or quantitative risk assessment techniques. The proposed solution tries to implement ideas of the integrated process management, performance and risk management according to one methodological approach. The process management and process modelling techniques have been chosen because this approach is the core of integrated management according to ISO standards. Process analysis helps to identify risks in business processes. Based on this analysis is possible to develop a process model and to link the risk with activities in a process. The modelling techniques used Universal Language modelling and Business Process Management Notation.

RESULT AND DISCUSSION OF DESIGNED CONCEPT IMPLEMENTATION: Our first experience with the proposed concept in this case study has shown the benefits of this solution, which reflects the approach based on quality, risk and process management. Its implementation indicates that designed solutions help to implement a Sustainable Enterprise Risk Management system. The concept has been supported by the ARIS modelling software tool. The benefits of using software are:

- visualisation of the relationship of process attributes and process;
- multidimensional modelling of enterprise process architecture;
- data record for risk analysis and simulation.



Jan Simota
University of
West Bohemia

RESEARCH OUTPUTS (Contd.)

A paper was also presented at the COBRA 2015 Conference hosted by RICS in Sydney, Australia from the 8th - 10th July 2015. This conference focused on academics and practitioners for the Legal Research Symposium addressing legal topics affecting the built environment, or the work or education of chartered surveyors. RiMaCon's Recruited Researcher Ali Rostami was the author and attended the conference to present his research looking at risk analysis in UK construction sites:



Ali Rostami
RiMaCon Recruited
Researcher

Ali Rostami - RiMaCon Recruited Researcher based at Vettorazzo Costruzioni in Padova, Italy

Paper title: TOOLS AND TECHNIQUES IN RISK ANALYSIS IN THE UK CONSTRUCTION SMEs

Aim: To assess key tools and techniques in the risk analysis process in SMEs in the UK construction industry that can be applied to the development of a Scaling Risk Management process for SMEs.

Research method: The research was part of a mixed method study which attempted to assess key tools and techniques in the risk analysis process in SMEs. As a whole, the study was based on a sequential explanatory mixed method and included quantitative and qualitative studies. This paper embraced the quantitative part of the study with literature review. The data for the study was obtained by means of a postal questionnaire.

Results: The results indicated that the selection of risk analysis techniques is influenced by the characteristics of the organisation. In small to medium-sized companies, due to their low degree of complexity and high level of centralisation in management, factors such as personality, aptitude, experience, knowledge and leadership have more impact on the choice of the method of risk management. SMEs in general prefer to use individual assessment based on their knowledge rather than a sophisticated numerical group analysis. Albeit, restrictions imposed by organisational factors such as resources and technology force SMEs to adopt cost-effective and time-effective techniques. Therefore, the quantitative techniques highlighted by Chapman (1998) and Raz and Michael (2001) are not appropriate for most SMEs due to their noted barriers.

The study has also indicated that the lack of knowledge and experience; intangible outcomes; inability to forecast risks' probability and impact; and the absence of reliable technology and training courses are the main reasons for the adoption of qualitative techniques rather than quantitative techniques.

Conclusion: Through a comprehensive survey three key tools and techniques were identified on the basis of their likelihood of usage and degree of efficacy in risk analysis. The expert judgment, risk categorisation and probability and impact matrix were highlighted as having significant impacts on the efficiency of risk analysis. The attempt to evaluate these key tools and techniques from the perspective of organisational characteristics indicated that valuable results and outcomes; time and cost effectiveness; and uncomplicated processes are the main reasons for their usage within small and medium sized enterprises. Conversely, quantitative risk analysis tools and techniques like simulation and modelling analysis are less practised because of the SMEs' inadequate level of knowledge and resources.

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