



THREE SOURCES FOR THE PROJECT RISK REGISTER ANALYSIS

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Abstract

The aim of the current research is to examine risk registers of real projects to find correlations between the risk management theory and practical results of risk management in real projects – the risk registers publicly available in the Internet.

In the research the author has analysed the compliance of the risk management theory which is described in *AS/NZS ISO 31000:2009* with projects risk registers. The previous two studies dealt with the Project Management Institute “*A Guide to the Project Management Body of Knowledge*”, European Commission Aid Delivery Methods Volume 1 *Project Cycle Management Guidelines*, Tasmanian Government *Project Management Guidelines*, and *A Guidebook of Project & Program Management for Enterprise Innovation*, Volume II and risk registers.

In the previous two studies the author concluded that just in 30 risk registers significant differences can be found between the risk register described in theory and risk registers of projects. As a result of the research it cannot be concluded what the minimum amount of information in the risk register is to make it comply with the risk register described in theory.

Key words: *Risk, Project, Project Risk Management, Risk Register.*

JEL code: *M00*

Introduction

Project management is a relatively new science characterized by dynamic development in the second half of 20th century. The first editions of the one of the most popular project management guidelines, *A Guide to the Project Body of Knowledge*, were launched in 1996. The latest version of *A Guide to the Project Body of Knowledge*, the fifth one, was issued in 2013. Other project management manuals have seen similar updates, for example, the first edition of the Tasmanian Government *Project Management Guidelines* was published in 1996, however the latest, 7th version, came out in 2011 (Uzulans, 2015).

Although a new edition is issued in average every three years, the author considers that none of them contains references to research results; it can therefore be assumed that the manuals represent theoretical reflection on the authors' experience. However, the development of a science is impossible without research and research-based conclusions and recommendations (Uzulans, 2015).

Project risk registers have been analysed in research and development project (Luppino, Hosseini, Rameezdeen, 2014), construction projects (Dunović, Radujković, Vukomanović, 2013), and research project (Bodea, Dascalu, 2009). A project risk register is a result of the risk management process (Larson, Gray, 2011; Chapman 2006), the structure of the risk register can be simple or complex (Hillson, 2009), and the structure of the risk register is determined by many factors (Chapman 2006).

Methodology of Research

The article describes the research on risk registers. The aim of the study is to assess the compliance of the publicly (in the Internet) available project risk registers and theoretical risk registers created based on the *AS/NZS ISO 31000:2009* Australian/New Zealand Standard Risk



Project Management Development – Practice and Perspectives

Fifth International Scientific Conference on Project Management in the Baltic Countries

April 14-15, 2016, Riga, University of Latvia

management – Principles and guidelines and ISO Guide 73 standards. For the purposes of the research the author has used both quantitative and qualitative research methods.

The research comprised analysis of 30 publicly available project risk registers. The selection of the registers was made in November, 2013 with the Google search engine by requesting “project risk register” and the first 10 web pages with the search results were examined.

In the research the author restricted the search term “*risk register*”, as widely distributed by the term of the document which is defined as “record of information about identified risks” (ISO Guide 73, 2009, p.12).

In the previous two researches the risk registers were described and it was concluded that by analysing just 30 risk registers significant differences can be found between the risk register described in A Guide to the Project Management Body of Knowledge by Project Management Institute, Tasmanian Government Project Management Guidelines and Risk Management Guide for DoD Acquisition and project risk registers and between term “*risk*” in the European Commission Aid Delivery Methods Volume 1 “Project Cycle Management Guidelines” and “Caltrans Project Risk Management Handbook, Threats and Opportunities, Second Edition, Revision 0” and the risk registers publicly available in the Internet. Taking into account that the aim of the research was not to find regularities in the risk registers, no assessment was made concerning the general set of risk registers and the kind of the selection. The author assumes that 30 risk registers constitute a sufficient number for comparing the selected registers.

Among the selected risk registers there were 29 pdf (Portable Document Format) and one xls (Excel Binary File Format) documents. All registers are designed as a table with columns about project risks. The minimum number of columns is three, maximum is 25, and the most common number of columns is 14 in eight registers. There was no risk register which would completely coincide with another register. In one register there were two different tables with a different number of columns – the table with the biggest number of columns was chosen because the column titles coincided and in the biggest table there were columns, which could not be found in the smallest table. In the xls format table 12 columns are hidden. In the hidden columns there is information about the influence by the kind of it. For the research purposes the author used the table without the hidden columns. In one register there are two tables, the title of one of which contains the term “draft”, in the research the other table was used where a part of the title is “risk register”.

AS/NZS ISO 31000:2009 Australian/New Zealand Standard Risk management – Principles and guidelines was prepared by Joint Standards Australia/Standards New Zealand Committee OB-007, Risk Management to supersede AS/NZS 4360:2004, Risk management. In 2005 the International Organization for Standardization (ISO) established a working group to develop the first international risk management standard using AS/NZS 4360:2004 as the first draft. The standard development process included extensive public consultation in Australia and New Zealand and resulted in the publication of ISO 31000:2009 (AS/NZS ISO 31000:2009). This Standard recommends that organizations should have a framework that integrates the process for managing risk into the organization's overall governance, strategy and planning, management, reporting processes, policies, values and culture. Risk management can be applied across an entire organization, to its many areas and levels, as well as to specific functions, projects and activities (AS/NZS ISO 31000:2009, p.IV).

The study is structured in three steps. First, analysis of the term “*Risk*” and risk register definitions, risk management process and project documentation. Second, theoretical risk



register column identification, and third, comparison between theoretical risk registers and project risk registers.

AS/NZS ISO 31000:2009 defines the risk term and describes each subprocess of risk management process. The risk is defined as “effect of uncertainty on objectives” (AS/NZS ISO 31000:2009, p.1). There are three terms in the definition – “*Effect*”, “*Uncertainties*” and “*Objectives*”. Possible theoretical risk register columns are 3: objective, uncertainty and effect. AS/NZS ISO 31000:2009 risk definition has been enhanced with five notes, which explain risk definition terms and expand risk definition.

The first note explains the meaning of the term “*Effect*” – “An effect is a deviation from the expected — positive and/or negative” (AS/NZS ISO 31000:2009, p.1). It can be concluded that, firstly, effect is measured and the measurement scales range from multiple values to only two values – positive and negative. The first note adds two new terms “*Deviation*” and “*Expected*”.

The second note “Objectives” can have different aspects (such as financial, health and safety, and environmental goals) and can be applied at different levels (such as strategic, organization-wide, project, product and process)” to classify objectives. The second note did not add new terms to clarify the contents of columns.

The third note “Risk is often characterized by reference to potential events (2.17) and consequences (2.18), or a combination of these” (AS/NZS ISO 31000:2009, p.1) expands risk definition and adds two new terms “*Potential events*”, “*Consequences*” and combination of both.

The fourth note “Risk is often expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated likelihood (2.19) of occurrence” expands risk definition and adds three new terms “*Combination of the consequences of an event*”, “*Likelihood*” and “*Circumstances*”.

The fifth note “Uncertainty is the state, even partial, of deficiency of information related to, understanding or knowledge of an event, its consequence, or likelihood” (AS/NZS ISO 31000:2009, p.1) explains term “*Uncertainty*” (AS/NZS ISO 31000:2009, p.1-2)

The total number of the theoretical risk register columns will be 9: effect, uncertainties, objectives, expected, deviation, potential events, consequences, likelihood and circumstances.

Table 1 lists the comparison of theoretical and project risk registers. All together in the risk registers there are 374 columns and 279 original column titles. The first column contains theoretical risk register columns in accordance with the AS/NZS ISO 31000:2009 risk definition and notes. The second column contains of project risk register columns where the number is equal to the theoretical risk register column names and content. The third column contains similar column names, but the content of project risk register columns is not equal to AS/NZS ISO 31000:2009 risk definition and notes. The fourth column contains different names, but equal content.



Table 1

Real project risk register columns according to the AS/NZS ISO 31000:2009 risk definition

Theoretical risk register columns in accordance with the AS/NZS ISO 31000:2009	Project risk registers* columns with equal names and content	Project risk registers columns with equal names, but different content	Project risk registers columns with different names, but equal content
effect	1 (0.27% from all columns and 0.36% from columns names)	0	1 (0.27% from all columns)
uncertainty	0	0	0
objectives	1 (0.27% and 0.36%)	0	2 (0.54%)
expected	0	0	0
deviation (deviation from expected)	0	0	0
potential events	1 (0.27% and 0.36%)	4 (1.1% from all columns and 1.4% from columns names)	0
consequences	10 (2.7% and 3.6%)	0	3 (0.71%)
likelihood	7 (1.89% and 2,52%) or 9** (2.43% and 3.24%)	0	4*** (1.08%)
circumstances	0	0	0

* – in the tables “Project risk registers” is equal to “The 30 risk registers of real projects publicly available in the Internet”.

** – two register with two Likelihood columns.

*** – one register with one column with three sub-columns, one is Likelihood.

Source: Author construction

Risk management process in AS/NZS ISO 31000:2009 includes 3 sub-processes – establishing the context, risk assessment, and risk treatment, and 2 supporting sub-processes – communication and consulting, and monitoring and review. Risk assessment sub-process is divided into 3 parts – risk identification, risk analysis, and risk evaluation (AS/NZS ISO 31000:2009, p.IV). Table 2 lists information about risk management process.

Table 2

Information for risk register columns according to the AS/NZS ISO 31000:2009 risk management process

Subprocess and parts of subprocess	Information from subprocess and parts of subprocess	Information for theoretical risk register
Establishing the context	defining responsibilities for and within the risk management process the nature and types of causes and consequences that can occur and how they will be measured the timeframe(s) of the likelihood and/or consequence(s)	responsibilities causes, consequences likelihood timeframe, consequences timeframe
Risk identification	identify sources of risk, areas of impacts, events (including changes in circumstances) and their	sources of risk, impacts areas, events, events causes, events



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April 14-15, 2016, Riga, University of Latvia

	causes and their potential consequences	consequences
Risk analysis	Risk analysis involves consideration of the causes and sources of risk, their positive and negative consequences, and the likelihood that those consequences can occur. Factors that affect consequences and likelihood should be identified. Risk is analysed by determining consequences and their likelihood, and other attributes of the risk. An event can have multiple consequences and can affect multiple objectives. Existing controls and their effectiveness and efficiency should also be taken into account	causes, source, consequences, consequence likelihood, factors controls, controls effectiveness, controls efficiency
Risk evaluation	The purpose of risk evaluation is to assist in making decisions, based on the outcomes of risk analysis, about which risks need treatment and the priority for treatment implementation	decisions, treatments
Risk treatment	Treatment plans should include: <ul style="list-style-type: none"> – the reasons for selection of treatment options, including expected benefits to be gained; – those who are accountable for approving the plan and those responsible for implementing the plan; – proposed actions; – resource requirements including contingencies; – performance measures and constraints; – reporting and monitoring requirements; and – timing and schedule. 	treatments selection responsibilities actions resources performance measures, constraints date
Communication and consultation	No information that can be used in for risk register	
Monitoring and review	<ul style="list-style-type: none"> – ensuring that controls are effective and efficient both in design and operation; – obtaining further information to improve risk assessment; – analysing and learning lessons from events (including near-misses), changes, trends, successes and failures; – detecting changes in the external and internal context, including changes to risk criteria and the risk itself which can require revision of risk treatments and priorities; and – identifying emerging risks. 	controls evaluation (effectiveness), controls evaluation (efficient) lessons learned historical records historical records comparison emerging risks

Source: Author construction

Table 3 provides information about the comparison of the risk management process in theoretical and project risk registers.



Table 3

Project risk registers columns according to the AS/NZS ISO 31000:2009 risk management process

Theoretical risk register columns in accordance with the AS/NZS ISO 31000:2009	Projects risk registers columns with equal names and content	Projects risk registers columns with equal names, but different content	Projects risk registers columns with different names, but equal content
responsibilities	2 (0.54% from all columns and 0,72% from columns names)	0	risk owner* 12 (3.24% from all columns), others 9 (2.43%) or 11** (2.97%)
causes	6 (1.62% and 2.16%)	0	2 (0.54%)
consequences	13 (3.51% and 4.68%)	0	1 (0.27%)
likelihood timeframe	0	0	0
consequences timeframe	0	0	0
sources of risk	2 (0.54% and 0.72%)	0	0
impacts areas	0	0	1 (0.27%)
events	1 (0.27% and 0.36%)	5 (1.35% and 1.8%)	0
events causes	0	0	0
events consequences	0	0	0
source	0	0	0
consequence likelihood	0	0	0
factors controls	0	0	0
controls effectiveness	0	0	0
controls efficiency	0	0	0
decisions	0	0	0
treatments	0	0	0
actions	0	0	14 (3.78%)
resources	0	0	0
measures	0	0	5 (1.35%)
performance constraints	0	0	0
date	0	0	14 (3.78% and 5.04%)
controls evaluation (effectiveness)	0	0	0
controls evaluation (efficient)	0	0	0
lessons learned	0	0	0
historical records	0	0	0
historical records comparison	0	0	0
emerging risks	0	0	0

* – column with information about responsibilities in the project risk register can have different names, for example, Risk Owner, Action Owner, Owner, Responsible.

** – one risk register contains two columns with responsibilities.

Source: Author construction



In the AS/NZS ISO 31000:2009 risk register is not defined, risk profile definition is “description of any set of risks” (AS/NZS ISO 31000:2009, p.5). Risk register is defined in ISO Guide 73, as a “record of information about identified risks” (ISO Guide 73, 2009, p.12). ISO Guide 73 also contains risk profile definition with note “The term “risk log” is sometimes used instead of “risk register”” (ISO Guide 73, 2009, p.12). Both definitions have very comprehensive content and may be open to different interpretations.

First, according to the risk register definition in ISO Guide 73 the theoretical risk register contains all columns from Table 1. Terms “*Identified risks*” and “*Information*” are not defined and “*identified risks*” can be attributed to all risk management processes. Second, we can use information from “Risk treatment” sub-process or part of information, assuming that there is a separate document “Treatment plan”, because term “*risk register*” in ISO Guide 73 is defined in part 3.8 “Terms relating to risk treatment”. However “Treatment plan” also can be interpreted as a set of activities. Thirdly, it can also be interpreted that risk register contains information only from two sub-processes – “Establishing the context” and “Risk identification” because the risk definition contains “*identified risks*” and does not contain “*analysed risks*” or “*risk treatment*”.

The Inter Agency Policy and Projects Unit, Department of Premier and Cabinet, Tasmania “Project Management Fact Sheet: Project Documentation” was used to identify risk register requirements. “Project Management Fact Sheet: Project Documentation” defines requirements for a risk register – details of how risks are managed, risk register is prepared at the start of the project, updated regularly and approved by the steering committee, senior management or line manager (Tasmania, 2008, p.18). Table 4 provides comparison between “Project Management Fact Sheet: Project Documentation” and AS/NZS ISO 31000:2009.

Table 4

Project risks registers columns according between the Project Management Fact Sheet: Project Documentation, AS/NZS ISO 31000:2009 risk management process and project risks register

“Project Management Fact Sheet: Project Documentation”	AS/NZS ISO 31000:2009 risk definition	AS/NZS ISO 31000:2009 risk management process
details of how those risks are being managed		responsibilities, factors controls, controls effectiveness, controls efficiency, decisions, treatments, actions, resources, measures, performance constraints, controls evaluation (effectiveness), controls evaluation (efficient)
risk register is prepared at the start of the project		
updates regularly		date
approved by the steering committee, senior management or line manager		

Source: Author construction



Risk management process (details of how those risks are being managed), when adding up column “Project risk register columns with equal name and content” and “Project risk register columns with a different name, but similar content” from table 3 the values of all columns account for 11.34%. Together with “updates regularly” it accounts for 15.12%.

Conclusions

It is difficult to create the theoretical risk register, because definitions of many terms used in the definitions are missing. “Defining responsibilities for and within the risk management process” cannot be concluded about term “*Responsibility*” volume, may be limited to all risk management process or some of the sub-processes or sub-process results, or final results of the risk management process. In the AS/NZS ISO 31000:2009 term “*Responsibility*” is used five times and defined. Terms “*Responsibility*” and “*Responsible*” are not defined in ISO Guide 73. The author has taken that “defining responsibilities for and within the risk management process” can be applied to sub-processes or parts of sub-processes, results of sub-processes or the final result of a process. However, this assumption does not guarantee the repeatability of results. Another researcher may get different results in an analogous situation. It is not possible to answer the question which of the results would be more reliable.

The research can only be described as partially successful. To be considered as an achievement is the provision for the comparison of the project risk registers with the theoretical risk register that is created in accordance with the theory from AS/NZS ISO 31000:2009, ISO Guide 73 and “Project Management Fact Sheet: Project Documentation”.

The analysis of the project risk registers should be continued, complementing the research methods with new methods, including deeper analysis of the risk definitions and terms and notions that are used in the definitions.

The effectiveness of project risk management and the risk register as one of the components of effective risk management could be one of the criteria of the risk register accuracy. However, the theory of project management effectiveness has not been fully designed either. The research on risk registers could promote and facilitate the research on the effectiveness of project management. (Uzulans, 2015).

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Project Management Development – Practice and Perspectives

Fifth International Scientific Conference on Project Management in the Baltic Countries

April 14-15, 2016, Riga, University of Latvia

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Project Management Development – Practice and Perspectives

Fifth International Scientific Conference on Project Management in the Baltic Countries

April 14-15, 2016, Riga, University of Latvia

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