



METHODOLOGICAL ANALYSIS OF THE PROJECT RISK MANAGEMENT CONCEPT ‘RISK’

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Abstract

The aim of the current research series is to examine the concept “risk”. Methodological analysis of project risk definitions and concepts are used to answer the question how to define the “risk” concept, and what the definition types and definition structure are.

The study is the final study from a series of research on project risk management ontological, epistemological and methodological analysis. The research series aims to improve project risk management. In the previous studies, the author analysed the concepts that define the content of the “risk” concept.

Ontological analysis of the “risk” definitions and concepts are used to answer the question what the risk in project management is and establish the decisive concepts that determine the ‘risk’ concept and assess the concepts used in the definitions and their use in the sources in accordance with the categories of quality, quantity, relation, action, time and place.

Epistemological analysis of the concepts in the concept “risk” definition was used to answer the question what the risk in project management means. In epistemological analysis the author analysed the concept “event” that defines the content of the concept “risk”.

In all studies with a few exceptions the author used publicly accessible sources from the Internet as well as qualitative research methods and free of charge software.

Results from the series of research on ontological, epistemological and methodological analysis in project risk management can facilitate the quality of project risk management, and especially, the development of the project risk register.

Key words: *project, risk, concept, methodology, methodological analysis, project risk register.*

JEL code: M00, M10, M190

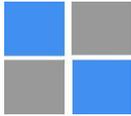
Introduction

Effective project risk management includes risk identification, risk analysis and risk management. In projects one of project documents is the risk register. The risk register includes the identified risks, results of the risk analysis, risk management implementation activities and report of implementation. A qualitative risk register is not possible without a complete risk identification and analysis. To identify something, it is necessary to know what is identified. It is easier to identify and analyse risks if we know what a risk is. The proof of understanding lies in the quality of definitions. It is therefore important to analyse the definitions of ‘risk’, the type and structure of the definitions in order to use the results of the study for the risk register.

Methodology of Research

The current study like two previous ones - the epistemological and ontological analysis studies, is based on the use of qualitative research methods. Considering the restrictions of the article volume, 20 sources were selected out of 64 with glossary. 64 sources represent a selection of sources for a bigger study. A generator of random numbers was used for the selection of the sources (www.random.org). During the research, two of the sources were excluded because they were not suitable for the study. 17 sources were of Adobe Acrobat .pdf format and one of Microsoft Word .doc. All sources were publicly available online in September 2017.

The term ‘methodology’ has different definitions. The term ‘methodology’ is defined in the English Oxford Living Dictionaries (en.oxforddictionaries.com) as “A system of methods used in a particular area of study or activity”, in the Cambridge Dictionary (dictionary.cambridge.org): “a system of ways of doing, teaching, or studying something”, in



the Macmillan Dictionaries (www.macmillandictionary.com): “the methods and principles used for doing a particular kind of work, especially scientific or academic research”, in the Merriam-Webster dictionary (www.merriam-webster.com): “a body of methods, rules, and postulates employed by a discipline” or “a particular procedure or set of procedures” or “the analysis of the principles or procedures of inquiry in a particular field”, and in the Collins dictionary (www.collinsdictionary.com): “A methodology is a system of methods and principles for doing something, for example for teaching or for carrying out research” with differences between British English “the system of methods and principles used in a particular discipline” and American English “the science of method, or orderly arrangement; specif., the branch of logic concerned with the application of the principles of reasoning to scientific and philosophical inquiry”.

In the current study, like in the two previous studies, the author used the Find and Advanced search function of programme Adobe Acrobat Reader DC 2017 Release, as well as the Concordance, Clusters/N-Grams, Collocates and Word List functions of AntConc 3.4.4w (Windows) and Search functions of Microsoft Word. Applications Adobe Acrobat Reader and AntConc are available online free of charge. To use the AntConc application for analysing the definitions of the ‘risk’ concept, each definition was saved in a separate text file thus together creating 18 text files. 17 sources were first of all analysed in their original format of Adobe Acrobat Reader DC and 1 source in its original format of Microsoft Word. Secondly, to use the AntConc application for the analysis of the concepts used in the definitions of ‘risk’, 17 files were transformed into text files with the help of functions Save as Other of Adobe Acrobat Reader DC by choosing Text and 1 file was transformed into a text file with the help of function Save as Other of Microsoft Word.

Findings/Results

All sources are a special section containing definitions of notions. The source volume is different, the shortest is 11 pages (Source No.10), the longest 440 (Source No.7). AntConc was used to estimate the defined notions against original words. The largest number is in Source No.7. Only 4 sources (Source No. 3, 13, 16 and 17) have more than 5% used words definitions of the used terms. The study did not evaluate the distribution of notions, however the sources with the largest number of original words (Source No. 3, 6 and 7) defined notions (nouns, adjectives, adverbs and verbs) are approximately 25% among the first 50 most used terms. Table 1 summarizes information about the sources.

Table 1

Information about the sources

Source no.	Source name	Information about source
1.	EAN.UCC Project Management Framework Handbook	Source size (pages; original words): 73; 1670 Glossary name: Glossary of Terms Defined notions and rate against original words: 39; 2.3% Specific attributes: not (the descriptions of the next sources are only indicated if there are specific attributes)
2.	IT Project Management Third Edition Instructor’s Edition	Source size (pages; original words): 369; calculation not possible Glossary name: Glossary Defined notions and rate against original words: 262; calculation not possible Specific attributes: defined purpose of the glossary
3.	The African Development Bank Guidelines for Financial Management and Financial	Source size (pages; original words): 293; 4656 Glossary name: Glossary Defined notions and rate against original words: 385;



	Analysis of Projects	8.3% Specific attributes: Glossary references
4.	Development Cooperation Manual	Source size (pages; original words): 178; 4020 Glossary name: Glossary Defined notions and rate against original words: 108; 2.7% Specific attributes: manual text includes footnotes with definitions
5.	ITTO Manual for project formulation	Source size (pages; original words): 92; 2797 Glossary name: Glossary Defined notions and rate against original words: 69; 2.5%
6.	NPR 7120.5, NASA Space Flight Program and Project Management Handbook	Source size (pages; original words): 150; 4706 Glossary name: Glossary Defined notions and prate against original words: 107; 2.3%
7.	IOM Project Handbook	Source size (pages; original words): 440; 6020 Glossary name: Glossary Defined notions and rate against original words: 59; 1% Specific attributes: comment “Unless otherwise noted the terms and definitions contained in this Glossary were developed specifically for the IOM Project Handbook. For more migration-related definitions refer to the IOM Glossary on Migration (2nd Edition)” (International Organization for Migration, 2011)
8.	Investment Lifecycle Guidelines Supplementary Guidance	Source size (pages; original words): 38; 1935 Glossary name: Glossary Defined notions and rate against original words: 80; 4.1%
9.	Project Risk Management Guideline	Source size (pages; original words): 40; 1728 Glossary name: Definitions Defined notions and rate against original words: 47; 2.7% Specific attributes: all definitions, with except for 9 definitions, are references to other glossaries, including a reference ISO Guide 73:2009 for notion ‘risk’
10.	Risk Management @ Monash	Source size (pages; original words): 11; 509 Glossary name: Glossary Defined notions and rate against original words: 8; 1.6%
11.	Project Management @ Monash	Source size (pages; original words): 22; 1290 Glossary name: Glossary Defined notions and rate against original words: 30; 2.3%
12.	Aid Delivery Methods Volume I Project Cycle Management Guidelines	Source size (pages; original words): 158; 3765 Glossary name: Glossary of key terms Defined notions and rate against original words: 98; 2.6% Specific attributes: the term hierarchy, one definition includes another definition
13.	Pima County Project Management Manual and Exit Gate Process	Source size (pages; original words): 149; 2424 Glossary name: Project Management Term Definitions Defined notions and rate against original words: 165; 6.8% Specific attributes: goal of defining notions is “The purpose is to add consistency to the terms we use in order to limit any confusion that may occur” (The Seal of Pima County, 2009)
14.	Project Risk Management Handbook Threats and Opportunities	Source size (pages; original words): 65; 1570 Glossary name: Glossary Defined notions and rate against original words: 25; 1.6%
15.	Risk Management Guide For DOD Acquisition	Source size (pages; original words): 39; 1709 Glossary name: Definitions



16.	State of Michigan Project Management Methodology Desk Reference	Defined notions and rate against original words: 11; 0.6% Source size (pages; original words): 101; 2413 Glossary name: Key Terms and Acronyms Defined notions and rate against original words: 240; 9.9% Specific attributes: Anotation “While many of these terms are not mentioned within the body of this guide, they are nonetheless important to understanding Project Management” (...)
17.	Risk Assessment and Management Process (RAMP)	Source size (pages; original words): 48; 1860 Glossary name: Glossary of Terms Defined notions and rate against original words: 133; 7.1% Specific attributes: Sources list for glossary of terms
18.	Project Management Framework	Source size (pages; original words): 136; 2221 Glossary name: Glossary Defined notions and rate against original words: 33; 1.5%

Source: The author’s valuation

Project management is not a scientific discipline with generally recognised concepts. Consequently, it is important to define the terms used. The number of the defined terms against original words varies from 0.6% (Source No.15) to 9.9% (Source No.16). The number of definitions does not depend on the page numbers and original words of the sources. Source No.7 has the largest number of pages and the third smallest number of definitions, the sources with less than 3% less of the notions defined, page numbers vary from 11 to 440 pages and the number of original words varies from 509 to 6020 words.

Only Source No.13 has the objective of defining. Source No.16 has an emphasis on the purpose of defining. In the sources, the notion ‘term’ is used in several meanings, as ‘concept’, ‘deadline’ and ‘condition’. However, the results of the study are not sufficient to conclude that the concept ‘term’ uses in the text of sources define or complete the goal of the definition process. The author concludes that the sources in the scientific discipline without generally recognised notions insufficiently define the goal of definition process.

The definitions of ‘risk’ vary. Table 2 summarizes information about the definitions. Definitions are described, first, by length, short, up to 10 words, medium length, up to 30 words, and long, more than 30 words. Second, by structure, simple structure – the decisive concept of the concept ‘risk’ content and limiter of the decisive concept of the content, moderately complex structure – the decisive concept of the concept ‘risk’ content and the limiter of the decisive concept of the content the concept of action or exposure, the concept of the impact of the action and complex structure – which, compared to moderately complex structure, has other component. Thirdly, specificity of the definition, including errors of the definition.

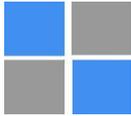
Table 2

Structure of concept ‘risk’ definition

Source no.	Definitions	Comment about lenght and structure of definitions
1.	Something that may prevent project success in terms of profitability, delivery, or quality of the delivered product if the risk is not managed effectively.	Medium length, moderately complex structure: the decisive concept of the concept ‘risk’ content, the concept of action and the three concepts of the impact of the action. Additional information about the concept of the impact of the action. The definition has a circle, because the definition uses the concept ‘risk’.



2.	The possibility of loss or injury.	Short, simple structure: the decisive concept of the concept 'risk' content and the two limiters of the decisive concept of the content.
3.	The measurable possibility of losing or not gaining value. Risk is different from uncertainty. Uncertainty is not measurable.	Medium length, simple structure: the decisive concept of the concept 'risk' content and the two limiters of the decisive concept of the content. Second part of the definition does not affect the 'risk'.
4.	External factors and events that could affect the progress or success of the project. Risk is the likelihood that an assumption will not hold true, and risks can also vary among assumptions. Some may be very probable or almost certain to happen, while others may be highly unlikely. The combined analysis of importance and risk provides a solid approach to managing the assumptions of a project.	Long, simultaneously simple and complex structure, because the definition contains two separate definitions. The first definition. Moderately complex structure: two 'risk' decisive concepts, concept of exposure and two concepts of the impact of the action. Second definition. Simple structure: the decisive concept of the concept 'risk' content and the limiter of the decisive concept of the content. The definition contains additional information which does not relate to the concept 'risk'.
5.	External factor that might jeopardize the expected results of the project. Risks are related to assumptions at each level of the logical framework matrix.	Medium length, moderately complex structure: the decisive concept of the concept 'risk' content, the concept of action and the concept of the impact of the action. The definition contains additional information which does not relate to the concept 'risk'.
6.	The combination of the probability that a program or project will experience an undesired event and the consequences, impact, or severity of the undesired event were it to occur. The undesired event may come from technical or programmatic sources (e.g., a cost overrun, schedule slippage, safety mishap, health problem, malicious activities, environmental impact, failure to achieve a needed scientific or technological objective, or success criterion). Both the probability and consequences may have associated uncertainties.	Long, complex structure: the decisive concept of the concept 'risk' content and the limiters of the decisive concept of the content. All limiters of the concept 'risk' content have their own structure with own limiters, actions and exposures. Limiters have different content. The definition contains the explanation of another concept and additional information.
7.	The conditions that would prevent a successful means-ends relationship.	Short, simple structure: the decisive concept of the concept 'risk' content and the two limiters of the decisive concept of the content.
8.	Risk is often characterised by reference to potential events, consequences, or a combination of these and how they can affect the achievement of objectives. Risk is often expressed in terms of a combination of the consequences of an event or a change in circumstances, and the associated likelihood of occurrence.	Long, simultaneously simple and complex structure, because the definition contains two separate definitions. First definition. Moderately complex structure: the three decisive concepts of the concept 'risk' content, the concept of action and the concept of the impact of the action. Second definition. Moderately complex



		structure: the decisive concept of the concept 'risk' content and the two limiters of the decisive concept of the content, first has two limiters of the limiter, second one the limiter of the limiter.
9.	Effect of uncertainty on objectives. NOTE 1 - An effect is a deviation from the expected — positive and/or negative. NOTE 2 - Objectives can have different aspects (such as financial, health and safety, and environmental goals) and can apply at different levels (such as strategic, organization-wide, project, product and process). NOTE 3 - Risk is often characterized by reference to potential events and consequences, or a combination of these. NOTE 4 - Risk is often expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated likelihood of occurrence. NOTE 5 - Uncertainty is the state, even partial, of deficiency of information related to, understanding or knowledge of, an event, its consequence, or likelihood.	Short, moderately complex structure: the decisive concept of the concept 'risk' content and the concept of the impact of the action. The definition has five notes, if assuming that the notes are an integral part of the article and then the definition has complex structure.
10.	Refers to any factor that may adversely affect the successful completion of the project in terms of achievement of its outcomes, delivery of its outputs, or adverse effects upon resourcing, time, cost or quality. The higher the risk of the project, the higher the probability that it will fail.	Medium length, complex structure: the decisive concept of the concept 'risk' content, the limiter of the decisive concept of the content, the concept of action, the concept of the impact of the action and description of concept of the impact of the action. Definition contain additional information which does not relate to the concept 'risk'.
11.	A measured estimate of the likelihood that a project will fail. The higher the risk, the higher the probability of the project failing. Risk is analysed as part of the project planning process.	Short, moderately complex structure: the decisive concept of the concept 'risk' content and the two limiters of the decisive concept of the content, the concept of action and the concept of the impact of the action. Definition contain additional information which does not relate to the concept 'risk'.
12.	See also "Assumptions". Risk is the probability that an event or action may adversely affect the achievement of project objectives or activities. Risks are composed of factors internal and external to the project, although focus is generally given to those factors outside project management's direct control.	Medium length, moderately complex structure: the decisive concept of the concept 'risk' content and the two limiters of the decisive concept of the content, the concept of action and the two concepts of the impact of the action.
13.	The likelihood of the occurrence of an event. Generally, the event is a negative one like project failure, but may also be a positive event, like the early completion of a task.	Medium length, moderately complex structure: the decisive concept of the concept 'risk' content and the limiter of the decisive concept of the content and the concepts of the impact of the action. Definition contain additional information



		which does not relate to the concept 'risk'.
14.	An uncertain event or condition that, if it occurs, has a positive or negative impact on at least one project objective.	Medium length, complex structure: the two decisive concepts of the concept 'risk' content, the two concepts of the impact of the action and the impact object.
15.	A measure of future uncertainties in achieving program performance goals within defined cost and schedule constraints. It has three components: a future root cause, a likelihood assessed at the present time of that future root cause occurring, and the consequence of that future occurrence.	Long, moderately complex structure: the decisive concept of the concept 'risk' content and the limiter of the decisive concept of the content, the concept of action and concept of the impact of the action.
16.	An uncertain event or condition that, if it occurs, has a positive or negative effect on a project's objectives.	Medium length, complex structure: the two decisive concepts of the concept 'risk' content, the concept of action, the two concepts of the impact of the action and the impact object.
17.	The probability that a project will experience undesirable events, which may create, cost overruns, schedule delays, or project cancellation. The identification, mitigation, tracking, and management of those elements creating the risk situation.	Long, moderately complex structure: the decisive concept of the concept 'risk' content, the two concepts of action and the two concepts of the impact of the action.
18.	Risk is the cumulative effect of the chances of uncertain occurrences, which will adversely affect project objectives. It is the degree of exposure to negative events and their probable consequences. Project risk is characterized by three risk factors namely: risk event, risk probability and the amount at stake. Risk is the opposite of opportunity.	Long, moderately complex structure: the decisive concept of the concept 'risk' content, the two limiters of the decisive concept of the content, the concepts of action and the concept of the impact of the action.

Source: Compiled by the author

All the definitions of 'risk' were found in the glossary chapter. Size of the definitions is different, definitions from several sources include additional information. The whole definition was used in the study. In the definitions there are 722 words in total, original words are 254, or 35%. The 10 most common words (nouns, verbs, adjectives, or adverbs) are project 21, risk 20, event 13, may 9, consequences 7, likelihood 7, probability 7, objectives 6, will 6, and affect 5. Table 3 summarizes the information about the concepts used in the definitions of 'risk' and the definitions of the used concepts.

Table 3

Information about concepts used in the definitions of 'risk'

Source no.	Decisive concept or concepts	Concepts used in the definitions	Concepts definitions
1.	something	prevent, project, project success, profitability, delivery, quality, delivered, effectively	Defined concepts in the glossary – project, for 'delivery' and 'delivered' is concept close to the definition "deliverable", for 'prevent' is 'preventive action'. There are no definitions for all other concepts.
2.	possibility	loss, injury	Concepts not defined.
3.	possibility	measurable, possibility, value, uncertainty	Concepts not defined.



4.	factors, events	external, affect, progress, success, project, likelihood, assumption, probable, unlikely, analysis of importance, assumptions	Defined concepts – project, assumptions.
5.	factor	external, jeopardize, project, expected, results, assumptions, logical framework matrix	Defined concepts – project, result, logical framework matrix.
6.	combination	probability, program, project, undesired event, consequences, impact, severity, occur, uncertainties	Defined concepts – program, project, partly for ‘technical or programmatic sources’.
7.	conditions	prevent, successful, means-ends relationships	Concepts not defined.
8.	reference	potential event, consequences, combination, affect, achievement, objectives, circumstances, likelihood, occurrence	Defined concepts – objectives.
9.	effect	effect, uncertainties, objectives	Concepts not defined, for ‘effect’ and ‘uncertainty’ are definitions in the notes.
10.	factor	adversaly affect, succesfull completion, achievement, outcomes, delivery, outputs, effects, time, cost, quality	Concepts not defined.
11.	estimate	measured, likelihood, project, fail, probability	Defined concepts – estimate, project.
12.	probability	event, action, adversely, affect, achievement, prokect, objectives, activities, factors, external, internal, control, project manager	Defined concepts – project, objective.
13.	likelihood	occurence, event, negative event, failure, positive event, complition, task	Defined concepts – project.
14.	event, condition	occurs, positive impact, negative impact, project objective	Defined concepts – objective.
15.	measure	future uncertainties, achieving, program performance goals, cost, schedule, constraints, future root cause, likelihood, occurring, consequence, future occurence	Defined concepts – consequence, future root cause.
16.	event, condition	uncertain, occurs, positive effect, negative effect, project’s objectives	Defined concepts – project.
17.	probability	project, undesirable event, risk situation	Defined concepts – project.
18.	effect	cumulative effect, chances, uncertain occurences, affect, project, objectives, negative events, probable consequences, risk factors, probability, opportunity	Defined concepts – project.

Source: Compiled by the author

The study author considers that that none of the concept ‘risk’ definiton is sufficient, because not the most important concepts definitions. In the 16 definitions not defined decisive concept or concepts. The definition of concepts is important because of many concepts and terms in project management are not defined in a similar or comparable manner or not generally



accepted. For example, the concepts ‘event’ and ‘something’ have different definitions. The concepts ‘event’ and ‘something’ have very wide content, therefore the content of the concept ‘risk’ in the ‘risk’ definitions with both concepts may be different. In the study on the use of concept ‘event’, it was found that ‘event’ not used enough to contextually understand the content of the concept ‘event’ (Uzulans, 2017).

Separate notions may be self-evident, but their definition is required for defining the term ‘risk’ content correctly. A different understanding of the concept ‘risk’ content can identify a different way of identifying and analyzing and this in turn may affect the content and form add a risk register.

The risk register is a document of the project management, which contains information about identified risks, results of risks analysis and management. Qualities of a risk register affects the projects risk management and the affect all project. Accordance to the concept ‘risk’ definitions can be identify the risks, because if we know who are the risk, we know where and who you want to find. Accordance to the different concept ‘risk’ definitions we create the different risk registers.

Table 4 summarizes information about the concept ‘risk’ definitions and the definitons possible impact on a risk register. Definitions are evaluated, first, by accordance, inadequate – the definition cannot be used to create a risk register, partially compliant – the definiton may be used partially and relevant – the definiton may be used in full, because are all definitons of concepts (content decesive concept, limiter of content decesive concept, concept of action or exposure, concept of the impact of the action and others) used in the definition. In addition, it was assessed what could be improved for higher rating.

Table 4

Evaluation of the concept ‘risk’ definitions

Source no.	Specificity of the definitions	Evaluation of the definitions
1.	The decisive concept is of very wide content. One of the concept of the ‘risk’ definition, i.e. ‘project success’, is explained.	Definition is partially compliant, because information of the one concept can be used.
2.	The decisive concept is of very wide content. The notions of the definition are not defined.	Definition is inappropriate.
3.	The decisive concept is of wide content with one limiter ‘measurable’. The notions of the definition are not defined.	Definition is inappropriate.
4.	The concept ‘risk’ definition includes two separate definitions. In both definitons decisive concepts are very wide content. Long definition with an explanation that is not need for ‘risk’ definiton. The two notions of the definition are defined.	Definition is partially compliant, because the information of one of the concepts can be used.
5.	The decisive concept is of very wide content. The three notions of the definition are defined.	Partially compliant, because the information of two of the concepts and partly of one other concept can be used.
6.	The decisive concept is of wide content with limiters. The two notions of the definition are defined.	Partially compliant, because information about the causes of the one decisive concept can be used.
7.	The decisive concept is of very wide content. The notions of the definition	Definition is inappropriate.



	are not defined.	
8.	The definition of the concept 'risk' includes two separate definitions, the decisive concept is of very wide content. The notion of the definition is defined.	Definition is inappropriate.
9.	Specific definition, short definitions and five notes. The decisive concept is of wide content In the first note the decisive concept is defined, the second note includes information about the concept of the impact of the action, the third and fourth complement the concept 'risk' with new decisive concepts, the fifth defines 'uncertainty'.	Definition is inappropriate. If we assume that the notes are part of the definition, then partially compliant, because the information from Notes 1, 2 can be used.
10.	The decisive concept is of very wide content. The notions of the definition are not defined.	Partially compliant, because explanation of the definition of successful completion can be used.
11.	The decisive concept is of very wide content. The two notions of the definition are defined.	Partially compliant, because the information of two concepts can be used.
12.	The decisive concept is of wide content. The two notions of the definition are defined.	Partially compliant, because the information of two concepts can be used.
13.	The decisive concept is of wide content. The notion of the definition is defined.	Partially compliant, because information of one concept can be used.
14.	The two decisive concepts is of wide content. The notion of the definition is defined.	Definition is inappropriate, because information of one concept cannot be used.
15.	The decisive concept is of wide content. Two definition notions are defined.	Definition is inappropriate, because information of two concepts cannot be used.
16.	The two decisive concepts is of wide content. The notion of the definition is defined.	Definition is inappropriate, because information of the one concept cannot be used.
17.	The decisive concept is of wide content. The two notions of the definition are defined.	Definition is partially compliant, because information of one concept can be used.
18.	The decisive concept is of wide content. The notion of the definition is defined.	Definition is partially compliant, because information of the one concept can be used.

Source: Compiled by the author

A definition may not provide enough information to create a risk register. At the same time, the definition would be sufficient to create a risk register according to the content of the concept 'risk', including the decisive concept or unambiguous interpretation of the concept. If the decisive concept is with a wide or very wide content, then there are several definitions for these concepts. Some definitions have more than one decisive concept with different definitions of the decisive concept. In both cases the creation of the risk registers accordingly to the concept 'risk' content is difficult (Source No. 2, 3, 4, 7, 8, 9, 14, 15, 16). For example, if one or one of several decisive concepts is 'event' and concept 'event' is not defined, then it cannot be concluded what the identification objects are. The concept 'event' has different definitions and



the use of 'event' in source texts is not enough to determine the concept content (J.Uzulāns, 2016). If the concepts used in the definition of 'risk' have been defined or explained this provides more information for the creation of the risk register (Source No. 1, 5, 6, 10, 11, 12, 13, 17, 18).

Conclusion

The methodological analysis of project risk management sources provides for analysing the definitions of the concept 'risk', study of the defining manner, definition type and structure of definitions and evaluating the possibility of use of the risk registers.

The author believes that the conducted research accounts for the confidence that ontological and epistemological analysis is a method in which, together with the methodological analysis, it is possible to perform the analysis of risk management sources aimed at improving risk management, especially for creating the risk register.

For the methodological analysis 18 sources are selected. The length of the sources varies from 11 to 440 pages, 13 sources are project guides and 5 sources are project risk management guides. The methodological analysis is used for the glossary analysis of the sources by evaluating the number of definitions and specific attributes. The specific attributes of the glossaries are an significant component because they may contain information about the importance of the defined concepts. Only Source No. 13 contains objectives of defining and Source No.16 defines the need for the definition. Source No. 13 is in the fourth place by defined notions against the original words, Source No.16 ranks first, 9.9%. In Source No. 16 written than "While many of these terms are not mentioned in the body of this guide, they are nonetheless important to understanding Project Management" (State of Michigan, 2004).

The definitions in the sources are of different lengths and structures. To determine what should be included in the risk register we can use the information from the definition of the concept 'risk'. The length and structure of the definitions is not a factor in determining the amount of information to be used for the risk register. However, the results of the study are not sufficient to make reasonable conclusions about the possibilities of using the information provided in the definitions.

Important additional information can be found in concepts that are used in the concept 'risk' definition, especially when the decisive concept is a concept with a very wide content. Source No. 9 and No.11 provide the definition of the decisive concept. In both cases, the information on the decisive concept is usable for the risk register.

Finishing the research series, it can be concluded that the study needs a larger number of sources than have been examined in all previous studies. It is also necessary to perform the ontological, epistemological and methodological analysis of the same set of sources.



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