



## **THE PROJECT RISK REGISTERS ANALYSIS BASED OF THE PROJECT RISK MANAGEMENT NOTION ‘RISK REGISTER’**

**Juris Uzulans**, University of Latvia

### **Abstract**

The project risk register is an important project risk management document. It can be seen that the risk registers vary from 3 to 5 columns and to more than 20 columns in registers. The project management theory does not have generally accepted well-established or logically correct criteria for correctness. The eligibility criteria can be maturity, practical application, compliance with a group of criteria chosen by the authors.

The author of the study believes that all of the listed criteria are not sufficient to evaluate the risk registers. Therefore, in addition to the above-named criteria in the evaluation of risk registers, the results of the concept ‘risk register’ or similar concept analysis is proposed. Objective of the research is to clarify whether the results of the definition ‘risk register’ or similar concept analysis can be used to improve recommendations for risk register. The study analysed 23 sources and 30 risk registers.

The research results suggest that the results of qualitative analysis can be used to develop or evaluate a project risk register.

**Key words:** *project, risk, risk register concept, qualitative analysis.*

**JEL code:** M00, M10, M190

### **Introduction**

The project risk register is an important project risk management document. It can be seen that the risk registers vary from 3 to 5 columns and to more than 20 columns in registers. Project management is not a scientific discipline with generally recognised concepts. The author believes that the project management theory does not have generally accepted well-established or logically correct criteria for correctness. Among the he eligibility criteria there may be maturity, practical application, compliance with a group of criteria chosen by the authors.

The current research like the previous research by the author, including the ontological, epistemological and methodological analysis studies, is based on the use of qualitative research methods. Considering the restrictions of the article volume, 23 and 30 sources were selected. However, the author concluded 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 (Uzulans J., 2018). However, the results of the three studies were not enough to develop justified recommendations for the development of risk registers.

The objective of the research is to clarify whether the results of the definition ‘risk register’ or similar concept analysis can be used to improve recommendations for development or improvement of a risk register.

The tasks of the study are as follows: first, the analysis of the concept ‘risk register’ or similar concept, second, the analysis of the uses of ‘risk register’ or similar notions, and, third, the evaluation of the risk registers.



### Research Methodology

For the research we selected 23 sources, 18 are publicly available on the Internet. Selection criteria are, first, definitions of the notions ‘risk register’ or similar notions and definition of the notion ‘risk’ and, second, the use of the notions in the text.

The number of sources used in the study was reduced because the number of applications was small in several sources. We selected the key terms in the definitions and verified how they have been used.

The study is based on the use of qualitative research methods. For the study purposes, the author used the Find and Advanced search function of programme Adobe Acrobat Reader DC 2019. Adobe Acrobat Reader is available online free of charge. The remaining 23 sources were analysed in their original format of Adobe Acrobat Reader DC.

The results of the definition analysis are used to analyse the use of concepts in the source text and then use both results to evaluate the risk registers. The author is aware that the number of analysed sources is not large. The small number of sources is offset by the analysis that include the analysis of definitions, the use of concepts in the source text and evaluation of the risk registers.

### Descriptions of the sources

Each of the sources contained a definition of ‘risk’, the sources were in Adobe Acrobat pdf format. Table 1 summarizes the information about the sources. The sources numbers match to the number in the References section at the end of source.

Table 1

**Information about the sources**

No.	Information about source
1.	The author's book about step-by-step application of project management techniques to managing science, technology and engineering projects. Definitions of the notion ‘risk register’ and definition of the notion ‘risk’. Both definitions in the glossary.
2.	The author's book about the processes required to start up, define, plan, launch, execute and complete a project successfully. Definitions of the notions ‘risk log’ and definition of the notion ‘risk’. Both in the glossary.
3.	The author's book based on the Method123® Project Management Methodology (MPMM) by outlining the phases, activities and tasks throughout the project’s life. Definition of the notions ‘risk register’ and definition of the notion ‘risk’. ‘Risk’ in the glossary, ‘risk register’ in the text.
4.	Organization’s guide from PM4NGOs, international NGO. The book presents project management in the international development sector with activities as for writing project proposals, developing project plans, implementing project activities, monitoring project progress, and evaluating project impact. Definition of the notion ‘risk’ and description of the ‘risk register’. Both in the text.
5.	Organization’s book from APM, Association for Project Management. The book clearly structured with 52 areas of knowledge and definitions and explanations. Definitions of the notions ‘risk register’, ‘risk log’ and definition of the notion ‘risk’. All definitions in the glossary.
6.	Organization’s book from GPM Global, global organization which promotes sustainability in the project management profession. PRiSM™ (Projects integrating Sustainable Methods) is described in the book. PRiSM™ is sustainability-based on the project delivery method that is structured project management, which combines sustainability and traditional core project phases. PRiSM establishes a framework of considerations derived from ISO 21500, ISO 14001, ISO 26000, ISO 50001 and ISO 9001. Definition of the notion ‘risk register’ and definition of the notion ‘risk’. Both definitions in the glossary.
7.	Organization’s manual from International Labour Organization, with the policies, rules, procedures, and tools



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	needed to manage extra-budgetary technical cooperation projects divided to the stages of a project and explain ILO's evaluation policy and management. Definition of the notions 'risk register' and definition of the notion 'risk'. 'Risk' in the glossary, 'risk register' in the text.
8.	Organization's book from Project Management Institute with description of the project management life cycle and its related processes and provides and promotes a common vocabulary within the project management profession. Definition of the notion 'risk register' and definition of the notion 'risk'. Both definitions in the glossary.
9.	State authority manual from State of Queensland to provide guidance on rules and standards for the preparation of cost estimates for all transport infrastructure projects. Definition of the notion 'risk register' and definition of the notion 'risk'. Both definitions in the text.
10.	Organization's handbook from the Council of Europe provides step-by-step instructions and guidance for the project team throughout the project lifecycle. Definition of the notion 'risk register' and definition of the notion 'risk'. Both definitions in the glossary.
11.	Organization's guide from European Union about the PM <sup>2</sup> , which is a Project Management Methodology developed by the European Commission in order to facilitate the management of a complete lifecycle of a project. Definition of the notion 'risk register' and definition of the notion 'risk'. Both definitions in the glossary.
12.	Organization's guide from The Health Boards Executive with a structured, accessible, user-friendly approach to the key areas of project management. The guide and is based on the Project Management Body of Knowledge. Definition of the notion 'risk log' and definition of the notion 'risk'. Both definitions in the glossary.
13.	The City of Winnipeg manual for applying PMBOK project management standards to the City of Winnipeg's specific situation with addition from Projects in Controlled Environments 2 (PRINCE2) methodology. Definition of the notion 'risk' in the text, definition of the notion 'risk register' in the glossary.
14.	State authority guideline from The Malaysian Public Works Department for application of the standard project risk management process for all JKR projects, programs, plans and activities based on the Joint Australian/New Zealand Standard, AS/NZS 4360:2004. Definition of the notion 'risk register' and definition of the notion 'risk'. Both definitions in the glossary.
15.	State authority guideline from The Tasmanian Government with a structured approach to managing projects with eleven Key Elements that should be applied throughout the project lifecycle for all regardless of their size and complexity. Definition of the notion 'risk register' and definition of the notion 'risk'. Both definitions in the glossary.
16.	Borough Council of Wellingborough framework for project management as a combination of the roles of the project, the organisational structure and the processes that will deliver the required outcome. Definition of the notion 'risk log' and definition of the notion 'risk'. Both definitions in the glossary.
17.	University of Birmingham handbook that provides guidelines for the day-to-day management and control of any size or complexity projects by project processes, roles and responsibilities, and the documentation and administration of a project. Definition of the notion 'risk register' and definition of the notion 'risk'. Both definitions in the text.
18.	State authority framework through the Project Management Lifecycle for projects of all sizes, so that they achieve expected outcomes and thereby project success by highlighting important project management priorities. The framework conforms to industry standards as defined by the Project Management Institute (PMI) and adapted to the context of California State government Definition of the notion 'risk register' and definition of the notion 'risk'. Both definitions in the glossary.
19.	Organization's guidebook from Federal Acquisition Institute providing practical concepts and useful tools and templates to adopt or adapt so that management of projects are appropriate and effective in achieving the desired results. Definition of the notion 'risk register' and definition of the notion 'risk'. Both definitions in the text.
20.	State authority guide where project risk management is a scalable activity and should be commensurate with the size and complexity of the project under consideration. Definition of the notion 'risk register' and definition of the notion 'risk'. Both definitions in the text.
21.	Company report about the techniques to assess risk and return outlines of investments of the renewable energy technology to classify, assess and manage different elements of the project. Definition of the notion 'risk register' and definition of the notion 'risk'. Both definitions in the glossary.



22.	State authority handbook present scalable approach to managing project risks by knowing, communicating and accepting risks through the phases of project delivery. Definition of the notion 'risk register' and definition of the notion 'risk'. Both definitions in the text.
23.	State authority guide that represents a guidance and direction for practicing risk management for Capital transportation project development providing direction, outlining the appropriate methods and techniques used for risk management decision making un for risk management. Definition of the notion 'risk register' and definition of the notion 'risk'. Both definitions in the text, also 'risk charter' are used.

*Source: The author's valuation*

A specific place between the selected sources belongs to source number 8, A Guide to the Project Management Body of Knowledge, the guide has been mentioned in other sources 15 times, including three sources where the influence is recognized. In the A Guide to the Project Management Body of Knowledge is an important sentence for current research "A common vocabulary is an essential element of a professional discipline" (PMBok Guide, 2013).

According to the author, the most important thing that affects the risk management, is project life cycle conception, project as a process with phases. It is important to meet the specific needs and requirements of the organization by providing a structured and systematic approach.

#### **Analysis the "risk register" or similar notion definitions**

We analyse the "risk register" or similar notion definitions to identify the criteria for risk register analysis. The notions, which are different than the "risk register", start with naming the notion.

Table 2

**The definitions of the "risk register" or similar notions**

No.	Definitions	Definitions analysis
1.	The document containing the results of the qualitative risk analysis, quantitative risk analysis, and risk response planning. The risk register details all identified risks, including description, category, cause, probability of occurring, impact(s) on objectives, proposed responses, owners, and current status. The risk register is a component of the project management plan.	Results of the risk management process, risk register content, component of a higher-level document. Criteria for analysis of the risk registers: results of qualitative and quantitative risk analysis; risk response activities; impact(s) on objectives; component of the project management plan.
2.	Risk log – sequential listing of all risks identified throughout the project's life and information about their ranking, probability and management.	Updates throughout the project's life, risk register content. Criteria: information about identification that identifies a project's life time; information about ranking, probability and management.
3.	The risk register is the log within which all risks are registered and tracked through to closure.	Used throughout the project's life. Criteria: information about identification that identifies project's life time.
4.	Risk register document provides a more formal and more detailed identification of risks and the plan for addressing them ... list of significant risk ... contains information about the magnitude of probability and impact of risk occurrence. It may also include proposed mitigation responses, "owners" of the risk, and current status of the risk. The risk register can also include information about the cost and schedule impacts of these risks.	Formal and more detailed information than the red flag list. Criteria: risk analysis and mitigation and current status information; the cost and schedule impacts.
5.	A body of information listing all the risks identified for the project, explaining the nature of each risk and	Results of the risk management process. Criteria: the nature of each risk and information



	recording information relevant to its assessment, possible impact and management. Risk log – A document that provides identification, estimation, impact evaluation and countermeasures for all risks to the project.	relevant to risk assessment.
6.	A record of identified risks including results of analysis and planned responses.	Results of a risk management process. Criteria: results of analysis and planned responses.
7.	A risk register is a risk management tool that acts as a central repository for all risks levels identified.	Risk management tool. Criteria: results of identification, risk management tool, risks levels.
8.	A document in which the results of risk analysis and risk response planning are recorded.	Results of a risk management process. Criteria: results of analysis and planned responses.
9.	The risk register is the most appropriate record of such decisions, regardless of whether the risk is owned by the customer, contractor, or the project manager.	Record for decisions, customer, contractor, project manager as the risk's owners. Criteria: record for decisions, risk owner.
10.	The list of main risks identified with details of the measures taken to tackle them.	Main risks, measures for prevention. Criteria: measures for prevention.
11.	Risk log – A central repository for all risks identified by the project or organisation.	Risk identification. Criteria: results of identification.
12.	A table for recording project risks is called a risk log.	Risk table. Criteria: are not.
13.	The record of risk events identified and assessed, and actions developed to address those risk events.	Results of a risk management process. Criteria: results of analysis and planned responses.
14.	A record, under formal change control, of all identified risks, their assessment, treatments and outcomes.	Results of a risk analysis. Criteria: results of analysis.
15.	A document that records the results of a risk analysis process.	Results of a risk analysis. Criteria: results of analysis.
16.	A document that provides identification, estimation, impact evaluation and countermeasures for all risks to the project. It should be created during the start-up of the project and be reviewed and maintained throughout the life of the project.	Results of a risk management process. Criteria: results of analysis and planned responses, reviewed and maintained throughout the life of the project.
17.	A living document and should be reviewed and updated regularly, making sure that contingency arrangements are checked and risk ratings are reassessed where necessary.	Document that is reviewed and updated regularly. Criteria: contingency arrangements, reassessment.
18.	Documents and manages known risks in accordance with the Risk Management Plan (may be incorporated within the PMP). This includes tracking information such as probability, impact, triggers, mitigation plans, and contingency plans.	Results of a risk management process. Criteria: results of analysis and planned responses.
19.	A list of identified risk events that are prioritized based on their probability and impact.	Results from a risk management process. Criteria: results of analysis.
20.	Once the base cost is established, a list of uncertainties is created of both opportunities and threats, called a "risk register."	Results from a risk management process. Criteria: not present.
21.	Database for risks associated with the project (Also known as risk database or risk log).	Risks associated with the project. Criteria: are not.
22.	A risk register is a tool that project teams can use to address and document project risks throughout the project life cycle.	Tools for the project team. Criteria: throughout the project life cycle.
23.	A document detailing all identified risks, including description, cause, probability of occurrence, impact(s)	Results of a risk management process. Criteria: results of analysis and planned



	on objectives, proposed responses, owners, and current status.
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*Source: The author's valuation*

Table 3 summarizes the information about the criteria according to definitions in the Table 2.

Table 3

**Criteria from the “risk register” or similar notions definitions**

No.	Criteria	Explanation	Verification
1.	Risk management process.	Column names correspond to the names of the risk management process steps.	Identification step – risk name, risk description or similar word for column which contains information about risk without analysis. Analysis step – results from risk qualitative and quantitative analysis. Risk management planning step – risk response activities, responsibility. Risk management executing step – risk response activities status, risk current status.
2.	Detail of the risk management process steps.	Comments for column names with explanation about column content.	Only names or more detailed information.
3.	Risk register status throughout the project's life.	Risk management time borders against project's life time.	Columns or information about risk status, risk response activities state, reassessment.
4.	Risk register usage.	Comments or explanation about risk register usage.	Information about risk register usage to higher level documents, component of risk management plan.
5.	Additional information.	Information which facilitates the use of the risk register.	Risk prioritisation, explanation, notes, suggestions, historical information about previous risk states and similar.

*Source: The author's valuation*

**The “risk register” or similar notion usage**

In addition to the criteria from the “risk register” or similar notion definitions, the next step was the analysis of the notions ‘risk register’ or similar applications in the text of the sources. Table 4 summarizes the information about the usage of the notions.

Table 4

**The usage of the “risk register” or similar notions**

No.	Information about usage	Summary of usage
1.	Risk register 16 times	Nothing new against the criteria from the definition of the notion ‘risk register’.
2.	Risk log 58	Part of the project brief document; the owner for every risk.
3.	Risk register 22, risk form 22	Nothing new compared to the criteria from the definition of the notion ‘risk register’.
4.	Risk register 17	Nothing new compared to criteria from the definition of the notion ‘risk register’.
6.	Risk register 6	Risk register opening time after first risks are identified; ownership; communicates with the ownership through the whole risk management process.
7.	Risk register 5, risk log 1	Nothing new against criteria from notion ‘risk register’ definition.
8.	Risk register 117	Risk register is updated according to scheduling assumptions, risk response costs, impact to the project quality requirements; create the risk register step-by-step according risk management process steps; risk responses are executed



		during the life cycle of the project; information for the risk register updates are outcomes of risk reassessments, risk audits, and periodic risk reviews.
9.	Risk register 12, risk registers 1, risk log 5	Nothing new against criteria from notion 'risk register' definition.
10.	Risk register 19	Use risk register to make risk owners fully responsible for their risks; regular risk assessment.
11.	Risk register 2, risk log 31	Used to document and communicate the risks and relevant risk response actions and responsibilities; risk status.
12.	Risk log 19	Multiple entries for responses; regular renewal; date of the last update.
13.	Risk register 26, risk registers 1	Linking risks to at least one of the project objectives (cost, scope, schedule, and quality); systemic risk contingency.
14.	Risk register 34	Monitor and track risky events; updated frequently; involves analysis of project metrics.
15.	Risk register 37	Source of learning for future projects; version control; risk unique identifier; changes in the risk status;
16.	Risk log 10, risk register 1	Responsibility for renewal.
17.	Risk register 16, risk registers 3	Historical risks of the project, contingency or preventative measure(s).
18.	Risk register 67, risk log 8	Updates based on new risk information.
19.	Risk register 11	Nothing new against criteria from notion 'risk register' definition.
20.	Risk register 26	Risk trigger; list of uncertainties; opportunities and threats; risk event.
21.	Risk register 34, risk log 1, risk database 2	Primary risk and secondary risk.
22.	Risk register 93	The risk register conformation and signature; total cost of all risks.
23.	Risk register 13, risk charter 20	The risk register help control cost escalation.

*Source: The author's valuation*

Based on Table 4. additional criteria table was created.

Table 5

**Additional criteria from the "risk register" or similar notions definitions**

No.	Criteria	Explanation	Verification
1.	Risk management process.	Columns names correspond to risk management process steps names.	For risk management planning step – measures.
3.	Risk register status throughout the project's life.	Risk management time borders against project's life time.	Start un update dates; version controls.
5.	Additional information.	Information which facilitates the use of the risk register.	Information about communications; information for future projects; risk triggers; risk classification.
6.	Information for update.	Information which are used for the risk register update.	Information from risk reassessments, risk audits, and periodic risk reviews or similar.
7.	Information about acceptance.	Information which are used for the risk register update.	Information about responsible persons, signatures and similar.

*Source: The author's valuation*

The author developed a set of criteria when performing the definitions and the notions usage analysis. There are 7 sets of criteria in total, two new (6. and 7.) and three updated (1., 3. and 5.).



### Evaluation of the risk registers

For risk register analysis, the author chose 30 risk registers publicly available on the Internet. The existence or absence of criteria is in Table 6.

Table 6

**The risk registers evaluation**

No.	Criteria	Risk registers
1.	Risk management process.	11 risk registers contain columns with information on all stages of risk management, 18 risk registers contain columns with information on risk identification, analysis and risk management planning, 1 risk register contain columns with information on risk identification and analysis.
2.	Detail of the risk management process steps.	9 risk registers comments for column names with explanation about column content.
3.	Risk register status throughout the project's life.	3 risk registers contain date for next review, 3 risk registers last update date, 3 risk registers risk status with dates, 1 risk register action status and date, for 3 risk register it is not possible to determine whether the date is changed or only one, start date.
4.	Risk register usage.	7 risk registers is part of the risk management plan, 2 risk registers is part of the project plan.
5.	Additional information.	7 risk registers contain explanation for completion, 9 risk registers contain the risk categories, 8 risk registers contain other information.
6.	Information for update.	No record contains the appropriate criteria.
7.	Information about acceptance.	2 risk registers date of signature or approval date.

*Source: The author's valuation*

### Practical recommendations and conclusion

Qualitative research methods are suitable for risk register analysis because the registers differ – they may many have unique columns or other elements. None of the selected registers was equal to another register. The selected criteria were applicable to the analysis of the selected risk registers.

The first criterion is compliance of the register with the risk management process, including the risk identification, risk analysis, risk management planning and executing. The project risk management process is described similarly to authoritative sources. The notion 'risk register' is used in the context of the risk management process in the texts of all selected sources.

The differences in the definition of risk register in sources are great. 11 risk registers contain information on all stages of the risk management process, 18 risk registers do not contain risk management execution and 7 risk registers do not contain risk identification. Only 4 definitions contain the names of all stages or other information that can be attributed to the stage. In the source text, when analysing the use of the notion 'risk register', it can be stated that that the notion 'risk register' is used in conjunction with the names of all risk management stages. The origin of the definitions was not analysed in the study.

It may be considered that the risk register should contain information on all stages of risk management. However, this cannot be considered a mandatory condition if the project contains other documents on risk management that feature relevant information on the stages, such as progress reports because there is no definition that a mandatory condition in a risk register is a document that contains all information about the project risk management stages.

The author believes that the risk register is a document that requires knowledge of risk management and risk management experience. Additional information about the risk registry





column information can be found in 9 registers. Additional information cannot be considered a significant risk register criterion if the project has other risk management documents or the risk register is a part of another risk management document. The 7 risk registers are a part of the risk management plan.

Risk management is an ongoing process in the lifetime of the project, 10 definitions of the register include the renewal of the risk register during the lifetime of the project, it is not possible for 3 registers to unambiguously establish that the date is the date of renewal. Information on the renewal of the risk register during the lifetime of the project is considered to be an important criterion for evaluating the risk register.

As different project participants are involved in the risk management process, the information that facilitates participation in the process is positive. Only 7 registers contain information that facilitates participation in the risk management process. However, as in the criterion of compliance with the content of the risk register at all stages of the process, additional information may be included in other project risk management documents.

There is no information on risk reassessments, risk audits, and periodic risk reviews or similar elements in any risk register. Similarly to the information about updating the risk register during the lifetime of the project, it is considered to be an important criterion for evaluating the risk register, and the information on the information used in the renewal is considered significant.

2 risk registers contain the date of signature or approval date. This criterion can only be assessed as meaningful when the order of circulation of project documents stipulates that the date of signature or approval date should be in the project documents.

The criteria selected may be considered to be applicable in the assessment of risk registers. However, the author did not gain confidence that the number of criteria was sufficient. It is necessary to carry out additional studies to add new criteria, to clarify the existing ones and to establish the relationship among the criteria.

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