



VIII SINGEP

Simpósio Internacional de Gestão de Projetos, Inovação e Sustentabilidade
International Symposium on Project Management, Innovation and Sustainability
ISSN: 2317-8302

8TH INTERNATIONAL CONFERENCE



O QUE SE PODE AVALIAR EM GESTÃO ORGANIZACIONAL DE PROJETOS (GOP)?

WHAT CAN BE EVALUATED IN ORGANIZATIONAL PROJECT MANAGEMENT (OPM)?

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Agradecimento à órgão de fomento:

We thank Fundo de Apoio à Pesquisa - FAP/UNINOVE for their research support.



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O QUE SE PODE AVALIAR EM GESTÃO ORGANIZACIONAL DE PROJETOS (GOP)?

Objetivo do estudo

A gestão de projetos organizacionais (GOP) envolve métodos e processos que buscam obter vantagem competitiva para as organizações. Aplicar ferramentas para avaliar maturidade e competência, influência das partes interessadas, restrições e riscos, entre outros aspectos podem contribuir com a eficácia organizacional. Assim, o presente artigo visa identificar os principais tópicos de avaliação no contexto de GOP.

Relevância/originalidade

Em breve levantamento não observamos estudos que focassem esse direcionamento, mas vemos vários estudos que tendem a desenvolver aspectos específicos de avaliação. Como as organizações e os projetos nelas podem ter várias finalidades, entendemos que esse estudo permitirá novas pesquisas para melhoria de desempenho e desenvolvimento da gestão de projetos.

Metodologia/abordagem

A partir da base bibliográfica da Web of Science (WOS), buscamos os documentos publicados na última década. As etapas que suportam o processo metodológico envolvem a coleta e análise de dados, seguida da apresentação e discussão dos resultados.

Principais resultados

Os resultados mostraram uma concentração das discussões em avaliação ambiental no ciclo de vida de projetos, e relação aos riscos e impactos ambientais e climáticos.

Contribuições teóricas/metodológicas

A avaliação de maturidade e riscos em gestão de projetos, compreende outro campo de pesquisa. Assim, cria-se oportunidades para aplicações em outras pesquisas teóricas e práticas.

Contribuições sociais/para a gestão

Em outra perspectiva temos a avaliação de eficácia, ou ainda modelos, estruturas e sistemas, ou influência de stakeholders, permitindo assim melhoria de desempenho em outros, que beneficiam não somente a gestão como a sociedade. Assim, temos mais que somente aspectos de revisão literária, possibilidade de aplicação prática em gestão de projetos.

Palavras-chave: Gestão de Projetos, Gestão Organizacional de Projetos (GOP), Avaliação



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WHAT CAN BE EVALUATED IN ORGANIZATIONAL PROJECT MANAGEMENT (OPM)?

Study purpose

Organizational project management (GOP) involves methods and processes that seek to obtain competitive advantage for organizations. Applying tools to assess maturity and competence, stakeholder influence, restrictions and risks, among other aspects, can contribute to organizational effectiveness. Thus, this article aims to identify the main topics of assessment in the context of GOP.

Relevance / originality

In a brief survey, we did not observe studies that focused on this direction, but we see several studies that tend to develop specific aspects of evaluation. As organizations and projects in them can have several purposes, we understand that this study will allow new research to improve performance and develop project management.

Methodology / approach

From the Web of Science (WOS) bibliographic base, we searched for the documents published in the last decade. The steps that support the methodological process involve the collection and analysis of data, followed by the presentation and discussion of the results.

Main results

The results showed a concentration of discussions on environmental assessment in the project life cycle, and in relation to environmental and climatic risks and impacts.

Theoretical / methodological contributions

The maturity and risk assessment in project management comprises another field of research. Thus, opportunities are created for applications in other theoretical and practical research.

Social / management contributions

In another perspective, we have the evaluation of effectiveness, or models, structures and systems, or influence of stakeholders, thus allowing performance improvements in others, which benefit not only management but also society. Thus, we have more than just aspects of literary review, the possibility of practical application in project management.

Keywords: Project Management, Organizational Project Management (OPM), Assessment, Appraisal, Evaluation



1. Introduction

Organizational assessment encompasses techniques and methods for identifying potentials that increase their efficiency and accelerate their growth. Conceptually, assessment assist formation of organizational skills, people, teams, processes and the organization capabilities (Avolio & Hannah, 2008). In this sense, according to the model of leaders, managers and effective employees, intensifying their strengths and developing their weaknesses (Beer and Walton, 1990), what becomes processes consistent, institutionalizing competencies and capabilities at various levels such as individual, team and company.

The assessment tools are becoming comprehensive in organizations and are being used in diverse situations (Mota-López, Sánchez-Ramírez, González-Huerta, Jiménez-Nieto, & Rodríguez-Parada, 2017), but the effectiveness of applying assessment tools cannot be defined only by the instrument but also by the context in which the assessment takes place (Moldavska, 2017). Thus, Bina (2008) states that the best choices and the best planning in organizations depends not only on the good information generated by the evaluation, but also on the context in which it operates, which denotes the importance of the relationship between evaluation (as a system).) and the context in which it operates.

In project management context, it is possible observe the application of assessment's tools in topics such as maturity and competency (Ibbs & Kwak, 2000; Rabechini Jr, 2003; PMI®, 2013), stakeholder influence (Aragonés-Beltrán, García- Melón, & Montesinos-Valera, 2017), constraints and risks (Shenhar & Dvir, 2007), among other aspects focused on management effectiveness, regardless of quantitative and qualitative methods (Thamhain, 2014) and in skills structured addressing to process, strategy, and change for people, teams, and organizations (Rabechini, Jr, 2003).

According to Shivakumar (2018), project management assessment can help organizations to improve their strategies by driving market demands; even in the face of new technologies, which challenge digital technologies to create a consistent channel-consumer experience. Even though assessment in the project management becomes a huge topic in the organizational context, the cultural heritage continues to influence the project appraisal and quality assurance in the early phase (Stendebakken & Olsson, 2017). Nevertheless, organizational project management (OPM) are one of the capabilities that helps organizations to achieve competitive advantage in the market (Biedenbach & Müller, 2012) and continues to work as a support decision making system, finding in organizations a natural environment to demonstrate results and improvements to non-prescriptive project management evaluation applications (PMI®, 2013).

In research on organizational maturity in project management, Andersen and Jessen (2003) propose the use of dimensions such as attitude, knowledge and action. In spite of, Rabechini Jr. (2003) presents an assessment of the perspective of competence based on individuals, teams and organizations. The formation of this knowledge favors the development of capacities that elevate the organization, besides allowing the maintenance of important competitive advantage in the current context.

Nowadays, it is possible to verify a framework to evaluate projects in strategic, tactical or operational as a supportive decision-making tool (Zidane, Johansen, Hussein, & Andersen, 2016) and an approach of maturity in OPM under the governance structure (Görög, 2016). Thus, several aspects of the project's organizational evaluation should be considered, in addition to more economic and financial evaluations, sometimes limited to technical, social, environmental and organizational aspects (Picciotto, 2019).

Assessment in the organizational project management (OPM) context cooperates to develop skills and capabilities (Peppard & Ward, 2004), allowing a conceptual review in



organizations and how their measurements are conducted. In this way, Patah and Carvalho (2003) observe Gray's research seeks identify and combat sources of threats and insecurity in the team and organization, promoting the intrinsic satisfaction and motivation of individuals, forming an organizational culture that encourages and values team in project execution.

Structure and organizational environment affect the creation of conditions to mature and develop people, teams and organizations (Patah and Carvalho, 2003; Rabechini Jr., 2003). Project appraisal and organizational project management find a relevant business context as they seek to improve corporate performance, contribute to organizational strategy, and improve performance at the organizational levels. Deliverables depend on management processes, which the more developed the better the results delivered, this directs efforts more effectively demonstrating the importance of knowing what to evaluate.

Giraldi and Söderlund (2018) discussed about the difference between project management (PM) and organizational project management (OPM) concluding that the OPM involves all the topics about the project management discipline that consider the level of analysis and the type of research. The indistinction between these terms can bring the same meaning to practical business environments misconducting practitioners to the error of comprehension. In order to this, we designed this research to construct a logic to better explain the subject “assessment in the organizational project management (OPM) context”.

2. Methods

We conducted a simple search based on engine (“project management” AND assess*) in the title and filtered to “Business” and “Management” categories on the Web of Science (WoS) database. This simple search brings us 31 articles, with which we read and conduct a data textual analysis on IRaMuTeQ to explore frequencies and factors, as proposed by Ratinaud and Marchand (2012). This showed us that the subject assessment, in the organizational project management (OPM) context, could be related to diverse aspects as competencies, performance, risk and other terms. It was still unclear what exactly the assessment represents in the organizational project management context and based on these ideas, we structured a bibliometric study to approach the subject quantitatively and statistically (see Figure 1).

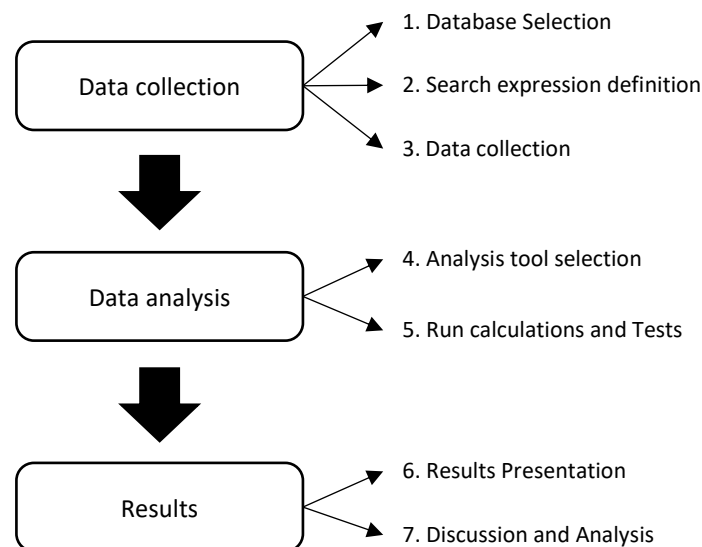


Figure 1: Research Process Diagram
Source: Authors



We opted for the measures of index of production and dissemination of scientific knowledge, as exposed by Araújo (2007). The empirical contributions to research questions from various areas of knowledge allows us to structure the hole study, and map it based on the appropriate scientific method the limits of knowledge we seek (Aria & Cuccurullo, 2017). To this end, we define the analysis tool, database and search expression, which include minimal elements to understand and reproduce the search.

2.1. Database Selection

To conduct the bibliometrics research we chose the Web of Science (WoS) database as the literature source, mainly because of the functionality of articles' impact assessment based on the Journal Citation Report (JCR). We understand that, for a literature review, the Web of Science's data structure have metadata with relevant information, considering publications from various countries, institutions, number of citations, list of authors, institutions, and other relevant information that characterize the trends and contributions to the proposed objectives.

2.2. Articles selection

In order to find the core of the research, we initially selected the words project and assessment to compose the main search expression. To improve the search, we used the Thesaurus synonyms site to identify the words appraisal and evaluation. To better fit the engine, we use boolean logic and our search expression stands as (project AND ("assess*" OR "apprais*" OR "evaluat*")), applied only in "Title" field to cover articles that bring the selected terms in the title structure, and in our first search tentative, we found 6,502 documents.

This number of documents was too large for the analysis, so we defined other cut-off criteria to standardize the data, considering date, language, knowledge area and document type. The search was refined by selecting the studies according to following criteria: only articles, subject area: management and business areas (WoS classification), publications between 2010 and 2019 and language restricted to English. All this process is showed in the Figure 2, that presents our data selection criteria, and part of the data collect procedure. The final selection was composed of 873 documents in 247 different sources (journals).

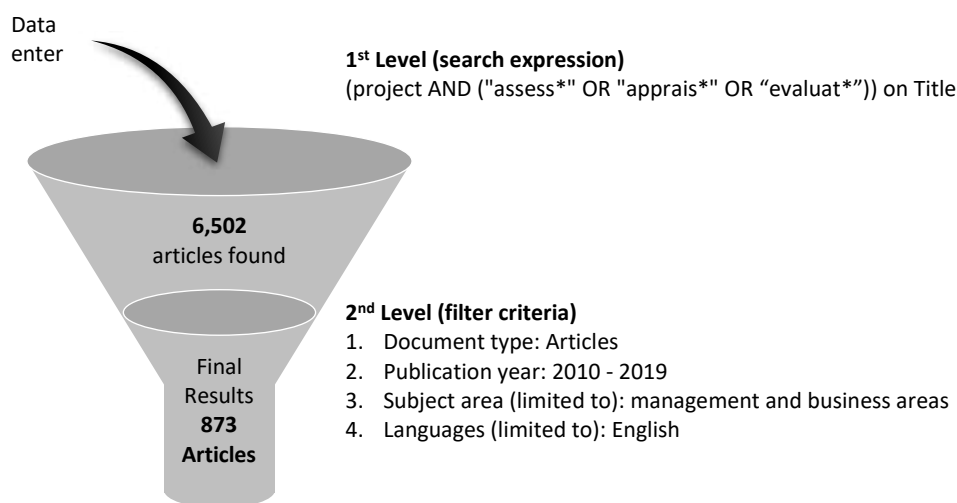


Figure 2: Data Selection Criteria
Source: Authors



2.3. Analysis Tools

For this research was selected the Bibliometrix and the VOSviewer software to make the mapping analysis process more robust. The Bibliometrix was chosen to support a workflow to perform bibliometric analyses with R language as a flexible statistical tool that can be rapidly upgraded and integrated with other statistical R-packages (Aria & Cuccurullo, 2017). We decided to use the VOSviewer to create and visualize maps based on network data. Word maps are made using mapping and grouping techniques applied in the textual body and can be created from data extracted from databases (Van Eck & Waltman, 2010).

2.4. Data Analysis Process

The quantitative analysis of the articles directed by the research data makes it possible to identify characteristics that allow accepting or rejecting the defined hypotheses. To analyze the articles, we consider the following categories of analysis: evolution of publications (number of publications and citations per year, most cited terms, most cited authors, journals and their number of publications, research areas and number of publications, institutions and number of publications), published articles, main subjects covered and the most cited and most outstanding articles on the subject. Our complete research process can be understood in three groups and seven steps, as showed in the diagram in Figure 1.

The basis of our research process comes from classic data analysis models, so we have the data collection procedures group, the input of resources that will be processed in the results analysis. At this point, we had three decisions that were explored in this section: database selection, search expression definition, and data collection, with which should also consider the need to filter or narrow the base based on criteria that make the process rational. Then we have the data analysis, which involves selecting the tool, loading the data and performing calculations and tests, generating results that will be exported. Finally, we present and discuss the results, which are just the last two steps of the result group.

In summary, during bibliometric analysis, all articles in the input dataset and the documents cited by them were linked, creating a citation network composed of documents that associate the researches. Therefore, the citation network represents the most relevant documents used by researchers in the subject matter of assessment in OPM and helps to form the intellectual basis and terms and research focus terms and field. The intellectual basis was formed by the documents cited by the researchers and represents the foundation upon the subject was built.

3. Results and Discussion

Through it, an overview of the research's scope is resumed in evolutions in the timeline of journals, networks and connections, number of journals found in the research and finally the generation of factors that indicate the assessment lines in OPM. Therefore, the data are presented in figures and tables extracted from the tools described in the item methods. We observed that these group of 873 articles was published in 247 different scientific journals what could indicate a diffuse result based on this search string. Some of articles was about topics diverse that project management, such as finance, economics and sustainability, reflecting what Picciotto (2019) argued under the main aspects assessed in projects. The summary of data collected as quantities of documents, authors, sources, keywords, among other data that allow a descriptive analysis, are shown in Table 1.



Table 1: Main Information about the data collected

Description	Results
Documents (Articles)	873
Sources (Journals)	247
Keywords Plus (ID)	1828
Author's Keywords (DE)	2869
Period	2010 – 2019
Average citations per documents	11.05
Authors	2971
Author Appearances	3429
Authors of single-authored documents	55
Authors of multi-authored documents	2916
Single-authored documents	58
Documents per Author	0.294
Authors per Document	3.4
Co-Authors per Documents	3.93
Collaboration Index	3.58

Source: Authors (based on Biblioshiny software).

The annual scientific production indicates a crescent interest in the last five years about the relationship between project and assessment (and variances). The subject evolution has the top period of publication between 2015 and 2019, comprising 60.5% of published articles, what means that researchers are tending to seek the importance of assessment in the organizational project management context (see Table 2).

Table 2: Annual scientific production about the assessment in organizational project management

Year	Documents by year	%
2019	127	14.5%
2018	113	12.9%
2017	102	11.7%
2016	96	10.9%
2015	90	10.3%
Total of period	528	60.5%

Source: Authors (based on Biblioshiny software).

Based on the results we could observed that the most relevant sources identified were Sustainability, Journal of Construction Engineering and Management and International Journal of Project Management, totalizing an amount of 139 articles, 15.9% of sample articles (see Table 3). In this way, we observed that the most cited sources were International Journal of Project Management, Automation in Construction, and Journal of Cleaner Production with an amount of 2,032 citations, 21.1% of citations (see Table 4). Considering the subject context, the sample showed that the source International Journal of Project Management concentrates the most cited articles indicating a good source to find articles about assessment in OPM. These evidences reinforce de Bradford law under the dispersion of articles' publication period. The results show that a few numbers of sources concentrate the most relevant articles and a large number of sources contains few articles (Nicolaisen & Hjørland, 2007).



Table 3: Source Production

id	Source Title	Articles	Articles (%)
1	Sustainability	61	7,0%
2	Journal of Construction Engineering and Management – ASCE	41	4,7%
3	International Journal of Project Management	37	4,2%
4	Journal of Cleaner Production	32	3,7%
5	Transportation Research Record	32	3,7%
6	Journal of Management in Engineering	28	3,2%
7	Energy Policy	25	2,9%
8	KSCE Journal of Civil Engineering	22	2,5%
9	Journal of Civil Engineering and Management	17	1,9%
10	Automation in Construction	15	1,7%

Source: Authors (based on Biblioshiny software)

Table 4: The most cited sources

id	Source	Total	Publications (%)
1	International Journal of Project Management	106	11.0%
2	Automation in Construction	57	5.8%
3	Journal of Cleaner Production	412	4.3%
4	Energy Policy	403	4.2%
5	Journal of Civil Engineering and Management	347	3.6%
6	Journal of Management in Engineering	343	3.6%
7	Atmospheric Chemistry and Physics	308	3.2%
8	Journal of Construction Engineering and Management – ASCE	305	3.2%
9	Journal of Construction Engineering and Management	278	2.9%
10	Sustainability	239	2.5%

Source: Authors (based on Biblioshiny software)

Based on the coupling of authors, the central co-citation network in assessment in OPM is based on four groups. The group based on Wang, X., Li, D., and Li, Y. nodes represents discussions about environmental assessment during China's projects lifecycle. The group based on Wang, Y., Wu, Y., and Wang, J. nodes represents environmental risks, impact and climate in China's organizations context and are related to one of the main keywords identified in this bibliometric research, the word China. Nevertheless, the node based on Chan, A. P. C. represents risk assessment model discussions applied exclusively to project management context. And, based on Tamosaitiene, J., Dikmen, I., Hravi, G., and Batselier, J., it is possible to see tools and techniques applied to project management in construction context as the central topic discussed (see Figure 3).

In the central part of the discussion about assessment in OPM appears the two most related groups. Based on Wang, X., Li, D., and Li, Y. discussions, is factual that assessment was used as managerial tool to understand the better pace of each phase of project's lifecycle. This observation showed a point that can be explored in future researches. Once the geographic space of this group is China's region, it is possible to see a relation with this group and the group based on Wang, Y., Wu, Y., and Wang, J. nodes, but with divergent discussions bursting



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topics more specifically about employ tools to assess risk, as argued by Shenhar and Dvir (2007), and other impacts on climate and projects of sustainability (see Figure 3).

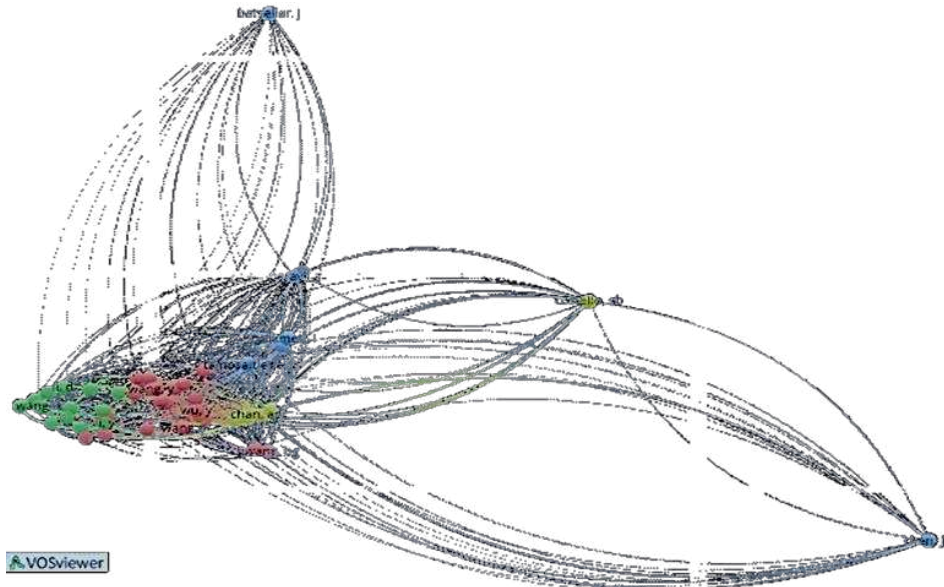


Figure 3. The reference co-authorship network of assessment in OPM.
 Source: Authors (based on VOSviewer software).

That pointed evidences are reinforced by the results resumed in Figure 4, where is possible to see the relationships constructed between authors, keywords and journals. In this analysis was possible to see that the most relevant keywords were risk assessment and project management, which are strongly explored in the engineering journals and project management journals. What called attention was the difference between relations formed by these two keywords, in which risk assessment is well intermediating authors and journals, but project management only intermediate this relation with the author Heravi G. that explores diverse topics about project management, including assessment and evaluation.

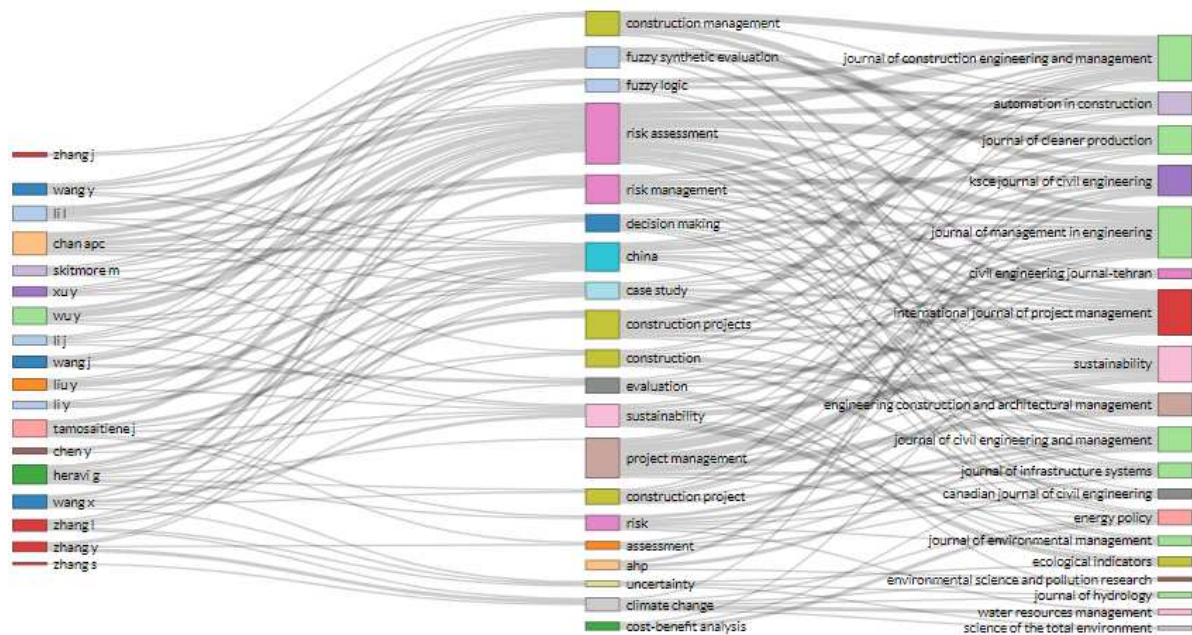


Figure 4: Three fields plot
 Source: Authors (based on Biblioshiny software)



The Table 5 presents the top ten authors' documents. These articles represent 10.5% of all citations (1,015 of 9,646 citations) and most of them are from engineering sources and address the issues of risk management.

Table 5: Top 10 author's documents

Author	Year	Title	Source	Total Cit.	Total Cit. / Year	Doc . Cit. / Total Cit.
Tamosaitiene J	2010	Risk assessment of construction projects	J. Civil Eng. Mngt.	221	22.10	2.3 %
Chan APC	2010	Developing a risk assessment model for PPP projects in China: A fuzzy synthetic evaluation approach	J. Automation in Construction	133	13.30	1.4 %
Xu Y	2010	Developing a risk assessment model for PPP projects in China — A fuzzy synthetic evaluation approach	J. Automation in Construction	133	13.30	1.4 %
Chan APC	2011	Empirical Study of Risk Assessment and Allocation of Public-Private Partnership Projects in China	J. Mngt. in Eng.	104	11.55	1.1 %
Wu Y	2011	Key Assessment Indicators for the Sustainability of Infrastructure Projects	J. Const. Eng. Mngt. – ASCE	97	10.77	1.0 %
Lee S	2012	Risk-Neutral Pricing Approach for Evaluating BOT Highway Projects with Government Minimum Revenue Guarantee Options	J. Const. Eng. Mngt. – ASCE	73	9.12	0.8 %
Skitmore M	2013	Evaluating stakeholder satisfaction during public participation in major infrastructure and construction projects: A fuzzy approach	J. Automation in Construction	69	9.85	0.7 %
Wang J	2018	Research on Construction Engineering Project Risk Assessment with Some 2-Tuple Linguistic Neutrosophic Hamy Mean Operators	J. Sustainability	64	32.00	0.7 %
Li J	2011	Water quality assessment in the rivers along the water conveyance system of the Middle Route of the South to North Water Transfer Project (China) using multivariate statistical techniques and receptor modeling	J. Hazardous Materials	62	6.89	0.6 %
Li J	2011	Fuzzy AHP-Based risk assessment methodology for PPP projects	J. Const. Eng. Mngt. – ASCE	59	6.56	0.6 %

Source: Authors (based on Biblioshiny software).

Based on Factorial analysis (multiple correspondence analysis) showed in Figure 5, we can observe the factors that represent assessment in OPM discussion. Excluding the factors China, which discuss about geographic context, and management, that represents the field of



study, it is factual that model, performance, systems, impacts, risk, and challenge represent the main factor groups about assessment in OPM. As observed in the factor model, terms as system, selection, indicators, decision, and others burst in order to explain the bigger topic. In the sequence descendent order, performance is observed considering terms such as impact, technology, knowledge, and others. Following the order, impacts, formed by terms as simulation, variability and others, and system, formed by terms as lifecycle assessment, emissions generation and others, are focused on environmental discussions. Nevertheless, the factors risk, formed by efficiency, models, identification, and others, and challenge, formed by policy, support, lessons, and others, burst more specifically related to the subject.

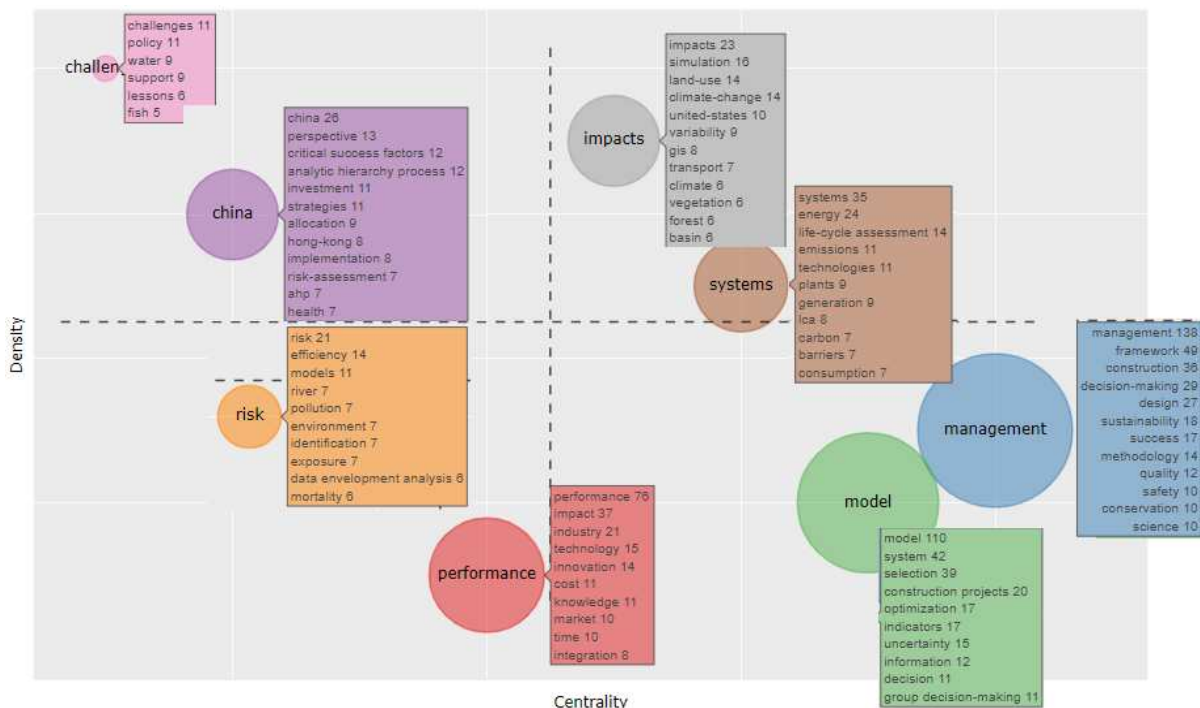


Figure 5: Factors for assessment in organizational project management
Source: Authors (based on Biblioshiny software)

The most relevant words (Author's keywords) indicates the relevance of project management, risk assessment, evaluation, decision making, and other aspects considered relevant by authors to evaluate what surround project management to mitigate risks, impacts, and evaluate the results and deal properly with uncertainties during project execution. Excluding management, keywords as model, performance, systems, impacts, risk, and challenge appear as the most featuring articles burst in the bibliometrics analysis.

Instead of the initial literature present that assessment tools and techniques is most discussed in topics such as maturity and competency, stakeholder influence, constraints and risks, management effectiveness, and skills, this research showed other points of view. Considering the comparison between the factors formed in this research and the preview literature, we can see four matching topics. The first and second can be a conjunction between performance and impact with management effectiveness, based on Thamhain approach (2014), possible indicating a specializing after his observation. The third and fourth can be a conjunction between risk and challenge with constraints and risks, based on Shenhar and Dvir (2007), possible expanding the discussion about constrains to the challenge point.

All these observations could give an advance discussion in the subject that was not before studied, as from the conjunctions to merge topics, from performance and impact to



management effectiveness, and to specialize topics, from risk and constraints to risk and challenge. Considering these facts and points of view, we proposed four hot topics about assessment in organization project management to be studied in future researches:

1. Assessing organizational project management effectiveness;
2. Assessing organizational project management models, frameworks and systems;
3. Assessing organizational project management risks and challenges;
4. Assessing organizational project management stakeholder's influence.

4. Conclusion

In the bibliometric analysis, all 873 articles in the input dataset and the documents cited by them were linked, creating a citation network composed of articles and authors on assessment in OPM. Therefore, this network of citations is represented by the most relevant documents used by researchers on assessment in OPM, which leads us to constitute the intellectual basis and the frontier of research on the subject. The intellectual basis was formed by the documents cited by the researchers and represents the theoretical framework in which the researchers based on the construction of their concepts. The research frontier was composed by the documents citing authors and represents the main understanding of assessment in OPM over the last 10 years. Complimentarily, the factorial analysis (multiple correspondence analysis) makes possible construct the group of factors that represents the subject.

A combination of the results selected and discussed in the intellectual base on assessment in OPM and main research trends revealed patterns in the research field on the subject. Figure 4 illustrates the behavior of these patterns and how intellectual basis on the left side, research trends on the right side, and more relevant ideas in the center composed the structure of assessment in OPM on the timeline.

We could observe the subject assessment in OPM have some connections with other areas, mainly in the construction, energy and environmental industries. These areas showed us the relevance that the subject assessment has on the project context in dangerous sectors and describes one of the important aspects their business put attention.

On the other hand, we observed Model, Performance, Systems, Impacts, Risk, and Challenge as factors representing assessment in organizational project management (OPM) general context. This observation is an evidence that other studies can lead empirical investigation on these factors trending to verify whether factors really represent assessment in OPM. Based on this we bring four practical's possible hot topics about assessment in OPM that can lead for in depth discussions: OPM effectiveness; OPM models, frameworks and systems; OPM risks and challenges; and OPM stakeholder's influence. This last one based on recent literature published by Aragonés-Beltrán, García- Melón, and Montesinos-Valera (2017).



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