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PROJECT MANAGEMENT SUCCESS: A BIBLIOMETRIC ANALISYS

ABSTRACT

The growing use of project management as a strategy for organizations to develop their intents is a tendency present in the last decades that gained power in the late 2000's. However, this subject is not totally covered by scholarly research. This study aims to measure the recent scenario of the project management success field as a way to better understand this field of research. A bibliometric study was developed with a portfolio of 64 papers about "project management success" collected at the Web of Science (ISI) database, covering the evolution of this topic over the last five years (from 2000 to 2014). Articles were analyzed by journal, most cited keywords, citations, co-citations, journals' impact factors and abstract analysis. Conclusions pointed out significant authors and journals, and also a significant cluster of papers written by Aaron Shenhar, as a relevant source of information to the project management success field. These information may be used by other authors to spur other studies about the project management success subject, not covered by this research.

Keywords: Project Management Success; Bibliometric Research; Bibexcel; Ucinet; Wordle.

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1 INTRODUCTION

Project management has increasingly been a strategy used by organizations to construct their plans to achieve their goals. Since the beginning of the 2000s, project management (PM) and its issues have been growing in relevance in a more specific way, even being adopted as organizational model (Carvalho & Rabechini, 2011).

This new tendency has become strong enough to create a new category of organizations, composed by those that conduct all or almost every organizational activity by projects: project-based organizations (PMI, 2013).

Considering this new scenario faced by most of the moderns firms, their managers also need to be much engaged to achieve success in project management. Looking for a better understanding of this reality, the Project Management Institute (PMI) – one of the most recognized project management organizations worldwide – developed a speech about project management success that can be easily found at PMI's most traditional guide (PMBOK).

A product's profit, schedule and budget adherence are a few of the criteria analyzed when project management success is discussed (Shenhar & Dvir, 2010). However, a lot of debate exists about the capability of a single criteria to assess the complete success of the management process of a project, and because of this, many approaches and models are proposed in the literature.

Since being successful in the project management is a controversial topic (Carvalho & Rabechini, 2011), it is expected that it be grounded in numerous researches worldwide that would allow a well-developed discussion of the subject.

Considering this reality, this study is proposed as an attempt to answer the following research question: How is the recent scenario of project management success research characterized? To answer the question, this research aims to measure the recent scenario (the last five years) of the project management success field as a way to better understand this field of research.

Expectations concern showing an actual scenario of the success in project management research that allows other authors to find new (or strengthen old) paths to explore in this research area.

After this brief introduction, this study is presented in four sections: First, a theoretical review was given aiming to contextualize readers with the project management success (PMS) topic. The second step presents the methodological delineation of this study. The third step consists of the presentation of the results of the bibliometric research conducted about the "project management success"**.** Finally, the results of the bibliometric research are analyzed to the conclusions, as them are exposed considering the research question proposed.

2 PROJECT MANAGEMENT SUCCESS

When considerations about project management success are made, it is possible to find and use many different approaches. One of the most traditional ones is the iron triangle approach. It affirms that three main aspects that must be managed together characterize projects: scope, cost and time.

PMI (2013. p. 105) defines the scope as "the work performed to deliver a product, service, or result with the specified features and functions". In addition PMI approaches cost management as: "[…] the cost of resources needed to complete project activities. […] the effect of project decisions on the subsequent recurring cost of using, maintaining, and supporting the product, service, or result of the project" PMI (2013. p. 195), and finally time management as "[…] the processes required to manage the timely completion of the project" PMI (2013. p.141).

After projects are planned these three concepts may be monitored while they are being developed through time. They can show the manager and the project's team the level of adherence of the project to its iron triangle, as shown in Figure 1.

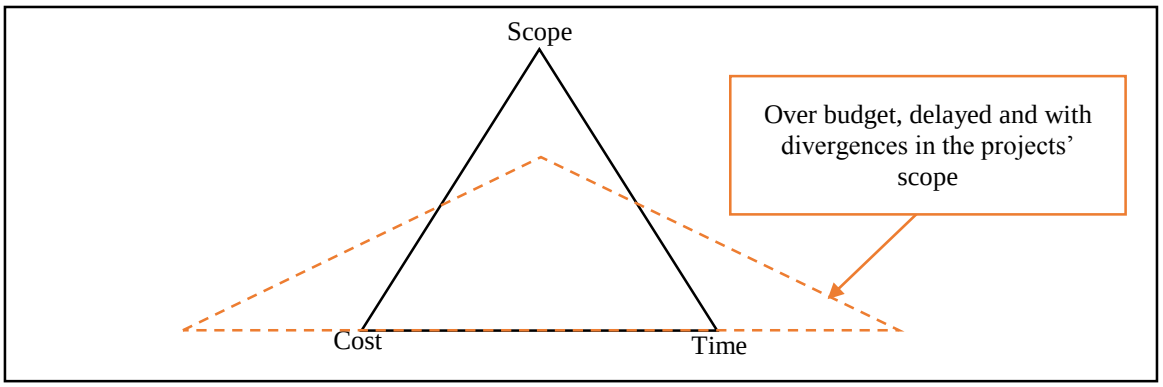

Figure 1 - The project management iron triangle
Source: Adapted from Carvalho & Rabechini (2011, p.39)

This traditional approach is mentioned by Carvalho & Rabechini (2011), and PMI (2013) as it is summarized in Table 1. Kerzner (2011) also mentioned it, but with an addition: client's expectation attendance. Kerzner highlights his addition mentioning that it makes sense to any kind of client, being it internal or external.

Published two years earlier, Ellatar's (2009) proposal is different. He highlights that success is a relative to the viewer's conceptualization and will vary according to the viewer's expectations over the project. In contrast to Ellatar's proposal, Morioka & Carvalho (2014) recent paper proposes a more internal consideration of project management success, affirming that success is mostly related to the company's capability of enjoying the foreseen benefits when the project was planned. Wit (1988) has and similar approach, however with a wider public. He mentions the stakeholders' satisfaction with project's outcome as well.

Lastly, Shenhar, Dvir, Levy et al (2001) make another proposal that suggests a multi-dimensional approach of project management success, which may consider its different dimensions and the timeline in which they develop.

Table 1 - Considerations about the project management success summarization

AUTHOR	CONSIDERATIONS ABOUT THE CONCEPT OF PROJECT MANAGEMENT SUCCESS
PMI, (2013)[1]	"As projects has a temporary nature, its success may be measured by its conclusion within the constraints of scope, time, cost, quality, resources and risk, as approved by the project managements and the senior management team". (PMI, 2013, p.35)
Carvalho & Rabechini, (2011)[1]	"Traditionally, the iron triangle is used. […] Define project success is not an easy task, as it depends of the perspective of the stakeholder, the kind of the project, the temporal perspective (short, medium and long time)" (Carvalho & Rabechini, 2011, p.37).
Kerzner, (2011)[1]	"Historically, the definition of success has been the attendance of client expectations, independently of its been an internal or external one. Success also includes the realization of the work within the constraints of time, cost and quality/performance". (Kerzner, 2011, p.40).
Shenhar, Dvir, Levy et al (2001)	"We suggest that management should adopt a multi-dimensional approach to the concept of project success […] To assess a project's success, one needs to understand the distinct dimensions and address different timeframes". (Shenhar, Dvir, Levy et al, 2001, pp.718-720).
Morioka & Carvalho (2014)[1]	"[…] project's success refers to the goals and benefits foreseen by the project to the organization. In this way, it is about effectiveness of one initiative within the achievement of its initial goal, enabling the company to enjoy the benefits foreseen by the project". (Morioka & Carvalho, 2014, p. 132).
Wit (1988)	"The project is considered an overall success if the project meets the technical performance specification and/or mission to be performed, and if there is a high level of satisfaction concerning the project outcome among key people in the parent organization, key people in the project team and key users or clientele of the project effort". (Wit, 1988, p. 165).
Ellatar (2009)	"[…] success is defined as the degree to which project goals and expectations are met. It should be viewed from different perspectives of individuals and the goals related to a variety of elements, including technical, financial, education, social, and professional issues. Project success is the goal, and the objectives of budget, schedule, and quality are the three normally accepted criteria to achieve the goal". (Ellatar, 2009, p. 550).

Source: The authors. [1]Authors did the translation of these citations.

As it is possible to see through this diverse quantity of approaches on the conceptualization of project management success, developing a final approach is a complex task, hampered by the diverse quantity of varying perceptions (Ellatar, 2009).

3 METHODOLOGIAL ASPECTS

This section aims to clarify the methodological guidelines that underlie this study. However, before defining and applying any research method is of fundamental importance that the researcher has an overview of the main characteristics that define his study. By this assumption, Figure 2 a methodological framework of this study that allows the reader to have a broader view of the methodological context applied.

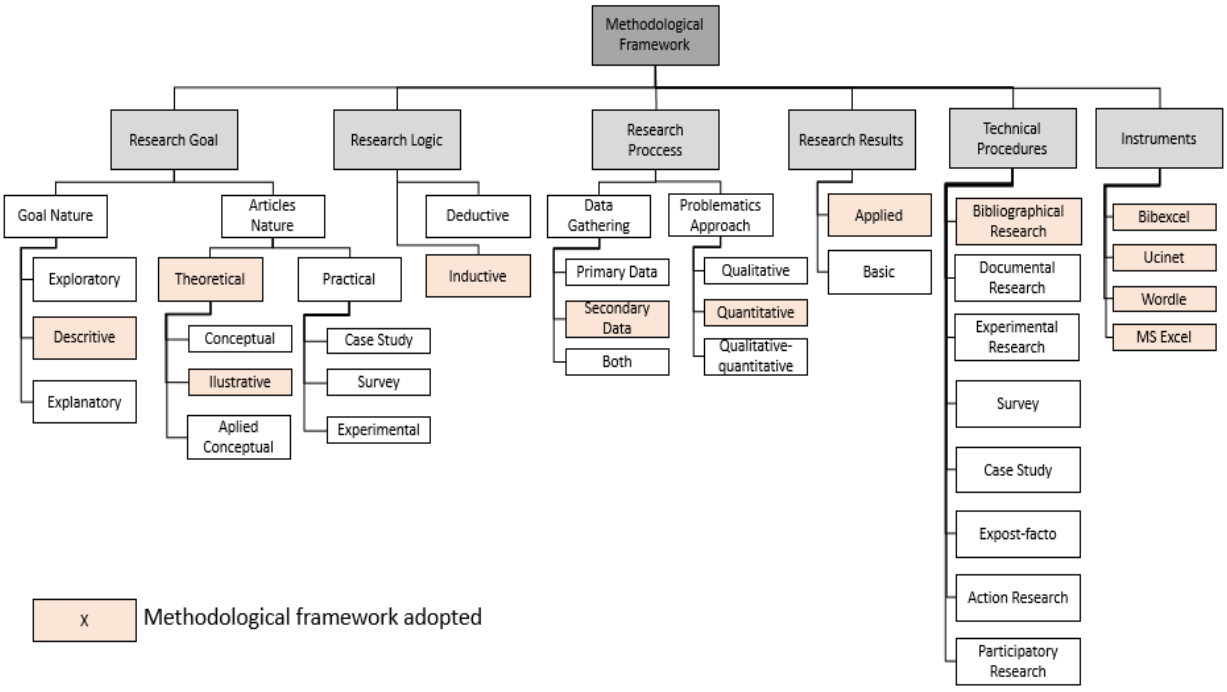

Figure 2 - Methodological framework of this article
Source: Adapted by the authors from Lacerda, Ensslin & Ensslin, 2012.

Considering the approach proposed by a bibliometric research, it is possible to understand as it main goal to "[…] develop the bibliographical control (knowing the size and characteristics of the collection, elaborating growing forecasts, etc.)" (Nicholas & Ritchie; 1978, p.12). In relation to this potential result, it has been understood that it has the capacity to fulfill the ambitions proposed at the research question of this study, already highlighted.

The development of this research is built in 4 phases, as follows: keywords definition, database definitions, articles search and data analysis of the defined portfolio. The methodological procedures comprehending the bibliometric research described were developed through the month of October of 2014.

3.1 Keywords Definition

The first step necessary to build this bibliometric study was the definition of the keywords that were applied in the databases to find articles potentially related to the topic measured, in this case: "success in project management".

Reflecting the theme of this research, authors determined that the keywords used must be: "success", "project" and "management". The search was developed considering the article titles, keywords and summaries.

As the keywords are already defined, the union sets composed by them must be as well. This is done in Table 2.

P1. “success” AND “project management”
P2. “successful” AND “project management”
P3. “successful” AND “PM”

Table 2 - Keywords definition
Source: The authors

3.2 Database Definition

One database was chosen to develop this study: “Web of Knowledge” also known as “ISI”. This decision was made considering that this database includes papers that can also be found in other databases (Scopus and ProQuest i.e.) and is responsible for the Journal Citation Report (JCR). Besides that, ISI is able to provide essential metadata that can be used in some specific bibliometric analysis, as the co-citation and abstracts’ analysis (Carvalho, Fleury & Lopes, 2013).

The database definition phase of the study has the potential to delimitate the boundaries of the research, considering that the whole portfolio of articles after being analyzed may be built through the results found in the defined database.

3.3 Articles Search

Considering the defined parameters – database, keywords and union sets – the bibliometric search was made, according to the steps illustrated in the Figure 3.

The searches were made considering some specific parameters beside those already mentioned: the results were limited to articles published from 2010 to 2014. The research domain was limited to the social applied sciences and there was no limitation to the language of the publications.

As first step after the database search, it was possible to consolidate the results from the three database searches (success project management – 683 articles; successful project management – 356 articles and successful PM – with 20 articles).

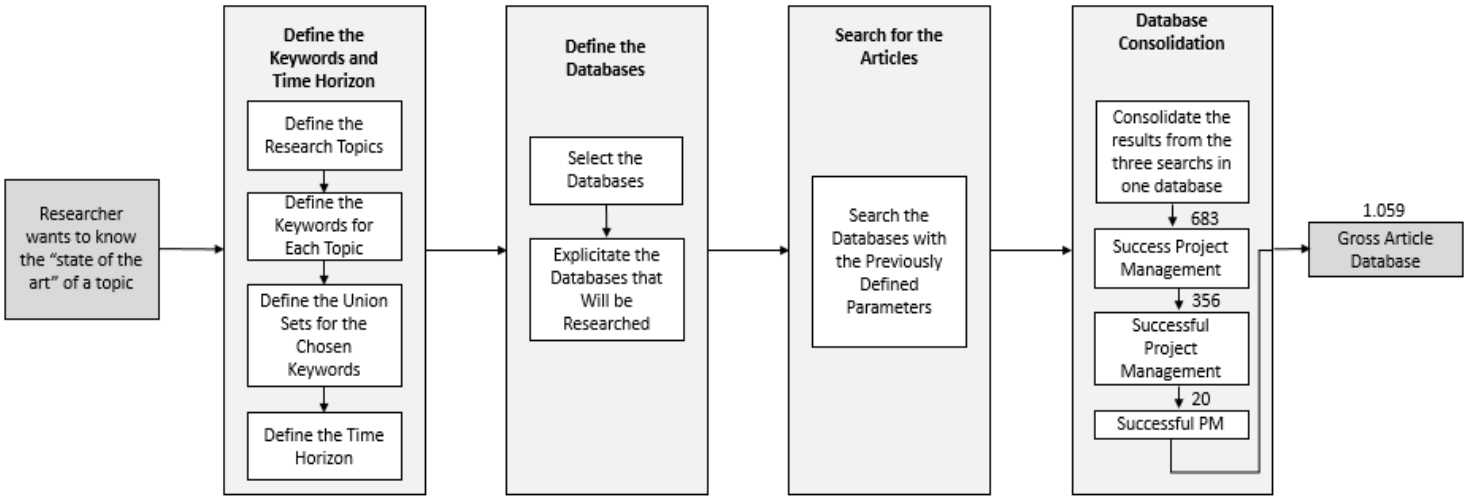

Figure 3 - First steps of the bibliometric research: the search
Source: Adapted from Ensslin *et al*, 2010.

After uploading the gross and consolidated article database to the software, it was possible to perform the first filter of the research: the duplicated papers. Exactly 130 duplications were found; results of the joint of the three different searches made in the step before the first filter development.

Considering the 929 resulting portfolio of papers, authors read their titles looking for alignment to the study object of this research (project management success). In some cases when the title was not enough to determinate the alignment, the abstract was read as well. From the reading of all 929 papers’ titles and abstract (when necessary), 866 articles were excluded, obtaining a final database of 64 papers (Figure 4).

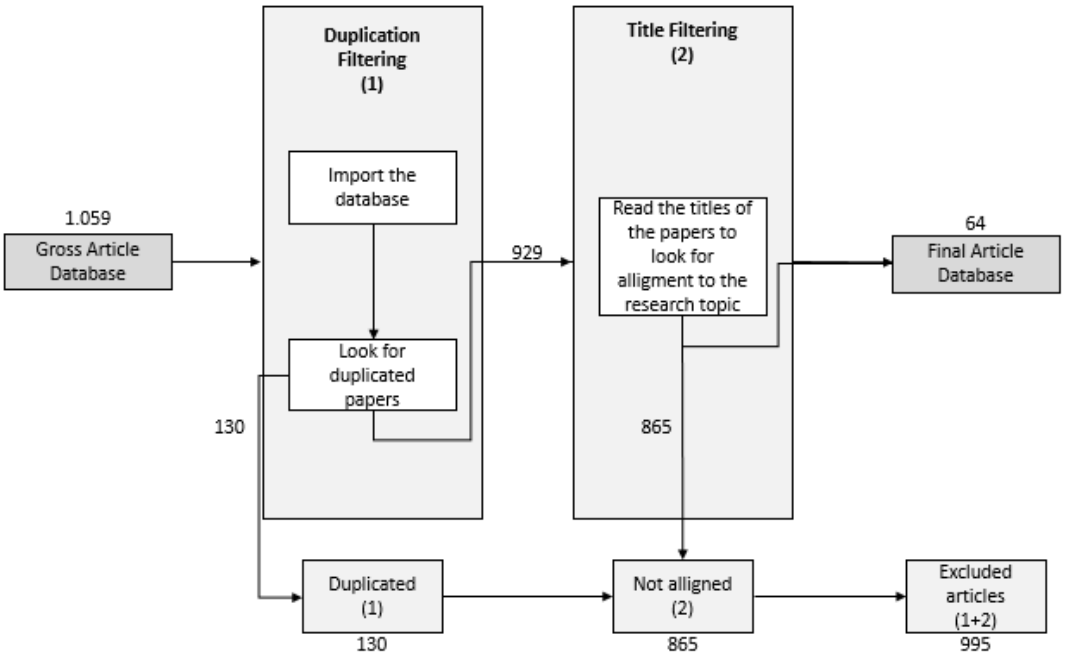

Figure 4 - Second step of the bibliometric research: the filtering
Source: Adapted from Ensslin *et al*, 2010.

3.4 Data analysis

The following criteria were used to analyze the articles portfolio:

- Research evolution over the years
- Articles by journal and impact factor
- Most cited keywords
- Citations and co-citations
- Abstract analysis

To build the "research evolution over the years" topic, data corresponding to the papers' years of publication, provided by the ISI database, was consolidated. This information was matched with the impact factor of each journal. This relation made the construction of figures 5 and 6 possible.

Information considering the quantity of articles published by journals was possible considering the metadata provided by ISI database, consolidated in Appendix 1. The impact factors information was the result of individual web search, considering each journal impact factor.

The most cited keywords analysis was possible with the help of BibExcel (Person, 2014). The software applied filters in the metadata provided by ISI, isolating the keyword information. This specific segmentation was then exported to Microsoft Excel for further analysis. Two different approaches were developed considering the keywords analysis: one considering the 66 keywords mentioned twice or more, and another considering the 193 keywords mentioned just once, as it is possible to see in a more detailed explanation presented in topic 4.3 "Most Cited Keywords".

Information regarding citations and co-citations were also provided by the metadata obtained at ISI database. The information of the citations made by each paper were isolated with the help of BibExcel, in the same process used at the keyword analysis already presented. After that, citations verified at the isolated segment were consolidated by paper with the help of Microsoft Excel. This made it possible to see the number of time each one was mentioned. The world cloud was created with the help of Wordle (Feinberg, 2013).

The co-citations matrix presented was built with the help of a software called Ucinet. However, to obtain the data used by Ucinet to draw the matrix, first, the information related to the citations of each paper was processed with the help of Bibexcel through the same steps used to process the citations analysis. After that, this information, was saved (.ma2 file) and exported to Microsoft Excel, (.xls file) which is an Ucinet friendly format, making it possible for Ucinet to finally draw the co-citations matrix presented at topic 4.4.

The abstract analysis was possible thanks to the segmentation made with Bibexcel of the full texts of the abstracts, first presented in the metadata extracted at ISI. This extraction was then manipulated to eliminate words that would not contribute to the analysis in a first approach, as conjunctions (and, or, but, for, etc.) and prepositions (on, in to, etc.). After this step, remaining words were inserted in Wordle, to build the world cloud.

4 BIBLIOMETRIC ANALYSIS RESULTS

The analysis of the final portfolio of 64 papers was developed through a bibliometric approach: a specific type of quantitative analysis, which allows researchers to measure, interpret and assess the scientific production of a specific subject (Araujo, 2006).

4.1 Research evolution

When the publications over the five years considered in this research are considered, it is possible to see no pattern, with diverse quantities of papers being published over the years. The decrease in 2014, must be analyzed with caution, considering that the date of execution of this bibliometric study (October 2014). This five year analysis over the publications by year is not enough to admit a tendency in increasing or decreasing of publications over the years; however, if it is analyzed together with the information regarding the impact factor of the papers, and the data of the publications (presented as follow, respectively in Tables 3 and 4) a quality upgrade can be seen. This analysis has the potential to show us a constant awareness of the importance of the subject "success in project management" as, even the number of publications has been almost stable, the quality of the papers published have been increasing over the years (Figure 5).

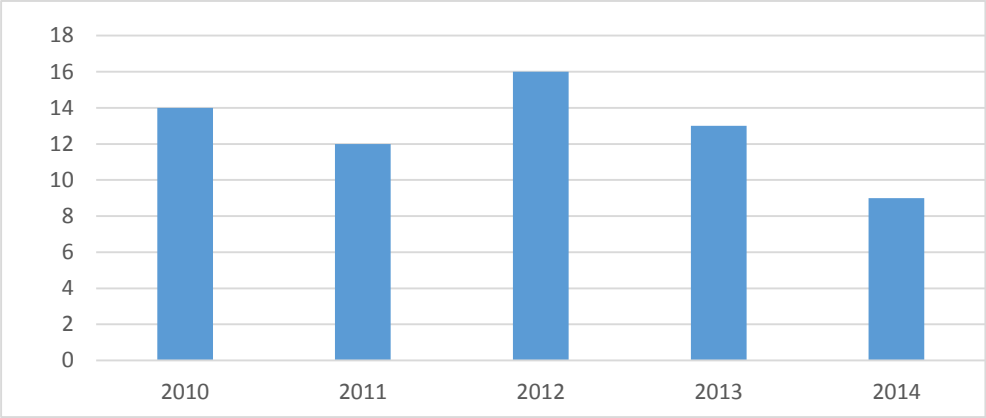

Figure 5 - Publications by year
Source: The authors with data collected from ISI.

The following analysis (Figure 6) considered the publications of the journals with an impact factor over 1,0 (12 journals, as presented in Table 3). It is possible to see a tendency of publications to increase in papers with higher impact levels. It is important to highlight that 2014 is a partial result, with the potential to get even more publications. A linear tendency line (dotted) was drawn to make it easier to see the last affirmation.

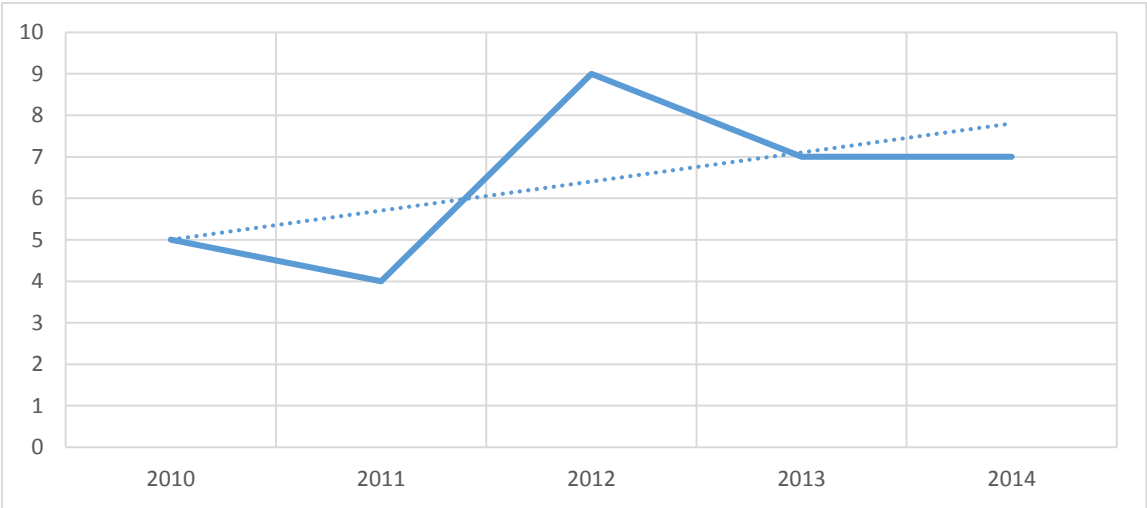

Figure 6 - Papers published by year of the journals with impact factor over 1,0
Source: The authors with data collected from ISI.

4.2 Articles by journal and impact factor

Analyzing all the 64 publications and their respectively journals (Table 3), it is possible to distinguish a concentration of publications in the International Journal of Project Management (19 papers), the Project Management Journal (8 papers), the IEEE Transactions of Engineering Management (3 papers), the European Journal of Operational Research, the African Journal of Business Management and the Journal of Operations Management (2 papers each). Together, they all represent 56.25% of this bibliometric portfolio, and reinforces the lately assumed "high quality of the publications" factor.

This could be better understood if a look at impact factor of the journals (Table 3) is done, and the aforementioned papers' position is considered. The Journal of Operations Management would occupy the 2nd position, the European Journal of Operational Research the 4th, the International Journal of Project Management the 5th and the IEEE Transactions of Engineering Management the 13th. These journals represent together 26 (40.62%) of the total papers analyzed in this bibliometric study. The exceptions are due to two journals that have the lower impact factors: the Project Management Journal the 18th position and the African Journal of Business Management the 25th. However, they represent just a small part of 15.62% of the total portfolio.

The impact factor of the journals was measured in November, 2014 through a web research of the respective impact factors. Even almost all the journals could be evaluated by its impact factor, it was not possible to find the information related to five journals: Journal of the Military Operations Research Society of Korea, Journal of Organization and Management, Entrue Journal of Information Technology, Journal of Digital Convergence and the Journal of Korean Association for Regional Information Society.

Table 3 - Articles by journal

JOURNAL	IMPACT FACTOR	ARTICLES
International Journal of Project Management	1,75	19
Project Management Journal	0,63	8
IEEE Transactions on Engineering Management	0,94	3
European Journal of Operational Research	1,84	2
African Journal of Business Management	0,29	2
Journal of Operations Management	4,47	2
Journal of the Military Operations Research Society of Korea	-	1
Management Decision	0,62	1
Journal of Nursing Management	1,14	1
Journal of Organization and Management	-	1
Journal of Product Innovation Management	1,37	1
Nonprofit Management & Leadership	0,34	1
Social Science & Medicine	2,55	1
Technology Analysis & Strategic Management	0,84	1
The Journal of Information Systems	1,23	1
Revista Venezolana de Gerencia	0,07	1
World Development	1,73	1
Total Quality Management & Business Excellence	0,59	1
RBGN - Revista Brasileira de Gestão de Negócios	0,42	1
Global Environmental Change-Human and Policy Dimensions	6,00	1
Group & Organization Management	1,48	1
Historical Social Research-Historische Sozialforschung	0,12	1
Entrue Journal of Information Technology	-	1
Asia Pacific Business Review	0,58	1

Baltic Journal of Management	0,19	1
Canadian Journal of Development Studies-Revue Canadienne D Etudes Du Developpement	0,77	1
Information Technology & Management	0,14	1
Journal of Business Economics and Management	0,81	1
Journal of Digital Convergence	-	1
Journal of Korean Association for Regional Information Society	-	1
International Review of Administrative Sciences	0,76	1
Interfaces	0,44	1
International Journal of Strategic Property Management	1,42	1
International Journal of Operations & Production Management	1,51	1

Source: The authors with data collected from ISI.

4.3 Most cited keywords

Considering the keywords cited by the authors in their papers, it was possible to find a total of 259. However, ordering them by number of appearances a total of 193 (74.51%) keywords appeared just once. Figure 7 shows the other 25.49% of the total keywords that appeared twice or more in the analysis. It is easily saw, as expected considering the bibliometric research topic, that "project success" is closely related to the topic "project management". It was possible to see according to the found data, that it is related with the "leadership" subject as well.

It is important to mention that expressions were analyzed together in this analysis, as so, "project success" (e.g.), was considered just one keyword, even composed by two words.

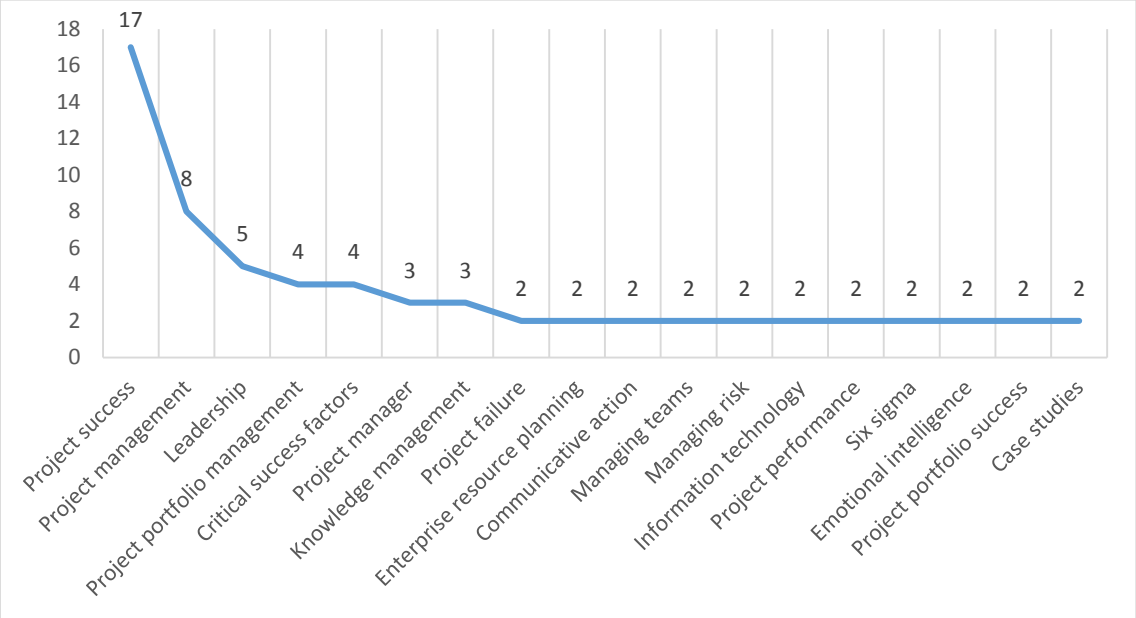

Figure 7 - Most cited keywords
Source**:** The authors with data collected from ISI.

As the volume of words that just appeared once is representative, it was decided to make a separated analysis of them, presented in Figure 8. That word cloud (Lunardi, Castro & Monat, 2008; Paulovich *et al*, 2012; Corrêa, 2010; Francisco, 2011; Cui *et al*, 2010) was built with the help of the software Wordle (Feinberg, 2013) and shows the keywords in a different size, according to their relevance (total mentions) in the keyword's expressions. It is important to highlight the level of

alignment of the topics between the two different keyword analyses. In both it is possible to see similar most important mentions: “project”, “management” and “success”.

In this analysis, in order to see the relevant topics expressed in the keywords with less mentions, it was necessary to analyze expressions as separated words, as so, “information system” (e.g.), was accounted as two words (“information” and “system”).

Figure 8 - Keywords word cloud
Source: The authors. Generated at http://www.wordle.net/ accessed in 11/23/2014.

4.4 Citations and co-citations

In Table 4 all the 42 papers with at least one citation at the time of this analysis are presented. A total of 22 (34.37% of the total portfolio) papers, not presented in the following table, correspond to those that have no citations at this time.

Table 4 - Citations rank by paper

Nº	AUTHORS	YEAR	CITATIONS
35	Madadi, M.; Iranmanesh, H.	2012	31
22	Frank, Moti; Sadeh, Arik; Ashkenasi, Sharon.	2011	22
23	Gudiene, Neringa; Banaitis, Audrius; Banaitiene, Nerija	2013	22
41	Mir, Farzana Asad; Pinnington, Ashly H.	2014	19
7	Bruneel, Johan; Van de Velde, Els; Clarysse, Bart; Gemmel, Paul.	2012	18
47	Proulx, Denis; Briere, Sophie.	2014	11
6	Briere, Sophie; Proulx, Denis.	2013	9
19	Dezdar, Shahin; Ainin, Sulaiman.	2011	9
44	Ng, S. Thomas; Wong, Yoki M. W.; Wong, James M. W.	2010	8
53	Sylvester, Dicky Cassily; Rani, Nazatul Shima Abdul; Shaikh, Junaid M.	2011	8
18	Denni-Fiberesima, Damiebi; Rani, Nazatul Shima Abdul	2011	7
45	Palacios-Marques, Daniel; Cortes-Grao, Rocio; Lobato Carral, Clemente.	2013	6
8	Cao Hao Thi; Swierczek, Fredric William	2010	5
11	Creasy, Todd; Anantatmula, Vittal S.	2013	4
27	Kloppenborg, Timothy J.; Tesch, Debbie; Manolis, Chris	2014	4
37	Mas-Machuca, Marta; Martinez Costa, Carme.	2012	4
50	Savolainen, Paula; Ahonen, Jarmo J.; Richardson, Ita.	2012	4
1	Al-Tmeemy, Samiaah M. Hassen M.; Abdul-Rahman, Hamzah; Harun, Zakaria.	2011	3

38	Mazur, Alicia; Pisarski, Anne; Chang, Artemis; Ashkanasy, Neal M.	2014	3
46	Papke-Shields, Karen E.; Beise, Catherine; Quan, Jing	2010	3
16	de Bakker, Karel; Boonstra, Albert; Wortmann, Hans.	2011	2
17	de Bakker, Karel; Boonstra, Albert; Wortmann, Hans.	2012	2
29	Lechler, Thomas G.; Dvir, Dov.	2010	2
31	Lee, Hong; Han, Jaemin; 오세진.	2012	2
33	Levasseur, Robert E.	2010	2
39	McLeod, Laurie; Doolin, Bill; MacDonell, Stephen G.	2012	2
40	Meskendahl, Sascha.	2010	2
48	Rabechini, Roque, Jr.; Muller, Sandra; Racz, Andre; Pinto Silva, Alexandre Campos.	2010	2
52	Suhonen, Marjo; Paasivaara, Leena.	2011	2
62	Zou, Weiwu; Kumaraswamy, Mohan; Chung, Jacky; Wong, James.	2014	2
64	전남희; 김병삼; 김동호; Gim, Gwangyong.	2010	2
9	Chang, Artemis; Chih, Ying-Yi; Chew, Eng; Pisarski, Anne.	2013	1
14	Dayan, Mumin; Elbanna, Said.	2011	1
15	de Bakker, Karel; Boonstra, Albert; Wortmann, Hans.	2010	1
30	Lee, Choong; 박주연; 최정훈.	2012	1
34	Lindenmeier, Joerg; Dietrich, Martin.	2011	1
36	Mantilla, Mercedes; Garcia, Denys.	2010	1
51	Sicotte, Claude; Pare, Guy.	2010	1
55	Unger-Aviram, Esther; Zwikael, Ofer; Restubog, Simon Lloyd D.	2013	1
56	Verburg, Robert M.; Bosch-Sijtsema, Petra; Vartiainen, Matti.	2013	1
57	Voss, Martin.	2012	1
63	송희준; Jeong A, Choi.	2012	1

Source: The authors with data collected from ISI.

To make the co-citation analysis, BibExcel (Persson, 2014) and Ucinet version 6.528 were used with different, but complementary objectives. While BibExcel was used to manipulate an extract the needed database information from Web of Science, Ucinet was applied to draw the co-citation matrix (Figure 9).

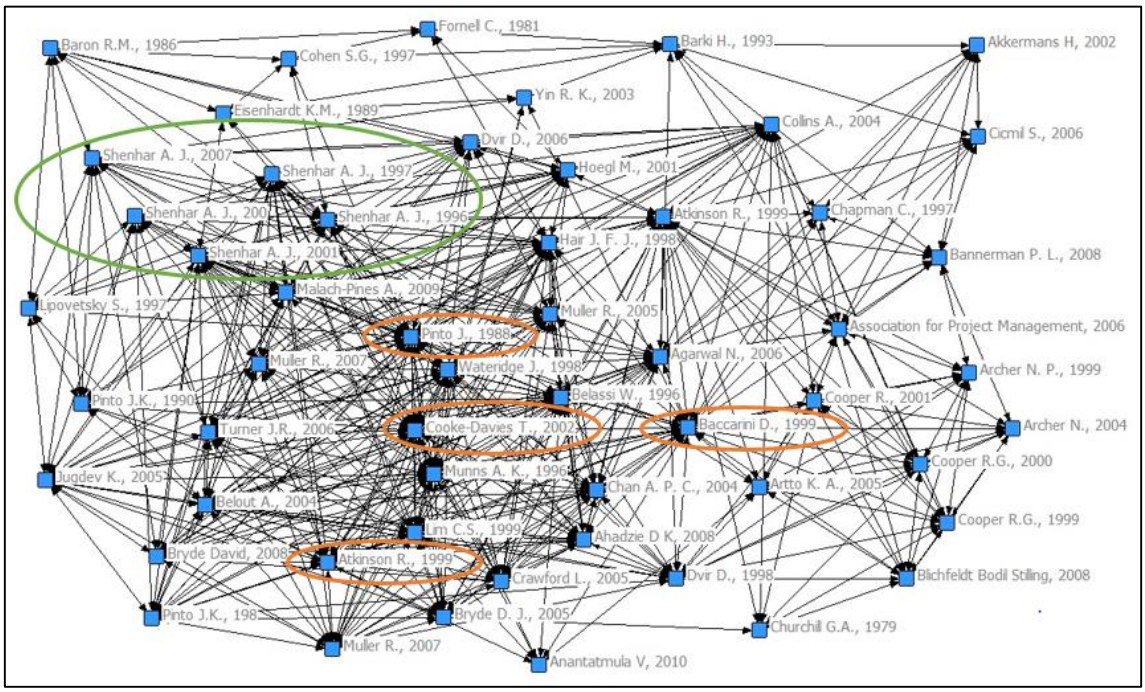

Figure 9 - Authors co-citation
Source: The authors with data collected from ISI and generated with Ucinet®

Even if there is no dominant paper in the co-citations graphic observed, it is possible to identify the most referenced from the complementary database information (publications highlighted in orange): Pinto J., 1988, with 37 co-citations; Baccarini D., 1999, with 34 co-citations; Atkinson R., 1999 and Cooke-Davies T., 2002 with 33 co-citations each. Another important mention is the cluster highlighted in green, which is composed by five papers developed by Aaron Shenhar (1996, 1997, 2000, 2001 and 2007) which compose the biggest cluster of the co-citation analysis, with a total of 101 co-citations.

It is important to mention that six papers of the portfolio were not considered in this co-citation analysis because of their different editor database storage (which did not offered the needed information to develop this analysis). They can be identified in Appendix 1 by the numbers: 28, 30, 31, 32, 63 and 64.

4.5 Abstract Analysis

Abstract analysis (Figure 10) was made with the same online software applied to the keyword analysis already presented in this study. Through keyword analysis, similar patterns found at that analysis were observed, reinforcing out the approach developed by authors considering "project(s) management", "relationship" between the "managers" and the "team" as some fundamental factors to achieve "success" and "performance".

Figure 10 - Abstracts word cloud
Source: The authors. Generated at http://www.wordle.net/ accessed in 23/11/2014

This analysis made it possible to see a glance of the main subjects of the papers, and to confirm their alignment (as expected) with the keywords already analyzed.

5 FINAL CONSIDERATIONS

When observing the results originated from the bibliometric analysis, the article portfolio allowed the verification of an almost constant publication record over the last five years, characterized by a migration from journals of lower to better impact level. There is a great concentration of publications around the "project management success" topic, in the International Journal of Project Management, and in a secondary level at the Project Management Journal, being the other analyzed journals presenting a number of publications that vary from 1 to 3 papers. In a general way, more than a half of the journals analyzed have presented good impact rates with more than 0.5 score each.

Keyword analysis proportionated a glance at the papers' content that showed a relative (and expected) highlight of the "project success" topic, and the "project management" and "leadership"

subjects. Complementary, the abstract analysis highlighted almost the same topics, and others like: "development", "factors", "relationship", "managers", "research" and "team". Such words indicate approaches that may consider an exposition of key factors of project management performance/success, and also a relationship between the roles of the managers and the team in this context.

Some authors could be highlighted for their single contributions in the project success papers analyzed, as: Pinto J., 1988; Baccarini D., 1999; Atkinson R., 1999 and Davies T., 2002; and even a plural contribution to these researches, in the case of Aaron Shenhar and the his five papers identified among the most referenced of the portfolio.

Some limitations of this research may refer to the particular analysis made by the authors considering the last filter of the bibliometry. As such analysis is related to some internal and individual references, some variations in the results may be found if any other researcher develops the filter again.

Other limitations refer to the database of analysis and the five-year time horizon previously defined for this research. Distinct results may be found if these variables are changed and authors encourage studies in this direction to complement the results found in this research.

Authors hope that this study is considered just one contribution to completely clarify the project management success research area, and can be used to spur to future new studies, which may explore this and other potential analysis.

REFERENCES

Araujo, C. A. A. Bibliometria: evolução histórica e questões atuais. *Em Questão*, v. 12, n. 1, p. 11-32, 2006.

Carvalho, M. M., Fleury, A., Lopes, A. P. 2013. An Overview of the Literature on Technology Roadmapping (TRM): Contributions and Trends. *Technol. Forecast. Soc. Change* (2013), http://dx.doi.org/10.1016/j.techfore.2012.11.008

Carvalho, M. M., Rabechini Jr, R. 2011. Fundamentos em Gestão de Projetos: Construindo Competências para Gerenciar Projetos. Atlas.

Corrêa, E. S. 2010. Fragmentos da Cena Cibercultural: Transdiciplinaridade e o "Não Conceito". *Revista USP*, São Paulo, n.86, p. 6-15, junho/agosto.

Cui, W., Yingcai, W., Liu, S., Wei, F., Zhou, M. X., QU, H. 2010. Context Preserving Dynamic Word Cloud Visualization. *IEEE Pacific Visualisation Symposium.* 2-5 March, Taipei, Taiwan.

Ensslin, L.; Giffhorn, E.; Ensslin, S. R.; Petri, S. M.; Vianna, W. B. 2010. Avaliação do desempenho de empresas terceirizadas com o uso da metodologia multicritério de apoio à decisão-construtivista. *Revista Pesquisa Operacional*, v. 30, 125-152.

Ellatar, Sherif Mohamed Sabry, 2009. Towards Developing an Improved Methodoloy for Evaluating Performance and Achieving Success in Construction Projects. *Scientific Research and Essay***,** Vol 4. n. 6, June, pp. 549-554.

Feinberg, J. 2013. Wordle. Acessed at http://www.wordle.net/ on Nov. 24th, 2014.

Francisco, E. de R. 2011. RAE-Eletrônica: Exploração do Acervo à Luz da Bibliometria, Geoanálise e Redes Sociais. RAE - *Revista de Administração de Empresas*, vol. 51, nº 3, may-jun, 2011, pp. 280-306. Available at: http://www.redalyc.org/articulo.oa?id=155119144007

Lacerda, R. T. O; Ensslin, L.; Ensslin. 2012. Uma Análise Bibliométrica da Literatura sobre Estratégia e Avaliação de Desempenho. *Gestão da Produção*, São Carlos, v.19, n. 1, pp.50-78.

Lunardi, M. S., de Castro, J. M. F., Monat, A. S. 2008. Visualização dos Resultados do Yahoo em Nuvens de Texto: Uma Aplicação Construída a Partir de Web Services. *InfoDesign Revista Brasileira de Design da Informação* 5 –1, 21-35.

Morioka, S,; Carvalho, M. M. 2014. Análise de Fatores Críticos de Sucesso de Projetos: Um Estudo de Caso no Setor Varejista. *Production*, Vol. 24, n. 1, pp. 132-143, Jan. / Mar.

Nicholas, D.; Ritchie, M. 1978. Literature and bibliometrics. London: Clive Bingley.

Paulovich, F. V., Toledo, F. M. B., Telles, G. P., Minghim, R., NOnato, L. G. 2012. Semantic Wordification of Document Collections. *Eurographics Conference on Visualization (EuroVis)*, Vol. 31, nº3.

Persson, O. 2014. Bibexcel. Downloaded from the internet at http://www.soc.umu.se/english/research/bibexcel/ on Nov. 22th, 2014.

Project Management Institute (PMI). 2013. A guide to the project management body of knowledge, 5th. São Paulo.

Kerzner, H. 2011. Gerenciamento de Projetos: Uma Abordagem Sistêmica Para Planejamento, Programação e Controle; [traduzido por João Gama e Joyce Prado]. – São Paulo: Blucher.

Shenhar, A. J.; Dvir, D. 2010. Reinventando o Gerenciamento de Projetos: A Abordagem Diamante ao Crescimento e Inovação Bem-Sucedidos. Harvard Business Scholl Press. M. Books do Brasil. São Paulo – SP.

Shenhar, A. J.; Dvir, D.; Levy, O.; Maltz, A. C. 2001. Project Success: A Multidimensional Strategic Concept. *Long Range Planning*, Vol. 34, pp. 699-725.

Wit, A., 1988. Measurement of Project Success. *International Journal of Project Management***,** Vol. 6, Nº 3, August.

APPENDIX 1.

Articles composing the final portfolio of this research

Nº	ARTICLE
1	Al-Tmeemy, Samiaah M. Hassen M.; Abdul-Rahman, Hamzah; Harun, Zakaria. 2011. Future criteria for success of building projects in Malaysia. International Journal of Project Management
2	Alves, Maria do Ceu; Amaral Matos, Sergio Ivo. 2013. ERP Adoption by Public and Private Organizations – A Comparative Analysis of Successful Implementations. Journal of Business Economics and Management.
3	Anand, Gopesh; Ward, Peter T.; Tatikonda, Mohan V. 2010. Role of explicit and tacit knowledge in Six Sigma projects: An empirical examination of differential project success. Journal of Operations Management.
4	Aronson, Zvi H.; Shenhar, Aaron J.; Patanakul, Peerasit. 2013. Managing the Intangible Aspects of a Project: The Affect of Vision, Artifacts, and Leader Values on Project Spirit and Success in Technology-Driven Projects. Project Management Journal.
5	Biedenbach, Thomas; Muller, Ralf. 2012. Absorptive, innovative and adaptive capabilities and their impact on project and project portfolio performance. International Journal of Project Management.
6	Briere, Sophie; Proulx, Denis. 2013. The success of an international development project: lessons drawn from a case between Morocco and Canada. International Review of Administrative Sciences.
7	Bruneel, Johan; Van de Velde, Els; Clarysse, Bart; Gemmel, Paul. 2012. Improving the success of radical innovation projects within established firms: engaging employees across different hierarchal levels. Technology Analysis & Strategic Management.
8	Cao Hao Thi; Swierczek, Fredric William. 2010. Critical success factors in project management: implication from Vietnam. Asia Pacific Business Review.
9	Chang, Artemis; Chih, Ying-Yi; Chew, Eng; Pisarski, Anne. 2013. Reconceptualising mega project success in Australian Defence: Recognising the importance of value co-creation. International Journal of Project Management.
10	Chipulu, Maxwell; Ojiako, Udechukwu; Gardiner, Paul; Williams, Terry; Mota, Caroline; Maguire, Stuart; Shou, Yongyi; Stamati, Teta; Marshall, Alasdair. 2014. Exploring the impact of cultural values on project performance The effects of cultural values, age and gender on the perceived importance of project success/failure factors. International Journal of Operations & Production Management.
11	Creasy, Todd; Anantatmula, Vittal S. 2013. From Every Direction-How Personality Traits and Dimensions of Project Managers Can Conceptually Affect Project Success. Project Management Journal.
12	Cserhati, Gabriella; Szabo, Lajos. 2014. The relationship between success criteria and success factors in organisational event projects. International Journal of Project Management.
13	Davis, Kate. 2014. Different stakeholder groups and their perceptions of project success. International Journal of Project Management.
14	Dayan, Mumin; Elbanna, Said. 2011. Antecedents of Team Intuition and Its Impact on the Success of New Product Development Projects. Journal of Product Innovation Management.
15	de Bakker, Karel; Boonstra, Albert; Wortmann, Hans. 2010. Does risk management contribute to IT project success? A meta-analysis of empirical evidence. International Journal of Project Management.
16	de Bakker, Karel; Boonstra, Albert; Wortmann, Hans. 2011. Risk Management Affecting IS/IT Project Success Through Communicative Action. Project Management Journal.
17	de Bakker, Karel; Boonstra, Albert; Wortmann, Hans. 2012. Risk managements' communicative effects influencing IT project success. International Journal of Project Management.
18	Denni-Fiberesima, Damiebi; Rani, Nazatul Shima Abdul . 2011. An evaluation of critical success factors in oil and gas project portfolio in Nigeria. African Journal of Business Management.
19	Dezdar, Shahin; Ainin, Sulaiman. 2011. The influence of organizational factors on successful ERP implementation. Management Decision.
20	Dinsmore, Paul C.; Rocha, Luiz. 2013. Enterprise Project Governance: A Guide to the Successful Management of Projects Across the Organization. Project Management Journal.
21	Easton, George S.; Rosenzweig, Eve D. 2012. The role of experience in six-sigma project success: An empirical analysis of improvement projects. Journal of Operations Management.

22	Frank, Moti; Sadeh, Arik; Ashkenasi, Sharon. 2011. The Relationship Among Systems Engineers' Capacity for Engineering Systems Thinking, Project Types, and Project Success. Project Management Journal.
23	Gudiene, Neringa; Banaitis, Audrius; Banaitiene, Nerija 2013. Evaluation of Critical Success Factors for Constructions Projects – An Empirical Study in Lithuania. International Journal of Strategic Property Management.
24	Hai Dinh Le; Smith, Carl; Herbohn, John 2014 What drives the success of reforestation projects in tropical developing countries? The case of the Philippines. Global Environmental Change – Human and Policy Dimensions.
25	Heising, Wilderich. 2012. The integration of ideation and project portfolio management - A key factor for sustainable success. International Journal of Project Management.
26	Hsu, Jack S. C.; Chang, Jamie Y. T.; Klein, Gary; Jiang, James J. 2011. Exploring the impact of team mental models on information utilization and project performance in system development. International Journal of Project Management.
27	Kloppenborg, Timothy J.; Tesch, Debbie; Manolis, Chris . 2014. Project Success and Executive Sponsor Behaviors: Empirical Life Cycle Stage Investigations. Project Management Journal.
28	Kwak, Jeongsup; An, Joon Mo. 2013. A Study of the Core Success Factors for the Development of Application Offshore Entrue Journal of Information Technology
29	Lechler, Thomas G.; Dvir, Dov. 2010. An Alternative Taxonomy of Project Management Structures: Linking Project Management Structures and Project Success. IEEE Transactions of Engineering Management.
30	Lee, Choong; 박주연; 최정훈. 2012. The Effect of the Project Managers' IT Competency and Managerial Competency on the Success of SI Projects: Focusing on the Moderating Effect of Project Size. The Journal of Information Systems
31	Lee, Hong; Han, Jaemin; 오세진. 2012. Success Conditions for Ecosystem-based Project: An Explorative Study through a Case. Journal of Organization and Management
32	Lee, Jae-Beom; Chang, Yunhi; 김상열. 2011. A Research on the PMO Functions and PMO Management Level to Increase the IS Project Performance. Journal of Digital Convergence
33	Levasseur, Robert E. 2010. People Skills: Ensuring Project Success - A Change Management Perspective. Interfaces.
34	Lindenmeier, Joerg; Dietrich, Martin. 2011. Will This Voluntary Project Be Successful? Validation of an Instrumental Model of Volunteering Behavior. Nonprofit Management & Leadership.
35	Madadi, M.; Iranmanesh, H. 2012. A management oriented approach to reduce a project duration and its risk (variability). European Journal of Operational Research.
36	Mantilla, Mercedes; Garcia, Denys. 2010. Work in Self-Directed Teams: Personal Competences and Behaviors Needed for Success. Revista Venezolana de Gerencia.
37	Mas-Machuca, Marta; Martinez Costa, Carme. 2012. Exploring critical success factors of knowledge management projects in the consulting sector. Total Quality Management & Business Excellence.
38	Mazur, Alicia; Pisarski, Anne; Chang, Artemis; Ashkanasy, Neal M. 2014. Rating defence major project success: The role of personal attributes and stakeholder relationships. International Journal of Project Management.
39	McLeod, Laurie; Doolin, Bill; MacDonell, Stephen G. 2012. A Perspective-Based Understanding of Project Success. Project Management Journal.
40	Meskendahl, Sascha. 2010. The influence of business strategy on project portfolio management and its success - A conceptual framework. International Journal of Project Management.
41	Mir, Farzana Asad; Pinnington, Ashly H. 2014. Exploring the value of project management: Linking Project Management Performance and Project Success. International Journal of Project Management.
42	Mueller, Ralf; Geraldi, Joana; Turner, J. Rodney . 2012. Relationships Between Leadership and Success in Different Types of Project Complexities. IEEE Transactions on Engineering Management.
43	Muller, Ralf; Turner, J. Rodney. 2010. Attitudes and leadership competences for project success. Baltic Journal of Management.
44	Ng, S. Thomas; Wong, Yoki M. W.; Wong, James M. W. 2010. A Structural Equation Model of Feasibility Evaluation and Project Success for Public-Private Partnerships in Hong Kong. IEEE Transactions on Engineering Management.

45	Palacios-Marques, Daniel; Cortes-Grao, Rocio; Lobato Carral, Clemente. 2013. Outstanding knowledge competences and web 2.0 practices for developing successful e-learning project management. International Journal of Project Management.
46	Papke-Shields, Karen E.; Beise, Catherine; Quan, Jing. 2010. Do project managers practice what they preach, and does it matter to project success? International Journal of Project Management.
47	Proulx, Denis; Briere, Sophie. 2014. Characteristics and success of international development projects: what can we learn from NGO managers? Canadian Journal of Development Studies-Revue Canadienne d Etudes du Development.
48	Rabechini, Roque, Jr.; Muller, Sandra; Racz, Andre; Pinto Silva, Alexandre Campos. 2010. Maturity and Success in Projects from the Perspective if the Supplier and Customer Binomial. Revista Brasileira de Gestão de Negócios (RBGN).
49	Reynolds, Travis W. 2012. Institutional Determinants of Success Among Forestry-Based Carbon Sequestration Projects in Sub-Saharan Africa. World Development.
50	Savolainen, Paula; Ahonen, Jarmo J.; Richardson, Ita. 2012. Software development project success and failure from the supplier's perspective: A systematic literature review. International Journal of Project Management.
51	Sicotte, Claude; Pare, Guy. 2010. Success in health information exchange projects: Solving the implementation puzzle. Social Science & Medicine.
52	Suhonen, Marjo; Paasivaara, Leena. 2011. Factors of human capital related to project success in health care work units. Journal of Nursing Management.
53	Sylvester, Dicky Cassily; Rani, Nazatul Shima Abdul; Shaikh, Junaid M. 2011. Comparison between oil and gas companies and contractors against cost, time, quality and scope for project success in Miri, Sarawak, Malaysia. African Journal of Business Management.
54	Teller, Juliane; Kock, Alexander . 2013. An empirical investigation on how portfolio risk management influences project portfolio success. International Journal of Project Management.
55	Unger-Aviram, Esther; Zwikael, Ofer; Restubog, Simon Lloyd D. 2013. Revisiting Goals, Feedback, Recognition, and Performance Success The Case of Project Teams. Group & Organization Management.
56	Verburg, Robert M.; Bosch-Sijtsema, Petra; Vartiainen, Matti. 2013. Getting it done: Critical success factors for project managers in virtual work settings. International Journal of Project Management.
57	Voss, Martin. 2012. Impact of customer integration on project portfolio management and its success-Developing a conceptual framework. International Journal of Project Management.
58	Wells, Hany. 2012. How Effective Are Project Management Methodologies? An Explorative Evaluation of Their Benefits in Practice. Project Management Journal.
59	Wolf, Patricia. 2011. Balanced Evaluation: Monitoring the "Success" of a Knowledge Management Project. Historical Social Research – Historische Sozialforschung.
60	Xu, Xiaobo; Zhang, Weiyong; Barkhi, Reza. 2010. IT infrastructure capabilities and IT project success: a development team perspective. Information Technology & Management.
61	Yeh, Chung-Hsing; Xu, Yan. 2013. Managing critical success strategies for an enterprise resource-planning project. European Journal of Operational Research.
62	Zou, Weiwu; Kumaraswamy, Mohan; Chung, Jacky; Wong, James. 2014. Identifying the critical success factors for relationship management in PPP projects. International Journal of Project Management.
63	송희준; Jeong A, Choi. 2012. In the shadow of success: Focusing on low-performed IT projects.Journal of Korean Association For Regional Information Society.
64	전남희; 김병삼; 김동호; Gim, Gwangyong. 2010. A Study on the Critical Success Factors for the Efficient Management of Defense Acquisition Program. Journal of the Military Operations Research Society of Korea

Source: The authors with data collected from ISI.