Available online at www.sciencedirect.com

ScienceDirect

International Journal of Project Management 36 (2018) 342–361

International Journal of Project Management

www.elsevier.com/locate/ijproman

Bibliographic and comparative analyses to explore emerging classic texts in megaproject management

Yongkui Li [a], Yujie Lu [b,*], John E. Taylor [c], Yilong Han [b]

[a] Department of Construction Management and Real Estate, School of Economics and Management, Tongji University, 200092, China
[b] Department of Building, School of Design and Environment, National University of Singapore, 117566, Singapore
[c] School of Civil and Environmental Engineering, Georgia Institute of Technology, Atlanta, GA 30332, United States

Received 14 February 2017; received in revised form 2 May 2017; accepted 22 May 2017
Available online 5 June 2017

Abstract

Megaproject management (MPM) is a highly complex emerging research field with fragmental and diversified traits. Understanding the work on MPM and its classic texts can help advance the current body of knowledge significantly. However, to date, few quantitative methods exist that can determine the classic texts in MPM. This study aims to investigate the potential emergence of studies on MPM on the basis of bibliometric techniques. We conducted a bibliographic meta-network analysis for the most cited classic texts in five selected management theories as a reference group. By comparing the results from the reference group and from MPM, we identified and discussed several key features in the current MPM studies. This study bridges the gap in the quantitative identification and evaluation of classic texts in MPM theory, and lays out a road map for the future development of MPM theory.

Keywords: Bibliometric analysis; Classic texts; Megaproject management; Meta-network analysis; Project management theory; Theory development

1. Introduction

Theories of management and organization have often originated from solving a practical question and its "tension," which refers to "a wide variety of dichotomies, dualities, conflicts, inconsistencies and contradictory pulls or demands experienced by those in a particular setting that appear to represent different and contradictory poles and, as such, seem to require a choice of one or the other" (Bartunek and Rynes, 2014, p. 1183). In recent years, the emergence of megaprojects has gradually become a critical factor in strategies for social development, economic growth, technological innovation, and urbanization. A conservative estimate of the global megaprojects market is between six and nine trillion U.S. dollars per year, accounting for approximately 8% of the total global gross domestic product (Flyvbjerg, 2014a).

Megaprojects encounter a number of challenges and dilemmas, such as decision-making risks, cost overruns, performance shortfalls, and environmental impact (Altshuler and Luberoff, 2003a; Flyvbjerg, 2014a; Flyvbjerg et al., 2003; Flyvbjerg and Stewart, 2012). Both academics and practitioners have argued that many of these issues actually appear when conventional theories of project management are applied to the management of megaprojects. This suggests we have arrived at a "tension point" for megaproject management (MPM) and calls for a systematic rethinking of the practical and theoretical issues that occur in MPM to facilitate the exploration and generation of new theoretical foundations that can address the complex challenges faced in MPM (Flyvbjerg et al., 2016). A recent study explored three texts in the megaproject management field and employed four criteria for a structured analysis to study their potential to

* Corresponding author at: Department of Building, 4 Architecture Drive, 117566, Singapore.
E-mail addresses: lyk@tongji.edu.cn (Y. Li), luy@nus.edu.sg (Y. Lu), jet@gatech.edu (J.E. Taylor), yilong.han@nus.edu.sg (Y. Han).

http://dx.doi.org/10.1016/j.ijproman.2017.05.008
0263-7863/00/

become classic (Pollack et al., 2017). Siemistychi used one case study to demonstrate that classic texts can have a significant impact on megaproject planning theory and practice and presented key ingredients that could make a classic text (Siemiatycki, 2016). Ma et al. introduced a conceptual governance framework to understand the characteristics of megaproject social responsibility. They concluded that an integrative mechanism of different organizations is critically important to facilitate and maintain efficient and effective social governance (Ma et al., 2017). From a different and a more holistic perspective of megaproject social responsibility, Zhou and Mi implemented a systematic approach to understand classification of megaproject social responsibility research and identified four research gaps and the corresponding research agenda for future work (Zhou and Mi, 2017).

A number of internationally recognized journals have also published special issues focusing to improve our understanding of megaprojects, including "Megaprojects - Symbolic and Sublime: an organizational theory perspective" (2015) from the *Project Management Journal*; "Social responsibilities for the management of megaprojects" (2015), "Classics in Megaproject Management" (2015), and "Complexities in managing mega construction projects" (2011) from the *International Journal of Project Management*; "Supply Chain Management in Megaprojects" (2015) from the *Journal of Management in Engineering*; "Megaprojects, Settlement Dynamics and the Sustainability Challenge in Metropolitan Cities" (2015) from *Habitat International*; and "Construction Economics and Building, Incorporating a Special Section on Megaprojects" (2015) from the *Australasian Journal of Construction Economics and Building*. In addition, the number of international conferences and workshops focused on MPM has similarly increased. Experts and scholars from governments, industries, and academia have had interdisciplinary and cross-cultural dialogue on MPM-related issues from different perspectives to search for possible solutions and/or best practices.

However, the establishment of a new theory is a long and rigorous process. The form of a management theory is subject to at least three conditions: differentiation, mobilization of resources, and legitimacy establishment (Hambrick and Chen, 2008). During the evolvement of a new theory, classic texts are normally to be recognized as reference points to show the progress and advancement of the theory building (Flyvbjerg, 2014b; Kuhn, 2012). Currently, we lack consensus on a theory of MPM. Therefore, the need to identify the possible existence of classic texts in MPM has emerged as a critical and fundamental subject for the theoretical development of MPM.

This study empirically investigates the milestones and achievements of existing research on MPM theory through a bibliometric analysis. It first refers to the classic texts in five classical management theories by analyzing the functions, characteristics, and evolution of these texts both qualitatively and quantitatively. Similar bibliometric analyses and indicators are used again in MPM literature to evaluate its potential for classic texts. Then, we summarize the latest theoretical achievements of MPM and also shed light on the trajectory of MPM development. The findings of this study enrich the theoretical foundation of MPM as well as position it in relation to general management theories.

This study is organized as follows. In the following section, we review key literature and identify research gaps in existing MPM studies. We then describe the theoretical foundations and research framework. In Sections 4 and 5, we detail the data collection, bibliometrical calculation and analysis, and discuss the analytical results. The last section summarizes this study and proposes directions for future research in MPM.

2. Literature review

2.1. Definition of megaprojects

The term "megaproject" has not been explicitly defined in the literature. In layman's terms, "mega" means great, large, vast, big, high, tall, mighty, or important. As a scientific and technical unit of measurement, one million is defined as "mega" (Flyvbjerg, 2014a). If such a unit of measurement in economic terms was used, then, strictly speaking, megaprojects would be million-dollar (or -euro, -pound, etc.) projects, while use of the terms "giga" and "tera" would indicate larger projects (Flyvbjerg, 2014a). In the construction field, Hu et al. define construction megaprojects from two different perspectives: the level of investment and the level of complexity (Hu et al., 2013). The former was usually adopted by governments and industries to characterize construction megaprojects; however, different criteria exist in different countries. As for academia, megaprojects have been characterized mainly by their complexity. Academics believed that construction megaprojects intrinsically exhibit highly complex characteristics and have endeavored to explain and propose solutions using complexity theory.

Additionally, many other terms have been used in the existing literature to describe megaprojects. These include "major project" (Morris and Hough, 1987), "complex project" (Miller and Hobbs, 2005), "(very) large/grand-scale project" (Charette, 1996), "large project" (Assaf and Al-Hejji, 2006; Cooper, 2005), "large engineering project" (Miller et al., 2001), "global project" (Mahalingam and Levitt, 2007; Orr and Scott, 2008), "macro-engineering project" (Saeed and Brooke, 1996), and "public works project" (Flyvbjerg et al., 2002). In case studies, megaprojects have been described as "transportation infrastructure project" (Flyvbjerg et al., 2004), "high-rise project" (Kaming et al., 1997), and "tera, giga, giant project and program" (Flyvbjerg, 2014a; Grün, 2004; Hu et al., 2013). Synthesizing insights from several key studies (Altshuler and Luberoff, 2003a; del Cerro Santamaría, 2013; Flyvbjerg, 2014a; Priemus et al., 2008), megaprojects can be framed as follows:

- Very expensive or very large, where the cost or investment exceeds USD 250 million, USD 500 million, USD 1 billion, or 0.01% of GDP;
- Attract a lot of public attention, carry strong symbolic significance, or are closely linked to society, environment, the economy, and politics;
- Are extremely complex in terms of technology, organization, environment, culture, and finance (and may include

multiple subprojects), have high degrees of uncertainty, and are unique, one-of-a-kind projects.

Existing academic studies fitting the above criteria are researched and analyzed as the dataset for this study.

2.2. Research perspectives in megaproject management (MPM)

MPM research is interdisciplinary in nature and has been investigated from socio-economic, urban development, project management, and engineering management perspectives. It has been published in leading journals related to organization and management, urban studies, project management, and engineering management, including journals such as *Management Science*, *California Management Review*, *Research Policy*, *Journal of the American Planning Association*, *Strategic Management Journal*, *Transport Policy*, *Environment and Planning A*, *International Journal of Urban and Regional Research*, *International Journal of Project Management*, *Project Management Journal*, *Journal of Management in Engineering*, *Journal of Construction Engineering and Management*, and *Construction Management & Economics*. We examine this past literature from three perspectives detailed in the following sub-sections.

2.2.1. Socio-economic system perspective

From a macro perspective, a megaproject is a socio-economic system that includes history, context, institutions, policy, individual values, and wider structural frameworks (Cicmil et al., 2006; Flyvbjerg et al., 2003; Love et al., 2002), and even political symbolism (Van Der Westhuizen, 2007). Factors that drive megaprojects comprise technological, political, economic, and aesthetic factors (Flyvbjerg, 2014a). Megaprojects are also closely related to globalization, regionalization, and urbanization. Institutional effect, public policy, strategic research, and decision analysis have also become important aspects of the analysis of megaprojects (Altshuler and Luberoff, 2003a; Boyce, 1990; Bryson and Bromiley, 1993; Flyvbjerg et al., 2005; Lehrer and Laidley, 2008; Olds, 1995; Orr and Scott, 2008; Orueta and Fainstein, 2008; Short and Kopp, 2005; Swyngedouw et al., 2002). From this perspective, past studies have concluded that improper decisions and cost overruns of megaprojects could be the result of complex socio-economic and political factors (Dimitriou et al., 2013; Flyvbjerg et al., 2009; Morris and Hough, 1987).

2.2.2. Systems engineering and project management perspective

Systems engineering has been introduced to improve the design and managing complex systems over engineering project life cycles (Forsberg and Mooz, 1991; Haskins et al., 2006). Most research on megaprojects focuses on complex infrastructure, large-scale construction, mega-events, large technical systems, and urban developments. Based on these fields, megaprojects are investigated from the theories of project management or engineering system management. The majority of research is based on theories, tools, and methods in project and system engineering, planning and optimization, risk management, and cost-benefit analysis. Critical literature includes such aspects as risk management (Baker et al., 1999; Cooper, 2005; Lee et al., 2009; Miller et al., 2001), system integration (Davies et al., 2009), project finance (Esty, 2004) and procurement (Parker and Hartley, 2003), organizational design (Van Marrewijk et al., 2008), project stakeholder management (Aaltonen et al., 2008) and cross-organizational collaboration (Ham and Mowery, 1998; Pitsis et al., 2003), project planning, optimization and forecasting techniques (Chang et al., 1995; Hegazy and Ayed, 1998; Priemus et al., 2008; Wiest, 1967, 1964), cause analysis of project failure (Assaf et al., 1995; Assaf and Al-Hejji, 2006; Eden et al., 2000; Kaming et al., 1997; Le-Hoai et al., 2008), and identification of success factors (Duy Nguyen et al., 2004).

2.2.3. Complex organization and governance perspective

Construction projects are complex, so great efforts have been made to cope with the increasing complexity in major construction projects (Baccarini, 1996). As such, complexity theory has emerged as a new perspective to investigate complex systems and complex projects. In addition, system engineering, network theory, governance theory, leadership, and risk management have all become theoretical foundations for studying MPM topics. A number of achievements have generated significant impact in such areas as the complexity of large technical systems (Hughes, 1998; Sayles and Chandler, 1992), innovation of large and complex projects (Barlow, 2000), complex project organization network (Chinowsky and Taylor, 2012; Pryke and Smyth, 2012), governance of complex projects (Miller and Hobbs, 2005), and the management of complexity in large-scale projects (Bosch-Rekveldt et al., 2011).

From a methodological perspective, case studies are the most commonly used research method, and include both single case and comparative multiple case analyses supported by qualitative or quantitative analytics. Eight of the nine most highly cited studies (>400 citations) as calculated by Google Scholar used multiple case studies with statistical analysis, with only one adopting a questionnaire survey. Several research institutions, such as the Omega Centre (UCL) and Oxford University, acknowledge that case studies can be regarded as a valid empirical foundation for MPM research (Ansar et al., 2014; Flyvbjerg et al., 2003). Case studies, especially thoroughly executed ones, are particularly important to establish, explain, and validate a theory at different disciplines (Flyvbjerg, 2006).

3. Theoretical foundation and methodology

3.1. Theories and classic texts

Theoretical contribution is a key requirement for top-tier academic publications. However, there is no universal definition of a "theory." A simple and classic definition of theory is that it is a statement of concepts and their interrelationships that shows how and/or why a phenomenon occurs (Corley and Gioia, 2011). Thus, how a text contributes to the explanation of phenomena in reality becomes a critical criterion to judge its

value. Corley and Gioia constructed a two-dimensional "utility and originality" model to address the problem of theoretical evaluation in management, after reviewing the best papers and studies with the most citations from the *Academy of Management Review* from 1990 to 2008 (Corley and Gioia, 2011). The "utility" includes practical and scientific use, while "originality" includes the incremental and revelatory (Corley and Gioia, 2011). Overall, MPM originated from "tension points" in which both theory and practice require multi-disciplinary inquiry and contributions. Tension points are "power relations that are particularly susceptible to problematization and thus change, because they are fraught with dubious practices, contestable knowledge, and potential conflict" (Flyvbjerg et al., 2012, p. 288). As a result, a new theory is commonly regarded as having the following characteristics: whether it will be widely accepted by practitioners and theorists; whether it will provide new insights; and whether it will form a new academic field. Studies with these characteristics may emerge as the classic texts in the establishment of MPM theory.

Kuhn argues that classic texts are necessary for progress and consolidation in an academic field, and the reason why classic texts are important is that they serve as exemplars and reference points around which paradigmatic research and normal science evolves (Flyvbjerg, 2014b; Kuhn, 2012). However, what is a classic text? Although not defined clearly, it is widely accepted that a text with a great contribution to the establishment of a theory, and with general recognition by influential scholars and high rates of citation by academics, should be recognized as classic (Kuhn, 2012; Söderlund and Geraldi, 2012). Therefore, the number of citations is commonly used as a quantitative index to analyze the impact of a manuscript, despite the ongoing debate on whether the high citation rate reflects high impact. Nevertheless, the number of citations is still a common indicator of the impact of a text and the importance of a theory (Kacmar and Whitfield, 2000; Söderlund and Geraldi, 2012). For instance, Garfield proposed the term "citation classics" and defined these as works that have been highly cited in their fields (Garfield, 1989). The number of citations is highly correlated with other measures of research quality, including perceived paper importance and peer judgment of impact, relevance, originality, and appropriateness of research methods (Serenko and Dumay, 2015). Söderland et al. concluded that there are four categories of classic: high citation rate classic, latent classic, potential classic, and unintended classic (Söderlund and Geraldi, 2012).

In this study, we adopt tradition means and use citations as a quantitative metric to identify possible classic texts. We consider several principles to keep the identification process rigorous. First, classic texts represent the foundation, identity, and intellectual roots of a field. When published, they attract the attention of the scholarly community and help establish future research directions. Second, classic texts are often analyzed to understand the attributes of these seminal works, the characteristics of their authors, norms, popular topics, competing paradigms, and major research methods. Third, graduate students, new researchers, or scholars from other disciplines may use classic texts to familiarize themselves with the names of influential scholars, leading journals, and critical concepts. Fourth, classic texts officially recognize the scientific contributions of the authors. Considering the global impact on non-English-speaking countries, citations also indicate the influence of the theoretical value of the text beyond English speaking countries. In most current studies, citation indices in Google Scholar (GS) and Web of Science (WOS) are commonly used to measure the influence of a text (Meho and Yang, 2007) and we too refer to them in this study.

Which texts could become classic texts? Books, edited volumes, journal articles, conference papers, comments, and research reports are potential choices. However, in the field of management, topics, potential contributions, and rigorous methods are intensively reviewed by journals, which results in these journal publications being more widely recognized. Previous research shows that an article's theoretical contribution, methodological rigor, and journal quality significantly predict the number of citations (Kuskova et al., 2011). Meanwhile, books by famous scholars in a specific field may also be regarded as classic texts, especially in the early stage of the development of a specific discipline. Generally, these books are closely correlated with the academic achievements that follow. For instance, the classic texts selected from "*Classics in project management: revisiting the past, creating the future classic*", a special issue of the *International Journal of Managing Projects in Business*, included many books that have a broad impact on the development of project management as well as on future research directions. In this study, we examined journal articles, books, and edited volumes to investigate the potential classic texts in MPM.

However, several crucial questions of classic texts remain unanswered, such as how high should the citation rate of a text be for it to be considered a classic text? What characteristics do the authors of classic texts have? At which stage do the classic texts generally originate during the development of a theory? How many of the classic texts emerged during the formation of a theory? Answers to these questions are key when analyzing classic texts. It is difficult to directly determine classic texts in MPM since the attributes and uniqueness of these classic texts are unknown. This study selects widely recognized classic texts in general management theories as the reference group to analogously identify the key texts in MPM by comparing MPM and other classic management theories. These management theories have been selected from "*Great Minds in Management*" in which the chapter editors associated with 24 of the most original and impactful management theories (Hitt and Smith, 2005). We first identified 15 theories that are related to the knowledge domain of project management. Referring to two of the most prestigious project management journals, *International Journal of Project Management and Project Management Journal*, five most relevant theories that may have an impact on project or engineering management for this study, including, Institutional Theory (IT), Organizational Effectiveness Theory (OET), Stakeholder Theory (ST), Top Management Team (TMT), and Resource Dependence Theory (RDT). The brief evolution of these theories is summarized in Table 1.

Table 1
Classic texts and the development of five selected management theories.

Theory	Main contributor	Outline of theory and development	Classic texts	Characteristics of the classic texts
Institutional Theory (IT)	Richard Scott	Diversified and focused on the achievements of organizational sociologists and management scholars. Emphasis on macro perspectives and "cumulative theoretical research program," aimed at broader, deeper, and more globalized development. Author played role of connector, codifier, carrier, and contributing researcher in the development of the theory.	• Institutions and organizations (Scott, 1995)	The first edition was published by Saga in 1995, followed by an update to the fourth edition in 2014 which has been considered the key source for a comprehensive overview of the institutionalist approach to organization theory. It investigated organizations and institutions from a network perspective, as a variant of existing mainstream viewpoints.
Organizational Effectiveness Theory (OET)	Kim Cameron	The first to propose the Bureaucratic Model, which was then developed into five models and integrated a competing values framework. However, research on the theory came to an end in a report completed in 2004 and gradually turned to the new approach of Positive Behavior Scholarship, also named as Positive Organizational Scholarship (POS).	• Positive organizational scholarship: foundations of a new discipline (Cameron and Dutton, 2003)	To establish a new field of study in the Organizational Sciences and Positive Organizational Scholarship (POS).
Stakeholder Theory (ST)	Edward Freeman	After conducting some research, the author wrote a book and tried to interweave clinical cases and facts with the development of insights and ideas. Now the theory has grown from strategic management to four branches: normative theories of business, corporate governance and organizational theory, corporate social responsibility and performance, and strategic management.	• Strategic management: a stakeholder approach (Friedman, 1984)	The first edition was published in 1984 in Cambridge University Press while the second one in 2010 was considered a landmark moment in the development of Stakeholder Theory.
Top Management Team (TMT)	Donald Hambrick	A large number of empirical texts were constantly published after the Upper Echelons was proposed. The subsequent studies mainly focused on the effect on organizational performance of the characteristics of the Top Management Team (TMT).	• Upper echelons: the organization as a reflection of its top managers (Hambrick and Mason, 1984) performance pay and top management incentives (Jensen and Murphy, 1990)	This paper launched what has come to be known as "Upper Echelons" and proposed the concept of managerial discretion. It has stimulated a great deal of research and has proven to be of worthwhile contribution.
Resource Dependence Theory (RDT)	Jeffrey Pfeffer	Developed in the 1970s, this theory originated from the interpretation of reality and multiple theoretical bases in various fields of organization study. The theory evolved gradually and has been included in transaction costs since 2002.	• The external control of organizations: a resource dependence perspective (Pfeffer and Salancik, 1978)	The first edition was published in 1978 by Stanford University Press while the second one came out in 2013. It has been translated into multiple languages and has long been required reading for students of organization studies.

3.2. Research framework

The framework of this study includes six steps, which are shown in Fig. 1. First, we reviewed the theories, keywords, classic texts, and author information of the selected five management theories. Second, based on the retrieved texts of related management theories in the GS and WOS core collection database, we analyzed the general trend of academic research and of highly cited texts on specific theories. Next, we analyzed and determined the classic texts, when they emerged, and the authors and citations of each theory. We followed up on this by constructing three networks that include the classic texts' co-citation network, the authors' co-citation network, and the authors' collaboration network to analyze, respectively, the network characteristics, the position and contribution of classic texts, and author credentials in individual networks.

We then used a similar method as that described in the second and third steps to analyze the possible classic texts, their research trend, and their citations in MPM. In the fifth step, we conducted a comparative analysis of the five management theories and MPM to determine whether the selected texts in MPM have similar characteristics or potential trends. In the last step, we discussed the implications and outlook for the future development of MPM theory.

3.3. Data collection

This study determines the keywords of the reference group according to the book *Great Minds in Management* (Hitt and Smith, 2005), and other related literature, while the keywords selection of MPM mainly refers to the works of Flyvbjerg and Hu (Flyvbjerg, 2014a, 2014b; Hu et al., 2013). We adopted two retrieval strategies—rigorous and loose keywords—to control the scope of target texts, and divides the test group into two subgroups, respectively: MPM (1) with rigorous controlled keywords, and MPM (2) with loose ones. Thereafter, we retrieved relevant articles from both GS and WOS and determine the final texts by refining the results in terms of research areas and foci, as shown in Table 2. The retrieval of MPM (2) returned a higher number of literature results than did MPM (1). The data used in this study were retrieved from January 10 to 15, 2016. The text information, including title, keyword, author, publication date, citations, and WOS citation, were then imported into CiteSpace for bibliometric and network analysis.

The classic texts are commonly developed by well-known scholars with high H-index in their specific fields. After an empirical study, De Groote and Raszewski found that Scopus, WOS, and GS provided different H-index ratings for authors and that each database represented overlapping yet unique references (De Groote and Raszewski, 2012). More than one source was suggested to provide a thorough assessment of a researcher's impact. Considering the consistency of the data source, this study adopts the H-index in both GS and WOS to improve the robustness of the results.

3.4. Data analysis

A knowledge domain is typically represented by a set of bibliographic records of relevant publications in which the development and academic footprints of science can be traced, categorized, and revealed. The CiteSpace application is designed to explore and identify relationships in a knowledge domain (Chen, 2014). It is a broadly defined concept that covers a scientific field, a research area, or a scientific discipline. The foundation of CiteSpace is network modeling, analysis, and visualization, from which one can explore the intellectual landscape of a knowledge domain, and discern the questions that researchers have been trying to answer, as well as the methods and tools they have developed to reach their goals (Chen, 2014).

Thus, this study uses CiteSpace to analyze the relationship networks of text citations and author citations for MPM and five other management theories, to identify texts with high citations, when they emerged, and their co-authors. Comparing

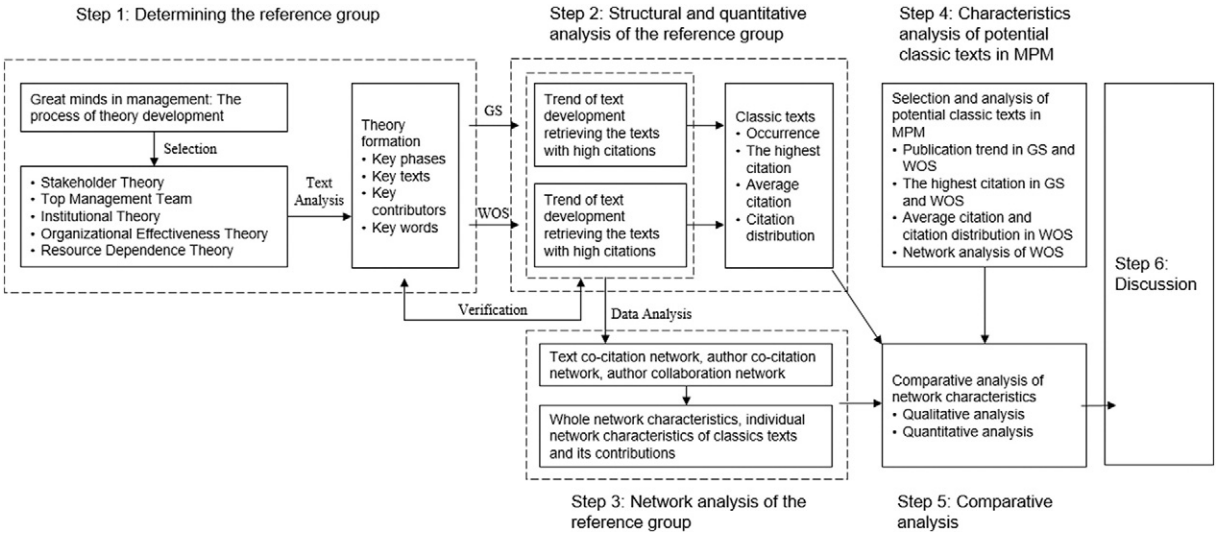

Fig. 1. Research framework.

Table 2
Retrieval strategy and results based on selected query keywords.

	Theory	Query keywords	Results
Reference group	IT	Institutional*	2452, 1798
	OET	Organization* effectiveness/organizational success/positive organizational scholarship	1605, 1145
	ST	Stakeholder*	1714, 1648
	TMT	Top management (or team) (or group)/top manager (or executive)/chief executive/upper echelon*	1834, 1560
	RDT	Resource dependence	180, 145
Test group	MPM (1)	Megaproject(s)/Mega Project(s)	404, 389
	MPM (2)	Main keywords: Megaproject(s)/Mega Project(s) Supplementary keyword: large (or grand) (or macro-engineering) (or monumental) project(s), public works project(s)/transportation infrastructure project(s)/global project(s)	665, 606

Notes:
1. Data was sourced from all databases in WOS.
2. The numbers in the column of "Results" represent the number of retrieved texts from all databases (left) and from the core collection (right).
3. Asterisk (*) is a symbol used in search engines to find variations of a term that start with the same letters.

the results between MPM and the reference group, this study attempts to summarize the characteristics of MPM research, including the evolutionary patterns, clans and clusters, and potential classic texts and future trends.

4. Results and discussion

4.1. Growth of texts and emergence of classic texts

That history of MPM can be traced back to the article "Entrepreneurial error and economic growth" relating to project postmortems (Sawyer, 1952), before the term "megaproject(s)" was born in 1976. According to data points retrieved from GS and WOS, most research on megaprojects emerged after 1980 and has grown extensively since 1985. This study marks as year 1 when the theory first emerged, and then uses ordinal numbers for the following years for all results retrieved from WOS, to compare publication trends and the appearance of the most cited texts. The result is shown in Fig. 2.

The growth rate and emergence of classic texts vary from theory to theory. Typically, the rapid growth of new related publications occurs 20 to 50 years after the date of first publication (Fig. 2), such as Stakeholder Theory (ST) and Organizational Effectiveness Theory (OET). Top Management Team (TMT) and Institutional Theory (IT) exhibit a similar growth trend. Both theories were supported by various classic texts in different periods (see Table 3). Additionally, the growth in the number of texts is closely related to the life span of the theory. For instance, the texts of RDT grew slowly as it has gradually been replaced by another theory, namely, Transaction Cost Theory.

In terms of the time of emergence of classic texts, there are two different scenarios. The classic texts may emerge either in the early stage, within the first 10 years after a theory is proposed, or 30 to 50 years after research in the field is relatively mature. In the reference group, although the total numbers of texts are different, most of the theories reached a publication peak 30 years after the emergence of classic texts. In both groups of MPM, the publication peak was reached in 2013, when 54 texts and 78 texts were published, respectively, and the year 2013 marked 10 years since the highest cited text, "Megaprojects and risk: An anatomy of ambition" (Flyvbjerg et al., 2003) was published. The number of publications in MPM also exceeded the number of texts for most of the theories in the reference group. This indicates the growing popularity of MPM as a field of study.

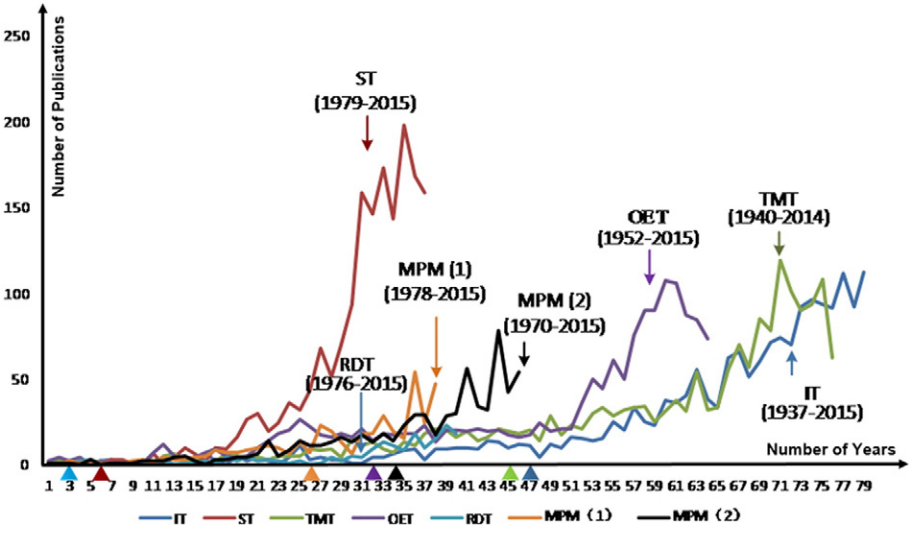

Fig. 2. Comparison of trends in MPM and the five classical management theories. Notes: 1. The horizontal axis represents an ordinal number of years, in which the first year of appearance of the text is marked as 1. 2. The triangle on the horizontal axis stands for the year in which the text with the most citations appeared in a particular field. 3. Data was sourced from all databases in WOS.

Table 3
Comparative analysis of network parameters in MPM and five management theories.

Group	Theory	Characteristics of overall network				Number of co-citation clusters	Top 10 clusters (in terms of the number of texts)									
		N/E	Density	Modularity	Mean silhouette		1	2	3	4	5	6	7	8	9	10
Reference group	IT	2088/5097	0.0023	0.9208	0.3560	92	163	161	82	74	65	41	34	34	30	26
	OET	2379/5138	0.0018	0.9716	0.4135	119	107	78	75	54	50	48	46	42	41	39
	ST	1136/2739	0.0042	0.9076	0.4968	53	89	65	63	53	52	50	36	31	30	28
	TMT	1813/4340	0.0026	0.9036	0.4093	86	175	138	124	74	56	55	38	37	29	22
	RDT	1006/2105	0.0042	0.9612	0.3643	48	64	57	39	34	32	26	25	25	23	22
Test group	MPM (1)	814/1701	0.0051	0.9476	0.3114	35	47	46	43	34	33	31	29	26	24	23
	MPM (2)	1092/2269	0.0038	0.9638	0.4699	53	71	46	42	42	32	30	30	29	28	25

Notes: Data was sourced from all databases in WOS.

4.2. The overall characteristics of text co-citation network

A co-citation analysis can elucidate scientific trends, discovery, knowledge diffusion, and understanding, and also explain the emergence and evolution of the intellectual structure of a field (Chen et al., 2009). Its fundamental assumption is that co-citation clusters reveal underlying intellectual structures (Chen et al., 2009). A co-citation study is among the most commonly used methods in quantitative studies of science for author co-citation analysis and text co-citation analysis. Researchers typically identify specialties in terms of aggregations of co-cited items.

By using a text (or author) co-citation network, the clusters in the text co-citation network can be identified and become key references to study the development of scientific theory. In a network, "nodes" and "edges" (N/E) respectively reflect the network size and relationship, while "density" reflects the sparsity of the network. Modularity (with its value between 0 and 1) measures the extent to which a network can be divided into independent blocks. Silhouettes (with values between 0 and 1) are a graphical aid to assist in the interpretation and validation of cluster analysis, showing which objects lie closely in a cluster and which ones are located between clusters.

Table 3 tabulates the comparative analysis of network parameters between MPM and the five classical management theories. The N/E numbers are similar in the two groups of MPM and both of them have smaller network densities (<0.005), indicating a sparse network. Meanwhile, modularity in both groups is close to 1, which means that both networks can be divided into independent blocks. The relationship between these blocks is very close (silhouette <0.5). This indicates that each theory consists of several sub-areas that are closely interconnected. As suggested by the top 10 clusters, the size of the cluster is substantially influenced by the size of the network. The largest cluster (or the second-largest cluster) is significantly larger than that of the other clusters, showing that core research topics or fields may exist or even dominate in the respective theories.

Unlike the five classical management theories in the reference group, MPM co-citation networks shared similar characteristics, implying the possible emergence of MPM as a new knowledge body for scientific research. In particular, for MPM group (1), when comparing with other clusters in the top 10 clusters, no significant advantage (the number of texts) was observed for largest clusters, suggesting that a concentrated research cluster had not yet been formed. For MPM group (2), different terms such as "large-scale projects" and "major projects" were closely related to megaprojects, suggesting that the concentrated clusters or the co-citation hotspots had already been established.

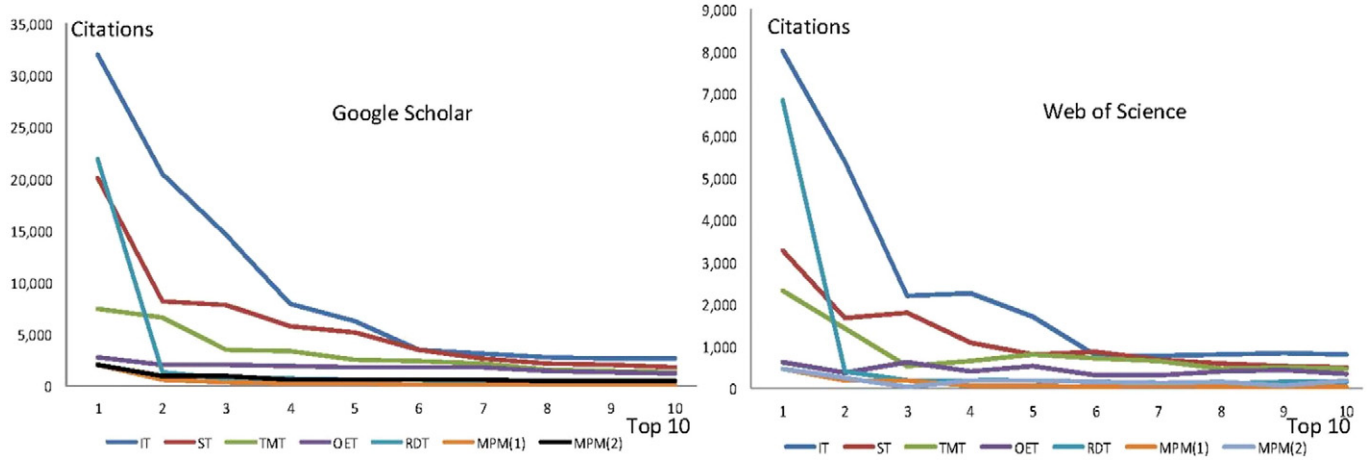

Fig. 3. Comparison of total citations of top 10 classic texts in different fields.

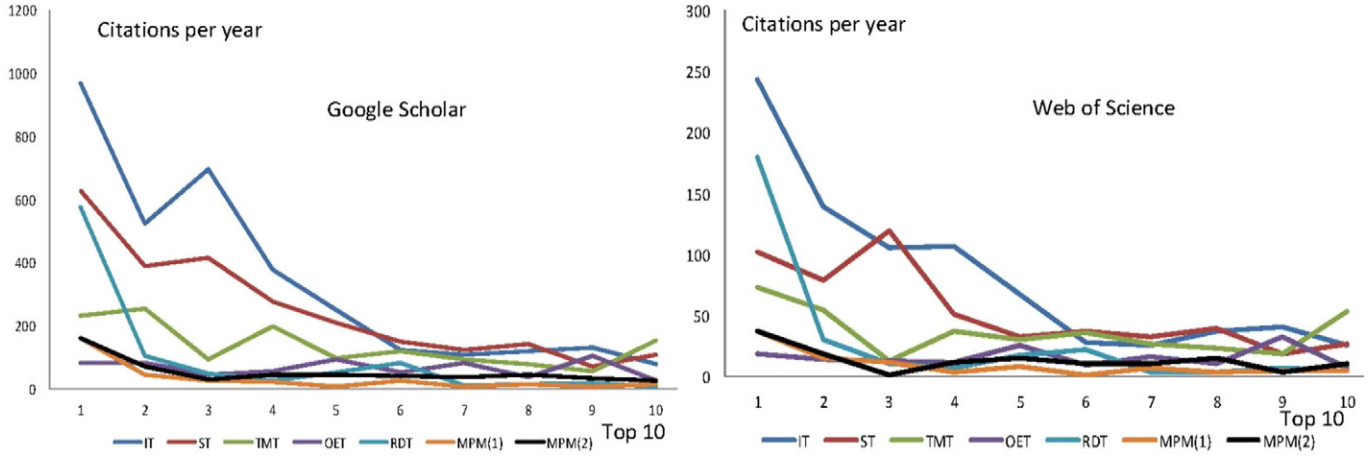

Fig. 4. Comparison of average yearly citation of top 10 classic texts in different fields.

4.3. Citation characteristics of classic texts

4.3.1. Comparison between total citations and average citations per year

We conducted a comparative analysis across different fields for both the total citations and average yearly citations of the top 10 cited texts, as shown in Figs. 3 and 4, respectively. The top 10 highest-cited texts were selected from both the GS and WOS databases to represent key publications in their respective fields. We used citations in GS as the baseline, because of its widespread influence, while citations in WOS, as a supplement, was used for validation of GS numbers. The selected texts for selected management theories are listed in Appendices 1.

Regarding the total citations, the citations for all theories matched with the power-law distribution, in which one or two classic texts have very high numbers of citations with substantial acknowledgement in a particular field. Both the total number of citations and the yearly average citation of these top-ranked texts are significantly higher than that of the rest in the same theory. A small number of texts, especially books, have a significant effect in each field during the establishment and development of these theories.

Compared with the reference group, the total citations of key texts in MPM are far fewer than for those in the five management theories. Even when comparing MPM with a fading RDT, the total citations of the most cited text in MPM are fewer than those of RDT, although the total citations of the key texts in MPM are comparable to those of RDT. Regarding the yearly average citation, the texts of MPM are also considerably fewer than those in all five management theories. This indicates that the total impact of MPM is relatively small and that the key texts in MPM have a limited influence on general management studies.

4.3.2. Comparison of the growth trend in citation of texts with the most citations

The growth trend of texts with the most citations in different fields is shown in Fig. 5. A surge of citations emerged 20 years after the initial publication of the classic texts for all theories except for OET, which was substituted by Positive Organizational Scholarship (POS) (Cameron and Dutton, 2003; Cameron et al.,

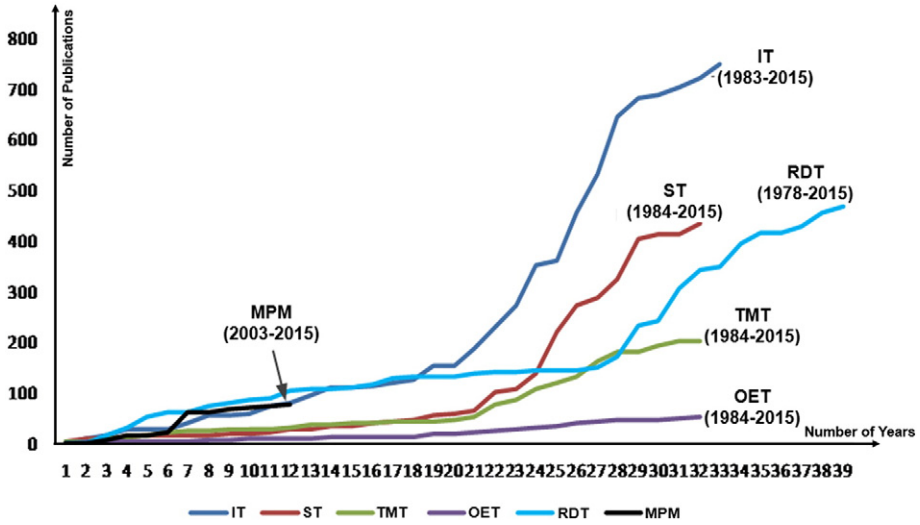

Fig. 5. The growth trend in citations of texts with the most citations in different fields.

2003). Regarding MPM, the classic texts have appeared in recent decades, so the total accumulated citations is relatively lower than for management theories. Yet, compared with the same period (i.e. for the first 10 years), the total citations of MPM are higher than for all of the referred management theories except for RDT. Meanwhile, a further literature retrieval yielded several texts published in 2014 and 2015, such as "What you should know about megaprojects and why: An overview" (Flyvbjerg, 2014a), "Urban mega-projects for a 'world-class' riverfront – The interplay of informality, flexibility and exceptionality along the Yamuna in Delhi, India" (Follmann, 2015), and "Should we build more large dams? The actual costs of hydropower megaproject development" (Ansar et al., 2014). These have been listed as 1% of highly cited papers in the ESI (a statistical platform under WOS), indicating the rapid growth and strong potential of research in MPM.

4.3.3. Comparison of betweenness centrality and burst of citations

Citation networks are quantified as follows. "Frequency" refers to the total joint citation of a text under the prevailing standard control and represents the influence of a text. "Betweenness centrality" is a key index to identify potentially revolutionary scientific publications, as well as a "gatekeeper" in social networks (Chen et al., 2010). "Burst" measures whether the citation of a text or the emergence of a keyword has statistically significant fluctuations during a short time interval within the overall time period, and helps to understand the sudden change in the development of a theory. Sigma (Σ) was introduced by Chen et al. as a measure of scientific novelty (Chen et al., 2010). It identifies scientific publications that are likely to represent novel ideas according to two criteria of transformative discovery. Σ is defined as $(centrality + 1)^{burstness}$ such that the brokerage mechanism plays a more prominent role than the rate of recognition by peers. The citation characteristics of key texts in different fields are shown in Table 4.

Comparing Table 3 with Table 4, we find that the patterns of citations, centrality, burst and Σ are not consistent, indicating that there is more than one key text to the development of theory. In other words, key texts may exist at different stages of the development of theory, with various roles and functions. Take IT, for instance. The number of citations of the text "Institutions and organizations" ranked only third out of all texts, but its burst and Σ was greater than those of the two higher-ranked texts, suggesting its significant contribution during a particular period of the development of that theory. More broadly, the number of citations may only reflect one aspect of a text's influence. The comprehensive influence of (potential) classic texts should be measured in multiple ways. Both the MPM test groups showed similar patterns, in which the highly cited texts in MPM also have great value in both burst and Σ, indicating their strong influence in the development of MPM theory.

4.4. Comparison of classic texts and main contributors

In *Great Minds in Management*, Hitt and Smith mention that the classic theories were developed by leading thinkers and professors with high rates of citation and usually referred to as "management master or philosopher" (Hitt and Smith, 2005). For the five selected management theories in this study, the classic texts, authors, and their institutions usually have a "symbiotic" relationship. Nearly all of these scholars were trained in leading research institutions or universities. While summarizing the form of ST, Edward Freeman states that the author has had a prominent effect on the establishment and development of a theory (Hitt and Smith, 2005). Thus, in this study, we also investigated the authors of these classic texts based on three indices: H-index in GS, H-index in WOS, and the centrality of the authors in their co-citation networks (see Table 5). We selected the H-index because it measures the general influence of an author, while the centrality indicates the author's influence or contribution in a specific area of study.

Table 5 illustrates that all authors of the top 10 cited texts in the five management theories have high H-indices in both GS and WOS, indicating their wide academic influence in general. Meanwhile, the majority of authors come from influential institutions (see Appendix 1). Both results reinforce the finding described in *Great Minds in Management* (Hitt and Smith, 2005). However, it is worth mentioning that, for the top 10 texts, the order of an author's H-index may be different from the order in the number of citations, since other highly influential books or texts may contribute to an author's H-index but be excluded from the citation calculation in this

Table 4
Characteristics of the key texts in different fields.

	Theory	Centrality of top 10 texts with most citations (co-citation network)									
		1	2	3	4	5	6	7	8	9	10
Reference group	IT	0	0	0.02*#	–	0.01	0.01	0	0.01	0.01	0
	OET	0	0	0	–	–	–	0	0	0	0
	ST	0	0	0.02	0	–	0.02	0.01	0.01	0.01	0.06#
	TMT	0.05	0.02	0	–	0.06#	0.08	0.01	0	0	0
	RDT	0.02*#	0	0	0	0.01	0.01	0.01	0	0	0
Study group	MPM (1)	0*#	0*#	0	0	–	0	0	0	0	0.01
	MPM (2)	0.02*#	0.01	–	–	0	–	–	0	0	–

Notes:
1. Underline, pound "#", and star "*" represent the top two texts with highest centrality, burst, and Σ, respectively.
2. Data was sourced from all databases in WOS.

Table 5
Characteristics of contributors in classic (or potentially classic) texts.

	Theory	H-index of author of top 10 texts										Centrality of author of top 10 texts									
		1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
Reference group	IT	61, 13	N/A, 15	N/A, 12	17, 12	N/A, 6	55, 13	N/A, 12	55, 17	48, 15	41, 8	0.05	0.02	0.06	0	0.03	0.05	0.06	0.05	0.01	0.02
	OET	N/A, 18	N/A, 10	N/A, 30	N/A, 22	N/A, 16	49, 20	19, 13	N/A, 35	64, 35	19, 7	0.02	0.10	0.01	0.20	0	–	0.10	0	0.20	0.02
	ST	57, 13	32, 11	24, 10	N/A, 2	40, 13	40, 13	N/A, 16	N/A, 6	N/A, 11	30, 19	0.18	0.05	0.03	0.05	0.05	0.05	0.14	0.02	0.13	0.08
	TMT	83, 55	62, 26	N/A, 15	63, 34	N/A, 25	20, 7	24, 19	83, 55	83, 55	29, 13	0.06	0.03	0	0	0.02	0.01	0.01	0.06	0.06	–
	RDT	104, 56	N/A, 13	N/A, 29	26, 14	11, 7	5, 13	74, 24	N/A, 11	33, 21	64, 15	0.47	0.01	0.01	0.01	0.01	0.01	0.09	0	0	0.01
Study group	MPM (1)	43, 17	N/A, 4	N/A, 6	N/A, 6	67, 22	N/A, 0	45, 3	43, 17	N/A, 2	43, 17	0.07	0.05	0.01	0.01	0	0.01	0	0.07	0.02	0.07
	MPM (2)	43, 17	43, 17	N/A, 2	49, 19	N/A, 4	N/A, 3	16, 1	43, 8	29, 9	N/A, 6	0.20	0.20	0.01	0.01	0.02	–	–	0.20	0.04	0

Notes:
1. The left part of the H-index represents the H-index in GS, while the right represents that in WOS. Some data is not available. The highest H-index of co-authors is considered when multiple H-indices are available for one individual scholar.
2. The largest centrality of all authors is underlined.
3. Data was sourced from all databases in WOS.

study. In MPM, the H-index of the top 10 cited texts is smaller than those of the reference group. This may be because the number of journals in MPM that have been indexed by SCI or SSCI is relatively small, so there are fewer indexed papers in WOS than there are for the mainstream management theories. An alternative reason may be that only a small portion of MPM papers were published in top management journals, so their overall academic influence and theoretical contributions are relatively limited compared with the classical management theories. Regarding the authors' affiliated institutions, most of the MPM authors also came from leading universities in the fields of engineering and project management, as shown in Tables 6 and 7.

4.5. Further discussion of potential classic texts in MPM

4.5.1. Analysis of top 10 texts with the most citations

The top 10 highly cited texts in MPM were published mainly during two periods: from 2001 to 2005, and in 2008, when six books and five books, respectively, were listed in both the two MPM subgroups (see Tables 6 and 7). The most cited book, *Megaprojects and Risk: An anatomy of ambition* (Flyvbjerg et al., 2003), has a substantially higher number of citations than the rest of the texts, and was widely regarded as essential reading in the field of MPM (Flyvbjerg et al., 2003). The highly cited texts also received various academic awards; for example, *Mega-projects: The changing politics of urban public investment* (Altshuler and Luberoff, 2003b), was named by the American Political Science Association as 2003's best book on urban politics. Three key texts were published in the *International Journal of Project Management*, indicating that this journal is of widespread influence in project management. In terms of authorship, >70% of the texts had two or more authors, with collaboration from renowned institutions worldwide, and three texts were co-authored with industrial partners. This suggests that cross-institutional collaboration and multi-disciplinary interactions between practice and academia are important to produce high-influence studies in MPM.

4.5.2. Evolutionary trend of research topics in MPM

The trend of research topics in MPM texts was analyzed using CiteSpace, in which the selection was set as the top 50 per slice. Using TFIDF (Term Frequency by Inversed Document Frequency), LLR (Log-likelihood Ratio), and MI (Mutual Information) functionalities in CiteSpace, we identified 60 co-citation clusters and 10 top clusters (Chen, 2014). Key research topics have been labeled (see Fig. 6) to suggest the main focal areas of existing MPM research, such as complexity, globalization, risk, performance, planning, challenge, development, highway, case, decision-making, and megaprojects success. In addition, the burst analysis of keywords revealed that three stages existed during the development of MPM: management (1991), project management (2002), and megaprojects (2007). The field of megaprojects included, in particular, complexity, infrastructure, public projects, cost overruns, and governance. More recent studies have investigated such issues as politics, urban megaprojects, policy, and network, from which the potential classic texts may emerge.

4.5.3. Texts that possibly affect scientific innovation

Based on the analysis of MPM (1) by CiteSpace, the texts that have a high Σ (>1) include "*Megaprojects and Risk: An anatomy of ambition*" (Flyvbjerg et al., 2003), "*The new mega-projects: genesis and impacts*" (Orueta and Fainstein, 2008), "*Old mega-projects newly packaged? Waterfront redevelopment in Toronto*" (Lehrer and Laidley, 2008), "*Policy and Planning For Large-Infrastructure Projects: Problems, Causes, Cures*" (Flyvbjerg, 2007), "*Mega-Projects: The*

Table 6
Top 10 most cited texts in MPM (1). Inclusion of megaprojects as a keyword only.

No.[a]	Titles of texts	Publication name	Year	Author(s)	Author's institution[b]	Citations[c]	
						GS	WOS
1	Megaprojects and risk: an anatomy of ambition	Cambridge University Press	2003	B Flyvbjerg N Bruzelius W Rothengatte	Aalborg University Stockholm University University of Karlsruhe	2061	475
2	Mega-projects: the changing politics of urban public investment	Brookings Institution Press	2003	AA Altshuler D Luberoff	Harvard University Harvard University	576	195
3	Globalization and urban change: capital, culture, and Pacific Rim mega-projects	Oxford University Press	2002	Olds, Kris	University of Wisconsin-Madison	374	172
4	Globalization and the production of new urban spaces: Pacific Rim megaprojects in the late 20th century	Environment and planning A	1995	Olds, Kris	University of Wisconsin-Madison	208	76
5	Managing public–private megaprojects: paradoxes, complexity, and project design	International Journal of Project Management	2008	Alfons van Marrewijk Stewart R. Clegg Tyrone S. Pitsis Marcel Veenswijk	Vrije Universiteit, De Boelelaan University of Technology, Sydney University of Technology, Sydney Vrije Universiteit, De Boelelaan	197	60
6	Understanding the outcomes of megaprojects: a quantitative analysis of very large civilian projects	RAND Corporation	1988	Edward W. Merrow	Independent Project Analysis, Inc.	162	32
7	Mega-projects in New York, London and Amsterdam	International Journal of Urban and Regional Research	2008	Fainstein, Susan S.	Harvard University	150	54
8	Big decisions, big risks. Improving accountability in mega projects	Transport Policy	2002	Nils Bruzelius Bent Flyvbjerg Werner Rothengatter	Lund University Aalborg University University of Karlsruhe	135	35
9	Old mega-projects newly packaged? Waterfront redevelopment in Toronto	International Journal of Urban and Regional Research	2008	Lehrer, Ute Jennefer Laidley	York University	130	41
10	Decision-making on mega-projects: cost-benefit analysis, planning and innovation	Edward Elgar Publishing	2008	Priemus, Hugo Bent Flyvbjerg Bert van Wee	Delft University of Technology Aalborg University Delft University of Technology	129	42

[a] The texts of 1, 2, 3, 5, 6, 10 are highly cited paper by WOS Essential Science Indicators.
[b] The author's institution indicated the one where the author worked while publishing the work.
[c] All date was collected between January 10, 2016 to January 15, 2016.

changing politics of urban public investment" (Altshuler and Luberoff, 2003a), and "*Mega-projects in New York, London, and Amsterdam*" (Fainstein, 2008). In particular, the Σ of *Megaprojects and Risk: An anatomy of ambition* (Flyvbjerg et al., 2003) is considerably higher than the rest of the texts, and this result is consistent with the findings in the frequency and burst test, suggesting the book's consistent and stable influence in this field. Furthermore, this study also analyzed the enlarged subgroup MPM (2), which contained texts on both major projects and large-scale projects, but no texts with these keywords were found in the high citation list, suggesting that the term "megaprojects" has already become the dominant terminology in this field.

5. Implication for MPM theory development

The abovementioned comparisons and discussions show both the similarities and differences of classic texts between MPM and the five classical management theories. The relevant implications for the development of MPM theory are summarized as follows:

(1) **The current study of MPM is still in a fragmented state, lacks a universally accepted area of study, and is obfuscated by a multitude of concepts and terms.** MPM has been studied from diverse perspectives, such as system science, complexity, project management, policy-making, risk management, sustainable development, and globalization. Moreover, many fields are related to MPM, such as project management, engineering management, project governance, public administration, and urban development, yet without a systematic and comprehensive theoretical framework. Therefore, MPM lacks a unified research field and a clear boundary, as well as a theoretical framework that is inclusive, collective, and systematic.

Table 7
Top 10 most cited texts in MPM (2). Inclusion of megaprojects and relevant terms as keywords.

No.[a]	Titles of texts	Publication name	Year	Author(s)	Author's institution[b]	Citations[c]	
						GS	WOS
1	Megaprojects and risk: an anatomy of ambition	Cambridge University Press	2003	B Flyvbjerg N Bruzelius W Rothengatte	Aalborg University Stockholm University University of Karlsruhe	2061	475
2	Underestimating costs in public works projects: error or lie?	Journal of the American Planning Association	2002	B Flyvbjerg MS Holm S Buhl	Aalborg University Aalborg University Aalborg University	982	260
3	The anatomy of major projects: a study of the reality of project management	John Wiley and Sons	1987	PWG Morris GH Hough	University of Manchester (From industry)	907	21
4	Neoliberal urbanization in Europe: large-scale urban development projects and the new urban policy	Antipode	2002	E Swyngedouw F Moulaert A Rodriguez	Oxford University University of Lille I, Lille University of the Basque Country	627	174
5	Mega-projects: the changing politics of urban public investment	Brookings Institution Press	2003	AA Altshuler, D Luberoff	Harvard University Harvard University	576	195
6	Evaluating the risks of public private partnerships for infrastructure projects	International Journal of Project Management	2002	D Grimsey MK Lewis	(From industry) University of South Australia	571	154
7	Causes of delay in large construction projects	International Journal of Project Management	2002	SA Assaf S Al-Hejji	King Fahd University of Petroleum and Minerals King Fahd University of Petroleum and Minerals	549	138
8	How (in) accurate are demand forecasts in public works projects?: the case of transportation	Journal of the American Planning Association	2005	B Flyvbjerg M S Holm S Buhl	Aalborg University Aalborg University Aalborg University	494	165
9	The strategic management of large engineering projects: shaping institutions, risks, and governance	MIT press	2001	R Miller DR Lessard	École Polytechnique Montréal Massachusetts Institute of Technology	474	49
10	Rescuing Prometheus: four monumental projects that changed our world	Vintage	1998/ 2011	TP Hughes	University of Pennsylvania	467	173

[a] The text No. 8 is highly cited paper by WOS Essential Science Indicators.
[b] The author's institution indicated the one where the author worked while publishing the work.
[c] All date was collected between January 10, 2016 to January 15, 2016.

Classic texts and well-known scholars play a vital role in the development of classic management theories. For instance, the book *Institutions and Organizations* (Scott, 1995) contributed greatly to IT by summarizing the knowledge structure of existing studies, proposing a comprehensive research framework, and linking key

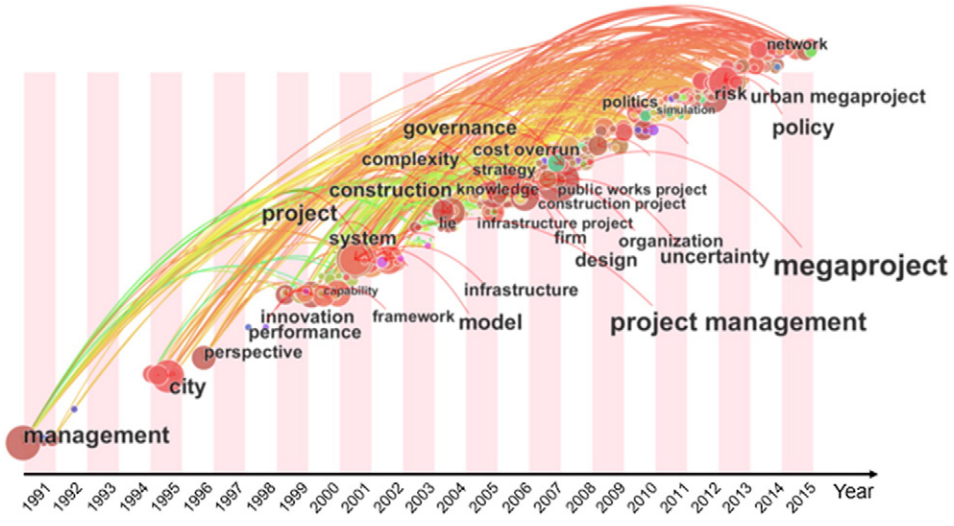

Fig. 6. Schematic burst analysis of keywords in MPM (1991–2015).

viewpoints to this framework (Scott, 1995). This book also debated, distinguished, and identified the differences between IT and other similar theories. The research on MPM has grown extensively in recent years. The texts "*What you should know about megaprojects and why: An overview*" (Flyvbjerg, 2014a) and "*Megaproject Planning and Management: Essential readings*" (Flyvbjerg, 2014b) play similar roles in the development of MPM. However, scholars need to further unify the research and construct a comprehensive theoretical framework at the macro level. Our comparative analysis with other classical theory development suggests that the MPM research community needs to adopt a more consistent nomenclature for MPM to be acknowledged as a unique and distinct research domain, and for classic texts to emerge.

(2) **MPM needs to evolve into a theoretical study community, in which systematic and in-depth research can be conducted continuously over the long term.** Although several results of network analysis in previous sections implied the possible emergence and strong potential of MPM as a new theoretical and research domain. Compared with classical management theories, the number of high-quality studies in MPM is relatively small, and there is also a lack of follow-up studies. The influential texts have not been updated, revised, or further investigated since their first publication. Hitt and Smith state that scholars need to act as a liaison in the formation and dissemination of classical theory in various ways, through communicating with widely accessible peers and organizing academic conferences to attract young scholars to form a theoretical study community, as well as clarifying the concepts and theories in a rigorous manner (Hitt and Smith, 2005). These continuous efforts can help cultivate the emergence of classic texts and boost the development of a new theory. For instance, after the publication of the classic text, entitled "*Strategic Management: A stakeholder approach*" (Freeman, 2010), a research group was formed in the University of Virginia's Olsson Center for Applied Ethics to further extend the development and dissemination of the stakeholder management approach (Hitt and Smith, 2005).

In MPM, "*The Strategic Management of Large Engineering Projects: Shaping institutions, risks, and governance*" (Miller et al., 2001) has similar characteristics, and systematically presents the result of studies conducted by the IMEC Research Program. Subsequently, international forums and research institutions were formed, such as the Centre for Mega Projects in Transport and Development (OMEGA) at University College London, Megaprojects International Workshops, and Megaproject.[1] These institutions and others that form could potentially help to form a theoretical MPM study community and continue the long-term development of MPM theory.

(3) **Conduct interdisciplinary and multi-level studies to develop the foundations of a theory.** Owing to the complexity of the issues involved in megaprojects, it is impossible to explain and guide the practice from a single perspective or by using a single theory. A new fundamental theory can arise only through an interdisciplinary and cross-level study, and may even require the subversion of existing theories and traditional understanding. The text "*Theory building at the intersection: recipe for impact or road to nowhere?*" (Markóczy and Deeds, 2009) states that interdisciplinary research may be the right approach in some groundbreaking studies that address complex questions or for some meta-studies that try to understand complex problems and phenomena. Scholars need to question proactively the inadequacy of existing theories and to realize that MPM research has reached a "*tension point*" (Flyvbjerg et al., 2016), where the new theory can only be built through cross-border collaboration. Meanwhile, existing classic texts may serve as metaphors for new theories to advertise, promote, and form a new "*market of theories*" (Hitt and Smith, 2005). For the highly cited texts in MPM, most are published by multiple authors, and are usually from those published by different research institutions with different backgrounds. Interdisciplinary fields, such as complexity science, system science, social science, economics, and finance, are enabling the evolution of a fundamental theory of MPM.

(4) **Combine theory with practice to generate the theoretical findings that can help solve practical problems.** Flyvbjerg et al. support a phronetic approach, that is, based on practical judgment (from the Greek word *phronesis*), as a critical method for a theoretical study of megaprojects (Flyvbjerg et al., 2016). Based on the lessons learned from the top journals in management science, the standard to judge the contribution of a study can be said to be based on two rules: i) research questions are derived from the industry; ii) research outcomes can provide insights into industry (Dimitriou et al., 2013; Merrow, 1988). After years of observations, Hitt and Smith found that the key point of an influential theory usually originates from the conflict between theory and practice, such as the development of TMT and ST theories (Hitt and Smith, 2005). This is also true for project management and engineering management. For the existing highly influential texts in MPM, the majority of them adopt a case study method that includes either single case studies or multiple case studies from industry. Case-based study is common in this field, and it helps to improve the practical value of research findings. In some cases, high-impact MPM texts are also co-authored by academics and practitioners.

[1] The OMEGA Centre, http://www.omegacentre.bartlett.ucl.ac.uk/; Megaprojects International Workshops, http://business.gwu.edu/events/megaprojects-workshop/; Megaproject, http://www.mega-project.eu/.

(5) **Publish the research outcomes in widely read, broader subject matter, and premier-quality outlets.** Most classic texts with high impact are published in leading journals, owing to their rigorous review process and high acceptance standards. Publishing in journals with high impact factors could increase the likelihood of higher citation and result in wider readership of the theory. However, there are only a limited number of top journals in project management and engineering management with low acceptance rate. The number of texts published in top journals in general management, economics, or the social sciences is also small. This may be because of the preferences or biases in topic selection in these journals. Other factors, such as a long review cycle, frequency of publication, over-emphasis on scholarliness, narrow publication scope, and limited study areas, could also influence the establishment and development of a new theory. Thus, as an alternative, high-quality books, edited volumes, and textbooks are also important in the formation of a theory, and may even exceed the influence of journal texts. For instance, classic books rank at the top in two of five selected classic management theories in this study. In MPM, a number of classic management theories and high-impact outcomes are books and proceedings. The book "*Megaprojects and Risk: An anatomy of ambition*" (Flyvbjerg et al., 2003), published by Cambridge University Press, has the most citations in MPM and its impact may yet be superceded by other broad-based books on MPM.

(6) **Continuous updating, supplementing, adapting, and adjusting classic texts in MPM to reflect and to lead the industrial practices.** The aim of theoretical studies is to guide practice. However, this practice constantly changes, so the existing texts and theories need to be updated constantly with possible new directions. Meanwhile, along with changes in environment and practice, the original theory may gradually become obsolete, as alternative theories may emerge. For these classic management theories, many of the seminal texts have been republished or updated, such as the article "*Upper echelons theory: An update*" (Hambrick, 2007) and the book "*Business and Society: Ethics, sustainability, and stakeholder management*" (Carroll and Buchholtz, 2014), which has been updated for the ninth edition. In MPM, the texts based on the review, refinement, and consolidation of existing studies have also become more influential. For instance, a review text published in 2014 has been classified as the one with the most citations in the field of economics and management (Flyvbjerg, 2014a). The early terms, such as "large-scale projects", have also been gradually replaced by "megaprojects".

6. Conclusion

Megaprojects have a profound socio-economic impact on society, and face many challenges. A "*tension point*" exists between existing theory and practice, paving the way for the emergence of a new theory (Flyvbjerg, 2014a; Flyvbjerg et al., 2016). However, the form and evolution of a new theory is a long, uncertain, and complex process. During this process, a number of key studies, such as classic texts, will play vital roles in promoting the development of the theory. This study selected the classic management theories and their classic texts as the reference group, analyzed the theoretical development of MPM and potential classic texts by comparing two MPM subgroups to five reference groups, and put forth the implications for the development of MPM theory. The milestone findings of this study reflect the achievements of the exploration and development of MPM theory. The continuous growth and revision of these classic texts are crucial to the formulation of a new theory. It should be noted that the establishment of theory and the emergence of classic texts may also depend on opportunities (Hitt and Smith, 2005). Thus, it is still too early to determine clearly what the classic texts will be and when a systematic, well-known theory can be formed in relation to megaprojects.

This study has its limitations that should be expanded upon in future research. The first issue is the completeness and adequacy of the dataset. A theory may include a variety of keywords that change dynamically. While data retrieval through the use of keywords in this study can effectively narrow down the scope of texts, it runs the risk of omitting some texts. This study uses multiple methods to cross-check the results to reduce such a risk to the extent possible. The similar issue regarding the completeness of database is that neither of GS and WOS are perfect database due to many limitations, such as unreliability in GS citations, so both database have been complementarily used in this study to provide the most commonly used and widely accessible database for the bibliometric analysis. The second issue is the comparability between different theories. Although five classical management theories were selected as a reference group to compare them to MPM, the texts that were published across different circumstances, timeframes, scopes, influences, and different phases of theory development may be subject to limited comparability among theories. Lastly, the evolution of theory is replete with uncertainties. Until now, there has been no mature method to predict the long-term result of theory development and the influence of highly cited texts. Thus, the conclusions of this study need to be continuously updated and expanded. As such, future studies can expand the comparative samples, collect more complete and precise data, and develop a more robust way of dynamically predicting and tracking classic texts, to produce a more rigorous body of knowledge and to provide more practical guidelines for the industry.

Acknowledgements

This study is supported by the National Natural Science Foundation of China (project numbers: 71390523 and 71471136). The views represented in this article are those of the individual authors only.

Appendix 1. Top 10 most cited texts in the five selected management theories

No.	Theories and titles of texts	Year	Publication name	Author(s)	Author's institution [g]	Citations [h]	
						GS	WOS
1	Institutional Theory						
1.1	The iron cage revisited: institutional isomorphism and collective rationality in organizational fields	1983	American Sociological Review	DiMaggio, Paul J. Walter W. Powell	Princeton University Stanford University	32,040	8033
1.2	Institutionalized organizations: formal structure as myth and ceremony	1977	American Journal of Sociology	Meyer, John W. Brian Rowan	Stanford University Stanford University	20,464	5402
1.3	Institutions and organizations	1995 [a]	Thousand Oaks: Sage	Scott, W. Richard	Stanford University	14,611	2197
1.4	Managing legitimacy: strategic and institutional approaches	1995	Academy of Management Review	Suchman, Mark C	Brown University	7943	2252
1.5	Strategic responses to institutional processes	1991	Academy of Management Review	Oliver, Christine	York University	6230	1716
1.6	Interest and agency in institutional theory	1988 [b]	Ballinger Pub Co	DiMaggio, Paul J	Princeton University	3447	776
1.7	The adolescence of institutional theory	1987	Administrative Science Quarterly	Scott, W. Richard	Stanford University	3185	763
1.8	Fools rush in? The institutional context of industry creation	1994	Academy of Management Review	Aldrich, Howard E. C. Marlene Fiol	University of North Carolina University of Colorado	2812	810
1.9	Understanding radical organizational change: bringing together the old and the new institutionalism	1996	Academy of Management Review	Greenwood, Royston Christopher R. Hinings	University of Alberta University of Alberta	2648	822
1.10	Institutional sources of change in the formal structure of organizations: the diffusion of civil service reform, 1880–1935	1983	Administrative Science Quarterly	Tolbert, Pamela S. Lynne G. Zucker	Cornell University University of California, Los Angeles	2636	815
2	Organizational Effectiveness Theory						
2.1	A spatial model of effectiveness criteria: towards a competing values approach to organizational analysis	1983	Management Science	Quinn, Robert E. John Rohrbaugh	University of Michigan State University of New York	2747	627
2.2	Corporate culture and organizational effectiveness	1990 [c]	John Wiley & Sons	Denison, Daniel R	IMD Business School	2195	376
2.3	Pay and organization effectiveness: a psychological view	1971	NY: McGraw Hill	Edward E. Lawler	University of Southern California	2058	606
2.4	Organizational life cycles and shifting criteria of effectiveness: some preliminary evidence	1983	Management Science	Quinn, Robert E. Cameron, Kim	University of Michigan University of Michigan	1885	391
2.5	Teams in organizations: recent research on performance and effectiveness	1996	Annual Review of Psychology	Guzzo, Richard A. Marcus W. Dickson	University of Maryland University of Maryland	1843	523
2.6	An empirical assessment of organizational commitment and organizational effectiveness	1981	Administrative Science Quarterly	Angle, Harold L. James L. Perry	University of Cincinnati Indiana University	1807	324
2.7	Toward a theory of organizational culture and effectiveness	1995	Organization Science	Denison, Daniel R. Aneil K. Mishra	University of Michigan Pennsylvania State University	1763	344
2.8	Job stress, employee health, and organizational effectiveness: a facet analysis, model, and literature review	1978	Personnel Psychology	Beehr, Terry A. John E. Newman	Illinois State University State Farm Mutual Automobile Insurance Company	1418	396
2.9	Positive organizational scholarship: foundations of a new discipline	2003	Berrett-Koehler Publishers	Cameron, Kim Jane Dutton	University of Michigan University of Michigan	1355	418
2.10	A system resource approach to organizational effectiveness	1967	American Sociological Review	Yuchtman, Ephraim Stanley E. Seashore	Tel Aviv University University of Michigan	1176	340

(continued on next page)

Appendix 1 (*continued*)

No.	Theories and titles of texts	Year	Publication name	Author(s)	Author's institution [g]	Citations [h]	
						GS	WOS
3	Stakeholder Theory						
3.1	Strategic management: a stakeholder approach	1984 [d]	Cambridge University Press	Freeman, R. Edward	University of Virginia	20,100	3279
3.2	The stakeholder theory of the corporation: concepts, evidence, and implications	1995	Academy of Management Review	Donaldson, Thomas Lee E. Preston	Georgetown University University of Maryland	8188	1664
3.3	Toward a theory of stakeholder identification and salience: defining the principle of who and what really counts	1997	Academy of Management Review	Mitchell, Ronald K. Bradley R. Agle, Donna J. Wood	University of Victoria University of Pittsburgh University of Pittsburgh	7870	1795
3.4	A stakeholder framework for analyzing and evaluating corporate social performance	1995	Academy of Management Review	Clarkson, Max E.	University of Toronto	5811	1068
3.5	The pyramid of corporate social responsibility: toward the moral management of organizational stakeholders	1991	Business Horizons	Carroll, Archie B.	University of Georgia	5217	793
3.6	Business and society: ethics, sustainability, and stakeholder management.	1993 [e]	Cengage Learning	Carroll, Archie Ann Buchholtz	University of Georgia Rutgers University	3451	861
3.7	Instrumental stakeholder theory: a synthesis of ethics and economics	1995	Academy of Management Review	Jones, Thomas M.	University of Washington	2605	667
3.8	Shareholder value, stakeholder management, and social issues: what's the bottom line?	2001	Strategic Management Journal	Hillman, Amy J. Gerald D. Keim	University of Western Ontario University of Western Ontario	2144	583
3.9	Moving beyond dyadic ties: a network theory of stakeholder influences	1997	Academy of Management Review	Rowley, Timothy J.	University of Toronto	1988	520
3.10	Does stakeholder orientation matter? The relationship between stakeholder management models and firm financial performance	1999	Academy of Management Journal	Shawn L. Berman Andrew C. Wicks Suresh Kotha Thomas M. Jones	Boston University University of Washington University of Washington University of Washington	1812	501
4	Top Management Team						
4.1	Upper echelons: the organization as a reflection of its top managers	1984	Academy of Management Review	Hambrick, Donald C. Phyllis A. Mason	Columbia University Columbia University	7429	2329
4.2	Performance pay and top-management incentives	1990	Journal of Political Economy	Jensen, Michael C. Kevin J. Murphy	Harvard University University of Rochester	6624	1422
4.3	Chief executives define their own data needs	1978	Harvard Business Review	Rockart, John F.	Massachusetts Institute of Technology	3498	511
4.4	Corporate governance, chief executive officer compensation, and firm performance	1999	Journal of Financial Economics	Core, John E. Robert W. Holthausen David F. Larcker	University of Pennsylvania University of Pennsylvania University of Pennsylvania	3385	635
4.5	Top management and innovations in banking: does the composition of the top team make a difference?	1989	Strategic Management Journal	Bantel, Karen A. Susan E. Jackson	Wayne State University New York University	2584	809
4.6	Distinguishing the effects of functional and dysfunctional conflict on strategic decision making: resolving a paradox for top management teams	1996	Academy of Management Journal	Amason, Allen C.	Georgia Southern University	2357	717
4.7	Top management team demography and corporate strategic change	1992	Academy of Management Journal	Wiersema, Margarethe F. Karen A. Bantel	University of California Wayne State University	2222	641
4.8	The influence of top management team heterogeneity on firms' competitive moves	1996	Administrative Science Quarterly	Hambrick, Donald C. Theresa Seung Cho Ming-Jer Chen	Columbia University Columbia University Columbia University	1536	460

4.9	Top-management-team tenure and organizational outcomes: the moderating role of managerial discretion	1990	Administrative Science Quarterly	Finkelstein, Sydney Donald C. Hambrick	University of Southern California Columbia University	1488	501
4.10	Assimilation of enterprise systems: the effect of institutional pressures and the mediating role of top management	2007	MIS Quarterly	Liang, Huigang Nilesh Saraf Qing Hu Yajiong Xue	Florida Atlantic University Simon Fraser University Florida Atlantic University Florida Atlantic University	1374	478
5	Resource Dependence Theory						
5.1	The external control of organizations: a resource dependence perspective	1978 [f]	Stanford University Press	Pfeffer, Jeffrey Gerald R. Salancik	Stanford University Carnegie Mellon University	21,931	6833
5.2	Boards of directors and firm performance: integrating agency and resource dependence perspectives	2003	Academy of Management Review	Hillman, Amy J. Thomas Dalziel	Arizona State University	1370	393
5.3	The resource dependence role of corporate directors: strategic adaptation of board composition in response to environmental change	2000	Journal of Management Studies	Hillman, Amy J. Albert A. Cannella Ramona L. Paetzold	University of Western Ontario Texas A&M University Texas A&M University	759	171
5.4	Corporate linkages and organizational environment: a test of the resource dependence model	1990	Strategic Management Journal	Boyd, Brian	Blue Cross and Blue Shield of Michigan	671	177
5.5	Power imbalance, mutual dependence, and constraint absorption: a closer look at resource dependence theory	2005	Administrative Science Quarterly	Casciaro, Tiziana Mikolaj Jan Piskorski	Harvard University Harvard University	598	188
5.6	Resource dependence theory: a review	2009	Journal of Management	Hillman, Amy J. Michael C. Withers Brian J. Collins	Arizona State University Arizona State University University of Southern Mississippi	575	153
5.7	Resource dependence and in terorganiza tional relations local employment service offices and social services sector organizations	1976	Administration & Society	Aldrich, Howard	Cornell University	496	129
5.8	Institutional environments and resource dependence: sources of administrative structure in institutions of higher education	1985	Administrative Science Quarterly	Tolbert, Pamela S	Cornell University	491	119
5.9	Institutional and resource dependence determinants of responsiveness to work-family issues	1995	Academy of Management Journal	Ingram, Paul Tal Simons	Carnegie Mellon University Hebrew University	425	141
5.10	Perspectives in organizations: resource dependence, efficiency, and population	1984	Academy of Management Review	Ulrich, David Jay B. Barney	University of Michigan University of California	231	144

[a] The 1st version was published in 1995, and the 4th version was updated in 2013.
[b] This is selected from "Institutional patterns and organizations: Culture and environment", edited by Lynne G. Zucker and published by Ballinger Pub. Co.
[c] The 1st version was published in 1990 and the 2nd version was updated in 1997.
[d] The 1st version was published in 1984. In 2010, Cambridge University Press offered a new print-on-demand edition.
[e] The 1st version was published in 1993, and the 9th version was published in 2014.
[f] The 1st version was published in 1978, and the work was published again as the "Stanford Business Classics" in 2013.
[g] The author's institution indicated the one where the author worked while publishing the work.
[h] All date was collected between January 10, 2016 to January 15, 2016.

References

Aaltonen, K., Jaakko, K., Tuomas, O., 2008. Stakeholder salience in global projects. Int. J. Proj. Manag. 26, 509–516.

Altshuler, A., Luberoff, D., 2003a. Mega-projects: The Changing Politics of Urban Public Investment. Brookings Institution Press.

Altshuler, A., Luberoff, D., 2003b. Mega-projects. Brookings Institution, Washington, DC.

Ansar, A., Flyvbjerg, B., Budzier, A., Lunn, D., 2014. Should we build more large dams? The actual costs of hydropower megaproject development. Energy Policy 69, 43–56.

Assaf, S.A., Al-Hejji, S., 2006. Causes of delay in large construction projects. Int. J. Proj. Manag. 24, 349–357.

Assaf, S.A., Al-Khalil, M., Al-Hazmi, M., 1995. Causes of delay in large building construction projects. J. Manag. Eng. 11, 45–50.

Baccarini, D., 1996. The concept of project complexity—a review. Int. J. Proj. Manag. 14, 201–204.

Baker, S., Ponniah, D., Smith, S., 1999. Risk response techniques employed currently for major projects. Constr. Manag. Econ. 17, 205–213.

Barlow, J., 2000. Innovation and learning in complex offshore construction projects. Res. Policy 29, 973–989.

Bartunek, J.M., Rynes, S.L., 2014. Academics and practitioners are alike and unlike the paradoxes of academic–practitioner relationships. J. Manag. 40, 1181–1201.

Bosch-Rekveldt, M., Jongkind, Y., Mooi, H., Bakker, H., Verbraeck, A., 2011. Grasping project complexity in large engineering projects: the TOE (technical, organizational and environmental) framework. Int. J. Proj. Manag. 29, 728–739.

Boyce, J.K., 1990. Birth of a megaproject: political economy of flood control in Bangladesh. Environ. Manag. 14, 419–428.

Bryson, J.M., Bromiley, P., 1993. Critical factors affecting the planning and implementation of major projects. Strateg. Manag. J. 14, 319–337.

Cameron, K., Dutton, J., 2003. Positive Organizational Scholarship: Foundations of a New Discipline. Berrett-Koehler Publishers.

Cameron, K.S., Dutton, J.E., Quinn, R.E., 2003. An introduction to positive organizational scholarship. Posit. Organ. Scholarsh. 3, 13.

Carroll, A., Buchholtz, A., 2014. Business and Society: Ethics, Sustainability, and Stakeholder Management. Nelson Education.

del Cerro Santamaría, G., 2013. Urban Megaprojects: A Worldwide View. Emerald Group Publishing Limited.

Chang, I.S., Tsujimura, Y., Gen, M., Tozawa, T., 1995. An efficient approach for large scale project planning based on fuzzy Delphi method. Fuzzy Sets Syst. 76, 277–288.

Charette, R.N., 1996. Large-scale project management is risk management. IEEE Softw. 13, 110–117.

Chen, C., 2014. The CiteSpace Manual. (2014-04-18) [2014-05-271] (http// cluster. isehool, drexel, edu/-eehen/eitespaee/CiteSpaeeManual, pdf).

Chen, C., Chen, Y., Horowitz, M., Hou, H., Liu, Z., Pellegrino, D., 2009. Towards an explanatory and computational theory of scientific discovery. J. Inf. Secur. 3, 191–209.

Chen, C., Ibekwe-SanJuan, F., Hou, J., 2010. The structure and dynamics of cocitation clusters: a multiple-perspective cocitation analysis. J. Am. Soc. Inf. Sci. Technol. 61, 1386–1409.

Chinowsky, P., Taylor, J.E., 2012. Networks in engineering: an emerging approach to project organization studies. Eng. Proj. Organ. J. 2, 15–26.

Cicmil, S., Williams, T., Thomas, J., Hodgson, D., 2006. Rethinking project management: researching the actuality of projects. Int. J. Proj. Manag. 24, 675–686.

Cooper, D.F., 2005. Project Risk Management Guidelines: Managing Risk in Large Projects and Complex Procurements. John Wiley & Sons, Inc.

Corley, K.G., Gioia, D.A., 2011. Building theory about theory building: what constitutes a theoretical contribution? Acad. Manag. Rev. 36, 12–32.

Davies, A., Gann, D., Douglas, T., 2009. Innovation in Megaprojects: Systems Integration at London Heathrow Terminal 5. Calif. Manag. Rev. 51: 101–125. http://dx.doi.org/10.2307/41166482.

De Groote, S.L., Raszewski, R., 2012. Coverage of Google Scholar, Scopus, and Web of Science: a case study of the h-index in nursing. Nurs. Outlook 60, 391–400.

Dimitriou, H.T., Ward, E.J., Wright, P.G., 2013. Mega transport projects—beyond the "iron triangle": findings from the OMEGA research programme. Prog. Plan. 86, 1–43.

Duy Nguyen, L., Ogunlana, S.O., Thi Xuan Lan, D., 2004. A study on project success factors in large construction projects in Vietnam. Eng. Constr. Archit. Manag. 11, 404–413.

Eden, C., Williams, T., Ackermann, F., Howick, S., 2000. The role of feedback dynamics in disruption and delay on the nature of disruption and delay (D&D) in major projects. J. Oper. Res. Soc. 51, 291–300.

Esty, B.C., 2004. Why study large projects? An introduction to research on project finance. Eur. Financ. Manag. 10, 213–224.

Fainstein, S.S., 2008. Mega-projects in New York, London and Amsterdam. Int. J. Urban Reg. Res. 32, 768–785.

Flyvbjerg, B., 2006. Five misunderstandings about case-study research. Qual. Inq. 12, 219–245.

Flyvbjerg, B., 2007. Policy and planning for large-infrastructure projects: problems, causes, cures. Environ. Plann. B. Plann. Des. 34, 578–597.

Flyvbjerg, B., 2014a. What you should know about megaprojects and why: an overview. Proj. Manag. J. 45:6–19. http://dx.doi.org/10.1002/pmj.21409.

Flyvbjerg, B., 2014b. Megaproject Planning and Management: Essential Readings. Edward Elgar Publishing.

Flyvbjerg, B., Stewart, A., 2012. Olympic Proportions: Cost and Cost Overrun at the Olympics 1960–2012.

Flyvbjerg, B., Holm, M.S., Buhl, S., 2002. Underestimating costs in public works projects: error or lie? J. Am. Plan. Assoc. 68, 279–295.

Flyvbjerg, B., Bruzelius, N., Rothengatter, W., 2003. Megaprojects and Risk: An Anatomy of Ambition. Cambridge University Press.

Flyvbjerg, B., Skamris Holm, M.K., Buhl, S.L., 2004. What causes cost overrun in transport infrastructure projects? Transp. Rev. 24, 3–18.

Flyvbjerg, B., Skamris Holm, M.K., Buhl, S.L., 2005. How (in) accurate are demand forecasts in public works projects?: the case of transportation. J. Am. Plan. Assoc. 71, 131–146.

Flyvbjerg, B., Garbuio, M., Lovallo, D., 2009. Delusion and deception in large infrastructure projects: two models for explaining and preventing executive disaster. Calif. Manag. Rev. 51, 170–193.

Flyvbjerg, B., Landman, T., Schram, S., 2012. Real Social Science: Applied Phronesis. Cambridge University Press.

Flyvbjerg, B., Landman, T., Schram, S.F., 2016. Tension Points: Learning to Make Social Science Matter.

Follmann, A., 2015. Urban mega-projects for a "world-class" riverfront–the interplay of informality, flexibility and exceptionality along the Yamuna in Delhi, India. Habitat Int. 45, 213–222.

Forsberg, K., Mooz, H., 1991. The relationship of system engineering to the project cycle. INCOSE International Symposium. Wiley Online Library, pp. 57–65.

Freeman, R.E., 2010. Strategic Management: A Stakeholder Approach. Cambridge University Press.

Friedman, R., 1984. Strategic Management: A Stakeholder Perspective.

Garfield, E., 1989. Citation behavior-an aid or a hindrance to information-retrieval. Curr. Contents 18, 3–8.

Grün, O., 2004. Taming Giant Projects: Management of Multi-organization Enterprises. Springer Science & Business Media.

Ham, R.M., Mowery, D.C., 1998. Improving the effectiveness of public–private R&D collaboration: case studies at a US weapons laboratory. Res. Policy 26, 661–675.

Hambrick, D.C., 2007. Upper echelons theory: an update. Acad. Manag. Rev. 32, 334–343.

Hambrick, D.C., Chen, M.-J., 2008. New academic fields as admittance-seeking social movements: the case of strategic management. Acad. Manag. Rev. 33, 32–54.

Hambrick, D.C., Mason, P.A., 1984. Upper echelons: the organization as a reflection of its top managers. Acad. Manag. Rev. 9, 193–206.

Haskins, C., Forsberg, K., Krueger, M., Walden, D., Hamelin, D., 2006. Systems Engineering Handbook. INCOSE.

Hegazy, T., Ayed, A., 1998. Neural network model for parametric cost estimation of highway projects. J. Constr. Eng. Manag. 124, 210–218.

Hitt, M.A., Smith, K.G., 2005. Great Minds in Management: The Process of Theory Development. Oxford University Press.

Hu, Y., Chan, A.P.C., Le, Y., Jin, R., 2013. From construction megaproject management to complex project management: bibliographic analysis. J. Manag. Eng. 31, 4014052.
Hughes, T.P., 1998. Rescuing Prometheus: Four Monumental Projects That Changed the Modern World. Pantheon, New York.
Jensen, M.C., Murphy, K.J., 1990. Performance pay and top-management incentives. J. Polit. Econ. 98, 225–264.
Kacmar, K.M., Whitfield, J.M., 2000. An additional rating method for journal articles in the field of management. Organ. Res. Methods 3, 392–406.
Kaming, P.F., Olomolaiye, P.O., Holt, G.D., Harris, F.C., 1997. Factors influencing construction time and cost overruns on high-rise projects in Indonesia. Constr. Manag. Econ. 15, 83–94.
Kuhn, T., 2012. The Structure of Scientific Revolutions.
Kuskova, V.V., Podsakoff, N.P., Podsakoff, P.M., 2011. Effects of theoretical contribution, methodological rigor, and journal quality, on the impact of scale development articles in the field of entrepreneurship. Strateg. Entrep. J. 5, 10–36.
Lee, E., Park, Y., Shin, J.G., 2009. Large engineering project risk management using a Bayesian belief network. Expert Syst. Appl. 36, 5880–5887.
Le-Hoai, L., Dai Lee, Y., Lee, J.Y., 2008. Delay and cost overruns in Vietnam large construction projects: a comparison with other selected countries. KSCE J. Civ. Eng. 12, 367–377.
Lehrer, U., Laidley, J., 2008. Old mega-projects newly packaged? Waterfront redevelopment in Toronto. Int. J. Urban Reg. Res. 32, 786–803.
Love, P.E.D., Holt, G.D., Li, H., 2002. Triangulation in construction management research. Eng. Constr. Archit. Manag. 9, 294–303.
Ma, H., Zeng, S., Lin, H., Chen, H., Shi, J.J., 2017. The societal governance of megaproject social responsibility. Int. J. Proj. Manag.:1–13 http://dx.doi.org/10.1016/j.ijproman.2017.01.012.
Mahalingam, A., Levitt, R.E., 2007. Institutional theory as a framework for analyzing conflicts on global projects. J. Constr. Eng. Manag. 133, 517–528.
Markóczy, L., Deeds, D.L., 2009. Theory building at the intersection: recipe for impact or road to nowhere? J. Manag. Stud. 46, 1076–1088.
Meho, L.I., Yang, K., 2007. Impact of data sources on citation counts and rankings of LIS faculty: Web of Science versus Scopus and Google Scholar. J. Am. Soc. Inf. Sci. Technol. 58, 2105–2125.
Merrow, E.W., 1988. Understanding the Outcomes of Megaprojects.
Miller, R., Hobbs, J.B., 2005. Governance Regimes for Large Complex Projects. Project Management Institute.
Miller, R., Lessard, D.R., Michaud, P., Floricel, S., 2001. The Strategic Management of Large Engineering Projects: Shaping Institutions, Risks, and Governance. MIT press.
Morris, P.W.G., Hough, G.H., 1987. The Anatomy of Major Projects: A Study of the Reality of Project Management.
Olds, K., 1995. Globalization and the production of new urban spaces: Pacific Rim megaprojects in the late 20th century. Environ. Plan. A 27, 1713–1743.
Orr, R.J., Scott, W.R., 2008. Institutional exceptions on global projects: a process model. J. Int. Bus. Stud. 39, 562–588.
Orueta, F.D., Fainstein, S.S., 2008. The new mega-projects: genesis and impacts. Int. J. Urban Reg. Res. 32, 759–767.
Parker, D., Hartley, K., 2003. Transaction costs, relational contracting and public private partnerships: a case study of UK defence. J. Purch. Supply Manag. 9, 97–108.
Pfeffer, J., Salancik, G.R., 1978. The External Control of Organizations: A Resource Dependence Perspective. Stanford University Press.
Pitsis, T.S., Clegg, S.R., Marosszeky, M., Rura-Polley, T., 2003. Constructing the Olympic dream: a future perfect strategy of project management. Organ. Sci. 14, 574–590.
Pollack, J., Biesenthal, C., Sankaran, S., Clegg, S., 2017. Classics in megaproject management: a structured analysis of three major works. Int. J. Proj. Manag. 1–13. http://dx.doi.org/10.1016/j.ijproman.2017.01.003.
Priemus, H., Flyvbjerg, B., van Wee, B., 2008. Decision-making on Mega-projects: Cost-benefit Analysis, Planning and Innovation. Edward Elgar Publishing.
Pryke, S., Smyth, H., 2012. The Management of Complex Projects: A Relationship Approach. John Wiley & Sons.
Saeed, K., Brooke, K., 1996. Contract design for profitability in macro-engineering projects. Syst. Dyn. Rev. 12, 235–246.
Sawyer, J.E., 1952. Entrepreneurial error and economic growth. Explor. Econ. Hist. 4, 199.
Sayles, L.R., Chandler, M.K., 1992. Managing Large Systems: Organizations for the Future. Transaction Publishers.
Scott, W.R., 1995. Institutions and Organizations. Sage, Thousand Oaks, CA.
Serenko, A., Dumay, J., 2015. Citation classics published in knowledge management journals. Part I: articles and their characteristics. J. Knowl. Manag. 19, 401–431.
Short, J., Kopp, A., 2005. Transport infrastructure: investment and planning. Policy and research aspects. Transp. Policy 12, 360–367.
Siemiatycki, M., 2016. The making and impacts of a classic text in megaproject management: the case of cost overrun research. Int. J. Proj. Manag. 36 (2), 362–371.
Söderlund, J., Geraldi, J., 2012. Classics in project management: revisiting the past, creating the future. Int. J. Manag. Proj. Bus. 5, 559–577.
Swyngedouw, E., Moulaert, F., Rodriguez, A., 2002. Neoliberal urbanization in Europe: large–scale urban development projects and the new urban policy. Antipode 34, 542–577.
Van Der Westhuizen, J., 2007. Glitz, glamour and the Gautrain: mega-projects as political symbols. Politikon 34, 333–351.
Van Marrewijk, A., Clegg, S.R., Pitsis, T.S., Veenswijk, M., 2008. Managing public–private megaprojects: paradoxes, complexity, and project design. Int. J. Proj. Manag. 26, 591–600.
Wiest, J.D., 1964. Some properties of schedules for large projects with limited resources. Oper. Res. 12, 395–418.
Wiest, J.D., 1967. A heuristic model for scheduling large projects with limited resources. Manag. Sci. 13, B-359.
Zhou, Z., Mi, C., 2017. Social responsibility research within the context of megaproject management: trends, gaps and opportunities. Int. J. Proj. Manag. 35 (7), 1378–1390.