

# **An Examination of the Project Management Research Agenda and Schools of Thought**

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## **Abstract**

This paper aims to present a review of how project management has been addressed and developed through the years. This review has been undertaken by theoretical fusion with the management theory jungle first espoused by Koontz (1961;1980) then by articulating the research agenda in project management and the findings suggest the existence of classical project management, rethinking project management, brave new world and project studies groups within the research agenda. In addition, the schools of thought were reviewed as well and they are considered essential in management and project management because they help in deciding which school is the most relevant and useful for making decisions. This study will cover the various schools of project management and their relation to the schools of management. After that, the paper will provide a critical analysis of what has been discussed.

## **Keywords**

Engineering, Management, Project Management, Research Agenda, Schools of Thought.

## **1. Introduction**

The subject of this paper is to present a review of the development of the project management research agenda through analyzing the published research papers in this field. The paper will contextualize the research agenda of project management which considered as an essential concept and schools of thought. Some authors introduced the schools in terms of management and project management and the interaction between them. The paper will cover the following: it will articulate the concepts of the papers that are related to management, project management related to the research agenda and different schools of thought. In addition, the paper will present how the research agenda in project management has been developed. After mapping out the research agenda of project management, to best contextualize the paper with management and project management, we will draw upon the schools of thought to be able to develop a comprehensive understanding of the research agenda in project management.

## **2. What is Management - Management as Jungle**

There was a study in 1961 by Koontz concerning the “management theory jungle” and in this research the major schools of management theory were discussed. The author listed six schools, namely: the management process school, the empirical school, the human behavior school, the social system school, the decision theory school and the mathematical school. The author mentioned that there is a variety of approaches to management theory which lead to confusion and destructive jungle warfare. In addition, he added that the main causes of mental mess in the jungle were the semantic jungle, management as body of knowledge, confusion and assumption.

Later, in 1980, Koontz published research about the “management theory jungle revisited” and elaborated more on the schools and improved the review of the original schools that were discussed in 1961. The modified and updated list now had eleven schools, as listed below:

- (1) The empirical or case approach: this school is about studying management by analyzing different experiences in different cases.
- (2) The interpersonal behavior approach: this school is about getting things done and accomplishing them through people, with the focus on interpersonal relations.

- (3) The group behavior approach: this school is somewhat close to the interpersonal behavior approach but it focuses more on the behavior of people in groups.
- (4) The cooperative social system approach: this school is a modification of the interpersonal and group behavior approach which focuses on human relationships as a social system. This system is defined as the cooperative interaction of ideas, forces, needs, as well as the thinking of groups.
- (5) The sociotechnical system approach: in this school there is a strong influence caused by the technical system, which are machines and methods, on the social system.
- (6) The decision theory approach: it is known that making decisions is an important and major task for managers so this school is the central focus of management theory.
- (7) The systems approach: is about the analysis of management of thoughts and the system is a set of things interconnected to form a complex unity.
- (8) The mathematical or management science approach: this school focuses on the mathematical model.
- (9) The contingency or situational approach: this school highlights what the managers do in practice based on the situation and it indicates the relationship between the variables in a specific situation and the managerial solutions.
- (10) The managerial roles approach: this school is about the managerial activities which came from the role of the manager which are summarized as the interpersonal roles, informational roles, decision roles and the negotiator roles.
- (11) The operational approach: this school focuses on the relevant knowledge of management and its relationship with the roles of managers.

These schools are considered essential in management because they help in deciding which school is the most relevant and useful for making decisions.

### **3. The Project Management Research Agenda**

This section aims to identify the context of the research agenda in project management, different perspectives in this research agenda, how the research agenda literature has developed and the critical analysis of the research agenda. The research agenda is considered as an essential part in management and project management because it helps in understanding how the project management concept was and how it has been developed in different studies. It has been reviewed and discussed by different researchers between 1995 and 2018. The literature classified the research agenda in project management into four types which are classical project management, rethinking project management, brave new world and project studies. We have termed the first classification of the project management research agenda as Classical Project Management. This research agenda, which is primarily drawn from project management research undertaken between Lundin and Soderholm (1995) and Shenhar and Dvir (1996), focuses on the theory of project management. The second classification is the Rethinking Project Management which has been discussed by Winter et al. (2006 a; 2006 b) who defined the research agenda as the enrichment and extension of project management theory based on the understanding of current situations. The third classification is Brave New World which is primarily drawn from project management research undertaken by Svejvig and Andersen (2015). This study helps in understanding the classical and rethinking project management theories empowering the successful implementation of both approaches to practice. The last classification is the Project Studies which has been discussed by Geraldi and Soderlund (2018), who explained what it is and where it is going.

#### **3.1 Classical Project Management**

Lundin and Soderholm (1995) studied the theory of the temporary organization. In the industrial era the idea of an organization as an eternal entity has dominated business studies. However, modern economic and social tendencies gave rise to an increased number of temporary projects and organizations and generated a need for a comprehensive theoretical basis. The authors focused on the idea of an action-based theory, and four basic concepts for organization demarcation (time, task, team and transition) as well as sequencing concepts in order to provide a framework for understanding temporary organizations. The action is considered as the main factor and the core of temporary organizations as opposed to the concept about decision making as the primary determinant. It was mentioned that decisions do not always bring about actions as they are consequential to actions. It was also established that the prime source of motivation in business is the requirement to act. Therefore, the new theory should be stressing the nature of the action and the aspects of it.

Lundin and Soderholm (1995) introduced four concepts for defining the action area and demarcating a temporary organization. A temporary organization can be described about time, task, team and transition. However, a permanent organization is rather explained by its goals (instead of tasks), survival (instead of time), working organization (instead of team) and processes of production development (instead of transition). Four sequencing concepts for action description were mentioned and each one represents a phase in a temporary project or organization. In the entrepreneurial stage, it is essential to provide the driving force for business creation. In addition, time brackets, tasks, and termination criteria are to be specified, which is followed by the task execution and the timely dissolution of a temporary organization. Moreover, the possibility of interruption at any stage does not undermine the validity of the concepts. Lundin and Soderholm (1995) tried to establish the phenomenon of temporary organizations and the analysis.

Another research focused on the classical project management by Shenhar and Dvir (1996) toward a typological theory of project management. The deployment of projects has overtaken the development of a typological theory of project management. The mainstream approach that doesn't differentiate between radical and incremental innovations leads to the assumption that all projects are similar. Accordingly, there is a need for a comprehensive two-dimensional typology of projects and management styles. In this research, Shenhar and Dvir tried to meet this need by elaborating a framework that may also be used in practice.

The authors explained a conceptual model with two dimensions known as technological uncertainty and system scope. The technological uncertainty was described as an inability to predict outcomes due to the difference between the present and required information, and the scale levels varied from low to super-high. Moving to the system scope dimension, it was defined as three clusters of project management styles which constitute a hierarchy and are designated as assembly, system, and array. In addition, two sets of data were collected, using qualitative and quantitative methods. At the first stage, the authors studied project dynamics and in the second stage entailed data collection from questionnaires and interviews with project managers. The investigation aimed at predicting the dependent variable - project success. The results for the research found that the technological uncertainty appeared to be the main factor affecting the project characteristics in each level that related with distinct managing patterns. Moreover, the uncertainty dimension was primarily linked to the way technical problems were addressed as opposed to the system scope dimension that mainly dealt with administrative issues. The projects falling under the third system scope category required more planning and documentation.

### **3.2 Rethinking Project Management**

In a study by Winter et al. (2006 a) about the directions for future research in project management the rethinking project management defined the research agenda the enrichment and extension of project management theory based on the understanding of current situations. Five directions for future research in project management were discussed, which are: project complexity, social process, value creation, project conceptualization, and practitioner development that focused on introducing new approaches identified as critical by the researchers and the practitioners. Moreover, the aims behind the research of rethinking project management were to produce a network for the academics, researchers and also practitioners that participate in developing and improving project management and defining the research agenda. The agenda was defined as stimulating current and future research in the field of project management. The main finding of the network is the need of practice and the introducing of new thinking in the directions mentioned above. The direction of project complexity was considered under the theory about practice while the direction of social process, value creation, and project conceptualization were under the theory of practice and the last direction of practitioner development was under theory in practice. The three theories were identified by the authors for the theory about practice and was identified as help to understand practice and the theory of practice included practical application. In addition to that, the theory in practice involved developing discussions. For the first theory (about practice) it included direction (1) from the lifecycle model of projects and project management to theories of the complexity of projects and project management. While the second theory (for practice) included direction (2) from projects as instrumental processes to social processes, direction (3) from product creation as the main focus to value creation as the main focus and direction (4) from a narrow conceptualization of projects to broader conceptualization of projects. In addition to that, the third theory (in practice) included practitioners as trained technicians to reflective practitioners.

On the other hand, in a study by Winter et al. (2006 b) about the importance of process in rethinking project management the aims behind the network were to introduce a new network for academics, researchers and

practitioners in order to participate in developing project management. In addition to that, defining the research agenda by the enrichment and extension of project management theory based on the current situation. In this research a number of meetings were held in the years from 2004 to 2006 involving the concerned practitioners and focusing on seven areas, which were: projectification, the management of multiple projects, the actuality of projects, uncertainty, the management of business projects, and profession and practitioner development. It was clearly mentioned in the research that the group of academics and practitioners have two concerns which are project management theory and practice. Figure (1) below represents the guiding principles of the network program that targets the inquiry and the social process that covers the rethinking activity.

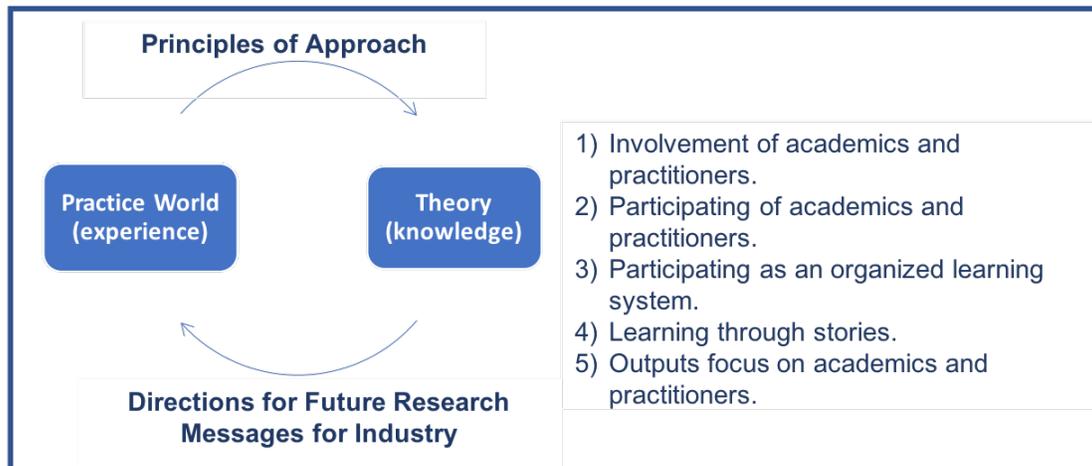


Figure 1. Guiding principles of the Network (Winter, et al., 2006 b)

### 3.3 Brave New World

The research about rethinking project management: a structured literature review with a critical look at the brave new world presents the findings by Svejvig and Andersen (2015) about the issue of project management. It focuses on the necessity of a structured literature review of the concept of “rethinking project management” in the context of the brave new world. This review is based on 74 works with six categories which are contextualization, social and political aspects, rethinking practice, complexity and uncertainty, actuality of projects and broader conceptualization. The research exposed that distribution of the rethinking of project management research was not equal along the selected timeline. The first attempts to analyze the concept were made in 1995, but the most significant increase in research of this problem appeared after 2006. In the research the literature shows that classical project management is dominant in the research literature as well as in textbooks while the current status of rethinking project management is changing. In addition to that, the research also focuses on project management education which is focused on classical project management. Therefore, there is a need for change in this field and a broader introduction of rethinking the project management concept. In addition to that, the research on rethinking project management should focus on the efficiency issues which can be achieved through alternative practices. Moreover, this research helps in understanding the classical theory and rethinking project management empowers the successful implementation of both approaches to practice.

### 3.4 Project Studies

The project studies were discussed by Gernaldi and Soderlund (2018) in a study that explained what it is and where it is going. There are three types of project studies that apply Habermas' theory of knowledge-constitutive interests. The interests are the technical interest which controls the natural environment and motivating the classic positivistic research; the interpretive sciences that maintain a mutual understanding in life; and the last is the emancipatory interest that overcomes inflexibility, pressure and control. Moving to the types of project, the Type 1 with technical interest focuses on prediction, control, and causal explanations; Type 2 is practical and focuses on interpretation and understanding in social interfaces; and Type 3 is emancipatory and focuses on criticism and liberation. In addition to that, there are three levels of analysis in project studies which are the macro project studies (project portfolio, program management, project society, strategy, etc.), meso-project studies (explorations, collaboration, coordination, time

management, communication, conflicts, deadlines, planning, etc.), and micro-project studies (individual studies, groups, psychology, project skills, motivation, etc.).

In 2019, Marrewijk and Dessing studied the negotiating reciprocal relationships in terms of practices of engaged scholarship in project studies. The main target behind their study was to develop a framework that included goals, negotiation practices, reciprocity typology and project studies results. Moreover, this framework was used to analyze the idea of engaging scholarship by including three types of reciprocity which are generalized, balanced and negative. In addition, the authors also discussed the limitations in the engagement of scholars in project studies. The limitations were the confusion of the engagement of scholars and the lack of theoretical maturity.

#### **4. Project Management Schools**

Running adjacent to the project management research agenda as described earlier is the notion of “Schools of thought” as advocated by both Bredillet (2007-2008) and Kwak and Anbari (2009). “We construe the notions of the ‘schools of thought’ as being complementary to our understanding of the project management research agenda in that it provides more clarity on alternative perspectives of not only how project management research has developed, but on the possible direction for future project management studies”. The first school of thought we discuss is that of Bredillet (2007-2008).

In the first part of his publication *Exploring Research in Project Management*, Bredillet (2007a) addresses what other researchers discussed in the field of project management. The optimization tool was developed along with modern project management and later on it was extended to form nine schools of thought under project management. Moreover, the author mentioned that there is a requirement and a growing need to support the development of project management.

In the second part of *Exploring Research in Project Management*, Bredillet (2007b) attested that project management is considered as a recognizable field of study with three main categories; these are (i) knowledge, (ii) knowledge producers, and (iii) the relationships between those who are responsible for defining the rules and conditions. Knowledge is considered an essential part in developing competence which can be individual or organizational. Knowledge producers can be either laypersons or legal persons and such knowledge is produced by academic researchers, institutions that provide academic degrees, and professional associations. In addition, Bredillet mentioned that the project management community has several interfaces that can be either internal or external, such as being within the project management research community or the academic community, and between the schools of project management research which requires supporting the development of bodies of knowledge, educational programs and professional certifications.

The nine main schools of project management thought were mentioned in the third part of Bredillet’s (2007c) *Exploring Research in Project Management* which are the optimization school, modeling school, governance school, behavior school, success school, Decision School, Process School, Contingency School, and Marketing School. In addition, Bredillet (2007c) mentioned that project management is considered as homogeneous and there are standard tools and ways that are applicable to all projects.

##### **(1) Optimization School**

In this school there are several network scheduling techniques mentioned by Bredillet (2007c) such as the critical path methods, program evaluation, and review technique. The main targets of this school are defining the goals of the project, breaking down the project, planning, estimating and scheduling, execution of the project tasks and trying to achieve the optimal outcome by focusing on the cost and time. In addition, this school plans and controls the project by using a system approach in order to optimize the outcome (Bredillet, 2007 c); the school also has a direct influence on the operation research (Bredillet, 2008 c).

##### **(2) Modeling School**

The modeling school is considered to have developed from the optimization school because of the use of the hard systems approach which divides up the project in order to be able to understand and study it. Moreover, Bredillet

(2007c) added that, more recently, the modeling schools also cover the soft systems relating to the organization in terms of its internal politics and behavior, and any aspects that affect the project and the operation. The soft system mainly focuses on understanding the project and the surrounding environment (Bredillet, 2007 c). In addition, this school has a direct influence with the systems theory and soft systems methodology (Bredillet, 2008 c).

### (3) Governance School

This school considers the project as a legal entity and it has two key activities: these are studying the relationship between contract and project management, and looking at the mechanisms of governance. In addition this school focuses on and covers three areas: these are (i) transaction costs related to projects, (ii) principle agency for the relationship between client and contractor, and (iii) the mechanisms of project governance. The first area covers the transaction costs and identifies the costs related to construction projects. Moreover, the mechanisms of governance of projects include effective governance of projects, programs, and portfolio, as well as the project management center for excellence, the functions of the project management office, and the project support office (Bredillet, 2008 a). This school has a direct influence on contracts and law, governance, transaction costs and agency theory (Bredillet, 2008 c).

### (4) Behavior School

According to Bredillet (2008a), the behavior school considers the project as a social system. This is associated with the governance school and its premise is that the project includes social systems, organization behavior, communication, leadership and human resources management. Moreover, the research in this field addresses the knowledge in terms of management and the sharing of issues as the project is considered temporary (Bredillet, 2008 a). This school has influences from the organizational behavior school and from human resources management (Bredillet, 2008 c).

### (5) Success School

This school considers the project as a business objective and focuses on aspects of project success and failure. There are a range of factors and criteria that make a project a success; the project success factors are the components of the project that help it succeed and are classed as independent variables. The project success criteria on the other hand are what the successful project is assessed against. They are the objectives of the project and are dependent variables. The success of a project can be achieved through planning, control, time, cost, and performance which are considered to be in line with the optimization school (Bredillet, 2008 a). In addition, this school has a direct influence on project management (Bredillet, 2008 c).

### (6) Decision School

Bredillet (2008b) mentioned that in this school the project is considered as a computer and the focus of this school is on project initiation, approval, funding, completion, termination and closure, and what is concluded in terms of success and failure. In addition, this school considers the economic culture as well as the prevailing political rules, and focuses on the information and decision-making processes in projects. Moreover, it is linked with the process school which refers to the project as an information processor, and with the success school because processing information allows for making better decisions (Bredillet, 2008 b). In addition, this school has a direct influence on decision sciences and transaction costs (Bredillet, 2008 c).

### (7) Process School

This school considers the project as an algorithm and focuses on identifying the structure of the processes starting from the conception of the project to achieving the objectives. Bredillet (2008b) defined the project as an algorithm that helps in solving the problem to achieve the targets (Bredillet, 2008 b). Moreover, this school has a direct influence on information systems and strategy (Bredillet, 2008 c).

### (8) Contingency School

The Contingency School identifies the different types of projects and project organizations, and explains the differences between them. Organizations categorize projects based on aligning the projects with strategic intent and assigning and developing suitable capabilities to manage the projects (Bredillet, 2008 b). In addition, this school influences contingency theory and leadership theory (Bredillet, 2008 c).

#### (9) Marketing School

This school focuses on the management of the phases of projects, identification of stakeholders and management, clients' needs and the relations between clients and contractors (Bredillet, 2008 b). Moreover, this school has a direct influence with stakeholder management, governance, and strategy (Bredillet, 2008 c).

The second school of thought we discuss is that of Kwak and Anbari (2009) which analyzed project management research and discussed the schools of project management. Eight schools were discussed in their research, which are:

- (1) Strategy: related to managing resources to maximize profit, minimize cost, and support the strategy of the organization.
- (2) Operations Research: refers to quantitative decision analysis and management principles including various optimization tools and techniques, network analysis, simulation and resource leveling.
- (3) Organizational Behavior and Human Resources Management: related to the organizational structure, motivation, leadership and conflict management.
- (4) Information Technology and Information Systems: related to the use of computers and the systems employed to process the computer, transmit, store and retrieve information to help in arriving at better management decisions.
- (5) Technology and Innovation: related to the innovative and technological improvements and new products, services and processes.
- (6) Performance Management: related to the techniques that measure project progress.
- (7) Engineering and Contracts: related to the use of a broad range of professional expertise to resolve issues related to engineering, contracts and construction.
- (8) Quality Management: related to the concepts of improving processes, minimizing defects, and reducing cost.

Only a limited number of studies discuss project management. These reveal that project management has several schools of thought as described and developed in the literature. Project management has accordingly developed in operations research and management science. In addition, Kwak and Anbari (2009) mentioned that it has contributed to other fields of management such as strategy, marketing, innovation, information, technology management and change. Moreover, Bredillet (2007 c) mentioned that the schools of thought discussed in the literature are significant because they help in deciding which school matches the needs of the project and organization in order to choose the most suitable project management approach.

## **5. Discussion**

In classical project management and the research by Lundin and Soderholm (1995) it was mentioned that the project is the key, not the temporary organization and in order to have a successful project it should be by planning and forecasting and following different ways and techniques that will help in managing the projects. It may be useful to study stagnating organizations in order to find out why plans failed. In the research by Shenhar and Dvir (1996) they concluded that managing style's compatibility with the technological uncertainty level contributes most to the outcome of the project. The qualitative and quantitative methods were used with two data sets and identified the ideal types that have a different combination of the organizational features that participate in determining outcomes. In addition to that, it is accepted to develop additional frameworks and dimensions.

In rethinking project management theory most of the studies were done based in the United Kingdom and the possibility of applying them in different countries is weak because the standards and the ways of thinking and managing a project may differ. In the study by Winter et al. (2006 a), it was mentioned that the directions are not the agenda of the future research, they are the agenda and guides for the people that are already working and for the group that is working in the development of new research in the field of project management. Moreover, Winter et al. (2006

b) mentioned that the rethinking concept focused on how the ideas of project management can be improved to be compatible with 21st century projects.

Svejvig and Andersen (2015) mentioned that general practitioners have the techniques and tools of project management but advanced techniques are not available to them and so they are not able to manage projects successfully. In addition, the paper included clear boundaries for the rethinking of project management by comparing the classical theory with the rethinking theory and ending up with brave new world. Geraldi and Soderlund (2018) focused on project studies by providing a framework for the research to give a clear image to the researcher to know the nature and the required knowledge that is to be considered. Moreover, Marrewijk and Dessing (2019) agreed with Geraldi and Soderlund (2018) to encourage the project scholars to think about the methodological matters and to understand the research and they follow that.

On the other hand, Bredillet (2007c) introduced the nine main schools of project management in his research as was explained in the literature review section. The author mentioned that the Governance School defines the success criteria and the processes while the Success School outlines the marketing tasks in the project. In addition, the Success School provides the process vision as well which will help in making direct decisions and setting objectives that help in optimization and decision making. Moreover, Bredillet (2008a) stated that the Governance School has a direct influence on the project in the contexts of organizational behavior and human resource management. In addition, the Modeling School interacts with optimization and helps in making better decisions while the Decision School provides guidelines that help in improving decision making. Figure (2) below represents the relationships between the various project management schools of thought (Bredillet, 2008c).

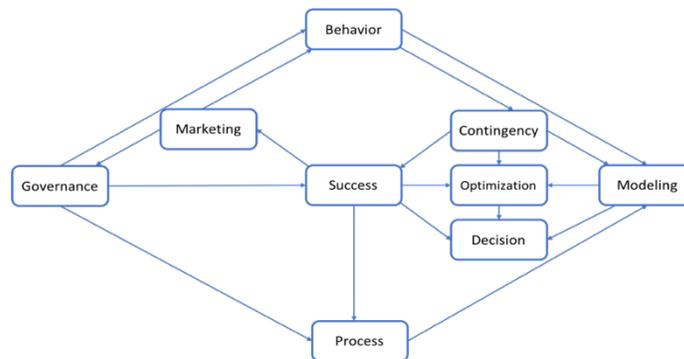


Figure 2. Relationships between the project management schools of thought

Based on the research and the literature, some of the discussed schools of management theory by Koontz (1980) are to some extent covered in the schools of project management that were introduced by Bredillet (2007c). Despite the difference in the names of the schools, the targets and the functions are related to a large degree. The Optimization School (Bredillet, 2007c) can be linked to the mathematical approach because it is applied to problems of optimization (Koontz, 1980). In addition, the Modeling School that deals with the hard and soft systems (Bredillet, 2007c) can be related to the sociotechnical system approach and the system approach in the schools of management theory as well as the mathematical approach (Koontz, 1980). The Behavior School considers the project as a social system (Bredillet, 2008 a) that is related to the function of the interpersonal behavior approach, group behavior approach and cooperative social system approach from The Management Theory Jungle (Koontz, 1980). Moreover, the Decision School and Contingency School proposed by Bredillet (2008b) are also introduced in the management schools by Koontz (1980) as the decision theory approach and the contingency approach. However, the schools of management by Koontz (1980) did not cover the Governance school, Success School, Process School or Marketing School. Kwak and Anbari (2009) analyzed project management research and discussed the schools of project management. Eight schools were discussed in the research: (1) Strategy; (2) Operations Research; (3) Organizational Behavior and Human Resources Management; (4) Information Technology and Information Systems; (5) Technology and Innovation; (6) Performance Management; (7) Engineering and Contracts; and (8) Quality Management. Drawing a comparison between the nine schools introduced by Bredillet (2007 c) and the eight schools introduced by Kwak and Anbari (2009), it was found that Kwak and Anbari (2009) missed out the Contingency School and the Marketing School. However, they discussed

performance management as well as quality management which are similar to the functions of the Modeling School and Optimization School, as discussed by Bredillet (2007c). Figure 3 below shows the schools of management discussed by Koontz (1980) in the Management Theory Jungle Revisited linked with the schools of project management introduced by Bredillet (2007 c) as well as the link to the work of Kwak and Anbari (2009).

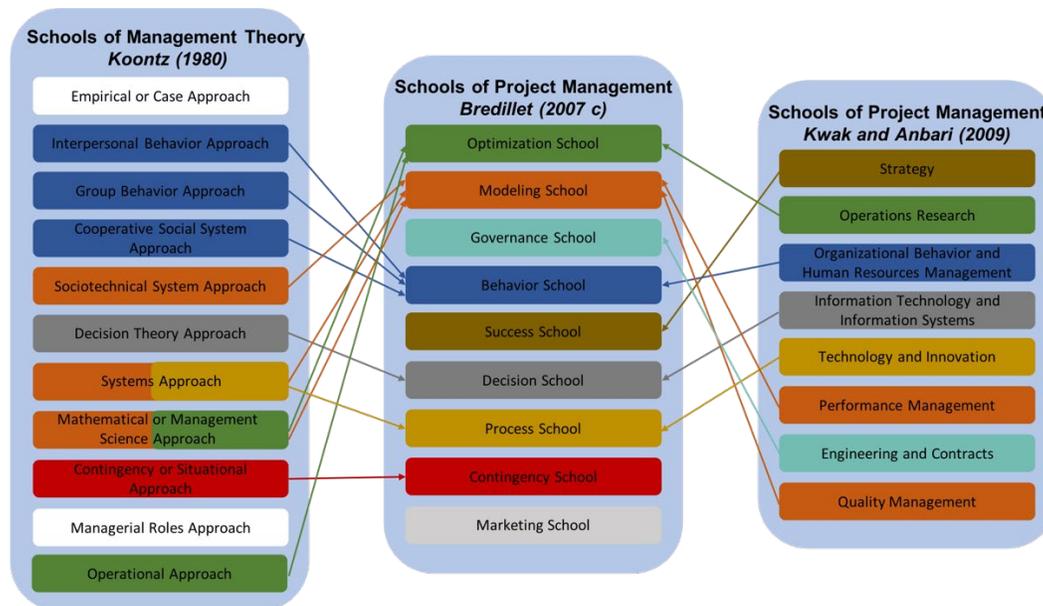


Figure 3. Schools of Management linked with the Schools of Project Management

## 6. Conclusion

The purpose of this article was to provide a comprehensive review of how project management has been addressed and developed through the years. We proposed the term ‘Project Management Research Agenda’ as an umbrella concept involving the various studies related to project management and schools of thought. The literature review shows how the research agenda was reviewed from the earlier classical type, rethinking project management, brave new world and finally the project studies. Svejvig and Andersen (2015) mentioned that the traditional aim is solving the project problems, increasing the productivity and the effectiveness which can be done by understanding and highlighting the nature of the project and its environment. Moreover, the purpose behind identifying the schools of project management is to understand various perspectives and tasks that lead to make decisions and achieve goals. The nine schools of thought – Optimization School, Modeling School, Governance School, Behavior School, Success School, Decision School, Process School, Contingency School and Marketing School – introduced by Bredillet (2007c) - were identified clearly in the literature review and the interaction between the different schools was explicated. In addition, the School of Management was discussed, supported by a brief definition to build up a clear vision of its relationship with the School of Project Management.

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## **Biography**

**Alya J. Abuseem** is an engineer with a bachelor’s degree in Civil and Environmental Engineering and a master’s degree in Engineering Management (Infrastructure and Construction) from the University of Sharjah. Alya did her master’s project in the Multicriteria Method to Prioritize Existing Roundabouts for Improvement in the Emirate of Sharjah and presented it to the Transportation Research Board in 2019. She has 5 years’ experience in the Department of Town Planning and Survey in Sustainable Transport Planning Section. Currently she is a PhD student in Engineering Management at the University of Sharjah.