

# Factors Influencing the Cooperative Project Management in Oil Technology Companies: Literature Review

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**Abstract**— In project management, many factors impacting the successful collaboration works including diversity of location, culture, and language; gap in education background and skill level; distributed suppliers widely across different industries; and segregation of knowledge repository. The aim of this research is to explore the existing literature to identify the determinant of successful Collaborative Project Management in oil technology companies. The scientific literature provided by the major publishers regarding project management including books, journals, conferences, as well as previous relevant studies handling the factors influencing the cooperative project management in oil technology companies. The findings show that both time management and quality of work have significant positive influence on cooperative project management in the Libyan context. This study significantly contributed to the theoretical enhancement of the current level of knowledge that studied the unique factors in the Libyan construction industry that influence the employee cooperative project management. The study findings will help both the academicians and the managements involved in this industry to get more knowledge in managing their employees in a better way.

**Keywords**— Factors; Influence; Cooperative; Project Management; Oil Technology Companies.

## I. INTRODUCTION

The rising requirement for new PM frameworks that can bolster appropriated projects has been prove by specialists creating disseminated PM models as of late. Lam and Maheshwari (2016) built up a PM device to direct assignment and group management. Abramovici and Gerhard (2017) presented an item information management framework to help virtual building collaboration. Lysakowski and Doyle (2017) proposed to build up a data framework to go about as an electronic lab scratch pad for drug store explore. Different scientists have portrayed diverse frameworks that encourage project archive management and learning management (KM) (Weiser and Morrison, 2017; Baek and Liebowitz, 2018; Hefner, 2017; Katzy, Evaristo and Zigurs, 2017; McManus and Snyder, 2016). These frameworks were created with various centre PM works; some cantered around undertaking and group management, while others concentrated on report management. This piecemeal methodology of actualizing diverse PM works in various frameworks has preferences and disservices. There are two noteworthy preferences. To begin with, since the framework centres around a couple of real PM capacities, it is simpler to create and keep up, and might be anything but difficult to utilize. Second, since the framework

is anything but difficult to build up, the expense of creating and buying the framework is sensible; consequently, it is reasonable to actualize such a framework in associations, expansive or little. In any case, the real drawback of this methodology is that project individuals normally utilize various programming bundles to convey PM capacities (Jaafari and Manivong, 2017). Jaafari and Manivong (2017) clarified the wasteful aspects and disadvantages related with utilizing various programming bundles to convey PM capacities.

The project management paradigm has been shifting in toward a more collaborative model since the early of the century. With a shift towards more decentralised and distributed team, and an increasing level of collaboration, project transparency is reduced, and project monitoring and control are becoming more difficult. Besides, managing project with high collaborative elements has many challenges and risks. Diversity of location, culture, and language; gap in education background and skill level; distributed suppliers widely across different industries; and segregation of knowledge repository and usage, are some of the many factors impacting the successful collaboration works. This situation is worsening in the construction industry since the industry is highly fragmented, lack of integration and high complexities in processes and activities. Construction project is a complex project as project lifecycles are lengthen, skilled labour is in short supply and effective coordination, communication, and collaboration remains difficult. Market pressures induce the need for partnering, joint venture, public/private partnership, and strategic alliances. Rising of emerging construction trend such as Smart-Home development and Industrialised Building System lead to a different collaborative understanding with new service providers.

A couple of analysts saw the requirement for a PM structure and proposed diverse models to distinguish PM segments and constituent capacities that are required to plan and build up another kind of PM framework that can bolster complex or potentially disseminated projects. Maurer (2016) abridged the project coordination writing and proposed a PM structure that joined an assortment of PM capacities; be that as it may, his model concentrated more on management and overlooked an expansive piece of cooperation among colleagues, for example, gather exchange, arrangement, correspondence, assemble composing and gathering

gatherings. Jaafari and Manivong (2018) proposed a "glorified" PM structure, examined and recorded management capacities for an admired PM framework, and positioned an example of PM frameworks as indicated by the rundown. Gotten from the project life cycle, their rundown of management capacities can help project chiefs and individuals to perceive what they must do to deal with a project in its life cycle. Be that as it may, there are two impediments of their rundown. To begin with, the rundown is for the most part from project individuals' point of view and not from a product development viewpoint. On the off chance that a group of programming specialists might want to build up a PM framework, at that point the rundown may not give much help to them to envision what works the PM framework needs to actualize. Second, the rundown is not thorough; it does exclude a project archive or report management, the two of which are vital pieces of any PM framework. Additionally, it did exclude joint effort among project individuals. The aim of this research is to document the complexity and to evaluate the gaps of the expectations and capabilities of the interdisciplinary collaboration in managing deliveries of diverse components from multiple stakeholder, using the construction projects as the test cases.

## II. LITERATURE REVIEW

### *Project Management*

Project Management is not a new discipline, with its history dated back over 2000 years ago (Kozak, 2013). Traditionally PM used the concept of centralized information, to prevent change by extensively planning and documenting as much as possible before the system is developed and rely more on sequential processes. The widely known PM methodology is the PMP (Project Management Professional), based on the Guide to the Project Manager's Body of Knowledge (PMBOK Guide) (PMI, 2013). The purpose of the guide is to offer a standard for project managers to handle projects. PMP embodies a project lifecycle and five project management process groups, namely Initiation, Planning, Execution, Monitoring and Controlling and Closing, covering 47 project processes (PMI, 2013).

### *Success Factors*

Project management success is measured by criteria which mean different things to different people depending upon their role within the project itself. It often changes from project to project depending on participants, scope of services, project size, owner design of facilities, technology implications and a variety of other factors (Al Freidi, 2014). The characterization of 'time dependent' is based on the fact that success varies with time (Michael, 2014), as time, cost and quality factors of success will have different impact throughout the planning, construction, implementation and handover phases of a project. Salleh (2015) concluded that most of the critical success factors identified are human-related factors, with lack of communication tops the most important causes of delay. Alkaf, et al., (2012) conducted research on risk exposure in construction industry from the contractor perspective and identified 28 risk factor that contributed to the project success.

Rahman, et al., (2014) pointed that a serious problem facing project management is people are used to manage resources and deliverables, but not project work nor project process. Michael (2014) provide research in ranking the factors that influences the construction project management success in Libyan perspective. Alfredi (2014), Alkef (2012), Rahman (2014) and Salleh (2015) specifically mentioned that the main reason of project failure is related to human factor, with the biggest contributor is the Project Manager.

### *Cooperative Project Management*

The objective of project management is to look for the solidarity of more undertakings, quick procedure, minimal effort, and top notch (David and Cleland, 2016). Time, cost, quality, and association are fundamental components for guaranteeing the effective execution of a project. In present day endeavors, there hundreds even a huge number of projects should be overseen. Also, a project may experience months or even a long time from start as far as possible, include handfuls or even several members, and are separated into numerous assignments. Generally, an unpredictable project needs numerous individuals circulated in better places to work cooperatively as indicated by a specific workflow. Customary handcraft management strategies have not fulfilled these prerequisites. Project management framework-based PC and network strategies is a viable path for overseeing huge measure of projects. Cooperative work is a significant issue in project management. Chen and Xin (2019) have referenced three significant elements of cooperative work in project management which incorporate mindfulness, verbalization, and dissemination. Other than these three measurements, we consider that there are another three perspectives ought to be thought of.

The accomplishment of any project execution process in the construction industry in people in general and private areas rely to a great extent upon the project director's idea of staff arrangements and control, severe checking of time, cost, material, quality and ecological limitations. What drives construction project achievement has been an interesting issue over the most recent couple of years and has pulled in numerous researchers, (Nguyen, Ogunlana and Lan, 2014) utilized a review to break down the reasons for postpones that influence the arranging and degree development stage in construction projects. In their study, which included 27 kinds of deferral, the members were solicited to rank these sorts from postpone factors. The outcomes demonstrated that the three most noteworthy, positioned factors were "(a) steady changes in project necessity, (b) building up numerous projects simultaneously, and (c) absence of correspondence among different divisions". In addition, these three components got the most change proposals.

#### *1) Time Management*

The issue of time management began being effectively researched in the twentieth century. In any case, still, there is a lot of unloaded inquiries, just as issues requiring further investigation and clarification. Time is, likely, one of the most valuable assets that workers have. A ton of well-known writing, in light of the recounted proof, proposed that the

manner in which representatives deal with their time may impact their activity execution, and, subsequently, their business and life (Barkley & Murphy, 2020; Coleman & Karraker, 2018). It is essential to apportion time and fulfil time constraints, particularly with regards to the activity. As per Douglas, Bore and Munro (2016), lighting up these worker's obligations may prompt removal, dropout, just as significant levels of physical and mental pressure. Little wonder then that representatives think that it's hard to assign their time among every one of their needs and commitments, which prompts a minute ago readiness, the sentiment of being unsatisfied with the consequences of their occupations and being focused on (Koch and Kleinmann, 2019). These time pressures make representatives feeling focused, however at times even discouraged. Ganguly, Kulkarni and Gupta (2017) recommended that time management could be one of the procedures that may assist representatives with coping with pressure and stress-related results.

The execution of any construction project (be it open or private) relies upon the procedure for progress received by the association in charge of its usage and execution (Coleman & Karraker, 2018). The procedures for accomplishment in any construction project are actualized in the management of the Project Time, Cost, Quality and Material management utilizing project life cycle idea. By and large, both open and private construction projects are not really finished on time, inside cost, quality, and material determinations (De Haan, Prinzie & Mothers, 2018). New construction projects and recently restored or kept up framework become dilapidated and destroyed inside a couple of long periods of appointing regardless of the capital duties on them (Janeslatt, Holmqvist, White & Holmefur, 2018). Breakdown of structure offices amid construction in Libya can best be depicted as a comprehensive budgetary lost like a reasonable financial specialist significantly burrowing a gap and covering his life reserve funds and denying elective venture openings. Construction projects disappointment surrender and breakdown portion does not energize development and venture and that calls for project management arrangement (White, Riley & Flom, 2019).

At the planned dimension, the achievement of certain individuals relies upon the timely receipt of expectations from others. In this manner, group achievement relies upon the capacity to facilitate endeavors. This method of work resembles a group of hand-off sprinters, every one of whom tries yet should likewise execute cautiously planned hand-offs to the following part all the while (Adams & Jex, 2017). This dimension of cooperation includes overseeing movement conditions (Koch & Kleinmann, 2019). Composed procedures are normally ordinal and portrayed by hand-offs and dynamic combination; in this manner, this dimension is increasingly organized as far as procedure request, explicit achievements, and hand-offs than the aggregate dimension. The requirement for intuitive correspondence additionally increments inside the aggregate dimension, with the end goal that colleagues can screen advance toward hand-offs (Claessens, 2020). PM at this

dimension requires coordination among project people, and apparatuses should bolster bunch calendaring, task reliance investigation, timely change notice, simple access to project data, and routine following of project process, notwithstanding all gathered joint effort capacities (Jex & Elacqua, 2016).

## 2) *Quality Management*

Quality in projects is for the most part consigned to a 'lip service' and to a few reports with 'ticking boxes' (Basu, 2014). Project directors likewise value the danger of a project due to its uniqueness, unpredictability and conscious plan subtleties yet show up not to organize the connection between the results of dangers with the main drivers supported by the elements of project quality. As an outcome, projects which were conveyed on time and inside spending plan yet neglected to meet the desires for end clients in the more drawn out run (Ping et al., 2019). The great view of quality is the situation of an item property on a decent awful scale - for example, the quality of a given surface insurance. Be that as it may, quality is additionally whether a property exists or not - for example regardless of whether there is any surface security whatsoever. Likewise, quality is additionally the presence - or not - of item works. The idea of quality and quality parameters rely upon the item to which quality relates (Jelodar, Yiu and Wilkinson, 2016). Everything has a quality, so it is not amazing that quality management can sometimes be widely inclusive and better than every single other type of management. In this paper, quality management will be treated as one of the management capacities in the whole project management.

Quality management is urgent to any fruitful project, and it is the project director's business to ensure that quality is inalienable of his or her essential administration (Al-Otaibi, 2019). Quality management is guaranteeing that the project will fulfil the targets for which it will be embraced. Project management is accepted to be legitimized as a method for maintaining a strategic distance from the ills inborn in the construction and creation parts of the economy and for which reasons most projects come up short or potentially deserted. The project chiefs' job emerges from the requirement for a specialized master to assume responsibility and control occasions on the project execution process for example somebody who comprehends the complexities of planning, controlling, sorting out and coordinating the endeavours and exercises of the expert group. The achievement of any project usage process in the construction industry in the general population and private areas depend to a great extent on the project supervisor's idea of staff arrangements and control, exacting checking of time, cost, material, quality and ecological requirements. The execution of any street construction project relies upon the technique for progress received by the association in charge of its usage and execution. The systems for accomplishment in any street construction project are executed in the management of the Project Time, Cost, and Quality and Material management (PMBOK, 2013). Empirical analysis table will highlight the major literature used.

TABLE 1. Empirical Analysis

<b>Project Management</b>	
(Kozak, 2013).	<ul style="list-style-type: none"> <li>Project Management traditionally used the concept of centralized information, to prevent change by extensively planning and documenting as much as possible before the system is developed and rely more on sequential processes.</li> </ul>
(PMI, 2013).	<ul style="list-style-type: none"> <li>PM methodology is the PMP (Project Management Professional), based on the Guide to the Project Manager’s Body of Knowledge (PMBOK Guide)</li> <li>The purpose of the guide is to offer a standard for project managers to handle projects.</li> <li>PMP embodies a project lifecycle and five project management process groups, namely Initiation, Planning, Execution, Monitoring and Controlling and Closing.</li> </ul>
(Al Freidi, 2014).	<ul style="list-style-type: none"> <li>Project management success changes from project to project depending on participants, scope of services, project size, owner design of facilities, technology implications and a variety of other factors.</li> </ul>
(Michael, 2014).	<ul style="list-style-type: none"> <li>The characterization of ‘time dependent’ is based on the fact that success varies with time as time, cost and quality factors of success will have different impact throughout the planning, construction, implementation and handover phases of a project.</li> </ul>
(Salleh, 2015)	<ul style="list-style-type: none"> <li>The critical success factors identified are human-related factors, with lack of communication tops the most important causes of delay.</li> </ul>
(Rahman, et al, 2014)	<ul style="list-style-type: none"> <li>Serious problem facing project management is people are used to manage resources and deliverables, but not project work nor project process.</li> </ul>
Michael (2014)	<ul style="list-style-type: none"> <li>There are ranking the factors that influences the construction project management success in Libyan perspective.</li> </ul>
Alfredi (2014), Alkef (2012), Rahman (2014) and Salleh (2015)	<ul style="list-style-type: none"> <li>The main reason of project failure is related to human factor, with the biggest contributor is the Project Manager.</li> </ul>
<b>Cooperative Project Management</b>	
(David and Cleland, 2016).	<ul style="list-style-type: none"> <li>The objective of project management is to look for the solidarity of more undertakings, quick procedure, minimal effort, and top-notch Time, cost, quality, and association are fundamental components for guaranteeing the effective execution of a project.</li> <li>Customary handcraft management strategies have not fulfilled these prerequisites.</li> <li>Project management framework-based PC and network strategies is a viable path for overseeing huge measure of projects. Cooperative work is a significant issue in project management.</li> </ul>
Chen and Xin (2019)	<ul style="list-style-type: none"> <li>three significant elements of cooperative work in project management which incorporate mindfulness, verbalization, and dissemination.</li> <li>Other than these three measurements, considering there are another three perspectives.</li> </ul>
<b>Time Management</b>	
(Barkley & Murphy, 2020; Coleman & Karraker, 2018).	<ul style="list-style-type: none"> <li>Time is, likely, one of the most valuable assets that workers have. In light of the recounted proof, proposed that the manner in which representatives deal with their time may impact their activity execution, and, subsequently, their business and life It is essential to apportion time and fulfil time constraints, particularly with regards to the activity.</li> </ul>
Douglas, Bore and Munro (2016),	<ul style="list-style-type: none"> <li>worker’s obligations may prompt removal, dropout, just as significant levels of physical and mental pressure.</li> </ul>
(Koch and Kleinmann, 2019).	<ul style="list-style-type: none"> <li>Little wonder then that representatives think that it’s hard to assign their time among every one of their needs and commitments, which prompts a minute ago readiness, the sentiment of being unsatisfied with the consequences of their occupations.</li> </ul>
Ganguly, Kulkarni and Gupta (2017)	<ul style="list-style-type: none"> <li>Time management could be one of the procedures that may assist representatives with coping with pressure and stress-related results.</li> </ul>
<b>Quality Management</b>	
Basu, 2014).	<ul style="list-style-type: none"> <li>Quality in projects is for the most part consigned to a 'lip service' and to a few reports with 'ticking boxes'.</li> <li>Project directors likewise value the danger of a project due to its uniqueness, unpredictability and conscious plan subtleties yet show up not to organize the connection between the results of dangers with the main drivers supported by the elements of project quality.</li> </ul>
(Ping et al., 2019).	<ul style="list-style-type: none"> <li>As an outcome, projects which were conveyed on time and inside spending plan yet neglected to meet the desires for end clients in the more drawn out run.</li> </ul>
(Jelodar, Yiu and Wilkinson, 2016).	<ul style="list-style-type: none"> <li>The great view of quality is the situation of an item property on a decent awful scale - for example, the quality of a given surface insurance.</li> <li>Be that as it may, quality is additionally whether a property exists or not - for example regardless of whether there is any surface security whatsoever.</li> <li>Likewise, quality is additionally the presence - or not - of item works. The idea of quality and quality parameters rely upon the item to which quality relates.</li> <li>Everything has a quality, so it is not amazing that quality management can sometimes be widely inclusive and better than every single other type of management.</li> <li>Quality management will be treated as one of the management capacities in the whole project management.</li> </ul>

### III. RESEARCH METHODOLOGY

This literature review paper explored the scientific literature provided by the major publishers regarding project management including books, journals, conferences, as well as previous relevant studies handling the factors Influencing the Cooperative Project Management in Oil Technology

Companies. The next section will highlight the major concerns.

### IV. DISCUSSION

Collaboration occurs when all members of the team share a common purpose, when there is mutual trust, and when everyone uses agreed upon approaches for the work (Rowe

2009). Collaborative Project Management (CPM) relates to collaborating features within the contract of delivering project requirement, where persons work jointly with others, having participation in a collective work, creating a virtual team, by virtue of using different work places, normally distant from each other and therefore using different work times. The notable modern collaborative project will be the construction of Hoover Dam (1931 to 1936), and Manhattan Project (1942-1945) in the US. However, traditional project management of centralised, top down approach will be used for the management of the project. Most research on collaborative project management in the last ten years is on theoretical ground, but not tested.

Project management is not just a set of tools, but it is a result-oriented management approach, which facilitates to form a foundation of collaborative relationships among a various sort of characters. Main requirement of CPM is relied on the ability of the engaging partners in collaborative works to synchronise their works to ensure deliverables are executed within the planned milestone. Collaboration is a recursive process where people or organizations work together in an inter-section of common goals by sharing knowledge, learning, and building consensus (Dietrich, et al., 2011). Retaining knowledge and capability to apply retained knowledge are the most common success factor in collaborative arrangement. Project Collaboration Network sharing project-specific documents, communications, and workflow and serves as a repository for documents or as an online document management system for a project team. Collaborative project team is based on mutual benefit. A typical approach to reducing risk and uncertainty in complex environment is through the creation of collaborative ventures that share some of the risks while benefiting from the pooled expertise (Dietrich, et al., 2011).

Failure in communication between the contractors and foreign workers caused to the failure of the works in the construction site. Which might lower the productivity and quality of the works (Marhani, et al., 2012). Problems with communication can lead to serious misunderstandings and therefore, delays in the execution of the project. Communication plays a major role in building trust and creating a sense of unity in distributed project teams (Stawnicza, 2014). It is verified by the Partnership Model that exchanges and communications have notably positive effects on increasing trusts on promoting cooperation between cooperating companies who are confronting crisis (Liu & Wang, 2011). A typical approach to reducing risk and uncertainty in complex environment is through the creation of collaborative ventures that share some of the risks while benefiting from the pooled expertise (Dietrich, et al., 2012). Collaborative project team must consume the fact that each team member contributes differently, in the input, the socio-emotional process, the task process and outputs, to the success of the project (Silva, 2011). Cultural heterogeneity had a significant influence on the process and could lead to the conflicts emergence with a negative impact on the teams' results (Popescu, Sucio & Roul, 2014). Different educational upbringing, terminologies and adversarial contractual

agreement further provides barriers to collaboration (Enebuma & Ali, 2012).

PMI have delivered its own standard, the Project Management Body of Knowledge (PMBOK), which is the most normally utilized standard all through the world (Hällgren et al., 2012). Also, another association that has created its own gauges is the Construction Management Association of America (CMAA), which will be shaped in 1982. CMAA distributed their own Body of Knowledge which endeavors to characterize the principles and practices of the construction management calling (CMAA Foundation, 2014). Organizations are not legitimately committed to pursue any of these principles, anyway they are being utilized by numerous associations as a base prerequisite for offering and enlisting. Hence, the PMBoK is frequently utilized as best practice and affecting training, practice, and research (Hällgren et al., 2012). Be that as it may, Hällgren et al. (2012) questions the utilization of one explicit institutionalized model that has been worked for all project chiefs inside different businesses. Where they reason that a conventional standard concentrating on the project chief job can never be intensive where just the most effortless things to manage can be incorporated and the more difficult errands are managed in theoretical ways. PMI do anyway work with a consistent improvement of their norms to make them progressively extensive. Universal Organization for Standardization distributed ISO 21500 out of 2012 and it is distributed as a standard for project administrators globally (PMI, 2012).

The findings show that there is a positive and statistically significant relationship exists between time management and cooperative project management among the employees working at construction companies in Libya. Total five items were identified through factor analysis to measure time management factors. Among these items, the item TM5 (In this organization, all time management practices are considered) has achieved the highest factor loading that measured time management dimension in this study. This means that proper time management is considered as one of the most important aspects of cooperative project management for the employees working at construction companies in Libya. Thus, people involved in the top management should ensure that employees are dealing with the time required to finish common or explicit exercises and properly do the planning time and making arrangements for isolated exercises for the duration of the day which might affect positively on the employees' cooperative project management. Consequently, management should assure support to all employees and provide the needed direction to improve work quality with an aim to avoid negative circumstances.

There is also a positive and statistical significant relationship between quality of work and cooperative project management among the employees working at construction companies in Libya. A total of six items were identified through factor analysis to measure physical factors. Among these items, the item QW2 (This organization has implemented quality control process) has achieved the highest factor loading that measured quality of work dimension in this study. This proof that though the overall quality of work

structure in Libya is quite good, and, the employees are satisfied with their current quality of work provided to them. As noted by Al-Otaibi (2019), quality management is guaranteeing that the project will fulfil the targets for which it will be embraced. The achievement of any project usage process in the construction industry in both the general population and private sectors depend significantly on the knowledge and initiative of the project supervisor in controlling and coordinating staff, monitoring and sticking to deadlines, meticulously controlling budgeted costs, selecting and not compromising material quality, insuring quality outcomes and being sensitive to ecological requirements. It relates to the improvement and comfort of staffs that helps in improving motivation and morale of the staffs. In that sense, the companies in Libya can maintain their staffs by providing adequate quality work environment and facilities.

## V. CONCLUSION

The discoveries of the current research have suggestions for both policy and practice. Researching time management by looking into empirical writing may prompt better comprehension of the idea of time management. By breaking down the empirical research, it is conceivable to draw the consideration of teachers and policy creators to the significance of time management for construction workers and furnish them with an outline of the primary systems to create time management in an industry setting. In this manner, there is a need to draw the consideration of instructors and policy creators to the way that possibly it is not just representatives' obligation to manage time management, particularly with regards to new workers. Accordingly, more research is expected to decide the job of time management just as the quality of work in the foundation of cooperative project management. It could be estimated that persistent appraisal could be one of the devices of the impact that the construction industry could utilize. Nonetheless, more research is important to investigate these issues. Also, more research is important to evaluate some outside components that may impact time management, quality of work and cooperative project management. Systems decreasing pressure ought to be researched more. Most of the research considers focused on arranging, albeit little consideration was paid to breathing life into plans. So, the estimation instruments that will evaluate the arranged and really finished work ought to be created.

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