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## **A Conceptual Framework on The Successful Adoption of Project Management Methodologies in Ghana**

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**Abstract.** The successful completion of every project whether undertaken by a public or private organization is of primary concern to many institutions. However, literature has confirmed that most project success depends on adhering to good practices and are keenly documented in Project Management Methodologies (PMMs). It is a fact that many projects do not see successful completion as most of them are long overdue faced with budget overruns and even some are abandoned. The purpose of this study is to explore the factors that influence the Adoption of Project Management Methodology in Ghana. This is motivated by the dearth of academic literature concerning the successful adoption of Project Management Methodologies in Ghana. The study will also examine if the Adoption of Project Management Methodologies leads to project success. To achieve these aims, a conceptual framework was developed grounded on the Critical Success Factors (CSFs), the Capability Maturity Model (CMM) theory and the Stakeholder theory. Four independent variables, a mediator and a moderator were hypothesized for the establishment of the success factors affecting Project Management Methodologies adoption and if the Project Management Methodology adoption leads to project success.

**Keywords.** Project Management, Project Management Methodologies, Project Success, Critical Success Factors, Capability Maturity Model, Culture, Ghana

### **1. Introduction**

This study aims to contribute to project management knowledge. To assess which of the project management methodologies is very conducive for the Ghanaian conditions and to look at the factors that are more likely to lead to project success in the Ghanaian context, a conceptual model was developed.

Ofori (2013) asserted that project management is “a discipline of planning, organizing and managing resources to bring about the successful completion of specific project goals and objectives”. Also, Banica et al. (2017) defined project management as “the application of processes, methods, knowledge, skills, and experience to achieve the project objectives which could be defined in terms of outputs, outcomes or benefits” From these definitions, we can conclude that project management is an essential discipline for today’s corporate world in order to achieve successful sustainable goals.

This study is motivated by the fact that there is a continuous increase in the number of developmental projects that are being undertaken in Ghana either by the public or private sectors of the economy. Thus, getting appropriate project management methodologies that will aid in the successful completion is highly needed. Turner (2014) asserted that “understanding

the uniqueness and sometimes highly complex processes that constitute a project implies the adoption of specific management techniques”.

The Project Management Methodology (PMM) is very critical to the success of every project, as it is the unifying force of the project team, and researchers have shown that there is a positive relationship between Project Management Methodology and Project success (Barghoth et al., 2020). It is also stated by *PMBOK GUIDE. SIXTH EDIT (2017)* that planning concepts, management intuitions, and communication strategies are needed for successful projects, which are clearly spelled out only in the methodologies. The Project Management Body of Knowledge (PMBOK), CMMI for Development (CMMI-DEV), and other project management models and practices are established to assist organizations with models that offer a variety of solutions and innovative skills for achieving organizational goals (Barghoth et al., 2020).

There are varieties of PMMs being practiced all over the world of which Ghana is not an exception. These include PRINCE2 and the PMBOK among others. Thus, this research focused on both the PRINCE2 and the PMBOK because they are the commonly used ones in Ghana. PRINCE2 uses “a process style to project management, fitting each process into a Methodology of essential components that need to be applied throughout the project”. The PRINCE2 methodology “shows the quality analyses to project documented and its output-driven product-based planning and a change control process” (Pawar & Mahajan, 2017) while PMBOK “is a set of methods /procedures accepted largely as the highest practice within the project management discipline and is an internationally recognized standard which provides the fundamentals of project management” (Jamali & Oveisi, 2016).

Empirical results show that there is still a lot of work to be done in terms of project management in Ghana judging from the rate of project failure and the challenges that come with project management in Ghana, nonetheless, more scholars are entering this field of study now and there is the hope of achieving a successful Ghanaian project delivery (Hammond, 2018; Oppong, 2019). Ghanaian projects are not seeing day light based on numerous factors even though Ghana has project managers and has numerous organizations that have adopted the project management methodologies. Secondary data has revealed that no real funding or budget line is being allocated for development projects within Government organizations. Botchway, Boateng, and Author (2019) concluded in their paper that “Government of Ghana (GoG) may have to rethink its decisions on some projects in the short term” and also suggested that GoG should embark on extensive infrastructure improvement and training of project personnel in all local government organizations in order to achieve project success” Danku and Antwi (2020) in a Value Engineering (VE) study conducted with the aim of “examining the benefits associated with the use of value engineering on Road Projects in Ghana”, came out that professionals are familiar with the process but solely use Cost Control project management technique” and noted that “professionals are recognizing the benefits of applying professionally ethical Contract Compliance, efficient Construction Delivery, and functionally viable Project Sustainability on projects”.

Rhebergen *et al.* (2020) assessed “the potential for increasing yield with 'Best Management Practices (BMP)' on plantations and smallholder farms in southern Ghana”. They came out with the fact that “BMP were successfully applied, and this led to improved oil palm yields in Ghana”. In his research, Hammond (2018) noted that Ghanaian projects even though are completed as planned, most projects fail because the clients who are the determinants of project success do not get the actual benefits that are supposed to be derived from the project. He also mentioned that some projects get cancelled while others are not completed on time. It was established in their research that meeting the projected timescale, lack of stakeholder involvement, improper planning, incomplete requirements are some of the reasons for project

failure in Ghana (Damoah et al., 2017; Hammond, 2018). All these augments go to buttress the point that Ghana has a lot to do when it comes to issues of managing projects and achieving project success. Hence, the need to determine the levels of adoption of Project Management Methodology in Ghana. Also, the need to investigate the factors affecting Project Management Methodologies adoption in Ghana and to evaluate the impact of Project Management Methodologies on project success in Ghana.

This study thus posed the following questions:

1. What are the factors affecting Project Management Methodologies adoption in Ghana?
2. What impact does Project Management Methodologies have on project success in Ghana?

This study is necessary as there is a lack of literature to theoretically evaluate the factors affecting Project Management Methodologies and its effects on project success in Ghana. Extant literature has focused attention on the evaluation of the Project Management Methodologies one at a time. However, in this study, two of the widely used Project Management Methodology (PRINCE2 and PMBOK) are combined and the factors affecting their adoption evaluated. Also, the impact of these two Project Management Methodologies is evaluated on the success of projects.

The rest of the paper is as follows. The next section introduces readers to the literature review comprising of the underpinning theories, and the development of the conceptual framework. This is followed by the methodology section. Then the conclusion follows with recommendations and limitations.

## **2. Literature Review**

### **2.1 Underpinning Theories**

The underpinning theories for this research are the Critical Success Factors (CSFs) theory, Capability Maturity Model (CMM), and the Stakeholder theory. These theories were used because the research is about the successful adoption of project management methodologies.

It has been proven from the literature that when it comes to measuring the success of an activity, or an organization, CSFs are the best theory to go for (Owusu, Chan, DeGraft, Ameyaw, & Robert, 2019; Osei-Kyei & Chan, 2015). Secondly, most writers in the field of project management use CSFs when writing about project success. This model has been tested and proven in the area of management studies that it is very important to consider CSFs that will help an activity or organization to grow and also achieve effective and sustainable goals (Yalegama et al., 2016).

Iqbal, Muzafar, & Nasir (2018), Ofori & Deffor (2013), Hu and Gao (2019), Monteiro and Maciel (2020), and many more authors asserted that Capability Maturity Model is widely used when adopting a particular project. The CMM shows the particular activity that is necessary at a certain stage of an activity. Organizations must be extra careful when adopting a particular methodology to be used for a lifetime (Kostalova & Tetreva, 2018; Nishant, Srivastava, & Bahli, 2020; Shaikh et al., 2019). It is on this note that the researcher decided to use the CMM as the second theory for the research to ensure that the adoption process is carefully and smoothly carried out.

Stakeholder Theory is an organizational management and business ethics tool that accounts for people's involvement and their impacts on the organization with "employees, suppliers, local communities, creditors, financiers, trade unions and many more" (Tom, 2018). The Stakeholder theory integrates both resource-based and market-based views, and then add socio-political views of management practices. That is, management does not only concentrate on shareholders but a wider audience which is known as stakeholders. The Stakeholder theory

identifies stakeholders and examines the conditions under which management treats them (Parmar et al., 2010). It is suggested that stakeholder's concern should be the topmost priority of management (Cheshmberah, 2020). A lot of scholars have used the stakeholder theory approach to address the stakeholder's concern in an organization, and especially in matters of adopting a new methodology of an organization. It is important to note that the success of every organization will depends largely on the stakeholder's understanding and acceptance. For these reasons, the researcher used this theory to test the reaction of stakeholders to an organization's adoption of a new methodology. Finally, many writers in the field of project management have used this theory in many works (Uribe, Ortiz-Marcos & Uruburu, 2018; Cheshmberah, 2020; Aaltonen & Kujala, 2016; Kolman, 2020). Therefore, this study is justified by using these three theories (CSFs, CMM, and the Stakeholder theory) considering that the study is at the organizational level.

Many studies have used various factors resulting from these theories to study project management success. These factors include project integration, scope, time, cost, quality, human resource, communication, risk, procurement, understandability, organizational changes, perceived benefits, lack of standardization, external support, complexity, compatibility, top management support, acceptability, adaptability, organizational maturity, ease of use among others (Osei-Kyei & Chan, 2015).

## 2.2. Development of Conceptual Framework/Hypotheses

Based on the underpinning theories described above and extant academic literature on Project Management and project success, four factors are derived which are used to develop the conceptual Methodology. The identified four factors are: Acceptability, Stakeholder Involvement, Top Management Support, and Organizational Maturity.

The conceptual framework comprises of the independent variables (IVs), Mediation variable, Moderation Variable, and a dependent variable (DV).

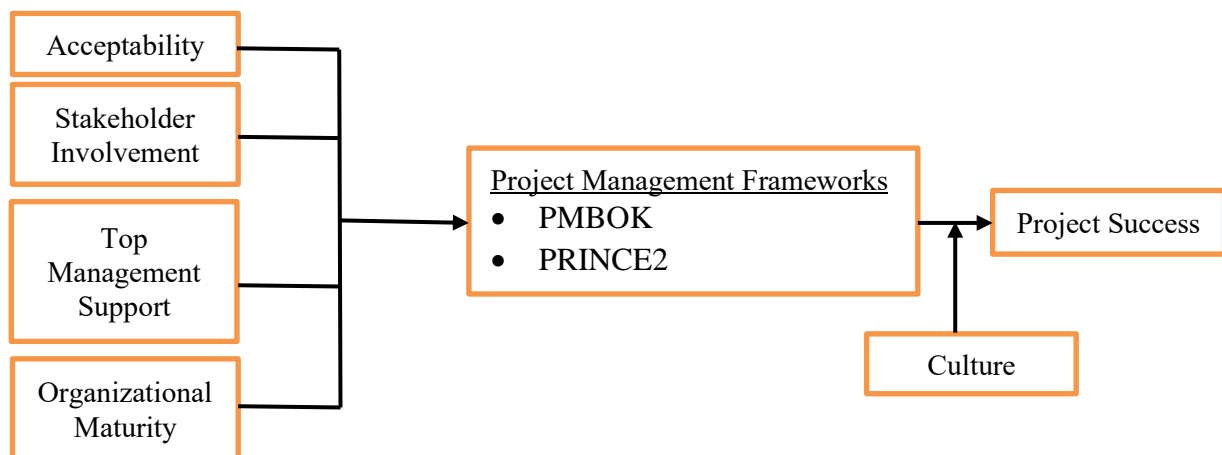


Figure 1: Conceptual Framework for Project Management Methodologies Adoption

### 2.2.1 Acceptability

The concept of acceptability was developed by Imre Lakatos (a Hungarian mathematician) who said it was a “measure for the approximation of truth, premise for negotiation and compromise until an agreement is reached” (Gabbay et al., 2010). This concept has been very useful in the field of project management as issues of acceptance is one of the prioritized topics. The PMBOK Guide has set up Project Acceptance criteria that contain performance

requirements that show specific circumstances under which clients would accept project outputs. This criterion is defined as “a formal statement of needs, rules, tests, requirements and standards that must be used in reviewing project outcomes and coming to an agreement with the customer on the point where the project has produced deliverables that meet the initial expectations of the customer” (*PMBOK GUIDE*, 2017). Managing this criterion introduces us to the deliverables acceptance management which is explained as the “project manager taking care of the project’s feasibility and making sure it is done in line with the Business Case and customer expectations”, a clear acceptance criterion will also aid in the avoidance of miscommunication and political plotting.

Surjaningrum, Minas, Jorm, and Kakuma (2018); Ana (2012); Hachimi and Salahddine (2019) noted that it is important to “analyze the real perception and the main reasons of people’s willingness to adapt and accept a new product” This analysis can be made from the test of acceptability which will help organizations decide on considering the strategic option for stakeholder support (Schade & Bernchard, 2000). In support of the above, it will be vital to recognize that the acceptability of a product by stakeholders depends on management actions which are not only directed by their thoughts, but also by their perception and for these reasons, management needs to have stakeholder consultations and take drastic management actions to correct a negative stakeholder perception in order to be accepted (Straka, Miller, & Jacobs, 2020; Kapumba et al., 2020). Finally, Selmoune, Cheng, Wang, and Liu, (2020) in their paper, where they reviewed eight cases where congestion pricing schemes were implemented concluded that to have Public and Political Acceptance, it was important to use project champions whose activity was to organize, direct and plan projects to guarantee their acceptability by inspiring others to gain their ultimate acceptance of projects. They also noted that organizations do not underestimate the power of political champions when it comes to issues of acceptability and making policies (Acheampong & Mpyaid, 2016).

It is worth noting that most scholars have used acceptability in the project management domain to test the rate of client’s readiness and preparedness to use a particular product or service (Schade & Bernchard, 2000; Surjaningrum *et al.*, 2018; Hachimi & Salahddine, 2019; Straka, Miller & Jacobs, 2020).

Based on these discussions, it is hypothesized that:

H1a: There is a significant relationship between Acceptability and Project Management Methodology adoption in terms of using PRINCE2

H1b: There is a significant relationship between Acceptability and Project Management Methodology adoption in terms of using PMBOK

### 2.2.2 Stakeholder Involvement

This concept addresses the “principle of who or what counts”. Instead of concentrating on shareholders, the Stakeholder theory maintains that there are other parties whose activities affect the organization directly or indirectly and in diverse ways. Some of which are the consumer, competitors, trade associations, community members, political groups, etc. it is worth noting that the theory has a lot of definitions in academic literature and the nature of what makes up a stakeholder is being challenged (Kolman, 2020).

Mok, Shen, and Yang (2015) and Kolman (2020) talks about the culture of stakeholders which affects project management in diverse ways, therefore, it is important to develop the knowledge of stakeholders through effective communication and partnership. Kapumba et al. (2020) after examining stakeholder perceptions about acceptability in Malawi, came out with a conclusion that management should put in place measures to access stakeholder experiences, perceptions,

and expectations. Researchers say that “sustainability-related knowledge, skills, and suitable tools are necessary to face the challenges of project managers face in adopting a PMM which is closely related to what the stakeholder theory presents (Uribe et al., 2018).

Also, Davis (2017) in his paper concluded that stakeholder involvement could be a factor for project success and that organizations should look at multiple stakeholder groups as they use projects to manage customized or unique events. This is so because Project management is seen as an important effective tool and process that is used to efficiently manage organizational resources and events which is also related to timelines. Then, Masud (2019) noted that in recent years, “the project stakeholder management has gained importance due to various stakeholder pressures on organizations”, giving the growing concern that “projects should be done more sustainably, as well as minimize their environmental waste and contribute to the overall social and economic sustainability”. Furthermore, the “stakeholder theory is found to be a particularly useful perspective for addressing some of the important issues in business from an international perspective”, as it brings a chance to “reinterpret deferent concepts, models and phenomena across many different disciplines”(Harrison, Freeman, & de Abreu, 2015; Cheshmberah, 2020). Most writers have used the stakeholder theory in the field of project management because a project will not be a successful project if is not accepted by stakeholders for whatever reasons. This was noted in their research Beringer, Jonas, and Kock (2013) by stating that “stakeholder behaviour and stakeholder management are key success factors within project portfolio management”. Furthermore, Kolman (2020) confirmed that partnering with stakeholders and effective communication with stakeholders will lead to project success.

Based on the above discussions, it is therefore hypothesized that:

H2a: There is a significant relationship between stakeholder involvement and Project Management Methodology adoption in terms of using PRINCE2

H2b: There is a significant relationship between stakeholder involvement and Project Management Methodology adoption in terms of using PMBOK

### 2.2.3 Organizational Maturity

Organizational maturity is the extent to which organizations clearly document and constantly use procedures and practices which are standardized, measured, and constantly improved for its transactions and thereby achieving organizational sustainability and growth (Matt & Rauch, 2020). Organizations are entities with growing concern and expected to grow from one stage to the other until it reaches its maturity stage and then starts to decline. These stages come with a learning process and amendments are made to ensure continual improvement on every stage of the maturity level. This means that organizations may have different maturity needs and they make huge investments in improving their organizational performances, therefore, businesses should focus on their long-term objectives to ensure good services for their clients and also to guarantee that organizational maturity brings a positive effect on project success. Gomes and Romão (2014) continued to emphasize that “the combination of a maturity model and a project management approach can increase the effectiveness of projects and also improve confidence in the organization as return on investments meet stakeholder’s expectations”.

Cheshmberah and Beheshtikia (2020) talk about the deferent departments like the supply chain management that come in to help an organization achieves its stated objectives. To ensure this department work together in synergy, “matured organizational governance is needed to guide all those who are involved from defining intended values to achieving business outcomes”. This governance can help organizations to “determine their level of business maturity, and how they can evaluate their strengths and weaknesses” (Dokhtzeynal & Pakdaman, 2020).

Filip, Wojtkowiak, Cyplik, and Michal (2019) have mentioned five maturity levels that are described with numerous structures and continued to say that the “application of sustainable development within organizational maturity can mitigate reaching sustainable targets by improving its maturity. This point is confirmed by Gomes, Romão, Carvalho, and Caldeira (2014) when they noted that “organizational maturity has a positive effect on projects performance” and also emphasized that the “integration between a maturity model and a benefits management approach can increase the effectiveness of strategic projects and can also improve business confidence”.

Finally, Seelhofer and Graf (2018) asserted that “about two-thirds of all projects fail and around 12% of all investments are wasted due to poor project performance” meanwhile, “Organizational project management maturity has been described as the organization’s openness to project management which revolves around three core themes: acquiring knowledge, performing an assessment, and managing improvement”. But on the other hand, they continued to say “some authors question the link between higher maturity levels and organizational success while others lament that existing model are too complex for efficient assessments and address only tacit but not implicit project management knowledge”.

Based on the above discussions, it is therefore hypothesized that:

H3a: There is a significant relationship between Organizational Maturity and Project Management Methodology adoption in terms of using PRINCE2

H3b: There is a significant relationship between Organizational Maturity and Project Management Methodology adoption in terms of using PMBOK

#### 2.2.4 Top Management Support

Top management support is backing from a team of top managers in an organization and there is no clear definition on who and what consists the top management but they generally have a specific task to perform which includes ensuring the successful adoption of an organizational strategy, resource allocation and reviewing strategic plans and they are also made up of managers from various functional areas of the firm, so they usually have different areas of skill and diversity.

Young and Jordan (2008) confirmed that “Boards and top managers may have to personally accept that they have more influence on whether a project succeeds or fails”. However, Haslinda Hassan, Mohd, Khairudin, and Adon (2017) find out that IT resources and external pressure significantly influence the adoption of a new Project Management Methodology and that there is no sufficient indication to support top management support as significant factors for adoption in an organization. Also, in their research, Nguyen and Nguyen’s (2020) findings showed that various factors had significant impacts on the quality of accounting information systems and manager participation was part. Furthermore, Ključnikov, Mura, and Sklenár (2019) identified 4 main factors of success for management and this didn’t leave out top management support is one of the most important factors. Then, their study suggests that “top management knowledge value and knowledge-creating practices and open innovation influences organizational performance” (Singh et al., 2019). Finally, Young and Jordan (2008) in their research give evidence that top management support is the highest critical success factor for project success.

Ilyas, Hu, & Wiwattanakornwong (2020); Liu, Liu, and Yang (2020) asserted “Government support significantly strengthens the relationship between top management support and green supply chain management”. This means that Top management support, however, “plays an important role in shaping a firm’s strategies and decisions”. There is empirical evidence to

indicate that openness of technology adoption enhances service innovation and top management support facilitates the relationship between the openness of technology adoption and service innovation” (Hsu et al., 2019).

Contrary to the arguments made earlier, Yaokumah & Biney (2020) in their results show that “top management support is not as important as effective external information systems expertise. They argue that “while top management support is essential for IS effectiveness, high quality external IS expertise is even more critical for small businesses and noted that the role of top management support may not be so critical”. Meanwhile, most researchers in the project management field of study have attested that Top management support has a positive bearing on project success and is also a vital critical success factor for project success (Zwikael, 2008; Järveläinen, 2020; Nguyen & Nguyen, 2020; Owusu & Broni Jr, 2020).) and that “top managers may have to accept that they have more influence on whether a project succeeds or fails” (Young & Jordan, 2008; Owusu, Ghanbari-Baghestan & Kalantari, 2017; Owusu et al., 2017; Ključnikov, Mura & Sklenár, 2019).

Based on the above discussions, it is therefore hypothesized that:

H4a: There is a significant relationship between Top Management Support and Project Management Methodology adoption in terms of using PRINCE2

H4b: There is a significant relationship between Top Management Support and Project Management Methodology adoption in terms of using PMBOK

#### 2.2.5 Mediation Variable

Concerning the research model, Project Management Methodology adoption (PRINCE2 and PMBOK) acts as a mediation variable. However, theoretically, this was not hypothesized as the researcher’s focus is on exploring the factors that affect the successful adoption of Project Management Methodologies and also investigate if the adoption and use of Project Management Methodologies lead to project success. Thus, the mediation variable is not hypothesized.

#### 2.2.6 Moderation Variable – Culture

According to Driskill (2018), organizational culture can be described as a collection of theories uniting the norms, principles, social beliefs of organizational leaders. This implies that organizational culture affects the behavior of workers and hierarchical management mechanisms. Breakey et al. (2019) argue that a healthy culture, in which expectations and principles are established in the company are closely upheld, increases the efficiency of the enterprise as workers strive to meet shared objectives. Lee et al. (2017) also found out in this respect that the activities in human resources have significant implications for the organizational results in their attempts to encourage workers' participation. Culture is also known to promote innovation through the establishment of a creative organization and a conducive organizational atmosphere (Bakare, Owusu, & Abdurrahman, 2017; Owusu, 2017; Owusu, 2019). Doppelt (2017) and Gutierrez-Gutierrez et al. (2018) stated further that the development of creative corporate culture through instituting processes to promote the adoption of new concepts is critical for business development.

Based on the above discussions, it is therefore hypothesized that:

H5a: Culture moderates the relationship between Project Management Methodology in terms of PRINCE2 and Project Success

H5b: Culture moderates the relationship between Project Management Methodology in terms of PMBOK and Project Success

### 2.2.7 Project Success

A project is a sequence of unique, complex, and interconnected activities having one goal or purpose that must be completed by a specific set time, within a budget area and according to specification (Bálint Blaskovics, 2019). Meanwhile, Success could be defined as completing a project on time, and with a good quality outcome that will be acceptable to stakeholders. Generally, the success of every project depends on the project management practices as well as other determinants employed by managers in their organizations (Radujković & Sjekavica, 2017; Abdurrahman, Owusu, & Bakare, 2020). Harwardt (2020) “investigates the effects that Servant Leadership may have on the success of Information Technology (IT) projects” and it came out that employee’s perception of a leader on accountability, authenticity, and forgiveness has a positive impact on project management success. Control and trust also have positive effects on the success of megaprojects (Wang et al., 2019). Executive management activities also have a positive effect on project success (Zaman et al., 2020). It can be noted from the above discussion that a lot of factors contribute to project success and therefore it is necessary to carefully consider how to strategize your success factors in the process of adopting a methodology.

Based on the above discussions, it is therefore hypothesized that:

H6a: Project Management Methodology adoption in terms of PRINCE2 will have a positive impact on Project Success

H6b: Project Management Methodology adoption in terms of PMBOK will have a positive impact on Project Success

### 3. Methodology

This conceptual paper was written based on review of the underpinning theories and extant literature concerning project management methodologies and success of projects in diverse disciplines. As a conceptual paper, no empirical data was gathered except the review of literature which led to the development of the conceptual framework for the adoption of project management methodologies and its effect on project success.

### 4. Conclusion, recommendations and suggestions for future studies

In this study, a conceptual model grounded on the CSFs, CMM and the Stakeholder Theories has been developed. This integrated model would help the industry to determine the factors that affect the adoption of Project Management Methodologies in Ghana. It will also help to create awareness on the factors to consider in other to reduce project failures in Ghana, thereby increasing the rate of project success. the research has also outlined the best practices that should be adhered to by Project Management consultants and contractors.

This conceptual paper is yet to be tested with empirical data. The next stage is for the researcher to collect both qualitative and quantitative data to substantiate most of the hypotheses outlined above.

The practical contribution of this paper is to create awareness among project managers, contractors, organizations, and industry leaders as to what factors to consider when adopting a new project management methodology. Organizations can also make changes to the current methods and factors they are relying on, based on this paper’s recommendation in other to have successful project implementation.

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