

Original Research Article

Project Management Methodologies Effect on Project Success: A Comprehensive Review among Businesses in Ghana.

Abstract

Objective: The purpose of this study is to investigate on the project management methodologies effect on project success. Project Management Methodologies has been underlined as one of the key diagnosis among businesses with project success.

Methods:A comprehensive review was carried out with the aid of online research journal websites as well as other in-context articles. While conducting this study, the key words in the search query were directed towards project methodologies and project success in Ghana. Areas noted in relation to this study was use of project management methodologies among businesses. Therefore, there was linkage of papers pointing out the effects on project management methodologies on project success.

Results: The findings indicate that corporations have little to no say over project performance metrics and are unable to take on responsibilities outside of their core competencies. Managers' decision-making improves when they have access to reliable data. Having clear project goals in mind is crucial for making informed investment decisions.

Conclusion: This comprehensive review provides an in-depth understanding of project management methodologies on the effect on project success among businesses in Ghana.

Keywords: methodologies, project, success, Ghana, business

1. Introduction

An analytical framework was developed to identify the most effective methods of project management in Ghana and the factors that contribute to a project's success rate in that context. According to Darley and Blankson in 2020, project management is the "discipline of preparation, arranging, and handling assets to bring about the effective attainment of particular endeavors and objectives" (1).

Additionally, according to Banica et al. (2018), project management is "the application of procedures, techniques, understanding, abilities, and expertise to accomplish a goal, which could be characterized in terms of results, advantages, or profits." Based on these justifications, project management is obviously an important area for contemporary companies to achieve their long-term goals (2).

The growing number of development initiatives in Ghana that receive funding from both public and private sources is what inspired this study. Appropriate methods of project management must be sought after immediately since this is a mission-critical endeavor. "Understanding the peculiar as well as the extremely intricate steps that form an initiative requires the usage of particular leadership approaches" (3). Project management methodology (PMM) is crucial to the success of a project since it is the backbone of a project team. Indeed, PMM is positively associated with project results, according to research (4).

The PMBOK Guide supports this. In order to assist organizations in reaching their objectives, models and practices in project management are established. These include the Project Management Body of Knowledge (PMBOK), the Capability Maturity Model Integration (CMMI-DEV), and others (4). When it comes to the use of PMMs, Ghana is much like any other nation. The Project Management Body of Knowledge (PMBOK) is one set of guidelines. The PRINCE2 and PMBOK frameworks were the

main areas of focus in this research because of their prominence in Ghana. The methodology uses PRINCE2, which is defined as “an approach style for venture administration, aligning every procedure into a pattern of vital elements that need to be implemented during the project” (5). Documented projects, product-based planning, and a change control system illustrate the quality evaluations in the PRINCE2 method (6). The PMBOK "is a globally recognized norm that provides the basic principles of project management and is a set of techniques and steps acknowledged mainly as the pinnacle of performance across the project management discipline" (7).

According to studies, Ghana's project management techniques are far from optimal. There is hope for successful project delivery in Ghana since more and more scholars are focusing on the topic, despite the high rate of project failure and the challenges connected with project management (8). There are project managers in Ghana, and many businesses have employed project management techniques; however, many projects in Ghana never even begin. Government institutions do not seem to be committing any funding or budget lines to development efforts.

Botchway, Boateng, and Author (2019) said that the Government of Ghana (GoG) could need to reconsider its choices about some projects in the near future. To guarantee the success of these initiatives, they continued by suggesting that the government should put a lot of money into improving infrastructure and training government employees at all levels (9). Botchway et al. (2019) found that professionals are beginning to see the value of applying ethical contract compliance, efficient construction delivery, and functionally viable project sustainability to their work (9).

Danku and Antwi (2020) set out to study value engineering (VE) by "examining advantages resulting from the use of value engineering on road projects in Ghana." Additionally, experts are familiar with the approach, but they only use the cost control procedure for project management (10). Rhebergen et al. (2020) sought to ascertain "the possibilities for increasing yield with 'Best Management Practices (BMP)' on plantations and smallholder farms in southern Ghana" by conducting a literature study. Based on the findings, "BMP was successfully applied, and this led to improved oil palm yields in Ghana" (11).

According to Hammond (2018), even if the majority of Ghanaian enterprises succeed, the clients who ought to benefit from them do not get them. Most undertakings fail because of this. Some projects never get off the ground, he said, while others are always running behind schedule. Inadequate planning, unmet requirements, failing to meet the expected timetable, and a lack of stakeholder involvement were identified as factors contributing to project failure in Ghana (12). With all these new features, it's clear that Ghana is far from perfect when it comes to project management and finishing projects on time.

2. Project Methodologies

In the last forty years, there has been a change in focus from specific techniques to paradigms that combine several approaches (13). However, there is considerable ambiguity in the use of the words method and methodology due to the shift to methods. For instance, according to TSO (2009), Prince 2 is "an approach that promotes certain facets of project management" (14). Practitioners frequently use PMI's body of knowledge as a project methodology, but researchers indicate that it is actually a collection of insights. Systems have been classified into process, knowledge, practice, and baseline models (15).

An approach is "a structured process, skills, or style of investigation adopted by or proper to a particular discipline," according to Merriam-Webster (2013). A methodology is a collection of approaches, each of which is used in a specific context. In this way, we may say that a methodology is just the collection of procedures and our collective knowledge of them. One must be familiar with the components of a methodology in order to grasp the significance of the link between methodology and achievement. Processes, tools, techniques, methods, capability profiles, and knowledge fields are some of the "methodology elements" listed by the writers as constituting a methodology's foundation. Throughout a project's life cycle, these approach parts may be used as required (16).

Few studies have examined project approaches and those that have found conflicting findings. As an example, there is some disagreement in the research over whether project approaches improve the perceived appropriateness of project management or directly contribute to objectives (17). Lehtonen & Martinsuo (2006) also found mixed results. Another example would be when people have healthy expectations of project techniques and have negative attitudes about them (13). Other, frequently less efficient procedures take their place when these approaches fail to produce the desired results (18).

A third illustration is a pessimistic outlook on methodologies due to their apparent inadequacy in certain contexts, such as intricate project environments. On the other hand, tailored methodologies often prove to be unmaintainable complicated, leading organizations to abandon their previously established control structures in favor of anarchic autonomy (13). "The multiplicity of the possible advantages that executives, practitioners, and consultants associate with implementing project management methodologies, but they make no effort to quantify these values where empirical

evidence exists, is intriguing, dispersed, and insufficient" (19). Maybe this issue stems from a more fundamental flaw in the approach itself. Curiously, Busby and Hughes (2004) propose that techniques, particularly in the systems and instruments used to measure project performance, are being infected with diseases. That is to say, regardless of setup, if a methodology's tools and processes are contaminated, the methodology will fail miserably in its goal of facilitating successful projects (20).

Additionally, they are examined in relation to project management practices and their effects on success (21). Seeing techniques from above or looking at them piecemeal may not give you the whole picture of how they contribute to successful project completion. Examining the project success variables outlined in the methodology components could provide some direction. The description distinguishes a success component from a technique aspect. A success factor qualifies the underlying technique element by the use of an adjective that describes its syntactic purpose. Project scheduling, for instance, is both a component of technique and a success factor, depending on how well it is executed. To get a complete view of how methodology components affect project success characteristics, it is necessary to look at each component independently and assess its influence on the project as a whole. When taken as a whole, certain aspects of methodology may affect project success criteria more than others.

3. Project Management Methodologies

With different methods for overseeing work, forty years ago, government institutions set up the first formal PMMs to control expenditures, strategy, and quality (22). Some of the most common areas of focus in PMM research include the relative merits of standard and customized PMMs, as well as the comprehensiveness of PMMs. The

literature is highly divided on the subject of whether strategy is more likely to provide a good outcome: standardization or approach customization, the latter of which entails considering the unique aspects of the project's environment.

1. Steadiness

A PMM and its procedures are referred to as organizational processes because of the degree of consistency they possess (23). "Owners" of project management systems often follow corporate control and standardization courses because they see projects as means to accomplish business goals (22). Within their own businesses, PMOs often aim for PMM and standardized project management (24).

2. Adjustment

Before Shenhar and Dvir (1996) showed that projects show a lot of variation, the literature usually assumed that all projects were basically the same. This led them to be the first to call for customization (25). The adage "one size fits all" does not apply to project management, says Wysocki (2011), who is echoing the sentiments of Shenhar et al. Consistent with what Payne and Turner (1999) found, project managers can typically claim better results when they can adapt their methods to the specifics of the project, its size, and the resources they have at their disposal (26, 27).

3. A combination of personalization and regularization

According to Aubry et al. (2010), agile project management techniques show that more seasoned PMOs are changing their procedures and methodologies to be more agile (28). Companies of varying sizes have different PMM requirements (29).

Though researchers in the field of project management have reached varied conclusions on the benefits of standardized vs. highly customized PMMs, they can all agree that context plays a significant role in determining a project's success. This article explores the topic of how context affects a PMM's effectiveness. The

effectiveness of the project will be affected by the organization's project management methodology (PMM), which may be either standardized, customized, or a combination of the two. The project's efficiency will suffer if the PMM is missing or insufficient (30).

Research on PM practices by White and Fortune (2002) found that few people really used PM methodology, tools, and approaches, and of those that did, more than half of them had bad things to say about how they were put into effect (18). Fortune et al. (2011) found that, whereas 25% of respondents had issues with internal PMMs, over 50% had difficulties with external PMMs (31). Because each PMM is a unique collection of practices that could vary from company to company, it is not enough to look at the PMM in its entirety to address these issues (32).

All involved stakeholders should be aware of the PMM's components and their contributions to a project's success. Many international standards were reviewed to gain a better understanding of what constitutes a PMM. "PMM is a system of practices, techniques, procedures, and rules" (33). However, according to the Office of Government Commerce (OGC), 2002, Prince 2 is not a PMM but rather a system that focuses on processes rather than methods (34).

Joslin and Müller's (2016) definition of PMM components is used in this study. They describe the PMM components as processes, tools, methodologies, areas of knowledge, and comprehensive capability profiles (35). In a PMM, you should think about several levels of detail and breadth. To state that something is thorough is to suggest that it addresses or incorporates all of its characteristics and facets. This study found that project management tools (PMMs) that don't account for every detail of a project will have to be updated as the work goes on. Every company has to figure out how thorough a PMM needs to be in order to see how much it needs to be

supplemented when applied to a project. An "organization's comprehensive PMM" is one that has been implemented and is capable of managing any kind of project without the need for additional components (36).

Depending on the company, this decision may rest with the PMM user. Some may opt out of training or a comprehensive PMM since they believe their project PMM will constantly need updates. The term "supplementing missing elements" encompasses this. Never mind whether the PMM is augmented or not; the user may still choose to apply just part of it. Implementing only the components of a PMM that are critical to the project's success is the objective. The phrase "applying relevant PMM elements" is used to describe this throughout the work. Both commercially accessible PMMs and in-house systems have significant limitations, according to studies (18). When Wells (2013) found that organizationally determined project management plans (PMPs) didn't work for individual projects, project managers would change their PMPs to fit the specific needs of those projects (37).

4. Project Goal Setting

Research on goal-setting has shown that having well-defined goals has a positive correlation with performance at all levels of an organization (38). This link between performance and objectives may be better understood through the use of motivational and goal-oriented, effort-directed systems. That is why we think that having clear goals will improve project performance. To back up this claim, a 1996 assessment by the World Bank found that although 80% of projects with satisfactory "quality at entry" were successful, just 35% of those with insufficient quality at entry were (39).

Managers' decision-making improves when they have access to reliable data. Having clear project goals in mind is crucial for making informed investment decisions (40).

It is impossible to plan a project successfully without clear goals that show how it will

contribute to the organization's overall goals. Statistical measures such as net present value (NPV) or return on investment (ROI) and project management metrics are often used in project goals that are part of a business case (41).

On the other hand, it is more difficult to measure the non-monetary goals of many projects since they are less concrete. Objectives like "increased service quality" and "decreased customer complaints" are examples of this kind of project. Project goals like these are often too idealistic, vague, and inflated in an effort to increase the possibility of project acceptability, according to theory and experience (42, 43). Studies have therefore strongly encouraged research on the ideal methods for setting project goals (44).

5. Effective Target Benefits

Details, characteristics, and methods for determining target benefits are all covered in published works on the subject. *Managing Successful Projects (MSP)* lays forth the four-step method for successfully identifying project goal benefits: Starting with benefit identification, the four-step procedure outlined by OGCC (2009) moves on to choosing objective measures that reliably verify benefits, collecting the baseline measure, and ultimately deciding when, how, and by whom to collect benefit measurements (45). According to Locke (1968), goal-setting theory states that "specific, hard goals" provide better outcomes than "do your best" objectives (46).

Goldstein and Naor (2005) found that Six Sigma programs with clear and ambitious goals produced better results than those without (47). Others have proposed two more criteria: "robust and realizable" and "specific and challenging" (48). According to Doran's (1981) "SMART" paradigm, goals should be precise, quantifiable, achievable, relevant, and time-bound for maximum achievement (49). According to

Chih and Zwikael (2015), the five SMART objectives might include two project-specific components, accountability and comprehensiveness. Despite this research enhancing our understanding of the relevance and technique of project goal planning in general and of effective target benefits in particular, there is presently no commonly agreed definition of "effective target benefits" (50).

6. Project Success

Executives often use the umbrella term "project success" when evaluating the subjective and objective results of their efforts after they have concluded. Scholars also use the same term as a variable for project outcomes. However, there are several viewpoints on how to evaluate the effectiveness of a project after it has concluded. There are several factors that contribute to a project's success, as "different people... assess the success of projects in different ways and at different times" (51). Cultural background, nationality, vested interests, fears, hopes, incentives, and motives are just a few of the many aspects that give project managers, end users, organizational leaders, and team members their distinct perspectives (52).

Additionally, circumstances, time, and the length of observation in retrospect may have an impact on one's reflection on a project's success. Therefore, temporal horizons matter since project managers and funders both have their sights set on the near future, whereas stakeholders with a broader view consider the project over a longer period of time (53). "Comprehensive success criteria must therefore reflect different interests and views", which is why a multidimensional, multicriteria approach is required. This means that in order for a project to be deemed successful, "distant but related dimensions" must be present (54).

7. Key Project Success Dimensions

A number of elements contribute to a project's success, and researchers have identified and prioritized the most critical ones. The operational level expects projects to be completed on time, within budget, and according to the project scope. Martin Barnes first used the phrase "iron triangle" to describe these three operational goals in 1969 (55). "Project management success" (56) is the new "iron triangle" that measures how well the project plan was implemented in terms of reaching its time, money, and scope goals. Both academics and businesses see project management success as a key indicator of how well a project was carried out (57).

In contrast, "project management success" is narrowly focused on the short-term results of a project and pays little attention to the bigger picture or strategic considerations (58). In order to determine the total success, "the traditional way of assessing project success is inadequate," (59). If a project manager is trying to save time and increase the project's management success, they may skip out on consulting with stakeholders. This reduces the likelihood that the project will arrive at a long-term solution that everyone is happy with. This is just one instance when project managers should put the needs of the whole rather than those of individual stakeholders first. The problems with the project management success scale were fixed by "reforming" project evaluation models to include "longer-term success criteria such as newly-acquired skills and capabilities resulting from team learning and growth" (60) and how the outputs of a project are used by its users. Other academics have attempted to expand the scope of the project management success scale by adding new variables such as stakeholder satisfaction, client satisfaction, safety, efficacy, decreased disputes, commercial success, and future potential.

8. Limitations of Existing Project Success Evaluation Models

Despite their extensive usage in project-related research, these significant project evaluation models have many methodological and theoretical flaws. To start, certain parts of these models are generalized to all projects (such as completing on time and having happy clients), while other parts are exclusive to certain types of projects and cannot be used to measure the success of other types. The model put forth by Shenhar et al. (2001) lists "creating a new market" and "developing a new technology" as examples of successful outcomes (61). Projects whose goals are to expand understanding, improve competence, or reduce overhead costs may not give a hoot about such details. Similar to how Pinto and Mantel's (1990) model assesses if the project "solved a problem," it's possible that DeLone and McLean's (2003) method, which examines "system quality," isn't relevant to initiatives like new services. Due to their narrow scope, existing project evaluation models cannot be applied to every kind of project (62, 63).

Researchers have started to make last-minute adjustments to significant scales by deleting unnecessary items due to this constraint (64, 65). The same outcome variable is measured inconsistently between studies and years due to this technique. Secondly, contrary to what happens in practice, researchers frequently aggregate multiple indicators of a project's success into a single score (66, 67). Take the Los Angeles Red Line metro project as an example. It opened to the public eight months earlier than planned and managed to stay under budget, all thanks to effective delivery (68). But it fell short of its long-term efficacy promises, carrying only 60,000 passengers in its first year rather than the anticipated one million.

An overall rating of "moderate success" thus misrepresents reality. Such aggregation might lead to a misleading assessment of performance due to the impossibility of capturing the many viewpoints of its key stakeholders, who often represent different groups and organizations. Contrarily, almost all strategy studies use numerous independent constructs to assess performance (69). Third, it's not always the case that a successful project represents a successful leadership team. So, it's not always indicative of bad management if a project fails. For instance, the aforementioned Los Angeles metro project's construction project manager achieved their goals through the timely and cost-effective delivery of products. But since it didn't fix the traffic, the project was scrapped (68). Everyone involved in a project has their own, often competing, definition of success. Therefore, in order to accommodate these competing aims, evaluation models should be more inclusive. In accordance with the idea of the distinct constructs method (69), we design a model of interdependent but autonomous success variables. This approach makes a distinction between the goals of the project's managers and the net value realization for the funder. When competent project managers fail due to unfortunate circumstances or when the opposite is true, this distinction becomes crucial. A systematic approach to assessing projects according to these criteria is discussed in the next section.

9. Practical Project Success Contributions

Project ownership success According to longitudinal empirical studies, whether or not project leaders were successful in making the project's business case a reality and whether or not the project proceeded as expected are separate from project investment success. Projects may nevertheless prove to be worthwhile investments for businesses, regardless of whether project managers are able to achieve the goals outlined in the business case (PIS). If the project falls short of the 70% ROI goal, the firm may still

be satisfied with a 50% ROI. This is even if the project may not have accomplished the POS objectives, but the PIS objectives were successful. This is the result of setting objectives that are either too high or unduly optimistic. As a second point, we clarify the role of the project manager by supplementing the traditional PMS metric for owner performance with a POS metric. "Project managers are the new strategic leaders, who must take on total responsibility for project business results," mentions (61). This paper agrees with recent research that states the project owner and, by extension, the funding entity should be held responsible for the project's financial outcomes. This is despite the fact that project managers play an important leadership role in accomplishing projects' strategic goals (70). The logical conclusion is that project managers shouldn't be held responsible for broad performance metrics that aren't under their control, and their responsibilities shouldn't be increased beyond their usual capabilities. In line with the project strategy, it is their duty to guarantee the delivery of the project's outcomes. In the long run, this will aid the project owner in reaching the goals stated in the business case. Third, performance metrics are multifaceted, with distinct roles and optimum times for each. In contrast, it is not possible to assess project ownership until the benefits have been "secured," which might indicate that the project has succeeded, failed, or that their values will not change significantly (71). On the other hand, it is possible to evaluate the efficacy of project management very soon after a project has ended. When planning their own initiatives, managers should think about how each success component is composed and what factors are most crucial. As a measure of project management success, meeting time objectives may be more important than meeting cost targets in certain projects, while the reverse may be true in others. Team growth and learning, future preparedness, greater safety, happier customers, fewer disputes, new skills, etc. are just a few of the

many benefits that every project aims to attain. Prioritizing tasks early on in the planning process might help keep the project on track. Both immediately after the project's completion and at later points in time, more precise evaluation and benchmarking will be possible thanks to this. Executives might use this benchmarking exercise as a forum to discuss the organization's top project goals, while project managers, steering committees, and future project proposers could all profit from the insights gained. We demonstrated that financiers shouldn't immediately write off unsuccessful enterprises using a mixed-methods approach. In hindsight, the business may have invested in other projects, but it's hard to say if they would have produced the same outcomes. As a result, the lack of success in achieving the goals outlined in the project plan and business case mostly reflects on the project manager's and owner's performance. Whether or not the project's goals were achieved is irrelevant to the question of whether or not the organization's actual performance improved after its completion (PIS) (71).

10. Project Management Metrics

Data sets, algorithms, and computations are what project management metrics are all about. They allow businesses to gauge how well a project is doing. In doing so, they aid managers and organizations in monitoring project progress, assessing team efficiency, estimating project duration and budget, and identifying, mitigating, or eliminating hazards. In order to effectively establish strategies, implement continuous improvement initiatives, or evaluate employee and customer sentiment, firms use project management metrics, which are numerical instruments (72).

Value and improved performance are the end results of well-managed projects, and this is why metrics for project management are so crucial to the success of any business. Making sure you win over project stakeholders and end-users is the crux of

project management. Project Management Institute research shows that companies with highly developed return on investment (ROI) skills outperform their peers across a variety of important project metrics (73).

Here are the keys to measure project metrics (74):

1. Work

This indicator takes a look at a company's entire capabilities, namely its resource use. A product's productivity reveals the connection between its inputs and its outputs. When you invest so much time and energy into a project, how much do you end up with? Making more with less is the holy grail of productivity.

The equation is: $\text{Units of Input/Units of Output} = \text{Productivity}$

2. The Margin of Gross Profit

The power of numbers cannot be overstated. Success or failure is more rapidly communicated by measures that are directly related to the bottom line. A bigger profit margin indicates that the company is doing well. A program or piece of labor should always aim to increase the company's bottom line. After deducting all expenses, the remaining amount is the profit margin.

Formula: $(\text{Total Profit}-\text{Total Costs})/100 = \text{Gross Profit Margin}$

3. The Yield of Investment

A project's return on investment (ROI) is the ratio of its earnings to its investment (in terms of dollars). This, like gross margin, is a mathematical equation in finance. It divides the project's particular benefit by its expenses rather than focusing on total profit. To calculate the net benefits using this measure, one must first give a monetary value to each data unit. possible advantages include:

Enhancement of financial gain

Financial savings

Enhanced production

Overhead, resources, labor, and training are all potential components of costs.

Return on investment (ROI) = (Net Benefits/Costs) ^100

4. The Value Earned

By revealing the return on investment (ROI) for all project expenditures up to this point, earned value serves as a useful strategic tool. It evaluates the project's agreed budget against the value of work completed by a certain deadline. A second name for earned value is BCWP, which stands for budgeted cost of work performed. In order to keep projects grounded, this statistic is useful.

Earned Value (EV) = % of Work Completed / Budget at Completion (BAC) is the formula.

5. Making Satisfied Customers

You can tell how good your service or product is by looking at the customer satisfaction score. This statistic is guided by the outcomes of customer surveys. This is described as a score between one and one hundred by the Center for Business Practices. To be successful, a product or service must fulfill its intended purpose and address genuine consumer demands. Most organizations use the Customer Satisfaction Index (CSI) to gauge client happiness. An additional tool for measuring consumer happiness is the Net Promoter Score (NPS). One way Net Promoter Score (NPS) indicates client loyalty is by asking customers how likely they are to suggest the product or service.

Formula: (Total Survey Point Score / Total Questions) x 100 = Customer Satisfaction Score

6. Report on Staff Contentment

Employee satisfaction is calculated using survey data in the same way that customer happiness is. When evaluating project management, why should you consider staff members? Employee morale is a direct indicator of project performance, which is a rather straightforward and apparent response. One well-known method of gathering information from workers is the Gallup Q12 Survey on Employee Engagement. An index score is generated using an Employee Satisfaction Index (ESI).

Staff Contentment Index = (Total Points Score / Total Questions) x 100

7. Real Price

Rather than relying on estimates, the Actual Cost provides a hard figure that reveals the actual amount spent on a project. The total cost of a project is calculated by summing together all of its costs throughout the specified time period.

Formula: Total Costs per Time Period x Time Period = Actual Cost (AC).

8. Variation in Costs

The cost variance reveals the discrepancy between the actual expenditures and the budgeted amounts for a certain period. Does the estimate fall short of the real expenses? If the cost variance is negative, it means the project is above budget. If the cost variance is positive, it means the project is running under budget.

The formula: Budgeted Cost of Work - Actual Cost of Work equals Cost Variance (CV).

9. Schedule Variance

The budgeted and planned work are both examined in schedule variance. Has the project stayed on track or gone over budget? The difference between the planned and actual costs of a project is known as the schedule variance, and it is calculated by

subtracting the planned costs of completed work from the budgeted costs of planned work. Indicative of a project's delay is a negative schedule variance.

The formula: Budgeted Cost of Work Performed - Budgeted Cost of Work Scheduled equals Schedule Variance (SV).

10. Financial Effectiveness

One measure of cost efficiency is cost performance. To get the earned value, divide the worth of the work that was really done by the expenditures that were actually incurred to achieve that earned value. Accurate budget estimates are made possible by the forecasting of cost performance.

Method: $\text{Earned Value} / \text{Actual Costs} = \text{Cost Performance Index (CPI)}$

Gaining insight into your project's performance metrics has advantages beyond just keeping tabs on its progress and knowing whether it will finish on time. Quality, performance, and procedure may all be enhanced with its help. In addition to keeping an eye on costs and saving resources, it lets you research market trends, which in turn helps you decrease risk and increase safety (75).

11. Conclusion

In order to improve organizational performance, managers should take advantage on the utilization of scrutinizing all the methods of effective project management and pick what is best to ensure a successful project. With the use of success metrics, you may evaluate how well your goals are doing. You may utilize the information they provide to monitor company-wide trends and see how you stack up against competitors in your industry. A skilled project manager will discover end-user demands and satisfy stakeholders before starting a project.

REFERENCES

1. Darley WK, Blankson C. Sub-Saharan African cultural belief system and entrepreneurial activities: A Ghanaian perspective. *Africa Journal of Management*. 2020;6(2):67–84. doi:10.1080/23322373.2020.1753485
2. Banica L, Polychronidou P, Radulescu M, Stefan C. When IOT meets DevOps: Fostering Business Opportunities. *KnE Social Sciences*. 2018; doi:10.18502/kss.v3i10.3542
3. Turner R. *Gower Handbook of Project Management*. 2016; doi:10.4324/9781315585741
4. Barghoth, M.E., Salah, A., Ismail, M.A., A Comprehensive Software Project Management Framework. *J. Comput. Commun.* 2020. 08, 86–102.
5. Ruiz Jaramillo RL, Marquez Yauri HY. Changes in the PMBOK Guide of the Project Management Institute, its certification and application in Project Management: A systematic literature review. *SCIÉNDO*. 2022;25(4):437–43.
6. Einhorn F. Managing project issues. *Managing Business Projects*. 2022;139–44. doi:10.1201/9781003321101-16
7. Hajjalikhani M. Cultural Heritage Project Management based on Project Management Body of Knowledge (PMBOK). *Encyclopedia of Global Archaeology*. 2020;3031–7. doi:10.1007/978-3-030-30018-0_1155
8. Khalimon EA, Brikoshina IS, Guseva MN. The system dynamics model for the impact assessment of project management on circular economic processes. *Sustainable Business Change*. 2023;211–42. doi:10.1007/978-3-031-23543-6_9
9. Gunner D. Training, Cognitive Readiness Competence Development, and implementation. *Cognitive Readiness in Project Teams*. 2019;197–211. doi:10.4324/9780429490057-9
10. Danku JC, Antwi PA. Perceived benefits of using value engineering on road projects in Ghana. *World Journal of Engineering and Technology*. 2020;08(02):217–36. doi:10.4236/wjet.2020.82018
11. AL Jarrah M, Jarrah B, Altarawneh I. Toward successful project implementation: Integration between Project Management Processes and Project Risk Management. *Problems and Perspectives in Management*. 2022;20(3):258–73. doi:10.21511/ppm.20(3).2022.21
12. Lock D. Factors for project success or failure. *Project Management*. 2020;19–32. doi:10.4324/9781315245911-2
13. Zerjav V, Martinsuo M, Huemann M. Developing new knowledge: A virtual collection of project management review articles. *International Journal of Project Management*. 2023;41(1):102439. doi:10.1016/j.ijproman.2023.102439
14. TSO. *Managing Successful Projects with PRINCE2*. London: Office Of Government Commerce. 2009.
15. Zhu C. Military software testing process and management based on Project Management. 10th International Symposium on Project Management (ISPM2022). 2022; doi:10.52202/065147-0011
16. Merriam-Webster. “method.” Retrieved November 23, 2013, from <http://www.merriamwebster.com/dictionary/method>
17. Cooke-Davies, T. J. The “real” success factors on projects. *International Journal of Project Management*. 2002, 20(3), 185–190.
18. Carvalho MM, Rabechini R. Can Project Sustainability Management Impact Project Success? an empirical study applying a contingent approach.

- International Journal of Project Management. 2017;35(6):1120–32.
doi:10.1016/j.ijproman.2017.02.018
19. Farashah AD, Thomas J, Blomquist T. Exploring the value of Project Management Certification in selection and recruiting. *International Journal of Project Management*. 2019;37(1):14–26. doi:10.1016/j.ijproman.2018.09.005
 20. Busby N. The value of Business Change Management in projects. *Managing Projects in a World of People, Strategy and Change*. 2018;152–9. doi:10.4324/9780429449741-16
 21. Cooke-Davies, T. J., & Arzymanow, A. The maturity of project management in different industries. *International Journal of Project Management*. 2003. 21(6), 471–478.
 22. Packendorff, J. Inquiring into the temporary organization: new directions for project management research. *Scand. J. Manag.* 1995. 11 (4), 319–333.
 23. Curlee W. Project Portfolio Management and Communication. *Portfolio Management*. 2023;159–70. doi:10.1201/9781003315902-9
 24. Hobbs, B., Aubry, M., Thuillier, D. The project management office as an organisational innovation. *Int. J. Proj. Manag.* 2008. 26 (5), 547–555.
 25. Shenhar, A., Dvir, D. Towards a typological theory of project management. *Res. Policy*. 1996. 25 (4), 607–632.
 26. Wysocki, R.K. *Effective Software Project Management*. 6th ed. Wiley, Hoboken, NJ. 2011.
 27. Payne, J., Turner, J.R. Company-wide project management: the planning and control of programmes of projects of different type. *Int. J. Proj. Manag.* 1999. 17 (1), 55–59.
 28. Aubry M, Boukri SE, Sergi V. Opening the black box of benefits management in the context of projects. *Project Management Journal*. 2021;52(5):434–52. doi:10.1177/87569728211020606
 29. Brzozowska A, Dyduch W, Pabian A, Dziedzic A. Experience in applying European project management models in enterprises from the small and medium sectors. *Project Management in Small and Medium-Sized Enterprises*. 2023;122–74. doi:10.1201/9781003309901-4
 30. Wells, H. How effective are project management methodologies: an explorative evaluation of their benefits in practice. *Proj. Manag.* 2012. J. 43 (6), 43–58.
 31. Fortune, J., White, D., Judgev, K., Walker, D. Looking again at current practice in project management. *Int. J. Manag. Proj. Bus.* 2011. 4 (4), 553–572.
 32. Harrington HJ, Voehl F. Evolutionary and improvement tools, methods, and Techniques. *The Innovation Systems Cycle*. 2019;161–73. doi:10.4324/9780429324727-6
 33. PMI. *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)*. sims.monash.edu.au. 5th ed. Project Management Institute, Newtown Square, PA. 2013.
 34. OGC. *Managing Successful Projects with PRINCE2*. 2nd ed. The Stationery office, London. 2002.
 35. Joslin R, Müller R. The relationship between Project Governance and Project Success. *International Journal of Project Management*. 2016;34(4):613–26. doi:10.1016/j.ijproman.2016.01.008
 36. Zerjav V. Why do business organizations participate in projects? toward a typology of Project Value Domains. *Project Management Journal*. 2021;52(3):287–97. doi:10.1177/87569728211001663

37. Wells, H. An exploratory examination into the implications of typeagnostic selection and application of project management methodologies (PMMs) for managing and delivering IT/IS projects. *Proceedings IRNOP 2013 Conference*, 2013. June 17–19, 2013, Oslo, Norway, pp. 1–27.
38. Arumugam V, Linderman K. Six sigma and operational absorptive capacity: The role of project leader. *Total Quality Management & Business Excellence*. 2020;33(5–6):509–28. doi:10.1080/14783363.2020.1864213
39. World Bank. *Evaluation Results 1994*. The International Bank of Reconstruction and Development, Washington DC. 1996.
40. Ellram LM, Tate WL, Choi TY. The conflicted role of purchasing in New Product Development Costing. *Journal of Supply Chain Management*. 2020;56(1):3–32. doi:10.1111/jscm.12217
41. Jørgensen M, Welde M, Halkjelsvik T. Evaluation of Probabilistic Project Cost Estimates. *IEEE Transactions on Engineering Management*. 2023;70(10):3481–96. doi:10.1109/tem.2021.3067050
42. Pervan I, Dropulić I. The impact of Integrated Information Systems on Management Accounting. *Management*. 2019;24(1):21–38. doi:10.30924/mjcmi.24.1.2
43. Jenner S. The prerequisites for Success. *Transforming Government and Public Services*. 2016;19–38. doi:10.4324/9781315550091-2
44. Girardet A, Boton C. A parametric BIM approach to foster bridge project design and analysis. *Automation in Construction*. 2021;126:103679. doi:10.1016/j.autcon.2021.103679
45. OGC (Office of Government Commerce). *Managing successful projects with PRINCE2*. The Stationery Office: London, UK. 2009.
46. Locke, E. A. Toward a theory of task motivation and incentives. *Organizational Behavior and Human Performance*. 1968. 3(2), 157-189.
47. Kasemsap K. The role of Total Quality Management Practices on quality performance. *Operations and Service Management*. 2018;996–1027. doi:10.4018/978-1-5225-3909-4.ch046
48. Chesney, A. A., Locke, E. A. Relationships among goal difficulty, business strategies, and performance on a complex management simulation task. *Academy of Management Journal*. 1991, 34(2), 400-424.
49. Doran, G. There's a SMART way to write management's goals and objectives. *Management Review*. 1981, 70(11), 35–36.
50. Chih, Y., Zwikael, O. Project benefit management: A conceptual framework of setting target benefits. *International Journal of Project Management*. 2015, 33 (1), 352-362.
51. Shenhar, A. J., Levy, O., Dvir, D. Mapping the dimensions of project success. *Project Management Journal*. 1997, 28(2), 5-13.
52. Gil, N., Pinto, J. K. Polycentric organizing and performance: A contingency model and evidence from megaproject planning in the UK. *Research Policy*. 2018, 717-734.
53. Zwikael, O., Chih, Y., Meredith, J. Project benefit management: Setting effective target benefits. *International Journal of Project Management*. 2018, 36, 650–658.
54. Yakubu N, dasuki salihu. Assessing Elearning Systems Success in Nigeria: An application of the Delone and McLean Information Systems Success Model. *Journal of Information Technology Education: Research*. 2018;17:183–203. doi:10.28945/4077

55. Balaban S, Đurašković J. Agile project management as an answer to changing environment. *European Project Management Journal*. 2021;11(1):12–9. doi:10.18485/epmj.2021.11.1.2
56. Goh, J., Hall, N. G. Total cost control in project management via satisfying Management Science. 2013, 59(6), 1354-1372.
57. Pinto, J. K., Slevin, D. P. Critical factors in successful project implementation. *IEEE Transactions on Engineering Management*. 1987, (1), 22-27.
58. Samset, K., Volden, G. H. Front-end definition of projects: ten paradoxes and some reflections regarding project management and project governance. *International Journal of Project Management*. 2016, 34(2), 297–313.
59. Pankratz O, Basten D. Ladder to success – eliciting project managers’ perceptions of is project success criteria. *International Journal of Information Systems and Project Management*. 2022;2(2):5–24. doi:10.12821/ijispm020201
60. Davies, A., Manning, S., Soderlund, J. When neighboring disciplines fail to learn from each other: The case of innovation and project management research. *Research Policy*. 2018, 47(5), 965-979.
61. Tibiletti L. One-size risk-adjusted discount rate does not fit all risky projects. *The Journal of Risk Finance*. 2022;23(3):289–302. doi:10.1108/jrf-03-2021-0035
62. Pinto, J. K., Mantel, S. J. The causes of project failure. *IEEE Transactions on Engineering Management*. 1990, 37(4), 269-276.
63. Jeyaraj A. Delone & McLean models of Information System Success: Critical Meta-review and Research Directions. *International Journal of Information Management*. 2020;54:102139. doi:10.1016/j.ijinfomgt.2020.102139
64. Rezvani, A., Khosravi, P., Ashkanasy, N. M. Examining the interdependencies among emotional intelligence, trust, and performance in infrastructure projects: A multilevel study. *International Journal of Project Management*. 2018, 36(8), 1034-1046.
65. Ullah, F., Thaheem, M. J., Siddiqui, S. Q., Khurshid, M. B. Influence of six sigma on project success in construction industry of Pakistan. *TQM Journal*. 2017, 29(2), 276-309.
66. Costantino, F., Di Gravio, G., Nonino, F. Project selection in project portfolio management: An artificial neural network model based on critical success factors. *International Journal of Project Management*. 2015, 33(8), 1744-1754
67. Mazur, A., Pisarski, A., Chang, A., Ashkanasy, N. M. Rating defence major project success: The role of personal attributes and stakeholder relationships. *International Journal of Project Management*. 2014, 32(6), 944-957.
68. Shenhar, A. J., Holzmann, V., Melamed, B., Zhao, Y. The Challenge of Innovation in Highly Complex Projects: What Can We Learn from Boeing's Dreamliner Experience? *Project Management Journal*. 2016, 47(2), 62–78.
69. Miller, C. C., Washburn, N. T., Glick, W. H. The myth of firm performance. *Organization Science*. 2013, 24(3), 948-964.
70. Musawir, A., Serra, C. E. M., Zwikael, O., Ali, I. Project governance, benefit management, and project success: Towards a framework for supporting organizational strategy implementation. *International Journal of Project Management*. 2017, 35(8), 1658-1672.
71. Zwikael, O., Smyrk, J. R. *Project Management: A Benefit Realisation Approach*. Springer-Verlag, London, UK. 2019.

72. Indeed. <https://www.indeed.com/career-advice/career-development/project-management-metrics>. 2022.
73. Seymour, S. <https://financesonline.com/10-project-management-success-metrics-to-measure-your-team-performance/>. 2024.
74. Abode. <https://business.adobe.com/blog/basics/metrics>. 2024
75. Runn. <https://www.runn.io/blog/project-success-metrics> 2024.

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