

The Impact of Technology on Effectiveness of Project Management Methodologies: An Empirical Study

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Abstract

The phrases project and management together make up project management. Project is a team effort or solo effort that requires careful planning to accomplish a certain objective. On the other hand, management refers to the control or organisation of something. Therefore, project management refers to a process of organising, starting, and overseeing a particular task within a company with the intention of fulfilling the objectives. The objectives are specified within a specific time frame. Project management is a set of activities which include initiating, planning, executing, controlling, and completing projects. It gives specified technical tools to finish a task on time within a specified budget. Project management consists of various interlinking processes. The processes include series of actions performed by a team. There are numerous methodologies involved in project management. These methodologies have their own importance according to project requirement. Technology plays an important role in enhancing the effectiveness of the project.

Keywords: Project Management, Project Management Methodologies, Six Sigma, Agile Project Management, Scrum Methodology

Introduction

The idea of project management is not new; it has been used from the beginning of time to maximise project results. The company benefits from effective project management in every aspect since it enhances the likelihood that the goals will be met because it makes it possible to control manufacturing factors like cost, schedule, and risk as well as make decisions and take action. Institutions are actively promoting project management techniques, and their efforts have significantly aided organisations in achieving their competitive advantages. The attainment of goals in the appropriate direction depends critically on the project's successful execution. It calls

for personality qualities and subject-matter expertise. A tightly defined collection of practises covering logic, procedures, and processes known as project management methodology determines the best approach to plan, construct, and control a project throughout the continuing process of its execution and conclusion. The project will be carried out and completed using this thorough, strict, and scientific approach. The objective of the project management methodology is to facilitate efficient decision-making and problem-solving to ensure the efficacy of certain processes, methods, techniques, approaches, and technologies and to govern the whole management process (Ungureanu, 2014).

A project may be conceived of as a fresh, time-bound attempt including several related or dependent activities to create a valuable, unique commodity or service. Because it is a new effort, we usually lack the complete knowledge or competence about project planning and implementation. Uncertainty and unknown conditions are inherent to projects; therefore, it goes without saying that defining a specific scope and requirements will need to wait until later in the planning process. Each project also requires resources, such as materials, tools, equipment, and people, to be accomplished. To fulfil the needs of all key stakeholders, including the client and the end-user, project management requires establishing objectives, setting realistic goals, managing competing demands for quality, scope, money, and time, and updating plans, specifications, and techniques. Success becomes dependent on resource allocation throughout the entire organisation, which may not always be possible. Furthermore, the required skills and expertise are never present locally. As a result, working on projects with virtual teams is happening increasingly frequently. Tools for project management are getting increasingly advanced and useful. Setting clear, realistic goals, balancing conflicting demands for time, money, scope, and quality, and modifying to fulfil the expectations of all parties involved are all part of project management (Ananthmula, 2020).

The main purpose of technology is to make tasks easier. When planning and carrying out a project, technology is a crucial instrument for applicability. For instance, technology has simplified communication during mission management. Additionally, businesses have created specialised collaboration programmes and project-based chat programmes. In many nations, the general populace is moving towards a workforce that is centered from home. The function of technology developments has grown more important than was previously necessary with this

new market activity. Access to storage is now more affordable because to innovations like cloud technologies' increased efficiency. Historically, only large businesses had access to cloud computing engineering. However, technological developments have reduced costs and increased accessibility for most organisations. Access to real-time updates on changes is made possible through technology. Sometimes it is necessary for project managers to be informed very once of any modifications to the plan or schedule. The essential personalities can always stay on top of things thanks to the real-time update application that is embedded into the plan. The plan's benefit is that it avoids delays. In essence, technology can make sure project managers are aware of what is happening in real time (Alharbi, Alamoudi, 2019).

Literature Review

In research it was found that Project management employs a variety of methodologies and techniques. There are two categories of project methodology: traditional and modern. The project management process follows a set of consecutive phases in the conventional method. To design, develop, and deliver a product or services, these processes happen step by step. Initiation, planning and design, execution, control and integration, validation, and closing are the phases that make up the standard project management technique. Modern methods offer a different approach to project management and are not sequential. The use of contemporary project management approaches may be used to streamline operations in a variety of industries, including manufacturing, software development, and product creation. Lean project management is a well-liked project management technique. It strives to decrease resource waste and maximise the value provided to the consumer. With the help of this process, businesses may produce more value for their clients with less resources. Through the happiness of the client and the creation of value during the implementation process, this technique enables the business to attain perfection by reducing wastage of goods, services, transportation, or inventories (Ungureanu, 2014 and Nordin, Othman, 2014 and Rasch, (2019).

A study discovered that six sigma was created to enhance the production process by removing faults. One of the most well-liked and dependable project management approaches worldwide is Six Sigma. The major goal of these methodologies is to guarantee process execution accuracy and speed while minimizing or eliminating losses. A strategy provides knowledge and a scientific process for removing flaws. Instead of counting the number of flaws in a process, Six

Sigma counts the processes that potentially result in defects. Because of technical advancement and expanding knowledge, six sigma has been effectively established and is used as a powerful mechanism to reduce waste in supply chain management, improve quality performance and delivery schedules, and better anticipate consumer demands. The main barrier to six sigma adoption is the requirement for financial investment in areas such as training, cultural change, process modification, information technology, etc. Because Six Sigma requires educated financial capabilities for execution, it is typically not suited for small-scale organizations (Deshmukh, Mukti, 2018).

In research it was observed that when it becomes necessary to manage the workforce in a different way than usual, a new strategy centred on meeting customer demands is known as agile. The core principle of agility was to combine a research and development management team with cutting-edge technology. The contemporary agility strategy analyses the risk criteria and takes steps to mitigate and lower this risk. The core focus of the agile project management technique is software development. The basic principle of this technique is to prioritize programme functioning above detailed documentation. The focus of the Scrum kind of technique is on the customer's involvement rather than giving contracts priority. The agile project management technique adapts fast to changes rather than going in one direction. In the age of digitization, when technology is changing daily and necessitating a diversion towards the change, this sort of approach is desperately needed (Onur, & Ekmekçi, 2020).

According to research, the scrum approach is a component of agile methodology, which calls for teams to release software products within a given time frame. This sort of technique is particular and useful, especially for collaborative teams who are totally committed and flexible about time and material budget. Budgets and timelines for projects are adjustable with the scrum technique. This kind of technique aids in evaluating the testers' and developers' effectiveness (Tytowska, Werner, & Bach, 2015).

In research it was observed that there are several reasons for the growing significance of project management as a business process, according to study. Project management is crucial because it allows organisations to efficiently regulate changes and the introduce new programmes, processes, or products. Since, projects are getting more complicated every day, therefore managing the complexity without a formal management structure is helpful. Cross-functional

teams benefit from the new project management technique by working more efficiently. Project management is becoming increasingly difficult because of these shifting trends, which include shorter product and service life cycles, constrained budgets, unfamiliar and complicated goods, and geographically dispersed and multicultural project teams. It should be mentioned, these evolving trends are also simplifying project management because of the improved project management training resources and easy accessibility of support tools (Pardalos, 2012).

According to a study, choosing the optimal project management strategy for a certain project as well as for the complete company to manage all its projects can be challenging. The training courses, the purchase of business management software, a set of business procedures, and even the organizational structure together with the departmental norms and job descriptions are significantly impacted by the selected project management technique. The suggested approach offers a solution to the three-criteria optimization issue of choosing a technique taking the restrictions into consideration. The optimization requirements are the effort involved in using the approach under investigation to manage a project; the associated costs and risks; and the labour involved in doing so. The choice of project management approach must be made while tackling the issue of determining the project scope. The appropriate project management approach provides information on the project's risks, cost, product quality, and timing of each stage and overall project completion. For different techniques that achieve the goal of optimising the project scope, one can pick it more effectively than when a methodology is used in isolation from project scope optimization (Kononenko, Kharazii, & Iranik, 2013).

In research, it was observed that while addressing the problem of figuring out the project scope, the choice of project management strategy must be decided. Information on the project's risks, costs, product quality, timeliness of each stage, and total project completion are all provided via the right project management technique. One might choose a strategy more successfully when it is utilised in conjunction with another approach that helps accomplish the aim of project scope optimisation. A project must be continually monitored and overseen since there are so many potential modifications and departures from the intended that might happen over the course of its life cycle, including those relating to scope, quality, and risk. Success-related elements are no exception, and efforts are required throughout the project to make sure that what was anticipated matches reality. Depending on the situation, the project manager must take corrective or

preventative action. The way success is seen, which changes based on the project, is another aspect. For one project, the timeframe might not be as important as the money, but both may be equally important. The converse may occur in another project, or perhaps the predicted benefits are the key to success. Success management needs to be dynamic and adaptable enough to handle different circumstances (Meirelles, Tereso, & Santos, 2019 and Takagi, & Varajão, 2019).

Methodology

This study is descriptive in nature in which data is obtained from 196 respondents who have used various types of project management methodologies. In the above managers from different fields have been covered. A checklist question was used to analyze and interpret the data. In a checklist question respondents choose “Yes” or “No” for all the questions.

Table 1 The Impact of Technology on Effectiveness of Project Management Methodologies

SL. No.	<i>The Impact of Technology on Effectiveness of Project Management Methodologies</i>	Yes	%Yes	No	%No	Total
1	Technology helps in effective project execution with the help of collaborative tools	172	87.76	24	12.24	196
2	Technology helps in real time availability of data Technology helps in combining more approaches for the benefits of the project	152	77.55	44	22.45	196
3	Technology helps to combine more approaches for the benefit of the project	159	81.12	37	18.88	196
4	Technology helps team members to navigate large amount of incoming data	174	88.78	22	11.22	196
5	Technology helps to choose the best method of project management	155	79.08	41	20.92	196
6	Technology helps to interlink processes of project	175	89.29	21	10.71	196

	management					
7	Technology helps to identify time frame of the project management methodology	162	82.65	34	17.35	196
8	Technology enhances the effectiveness of project management methodology	180	91.84	16	8.16	196

Table 1 show that 91.84% respondents agree that Technology enhances the effectiveness of project management methodology while 89.29% respondents agree that Technology helps to interlink processes of project management. 88.78% respondents agree that Technology helps team members to navigate large amount of incoming data while 87.76% respondents agree that Technology helps in effective project execution with the help of collaborative tools. 82.65% respondents agree that Technology helps to identify time frame of the project management methodology while 81.12% respondents agree that Technology helps to combine more approaches for the benefit of the project. 79.08% respondents agree that Technology helps to choose the best method of project management while 77.55% respondents agree that Technology helps in real time availability of data Technology helps in combining more approaches for the benefits of the project.

Conclusion

The above research concludes that project management is an important element for the success of any organization regardless of its size. There are numerous methods available to implement the task. The above research concludes that Technology helps in effective project execution with the help of collaborative tools. There are various collaborative tools available for effective collaboration among teen members. Technology places a vital role in enhancing collaboration and effective project execution. with the help of technology team members can get access to real-time data. Technology also helps to combine more approaches to be selected project management methodology prayer for it helps in combining different Tools and techniques. Technology helps the same members to navigate large amounts of incoming data. With the help of technology, project managers can choose the best method of project management. Technology

helps to identify the cost, benefits and timeframe for the execution and completion of the project. Technology help also helps to link the processes of projects. With the help of technology project manager can identify the total time for the completion of the project. Therefore, the above research concludes that technology enhances the effectiveness of different project management methodologies.

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