Program Management & Portfolio Management

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Abstract: This article illustrates the program management approach for overseeing large-scale information technology initiatives. The authors first underscore the necessity of employing program management over project management when managing multiple information technology initiatives. Afterward, an explanation of the program lifecycle and engage in a conversation regarding the challenges associated with "people" and "process" throughout the program's various phases. In general, they note that the program's processes and stakeholders are not well-coordinated. These constraints are addressed through suggestions for circumventing them.

Key words: Program Management; Product Development; Information Technology; Project Coordination;

Introduction Our perspective on project management has evolved over the past two decades. Projects and programs are currently utilized as vehicles to implement the strategy and/or establish the conditions that influence the development of newer strategies for an organization. The initial aspect is that project management will operate in conjunction with the organization's other business functions. Second, the role of project program management is more clearly understood in the execution of this business strategy. While project portfolios and project programs are both strategic in nature, with the goal of prioritizing resources for optimal business performance, programs provide a more effective methodology for managing the day-to-day coordination of projects to ensure their successful implementation. Although there is a comprehensive body of literature that addresses the management of projects, multiple projects, and large-scale projects, there is a dearth of research that employs program management as a theoretical prism to comprehend the dynamics of interrelated multiple projects. Additionally, the majority of the studies reported are from the United States and Europe, with only a small number from emerging economies like India. This is particularly noteworthy in light of the fact that the Indian government has allocated US$550 billion exclusively for infrastructure initiatives in its Eleventh Five Year Plan. In addition, Indian software exports were estimated to be worth approximately US$ 48-50 billion, despite the economic crisis and a cautious recovery. Consequently, our goal is to elucidate the way in which a global information technology company is utilizing program management as a framework to manage its suite of products in India, thereby resolving the gaps in the project-program management research.

Theory program management is a technique that integrates project management activities to guarantee that an organization achieves the greatest possible benefits. Although there are numerous definitions and perspectives on project program management, the following definition(s) is used:
- the method of executing an organization's strategy with the most efficient use of resources;
- projects that are purposefully grouped to achieve business benefits.
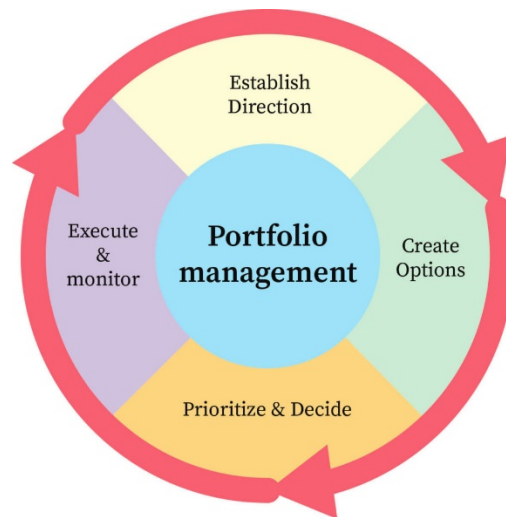
Therefore, operational definition of a program, which is a collection of change actions (project and operational activities) that are purposefully grouped together to achieve strategic and/or tactical benefits. Program management is defined as the process of coordinating, directing, and implementing a dossier of projects and transformation activities to achieve outcomes and realize benefits that are of strategic importance to the business. A program is a collection of related projects that are managed in a coordinated manner to achieve benefits and control that are not possible when the projects are managed individually. The centralized, coordinated management of a program to achieve the program's strategic benefits and objectives is therefore defined as program management. The aforementioned definitions indicate that program management is fundamentally concerned with the establishment of synergies among the initiatives, with an emphasis on the development of networks throughout the program. It may not be as important to manage individual deliverables that contribute to the program's benefits. Before we delve into the topic of program administration, it is imperative that we first consider the necessity of programs over projects. In other words, we inquire as to why "projects" fail, which necessitates the implementation of "programs."

Project failure research has been ongoing for at least two decades. In general, the following as the primary causes of project failure in their review of large-scale aerospace projects: inadequate initial planning, a lack of clear objectives and deliverables, improper resource allocations, poor risk management, poor change management, a lack of stakeholder buy-in, and a poor understanding of priorities. Also, process-related risks, such as the development process being influenced by the delivery date, improper risk management with risks not being reassessed and controlled, and the decision to make the delivery date without appropriate requirements information, as well as people-related risks, such as poor rewards and an unpleasant experience while working on the project, in their review of IT project failures. In the same vein, the survey of 138 IT project managers indicates that the absence of top management support, an ineffectual project manager, insufficient stakeholder engagement, an inadequately committed team, and a lack of expertise are the primary people-related issues that contribute to project failures. Critical process-related issues included the absence of documented requirements and success criteria, an inadequate change management process, ineffective scheduling, a breakdown in communication among stakeholders, the prioritization of resources, and the absence of a business motivator for the project. Consequently, these examples bolster the notion that "project management" may not be sufficient to address the intricacies of large-scale projects, which may necessitate concurrent execution. Consequently, a "systemic" perspective is necessary. This perspective appears to be supported by prior research.

Program management is capable of offering a centralized perspective on all initiatives within an organization in a volatile business environment. This results in improved project prioritization, planning, and coordination, which in turn guarantees effective project governance. The following benefits of program management over project management were suggested:

- Effective execution of major business investment in projects
- Improved on-time delivery by understanding key interdependencies between the projects and managing their interfaces
- Effective utilization of resources
- Identification and management of major project risks leading to efficient time and cost management
- Effective decision-making made through a business perspective, thereby reducing the scope conflicts within the projects and the program
- Enhanced delivery capability by promoting shared practices among the program stakeholders
- Increased realization of benefits through the integration of processes, systems, people, and organizational change.

The next question that must be addressed is how these projects should be organized. The system proposes three configurations—perspectives for managing projects and associated work (including programs) in groups: portfolio or chunked configuration; strategic or goal-oriented configuration; incremental or heartbeat configuration.

1. **Chunked or portfolio configurations** are formed by grouping projects around a shared "theme." The primary goal is to optimize efficiency by prioritizing projects and identifying dependencies, thereby facilitating better resource management and project control.

2. **A strategic or goal-oriented configuration** is the term used to describe the arrangement of initiatives around a shared "purpose." The primary goal is to enhance the efficacy of the organization by converting business requirements into actions, reducing uncertainty through iterative development, and establishing a learning loop that encourages creativity.

3. **The term "incremental" or "heartbeat configuration"** refers to the grouping of initiatives under a shared "platform." The platform may be a business system, infrastructure, or process. It would be feasible for the organization to establish an integrative framework that enables the mapping of short-term requests to the company's long-term strategy, the implementation of controlled changes when necessary, and the continuous reassessment of the projects' performance from a holistic perspective.

Consequently, the organization of the projects in this manner appears to resolve the process- and people-related issues that contribute to the failure of large-scale projects. A descriptive approach to investigate the issue and the method describes the phenomena in their current state and surpasses exploratory research by attempting to characterize the issue. Consequently, it is heuristic in character and is based on constructivist philosophy. This method argues that knowledge is not a reflection of any transcendent reality, but rather is influenced by human perception, conventions, and social experience. The research instruments are the authors' personal experiences with program management. There involved in a structured process of self-reflection that entailed the following: the planning of a change, the execution and observation of the process and consequences of the change, the reflection on these processes and consequences, and the replanning of the process when attempting to comprehend a phenomenon. It specializes in the development and marketing of enterprise software products for a variety of small, medium, and large businesses. These businesses are categorized into various verticals, including banking, finance, insurance, manufacturing, supply chain management, process manufacturing, and human capital management. Standard Development Kits (SDKs) that are highly customized to the client's requirements are employed by each vertical to

develop its suite of products. This includes pre-packaged functions, including payroll, benefits, recruitment, and training, enabling customers to install and operate it as an "out-of-the-box solution" for their business. This allows customers to purchase only the components they need, rather than the entire product. The primary objective of such a project organization is to guarantee that the various types of project teams that are involved in the development of either a comprehensive enterprise solutions package or the individual components of that package are coordinated. These project teams must guarantee that the product they create is capable of functioning independently and in conjunction with other modules. For instance, Payroll may function independently; however, it should also collaborate with other products, including Benefits Management, Training, and Career Management.

Project manager: Following the feasibility analysis, the project manager evaluates the high-level design documents. A squad of developers is subordinated to each project manager. The implementation of the design using the SDKs is the responsibility of these developers.

Quality assurance (QA) manager: The QA manager is accountable for the software's testing and validation. The QA manager and their team of QA engineers are responsible for the unit testing, integration testing, system testing, stress testing, and end-user testing to guarantee that the software complies with or exceeds industry standards. Developers are programmers who are principally accountable for the development of code in accordance with the design that has been supplied to them. They are accountable for adhering to the functional design that the design team has provided. Therefore, developers must possess the appropriate technical skills to transform the functional design into a functional piece of code by utilizing the SDKs at their disposal.

Associate product managers are accountable for the design and feasibility of the subcomponents of a product. They are accountable to the product managers who are responsible for product design. The feasibility of a specific functionality being incorporated into the current product is determined by associate product managers. Their revisions are submitted to the product managers after they conduct a thorough analysis.

Quality assurance (QA) engineers are responsible for the product's quality assurance. They employ a variety of instruments, including unit testing, system testing, and load testing, to reduce the number of bugs in the product. QA testers will deny the code if any bugs are discovered, and the developers who are responsible for the code will be required to address the issues. The divergent perspectives of the technical and nontechnical team members regarding the project and program objectives are a significant concern at this juncture. The availability of resources is another challenging factor. In fact, the design engineers may be compelled to take into account technology that is readily accessible and widely used when necessary.

Scope expansion is an additional significant obstacle in the planning stage, similar to the definition stage. The functionalities were revisited as a result of scope expansion, which necessitated numerous redesigns in our experience. This resulted in an increase in expenditure and an increase in the number of person-days required. The implementation stage encompasses the actual execution of the program's intended actions. Consequently, the implementation strategy is devised after the scope and functionality have been established. The technology requirements for various functionalities are contingent upon the type of utilization, as a result of the product suite's nature. For instance, a desktop client is adequate for an internal application that does not necessitate a large number of users to access. If the application will be accessed by multiple users, a web-based interface will be necessary. These two kinds of usage necessitate distinct approaches to application development.

The **product review** is another critical activity that is conducted periodically to guarantee that the product development teams are in accordance with the initial design framework. A decision is made based on the scope of the additional labor involved after reviewing any design issues that were not considered many times. Teams frequently encounter the challenge of overlapping functionalities. In

such scenarios, the functionalities have to be jointly developed so that each team gets to cooperate with the other team that partly owns the functionality. End users have to be given a 'taste' of the new application, dubbed the 'Conference Room Pilot' or CRP. Once the CRP is complete, it is quite possible that it would have to be revisited because the end-users want to add more functionality or richness to the interfaces.

In addition, limitations of the new development tools or SDKs might manifest as these SDKs might not support certain functionalities. Issues that were not detected during the initial design phases may be revealed during product and development evaluations, necessitating their resolution. These unforeseen issues can result in both significant and minor interruptions to the progress and must be resolved before progress can be continued. If this is not the case, remedies must be implemented to ensure that the program is able to resume its normal operations.

The human factor is the other area of concern. The SDKs must be consistently updated to ensure that they are compatible with the most recent technologies and that the end users find them easy to use. This can occasionally be a challenging learning curve for development teams, resulting in project delays as a result of the additional time required to become acquainted with the tool. The second significant human resource challenge is employee attrition. The entire program's schedule can be disrupted by an employee turnover during a critical stage of implementation.

Therefore, the program's ability to adhere to its schedule is contingent upon the effective management of its employees. In addition to employee retention, their engagement is also crucial. The schedule is frequently altered as a result of product redesigns. Developers and design architects must reevaluate the endeavor and revisit the issues. Occasionally, they modify and forsake their previous endeavors. This results in a decline in interest and morale regarding the undertaking. The program manager is responsible for maintaining the momentum and motivating the employees throughout the program. In order to ensure that the program is not compromised, it is imperative that the team members are informed of the precise scope of ownership in their area of expertise and, if necessary, receive training.

Program appraisal is a continuous process that is conducted at the conclusion of each stage. Although the final evaluation is contingent upon the well-functioning, released product, the program would have been continuously monitored and controlled through the establishment of numerous milestones and performance standards during the planning phase. The stage may be revisited until the client's expectations are completely satisfied, even if it is considered complete. At this juncture of the program, the additional obstacle is the evaluation of employee performance. As a result, the team members perceive their performance ratings as biased, which in turn results in employee dissatisfaction.

In addition to the technical factors, the teams monitor the evolving business needs of their clients. Therefore, the teams are engaged in continuous project work as a result of the ongoing processes of reviewing, resolving bugs, re-evaluating, enhancing, optimizing. In summary, it is a cyclical process that ensures the program remains operational at all times. The program management approach presents numerous "people" and "project management" obstacles. These processes are perpetually refined to accommodate the program's evolving requirements. The following are some of the processes: Each team dedicates several person-hours per week to reviewing progress within initiatives and programs. This is implemented at both the team and project levels. This process is associated with numerous benefits. Initially, each member of the team is cognizant of the current stage of the project or program at their own level. Each member is cognizant of the role and progress of their colleagues at the team level, if not to a detailed extent. This particularly addresses the issue of employee attrition, as a team member is capable of assuming the role of a peer when necessary.

This coordination among team members is also extended to the program level, where each team is cognizant of their responsibilities and reliance on the other team. Additionally, this interaction facilitates the discussion of any overlapping issues that necessitate the attention of both teams. Additionally, the program stages allow for a certain degree of flexibility in the execution of project activities. For instance, if the QA team is unable to develop a specific functionality, such as "Func A," by a specified date, they may opt to focus on another functionality, "Func B," that is prepared for testing, while the development of "Func A" continues. Additionally, the program's critical activities and anticipated benefits are distributed throughout the program cycle by pacing the work on the various initiatives. This is done to disperse the technical, financial, and human risks that are associated with the program throughout its lifecycle. Resource management involves the training of new resources to join the development teams at various levels, including project and program documentation, technical manual writing, code reviews, and testing. This is done while the development teams are working on the projects. This is beneficial in that it provides a reserve of resources that can enter the program with a certain level of awareness if necessary at any point.

Continuous engagement with stakeholders during critical stages: At certain critical stages, stakeholders and consumers are invited to participate in a "sneak preview" of the product's development. Their feedback is incorporated and utilized as input. This is crucial for the program, as it provides an outsider's perspective on the product. In the same way that customers are provided with previews, partners actively participate in the trial phase. Therefore, the programs are regarded as invaluably enriched by the collaborators' contributions during the testing phase. In order to sustain the momentum of the projects, it is crucial to maintain the motivation levels of the team members, as is the case with any program.

Consequently, the program managers, project managers, and senior project managers occasionally collaborate with human resources to organize seminars, training sessions, and team-building exercises. This guarantees enhanced teamwork. Continuous process review: refining the process Despite the fact that the processes are well-established, they are periodically reviewed to ensure that they are functioning as enablers rather than impediments. This assists in the proactive management and reengineering of any redundant processes. SDKs are updated by incorporating user-friendly functionalities to ensure that they function as a tool for faster development, thereby reducing the amount of effort required for developers to learn how to use the technology after each upgrade.

Conclusions: Project management is currently considered a strategic function in both theory and practice. Although the relationship between the organization's strategy, programs, portfolios, and projects has been extensively documented in studies conducted in developed countries, additional research is necessary in emerging economies. The program management approach of a global information technology corporation is the subject of this article. The following patterns have been observed in relation to these challenges throughout the program's lifecycle: 1. It is imperative to establish the program's objectives by effectively managing the scope and coordinating between the technical and non-technical project team members, as the degree of uncertainty is higher in the initial phases of the program (design and planning, respectively). 2. Successfully managing unsystematic risks is a critical component of the successful execution of the program and the multiple initiatives during the program implementation stage. This issue is more apparent when the program scope is inadequately defined during the planning phase. Although this results in rework, which in turn leads to schedule and budget overruns, it also has an impact on the morale of the team members. 3. Recognizing the individual contribution of each team member in relation to the team effort is a challenge during the program appraisal stage. Consequently, it is imperative to closely monitor the coordination between the program's stakeholders and processes throughout its lifecycle.

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