

Introduction

This position paper presents an overview of key insights pertaining to the management of programmes in the digital business context, as discussed in the recent academic and practitioner literature. These literature insights, along with insights from subject matter experts, have informed development of IVI's IT-CMF Programme Management (PGM) Critical Capability.

Relevance of Programme Management in the Digital Context

Today's business landscape is characterized by the rapid pace of technological change, and a growing proliferation and reliance on digital technologies. Businesses are evolving to leverage the advantages offered by product and service digitization and new digital marketing, sales, and distribution channels. They further need to keep pace with and address emerging e-commerce opportunities and challenges [1]–[3]. All these changes, together with the growing complexity of organizational objectives, are key factors that necessitate the use of programme management techniques and approaches.

“A programme is defined as related projects, subsidiary programmes, and programme activities managed in a coordinated manner to obtain benefits not available from managing them individually” [4]. Programmes typically are responsible for the delivery of value from the exploitation of project-enabled capabilities, project delivered artifacts, and digitally-enabled business models.

Digital innovations and transformations may be initiated in any part of a modern business. For example, they may affect the products or services being delivered, the way they are packaged and/or delivered, productization decisions, e-commerce options, and so forth. Digitization programmes can emerge or be identified in one of two ways: 1) a set of digital goals or objects are identified that necessitate the delivery of a number of related projects or 2) a common set of themes are identified across a number of projects that should be managed as a programme [4].

While change is often necessitated by projects [5], it can be difficult to deliver organization change based on a single project. Projects will deliver the new machinery, processes, techniques, and even know-how but may not have enough time to communicate the rationale for organizational changes. Projects may also be completed and closed before issues such as the need for retraining become evident. Programmes tend to be a better medium in which to deliver, monitor, and sustain change. When funding is secured at a programme level, it ensures that the chain of projects will have the necessary funding and support to complete the programme. This enables a continuity of focus on programme objectives that could not otherwise be assured. While projects typically have defined start and finish dates, programmes can extend into the business operational use [5]–[7] of the project deliverables. Hence, in the digital context, organizations need to increasingly employ programme

(and/or project portfolio) management approaches to enhance the organization's ability to deliver value from these projects.

Managing Programmes in the Digital Context

In the digital context, two things are critical from a programme management perspective: people and change.

A prerequisite for effective programme management in the digital context is the existence of competent programme managers. These programme managers must provide leadership and vision for the digital programme even when aspects of the programme are progressing with difficulty. They need to coordinate the selection of change approaches [7] used at both project and programme levels. Hence, programme managers need to be well trained, positioned to oversee change, and take steps to avoid relapses to old practices. They also need to be responsive to issues raised by programme component managers and must be excellent communicators who can understand and continually champion the need for change initiatives. As the stakeholders initiating a programme may change over time, some power and political shifts may be necessitated to remain effective in a world of digital change.

The ability of programme management to deliver projects and project-related value to an organization does not change simply because they are digitally motivated. The fundamentals of completing a business case based on accurate data and sound assumptions will continue to filter non-viable project proposals from any programme. A sound business case simplifies the acquisition of funding for the programme [8]. A focus on value creation and delivery will ensure that programmes deliver the promised value. The use of appropriate governance structures and controls will ensure that decisions on programme viability are made at the authorized level of management and that the on-going validity of programmes and associated projects is kept under review [8], [9].

Agility and flexibility in programme and project selection and execution are critical, as programmes and projects must be adaptable to changing business environments. Understanding the success thresholds and an ability to recognize failure are essential to the effective management of digital programmes. Failing and/or out-of-control projects should be easily detected and terminated or corrected speedily. PMI research [5] has identified that ineffective use of, or failure to use, change management approaches is directly correlated to project failure.

The ability to identify synergies and savings across programme components is enhanced by a greater understanding of the underlying digital programme technologies and their intended use. Re-use opportunities (technology, process, practices, infrastructures, and so forth) and the re-assignment of spare capacity elsewhere can have a significant impact on programme costs and delivery timelines. Where technologies are new to the organization, sufficient time must be provided to embed these technologies in the organization's work practices. The time allocated must allow staff to become competent in the use of the technology or alternatively the required expertise needs to be bought-in

from external sources. Some synergies may only become apparent after training or when experts become familiar with the business.

The realization of benefits is critical in the programme context. The use of a benefits register can be helpful in tracking all stated benefits through to delivery [4]. Identifying positive synergies as discussed above, is important to fully understanding the potential benefits of programmes. Mapping benefits to deliverables from individual projects can identify revenue streams that can be tapped into earlier. Programme benefits may be expressed in capability terms, capacity or business volume terms, work complexity and variety terms, financial terms, turn-around times, and so forth. Benefits can also be expressed in terms of the removal of constraints, as in a 'theory of constraints approach' to operations management [10], [11].

The management of risk is a further key programme consideration. Risk management is analogous to managing 'known unknowns', whereas uncertainty management is analogous to managing 'unknown unknowns' [12]. When companies take on new technologies there are higher levels of uncertainty. Knowledge and expertise with the new technologies need to be developed before proper risk assessments can be completed. A detailed knowledge of how the new technologies will or could potentially interact with existing systems is also required. Thus, programme management must ensure that programme risk management staff receive training and/or have access to staff with the appropriate skills and expertise to undertake effective programme risk assessment and treatment activities [4], [13].

The provision of appropriate tools for the management and oversight of the programme is essential. Such tools should provide access controls and administrative rights that can be managed in accordance with the governance model selected for the programme. Governance models while providing the control mechanisms necessary for programme oversight and control should be flexible enough to adapt to changing business conditions and environmental factors that change the direction of the business [8], [9], [14]. The tools suite selected must support financial and communications management including the automation of standard reports and routine updates. [4].

Larger programmes can develop into two or even multiple business lines. In large programmes, it is essential to have available expertise in areas such as legal, contracts, IT, logistics, supply chain management, and distribution chain management, as well as scientific, engineering, medical, patent and intellectual property managers, security experts, data management expertise, personal data management expertise, and so forth. Programme management should be aware of in-house capabilities and those that could be made available to the programme. Knowledge and awareness of the cost and availability of external expertise from existing qualified vendors helps inform decision-making. Budgets should include these potential costs. Gaps in available expertise should minimally be covered by ensuring suitable vendors are prequalified as suppliers well in advance. By ensuring that a depth of expertise and knowledge is available (or available at short notice), programme success likelihood is enhanced [4].

Conclusions

Programme management is central to delivering themed or strategic objectives that could not easily be delivered by projects alone. However, in the digital context, programme initiation may be championed from anywhere within the organization or even be externally driven by customers, partners, or regulators. A reconceptualization of programme management and how such management teams are formed is required to enable the organization to address, support, and leverage good business ideas regardless of their sources. The programme authorization board, project management office, or board of directors i.e. whoever approves the programmes, must open and maintain communications channels with all potential sources of innovative ideas. In essence, the gatekeeper role [15] changes in a digital world. People and their interactions with technology are identified as core to success and managing the related changes is crucially important. Failure to do so can result in the organization being late to market or non-responsive and incapable of leveraging business ideas. Successfully identifying, managing, and exploiting good ideas in programmes can result in a thriving business that will not only succeed today but will continue to do so into the foreseeable future.

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