PROJECT PORTFOLIO MANAGEMENT
- Insights in the digital context

Introduction

This position paper presents an overview of key insights pertaining to the management of project portfolios 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 Project Portfolio Management (PPM) Critical Capability.

Relevance of Project Portfolio Management in the Digital Context

The wide-spread availability of the Internet, inexpensive sensors and actuators, and emergent Low Power Wide Area (LPWA) network infrastructures are providing a base for experimentation and development of new business ideas. Existing businesses are identifying opportunities in the evolving digital environment. Exploiting these opportunities involves risk-taking and the development of project portfolios that will provide a roadmap and a series of steps to transition the business to where the technologies can be leveraged.

Digital transformations may be complex, involving changes to work-practices and required skill-sets, retraining of people, and organizational and cultural change. These digital undertakings are strategic and should be planned for at a strategic level, as digital transformations involve the whole business and are not solely the remit of the initiating department or group. While the Internet of Things (IoT) is widening the availability of digitization, software enhancements in analytics and the management of big data are advancing and opening new opportunities (e.g. the use of Apps on end-devices has transformed the way many people interact with technology). However, the demand for resources to work on digitization projects often exceeds those available. All of these changes, together with the growing complexity of organizational strategic objectives, are key factors that necessitate the use of project portfolio management techniques and approaches.

"*A portfolio is a collection of projects, programmes and subsidiary portfolios, and operations managed as a group to achieve strategic objectives. The portfolio components, such as programmes and projects within the portfolio, are quantifiable (e.g. identified, categorized, evaluated, prioritized, authorized). Also, the portfolio components may be related or unrelated, may be independent or interdependent, and may have related or unrelated objectives*" [1]. Portfolios provide continuity of funding and support to ensure that portfolio objectives are delivered across multiple projects. These portfolios usually extend into the business operational use of the project deliverables. Hence, project portfolio managers are responsible for value creation from the strategic objectives that the project portfolio delivers. The organization, in collaboration with its partners across the business ecosystem, must embrace any

necessary changes and enthusiastically adapt to new ways of managing portfolios to maximize value delivery.

In the digital context, digitization portfolio streams can emerge or be identified in one of two ways: 1) the identification of strategic objectives that can be delivered in whole or part by digital enablement, or 2) the setting of digital specific goals or strategic objectives by the organization's strategic management team [1]. Companies employ project portfolio management to strategically align project investment decisions and enhance the organization's ability to deliver value over the long-term.

Managing Project Portfolios in the Digital Context

Project portfolio management will be successful in delivering digitally-enabled portfolios only if the strategic planning process is undertaken by digitally-cognisant staff. The forming of strategic planning teams must encompass the sources of ideation and the competences to understand new and evolving digital technologies. Strategic planning continues to get more complex and difficult. However, the basic project portfolio selection criteria based on the project's contribution to strategic objectives remains the same. Gartner often refers to the 'hype cycle' [2]–[4] which nearly always exists for new or emergent technologies that are often over-sold and usually under deliver. Hence, project portfolio approvals management needs new skills to get the right balance between 'hype' and what can be effectively delivered. Business cases, based on sound financial data and realistic projections, form a basis on which projects can be accepted or rejected, and they also act as a basis for the project's assigned priority [1].

Where multiple resource competing strategic objectives exist, it may be appropriate to use multiple portfolios so that the allocation of resources will ensure delivery on multiple objectives [1], [5]. Portfolios typically have their own isolated budgets, are resourced independently, and thus, are independent of each other. Line of business portfolios are sometimes used to protect one's resources from other businesses within the group. While these are valid project portfolios, the focus of this paper is on strategic alignment project portfolios that may, or may not, encompass line of business project portfolios.

Either at a strategic planning or portfolio planning level, resource allocations for competing strategic objectives must be decided. This involves an initial set of strategic steps that is a pre-requisite to successful project portfolio management. Proposed project portfolios must be analysed, and the strategic contribution of each of the portfolio projects to strategic objectives must be identified, quantified, and prioritized. Contributions can be expressed in many ways: market share growth, turnover or profit, capacity or variety enablement, operational efficiency improvements, capability enablement, and so forth. Resource allocations to project portfolios should be made in line with the total investment allocated to the project portfolio.

Attaining many strategic objectives can be complex, may take years, and involve multiple projects. A due diligence step performed by portfolio management is to validate and verify that the stated strategic

objectives remain valid and continue to enjoy support across the organization. It is particularly important to do this before large resource commitments are made and when the strategic plan is relatively old i.e. six or more months old. Where time and resources permit, a verification of the assumptions upon which the strategic plan was based can be helpful. Determining the best route to achieving the strategic objectives may involve taking incremental steps. Thus, the business may need to operate in different modes as it progresses from incremental step to incremental step. While the business internally may operate in different modes at each incremental step, project portfolio planning should focus on 'service or product as usual' to the customer[1]. Projects within the project portfolio must be sequenced so that an orderly migration of the business from its current state to the desired strategic position is achieved.

Change is everywhere in project portfolio management [6]. The selection and use of appropriate change management approaches is essential to successfully managing the project portfolio. Multiple changes may need to be managed simultaneously and the use of different change management approaches may be required. An understanding of the organization's change readiness [7] is necessary in selected appropriate change management approaches. Governance plans for the project portfolio should address where change will be managed - the project, programme, or project portfolio levels [1], [5], [7]. The provision of training and education on technology and its planned uses needs to be part of change management planning. The ability of staff and the organization collectively to absorb and make useful any such learning may impact scheduling, as staff with prior or related knowledge will absorb new information more quickly. In large changes, the training of experts can assist with the successful dissemination of knowledge. These experts are employees trained to a level or two beyond what is minimally needed to perform their function. Such staff will become the "go to person" for immediate support and having some of these experts in each work area enhances project success rates.

Project selection and approval should be based on agreed criteria [1]. Project proposals should include as part of their business cases, an indication of how the projects contribute to the strategic objectives being pursued by the project portfolio. Such contributions should be expressed in agreed terms, facilitating consistent evaluations. Support for the selection of the better contributing projects is easier to obtain when the selection criteria are considered useful and when they have been used consistently. Rating and ranking projects is not a trivial task and often requires many attributes to be examined e.g. capability enablement, operational efficiencies, and safety improvements. It is important that stakeholders clearly understand the ranking and rating criteria being applied. Finally, if the application of these criteria is open and transparent, the system (open to improvement suggestions from all) gains credibility and acceptance [1], [5], [8].

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[1] Incremental product or service improvements can occur at each increment step. For example, electronic payment may be accepted before a business has fully migrated to on-line only.

Project selection and approval cannot be done without some analysis of risk [1], [5], [9]. When analysing risk at the portfolio level, aggregate views of the projects and programmes in the project portfolio must be analysed. Portfolios, because of their longer duration, are more susceptible to changes that warrant adjustment in the strategic targets being pursued, the expected benefits and contributions from the various components of the project portfolio, and Social, Technological, Economical, Environmental, Political, Legal, and Ethical (STEEPLE) external considerations. Thus, project portfolio management needs to be adaptive, reactive, predictive, and business value focused. This occasionally can involve the cancelling of strategically non-aligned projects or projects whose strategic contributions are no longer considered sufficient for the resource investment. Projects may also be cancelled where risk management approaches can no longer contain the possible exposure to risk from a project. Risk needs to be evaluated at approval, and monitored and managed throughout the entire duration of the portfolio [1], [6], [8]–[11].

Benefits realization is a fundamental objective in project portfolio management [1], [5]. A programme within itself seeks to identify synergies and opportunities between the projects in the programme. It can be useful at the project portfolio planning level to look across the full range of projects and programmes for further synergies and opportunities[2]. Efforts should be made to realize benefits early and improve cash flows. The organization should prioritize the projects with higher benefits potential for early execution.

Selecting projects for the project portfolio and commencing them does not deliver the expected benefits. While a portfolio is running, it requires oversight and control actions to achieve and deliver the strategic objectives and associated benefits [1]. Information management and the use of appropriate filters are essential to avoid information overload when managing large portfolios or numbers of portfolios. Skills in the analysis and evaluation of project summary views like S-Curve analysis, Earned Value Analysis, Critical Path Analysis, Gantt or PERT slippage views, and so forth are helpful. Developing and sustaining a culture of open and immediate reporting by exception should be fostered. Using a suitable governance structure that empowers project and programme managers to address many of the common issues that can arise in project and programme management from within their own resources can be hugely beneficial in filtering smaller issues from the project portfolio management team. Portfolio management should focus on larger issues and not get involved in project tasks e.g. "Project A" is late and the resources needed for "Project C" are impacted. A project portfolio manager may be able to make resources available from "Project D", while neither the project managers of "Project A" or "Project C" had visibility of such an option.

Portfolio management needs to be particularly responsive to agile or iterative projects where whole cycles can be short, and delays may have a larger adverse impact [1], [8], [12]. Portfolio management

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[2] Not all synergies are worth pursuing. The costs of information or systems sharing, the potential disruption of managerial independence, or the synchronization efforts necessary to realize such synergies may make pursuing them non-viable.

needs to provide facilitation and mediation, and act as a source of problem resolutions. Events that should automatically trigger project portfolio re-evaluations include mergers, acquisitions, divestitures, or business environment upheavals (e.g. war or disasters).

Project portfolio support must be sustained over the duration of the portfolio [1]. Project portfolio management should be assigned responsibility for the resource allocations to all projects [13]. Providing insights into financial, people, and technical resource demands and commitments can be helpful in communicating the effective use to which these resources have been assigned. Providing stakeholder groups with reports focused on their interests is also effective in sustaining support [5]. Finally, project portfolio managers, in communications with stakeholders, must listen, understand, and address their concerns.

Conclusions

Project portfolio management is central to delivering themed or strategic objectives that could not easily be delivered by projects alone. However, in the digital context project portfolio initiation may be championed from anywhere within the organization or even externally driven by customers, partners, or regulators. A reconceptualization of project portfolio management is required to enable the organization to support and leverage good business ideas regardless of their sources. Failure to do so can result in the organization being late to market or non-responsive and incapable of leveraging business ideas.

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