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Organizational Agility through Project Portfolio Management

Catherine P Killen

School of Systems, Management and Leadership, Faculty of Engineering and IT, University of Technology, Sydney

Abstract

In dynamic environments, organizational agility is essential for survival; organizations must be able to adapt to change in order to succeed. In project-based organizations, a dynamic project portfolio management (PPM) capability can enhance organizational agility. PPM is an important organizational capability that enables organizations to manage and balance the portfolio holistically, to align projects with strategy, and to ensure adequate resourcing for projects in order to maximize the benefits from project investments. A dynamic PPM capability enables organizations to be agile and flexible by facilitating adjustments to the project portfolio and reallocating resources in response to the changes in the environment. In order for the PPM capability to remain relevant, it must evolve to reflect changes in the environment. Examples of aspects of PPM that enhance organizational agility are outlined in this paper to provide guidance for practitioners.

Introduction

During the past two decades, PPM has become established as a discipline and organizations have been increasingly turning to PPM to help them manage their portfolios of projects and improve their competitive position (Wideman, 2004; Levine, 2005; Kester, Griffin, Hutlink & Lauche, 2011). Primary goals for the adoption of PPM are to effectively implement the organizational strategy through the portfolio of projects and to enhance the long-term value of the portfolio as a whole. As part of these aims, PPM assists with the management of resources across the portfolio to avoid a ‘resource crunch’ where the organization attempts too many projects (Cooper & Edgett, 2003). PPM methods also provide the holistic oversight required to ensure that there is balance in the portfolio. The use of formal and mature PPM approaches have been linked with higher success levels in research studies (Cooper, Edgett and Kleinschmidt, 2001; Killen, Hunt & Kleinschmidt, 2008) prompting organizations to focus on the establishment and development of PPM.

Until recently, PPM has been presented as a series of processes and procedures that organizations tailor to suit their environment. The common refrain has been that, once tailored appropriately, the PPM process will assist an organization to achieve competitive advantage by implementing strategy, balancing the portfolio, maximizing the value, and ensuring resource adequacy for projects. However recent research highlights many other aspects of PPM that paint a picture of increased complexity and dynamism and offers insight into additional ways that PPM can create value for an organization (Killen & Hunt 2010; Petit, 2012). PPM is now seen as more than a process – PPM is an organizational capability that also includes the organizational structure,

the people, and the culture. These elements must work together for effective PPM and top management support is an important factor in PPM capability success. Recent studies also indicate that PPM has an important role to play in helping organizations achieve advantages in dynamic environments, and that the PPM capability itself needs to evolve and adjust to enhance organizational agility and contribute to sustainable competitive advantage (Killen & Hunt, 2010).

This paper first introduces PPM concepts and outlines typical processes before discussing the additional challenges for PPM in dynamic environments. To guide practitioners, several examples are presented to illustrate aspects of PPM that enhance organizational agility in dynamic environments.

PPM Concepts

As many organizations shift to ‘management by projects’, projects are often the main vehicle for delivering organizational strategy. Definitions of PPM have been evolving as the discipline has become established. A widely accepted and often referred to definition of PPM developed by Cooper *et al.* (2001, p. 3) is that “Portfolio management ... is a dynamic decision process wherein the list of ... projects is constantly revised. In this process, new projects are evaluated, selected, and prioritized. Existing projects may be accelerated, killed, or deprioritized and resources are allocated and reallocated”. McDonough and Spital (2003 p. 40) point out that PPM is more than project portfolio selection as it also involves the “day to day management of the portfolio including the policies, practices, procedures, tools and actions that managers take to manage resources, make allocation decisions and ensure that the portfolio is balanced in such a way to ensure successful portfolio-wide new product performance”. Levine (2005 p. 22) offers a broad definition of PPM: “Project portfolio management is the management of the project portfolio so as to maximize the contribution of projects to the overall welfare and success of the enterprise”. Recent research highlights the fact that an organization’s capability to manage the project portfolio encompasses much more than the processes and methods identified for PPM; it also requires the people and a culture that supports information transparency and portfolio level perspectives, and it requires organizational structures that provide appropriate levels of visibility and responsibility to support the PPM capability (Killen & Hunt, 2010).

Although PPM is tailored for each organization, there are many common elements and approaches to PPM. In its most simple form, PPM facilitates decisions across the entire portfolio of projects by (1) collecting information from all projects (existing and proposed projects), (2) collating and organizing the information, (3) presenting information to a carefully selected decision-making team for portfolio-level reviews, and (4) providing a structure for communicating and implementing decisions. These four steps are explained with extensions for dynamic environments in the section labeled *Outline of a Dynamic PPM Approach*.

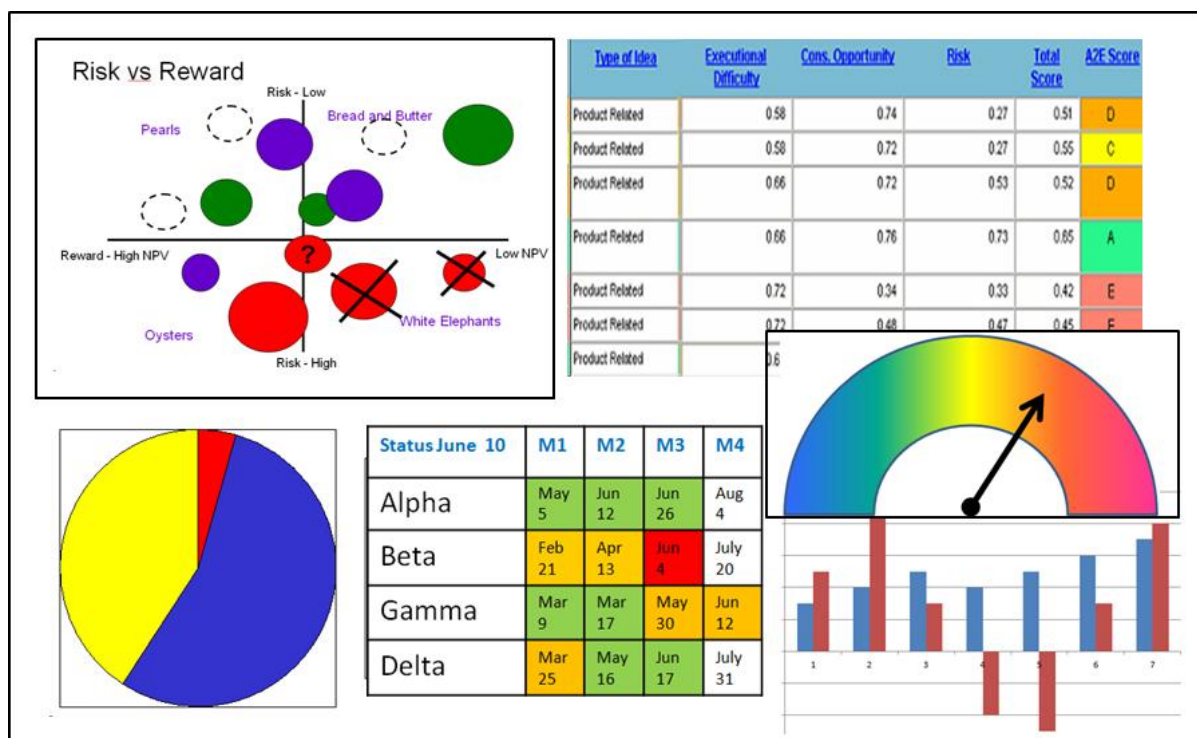


Figure 1: Typical methods for organizing and presenting PPM data.

Clockwise from top left: Risk/reward portfolio map; scoring model; dashboard display; stoplight report; pie chart.

Figure 1 illustrates a range of common methods and tools for organizing and presenting portfolio data for decision meetings. Portfolio mapping is a common method to provide a central view of all projects in the portfolio. Portfolio maps plot projects on two axes and can be used to assist with the selection of a balanced portfolio of projects. Commonly used portfolio maps balance aspects such as risk versus return and can also display other information through the size, color, patterns, or notes associated with the symbol for each project. Scoring models use weightings and ratings to compare projects based on multiple criteria. Many software applications for PPM offer ‘dashboard’ displays that show the status of projects on dials and graphs; stoplight reporting uses the red and amber colors to highlight trouble areas and green to show the ‘all clear’. Pie charts are often used to communicate the balance in the portfolio; for example by displaying the breakdown of funding across types of projects in a portfolio. All of these methods and others must be customized for each environment to best support decision making.

While PPM capabilities often have common elements, they must be developed over time and adjusted to the environment. There is an order of implementation to many aspects of a PPM capability (Eisenhardt & Martin, 2000; Cooper, et al., 2001). For example, establishing a foundational capability such as a gated project management process is an antecedent to the development of an effective PPM capability; and data gathering capabilities must be developed before the capability to evaluate and adjust the portfolio mix can be established (Martinsuo and Lehtonen, 2007).

As shown in Figure 2, PPM capabilities generally include a gated project management process integrated with a portfolio-level review process at one or more of the gates or decision points. In addition the figure also reflects the fact that many organizations develop more than one version of project management process to cater to different project types. The main differences between versions of the gated project management processes are in the number of stages and gates and in the types of criteria used to evaluate projects at the gates. The three main dimensions of a PPM capability are also illustrated: ‘process’ dimensions, ‘structure’ dimensions, and ‘people and culture’ dimensions.

Figure 2 also depicts the post implementation review (PIR) as part of the process. The PIR is an important stage of the process because the feedback enables the review, evaluation, and improvement of the project management and PPM processes. However, research indicates that this is a weak area in many organizations; it is common for managers to recognize the importance of PIRs, but many find it difficult to allocate resources or gain support for such tasks.

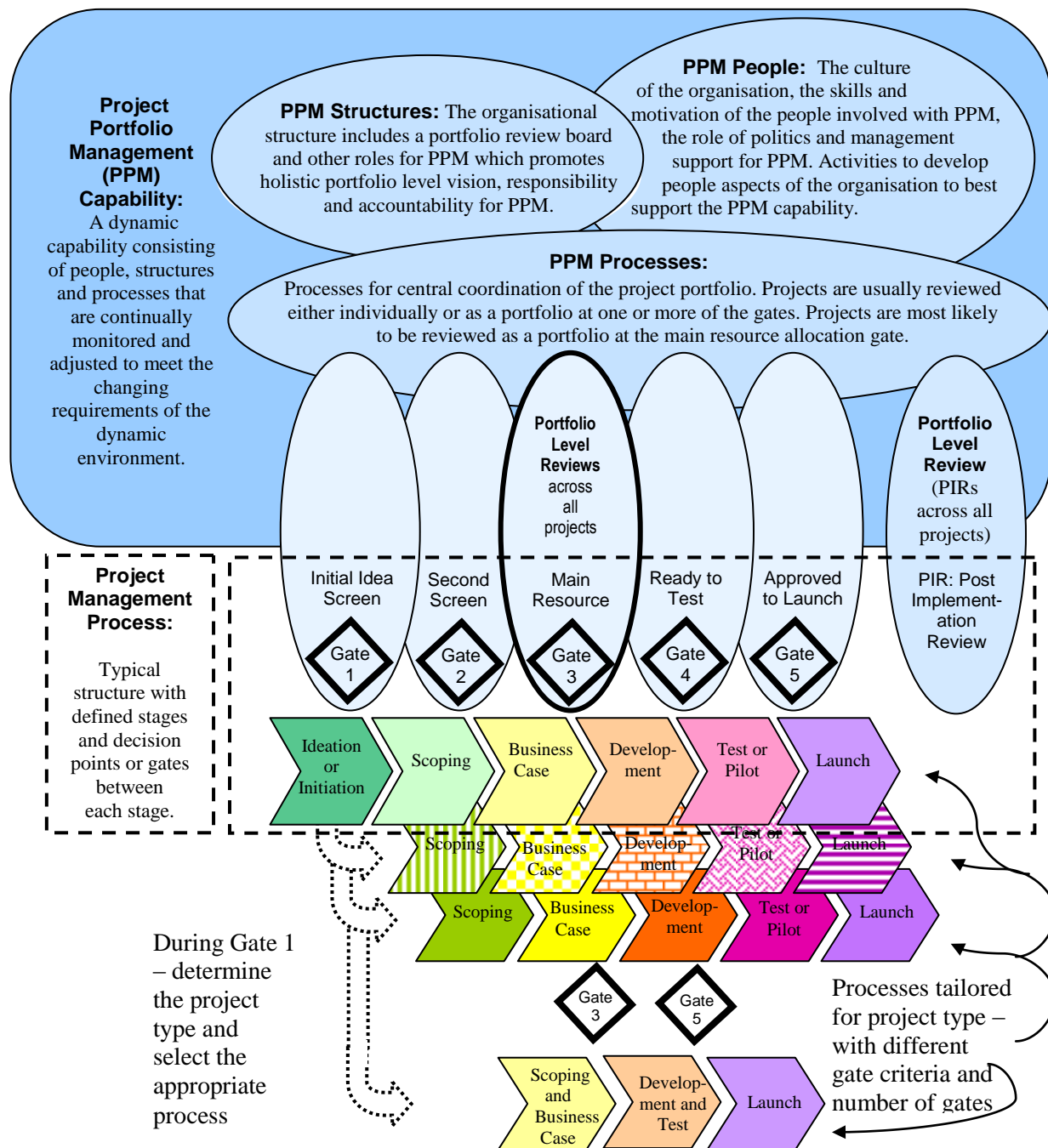


Figure 2: Three Dimensions of PPM Integrated with Tailored Gated Project Management Processes

Recent research shows how PPM capabilities can improve organizational flexibility and performance by providing a holistic and responsive decision-making environment in dynamic environments. The role of the project portfolio manager is becoming formalized as organizations aim to gain the best results from PPM (Jonas, 2010). In addition to the challenge of multi-project management, organizations must address the challenges of an increasingly competitive, globalized, and deregulated environment characterized by shortening life cycles and dynamic markets. Organizational agility, the ability to adapt and respond to change, is essential in such dynamic environments (Killen & Hunt, 2010).

The focus on ‘organizational agility’ in this paper should not be confused with agile project management approaches. Agile project management approaches offer an incremental and responsive approach to the management of projects and are becoming adopted in an increasing range of environments; however such approaches are not the topic of this paper. This paper focuses on organizational agility from a strategic portfolio perspective. From this perspective, PPM can provide organizational agility by allowing an organization to identify changes in the environment and to evaluate, analyze, and adjust the portfolio to respond to changes in the environment. In order to observe changes in the environment, PPM requires a ‘sensing’ capability that involves scanning the environment and re-visiting assumptions regularly (Teece, 2007). The PPM capability is responsible for configuring the organization’s efforts by building and allocating resources. A PPM capability that is able to do this in a timely fashion to respond to the environment provides organizational advantages in dynamic environments: it is a dynamic capability.

Dynamic Capabilities and Competitive Advantage through PPM

Dynamic capabilities are a special type of capability that enables an organization to respond to changes in the environment. Frameworks to identify and understand dynamic capabilities have emerged from research on strategy and competitive advantage. One of the goals of strategy research is to determine why some organizations are more successful than others and to understand the mechanisms that help some organizations achieve a competitive advantage. PPM has been identified as one of these mechanisms (Killen, et al., 2007; Killen & Hunt, 2010). Competitive advantage is the ability of an organization to create more value than its rivals, and therefore, achieve superior return on investment (Barney & Hesterly, 2012). One of the streams of strategy research is the resource-based view; the resource-based view proposes that the differences in the levels and types of resources between competing organizations can be used to explain differences in organizational success rates. An extension or offshoot of the resource-based view is the identification of a special class of organizational capabilities that enable organizations to effectively respond to changes in the dynamic environments in which they compete (Teece, Pisano & Shuen, 1997). ‘Dynamic capabilities’ do this by providing a capacity for ‘an organization to purposefully create, extend, or modify its resource base’ (Helfat, et al., 2007 p. 4).

An organization’s PPM capability is one of the internal organizational capabilities or resources that an organization uses to gain competitive advantage. In a dynamic environment, a PPM capability that acts as a dynamic capability can enable an organization to be agile and respond to change in the environment. Although dynamic capabilities are a type of resource-based capability, they do not have the ability to create value independently. Dynamic capacities add value by working with the existing resource-base (Eisenhardt & Martin, 2000) and therefore can be considered ‘enabling resources’ (Smith, Vasudevan & Tanniru, 1996). It is also important that supporting capabilities are established before a dynamic capability can be effective (Eisenhardt & Martin, 2000). Therefore, a dynamic capability such as PPM must be accompanied by underlying resources and capabilities such as the project management capability in order to provide long-term competitive advantage in dynamic environments. Dynamic capabilities play an important role in allocating resources, as well as in identifying the desired development and direction of resources and capabilities in line with strategy (Wang & Ahmed, 2007). As a dynamic capability, PPM can improve an organization’s ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments’ (Teece, et al., 1997, p. 516) and through these mechanisms improve the competitive advantage in dynamic environments.

PPM in Dynamic Environments

Learning and change are an important part of PPM's ability to provide advantages in dynamic environments. Figure 3 illustrates effect of learning and change on the PPM capability in order that it evolves to meet the requirements of a dynamic environment. With learning and change, PPM can be a dynamic capability and enhance competitive advantage. Organizational learning is embedded in PPM capabilities through mechanisms for tacit and explicit learning. For example, tacit learning – the type of learning that is difficult to document or codify and is best transferred through experience or observation – is achieved through the interaction of experienced managers in PPM meetings and through the ability of PPM to act as a focus point for decision experiences to be shared and for learning to accumulate. On the other hand, explicit learning – the type of learning that can be codified and documented – is incorporated in PPM through aspects such as standard templates, databases, and defined and documented methods and routines. Both types of learning inform the evolution of the PPM capability and ensure that it remains up to date and relevant in a changing environment. Through this learning, the PPM process is thus able to deliver competitive advantage in dynamic environments.

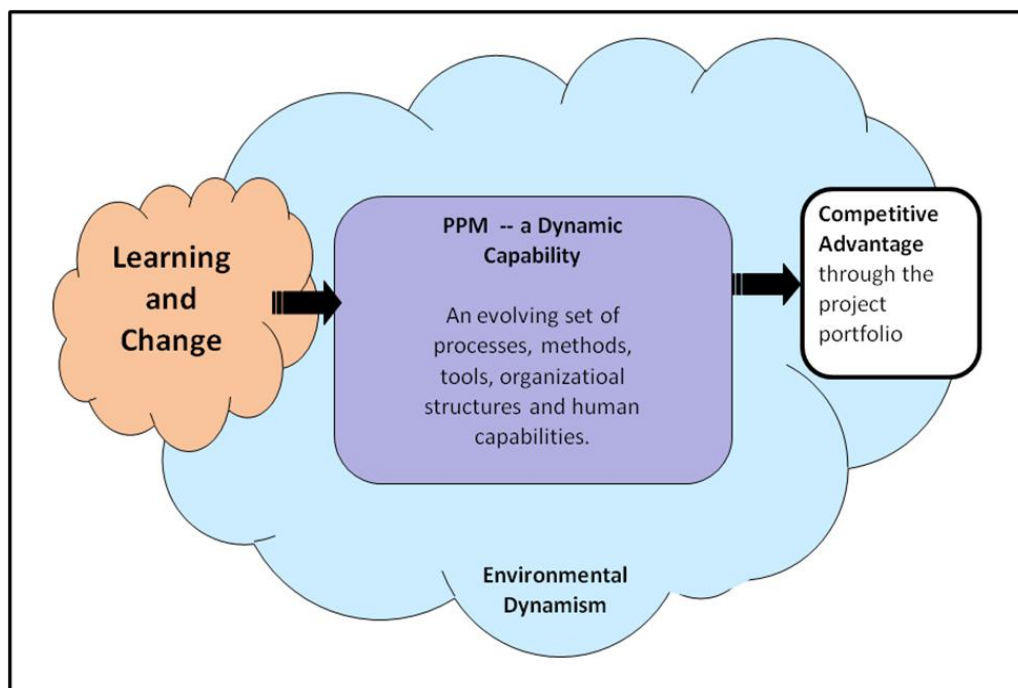


Figure 3: Learning and Change: Competitive Advantage through the Evolution of PPM in Dynamic Environments

Outline of a Dynamic PPM Approach

A typical portfolio-level review process includes the four steps outlined in Figure 4 and explained below. The general aspects of the four steps are outlined first followed by specific *aspects of PPM for dynamic environments in italics*.

(1) Single project data collection. Data are collected for new project proposals and on existing project status in order to inform decision making (Kester, et al., 2011). The data are generally collected from all relevant projects in a standard form that defines the types of data required to facilitate evaluation. Project data may be obtained from a computer system or through templates or proposal documents. Templates often include a one-page executive summary that highlights the main criteria for the decisions makers to consider (for example risk, reward, investment, skills and resources required, benefits, and aims). *Dynamic environments may require more frequent refreshing of project data. The relevant types of data must be kept up to date; the templates for data*

collection may change periodically in response to capability reviews. In addition, beyond simply collecting project data, a dynamic PPM capability may promote or encourage project ideas that will support the organizational strategy. Idea management portals and collaborative tools can be used to assist in the idea and project proposal development process.

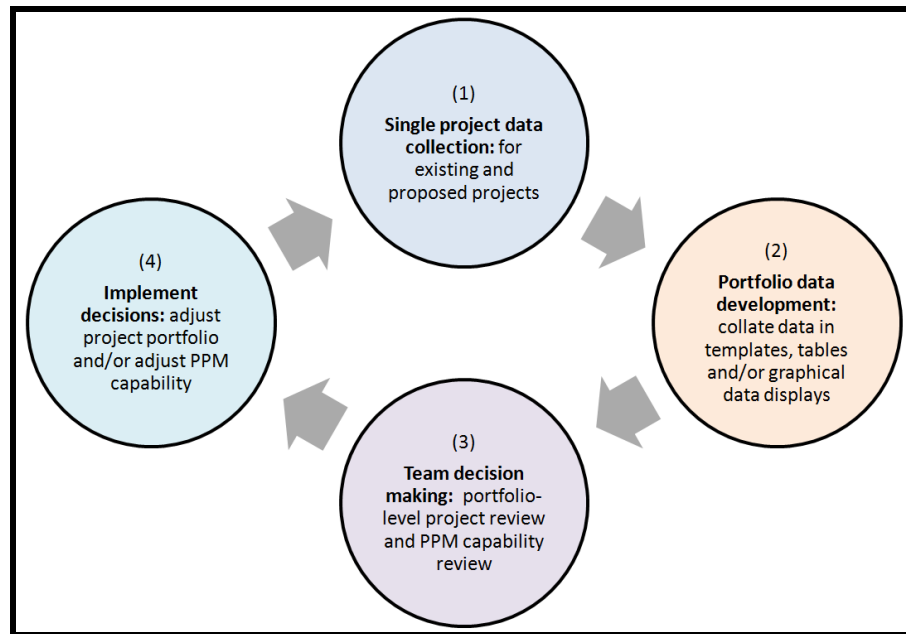


Figure 4: Outline of a Dynamic PPM Approach Including Evolution of Processes through Capability Reviews

(2) Portfolio data development. Drawing upon the single project information for all projects in the portfolio, the data are collated or ‘rolled up’ to provide portfolio-level summaries. The data are arranged to assist decision makers with the comparison and evaluation of portfolio data.

Research indicates that ‘best practice’ organizations create graphical and visual information displays such as portfolio maps to facilitate group decision making (Cooper, et al., 2001; Mikkola 2001; Killen, et al., 2008; de Oliveira Lacerda, Ensslin & Ensslin, 2011). Figure 1 shows some common portfolio-level data displays, including portfolio maps, that are developed in this stage of the process. Portfolio maps display projects and the strategic options they represent on two axes, augmented with additional data to provide a visual representation that incorporates information such as strategic alignment, risk, return, and competitive advantage. Due to the multiple types of data represented, these types of visual displays are often called two-and-a-half dimensional (2½-D) displays (Warglien, 2010). *Such displays and all portfolio-level summaries must be kept up to date in dynamic environments. Some tools and techniques may be better suited to dynamic environments, and new tools and techniques are regularly being developed and tested to meet current challenges. For example, network mapping approaches may help identify flow-on effects among interdependent projects arising from changes in the portfolio (Killen and Kjaer, 2012).*

(3) Team decision making. In many organizations, a portfolio review board meets periodically to discuss the options available and to make project decisions in the context of the entire portfolio of projects (including ongoing projects as well as new proposals). The portfolio review board generally consists of five to ten experienced executives or managers that represent diverse organizational perspectives and responsibilities. There are many approaches to the timing of portfolio level reviews – for example, some organizations create an annual portfolio plan, while others meet to refine the portfolio every week or two. The timing depends on the organization’s environment – timing is influenced by aspects such as complexity, dynamism in the market,

levels of technological change, and project duration. Meetings often employ graphical data representations to inform group discussions and negotiations (Mikkola, 2001; Killen, et al., 2008). Decisions are made with the entire portfolio in mind and will consider resourcing, strategic alignment, and other aspects. Typical decisions on new project proposals at a portfolio review meeting range from approval, hold for a later date, rejection, or requests for more information. The decisions relate to new projects as well as existing projects through mid-stream reviews (Rad and Levin, 2008); for example ongoing projects can be cancelled, delayed, accelerated, or left unchanged. *In dynamic environments enhanced 'sensing' capabilities need to be incorporated to detect changes in the environment; the time between decision meetings may need to be shorter; and/or special mechanisms may be required to enable agile response to unanticipated changes in the environment.*

In addition, in dynamic environments the regular review of the PPM capability is particularly important. The portfolio review board and/or other executives must also review the processes used and their outcomes. The reviews are done to keep track of the results of the process, and if necessary, recommendations for adjustments to the process will result from the review. In a dynamic environment, such adjustments are periodically required so that the portfolio outcomes will continue to reflect the desired strategy and balance.

(4) Implement decisions: The outcomes of the portfolio review decision meetings are implemented in this step. For example, new projects may be initiated, some existing projects may be cancelled and resources reallocated, and other existing projects may be accelerated to beat the competition; these changes flow from the decisions made by the portfolio review board. Through this process, there is continual adjustment to the portfolio of projects. *In dynamic environments, the adjustments to the portfolio may be more frequent. In addition, the suggestions arising from the reviews of the PPM capability are implemented. and the cycle continues with evaluation and adjustment of the capability as required. In dynamic environments the decisions and suggestions will drive the continual evolution of the processes for managing the portfolio.*

Examples of PPM in Dynamic Environments

What does a dynamic PPM capability look like in practice? The following examples are taken from a study of the PPM approaches used by successful innovators. The examples have been selected to illustrate practical examples of aspects of PPM capability that can improve organizational agility – an organization's ability to adjust to changes in the environment.

'Sensing' the environment. 'Sensing' changes in the environment is necessary for an organization to start the process of evaluating and adapting to the changes (Teece, 2007). A medical devices company recognized the importance of keeping abreast of developments in medical treatments that have the potential to influence their product development directions. The medical specialists employed by the organization have always played an important role in the 'sensing' of the environment, however their time is limited, and their expertise is focused in specific areas. In recognition of the importance of 'sensing' the environment, the organization developed several strategies to enhance their ability to keep track of trends and developments in the field. One of these strategies was the development of a medical review board consisting of external advisors and specialists from a range of related professions. This initiative greatly extends the available expertise and provides a diversity of perspectives.

Similarly, an approach employed by a telecommunication company is to encourage and facilitate employee involvement in specialist communities through conferences and professional associations. Through these contacts and conference presentations, the employees are better able to contribute to the organization's ability to 'sense' the environment.

Reallocating resources. An important aspect of PPM in any environment, and especially in dynamic environments, is the ability to stop poor projects and reallocate the resources to other projects. This ability is the key to organizational agility through PPM: the organization must be able to ensure that the current set of projects represents the best overall mix at the current time. Often a project that was strongly supported when initiated becomes less desirable as the environment changes. Changes such as the emergence of a new technology or competitive product, changes in demographics or foreign exchange rates, or changes in commodity or property prices can radically alter a project's prospects for success. However many organizations

find it difficult to cancel a project, and often the people involved resist changes to the project. One manufacturing organization felt that a culture that supported information and decision transparency and communication is the key. They implemented steps to ensure that the criteria, data, and methods for evaluation are openly shared and discussed. In addition all levels of management visibly supported and participated in the PPM processes. Through these measures, the organization gained strong buy-in and support for the process. With such support, the organization felt that decisions to cancel a project and reallocate resources were understood and supported – making it easier to make the difficult decisions to cancel projects when necessary.

Ensuring ambidexterity. In many industries, it is important that an organization is able to successfully ‘exploit’ and ‘explore’ at the same time – this is sometimes called ‘organizational ambidexterity’ (Tushman & O’Reilly, 1996; Tushman, Smith, Wood, Westerman & O’Reilly, 2002). Exploitation projects are generally short-term, incremental, or low-risk undertakings that are relied on for day-to-day improvements in existing offerings or operations. In contrast, exploration projects are longer-term, higher-risk, radical, or breakthrough initiatives that aim to create innovative new capabilities and offerings to bring the organization to the next level. Collating data across the portfolio of projects through PPM can provide an organization with the ability to determine the current balance of project types. This is often done using graphical data displays such as portfolio maps or pie charts.

If an imbalance is found, PPM processes can be used to help redress the balance. For example, a digital services organization introduced targeted idea generation activities to increase the number of radical ideas when it realized that its portfolio was skewed toward ‘exploitation’ over ‘exploration’. This type of skewing is common and has been named the ‘success trap’ because accumulated decision-making experiences can reinforce the support for short-term ‘exploitation’ projects at the expense of the longer-term ‘exploration’ projects that organizations believe are essential for long-term success (March, 1991). As one manager in a financial services organization commented during an interview “Short versus long-term is most difficult to balance, especially with pressure to turn around in a shorter term. Longer term no one gives you any credit for and it is harder to get justification”.

To address this problem an industrial machinery manufacture allocates a set percentage of its budget for each type of project to ensure the appropriate balance. Another approach that is commonly used is to develop a separate tailored process with appropriate evaluation criteria to be used with the longer-term explorative projects as illustrated in the model in Figure 2. This approach ensures that good ideas and projects are not disadvantaged by having to meet rigid criteria that are not appropriate for ‘exploration’ projects.

Adjusting the portfolio review board. The membership of the portfolio review board is an important part of a PPM capability. In a dynamic environment, the profile of portfolio review board members may need to be adjusted as the environment changes. For example, one successful manufacturer traditionally had a strong engineering and technical influence on the review board. This served the organization well during its early stages of developing a best-in-class technology and enabled it to extend its market internationally. However, as the international competitive environment evolved, the portfolio review decisions failed to incorporate marketing and customer-related input and instead resulted in a number of technologically-driven projects that failed to find a market. Upon review of the situation, the organization decided to radically change the membership of the portfolio review board to include marketing experience across the main regions. This change allowed the portfolio to better reflect marketing requirements in the regions.

Reviewing and developing PPM methods and tools. Dynamic project environments are often characterized by complexity, interdependency between projects, and constraints in the availability of skills and resources. In such environments, PPM is a complex multi-dimensional challenge and the PPM capability must evolve to stay relevant. The challenge is amplified by the presence of interdependencies as PPM is more than an extension or scaled-up version of project management; the inter-project effects are more complex and difficult to predict (Aritua, et al., 2009). The management of interdependencies is an area of weakness for PPM (Elonen & Artto, 2003); this is one of many areas where new tools are being tested. Practitioners and researchers continually refine existing methods and tools and also develop and test new methods and tools. For example, new methods to manage project interdependencies have been proposed (Rungi 2007; Killen & Kjaer, 2012). Recent research

and trials in defense and telecommunication industries suggest that new network mapping methods for visualizing projects and their interdependencies may support PPM decision making (Killen & Kjaer, 2012).

Conclusion

PPM is an important organizational capability that enables organizations to manage and balance the portfolio holistically, to align projects with strategy, and to ensure adequate resourcing for projects in order to maximize the benefits from project investments. In dynamic environments, PPM is also the key to developing organizational agility to respond to changes in the environment.

A PPM capability requires more than tools and methods for evaluating and making decisions on project portfolio data; it also requires appropriate organizational structures, a supportive culture, and top management support. One of the major challenges facing organizations is implementing a PPM capability that is flexible and responsive to changes in the environment. Although there are many common elements identified in PPM processes, there is evidence that each organization must tailor its PPM process to suit the individual environment, and that the PPM capability must be able to adapt and adjust to reflect changes in the environment.

A dynamic PPM capability can help project-based organizations respond to change in the environment and improve their organizational agility. Learning and change have been shown to be an important component of a dynamic PPM capability, and several examples of PPM capability aspects that enhance agility are outlined. Practitioners can draw upon these examples to stimulate ideas on improving their PPM capability and evolving the capability to enhance their organizational agility.

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