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IT Project Portfolio Management:
The Strategic Vision of IT Projects

Albert Cubeles-Márquez

Changes in market demand and in technology have meant that managing IT projects has recently become an authentic challenge for those responsible for information technologies. This difficulty lies in managing individual as well as group projects. This last area includes the concept of a project portfolio, a set of projects carried out within an organization and sharing resources. In recent years portfolio management has proven to be a discipline that allows the value generated by IT to increase and helps implement strategy through the projects.

Keywords: Information Technology, IT Strategy, Project Management, Project Portfolio Management.

1 Introduction

In recent years the management of information technology projects has become an important piece of puzzle that IT directors have to solve as part of their daily activities.

In order to respond to business activity and to market needs, projects are continually added to, modified on or eliminated from the list of technology projects to be carried out. In many cases the increasing number and variety of projects exceeds the capacity of IT areas to provide resources, shift priorities or adapt infrastructure to changes.

Since the mid 90s the role played by project management in information technology has grown year after year in response to this problem. A study by the University of Bremen and the PMI [1] details how the use of project management has extended to 86% of IT activities. Another indication of this growth is the increase in the number of members of project director associations. Of the 250,000 members represented at high levels in the Project Management Institute (PMI), a large percentage come from IT areas.

This increase in the use of project management in IT has undoubtedly and substantially improved project results. A Standish Group [2] report that studied 30,000 IT projects shows there was an evolution between 1994 and 2003, a period in which it can be seen that the deviations from schedule went from 222% in 1994 to 63% in 2003 and the cost deviations from 189% to 49% during the same period. In light of these results we can conclude that project management has meant that individual projects and the work associated with them have improved and that the deviations decrease, even though there is still much room for improvement.

Despite this relevance, project management has often been traditionally studied and implemented from an operational point of view, the unit of analysis being the project and its measures of success restricted to the classic elements of scope, time and costs.

In addition to the management of individual projects, those responsible for IT are faced with the problem of implementing the Information Technology strategy without

Author

Albert Cubeles-Márquez is currently a tenured professor in the project area of the Business Engineering School of La Salle (Barcelona, Spain) where he is also Director of the Master in Project Management and Director of the area of the Master in Engineering, Construction and New Technologies. Since 2005 he has been Secretary of the Barcelona Chapter of the PMI and he has had PMP® accreditation since 2006 <acubeles@salle.url.edu>.

carrying out a single project with dedicated resources, but rather having to manage a set of projects with resources working in multitask environments. In this they are faced with three difficulties: managing resources assigned to projects, managing the interrelations between projects and the contribution of the projects to the IT strategy.

To resolve these difficulties it is necessary to manage the set of projects carried out by an organisation as a whole. With this intention, in recent years, the concept of Project Portfolio Management (PPM) is being minted. In a recently published poll [3] taken among 130 people in charge of IT in the United States, 25% of those surveyed apply in an optimal way portfolio management techniques, 45% apply them or are adopting them and 78% apply them, are adopting them or have plans to adopt them.

A project portfolio is a set of projects that share and compete for a series of resources and are directed from within the same organisation. We can consider portfolio management as a dynamic decision making process in which the set of projects are evaluated, selected, prioritised and reviewed in accordance with the contribution to the strategy. In accordance with the principals of PPM, the resources must be assigned to the projects in accordance with the strategy.

This movement of project direction towards project portfolios led the PMI to issue its standard for portfolio management in 2006. This standard represents a compendium of the best practices in project portfolio management [4].

An organisation effectively manages its project portfolio when the projects that make up the portfolio fulfil three conditions:

	Portfolio Management	**Management of Multiple Projects**
Purpose	Selection and prioritisation of projects	Allocation of resources
Focus	Strategic	Tactical
Planning	Medium/Long term	Short term
Responsibility	Management	Those in charge of projects and resources

Table 1: Comparison between Portfolio Management and Management of Multiple Projects.

- They are strategically aligned.
- Maximisation of value.
- The set of projects is balanced.

2 The Management of Multiple Projects and Project Portfolio Management

A distinction must be made between managing a set of projects and managing a portfolio of projects. In many organisations it is considered that a group of projects make up a portfolio without taking into account their strategic contribution.

In fact, an independent group of projects does not make up a portfolio, it is only a group of projects that consumes time and resources. We can manage them as efficiently as possible, optimising the allocation of resources and prioritising accordingly.

The project portfolio has a clear strategic focus, the selection and prioritisation must be carried out with a clear strategic vision. Within the portfolio efficiency is desired so that each project contributes to the strategy in the best possible way.

In Table 1 we compare the differences between portfolio management and the management of multiple projects [5].

Frequently, short term planning of a group of projects is a response to the inability of management to define strategic vision and objectives or to its ability to fall into political or organisational disputes (see Figure 1).

Through the creation of project portfolios (see Figure 2) a shared vision is established between all those involved in managing the projects.

The primary advantages of project portfolio management are:

- Dynamically aligning IT projects with business objectives.
- Maximising the return on IT investments.
- Making the process of selecting and prioritising projects transparent for the entire organisation.
- Achieving that management, the functional areas and the IT area speak a common language, share the same view of the risk and collaborate in the decision making process.
- Consolidating and reducing the number of redundant projects and making it easier to avoid unsuitable projects.
- Redirecting IT investments from low value projects to higher value projects.
- Allowing those in charge of resources to plan their allocation more efficiently.

The projects must be prioritized based on their relative importance and contribution to the strategy. Each project must also be prioritized relative to other projects evaluated and to the projects under development. In addition, as the technical and business environments change, the priority of one or more projects must also change.

Once the priorities have been clearly defined, those in
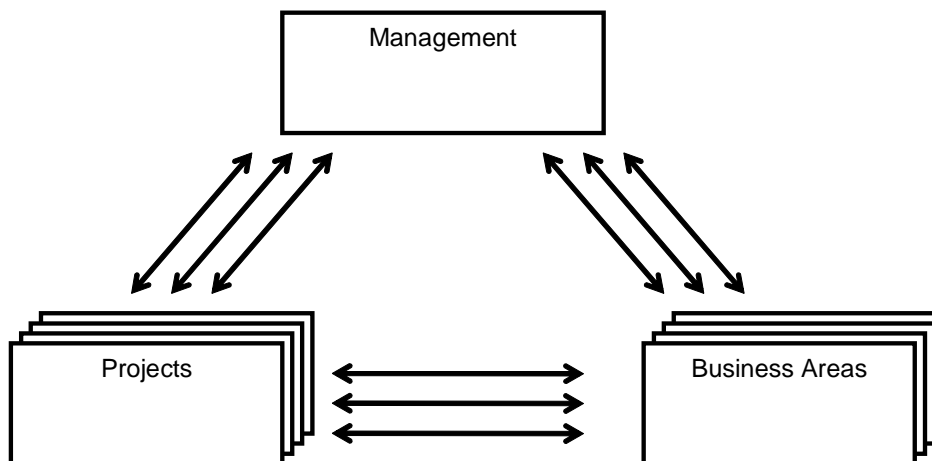
Figure 1: Multi Project Management.
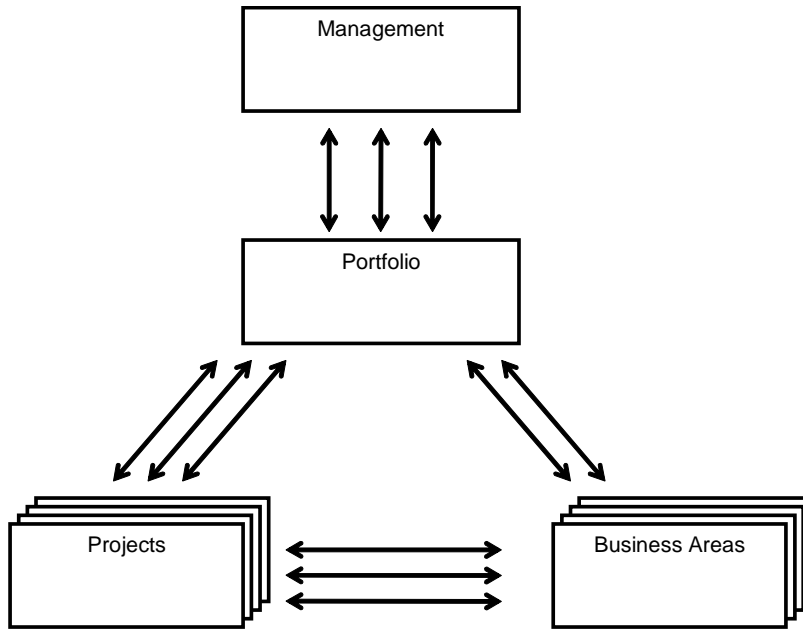
Figure 2: Project Portfolio.

charge of the projects and those who are responsible for resources must continually ask themselves several critical questions:

(1) Are the resources being allotted to the highest priority projects?

(2) Is resource use maximized?

(3) Are projects finished on time and under budget and do they meet quality standards?

3 Management of Project Portfolios and Management of Projects

A CIO council report about better practices [6] lists a series of lessons learned about IT portfolio management. The first one is "Understand the differences and relationship between portfolio management and project management and manage each in a suitable way".

Within the projects and initiatives undertaken by an IT department, IT project portfolio management is focused on the level added and on the goals and objectives of the organization. Project management focuses on a specific initiative, defining and attaining its objectives under cost, in time, and over planned performance.

As can be seen in Figure 3 project management creates value by efficiently carrying out individual projects, attaining objectives in the established time and under the established cost. Project direction, on the other hand, creates value through the identification, selection and prioritization of projects. We could say that while project

management is focused on the projects, on "doing things right", portfolio management is focused on the whole and on doing the right thing.

Creating value in the IT department increases through the appropriate management of the project as well as the portfolio.

The information in the portfolio is obtained at the project level and, in addition to taking into consideration the state of the whole, their priorities, risk level, resource consumption and trade-offs between projects, it is also concerned for the health and the best practices of individual projects.

Along the same lines, improvements in project management always have positive repercussions on the portfolio. Within project management the elements that contribute most at the portfolio level are the availability of the information for decision making and efficiency in project management.

4 A Process Model for Portfolio Management

In the PMI standard for portfolio management [4] we find a very detailed process model that takes us from the strategy to the portfolio ad form there to the programmes and projects. A simpler model, adapted from Archer y Ghasemzadeh [7], appears in Figure 4. This diagram of processes connects the three levels: strategy, portfolio and project.

The model begins with the project proposal and its individual analysis. This analysis, which is usually accompanied by a business case, aims to make an individual assessment of the risk and the reward associated with achievement of the project where financial criteria such as VAN, TIR and ROI, and assessment criteria of the strategic align-
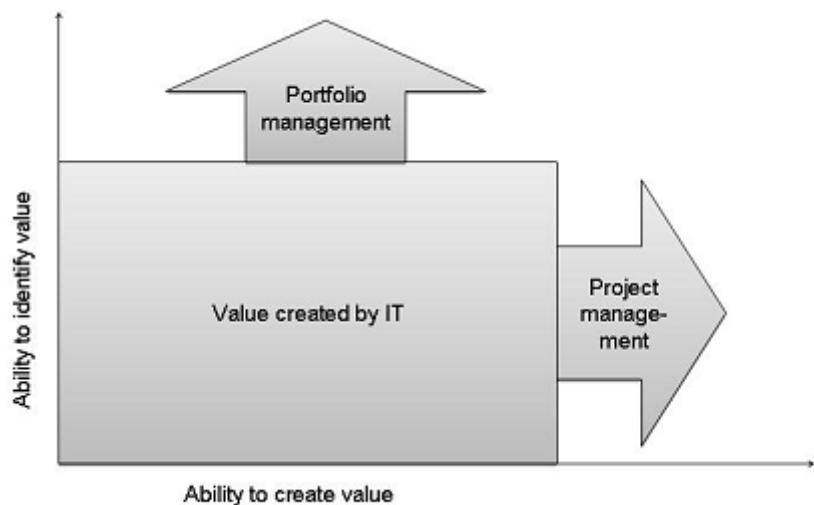

Figure 3: Portfolio Management and Project Management.
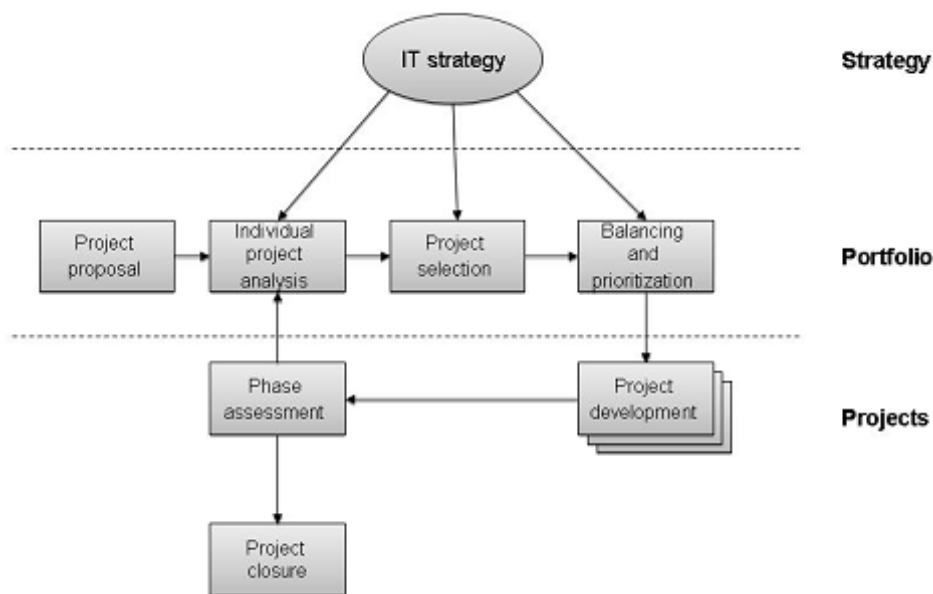
Figure 4: Process Model.

ment are used. Some projects are already ruled out at this stage.

Projects that meet the individual criteria enter the project selection process where the projects, both those being carried out and recently proposed projects, are compared. The selection is based on the simultaneous evaluation of various criteria through weighted or bubble diagrams. These criteria, just as in the individual project analysis measure risk, benefits and strategic alignment. In Figure 5 we can see a bubble diagram representing four criteria, for example risk and benefit on the axes and size of the project and alignment in the size and colour, respectively, of the bubbles.

Once the projects are selected a balancing and prioritization of the projects is done. Based on the available resources and the prior assessment the projects are categorized and prioritized and resources are allotted to them. The projects are monitored according to this prioritization and categorization. The result of this process means an updating of the plans of individual projects, adjusting them to the new priorities (see Figure 6).

At this point the process becomes iterative, the projects are carried out according to the updated plan and, as certain stages are developed, the project is continuously assessed individually and with respect to the rest of the portfolio until its conclusion or cancellation.

Figure 5: Risk/Benefit Bubble Diagram.

Figure 6: Prioritization of the Portfolio.
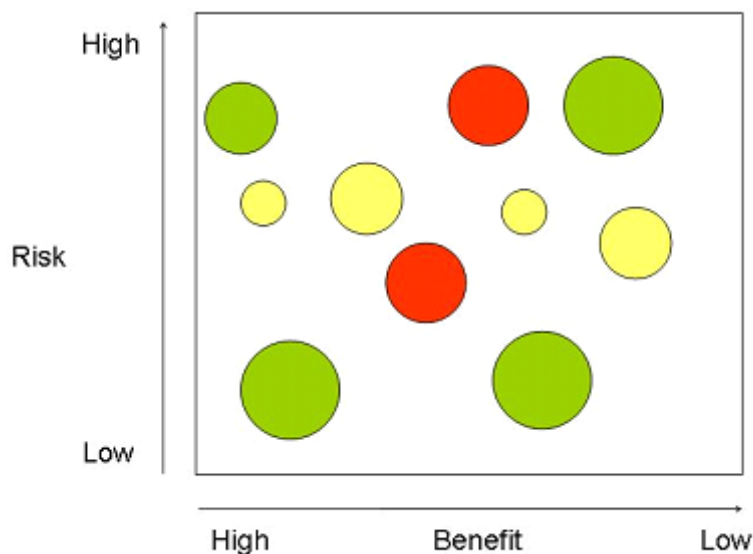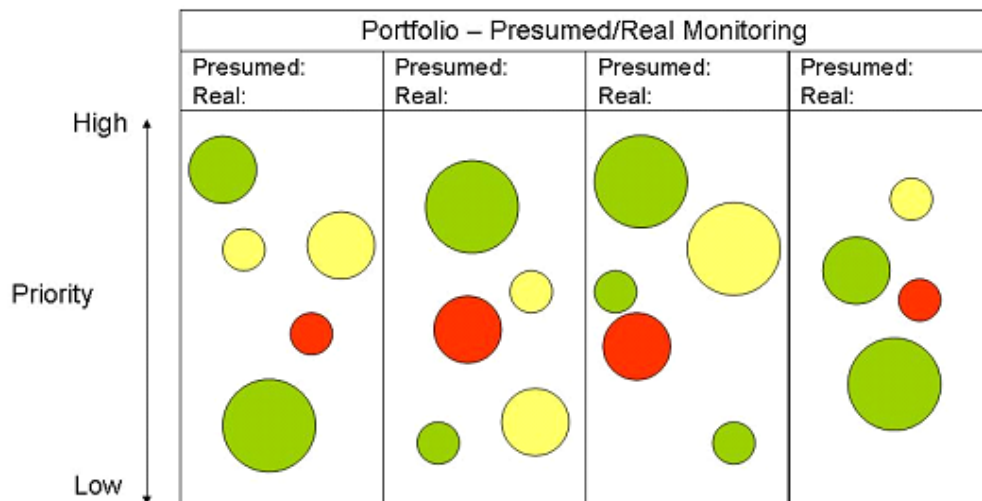
In the individual analysis, the selection, balancing and prioritization of projects require a defined IT strategy that allows an adequate assessment in each of the steps.

5 Need for an IT Strategy for Portfolio Management

As seen in the previous process diagram, having an IT strategy for a business is the only way to balance the projects in the portfolio. This strategy is necessary to ensure a balance between the short term (short and urgent projects) and long term or important projects. If the project portfolio has too many small projects that consume too many products, this is usually due to not having defined the strategy or not having made it operational in the right way.

We must take into account that the strategy becomes reality at the moment of investing, in the case of IT through the projects. For this reason, the IT strategy helps assign resources to different projects, between short term and long term ones, between those of high risk and those of low risk, between new and existing technologies.

6 The Implementation of a Project Portfolio

Implementing IT portfolio management from the beginning is not an easy task, just as implementing project management is not when the organization is not accustomed to it.

When dealing with its implementation it must be kept in mind that it is a continual process of improvement and it is recommendable to follow a maturity model, like the maturity model of Kerzner [8]. Although initially conceived for the improvement of the project management, it is perfectly applicable in the implementation of the project portfolio.

The five stages of the Kerzner model (Figure 7) are:

1) Common language.

Recognition of the importance of managing the project portfolio and the need for good comprehension of the terms and concepts associated with it management.

2) Common processes.

In this stage the basic processes of portfolio management are defined so that the process is repeatable. The principles and techniques of portfolio management are applied.

3) Singular methodology.

The process and all the criteria for project portfolio management (including selection, prioritization and evaluation) are the same for all the areas for which the decision process is unique and objective.

4) Benchmarking.

Recognition that the portfolio management process needs to improve and the evaluation should be carried out continuously. We will decide which area to improve and what to improve.

5) Continuous improvement.

Evaluation of the information from the previous stage and decision to include it in the existing methodology.

Once implemented our project portfolio must respond to a series of basic characteristics in order to work:

■ Centralized view of the projects.
■ Financial analysis and risk analysis.
■ Interdependencies between projects.
■ Prioritization, alignment and selection.
■ Dynamic evaluation of the portfolio.
■ Restrictions: resource limitation, capacities of staff, of the budget or of the infrastructure.

7 Prerequisites for the Implementation of Portfolio Management

Before beginning to implement PPM in an organization some preconditions must be taken into account:

■ Existence of a business strategy and an IT strategy. An organization that is going to implement a PPM must have defined business and IT strategies, and have communicated them to all the departments involved. The PPM objectives are adjusted to this strategy. The initiatives to implement a portfolio will be unsuccessful if there are not
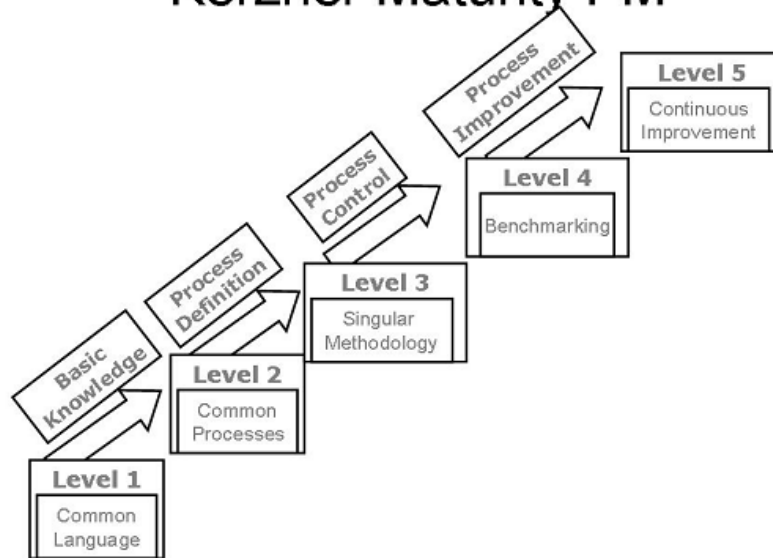
Figure 7: Kerzner Maturity Model.

existing business and IT strategies and we are simply left with multi-project management.

■ Involvement of the management. The management has to be involved to have a comprehensive view of the portfolio and its projects. Without the support and the total understanding on the part of the management, the constant competition for resources and the changes in priority will never be effective.

■ Competence Abilities of the team. Another relevant aspect is the importance of having a project team with relevant financial and strategic knowledge and abilities.

8 Software for Portfolio Management

The growth in interest on the part of IT departments in project portfolio management has been accompanied by a proliferation of software applications for project and portfolio management.

The appearance of these software applications is helping the most administrative work of gathering data and preparing the information for analysis. In spite of that the software for portfolio management tends to provide a more operative vision of the portfolio. They are a great help for the collection of data that exist in the scheduling of the project and add them at the portfolio level, which improves the management of resources significantly. However, an adaptation is needed to analyze the project from the most strategic viewpoint.

In this adaptation we will have to add information to the projects that is not in their scheduling component: the classification of clients, the financial calculations, the stages within the portfolio and the assessments of risk, among others. These last ones provide a classification of the projects based on strategic elements, maximizing the value and balancing the projects and using techniques related with portfolio management.

9 Conclusions

In recent years portfolio management has been demonstrated to be a discipline that increases the value created by IT and helps implement the strategy through the projects. Its implementation in businesses requires a series of stages that follow a maturity model and that need the implication of the management and the existence of an IT strategy that the portfolio must fulfil as key factors for its effective operation.

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