

The Unified Portfolio Management Model

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Abstract

The paper describes the Unified Portfolio Management Model (UPPM). The model has been developed on the basis of the Project Management Institute (PMI[®]) *Standard for Portfolio Management* (PMS) and *Organizational Project Management Maturity Model Knowledge Foundation* (OPM3[®]). It adopts the portfolio aligning processes from PMS and executing and controlling processes from OPM3[®]. The model covers portfolio management in operational organizations as well as in project-based organizations. The model consists of four main process groups: Portfolio Governance, Portfolio Management, Directing Components and Component Management.

Introduction

In recent years, PMI has published two standards related to the area of portfolio management. The first of them was published in 2003 as an appendix to OPM3[®] (PMI, 2003). Three years later, the same organization issued a separate Portfolio Management Standard, PMS (PMI, 2006).

These two models, taken together, have the following general weaknesses:

- They describe the same area, but are not consistent,
- The Portfolio Management Standard follows the financial portfolio management standards too closely, while the very nature of managing financial portfolios is substantially different from managing project portfolios,
- The OPM3[®] follows *A Guide to the Project Management Body of Knowledge (PMBOK[®] Guide)* too closely, while the nature of portfolio management is substantially different from the nature of project management,
- The Portfolio Management Standard is focused on operational organizations, while the nature of managing project portfolios in project-based organizations is different from managing project portfolios in an operational environment.

This paper describes the Unified Portfolio Management Model (UPMM) that combines the two models mentioned above and has none of the weaknesses described above.

PMI Portfolio Management Standards

The construction of the portfolio management model described in the OPM3[®] is based, rather directly, on the *PMBOK[®] Guide* 2000 version (PMI, 2000) that was valid for the year 2003. Thirty-nine processes, divided into five groups, are described there: portfolio initiating, planning, executing, controlling and closing. Each process from the *PMBOK[®] Guide* has its equivalent in the OPM3[®] portfolio management model. Portfolio management processes have thus been divided into nine areas, such as those in the *PMBOK[®] Guide* (see Exhibit 1).

The main stress of the *PMBOK[®] Guide* is on elementary, “low-level” management activities, such as schedule management, HR management or procurement management. The portfolio management model in the OPM3[®] follows the style of the *PMBOK[®] Guide*: it deals primarily with portfolio management and not portfolio governance.

The portfolio management model presented in the PMS is substantially different from the OPM3[®] approach. The PMS is based on the model proposed for financial institutions in the 1950's by H. M. Markowitz (Markowitz, 1959). The PMS is focused is on the governance area of portfolio management (see Exhibit 2).

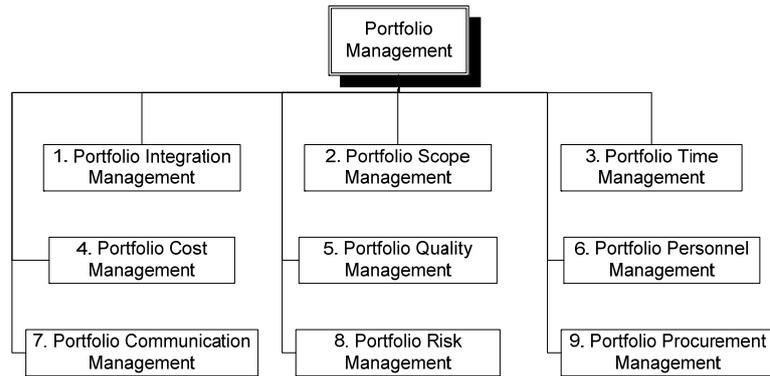


Exhibit 1 – Portfolio management model in OPM3®

The majority of activities described in the PMS are focused on ensuring that the portfolio components are selected appropriately and correctly. The selection of those components must ensure that the strategic goals of an organization can be pursued in the optimal way.

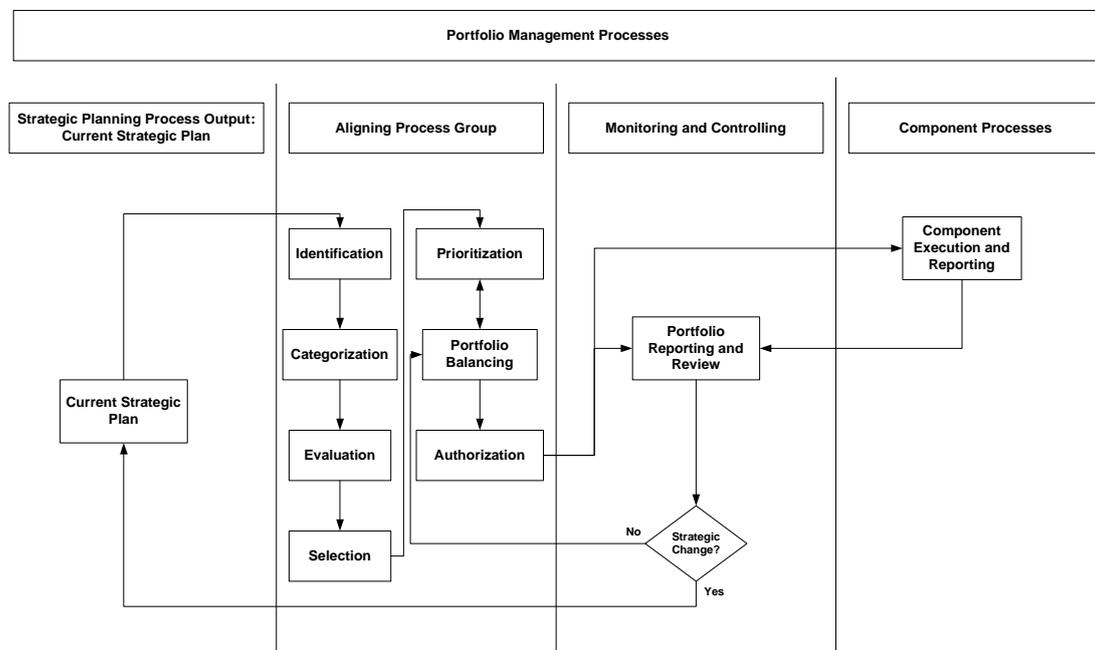


Exhibit 2 – Portfolio management model in PMS

The main goals of the two models are, to a large extent, complementary. The PMS describes mainly the portfolio components selection process (seven of its eleven processes) and OPM3® describes how the portfolio management processes are executed (selection, or initialization: 2 processes; execution, including portfolio planning and closure: 37 processes). Therefore, it would be natural to have in the unified model both the portfolio governance processes of the PMS and the portfolio management processes of OPM3®.

Portfolio Management Process Groups

The portfolio management process, compared to the project management process, has an additional dimension: the level of management. Activities connected with portfolio management can be divided into the following four groups (see Exhibit 3):

- **Portfolio Governance**
Basic decisions made about a portfolio. Activities that lead to portfolio initialization, then its modifications, and finally its closure. These activities are performed by a body that is external to the portfolio, for instance by the management of an organization.

- **Portfolio Management**
Work processes of the portfolio management team. For example: building a portfolio management team, developing a schedule of portfolio management team activities, cost management for these activities.
- **Directing Components**
High level management processes carried out by the portfolio management team that are focused on components of a portfolio and the portfolio as a whole. For example: establishing the budgets of components, setting up reporting principles for components, appointing components managers, managing portfolio level risks.
- **Components Management**
Management activities performed by the component management team, which are vital from the point of view of the whole portfolio. For instance, reporting to the portfolio management team.

These four groups of processes make up the basis for the Unified Portfolio Management Model.

This division of processes is clearer and more adequate for portfolio management purposes than the division presented by the PMS. The groups of processes defined in UPMM have well-defined teams to perform them. The main criterion for division of the portfolio management processes is based on separation of management processes from directing processes.

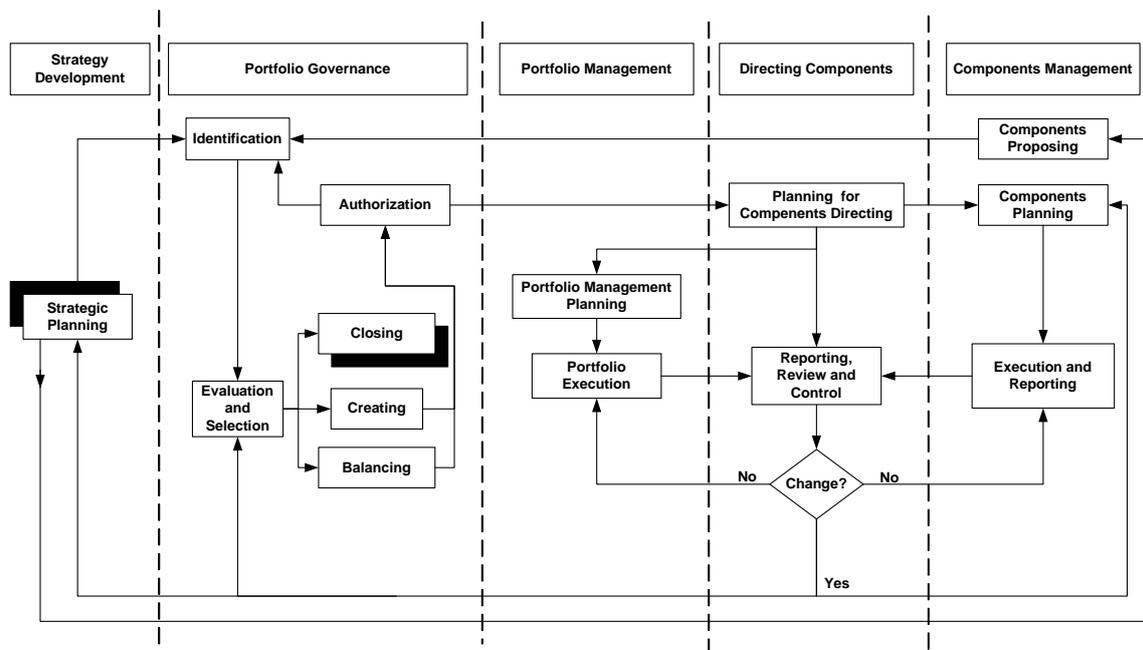


Exhibit 3 – Processes of the Unified Portfolio Management Model

The portfolio life cycle consists of phases that are delimited by the main Portfolio Governance (aligning) processes: Creating, Balancing and Closing. These processes are usually performed at intervals that depend on the type of organization. They are executed more frequently in project-based organizations than in operational organizations.

The following chapters describe processes of portfolio management and their grouping in detail. For the purpose of this work we used, where needed, processes from *PMBOK® Guide 3rd Edition* (PMI, 2004) on the assumption that the supersession of *PMBOK® Guide 2000* (which comprised the basis for OPM3®) by *PMBOK® Guide 3rd Edition* would be the natural path of OPM3® development.

Strategy Development

This area includes one process – Strategic Planning. The result of strategic planning is the strategy of the organization. The strategy organizes all activity engaged in by the organization. All portfolio components should be developed in accordance with the strategy that the organization has adopted.

The organization's strategy may be altered as a result of information received about the portfolio's performance. The process of Change generates change requests, which may concern the whole strategy. The way the change is carried out is analogous to **project** change management. The Reporting, Review and Control process together with the Change decision point, prepares change requests, while another process (Strategic Planning) works towards a strategy modification, taking into consideration the change request and the whole situation of the organization.

The Reporting, Review and Control process is performed asynchronously to the Strategic Planning process. Strategy changes imposed within portfolio management cycles are accumulated and are then reflected in subsequent versions of the strategic plan.

Portfolio Governance

The main part of the Portfolio Governance process group consists of aligning processes. They align portfolios with the organization's strategy. This group of processes is executed in UPMM in the way similar to that of PMS.

Identification

The Identification process defines potential candidates to be placed in a portfolio. There are three sources of information that affect the set of potential components. First, for each portfolio, its current composition is known. Second, the Component Proposal process generates proposals for new components. Finally, the proposals are evaluated against the content of the current strategic plan.

Evaluation and Selection

A process responsible for defining and maintaining the set of components of a portfolio. The processes of component Categorization, Evaluation, Selection and Prioritization described in the PMS, has been combined to create one process called Evaluation and Selection. This process is indeed a logical whole, which produces a set of components included in a portfolio. From the point of view of portfolio governance, two products are important in the component selection process: the set of **potential** components to be included in the portfolio (developed by the Identification process) and the set of **selected** components, which is developed in the Evaluation and Selection Process. Activities that were singled out as separate processes in the PMS do not meet the formal criteria for being independent processes: their results are not independent Portfolio Governance process results. Such results **are** generated in the form of the sets of evaluated and selected portfolio components. The remarks made above are not meant to suggest that categorization and prioritization of potential candidates should be abandoned. They do not generate products that would constitute an independent value for the portfolio life cycle. For that reason, they have been merged into a larger process of Evaluation and Selection.

Balancing

If the process of Evaluation and Selection results in some changes being made to the existing portfolio composition, the process performed on this portfolio is called *balancing*. Some components may be removed from the portfolio, while others may be added as a result of portfolio balancing.

Creation

It may happen that the Evaluation and Selection process will define a new set of components for a new portfolio. The portfolio creation process must be performed for such sets of components.

Closure

If after the Evaluation and Selection process a portfolio contains no components, it must be closed. A portfolio may also be closed if the categories that existed in the strategic plan at an earlier time and led to the portfolio's creation have been removed from this plan.

Extension of the model to include the processes of Creation and Closure is particularly important for project-based organizations that usually hold more than one portfolio (where portfolios usually correspond to sets of projects performed by main organizational units). Creation of a new portfolio is equivalent to the creation of a new organizational unit there. Such processes are performed relatively frequently and must not be absent from the portfolio management model in project-based organizations.

In operational organizations there is usually one portfolio of investment projects (in a broad meaning of this term), and therefore creation of a new portfolio is not of particular importance.

Portfolio Authorization

After the decisions are made, they must be authorized in order to allow for necessary decisions on execution (e.g. allocation of resources and budget). The other aim of the Authorization process is that of forwarding a list of components to the Identification process for use in subsequent portfolio life cycle processes.

Portfolio Management

The Portfolio Management process group is auxiliary in relation to the Directing Components process group; the former enables the execution of the latter. The group of Portfolio Management contains those portfolio processes which are not directly oriented toward components or the portfolio as a whole. A good example of a process area from this group is human resources management – managing the portfolio management team.

In project-based organizations, this is the work performed by organizational unit management teams that are aimed at keeping the particular unit functioning. In operational organizations it is analogous work performed by the Investment Department or another unit that is responsible for project performance.

Please note that the UPMM has not been prepared as a direct pattern for creating a WBS for the whole area of portfolio management. The emphasis has been placed on clarity of the model. Thus, some processes are presented here twice. Let us consider a task like Components Cost Budgeting (the same is true for every other process from the Components Directing group). First, this task necessitates a work unit that must be scheduled and performed by somebody from the portfolio management team. So, from the point of view of work management, it is placed in the Portfolio Management process group. Second, this task of cost budgeting is an important process in the life cycles of components. So it too must be placed in the Directing Components process area.

Portfolio Management Planning

Decisions made by the Components Directing Planning process define the way in which the portfolio and its components will be directed, and thus they also determine the way in which portfolio management processes will be executed. The more work is needed for directing components, the more people are needed for this group of processes, and the greater the labor cost associated with this work. The Portfolio Management Planning process is performed on the basis of results from the process of Components Directing Planning.

The process of Portfolio Management Planning, added to the PMS model, contains those (sub)processes that relate to the work of the portfolio management team. The following sub-processes are examples of elements of this process: Portfolio Management Human Resources Planning, Portfolio Management Activity Definition, Portfolio Management Activity Duration Estimation, Portfolio Management Cost Estimation, Portfolio Management Risk Management.

Portfolio Execution

Performing the processes planned by the process of Portfolio Management Planning. The following sub-processes are examples of elements of this process: Direct and Manage Portfolio Management, Monitor and Control Portfolio Management, Portfolio Management Scope Verification, Portfolio Management Schedule Control, Portfolio Management Cost Control, Perform Portfolio Management Quality Control.

Directing Components

The group of Directing Components includes processes performed by the portfolio management team that relate directly to the portfolio components (individually or to the whole set). In this process group we focus on the effects they impose on components and not on the work of the portfolio management team.

Planning for Directing Components

This process constitutes a link between the Authorization process and the Directing Components process group. For a portfolio to come into being, it must be prepared first – for instance, its management team should be created. This process includes sub-processes that determine the way in which components will be performed.

The reason there is no group of planning processes in the PMS is most probably the fact that the project portfolio management model was taken almost directly from the financial portfolio management model. In financial portfolios, making a decision concerning a portfolio is practically equivalent to executing this decision (operations concerning securities). There is no planning logistics in financial portfolios. Projects, on the other hand, are material sets of resources, people and other assets organized in some way. Directing components involves a range of activities that must be well prepared, i.e. planned.

Portfolio Scope Planning

Determining the way in which the portfolio content is to be managed – how components may be added or removed **within an existing strategy**. Defining detailed procedures for performing these actions.

Create Sub-portfolio Hierarchy

This is a process analogous to Create WBS from PMBOK® Guide. It relates to the definition of sub-portfolios, if applicable. Dividing a portfolio into smaller, better manageable sets of components.

Components Dependency Analysis

Analyzing dependencies between components. Note that here there is no process analogous to Activity Definition from PMBOK® Guide. In the UPMM a component is analogous to an activity from PMBOK® Guide. And including components into a portfolio is performed through processes from the Portfolio Governance group. The dependencies of portfolio components are mainly internal in nature – they are often based upon resources accessibility.

Components Schedule Development

Applying relationships between components to the creation of a portfolio schedule. The process may be recursive in nature, especially if the portfolio contains programs.

Components Human Resource Planning

Developing characteristics of portfolio managers. Developing a components management team staffing plan containing a description of acquisition procedures, timetables etc.

Components Quality Planning

Determination of the main quality standards that are valid for all components. These standards deal mainly with **quality of processes** and their improvements. Maintenance of these standards is verified during audits which may be performed by components quality teams as well as by the portfolio quality team. The standards for product quality are usually developed at the component level.

Components Communication Planning

Determining the way in which the performance of components will be reported. Definition of standard reporting procedures, including report templates and schedules. Defining other procedures such as exception handling and issues escalation.

Portfolio Level Risk Management Planning

Planning of:

- general risk management rules for all components (method of risk measurement, procedures of risk planning and handling),
- activities within the risk area, connected with components, carried out at the level of the portfolio as a whole.

Portfolio Level Risk Identification

Identification of risks that may be harmful to the portfolio as a whole. There are two groups of risks at the portfolio level:

- external risks, i.e. those which may be identified in the portfolio environment (like change in the market situation of the sector for which the portfolio products are designed)
- internal risk, i.e. major component risks, the results of which may have implications for the portfolio as a whole.

Portfolio Level Risk Qualitative Analysis, Portfolio Level Risk Quantitative Analysis, Portfolio Level Risk Response Planning

Processes analogous to similar processes at the project level, but oriented toward portfolio level risks.

Components Cost Budgeting

Assigning budgets to components on the basis of:

- general decisions made by the Portfolio Governance process group,
- detailed budget plans developed by component management teams.

Reporting, Review and Control

Processes from the *PMBOK® Guide* Execution and Monitoring and Controlling process groups performed on components from the portfolio level by the portfolio management team.

Portfolio Level Monitor and Control Components Work

Monitoring and controlling of components as a whole, from the portfolio level.

Integrated Change Control for Components

Handling change requests at the portfolio level. There may be two groups of sources of such change requests:

- requests generated by the portfolio level Integrated Change Control process for components,
- requests generated by portfolio level management area processes (e.g. Portfolio level components schedule control).

Portfolio Scope Control

Making decisions related to adding and closing components within a portfolio management life cycle.

Portfolio Level Components Schedule Control, Portfolio Level Components Cost Control

Escalation of change requests resulting from components and related to their budgets and schedules. Generation of change requests defined at the portfolio level.

Portfolio Level Risk Monitoring and Control

Handling of risks that are identified and analyzed at the portfolio level.

Acquire Components Management Team, Develop Components Management Team

Acquiring and developing components managers according to procedures defined in the Components Human Resource Planning process.

Manage Components Teams

Managing all people working in connection with a given portfolio. Developing change requests for shifting resources between components. Note that these actions are usually taken with respect to team members who have not been acquired at the portfolio level.

Perform Components Quality Assurance

Quality assurance activities for components processes performed by members of the portfolio management team.

Portfolio Level Information Distribution

Receiving, storing and distributing information produced by components and which is important for the portfolio as a whole, its stakeholder or for other components than the one that is the source of information.

Portfolio Level Performance Reporting

Collection, processing and distribution of information related to the portfolio as a whole. The most important information consists of performance reports and forecasts.

Change

Activities aimed at developing recommendations/conclusions related to changes in the portfolio.

When this process is performed, the following changes are possible:

- Changes in the way the components are performed.
For instance: shifting resources between components.
- Changes in the portfolio composition
For instance: closing a component that doesn't have any prospects for achieving the goal for which it was created.
- Suggestions for strategy modification
For instance: concentration of the organization's activities on one of the strategic goals (portfolio), when this portfolio generates profit that surpasses profits brought in by other portfolios.

A change request is forwarded to the relevant process: Component Planning, Evaluation and Selection or Strategic Planning.

Component Management

The UPMM group of Component Management processes includes processes executed by components that are important for portfolio management.

Components Proposing

Systematic and organized creation of portfolio components proposals. The proposals must be prepared in alignment with the strategy of an organization – this process gets information from the Strategic Planning process.

Components Planning

Components Planning is important in the portfolio management process as components must be planned according to the decision made by the Components Directing Planning process. Components are re-planned when the Change process generates a change request for them.

Execution and Reporting

The process of component execution and reporting enables the components to be executed. The reporting consists mainly of indices related to business categories for which a given portfolio has been planned.

Conclusions

The model presented above fully covers the area of portfolio management and extends the OPM3[®] model of portfolio management as well as the Portfolio Management Standard. It may be applied in operational organizations as well as in project-based organizations as a basis for constructing their own portfolio management processes. The full, detailed sets of inputs, techniques and outputs for each process should be prepared in order to implement this model in any organization.

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