

Trade off Between Risk Management, Value Creation and Strategic Alignment in Project Portfolio Management

Khadija Benaija and Laila Kjiri

ENSIAS, Mohammed-V Souissi University, Avenue Mohammed Ben Abdallah Rezagui, Rabat, Morocco

Keywords: Project Portfolio Management, Portfolio Risk Management, Strategic Alignment, Creation of Business Value.

Abstract: Projects portfolio management allows the company to select, prioritize, integrate, manage and check its projects in a multi project context. In this paper, we consider a very important part of the projects portfolio management namely the selection of projects. Indeed, the greatest challenge for managers today is to be sure that the projects initiated achieve the strategic and financial objectives of the company. Our paper proposes a framework for project selection based on three main criteria: value creation, risk management and alignment with the business strategy. After a brief review of the literature regarding the basic concepts used, we propose bivariate analyses: risk-value, risk-alignment and value-alignment. Our contribution in this paper is to design a framework that realizes the trade-off between the three criteria.

1 INTRODUCTION

In today's fast changing business environment, organizations have to transform themselves constantly to continue growing. These transformations are realized concretely through all the projects that these organizations launch, hence the importance of good Project Portfolio Management (PPM). This discipline deals with the coordination and control of multiple projects pursuing the same strategic goals and competing for the same resources, whereby managers prioritize among projects to achieve strategic benefits (Cooper et al., 1997). Project portfolio management has received a stable and central position in project management research, product development management research, and companies' management practices during the past decade (Martinsuo, 2013). Project portfolio management has been developed into global standards like in the standard for portfolio management elaborated by the Project Management Institute, (Project Management Institute, 2008a) as well as practical tool books (Benko and McFarlan, 2003) (Cooper et al., 2001) that enables companies to implement their own projects portfolio management.

The project portfolio management objectives are well established in the literature: the maximization of the portfolio value, the minimization of portfolio

risk, and the project alignment to strategic goals (Cooper et al., 2001), (Elonen and Artto, 2003).

Our goal in this paper is to define a framework which will have theoretical criteria based on the three main elements: value, risk and strategic alignment.

The paper is structured as follows. In the next section, we review the basic concepts in the field of PPM. In Section 3, we present the framework for the selection of projects achieving a compromise between three factors: risk, value and alignment. The last section is devoted to conclusions and prospects of work done.

2 BASIC CONCEPTS OF THE STUDY

The framework proposed in this paper relies on the following four bases:

- Project portfolio management,
- Creation of value,
- Risk management,
- Strategic alignment.

2.1 Project Portfolio Management

A project portfolio is a group of projects or

programs in an organization or business unit that aims at strategic goals, share resources, and must compete for funding (Nowak, 2013).

In the Guide to the Project Management Body of Knowledge (PMBOK® Guides), a portfolio is defined as a collection of projects or programs and other works that are grouped together to facilitate effective management of that work to meet strategic business objectives (Project Management Institute, 2008b).

These are the goals set by the portfolio management, which allow the construction of the portfolio. PMBOK states that one goal of the portfolio management is to maximize the value of portfolio (Project Management Institute, 2008b). This can be achieved by careful examination of candidate projects and programs for inclusion in the portfolio and timely exclusion of projects not meeting the portfolio's strategic objectives. Senior managers or senior management teams responsible for portfolio management should ensure the right balance among incremental and radical investments and the efficient use of resources (Nowak, 2013).

The most important tasks of projects portfolio management by (Wysocki and McGary, 2003):

- formulating investment strategy of the portfolio,
- specifying types of projects eligible for the portfolio,
- evaluating and prioritizing projects that are candidates for the portfolio,
- constructing a balanced portfolio that meets the investment objectives,
- monitoring the performance of the portfolio and adjusting its composition in order to achieve the desired results.

2.2 Creation of Value

Benefits are measurable improvements perceived to be a value by one or more of the stakeholders (Rajegopal et al., 2007) (Venning, 2007). The benefits can be tangible or intangible according to the ease of quantification (Project Management Institute, 2008a). In addition, tangible benefits can be financial or non-financial (Williams and Parr, 2006).

A portfolio brings together all benefits delivered by programs and projects. The PPM has a critical function: assuring that all benefits are aligned to the portfolio's strategic objectives (Sanchez and Robert, 2010). The role of a portfolio of projects is to verify that expected benefits are planned, realistic and in fact delivered by programs and projects (Venning, 2007).

2.3 Portfolio Risk Management

Project Management Institute defines risk of project as an uncertain event or condition that, if it occurs, has a positive or negative effect on a project's objectives (Project Management Institute, 2004).

Association for Project Management gives the following definition of project risk: an uncertain event or set of circumstances that, should it occur, will have an effect on the achievement of the project's objectives (Association for Project Management, 1997).

For project portfolios, risk is defined as an uncertain event or condition that, if it occurs, causes a significant positive or negative effect on at least one strategic portfolio objective (Project Management Institute, 2008a). The management of risks at the portfolio level may enhance the effectiveness of risk management compared to the independent consideration of risks at the project level (Aritua et al., 2009) (De Reyck et al., 2005).

2.4 Strategic Alignment

The company strategy is determined in a planned way, or in response to business environment changes. Projects are considered as the means to implement the strategy of the company. Indeed, it is through projects initiated that the company achieves its strategic vision in the short and long term. Portfolio management provides the link between strategy and implementation of projects into the operational environment (Sheykh et al., 2013). Indeed, in order to achieve its strategic objectives, the company must manage its projects portfolio so that projects contribute together to achieve these goals.

The United Kingdom Office of Government Commerce (OGC, 2009) defines a portfolio as 'the totality of an organisation's investment in the changes [projects and programs] required to achieve their strategic objectives'.

3 OPTIMIZATION VALUE-RISK-STRATEGIC ALIGNMENT

As we saw in the previous section, and as shown in figure 1, the project portfolio management is based primarily on the optimization of the following three factors: maximum value, minimal risk and maximum of alignment with the strategy of the

company.

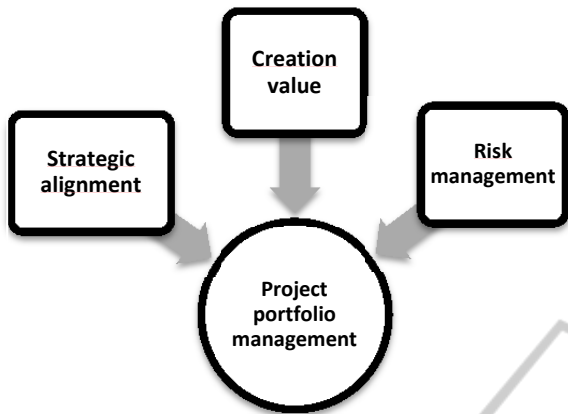


Figure 1: Representation of the project portfolio.

It is on this principle that will stand our proposed framework for the identification of projects to be selected in portfolio.

3.1 Analysis Risk-Value

Let us consider the two-dimensional analysis risk-value, as presented by (Sheykh and al., 2013).

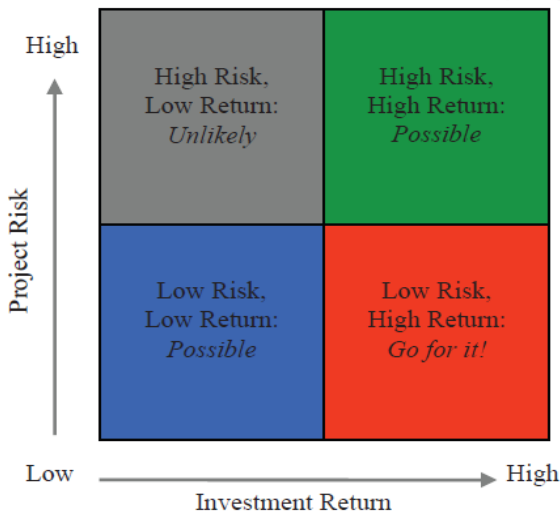


Figure 2: Central idea of diversifying the portfolio: Managing risk and value creation (Sheykh and al., 2013).

As shown in figure 2, we can identify high-potential projects according to these two criteria: risk and value.

- * Projects with low risk and high value are preferred: they have great potential because they generate more value with low uncertainty.
- * Projects with a high risk and low value are discarded. They are the opposite of the first: they generate a low value with a large uncertainty.

- * Projects with a high risk and a high value as well as those with low risk and low value must to be managed according to company strategy. Hence, it is necessary to call the third criteria: strategic alignment.

3.2 Analysis Risk-alignment

We propose to make another two-dimensional analysis taking into account both risk-strategic alignment criteria. Consider then figure 3, which summarizes this analysis.

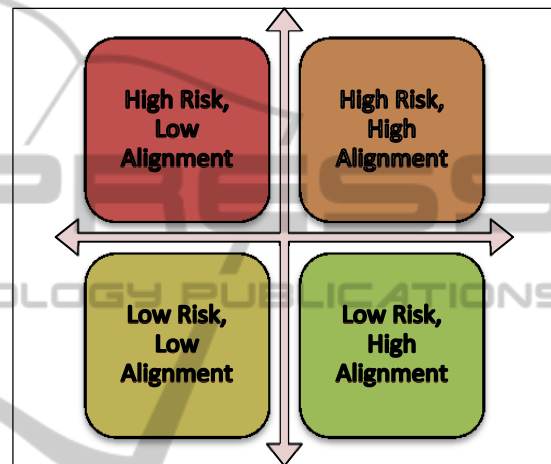


Figure 3: Bivariate analysis risk-alignment.

Figure 3 shows that by considering the two criteria: risk and strategic alignment, we can classify the projects in the portfolio (or just candidates) under three headings:

- * Projects with low risk and very aligned with the business strategy: these projects are to retain.
- * Projects with a high risk and non-aligned with the business strategy: these projects must be discarded.
- * Projects with a high risk and very aligned with the business strategy or those with a low risk but not aligned with the strategy: these projects should be subject to manager's decision, taking into account one or more criteria, including the value generated by these projects.

3.3 Analysis Value-alignment

The third two dimensional analysis concerns two criteria: value and strategic alignment. We propose, as of earlier analysis, this classification of projects into three categories:

- * Projects with a high value and very aligned with the strategy, these projects must be selected;

- * Projects with a low value and not aligned with the strategy: these projects must be discarded;
- * Projects with a high value but not aligned with the strategy or those with a very low value and aligned with strategy: these projects require a decision.

3.4 Trade-off Between Risk, Value and Alignment

In this section, we propose a framework based on a three-dimensional analysis based on the three most important factors in the project portfolio management, namely: risk, value and strategic alignment.

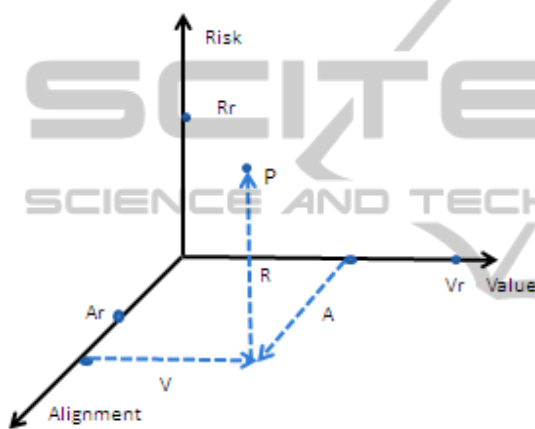


Figure 4: The three coordinates of a project.

If we consider a project P, we can estimate the level of risk R, its expected value V and its level of alignment with the business strategy A. These three coordinates are placed in a three-dimensional reference frame, as shown in figure 4.

These values are estimated using methods that are not discussed in this paper. An example of assessment tool is indicated in Table 3.

Rr is the risk value from which we can say that the risk is high and below which the risk is considered tolerable.

Vr is the value from which the benefit is considered important, and below which it is considered low.

Ar is the value of the alignment from which it is considered high, and below which it is considered low.

We attribute "+" if the value is better than the reference value and "-" if it is worse. We can translate it into:

- * + for $R < R_r$ or $V \geq V_r$ or $A \geq A_r$
- * - for $R \geq R_r$ or $V < V_r$ or $A < A_r$

Table 1: Scoring of possible cases.

Case	Coordinates	scoring
Case 1	$V \geq V_r$ and $R < R_r$ and $A \geq A_r$	+++
Case 2	$V \geq V_r$ and $R < R_r$ and $A < A_r$	++-
Case 3	$V \geq V_r$ and $R \geq R_r$ and $A < A_r$	+--
Case 4	$V \geq V_r$ and $R \geq R_r$ and $A \geq A_r$	+++
Case 5	$V < V_r$ and $R < R_r$ and $A \geq A_r$	-++
Case 6	$V < V_r$ and $R < R_r$ and $A < A_r$	--+
Case 7	$V < V_r$ and $R \geq R_r$ and $A \geq A_r$	---
Case 8	$V < V_r$ and $R \geq R_r$ and $A < A_r$	---

For a given project, one of the following cases occurs:

Case 1: $V \geq V_r$ and $R < R_r$ and $A \geq A_r$: This case will be appreciated "+++"

Case 2: $V \geq V_r$ and $R < R_r$ and $A < A_r$: This case will be appreciated "++-"

Case 3: $V \geq V_r$ and $R \geq R_r$ and $A < A_r$: This case will be appreciated "+--"

Case 4: $V \geq V_r$ and $R \geq R_r$ and $A \geq A_r$: This case will be appreciated "+++"

Case 5: $V < V_r$ and $R < R_r$ and $A \geq A_r$: this case will be appreciated "-++"

Case 6: $V < V_r$ and $R < R_r$ and $A < A_r$: this case will be appreciated "--+"

Case 7: $V < V_r$ and $R \geq R_r$ and $A \geq A_r$: this case will be appreciated "---"

Case 8: $V < V_r$ and $R \geq R_r$ and $A < A_r$: this case will be appreciated "---"

By analysing the eight cases, we can refine the classification in four categories according to the degree of potential, materialized by the number of "+":

Table 2: Classification framework.

Rubric	Degree of potential	corresponding case	Decision
Rubric 1	3+	Case 1	to select
Rubric 2	2+	case 2, case 4, case 5	to prioritize
Rubric 3	1+	case 3, case 6, case 7	to lower priority
Rubric 4	0+	Case 8	to abandon

Rubric 1: including the case 1 with a rating of three "+", projects of this category must be selected.

Rubric 2: including cases 2, 4, and 5 with a rating of two "+", projects in this section are interesting to select. For example, if the company gives more priority to the creation of value and risk management it must choose projects of case 2 (for risk and alignment the case 5, and for value and alignment: case 4).

Rubric 3: including cases 3, 6 and 7 with a rating of one "+", the projects in this section are low potential.

Rubric 4: including the case 8, projects of this section is to give up as all criteria are negative.

Thus, the existing projects in the portfolio or candidates to be selected can be classified into these four categories.

Assessment of the projects for each criterion, and determining for each project coordinates V, R and A, are through a questionnaire including several questions per domain. In the literature, there are examples of these questionnaires. We are content in this paper to give an example presented by (Sheykh and al., 2013).

Table 3: The assessment tool (Sheykh and al., 2013).

Evaluation area	Number of Questions	Questions (Example)
Strategic	12	Have all project business requirements, objectives, assumptions, constraints, and priorities been defined and documented?
Technology Exposure	6	Does the agency have experience working with, operating, and supporting this technology in a production environment?
Organizational Change Management	9	Has a documented organizational change management plan been prepared for this project?
Communication	7	Have all required communication channels and interfaces been identified and documented?
Fiscal	16	Does the project have a clearly defined and documented business case that demonstrates measurable and tangible benefit to the agency?
Project Organization	9	Have all the roles and responsibilities for the project management team been clearly defined and documented?
Project Management	17	Has a project schedule specifying all project tasks, necessary checkpoints and critical milestones been defined and documented?
Project Complexity	10	Is the proposed system more complex than current agency systems?

It is interesting to apply the framework presented on a real case. We restrict ourselves in the following to give an overview of the result of application of this framework.

We consider a portfolio including projects: P1... P5, and with candidate projects: P6... P10. By applying the framework presented in this article, we will have a result (for example) as shown in figure 5 below:

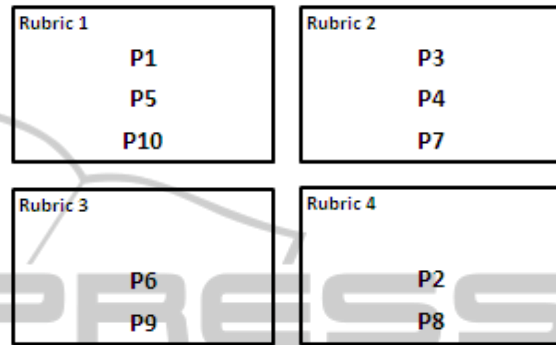


Figure 5: Result of applying the classification framework.

The results of applying the proposed framework can be summarized as follows:

- * Project P2 (already existing in the portfolio) and P8 (candidate) are to abandon.
- * Projects P1 and P5 (already in the portfolio) and P10 (candidate) are to retain.
- * Projects P3 and P4 (already in the portfolio) and project P7 (candidate) are high priority.
- * Projects P6 and P9 are low priority.

4 CONCLUSION

Increasingly, companies are required to have a good projects portfolio management. A challenge for them is managing the potentially diverse range of projects, while ensuring that the right projects are selected (Young and Conboy, 2013). This paper provides a contribution in this area by presenting a framework that facilitates the decision making in the selection phase.

This framework is interesting to the extent that:

- It is more complete since it takes into account the three most important criteria in the projects portfolio management.
- It is finer because it allows the selection of interesting projects, the removal of projects with low potential and the classification of projects of intermediate degrees of importance.
- It is easy to implement: the number of criteria remains reduced (three), project assessments are not fastidious.

The work done in this paper can be completed by an evaluation method of degrees of risk, value and strategic alignment within an organization.

Other perspectives of this work would be to apply this framework to a specific case, or further refine for a well-defined area, or in a given context. This work can therefore be expanded both quantitatively and qualitatively.

REFERENCES

- Aritua, B., Smith, N.J., Bower, D., 2009. Construction client multi-projects: a complex adaptive systems perspective. *International Journal of Project Management* 27 (1), 72–79.
- Association for Project Management, 1997, PRAM Project Risk Analysis and Management Guide. High Wycombe, UK: *APM Publishing*.
- Benko, C., McFarlan, F.W., 2003. Connecting the dots. Aligning projects with objectives in unpredictable times. *Harvard Business School Press, USA*.
- Cooper, R., Edgett, S., Kleinschmidt, E., 1997. Portfolio management in new product development: lessons from the leaders I. *Research Technology Management* 40 (5), 16–28.
- Cooper, R., Edgett, S., Kleinschmidt, E., 2001. Portfolio management for new products, *2nd edition. Basic Books, USA*.
- De Reyck, B., Grushka-Cockayne, Y., Lockett, M., Calderini, S.R., Moura, M., Sloper, A., 2005. The impact of project portfolio management on information technology projects. *International Journal of Project Management* 23 (7), 524–537.
- Elonen, S., Arto, K., 2003. Problems in managing internal development projects in multi-project environments. *International Journal of Project Management* 21 (6), 395–402.
- Martinsuo, M., 2013. Project portfolio management in practice and in context, *International Journal of Project Management* 31 (6), 794–803.
- Nowak, M., 2013. Project Portfolio Selection Using Interactive Approach. Paper presented at MBMST 2013 *Modern Building Materials, Structures and Techniques Conference*, Vilnius, Lithuania (16 - 17 May 2013).
- Office of Government Commerce, 2009. Portfolio Management Guide (Final Public Consultation Draft). *Office of Government Commerce*.
- Project Management Institute, 2004. A Guide to the Project Management Body of Knowledge (3rd edition). *Newtown Square, Pennsylvania*.
- Project Management Institute, 2008a. The standard for portfolio management, *2nd edition. Project Management Institute, USA*.
- Project Management Institute, 2008b. A Guide To The Project Management Body of Knowledge (PMBOK® Guides), 4th ed. Project Management Institute, Newtown Square, PA.
- Rajegopal, S., McGuin, P., Waller, J., 2007. Project Portfolio Management: Leading the corporate vision. New York, USA: Palgrave Macmillan.
- Sanchez, H., Robert, B., 2010. Measuring portfolio strategic performance using key performance indicators. *Project Management Journal* 41 (5), 64–73.
- Sheykh, M.J., Azizi, M., Sobhiyah, M.H., 2013. How Can the Trade-off between Corporate Business Strategy and Project Risk be Optimized? *Social and Behavioral Sciences* 74 (2013), 134 – 143.
- Venning, C., 2007. Managing Portfolios of Change with MSP for programmes and PRINCE2 for projects. London, United Kingdom: *The Stationary Office*.
- Williams, D., Parr, T., 2006. Enterprise Programme Management: *Delivering Value*, New York, USA: Palgrave Macmillan.
- Wysocki, R. K., McGary, R., 2003. Effective Project Management: Traditional, Adaptive, *Extreme. 3rd ed. Wiley*.
- Young, M., Conboy, K., 2013. Contemporary project portfolio management: Reflections on the development of an Australian Competency Standard for Project Portfolio Management. *International Journal of Project Management* 31 (2013), 1089–1100.