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Inquiry into the Conceptual Dimensions of the Performance of Project Portfolio Management

Abstract

Although much has been written about how to manage individual projects and how to form a portfolio of projects, there is still very little guidance on how to evaluate the degree of success of the process by which the project portfolio is run. This study employs a qualitative approach to uncover managerial perceptions about what is encompassed by project portfolio management and how this construct should be evaluated. Based on theoretical reflection and on accounts provided by managers, we have identified main aspects that seem to tap how the performance of project portfolio management can be assessed.

1. Introduction

It has been recognized that there are differences between corporate objectives as stated in the formal strategic planning and those actually implemented in practice (Hrebiniak, 2005). As a result, planned strategies often become unrealized (Mintzberg and Waters, 1985). Porter and Montgomery (1991) have argued that companies have to be more effective in their ability to transform planning into action. Likewise, Kaplan and Norton (1996) contend that firms usually find it easier to formulate their strategies, rather than to make them happen in practice.

Planned strategies and their corresponding strategic objectives have to be detailed into action plans and corresponding projects. However, there is a gap between the top level executives, who formulate the strategic planning, and middle level managers, who in fact run the projects that are expected to transform strategy into reality. Also, while several guidelines have been forwarded on how to conduct (complex) projects (e.g., Kerzner, 2003; Meredith and Mantel, 2000; PMI, 2008), there is still little guidance on how to manage the full set of projects as an integrated whole, whose parts should bear mutual consistency and reinforcement, while respecting priorities and possible budgetary constraints. An unintended consequence of this state of affairs is that firms often do not seem to be able to properly select and prioritize the appropriate set of projects (Gray and Larson, 2005; Meskendahl, 2010; Morris and Jamieson, 2005; Srivannaboon and Milosevic, 2006a, 2006b).

Shenhar (2004) argues that the project portfolio needs to be seen from a corporate perspective, not on an individual project basis. So, firms should not only be “doing work right”, but also “doing the right work” (Cooper, Edgett and Kleinschmidt, 2000). Thus project portfolio management becomes crucial as a way to avoid the quest for local “optimums” or for individual interests that could be detrimental to the whole (Grundy, 1998; Noble 1999). The best contribution of

project portfolio management would be to build the bridge that links the organization's strategic projects with the operational management of such projects (Levine, 2005). While project management would be more operational in nature, project portfolio management occupies a more tactical role, as illustrated in Figure 1.

From a managerial standpoint, it is important to count on guidelines on how to form and run a consistent portfolio of projects. From a theoretical perspective it would be important to understand the antecedents that would lead to good project portfolio management as well as to understand the consequences of the degree of success of project portfolio management, e.g., to a firm's performance and attainment of its strategic objectives.

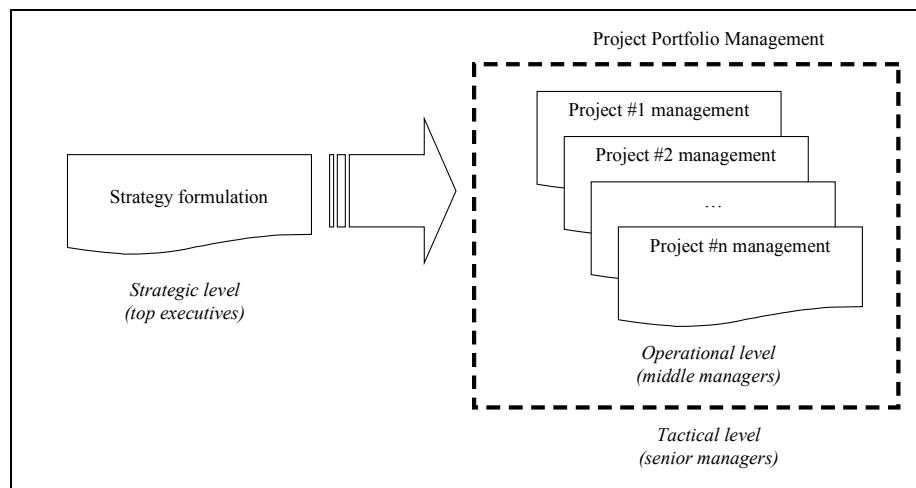


Figure 1 – The role of project portfolio management

But, in order for researchers to test substantive relationships between constructs, first these constructs have to be conceptually defined and operationally measured in such a way that reflects their true nature and content domain. In Peter's (1981:133) words: "Besides, "theories cannot develop unless there is a high degree of correspondence between abstract constructs and the procedures used to operationalize them". However, although quite a lot has been published (both in academic and business circles) on how to assess the performance of (individual) projects, the appropriate criteria to judge the degree of success (or failure thereof) of project portfolio management should go beyond those employed to evaluate each component project – and the academic literature has been scarce as far as the conceptual definition and the operational measurement of the performance of a project portfolio is considered.

This study contributes to the existing knowledge on project portfolio management by pursuing two research objectives:

- Identify relevant conceptual dimensions of the "performance of project portfolio management" construct, based on academicians' and practitioners' perspectives; and
- Advance a (preliminary) conceptual model of the "performance of project portfolio management" construct.

The current paper is organized as follows. After this introduction we present a literature review of what little has been published on how to measure the performance of project portfolio management. Our methods and data are then presented, followed by a discussion of the findings from our exploratory qualitative research. A discussion of the findings then leads the way to the proposition of a preliminary conceptual model of the phenomenon under investigation. Some concluding remarks close the paper.

2. Literature review

Following PMI (2008), a project is herein considered as a temporary endeavor with a defined beginning and end, which is directed to obtaining a new product, performing a service or attaining a specific result. Project portfolio management refers to the integrated administration of a set of individual projects.

Several companies already follow guidelines for (individual) project management (e.g., those published by Kerzner, 2003; Meredith and Mantel, 2000; PMI, 2008). However, as organizations evolve in their maturity of project management, they find it increasingly important to establish procedures to also manage, in an integrated fashion, the portfolio of projects (Levine, 2005).

Project Portfolio Management

Levine (2005) and Meskendahl (2010) contend that project portfolio management helps firms bridge the abyss between organizational strategy and (individual) project management. Dye and Pennypacker (1999) present the main differences between project portfolio management vs. project management (Figure 2).

	Project portfolio management	Project management
Objective	Project selection and prioritization	Resource allocation
Focus	Strategic	Tactical
Planning emphasis	Long- and mid-term (yearly and quarterly)	Short-term (daily)
Responsibility	Top managers	Project / Resource managers

Source: Adapted from Dye and Pennypacker (1999)

Figure 2 – Differences between Project Portfolio Management and Project Management

Project portfolio management combines (i) an organization-wide focus to select the appropriate set of projects according to the set of strategic objectives with (ii) an individual project view to improve the effectiveness of each project.

PMI (2006:15) maintains that “[project p]ortfolio management includes processes to collect, identify, categorize, evaluate, select, prioritize, balance, authorize, and review components within the portfolio to evaluate how well they are performing in relation to the key indicators and the strategic plan. During a typical business cycle, components will be reviewed and validated in relation to the following:

- Alignment of the components with corporate strategy
- Viability of the components as part of the portfolio, based on key indicators

- Value and relationship to other portfolio components
- Available resources and portfolio priorities
- Additions and deletions of portfolio components.”

Sound management of the project portfolio should also aim at achieving a good balance between short- vs. long-term actions, between transforming vs. incremental actions, and between risk and expected return across the set of projects – as well as a proper equilibrium between budgetary constraints and projects investment needs. According to Levine (2005), a properly balanced portfolio should contain three types of projects: (i) mandatory (due to legislation) and devoted to maintenance-related; (ii) devoted to sustainable growth or organizational improvement; and (iii) transformation-related.

Measuring the Performance of Project Portfolio Management

Project portfolio management is not an end in itself, but rather a means to the attainment of organizational objectives (Meskendahl, 2010; Shenhar, Dvir, Levy and Maltz, 2001). Sometimes the performance of project portfolio management is taken to be the degree of achievement of organizational objectives. However, in order for the management of the project portfolio to be actionable by managers, there have to be devised other dimensions and metrics of the construct that are defined independently from its consequences (performance) and which are under the control of managers.

In terms of individual projects, some generic dimensions to measure project performance have been forwarded. For example, Artto, Martinsuo, Dietrich and Kujala (2008) and Cooper (2001) suggest: financial success, technical performance (e.g., cost, quality, productivity, scope, innovation), customer satisfaction and (in the case of new projects related to the development of new products) benefits accruing from new products.

Shenhar et al. (2001) advocates similar metrics: Project efficiency, customer impact, direct success on the organization and the business, and preparation for the future.

These metrics for the assessment of performance of individual projects are not enough, though, to measure the degree of success of portfolio management, since good (individual) project management is a necessary, but not a sufficient condition, for portfolio management success (Dietrich and Lehtonen, 2005; Martinsuo and Lehtonen, 2007).

Literature is scant on how to measure how well a given project portfolio is being managed. Some researchers have, however, proposed some general dimensions and metrics by which to conceive of and measure the degree of success of project portfolio management.

Cooper et al. (2001) suggested three main goals of project portfolio management, which could serve as aspects from which to judge the performance of the portfolio: (i) value maximization (in terms of some business objectives, e.g., profitability), (ii) balance (in the variety of projects), and (iii) strategic direction (i.e., how well the “breakdown of spending

across projects, areas, markets, etc., mirrors the business's strategy", p.15). Martinsuo and Lehtonen (2007) proposed five generic aspects: (i) portfolio-strategy alignment, (ii) knowledge of priorities, (iii) financial yield, (iv) realization of strategy, and (v) efficiency. Meskendahl (2010) suggested that the degree of success of project portfolio should be assessed according to the level of achievement of four objectives: (i) average of single projects success (in terms of time, budget, quality, and customer satisfaction), (ii) use of synergies between projects, (iii) overall fit with firm's business strategy, and (iv) project balance. Miller, Martinsuo and Blomquist (2008), on the other hand, just argued for the use of multidimensional measures and multiple levels of analysis (project, portfolio and firm), but did not forward specific dimensions or measures.

It should be noted, however, that some of these dimensions are related to the outcomes of the process of managing the project portfolio (e.g., value maximization, financial yield, and realization of strategy) and should not, from a strict conceptual standpoint, be included as aspects of the definitional domain of project portfolio management

3. Methods and data

A proper measurement model for the construct *performance of project portfolio management* is necessary, not only for practitioners who need to assess how well their firms are managing their portfolios, but also for academicians who are interested in developing and testing theories about antecedents and consequences of portfolio management (e.g., Meskendahl, 2010). But before a proper operational model can be put forward, it is necessary to clearly develop a conceptual model of the construct, which should define its content, frontiers (i.e., what is encompassed and what is excluded from the concept, cf. Hinkin, 1998).

Given the scant literature on the conceptualization of the construct, not to mention its operationalization, a conversation with academic experts on project management was conducted in order to identify their views on the conceptual map (i.e., the frontiers and possible dimensions) and measures of the construct. Academic perspectives would not be enough though. In order for a construct to be valid it has to be accepted as such not only by academicians, but also by those who use it in managerial practice. Therefore, in-depth semi-structured interviews with experienced practitioners of project management were also run.

Theoretical sampling (Flick, 2006), coupled with convenience sampling, were employed to select interviewees. The following criteria were employed to select appropriate interviewees: large experience in project management, whether in managerial or consulting activities; senior responsibility over project management was desirable; also academic background and/or academic experience in the field were also desirable characteristics. In order to obtain a reasonably generalizable conceptual model, a reasonable variety of organizations was also sought, covering large and medium-sized, private and public, and a diverse set of industries. All organizations operated in Brazil.

A number of 15 interviews were deemed as a minimum necessary to achieve enough volume and variation of

primary data. In fact, theoretical saturation started at around the 20th interview, that is, little additional information (over what had been obtained from previous interviews) seemed to be gained. This fact led the authors to stop at the 24th interview.

One of the authors of this study, who is himself a project manager, used his network of contacts (e.g., from communities of area experts, such as Project Management Office (PMO) Master Class) to recruit potential participants. In June 2011 this author met several acquaintances at a PMO Master Class event and explained to them the objectives of the study. A follow-up telephone/e-mail contact was used to schedule the interviews. Half of the interviews were conducted face-to-face and the other half over the telephone or through Skype (since several of the participants lived in different cities). Data were collected from end-June until mid-July 2011.

The initial semi-structured script for the interview was composed of six main parts:

1. Brief introduction of the interviewer (one of the authors of this study) and of the objectives of the study
2. Brief characterization of the interviewee and his position and experience
3. Questions about how to conceptualize the degree of success (or failure thereof) of project portfolio management
4. Questions about specific operational indicators of the performance of project portfolio management
5. Questions about the firm and the interviewee's demographic profile
6. Complementary questions

This instrument was pre-tested with two highly experienced managers in order to verify content adequacy and consistency in the understanding of the questions, as well as time to complete the interview (desirably, between 15 and 30 minutes). The guiding script of the interview was also slightly refined along the first interviews, especially because the purposeful freedom of the interview led some participants to add aspects that had not been anticipated. All interviews were tape recorded and afterwards transcribed. Confidentiality was assured to respondents.

In item 4 of the script, the interviewee was initially left free to suggest possible indicators that could be (or that were in fact) used to measure the construct. If the interviewee could not recall any, then he would be prompted by the interviewer, who would present some possible indicators and ask him/her if they seemed to make sense and whether they were used in the firm. Due to time constraints, some firms did not answer about items 5 and 6.

Respondents were explicitly prompted to address two different examples of project portfolio management: one clearly successful and one not successful. This dichotomy was inserted in the research designed because we preferred not to assume that success and failure would be necessarily measured by the same metrics. It might be possible, for example, that a

given minimum level of achievement in a specific aspect would be sufficient, but not necessary, to attain success, but not achieving that level would not necessarily mean failure.

From the interviews we expected to identify dimensions (general aspects) and specific metrics by which the management of given portfolio would be judged as successful or unsuccessful. Moreover, the script explicitly prompted respondents to identify if there had been instances of success (good management) even in cases which could, overall, be considered unsuccessful examples of portfolio management – and vice-versa.

Although all the firms and respondents selected for this study had extensive experience in project management, it was possible that some of them might not employ best practices. So there was the risk of social desirability bias, that is, respondents reporting what they thought would be more appropriate to lead a third party to believe, even if it did not correspond to the reality of the firm – specially in cases of “failures”. In order to diminish this risk, the wording of the questions did not contain any specific reference to the focal company being interviewed. Instead, we always asked about “some company you know”.

If respondents could not come up with a reasonable number of dimensions and metrics for the measurement of the degree of success of the management of project portfolio, the interviewer would explicitly ask if they knew about firms that might use one of the following three dimensions: degree of synergy among the projects, degree of alignment between portfolio’s projects and the organization’s strategy, and degree of balance among the projects.

The interviews were transcribed and separately analyzed by each of the two authors of this study (investigator triangulation, *cf.* Denzin, 2009). One of the authors has reasonable profession experience as project manager, while the other was not experienced in the field, but rather in strategic management, both professionally and academically. This diversity of backgrounds was deemed good to the study, since it could shed new light.

Codification, categorization and interpretation of data followed (*cf.* Miles and Huberman, 1994; Seidman, 2006). An inductive approach (*cf.* Glaser e Strauss, 1967) was used, in order not to impose any pre-established frame of reference to analyze the data, but rather to let emerge some possible underlying structure (about how to conceive of and how to operationally measure the performance of project portfolio management).

The process of data analysis was conducted as follows. For each fragment of an interview that seemed to be related, albeit loosely, to the conceptualization or measurement of project portfolio, a corresponding label was designed and attached. The set of labels thus created was then analyzed in order to verify whether labels could be grouped in more abstract categories.

4. Findings

Sample characteristics

Among the 24 firms that participated in the study, 13 (54%) were private and 11 were state-owned. A good variety of industrial sectors was obtained, but governmental organizations (eight firms), consulting firms (five) and banks (three) were more represented; IT services, food and beverages, energy, pension funds, mining and tobacco were also represented. Large organizations (more than 5,000 employees) represented 46% of the sample, followed by mid-sized (1,000 – 5,000 employees; 33%) and smaller organizations (less than 1,000 employees; 21%). On average, sampled organizations had 6.2 years since implantation of a formal methodology of project management. Regarding respondents, 33% had more than 15 years of experience with project management, 17% between 11 and 15 years, 25% between six and 10 years and another 25% up to five years of experience. 50% of the respondents had a post-graduation degree in project management, 21% had an M.Sc. degree and 17% were doctorate students in the area; moreover, 33% were instructors in project management classes and 63% were certified by PMI (Project Management Institute). Half the respondents held senior responsibility over project portfolio management in their organizations, 12% were part of the project portfolio team, 21% served as consultants in the area, and 17% occupied advisory positions to senior managers. So, respondents can be regarded as knowledgeable enough and firms as experienced enough in project management for the purposes of this study.

Main dimensions and metrics of project portfolio management identified

Across the 24 interviews, 283 criteria or indicators were mentioned (average of 11.8 per interviewer). After treatment for similarity in content/meaning there could be identified 42 distinct indicators.

The 42 indicators were judged to relate to four distinct classes of data:

Class #1: Determinants of (i.e., antecedents to) success of project portfolio management

Class #2: Performance of project portfolio formation

Class #3: Performance of the monitoring and control process

Class #4: Outcomes of the process of project portfolio management

These classes of data, which were developed from the raw data and not imposed by the researchers, resemble the four phases of the flow of the process of project portfolio management (PMI, 2008) (see Figure 3).

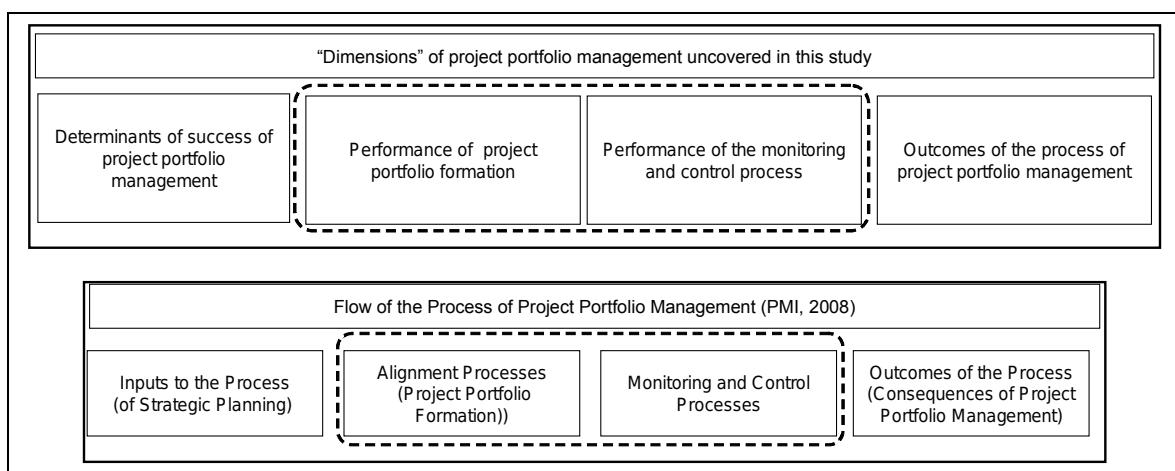


Figure 3 – Comparison between this study's and PMI's (2008) “dimensions” of portfolio management

Class #1 includes variables that do not, in fact, reflect the management of the project portfolio, *per se*, but rather refer to aspects or circumstances that could affect how the portfolio is built or run. Some of these variables might be necessary, though not sufficient, conditions for the success of portfolio management. As such, they could be considered antecedents or determinants of the degree of success of project portfolio management, but they should not be included in the conceptual definition of the construct. Figure 4 presents the specific variables that were mentioned by the interviewees.

Variables mentioned by interviewees	Number of citations	% in the respective class of data
1. Governance structure of the process of portfolio management	8	21%
2. Successful process of strategic planning	7	18%
3. Sponsorship	6	15%
4. Convincing power / Relationship with others	5	13%
5. Good-quality and reliable databases	5	13%
6. Competence of the project management team	4	10%
7. Communication skills	2	5%
8. Establishment of project management methodology before the implantation of portfolio management	2	5%
TOTAL	39	100%

Figure 4 – Determinants of (i.e., antecedents to) performance of project portfolio management (Class #1)

Here are some of the interviewees' words that help illustrate how they addressed the governance structure (most cited variable in Class #1):

“It is essential that the governance structure be well formatted [...] It has to be rigorously defined and authorized.” (Interview 8)

“[...] there needs to be some policy, or better even very clear rules, with the definition of the committees to manage the portfolios [...]” (Interview 9)

“[...] Another important thing is that everything should be done always in a team. That the decision be reached in a multilateral fashion.” (Interview 22)

Regarding the process of strategic planning (second most cited variable in Class #1), here are some sentences extracted from the interviews:

“A well-conducted process of strategic planning is paramount because it is an input to the process of portfolio management.” (Interview 18)

“You cannot have portfolio management if you do not have a strategy deployed appropriately, that is, communicated, so that we can identify which projects will serve each strategic objective.” (Interview 23)

Class #2 contained the highest number of citations to its indicators and included variables related to the performance of project portfolio formation. It seemed to be a somewhat complex “dimension” and, in fact, two distinct “components” could be identified: one of a more overall nature – which we called “Overall assessment of the portfolio formation process” – and another that tapped specific stages in the formation of the project portfolio – which we called “Stages in the formation of the portfolio” (Figure 5).

Macro-category	Variables mentioned by interviewees	Number of citations	% in the respective class of data
Overall assessment of the portfolio formation process	1. Legitimacy	14	11%
	2. Consistency	5	4%
	3. Time since implantation	3	2%
	Sub-total	22	17%
	4. Degree of strategic alignment	21	16%
	5. Project balance	17	13%
	6. Project categorization	13	10%
	7. Project selection	10	8%
	8. Project prioritization	10	8%
	9. Resource allocation / Execution capacity	9	7%
	10. Degree of synergy among projects	9	7%
	11. Assessment	4	3%
	12. Project identification	4	3%
	13. Project approval	3	2%
	14. Risk analysis	3	2%
	15. Others	3	2%
	Sub-total	106	83%
	TOTAL	128	100%

Figure 5 - Performance of project portfolio formation (Class #2)

Several interviewees made it clear that the performance of the portfolio would be associated with the quest for organization-wide legitimacy of the process of portfolio formation:

“It is paramount that the processes [of portfolio formation] be clearly established. That everyone knows them. How it works. How we select projects. How we prioritize. How we approve. [...] [Also] the criteria that lead to decision-making have to be previously debated and validated [...].” (Interview 22)

“The process of selection and prioritization of projects was simple and transparent, that is, everyone

knew this process.” (Interview 20)

“After the establishment of the formal process [of portfolio formation] it has been possible to assure that the budget is directed to investment projects and it has been possible to guarantee that we were not exaggerating the level of resources of the firm.” (Interview 15)

Consistency of the model was also valued by some interviewees:

“The third criterion is that the model you have chosen to identify, classify, select and assess [projects] has to be good. And the criteria I have for “good” is simplicity. I have seen people with linear programming models, simulation [...] It can be something wonderful in the future, but in the beginning I favor more palatable things that you explain to them [the top executives] and they understand”. As the area matures, you can start to sophisticate the model. But you have to start off with a basic model first.”

(Interview 16)

I take maturity into consideration. Methodological solidity, to have a well-built model.” (Interview 23)

The model made the process known and provided robustness and clarity to how it is structured. We created five baskets and then we introduce categories. This provided great clarity. We introduced prioritization, which was a great innovation. We created a robust prioritization method. This was very positive.” (Interview 18)

Regarding the stages of portfolio formation, it is clear that respondents had the PMI (2008) model in mind. This model presents basically the same stages that the interviewees mentioned. But the interviewees also mentioned three additional stages: strategic alignment, resource allocation / execution capacity, and degree of synergy among projects. Strategic alignment was mentioned in 21 out of the 24 interviews.

“A way to assess the performance of portfolio management could be the alignment of the portfolio with the strategy. This alignment has to be complete. If there is one element in your portfolio that does not help your strategy, there are only two options: either strategy is wrong or that element is wrong.”

(Interview 6)

“If a firm can select its projects in alignment with its objectives, that we can say that this is a relevant indicator.” (Interview 24)

“We moved from a simple ‘touch’ in the strategic objective to a model in which, at the moment one was filling up the project proposal, he would have to point to the strategic objective and to the performance indicator of this objective that the project would be contributing to – as a way to ensure alignment.”

(Interview 21)

Balance across projects was also highly valued, and several forms of balance were mentioned – e.g., among project categories, among number of projects per area in the firm, among number of projects associated to each of the strategic objectives, as well as distribution in terms of level of risk exposure:

“For each objective I verify how many projects I have. This is balance of the portfolio according to the strategic map.” (Interview 15)

“One of the reasons we can say that the process was not doing well it that we saw some strategic objectives with five or six projects and some with none. And they were important strategic objectives. This means that a proper balance of projects had not been done.” (Interview 3)

“Something rather complicated is that we have to think of a way to consider the balance among several outcomes that we have to achieve. We have little resources and several objectives. If we can prioritize these resources, we already have some success in this portfolio [...]” (Interview 16)

Class #3 contained metrics that, all in all, would reflect the aggregate of performance indicators of individual projects (e.g., cost, time, scope, risks etc.). But there also more sophisticated metrics, such as monitoring of strategic change or monitoring of the interfaces between projects, and allocation and management of resources among projects. Figure 6 illustrates what interviewees mentioned.

Variables mentioned by interviewees	Number of citations	% in the respective class of data
1. Cost / Budget	20	26%
2. Time	15	19%
3. Strategic Change	10	13%
4. Follow-up of the portfolio	9	12%
5. Scope	7	9%
6. Monitoring of the interfaces between projects	6	8%
7. Allocation and management of resources among projects	4	5%
8. Risks	3	4%
9. Others	4	5%
TOTAL	78	100%

Figure 6 - Performance of the monitoring and control process (Class #3)

Some respondents put it this way:

“[...], for example, budget allocation, prioritization of initiatives, staff allocation, organizational integration, promotion of transversality and synergy among projects and areas – that did not talk with one another before [...]” (Interview 10)

“What would make my portfolio turn red? This is the big question. But they forget that what makes the portfolio turn red is not the situation of each project [...], but the risk of not fulfilling a strategic objective. In other words, I may have one project in red, but that does not [necessarily] mean that the

portfolio is in red. Take time as an example. Maybe this project is red because it in fact is delayed. But if you see the entire portfolio, that single delayed project does not put at risk the time for my strategy [...] because it is not a critical path. [...] The same applies to cost. Sometimes one project may be beyond the budgeted cost, but I have other projects in the portfolio that can balance the total cost that was estimated for that portfolio. The same situation is true for the risk. There are important risks for each of the projects that are absolutely irrelevant to the portfolio. On the other hand, there are risks that cannot be identified within the project, but they are related to the portfolio as a whole.” (Interview 12)

“We have some standard measures, such as time, scope and cost [...]. We have a mathematical formula that gives us these indicators for the portfolio.”

“So I can have, for example, the quantity of changes. Or the quantity of projects that have changed divided by the quantity of projects. This would give me some indication of the level of change. Or quantity of changes divided by quantity of projects.” (Interview 12)

Class #4 included results that would stem from the execution of the project portfolio; as such they would not be measures of the management of the portfolio, but rather consequences of it (see Figure 7).

Variables mentioned by interviewees	Number of citations	% in the respective class of data
1. Monitoring of benefits	14	37%
2. Achievement of strategic objectives	12	32%
3. Post-portfolio assessment / Effectiveness indicators	9	24%
4. Value map	2	5%
5. Degree of Innovation	1	3%
TOTAL	38	100%

Figure 7 – Performance of project portfolio post-implementation (Class #4)

Being able to effectively verify whether the expected results were in fact attained seems to be very important to project portfolio managers:

“The main difficulty of organizations, and their main wish, is monitoring the achievement of benefits expected from the portfolio. OK, the project has come to an end, the portfolio has been executed, but who is in fact checking to see whether the benefits that we expected from this portfolio actually have been achieved or not? Are we reaching the strategies we imagined?” (Interview 22)

“[...] the most important and most difficult is to monitor the benefits of the portfolio. [...] what do I expect from these projects, these set of projects? Ah, I expect an increase in market share, I expect some cost reduction, I expect an increase in revenues. This is the most difficult to do for various reasons. First because you do not see that on the same day that the project is finished [...]” (Interview 22)

“We want to be sure we have in fact captured the benefits promised by the project. This stage happens

there at the end. After you have delivered the project, you need to capture those benefits, you need to guarantee that what was promised in the project business case was obtained.” (Interview 5)

Also important to managers is how to measure the attainment of strategic objectives. One can notice that respondents frequently inadvertently equated attainment of strategic objectives with level of performance of the portfolio management process. Of course, one runs a portfolio with the expectation of achieving certain objectives, but the metrics by which the portfolio management (an on going process) can be judged should not be the same as the metrics related to objectives achievement (which refer to level of results at a given point in time).

“The portfolio is there to meet a strategic objective. If this objective is achieved, the portfolio is successful. This is the number one criteria of success of a portfolio.” (Interview 9)

“[...] we have strategic objectives; we have goals for those objectives and performance indicators for the objectives. These are the indicators that we are going to follow, knowing that the projects collaborate with those indicators.” (Interview 22)

“[‘’] trying later on to establish a correlation between this project and the operation of more strategic indicators that we follow.”(Interview 3)

“It is important to measure what we have actually delivered. For example, in an innovation project, from the total number of products that we created, or the new services and technologies that resulted from those projects, what in fact becomes part of the firm’s commercial strategy?” (Interview 17)

All in all, the interviews produced a great number of indicators related (to different extents) to assessment of the performance (i.e., the degree of success or of failure) of project portfolio management.

Assessment of the performance of portfolio management... not in a nutshell

Interviewees recognized the complexity of portfolio management itself and of the measurement of its degree of success.

This is a vanguard theme because it is complex. It is complex to measure, after it [the portfolio] is ready whether it was successful or not. (Interview 16)

“So, what would be the criteria? This is not clear for me.” (Interview 7)

“[...] there are no metrics to evaluate the success of the portfolio today in my company. [...] what we do is to see how the evaluation of each individual project is done. We present a consolidated result of the portfolio. But in fact the result that is being evaluated is the sum of the individual performance of each project. So there is not such a metric to assess the portfolio.” (Interview 10)

“This is difficult, to have a list of indicators. [‘’] what you have to do is to know whether the strategy is

happening. This is the bit challenge.” (Interview 22)

“I think that this is the big bottleneck: how to measure the performance of portfolio management”.
(Interview 2)

Managers do not seem to have a unified conceptualization of what should be included as part of the measurement of the performance of portfolio management. Some emphasize the macro-process of the formation of a portfolio from a set of projects; others focus on monitoring the execution of such portfolio; while for others what counts is the results obtained after the execution of the portfolio.

Regarding the process of portfolio formation, managers do not have any set of ready-to-use indicators, but resort instead to less structured forms of analyses. Some excerpts will help illustrate this point:

[...] we do that [i.e., the assessment of the formation of the portfolio] not with an indicator, but as process of analysis.” (Interview 16)

“There are some analyses that we run when we do not have the indicator. We already do the analysis. It is in the process. We do not have an indicator.” (Interview 17)

“We do it tacitly. This is not an indicator.” (Interview 7)

“Some dimensions of the performance of portfolio formation are evaluated not with indicators, but with analysis, processes. There is not a concrete metric for that.” (Interview 12)

Firms also find it difficult how to assure that the projects that compose the portfolio will in fact lead to the achievement of strategic objectives, that is, whether they are or not well aligned with strategy. Sometimes, the situation is reversed: instead of defining strategic objectives and then designing projects to achieve them, some firms, in some cases, pick up the projects they already have in place and “assign” them to the newly defined strategic objectives. A few examples will clarify this state of affairs:

“For the strategic alignment, I cannot think of an indicator. I can only think of the use of some instruments. [...] I think that, if you have strategic maps, aligned with a benefits map, aligned with project objectives... this alignment is not an indicator, but it is perfectly auditable. If you can see those three, that indicates strategic alignment. So, it would be the use of these three instruments in the three levels that would show the link between strategic benefits, more practical benefits and the Projects objectives. Identifying two types of objectives: KSI (Key success indicators) and KPI (key performance indicators). It is not whether it is being delivered on time or not. It is whether it meets objectives [...]”
(Interview 13)

“Because alignment is a result, you cannot measure alignment in a scale. Very much aligned, very little

aligned, no, no. I think that alignment comes a step before. Which criteria will make it more or less aligned with strategy? [...] I am fully against the establishment of 'strategic alignment' as a criterion for decision-making. [‘;;;] It is the opposite: the result of application of all criteria will tell you if that is aligned or not. Can you understand?" (Interview 22)

Regarding metrics to measure the performance of the portfolio after it has been delivered, one great difficulty is the temporal gap between the end of the portfolio and the achievement of long-term objectives. In the words of a respondent:

"There is a gap between output (deliverable) and outcome (result / impact)." (Interview 8)

Some managers also argue that it may be difficult to isolate the particular impact of a given project (or portfolio of projects) on a firm's results, because there are determinants of performance also playing a role:

"Now, after the project is concluded, the new factory starts its operation, the line is modernized, the business landscape is complex, so it is difficult to measure how those projects are contributing to revenue increase." (Interview 16)

"Portfolio management sometimes does not allow us to wait for these indicators to evolve according to our deliverables. This is relevant. So we have to seek for indicators that lie between these deliverables, some indicators of intermediary impacts." (Interview 12)

The rather blurred picture gains even more complex contours when managers talk about (non)comparability across projects:

"A delay of one day in a relatively standard project should be weighed differently from a delay of one day in an innovating project." (Interview 4)

5. Discussion

Four main conclusions can be derived from the data:

- there is a great diversity about how portfolio managers draw the frontiers of what should be included in (excluded from) the assessment of the performance of portfolio management;
- (as a consequence) there is great diversity about how to measure the degree of success (or failure thereof) of portfolio management and very little formal guidance;
- firms seem not to have reliable and structured databases from where to collect information to assess the performance of the portfolio;
- assessment of the performance of the portfolio seems to still be done according to the idiosyncratic preferences and analyses of each manager.

Managers have also pointed out several reasons about why it may be difficult to evaluate the degree of success of portfolio management. They find it difficult not only to objectively define metrics to assess the formation of the portfolio – and they resort to more subjective analyses instead –, but also to evaluate the degree of alignment between the portfolio and strategic objectives.

Managers have also addressed the measurement of company's results as a way to judge the performance of a portfolio. This point deserves a careful discussion. While it is clear that a portfolio of projects is put in place in order for the firm to achieve its strategic objectives, the measurement of the outcomes is done *ex-post facto*. Important as it certainly use to judge the degree of success of the full execution of the portfolio, it is not, *per se*, appropriate for managers to act upon and take steps, *ex ante*, to increase the chances of success. Besides lagging indicators (those measure after the fact), managers also need leading indicators (those upon which they can act in order to try to obtain a given consequence). So, it is necessary to distinguish between (degree of) success of a portfolio and (degree of) success of portfolio management.

From an academician's view point, measuring the degree of success of (the process of) portfolio management by the consequences accruing from the portfolio's deliverables would lead to circular reasoning. That is, a portfolio would be evaluated as successful if it leads to good (*ex-post*) results for the company and a company would obtain good results if its portfolio(s) is(are) successful.

In order to test theory about the impact of (good) portfolio management on such organizational variables as business performance, employees' motivation etc., it is necessary to measure aspects that are intrinsic to the portfolio. For example, aspects related to the formation of the portfolio, to the relationship between projects, to the monitoring of the portfolio operational achievements etc.

In the following section a preliminary conceptual model is proposed.

6. Advancement of a preliminary conceptual model

Among the four general dimensions related to the performance of portfolio management presented in Figure 3, only the two middle ones actually related to the content of portfolio management itself – while the first dimension in Figure 3 would refer to antecedents of the performance of portfolio management, the fourth one would refer to consequences of portfolio management.

Taking the three dimensions related to the content of portfolio management, we advance the following “preliminary conceptual model” (Figure 8).

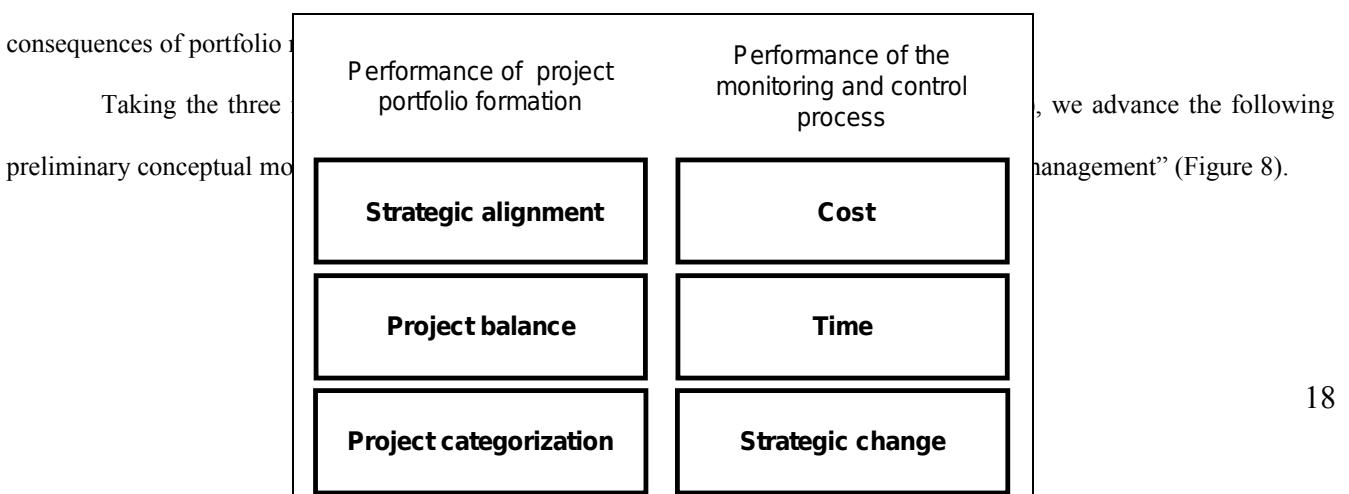


Figure 8 – Preliminary conceptual model of the *performance of project portfolio management* construct

The terms presented in Figure 8 have to be refined in terms of wording and also needs to have the meaning and content of its indicators better established. This improvement of the model can be done through discussions with academic experts and experienced managers. A discussion on the type of relationship – formative vs. reflexive – between indicators and dimensions has also to be conducted, but it was beyond the scope of the present paper. Once the model has been refined, empirical data should be collected in order to verify whether the theoretical model seems to be compatible with real data.

This model contains some measures that have been suggested, albeit tangentially, in the literature, in particular, strategic alignment and project balance. In fact, to the best of the authors' knowledge, no model of the *performance of project portfolio management* has been suggested in the literature, although there is an abundance of material about how to administer a portfolio.

The model also bears similarity with the well-known PMI reference to project management. In fact, the experience managers have with PMI may probably have influence the way they see the phenomenon.

7. Conclusions

The present paper sought to fulfill a gap in the literature about project portfolio: the lack of a model to evaluate how well the portfolio is being managed.

The preliminary model advanced here addresses only the aspects that seem to relate directly to the content of the process of portfolio management. But the data collected and analyzed also contains a reasonable amount of information on possible determinants of the phenomenon (of performance of project portfolio) and possible consequences.

Some limitations of this study must be recognized. First, this was an exploratory study, so the conclusions should be regarded as tentative, still pending "corroboration" from further empirical studies. Second, despite the precautions taken, the results of the interview may have been biased by the inadvertent actions (words, gestures) of the interviewer that might hamper spontaneity of the interviewee or by social desirability bias on the part of the interviewee. Also, the codification of data and the interpretation of findings were conducted by only two researchers.

The data collected revealed that, even among experienced practitioners in the field of project portfolio management, there is a cloudy picture of what is meant by “performance of project portfolio management” and of course how to measure it. This confusing state of affairs implies that the model proposed in Figure 8 is to be taken as exploratory and tentative, even from a conceptual standpoint. Possibly, conversation with a different set of managers might yield different perspectives and metrics. In fact, in future studies researchers could collect data from other actors also involved in portfolio management, specifically managers of individual projects and top-level executives responsible for strategic decisions – who may shed a different or complementary light onto the phenomenon.

Despite its limitations, this study can be regarded as a first step in providing both managers and scholars with a model to assess the performance (i.e., the degree of success or of failure) of project portfolio management.

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