OPM3

THE RELATIONSHIP BETWEEN OPM3 AND PROJECT MANAGEMENT: A MULTIPLE CASE STUDY

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Abstract: The objective of this paper is to study the impact of Organisational Project Management (OPM3) on the Project Performance (PP). PP performed by the organisations was assessed, based on interviews to project managers. Currently, little evidence is found in the academic literature regarding the impacts of the Maturity Models (MM) on the PP. The results show that the OPM3 provided a positive contribution to PP. Some of the interviewees stated that the adoption of OPM3 brought improvements at the process level, which made it possible to define in a more appropriate way, the scope, schedule, costs, and goals to perform improvements in the stakeholder's communication.

1. INTRODUCTION

Projects are discrete but multidimensional activities that serve as vehicles of change, promoting investments made by the organisations with the goal of obtaining internal process enhancements and business benefits [1]. In fact, projects are unique and designed to deliver beneficial change, so managing project goals and business benefits underpin all aspects of successful projects [2].

Project success means different things to different stakeholders. A project that seems successfully for customers could be a completely failed experience for contractors or to the end-users [3]. Stakeholders have distinct interests in different projects and therefore the perception of success vary differently across the various stakeholders [4].

The definition of project success is not consensual, and several authors agree that success can be achieved by the action of the project manager [5] 6] [7] [8]. The iron triangle, the classic criterion is a measure of the immediate PP against the main design parameters—schedule (time), budget (cost) and technical requirements (quality) [1].

The iron triangle criteria were the very first approach of PM success [9], which was later proven to be only a part of overall project success. The project manager is not responsible only for a time, cost and quality management, but also to other factors, such as integration, scope, human resource, communication, risk, procurement and stakeholder's management [10]. Maturity models have become an essential tool for assessing organizations' current capabilities and helping them to implement change and improvement in a structured way [11]. Maturity is often associated with step stages schema, presented in the organisational management practices that make it possible to achieve project success [12]. Not surprisingly, the concept of maturity was also diffused to the project management field. Different views exist regarding maturity in relation to project management. A significant number of competing perspectives attempt to describe mature project management practices [13] [14] [15] [16] [17] [18] [19] [20]. These approaches assume that increasing maturity of project management will lead to improvements in performance and results of more consistent and successful projects.

Many project maturity models emerged last decades and have been described in the PM literature [21] [22] [23] [24]. As organisations grow in terms of PM maturity, they achieve better performance at lower costs [25]. The existence of an appropriate organisational structure and economies of scale maximise the efficiency of PM efforts in obtaining projects that accomplished predefined goals.

These different stages of maturity that organisations present in terms of PM practices are defined as the level of sophistication of the PM practices development, processes and performance [26]. However, each organisation has an intrinsic operation mode that sets it apart from other organisations and, as such, implements different practices in the execution of its projects. This is the main factor that contributes to the failure of the projects [27]. To overcome this difficulty best practice frameworks emergence to help organisations to achieve their goals.

According to Grant & Pennypacker [28], MM supports the development capacity of organisations, which in turn reinforces the internal processes used to manage all the projects and relate them to the best of the organisational strategy. Despite the apparent benefits of MM for PM in the organisations, there is insufficient evidence to support the relationship between MM and improvements in the performance of organisations' projects [28] [29] [30]. Mullaly [17] [31] claimed the real contribution of MM to the success of the projects of organisations in to obtaining a competitive advantage. In our study, were analysed the application of OPM3 in Portuguese organisations and how managers perceived that its use improved the PP.

The present research intends to answer the following research questions:

- How do organisations manage their projects using the OPM3 maturity model?
- How does the adoption of OPM3 contribute to PP?

2. LITERATURE REVIEW

2.1. MATURITY MODELS

The origin of MM has its roots in the Capability Maturity Model (CMM) developed in 1991 by the Software Engineering Institute (SEI) [28]. Since then, the model has received wide acceptance as a standard for process modeling and the evaluation of organisational maturity in various process areas. CMM is intended to assess the maturity of software development organisation processes on a five-stage scale [32], and compare practices applied by an organisation with respect to a standard criterion [33] to develop and maintain their products [20]. The CMM has different stages to help organisations prioritise their investment intentions and each of them serves as the basis for their continuous improvement process benefiting their performance and productivity [12] [13] [34]. However, CMM is geared toward software engineering organisations and not so much for organisations from other industries and businesses. Organisations have invested to manage their activities and failures better, and most of them have been adopting PM practices to gain a competitive advantage [27] [35], i.e., the organisations adopted practices that help them achieve their goals more efficiently and effectively. Here, the value of a formal and structured approach is recognised by practitioners of PM, as it is through this proactive management that benefits are obtained for the projects [21]. For an organisation to know whether its PM processes are appropriate, it must consider certain indicators that allow a comparison of their current practices. This allows for the evaluation of the PP, i.e., within the scope and the calendar, respecting the cost, and fulfilling the expectations of the clients and the satisfaction of the project team [21].

Following the CMM approach, most of MM has a five-stage scale. This schema guarantees the visualisation of the maturity, from their immature PM realisation to a more structured level needed to support projects, i.e. through best practices [36]. Best practices are generally defined in an appropriate way, which is currently recognised by the industry to achieve an objective set by a particular organisation. When it comes to PM at the organisation level, best practices include the ability to implement predictable, consistent, and successful organisational strategies. The use of PM also increases the likelihood of achieving the proposed goals or objectives [37]. In general, MM are linked to PM reference frameworks, such as the Guide to the Project Management Body of Knowledge (PMBOK) [20] [27] [37].

MM provides companies with the necessary mechanisms to identify the key areas of opportunities for improvement in project management tasks. Additionally, it serves to develop comparative indicators for the application of PM practices and techniques across organisations which operate in the same business environment or sector [38]. According to Crawford [23], MM are frameworks that allow organisations to create a strategic plan that will help them to develop their PM practices. These frameworks can also be used to transform an organisation into being more standardised and documented, with the potential for better results in a more consistent way [39]. Organisations can clearly benefit from the adoption of a MM for PM, namely, as the chance of interconnecting all its stakeholders and, achieving success in their projects is more likely, as is the chance of the achieving repeatability success in the projects [40] [41] [42]. Carefully applied, MM can gain credibility in a fast and sustainable way, both at the level of clients and to the organisational internal structures. Operations become more efficient and effective [21]. The study of Eskerod & Riis [43] demonstrates that MM assists in the fulfillment and/or reduction of the schedule and cost, by increasing the efficiency of projects. MM for PM will provide an incentive and a map for the development of the formalised management of project portfolios, a library of best practices and a broad team of professional and competent project managers [44]. This is especially the case if they are meticulously and intelligently framed with the application of the existing PM [42].

There are several reasons why organisations might choose to use an MM to assess their current performance, such as [45]:

- Justifying their investment portfolio, programme or project management improvements;
- Gaining recognition of service quality to support proposals;
- Gaining a better understanding of their strengths and weaknesses to enable improvement to happen.

2.2. ORGANISATIONAL PROJECT MANAGEMENT MATURITY MODEL (OPM3)

Some studies have shown that organisational strategies fail largely because of the difficulty that organisations face in aligning their strategies in a detailed way at the tactical level [46]. To overcome this gap, the PMI found that it needed to launch its own MM in 2003, known as OPM3 [27] [28]. OPM3 is a model that bridges the gap between the strategy and the project realisation. This is achieved through a series of iterative assessments that focus jointly on management at three organisation levels, namely: projects, programmes and portfolios, as well as focussing on organisational strategies. OPM3 aims to help organisations to develop their management capabilities to all the projects and to align them with the strategic objectives [47].

The OPM3 also assesses the PM maturity of the organisations through the four following stages of process improvement [37] (p. 22-24):

Standardisation - Ensure that a process governing body is in place, develop and document the process, communicate the process to those responsible for executing the process and apply the process consistently across the organisation.

Measurement - The measurement stage quantifies the quality of the processes.

Control - Once a process is measured, the organisation may gather trend data to determine if it is under control.

Improvement - Once a process has been standardized, measured, and controlled, organisations can continuously improve them.

It should be noted that this model does not follow the CMM's maturity through five-stages scale. According to Schlichter [48], there are different motivations that lead to organisations in adopting OPM3, such as:

The possibility for organisations to know which are the best practices in their industry and market;
The balance between reputation and best practices, implementation of improvement plans and evaluation to be continued;
Reducing the variability of project performance and increasing its predictability;
Improving management and stakeholder satisfaction;
The focus of project efforts on strategic goals.

OPM3 is implemented through a three-phase process:

- Knowledge - acquiring an understanding of the model and its implementation.
- Assessment - comparing the current PM infrastructure to the PM best practices.
- Improvement - determining which changes are feasible at the current time and implementing the changes.

OPM3 can benefit organisations by ensuring the efficient use of project resources and by providing cost savings associated with the elimination of projects that are not tied to the organisation's strategic goals [49]. The present study focuses exclusively on OPM3. The reasons for this choice are the followings:

- The wide dissemination of the model in Portuguese organisations [50];
- The easy access to interviews;
- It's recognition as a universal approach to assess PM maturity.

Table 1 highlights the main aspects related to three of the most popular MM.

3. METHODOLOGY

3.1 RESEARCH METHODOLOGY

Our research follows a multiple case study strategy. According to Yin [52], a multiple case study is the selection of two or more cases, considered as possible replications, from which one can obtain answers to research questions. However, it should be emphasised that in the case studies, whether they be a single case or multiple case studies, the aim is not to obtain statistical generalisations or to measure their representativeness, but rather their particularisation [52].

Maturity Model	CMMI©	P3M3©	OPM3©
Constructor	SEI	OGC/AXELOS	PMI
Version/Date	V.1.3 /2010 [33]	V.3 /2016 [51]	V.3 /2013 [37]
Theoretical background	-	Managing Successful Programmes	PMBOK
Continuity between editions	Yes	Yes	Yes
Sector	Software/engineering	All	All
Domains	Project	Project, Programme & Portfolio	Project, Programme & Portfolio
Scope	22 process areas	32 process areas	*Best practices*
Representation	Staged/ Continuous	Staged	Continuous
Levels	5	5	4
Self-Assessed	Yes	Yes	Yes
Links to strategy	Yes	Yes	Yes
Continuous improvement	Yes	Yes	Yes
Interpretation	Medium	Medium	Yes
Ease of execution	Yes	Yes	Yes

Table 1: Main aspects related to three of the most popular MM

The nature of the study was characterised as being explanatory [53], i.e. to better understand the problem proposed, the approach adopted was inductive and the method of research qualitative.

The unit of analysis considered was the organisations' projects. It should be highlighted that the projects selected by the present study were only considered after the adoption of OPM3. Since our study focused on a phenomenon that occurred during a certain period of activity of the organisations, the time horizon was characterised as being cross-sectional [53].

3.2 DATA COLLECTION

Six semi-structured interviews were undertaken, and it was ensured that the interviewer did not influence the interviewees and thus more precise information was assured [52]. The research was established considering the interviewees' availability so that interviews could be conducted without time constraints. The detailed information is presented in **Table 2**.

3.3 RELIABILITY

When conducting case studies, one of the most important sources of data collection is the interviews [52], which in this case focused only on project managers. The script of the interviews contained closed and open answers and was presented to the interviewees in a similar way so that the bias effect of the data was reduced. Subsequently, the data collected were encoded and transcribed. It should be noted that research ethics have been safeguarded in terms of confidentiality, anonymity and voluntary participation. This study adopted a protocol of interviews, in order that the opinion of the interviewees was respected, and it was ensured that the objective of the data collection was run in the best conditions.

3.3 VALIDITY

Firstly, a pilot study was conducted to test the questionnaire and to understand whether the questions in fact corresponded to the predefined objective.

Interviewees	Date	Duration (mn)	Organisation	Age (years)	Gender	Years on the organisation	PM Experience (years)	Certification
E1	11/05/2016	30	O1	47	Male	5	31	PMP, OPM3
E2	13/05/2016	60	O2	51	Female	7	30	PMP
E3	16/05/2016	30	O3	37	Female	5	10	PMP
E4	19/05/2016	30	O4	37	Female	5	10	PMP
E5	13/06/2016	Email	O5	33	Male	8	5	PMP
E6	27/07/2016	30	O6	33	Male	5	9	PMP

Table 2: The interviewees

Therefore, the scope, motivation and participation conditions were presented to the interviewees. The pilot study served to make small adjustments in the question formulation, however, the data collected from this interview were also considered, since the interviewee provided important data for the variables under analysis. This step was performed to clear any doubts that might appear regarding the focus of the research [53]. The data collection process was performed with informed consent. The interview script was elaborated considering the seven stages presented by Brinkmann & Kvale study [54]. Due to the research option, the data collected from the interviews could not be generalised to other organisations of some sectors, or others.

3.4 ENCODING

The encoding process was all elaborated through the content analysis. The codes were created from those expressions most often repeated by the respondents, which were important aspects of the research and somehow aroused some interest (e.g. the fact that the respondents often referred to the adaptation of practices in their projects).

Table 3 shows the codes identified and some excerpts of what was reported by each of the interviewees are presented in **Table 4**.
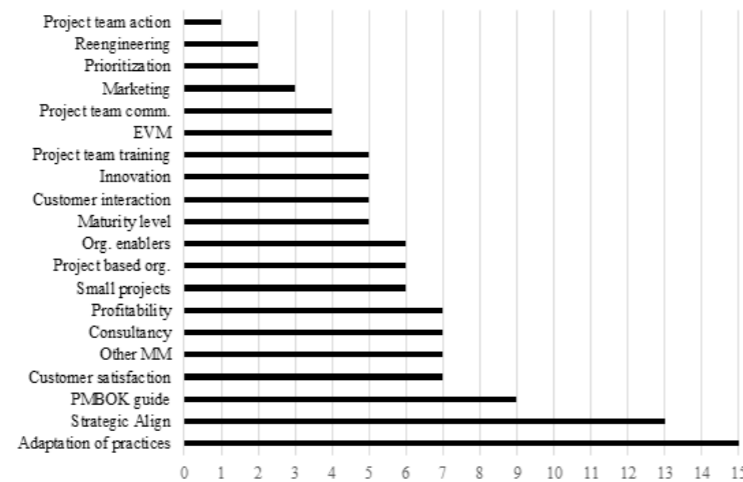
Table 3: Encoding. Most often repeated terms/expressions

Table 4: Encoding (e.g. adaption of practices and strategic alignment)

Codes	Interviewees	Comments
Adaption of practices	1	In most cases of innovative projects, we have to adapt the processes.
	2	Initially it was necessary to align the model and thereafter do some work to maintain the practices
	3	If the project starts to cost more than the planned, then we need to act quickly.
	4	Combinations were done with other approaches, such as Agile, or Scrum.
	5	In my view, it is difficult to say whether the scope of a project has been fulfilled by using the OPM3 or another framework.
Strategic alignment	1	OPM3 makes the alignment easier by improving the processes of portfolio management, aligning the projects with the objectives.
	2	The combination of the three dimensions (projects, programmes and portfolios) really promotes the alignment with the objectives and leads to implementation of the practices.
	3	By doing this, what will happen is that organisations strategies will be materialised in the field.
	4	Our objective is to have a financial margin, if we do not control costs, then the margin will also be lower. Alignment is the key.
	5	Good practices in MM help project performance improve within organisations. They help to define the best path in order that the success of the projects in the organisation is truly achieved.

4. RESULTS AND DISCUSSIONS

The organisations assessed are all from the consulting sector and use the OPM3 model as a standard practice in their activity. These organisations typically manage projects lasting between 6 and 15 months, and the projects analysed were carried out between 2006 and 2016.

The interviewees affirmed a consensual view regarding what OPM3 represented for their organisations' PM. The question of the alignment between the organisational strategy and the project objectives was widely referenced throughout the interview sessions, confirming what was stated on the literature review about the usefulness of OPM3 in assisting organisations to develop their capacity to manage projects and to move them towards achieving their strategic objectives. In other words, for the interviewees, OPM3 enablers improve the pre-identified PM practices. The **Tables 5, 6 and 7** highlighted several important research issues.

Research questions	Observed variables	items
How do organisations manage their projects using the OPM3 maturity model?	Questions about the OPM3	1,2,3,11
How does the adoption of the OPM3 contributed to the performance of organisations' projects?	Scope	4
	Schedule	5
	Cost	6
	Customer expectations	7, 8
	Project team satisfaction	9, 10

Table 5: Mapping research questions, variables and items

Interviewees	Answer
1	OPM3 improves our portfolio management processes and align projects with strategic objectives
2	Best practices are used to measure whether we are achieving the strategic objectives or not. The combination of the three dimensions (projects, programmes and portfolios) allows the aligning of objectives and leads the organisation to implementation of the practices.
3	OPM3 identify the gap between the *as-is* and the *to-be* and map out a roadmap of improvements. Implementing these improvements will enable happen the achievement of goals of the projects.
4	Best practices have allowed us to better control the state of the project, identify risks, and manage the stakeholders and our client.
5	The implementation of OPM3 best practices support organisations develop their PM processes in the best possible way. These processes also allow us to create a framework among the organisation's various projects.
6	OPM3 has a basic problem that makes it difficult to exactly identify the level of maturity of the organisation.

Table 6: The importance of OPM3 for organisations' projects

Variables observed	Summary of the answers
Scope Management	The implementation of OPM3 helps to improve processes by providing a better definition of the scope of a project. OPM3 allows one to confirm that the organisation makes a good planning of what will be the management of its scope and prepares and correctly identifies the requirements. Allows the documents to be structured according to PM good practices and helps to improve stakeholder communication processes.
Schedule Management	Compliance with the schedule is regularly monitored by the project manager using Earned Value Management (EVM). When the project uses agile methodologies, daily meetings are held to monitor and verify the status of the activities. OPM3 also helps build the organisational processes necessary for EVM to work
Cost Management	By applying OPM3 practices, organisations have all the necessary tools to plan, control, and for indicators and metrics. The ultimate tool for cost control is EVM.
Customer expectations	This model has a whole set of management practices to deal with customer expectations. We achieve a greater volume of commitment when deliveries meet customer expectations leading to customer satisfaction. OPM3 allows management to be very close to customer expectations.
Project team satisfaction	The main factor for the team to be satisfied is to know that the customer was satisfied and acknowledges the work done. As we often hold meetings with the customer, we make the product very close to the customer's needs. A short questionnaire was sent to collect customer feedback in order to analyse which points need to be improved.

Table 7: Answers by variable

In response to the research questions, it was possible to ascertain that the adoption of OPM3 did not bring immediate improvements, as these practices alone do not cause significant improvements in the projects in terms of the variables analysed. It was necessary for project managers to make good use of these practices. All respondents considered that there were situations in the projects that would not be appropriate for the use of OPM3 practices and that they had to adapt to the situation to some extent to that which they were in, and sometimes to help others industry benchmark practices.

Each project is unique and for organisations, it does not make sense, in a simple and short-term project to use all range of tools and techniques prescribed by the methodology extensively. The organisational OPM3 facilitators played the role that had been proposed by PMI. Briefly, the project managers claimed that the adoption of OPM3 brought significant improvements to Project Management, namely:

Scope Management - Improvements in planning, document support structure and the construction and use of the front process.
Schedule Management - Use of EVM, project status viewing, and improvement maps.
Cost Management - Greater predictability, cost-effectiveness and preventive and corrective actions.
Management of Customer Expectations - Application of the methodology, interaction with customers, commitment and collaboration.
Management of Project Team Satisfaction - Training and certification, and improvement of the relationship with all stakeholders and clients.

5. CONCLUSIONS

The credibility of PMI led these organisations to adopt the OPM3 maturity model and their best practices and enabled them to obtain improvements in the management of their projects. The interviewees reported by that their organisations managed their projects based on best practices However, there was a certain demand for the adaptation of other practices and, industry benchmarks, throughout the realisation of their projects,

to cover certain gaps they faced, i.e., the processes that organisations should adopt in their projects.
Respondents affirmed a consensual view of what OPM3 represented for their organisations' PM. The question of the alignment between the organisational strategy and the objectives of the projects was often mentioned during the interview sessions.
Among the project managers interviewed, the opinion regarding the improvements provided by the adoption of OPM3 for their projects was not consensual. Some of the interviewees had the opinion that the single use of OPM3 did not guarantee improvement in the projects, as in their opinion, the results depended much more on the capabilities of the project managers than the methodology adopted. What happened was that the model only provided recommendations for the organisations in the form of useful PM practices, and it was up to the project managers to implement them in the best possible way to obtain the necessary improvements.
OPM3 provides significant improvements for the projects and their organisations as previously described. It also seems clear that those project managers who make the best use of OPM3 practices had to adapt some practices, in order that their projects could meet the proposed objectives.
There was also agreement that OPM3 helps organisations considerably in measuring the level of achievement of their strategic objectives, to manage stakeholders, customers and contracts better, and to identify the risks associated with projects better and develop their PM processes.

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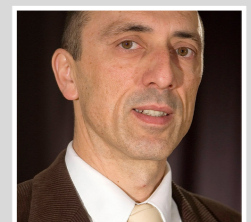
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