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Application of the PM² Methodology in the Project Management of the Portuguese Project Management Observatory Creation – Initiating Phase

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Abstract

The Portuguese Project Management Association (APOGEP) launched in September 2020 the project of implementation of the Portuguese Project Management Observatory (PPMO), a non-profit organization with a focus on the status and evolution of project management in Portugal. The project is being managed using the PM² methodology, developed by the European Commission (EC) that has been available, since 2016, free of charge to the general public. The methodology has few scientific references, so this project was used to contribute to filling this gap. The methodology incorporates best practices from other bodies of knowledge, can be easily applied and allows for customization. The initiating phase has been completed and the details of its implementation are focused on in this paper. The client involvement from an early stage was crucial and it was necessary to use more artefacts than those mentioned for this phase. Therefore, this paper presents the tailoring of the PM² methodology to the PPMO project, for the initiating phase.

Keywords: PM² Methodology; Project Management; APOGEP; Portuguese Project Management Observatory

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1. Introduction

APOGEP is the Portuguese Project Management Association, created in 1994, and since its foundation, it is linked to the International Project Management Association (IPMA). APOGEP main activities are the following: project management certification based on IPMA Competence Baseline (ICB); training according to ICB; organizational certification (IPMA DELTA); organization and promotion of project management events; promotion of the project management community; and diffusion of the main and latest news related to project management in Portugal [1].

In 2020, with a new board, APOGEP decided to reinforce the last two activities and launched the Portuguese Project Management Observatory (PPMO) project. The PPMO is intended to be a non-profit organization where Project Management (PM) status and evolution in Portugal will be the focus. The main operational vectors are collection, aggregation, follow-up, creation, and dissemination of knowledge about PM in Portugal. The spreading of the results will be done via the APOGEP associates and the Portuguese PM community (including Portuguese speaking people around the world). The decision to create and implement the PPMO was taken after recognizing the lack of quantitative and qualitative data in Portugal related to PM [2].

The project is being developed in a co-creation model between APOGEP (the client) and a voluntary group of project managers, academics, and students (core team) from the School of Engineering of the University of Minho. The project is being used to increase the knowledge related to PM in Portugal and as a laboratory to promote and test PM knowledge/practices. This environment encourages discussing, sharing, developing, and applying PM methodologies, tools, and frameworks. Given the fact that the PPMO is a pioneer project in Europe, as far as we know, it was decided to use the European Union (EU) project management methodology (PM²) for its creation, since it is an open and comprehensive methodology, and there is a lack of scientific papers reporting about its use, which presented a challenge and learning opportunity to apply it to this project.

The PPMO project was launched in September 2020 and will finish the creation phase by the end of 2021. However, the PPMO will be an ongoing project, with annual improvements, with new research to reassess, redefine, and reframe the PM profession, to match the needs of the Volatile, Uncertain, Complex and Ambiguous (VUCA) world [3]. The team will improve what is done and increase the functionalities, knowledge, and impact of the PPMO.

The PPMO project is composed of seven "sub-projects" (see more details in section 3). In September 2020, after the global project launch, activities related to the initiating, planning, and execution phase started almost at the same time. Now, the initiating phase is concluded, the planning phase and the execution phase are ongoing. The tailoring of the PM² methodology is still in progress, and it is being done as a research activity included in an MSc thesis development.

With this scientific paper, the goal is to answer to the following research question: Is the PM² methodology suitable to the PPMO project at the initiating phase? The objectives were: (O1) to compare the characteristics of the PPMO project with the ideal PM² project; (O2) to analyze the application of the PM² methodology in a practical situation; (O3) to tailor the PM² proposed process to the PPMO project, at the initiating phase. Action research was applied to this project.

The following sections present a literature review on PM² (section 2) and the context of the study and research methodology (section 3). Section 4 presents the results and discussion with the details of the use of the PM² methodology in the PPMO project and some considerations about the initiating phase. Finally, section 5 presents the conclusions and future work.

2. Literature Review

The creation of the PM² methodology started as a project in 2007 inside the European Commission (EC) and the first version of the guide was launched in 2008, only for internal use. It was only in November 2016 that the first open-access version was released to the public. This open-access version included: (i) the methodology guide; (ii) the artefacts; and (iii) a support website with information [4]. Furthermore, as mentioned earlier, it is important to note that PM² is not a very widespread methodology, so there is little scientific information on it. Information related to its use in the management of projects is rare or confidential.

The PM² methodology is still relatively unknown, as can be illustrated by the number of references related to it in the Google Scholar search engine, compared to other methodologies or bodies of knowledge (see Table 1).

Table 1. Results of search query versus database

Query	Google Scholar
"PM² methodology"	67
"Prince2"	16,700
"PMBOK"	74,200
"IPMA competence baseline"	5,880
"APMBOK"	968
"Agile methodologies"	20,700

A search in the scientific databases SCOPUS, Web of Knowledge (WoS) and Google Scholar was also done to find scientific literature related to the usage of the PM² methodology (see Table 2).

Table 2. Results of search query versus database

Query	Scopus	WoS	Google Scholar	Total
"PM² methodology"	1	2	67	70
"Open project management methodology"	0	0	23	23
"PM² project management methodology"	15	0	55	70
"PM square methodology"	1	0	0	1
"PM² EU commission standard"	1	1	5	7

The papers found have been analyzed and the distribution by years is shown in Fig. 1 (a). A preliminary bibliographic analysis is presented in Fig. 1 (b).
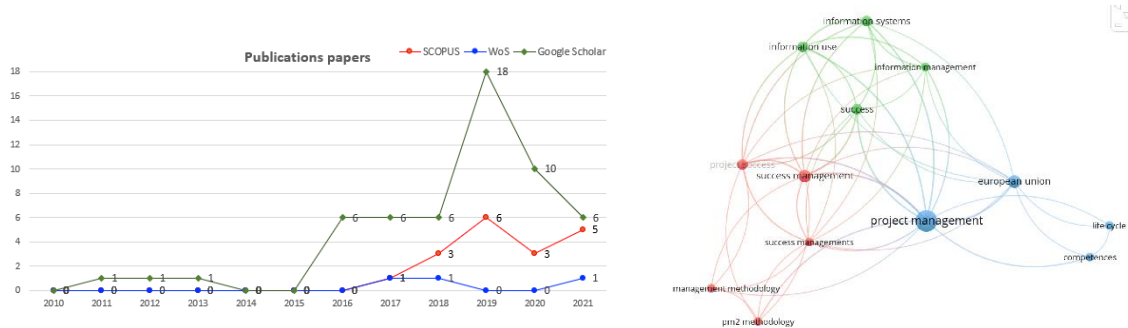

Fig. 1. (a) Scientific papers distribution from 2010 to 2021; (b) Preliminary bibliographic analysis

The PM² project management methodology is presented as light, lean, easy to implement, and allows teams to tailor the methodology to fit their needs [5][6]. It is a compilation and tailoring of best practices accepted worldwide and by the practical experience of multiple projects inside and outside the EC [6] [7]. Due to its simplicity, it is suitable to be used by newbie or experienced project managers and their teams.

A complete guide is available [10] with definitions, project governance structure, competencies, mindset, and the artefacts with guidelines [5]. The PM² methodology is growing, and since 2018, PM² Alliance is the organization responsible to promote and diffuse the methodology outside the European Commission (the executive body of the EU). Coordination exists at national and regional level, Portugal being a very active Regional Coordination [8].

The main usage goal of PM² is to allow organizations to transform ideas into successful projects that will produce outcomes that bring solutions and benefits to the stakeholders. As can be found in the methodology mindset definition, the goal of a methodology should be the project and the benefits that can come from it [6].

According to Takagi et al [9], the methodology involves four phases (initiating, planning, execution and closing) and transversal activities to the project lifecycle (monitoring and controlling). It follows a waterfall approach. The same authors pointed out that even if the methodology has specific activities to identify factors and success criteria, activities focused on monitoring and controlling those are not preconized in the methodology guide.

When compared with other frameworks, methodologies and methods, the PM² guide is considerably simpler and smaller. It has only 121 pages and offers a set of 33 templates (artefacts) that facilitate project management [6][10]. Fig. 2 relates the phases with the artefacts.
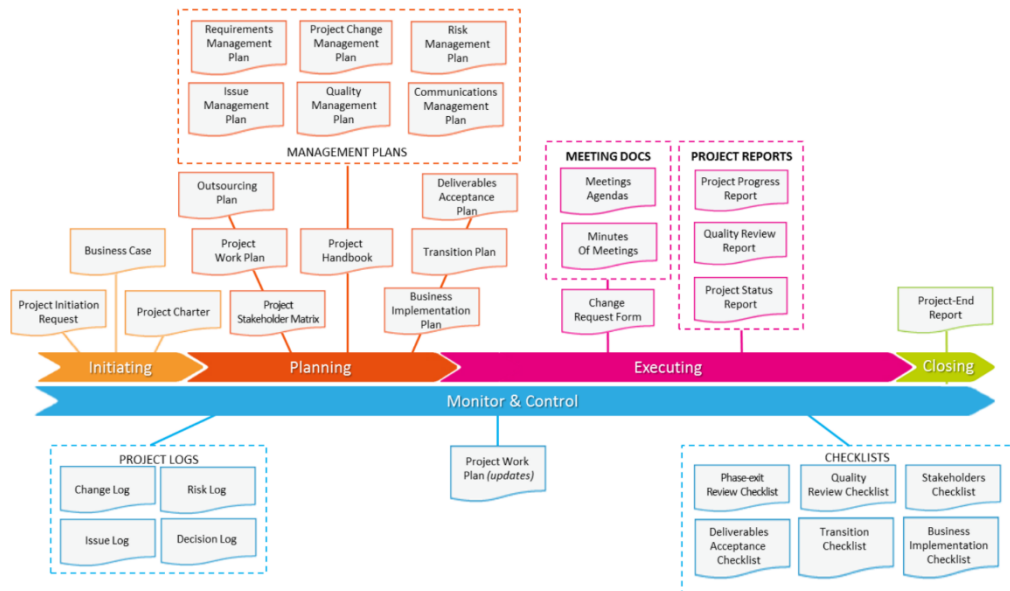

Fig. 2 - PM² Artefacts Landscape [7]

3. Study Context and Research Methodology

The PPMO is an independent brand managed by APOGEP. It is a project to be developed by annual interactions and, at this point, the main goal is to create the foundations to enable next years' activities. The project is composed of seven "sub-projects", namely: website construction; questionnaires development; brand development; PM network community development; academic dissertations and thesis development; scientific papers development; and creation of a PM repository. Some of these "sub-projects" include smaller projects, so the term portfolio would be more appropriate, for the global project as well as for some "sub-projects".

The core team and the entire governance structure of the project are volunteer-based, and the budget considers only small amounts related to the construction of the PPMO website. The duration of the project is fixed and the detailed scope statement is under construction. The project started with the appointment of the project manager and the definition of the core team. Since the very beginning, the team has been involved and had the chance to contribute with ideas and in the decision process.

The main goals of the PPMO are:
- Aggregate useful knowledge for the PM community;
- Study the evolution of PM in Portugal;
- Create a network around PM, aggregating researchers, project managers, students, and organizations;
- Promote the publication and diffusion of knowledge related to PM;
- Break down the barriers between applied and fundamental PM research in Portugal.

To achieve the previous goals, in this first year of the project, our plans include:
- Create a website and social media content;
- Organize events to present PPMO and attract researchers, project managers, APOGEP associates, students, organizations, and enterprises;
- Launch questionnaires to analyze PM development in Portugal;
- Create an annual publication with the results of the questionnaires, main studies, developments, and difficulties related to PM in Portugal;

- Create a repository to centralize the information related to PM in Portugal and make it accessible to all the community;
- Develop research work.

The main stakeholders identified are APOGEP volunteers and associates, IPMA Young Crew Portugal, academic researchers related to PM and support areas (e.g., statistics, communication, etc.), enterprises, project managers and PM students. The needs of each one of these stakeholders are being taken into account.

We haven't found a similar project, so, the PPMO could become a model to be replicated in other countries and create comparable PM metrics between countries.

In this research project, action research was applied as the research methodology, since it is an iterative process of inquiry that is designed to develop solutions to real organizational problems through a participative and collaborative approach [11]. The PM² methodology is being applied and adapted along the way, according to the analysis of the Project Manager, Project Manager Assistant, Business Manager, Project Owner, and the Project Core Team.

4. Results and Discussion: the use of the PM² methodology in the PPMO in the initiating phase

The reasons for selecting the PM² as the methodology to implement the PPMO project were:
- Test the applicability of PM² in a non-governmental and non-profit organization;
- Use a simple and easy to adopt PM methodology;
- Have a PM methodology to increase project and PM success;
- Use this project as a laboratory to develop and increase the knowledge about PM²;
- Novelty related to the methodology developed by the EC.

The PM² methodology was developed to manage any type of project. However, a better fit is made when the project has the characteristics of a PM² project [6]. As shown in Table 3, the PPMO project is almost a perfect fit. The only difference is that the budget approval requirement is partial. This characteristic is related to the volunteer characteristic of the project. Thus, it was decided to follow the main instructions, the suggested path, and the artefacts of the PM² methodology. As suggested in the guide [6], the use of the artefacts was adjusted to the needs of the project.

Table 3. Characteristics of a PM² project (Adapted from [6]).

PM² project characteristics	PPMO project characteristics
It's a project (nothing else)?	Yes
Has a duration of more than 4-5 weeks, with more than 2-3 people involved?	Yes
Runs within an organization and can be subject to internal or external audits?	Yes
Requires a clearly defined governance structure, and clearly assigned roles and responsibilities?	Yes
Requires approval of its budget and scope?	Yes, partially
Includes more than just construction/delivery activities?	Yes
Includes transition and business implementation activities?	Yes
Requires a certain level of documentation, transparency, and reporting?	Yes
Requires a certain level of control and traceability?	Yes
Has a broad base of internal (and external) stakeholders?	Yes
May require the collaboration of several organizations or several organizational units?	Yes
Contributes to raising the organization's project management maturity?	Yes

The initiating phase is where the idea is explored, the client's view is tentatively understood, the need of the client is analyzed, and different options and approaches are explored, to define the best path to develop a project that satisfies the need and brings the maximum benefit, based on the information available [6].

For the PPMO project, several documents needed to be prepared in a sequential process. The first one was the Project Initiation Request (PIR), followed by the Business Case (BC) and the last one was the Project Charter (PC). The PIR aims to explore the project idea into something more tangible. It is useful to explain the need, define the context, outcomes, assumptions, constraints, and risks of the project. It is the first draft to guarantee that the client vision is aligned with the organization's goals, objectives and needs. The purpose of the BC is to justify the need described in the PIR. The ideas contained in the PIR were explored, but we had to further identify the stakeholders to analyze their individual needs and the impacts of the project on stakeholder groups and vice versa. The BC explores

different alternatives to respond to the identified need. At that point it was useful to use Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis, as suggested by Sarsby [12], to guarantee that this was the best option among the studied alternatives. The PC was the last document produced in the initiating phase. It used information from the BC and the Stakeholders Matrix. It defines the scope, timeline, budget, risk, at a high level, as well as requirements, deliverables, PM approach, and governance.

Besides the official artefacts, referred to in the initiating phase, other documents were used. From the planning phase, the Stakeholders Matrix was used. And from the Monitor & Control activities, the following artefacts were also used: Risk Log; Issue Log; Decision Log; Change Log; Phase Exit Review Checklist; and Stakeholders Checklist.

The project manager and the team were assigned from the beginning, so they made part of the process, and it was necessary to use the Meeting Agenda and Minutes of Meetings (MoM), from the executing phase, to register the meetings information, decisions, and actions needed.

Fig. 3 presents the initiating phase adapted to the PPMO project. The boxes in light brown represent the adaptations made.
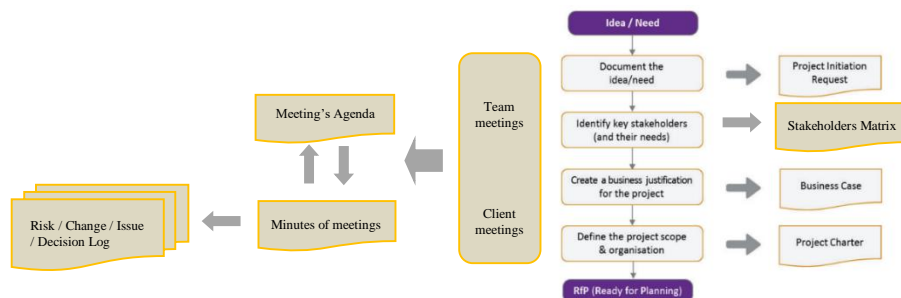

Fig. 3 - PPMO project initiating phase activities and outputs (Adapted from [6])

Due to the COVID pandemic, the project is being developed 100% online with a group of nine members. All team members are volunteers and their weekly availability is around eight hours. From the beginning of the project, a weekly team meeting of two hours has been held, to state the work, discuss and solve issues.

The team consists of the Project Manager, Business Manager, Assistant Project Manager and six team members divided by the subprojects, but that, when needed, support other subprojects. The Assistant Project Manager developed the documents based on the meetings and information issued by APOGEP. The Project Manager and Business Manager reviewed the documents and, when ready, the documents were approved by the Project Manager, Business Manager, and Project Owner.

The PM² guide suggests a list of tools and techniques that can be useful to produce the documents. At the initiating phase, the tools and techniques used were brainstorming, SWOT analysis, Work Breakdown Structure (WBS), Gantt Charts, and lessons learned [6]. All the documents required in the initiating phase were completed, even if some points were more explored than others due to the nature of the project. No points have been deleted from the PM² artefacts, instead, an effort has been made to develop all the topics, even when some of them have only short statements.

The development of the artefacts was sequential, as preconized by the methodology. The first document was the PIR, followed by the Stakeholder Matrix (SM), BC and, in the end, the PC. Fig. 4 presents the flowchart with the processes and documents used.

The PM² methodology was a contribution to the quick and easy project start-up. For project managers with little or no experience, organizations that don't have professional project managers, companies that want to start using PM but don't know how or don't have the tools, this is a powerful tool and, as an advantage, it is free to use and customizable.

It was the first practical contact with the methodology, but the similarities with other bodies of knowledge, such as PMBOK by PMI [13], or ICB by IPMA [14], became clear. For example, the competencies presented at PM² follow the competencies referred at ICB by IPMA, and the four phases and the activities Monitor & Control are similar to PMBOK process groups by PMI [13], [14].
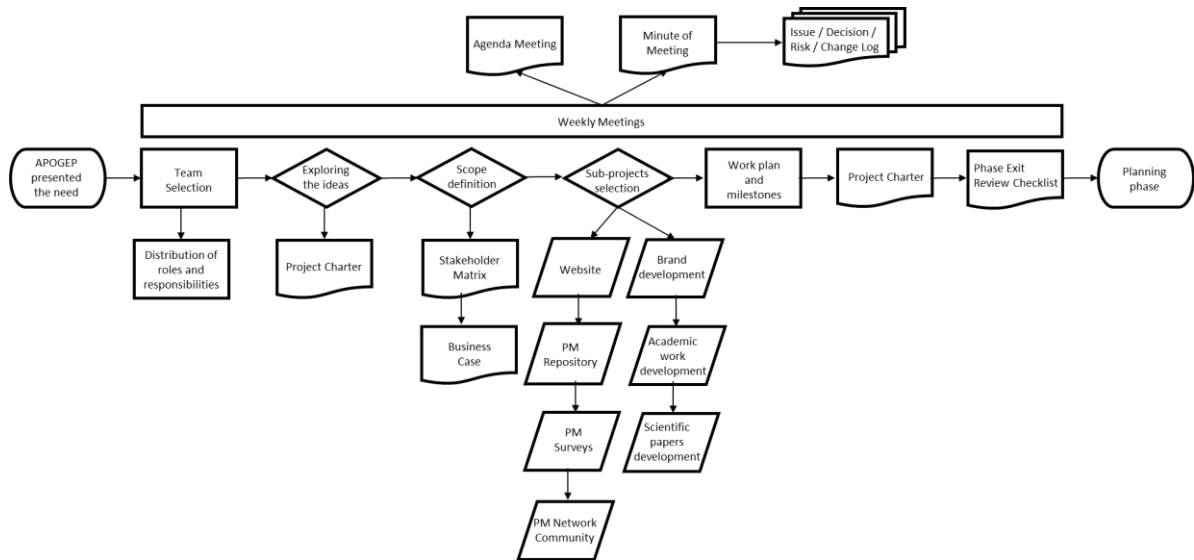
Fig. 4. PPMO project initiating phase

Following the PM² methodology, the PO is the driver of the initiating phase. In this phase, it is crucial to have the client on board, available to collaborate, to share their ideas, to present their specific needs, being present at the team meetings. During the preparation of the PIR and the BC, many issues and topics were directly related to the client organization, APOGEP, and the impact of the project on the organization. Thus, it was very relevant and time-saving to have an internal organizational view to improve the analysis of needs, possible solutions and their impact.

As proposed by the PM² methodology, the PIR and the BC can be used by the organizations, independently from the PM² methodology. Thus, organizations can study the needs and feasibility of developing projects that bring benefits to the business by using the PIR and the BC.

The artefacts have guidelines, but in some points, the explanation of the guide was not very clear and easy to understand. A project example, with all the documents filled in, could contribute to a better understanding of their use.

In the PPMO project, the main difficulties to create the final documents were:
- Some documents are exhaustive or bring little benefit. As an example, the PIR should be defined by the client organization before detailing the project, when it is just an idea or there is a need or a problem to be solved; in our case, the core team developed the document with the client, so when the BC was developed, some information was repeated;
- Some fields in the documents were not necessary, so they have been adapted to the needs of the project;
- It was necessary to use, in the initiating phase, artefacts proposed by the PM² methodology to be used in the planning and execution phases.

5. Conclusions and Future Work

The goal of this paper was to answer the following research question: Is the PM² methodology suitable to the PPMO project at the initiating phase? To answer this question, we started by verifying if the project characteristics were similar to an ideal PM² project (O1) and we found that almost all the characteristics are present. Then the PM² methodology was successfully applied in the initiating phase of the PPMO project (O2), with the development of the artefacts proposed in the methodology, with a positive contribution to the project initiation. Finally, we did some tailoring in the processes to the PPMO project, at the initiating phase (O3) based on the specific needs of this project, as identified by the core team.

Each project is unique [6], [13]–[15], and what works for this project might not work for another. It is essential to have the right mindset and be available to modify and adapt the needs with a focus on the project and the benefits that change could bring to all stakeholders. Although the PM² methodology incorporates the best practices from other bodies of knowledge, it has the advantage of incorporating them into a framework that can be easily applied to any type of project, with methodological support. So, it should be a soft transition for practitioners that use ad-hoc PM practices to start using PM² methodology. The methodology is free, available to everyone, and, as each project is unique, it allows customization to fit the needs of any project.

A critical success factor is client commitment from the start. The initiating phase is crucial and geared to ensure this. It could be a good practice if companies incorporate the PIR and BC as documents to analyze any need, problem or idea, even those that do not immediately move forward into a project. It is a way to have an organized portfolio of ideas and inputs for future work. In addition, these "standby ideas" will be useful as scenario comparisons when someone comes up with a similar idea.

In the planning and execution phase, further adjustment of artefacts is expected, as the project is voluntary based so the budget issues are not very relevant. But the time and scope are relevant and will be controlled.

The planning and execution phases are running in parallel due to the multiple subprojects and their different timelines. According to the PM² methodology, the planning phase should ensure that the project delivers what is expected and how it is expected, based on the project charter.

For the next steps we will follow the same approach of the initiating phase, applying the PM² methodology and, when necessary, adapting the artefacts and the processes to the specific needs of the PPMO project.

References

[1]   APOGEP, "Apresentação." [Online]. Available: https://www.apogep.pt/quem-somos/apresentacao. [Accessed: 29-May-2021].

[2]   APOGEP, "Notícia de Criação do Observatório Português de Gestão de Projetos," *Associação Portuguesa de Gestão de Projetos*, 2020. [Online]. Available: https://www.apogep.pt/component/content/article/45-apogep/359-apogep-cria-observatorio-portugues-de-projetos. [Accessed: 28-Dec-2020].

[3]   C. C. J. M. Millar, O. Groth, and J. F. Mahon, "Management innovation in a VUCA world: Challenges and recommendations," *California Management Review*, vol. 61, no. 1, pp. 5–14, 2018.

[4]   N. Kourounakis, "The Project Management Methodology of the European Commission. The PM² Story," in *12th International Athens Conference on Project Management. Best practices - 2017*, 2017.

[5]   European Comission, "About the PM² methodology." [Online]. Available: https://europa.eu/pm2/about-pm2-methodology_en. [Accessed: 25-May-2021].

[6]   Center of Excellence in PM², *PM² Project Management Methodology Guide 3.0*. Luxembourg: Publications Office of the EU, 2018.

[7]   A. Moya-Colorado, N. León-Bolaños, J. L. Yagüe-Blanco, S. G. Cascales, and F. Ortega-Fernandez, "The Role of Donor Agencies in Promoting Standardized Project Management in the Spanish Development Non-Government Organizations," *Sustainability*, vol. 13, no. 3, 2021.

[8]   "PM² Alliance Portugal." [Online]. Available: https://www.pm2alliance.eu/portugal-regional/. [Accessed: 05-Jun-2021].

[9]   N. Takagi and J. Varajão, "Integration of success management into project management guides and methodologies - Position paper," *Procedia Computer Science*, vol. 164, pp. 366–372, 2019.

[10]   Center of Excellence in PM², "PM2 Solutions," 2016. [Online]. Available: https://op.europa.eu/en/publication-detail/-/publication/0e3b4e84-b6cc-11e6-9e3c-01aa75ed71a1. [Accessed: 25-May-2021].

[11]   M. Saunders, P. Lewis, and A. Thornhill, *Research Methods for Business Students*, 8th ed., vol. 3, no. 4. Pearson, 2019.

[12]   A. Sarsby, *SWOT analysis*. Lulu, 2016.

[13]   PMI, *A guide to the project management body of knowledge (PMBOK ® guide) Sixth Edition*, 6th ed. Newtown, Pennsylvania: Project Management Institute, 2017.

[14]   IPMA, "ICB4 - Individual Competence Baseline for Project, Programme & Portfolio Management." International Project Management Association, 2015.

[15]   E. Sugawara and H. Nikaido, *Managing Sucessful Projects with PRINCE2*, vol. 58, no. 12. Cambridge: Cambridge University Press, 2014.