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Empirical Research Paper

The contribution of project management to a more sustainable society: Exploring the perception of project managers

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ABSTRACT

Projects are instrumental to the sustainable development of organisations and society. The integration of sustainability concepts into project management is also recognized as an important global project management trend. However, the practices do not reflect this role of projects and project management in sustainability. Therefore, the research reported in this paper studies how project managers perceive the contribution of project management to a more sustainable society, as an indication of the awareness that project managers have about their role in sustainable development. The study adopted grounded theory-based research based on qualitative data collection and analysis. The findings reveal that the sustainability theme is reasonably familiar to the project managers, though mainly in the meaning of sustainability of the project. The other meanings, sustainability by the project, sustainability of the organisation, and the project manager's ethics and behaviour towards sustainability, were much less mentioned. The findings suggest that the project managers perceive the contribution of project management to a more sustainable society primarily related to the project processes and are less aware of the role projects play in changing organisations and society towards sustainability.

1. Introduction

Projects are considered "*a way to sustainability*" (Marcelino-Sádaba et al., 2015) and the integration of sustainability concepts in project management is one of the most important global project management trends today (Alvarez-Dionisi et al., 2016; Gemünden, 2016). This relationship is based on the responsibility that companies and business assume for their societal impacts (BSR/GlobalScan, 2017), and the realization that this responsibility will inevitably lead to changes in the products, services, processes, policies, practices and resources of these organisations (Van Tulder et al., 2013). And as projects are instrumental to realize organisational change (Lundin and Söderholm, 1995), a growing number of publications highlight the role of projects in the sustainable development of organisations and, thereby also, society (Huemann and Silvius, 2017; Marcelino-Sádaba et al., 2015; Sabini et al., 2019; Silvius and Schipper, 2012).

The developing literature base on sustainability and project management, that appears from several structured literature review articles such as Silvius and Schipper (2014), Sabini et al. (2019), and Kiani Mavi et al. (2021), indicates that the relationship between projects, project management and sustainability is well established in (academic) literature. In fact, Silvius (2017) identifies this relationship as a new 'school of thought' in project management. And some of the professional standards for project management appear to also recognize the relationship between sustainability and project management. The IPMA Individual Competence Baseline version 4 explicitly refers to sustainability with the inclusion of the indicator "*Identify, and ensure that the project complies with relevant sustainability principles and objectives*" (International Project Management Association, 2015) and prescribes that the project manager assesses "*the impact of the project on the environment and society*". With the explicit reference to the effects of project's processes and products on the environment and society, IPMA acknowledges the relation between project management and a sustainable society (Silvius, 2016). A similar reference can be found in the ISO

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21505 guideline on governance of projects, programmes and portfolios (International Organization for Standardization, 2017).

The above-mentioned competence indicator on sustainability in the IPMA Individual Competence Baseline 4 implies that the project manager bears a responsibility for the sustainability of the project. Several other publications also highlight this role of the project manager in the sustainable management of a project. For example, Taylor recognizes that "*Project and Programme Managers are significantly placed to make contributions to Sustainable Management practices*" (Association for Project Management, 2006), and Hwang and Ng (2013) conclude that "*Today's project manager fulfils not only traditional roles of project management but also must manage the project in the most efficient and effective manner with respect to sustainability.*" (Hwang and Ng, 2013: 273). However, despite this pivotal role of the project manager with regards to sustainability (Maltzman and Shirley, 2013), Økland (2015) still observes a gap between what is suggested by literature and standards and the consideration of sustainability in the practices of project management.

The project manager faces various challenges (Borg et al., 2020) and is observed to be reluctant in considering sustainability (Silvius and de Graaf, 2019). Silvius and Schipper (2020) revealed different stimulus patterns of project managers for the consideration of sustainability, such as *Intrinsically motivated*, *Task-driven* and *Pragmatic*, that are based on the beliefs and attitude of the project managers. Silvius and Schipper (2014) suggest that considering sustainability requires a mind shift of project managers. This mind shift relates to the way the project manager sees his/her role (Crawford, 2013) and implies that the project manager no longer sees the change his/her project realizes as a given assignment that is exclusively the project sponsor's responsibility.

In this mind shift, the project manager develops awareness of the project's positive and negative societal impacts and assumes responsibility for the project's impacts by minimizing negative impacts while boosting positive contributions (Silvius and Schipper, 2014). Assuming responsibility, however, starts with awareness (Silvius, 2016). It, therefore, makes sense to investigate how project managers perceive the role of projects and project management in the sustainable development of organisations and society. The research reported in this paper studies the question: *How do project managers perceive the contribution of project management to a more sustainable society?* as the indication of the awareness that project managers have about their role in sustainable development.

The remainder of the article is organised as follows. In the next paragraph, the relationship between project management and a sustainable society as this appears from the literature, will be discussed. The third paragraph will discuss the research methodology. As the research question for the study was formulated in a very open way, a grounded theory-based strategy was chosen. The findings paragraph reports the perception of the respondents on the relationship between projects and sustainability, followed by a discussion of the findings. The final section provides the conclusion of the study.

2. The relationship between project management and a sustainable society

In the developing literature on the relationship between project management and a sustainable society, the role that projects play in the development towards sustainability of organisations and society is a central theme. Concerns about the balance between economic growth, social wellbeing and the use of natural resources may go back to the 18th century (for example, Von Carlowitz, 1713 and Malthus, 1798). However, it took until the second half of the 20th century before concerns about sustainability and sustainable development became broadly recognized as a societal challenge for mankind (Dyllick and Hockerts, 2002). Sustainability is aimed at "promoting harmony among human beings and between humanity and nature" (World Commission on Environment and Development, 1987). Elkington developed harmony into 'Triple Bottom line' concept: Sustainability is about the balance or harmony between economic sustainability, social sustainability and environmental sustainability (Elkington, 1994).

The 2019 BSR/GlobeScan 'State of Sustainable Business' report shows that sustainability is a top-priority for corporate CEOs, with climate change being the highest sustainability related concern (BSR/GlobalScan, 2019). And although the report also shows that only a smaller percentage of companies already integrates sustainability throughout its business operations, it shows that the "*CEO interest in sustainability is now a very important driver of sustainability efforts*" (BSR/GlobalScan, 2019).

The transition organisations need to go through in their thrive towards sustainability, inevitably leads to changes in the products, services, processes, policies and resources of these organisations (Van Tulder et al., 2013). Following the reasoning that projects are instruments to realize this organisational change (Lundin and Söderholm, 1995), a growing number of publications highlight the role of projects in the sustainable development of organisations and society (Marcelino-Sádaba et al., 2015; Sabini et al., 2019; Silvius and Schipper, 2012). Huemann and Silvius (2017) refer to this relationship between projects and sustainability as *Sustainability by the project*.

The role of projects in the development towards sustainability has also lead several authors to suggest a second relationship between projects and sustainability: that of an impact of sustainability on the way projects are designed, planned, executed, managed and governed (Silvius, 2017). This impact of sustainability on project *management* is referred to as *Sustainability of the project*, and has developed into the concept of Sustainable Project Management (SPM), which Silvius and Schipper (2014) defined as "*the planning, monitoring and controlling of project delivery and* support *processes, with consideration of the environmental, economic and social aspects of the life-cycle of the project's resources, processes, deliverables and effects, aimed at realising benefits for stakeholders, and performed in a transparent, fair and ethical way that includes proactive stakeholder participation*".

In one of the first publications on sustainability and project management, Labuschagne and Brent (2005) conclude that the two relationships, *Sustainability by the project* and *Sustainability of the project*, are interrelated. By elaborating on the life-cycle orientation of sustainability, they argue that *Sustainability of the project* implies that also *Sustainability by the project* is considered. SPM considers not only the sustainability of the project's delivery and management processes but also the sustainability of its deliverable and effects (Silvius and Schipper, 2012). Considering sustainability in the management of projects, in short: SPM, therefore implies that the projects themselves also contribute to sustainable development. Also, Silva et al. (2021) link the project's benefits with accomplishing sustainable processes and deliverables and see the project as a way to foster productivity, competitiveness and contribute to sustainable development.

However, when projects are the "*way to sustainability*" (Marcelino-Sádaba et al., 2015), this should also be understood by the project manager. The project manager is not just a planning and control focused 'guardian' of the project plan (Ahsan, Ho and Khan, 2013), but also a more externally oriented 'front man' of the project that "*sells and resells the project to stakeholders and communicates, shapes, and reshapes the relevant policies and guidelines*" (Hällgren et al., 2012). The project manager is a leader that co-shapes the project (Ahsan et al., 2013), making it essential that he or she is aware of the role projects and their management play in the sustainable development of organisations and society. The study reported in this paper makes a contribution by investigating the perception of project managers with regards to this role of project management.

3. Materials and methods

This study explored the perceptions of individual project managers with regards to the contribution that project management make to sustainable development. As such, a sample of practicing project

managers were asked to answer the question: "*How do you think project management can contribute to a more sustainable society?*".

The data were analyzed based on the Grounded Theory (GT; Glaser and Strauss, 1967). GT is an inductive, comparative methodology that provides systematic guidelines for gathering, synthesizing, analysing, and conceptualizing qualitative data for the purpose of theory construction (Clandinin, 2005). It involves the following steps: (1) coding text and theorizing (small chunks of the text are coded line-by-line; concepts are identified being named; analysing data such that conceptual components emerge; pulling concepts together understanding how each concept can be related to a larger concept; constant comparative method); (2) memoing and theorizing (writing running notes about each of the concepts identified; these notes are an intermediate step between coding and the first draft of the completed analysis); and (3) integrating, refining and writing up theories (linking categories together in a theoretical model constructed around a central category that holds the concepts together) (Bernard et al., 2016). These steps are depicted in Fig. 1.

GT includes a set of systematic inductive methods for conducting qualitative research. GT denotes dual referents: a method consisting of flexible methodological strategies and the products of this type of inquiry. GT allows theory development, and this is an advantage regarding other qualitative analysis alternatives.

The form of data collection (open question via email or interview) should not in itself condition the choice of the qualitative methodology; that is, research methodology and data collection are often independent. According to (Simmons, 2010), concerning data collection, the most used techniques are intensive interviews, often combined with participant observation, but any type of data can be used, including quantitative. In this case, the question analyzed in this article was the last and only open question of a self-administered quantitative questionnaire of another ongoing study involving project managers as a target, which was convenient for our purpose.

3.1. Procedures

The study was carried out using an online self-administered questionnaire between September 24th and November 2nd, 2020. An invitation to participate was sent to 250 project managers who graduated from the University of Porto Business School. The questionnaire clearly explained research objectives and the type of treatment to be given to the data obtained. The participants were also given the guarantee of confidentiality of the data, and they provided informed consent to voluntarily engage in the research. As a result, 105 valid responses were obtained (42%).

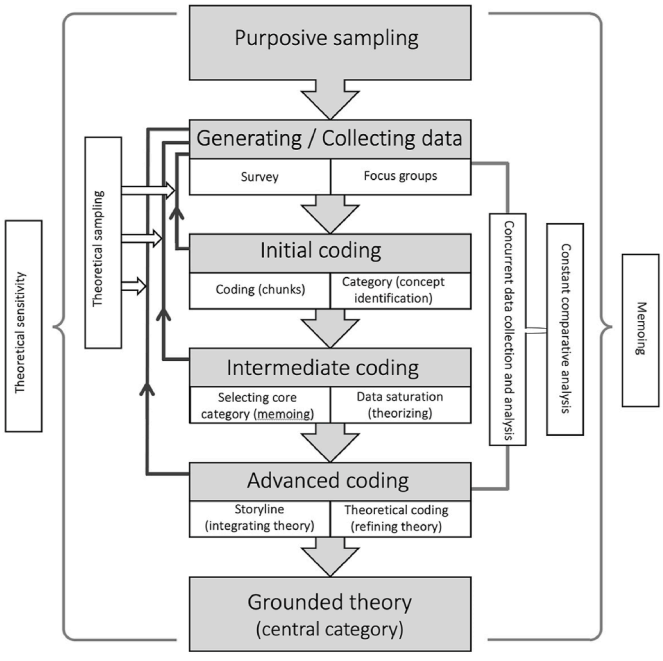

Fig. 1. *Summary of the interplay between the essential grounded theory methods and processes. Adapted from Chun Tie et al. (2019).*

3.2. Measures

Besides the previously referred open question, the questionnaire included the following items, which used nominal scales: gender (female; male), age group (less than 35 years old; more than 35 years old), educational background (engineering; economics and management; architecture; health; other); educational degree (MSc or higher; BSc or lower), industry (construction; utilities; engineering, research and development; financial services; other services; information technologies; retail and marketing; manufacturing and mining; other), types of project (infrastructure and construction; engineering and installation; information technologies; organisational change; research and development; services and other), project budget (less than 1 M$; more than 1 M$), and dominant project method (waterfall; agile; hybrid).

3.3. Sample

Of the 105 participants in the study, 76 (72.4%) were male. The majority was over 35 years old (54 or 51,4%) and highly qualified, holding a master's degree or more (79 or 75,2%). Most of the respondents (71.4%) have an engineering educational background. Table 1 summarises the sample's social-demographic characteristics.

The industries most represented in the sample are manufacturing/mining industries (25 or 23.8%), information technologies (21 or 20.0%), and other services (15 or 14.3%). The types of projects the participants are mostly engaged in are related to information technologies (28 or 26,7%), infrastructure and construction (23 or 21.9%), engineering and installation (23 or 21.9%), and research and development (15 or 14.3%). The majority of respondents work in projects with budgets below 1 M$ (66 or 62.9%). The participants usually work in projects that use waterfall methods (49 or 46.7%), agile (13 or 12.4%), and hybrid (43 or 41.0%). Table 2 summarises the participant's professional-related characteristics.

Table 1
Social demographic characterisation of the participants.

	Frequency	Percent	Valid Percent	Cumulative percent
Gender				
Female	29	27.6	27.6	27.6
Male	76	72.4	72.4	100.0
Total	105	100.0	100.0	
Age group				
Less than 35 years	51	48.6	48.6	48.6
35 years or more	54	51.4	51.4	100.0
Total	105	100.0	100.0	
Educational degree				
Bachelor's degree or less	26	24.8	24.8	24.8
Master's degree or higher	79	75.2	75.2	100.0
Total	105	100.0	100.0	
Educational background				
Engineering	75	71.4	71.4	71.4
Economics/ Management	14	13.3	13.3	84.8
Architecture	5	4.8	4.8	89.5
Health	3	2.9	2.9	92.4
Other	8	7.6	7.6	100.0
Total	105	100.0	100.0	

Table 2
Professional characterisation of the participants.

	Frequency	Percent	Valid Percent	Cumulative percent
Industry				
Construction	12	11.4	11.4	11.4
Utilities	10	9.5	9.5	21.0
Engineering/R&D	5	4.8	4.8	25.7
Financial services	2	1.9	1.9	27.6
Other services	15	14.3	14.3	41.9
IT	21	20.0	20.0	61.9
Retail/Marketing	6	5.7	5.7	67.6
Manufacturing/Mining	25	23.8	23.8	91.4
Other	9	8.6	8.6	100.0
Total	105	100.0	100.0	
Project type				
Infrastructure/ Construction	23	21.9	21.9	21.9
Engineering/ Installation	23	21.9	21.9	43.8
IT	28	26.7	26.7	70.5
Organisational change	8	7.6	7.6	78.1
R&D	15	14.3	14.3	92.4
Services/Other	8	7.6	7.6	100.0
Total	105	100.0	100.0	
Project budget				
Less than $1 M	66	62.9	62.9	62.9
More than $1 M	39	37.1	37.1	100.0
Total	105	100.0	100.0	
Dominant project method				
Waterfall	49	46.7	46.7	46.7
Agile	13	12.4	12.4	59.0
Hybrid	43	41.0	41.0	100.0
Total	105	100.0	100.0	

3.4. Data analysis

The first step of the data analysis was searching for common response patterns regarding the participants' perceptions about the contribution of project management to a more sustainable society, provided in natural sentences. The total of 105 answers comprised 2851 words, with a mean 27.2 words per sentence and a standard deviation of 43.9. Seventeen percent of the answers had more than one sentence; 82.6% had only one sentence. Words and expressions of the same statement were coded and eventually classified in different sub-categories or under one sub-category only, identified along an iterative process. It involved each researcher in several rounds looking for clear sub-categories and categories, which eventually led to four main categories or 'perceived contributions of project management to a sustainable society', as extensively described in section 4.

While it is generally stated that no formal review of the literature should be carried out when applying GT, several authors accept the literature review as a starting point to situate the problem under research (El Hussein et al., 2017). In this case, the knowledge from the literature review could not be ignored as several responses would ultimately be categorized under '*sustainability of the project*' or '*sustainability by the project*' categories.

As an example, one can consider the following raw statements:

- "Choosing and using resources more sustainably, including sustainability KPIs, and project manager ethics in decision making.": the analysis of this sentence led to coding 'resources', 'KPIs', and 'ethics', and the identification of the first-order categories, 'Resource management', 'Planning, execution, and control', and 'Ethics'.
- "The project sustainability itself should be monitored and have a predictable output of the sustainability impact.": this statement was classified under the 'Planning, execution, and control' first-order category.
- "By complying promoting, whenever possible, the circular economy and having a rational and economic concept in the use of project resources. Document lessons learned so that there is a continuous improvement from project to project.": this statement suggested 'Circular economy', 'Resource management', and 'Closing processes' first-order categories.

After the first iteration, first-order categories were reviewed and arranged (merged) in second-order categories in successive iterations, according to whether they referred to processes, deliverables, or other aspects, attempting to find meaningful main categories (aggregate dimensions). Besides sub-categories process and deliverables-related, other aspects (e.g., 'Corporate social responsibility', 'Organisational environmental footprint', and 'Governance, policies, and coordination') fell into organisation-related categories, namely, 'Sustainability awareness and governance' and 'Organisational-related and other sustainability concerns', which form the 'Sustainability of the organisation' main category. Finally, 'Ethics' and aspects mentioning the 'Project manager's role and behaviour' were classified in a fourth category, '*Project manager's ethics and behaviour*', as one would expect project managers to make ethical decisions without compromising sustainable-oriented goals (e.g., when purchasing materials, one can induce a more positive and responsible behaviour of suppliers, by preferring more sustainable materials and services), ultimately impacting society.

4. Findings and discussion

4.1. Perceived contributions of project management to a sustainable society

The analysis of the collected answers revealed that participants tend to relate the sustainability theme to the four contributions referred to before: 'Sustainability of the project', 'Sustainability by the project', 'Sustainability of the organisation', and 'Project manager's ethics and behaviour' (Fig. 2).

Most of the sample (67 or 63.8%) expressed their awareness about the sustainability of the project, whereas 30 participants (28.6%) showed concern for the sustainability by the project, 31 (29.5%) for the sustainability of the organisation, and 19 (18.1%) mentioned aspects concerning the project managers' ethics and behaviour towards sustainability. Only one respondent mentioned all contributions, whereas seven (6.8%) referred three, and 29 (27.6%) covered two. Thirty-nine participants (37.1%) only mentioned factors concerning the 'sustainability of the project', whereas 8 (7.6%) mentioned the 'sustainability by the project' only, 17 (16.2%) the 'sustainability of the organisation' only, and 4 (3.8%) mentioned 'project managers' ethics and behaviour towards sustainability'. Table 3 shows the distribution of respondents according to the perceived contributions of project management to a sustainable society.

4.2. Sustainability of the project

Most of the sample (63.8%) mentioned the sustainability of the project, broken down into two categories: project management processes, and project management areas of knowledge.

Thirty-four participants (32.4%) referred to project management's processes and recurrently mentioned the need to "include sustainability in all phases of project development". The concern for the sustainability of the project starts with the initiating stage, from where the project design must take "[sustainability] precautions and question their absence when they are missing", as well as include "sustainability requirements and [key performance indicators]". Five participants argued that already at this point, it is important to do "a preliminary analysis of achieving the goals using more sustainable means" and that decisions should be made to select technologies and resources to "support project processes". Although "these aspects can be considered in the initial phase of the project and could involve the client", such decisions seem to be often reduced to setting a "trade-off between more sustainable and

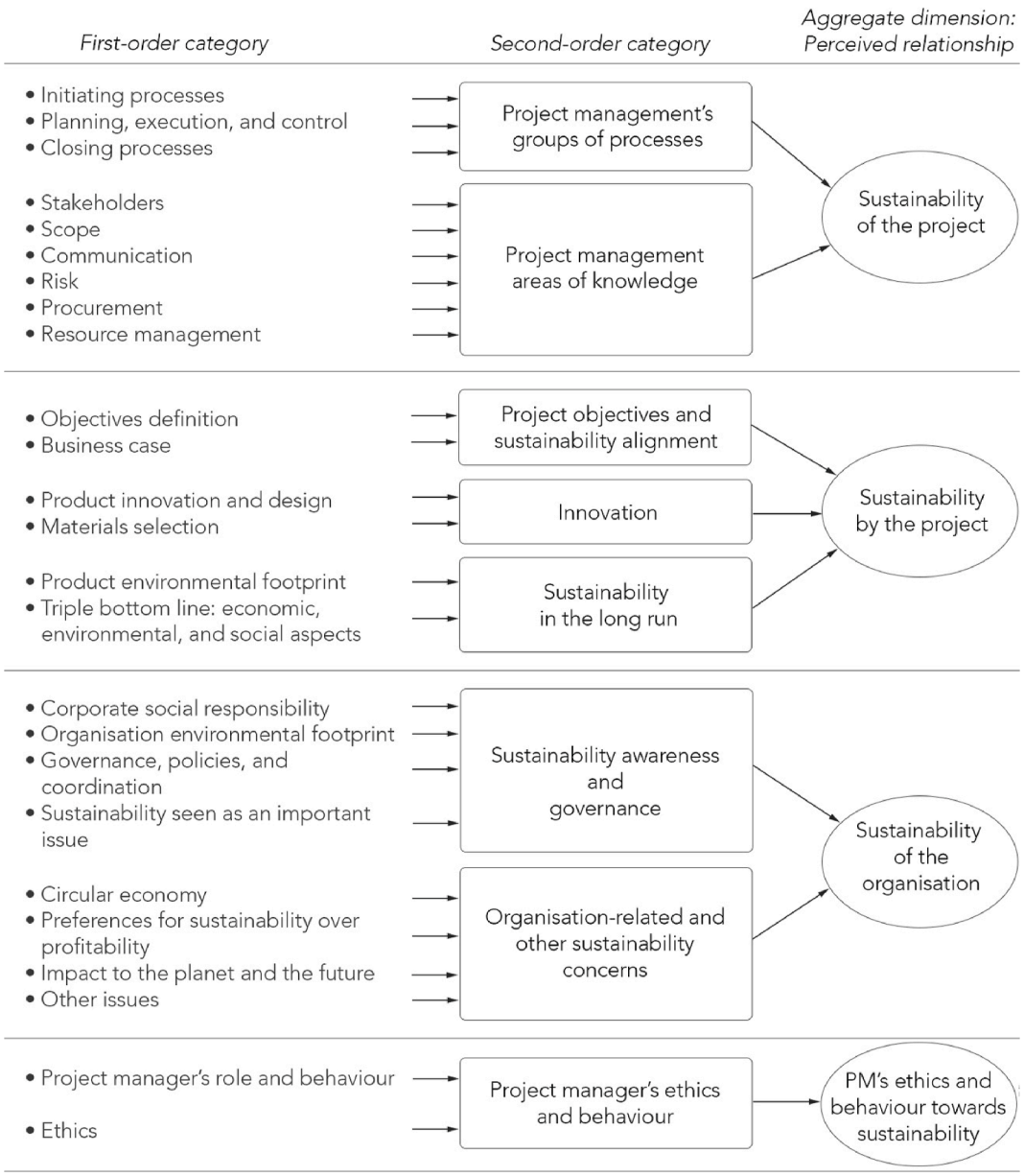

Fig. 2. *Perceived contributions of project management to a more sustainable society - data structure.*

Table 3
Distribution of participants by perceived contributions of project management to a sustainable society.

Sustainability of the project	Sustainability by the project	Sustainability of the organisation	Project manager's ethics and behaviour towards sustainability	Number of cases	Percentage of cases
•				39	37.1%
	•			8	7.6%
		•		17	16.2%
			•	4	3.8%
•	•			10	9.5%
•		•		7	6.7%
•			•	3	2.9%
	•	•		4	3.8%
	•		•	3	2.9%
		•	•	2	1.9%
•	•	•		1	1.0%
•	•		•	4	3.8%
•		•	•	1	1.0%
	•	•	•	1	1.0%
•	•	•	•	1	1.0%
			Total:	105	100.0%

less sustainable alternatives". One participant mentioned "the lack of knowledge about sustainability principles, sustainable-driven technologies, and materials", suggesting the opportunity for training on the subject.

The planning, execution, and control processes were mentioned by 30 or 28.6% of the participants, who mentioned aspects of concern throughout those stages: resources, monitor and control measures, and energy, transport, and waste reduction. Nineteen or 18.1% of the participants showed concern for resource management, namely, for the "rationalization and optimization of resources without compromising the project's objectives". Effective and efficient resource usage are emphasized in all comments, namely: "Since project management is increasingly at the centre of economic activity, its contribution to sustainability involves continuous optimization (…) [and] efficient management of its resources". Sustainability should be taken into consideration at the planning stage, as "has to be carefully planned before starting any construction and it should have a long-term perspective", as well in subsequent phases ("Considering sustainability in projects involves the planning and design stages, and also the project execution, scheduling, controlling, and delivery stages."). Expressions such as: "resource optimization", "rational allocation of resources", and "better use of available resources" reinforce the idea that project management can provide "gains in efficiency and productivity, minimizing waste and unnecessary consumption of raw materials and resources" and should seek to "optimize and ensure the efficient use of resources (human, material and financial)". Also, "Organisations must learn from their experience to minimize resources, materials, and energy waste".

Eight participants (7.6%) explicitly referred to the need to adopt measures for the project's sustainability during the implementation stage, namely, "indicators [for the] various components of the project: risk, reports, team, partners, and results". As one participant put it, "There must be clear measures and activity feedback to be able to effectively implement sustainability; if there are no KPIs, it is difficult to understand the impact and assess the project performance concerning sustainability". This could be favoured by "complying with environmental policies" and by a "sustainability vision [that] can affect the planning phase to adopt [sustainability] measures". Sustainability measures could help "[predicting] the sustainability impact [of the project]" and, together with proper practices, minimize the "environmental impact during and after the project's life".

Eight respondents (7.6%) believe that project management can contribute to a better society and reduce waste, namely, "if it considers aspects such as energy management during the execution of the project", by "[avoiding] wasting paper, energy, and water", and "by applying anti-waste practices". Decisions that impact the environment beyond the project were also mentioned, such as "which type of transport is best to use or travel arrangements" and the "use of recyclable raw materials, control of pollution and waste, and the reduction of waste of raw materials". Finally, only one participant suggested that one should "document lessons learned so that there is a continuous improvement from project to project".

Thirty-seven participants (35.2%) associated sustainability with different project management areas of knowledge. The most referred topic was stakeholder management (14.3%), enhancing the need to "involve all stakeholders" and "respect their interests", and "taking into account their expectations", or else "it might not work out" and "it is complicated to care for [sustainability] if not required by shareholders and customers". "Dialoguing with all stakeholders [leads] to improve the value chain for a more sustainable society" and "more sustainable final products and services". Answers showed a particular focus on clients and suppliers, whom one must "help understand the importance of sustainability and the advantages of associating the theme with the project"; "(…) making [the clients] understand the benefits of the economic and human resources that this incorporation will bring to the project, the team, and the company"; "when the interest is mutual, and the value is perceived at the end of a project, society will more easily change its values and ideals". Some participants showed concern about the lack of stakeholders' engagement, as a discouragement for considering sustainability: "If the stakeholders are engaged in sustainability, then it is worth to consider it in decision-making and operations, otherwise it is a waste of time", and "[sustainability] efforts (…) can be compromised in complex projects where there is a significant number of stakeholders who do not necessarily share the same views on sustainability".

Six participants (5.7%) explicitly pointed out scope management as a process where sustainability should be incorporated: "incorporate the theme [of sustainability] in the decisions related to the management of the project scope"; "incorporate [sustainable development goals] within the scope of projects"; "always consider sustainability within the project's scope"; and "poorly defined project scope and scope changes compromise the ability to plan with a long term".

According to four participants (3.8%), communication management has an important role in incorporating sustainability in projects, which "must be communicated and perceived by all stakeholders" and make "customers (…) understand the benefits of the economic and human resources that this incorporation will bring to the project, the team, and the company". Three participants (2.9%) supported the idea that agile methods can contribute to the sustainability of the project, as "the organisation, the project team and the client communicate more often and can react quickly to cope with sustainability issues", "the project team and the customer interrelate more often and with more transparency, which provides opportunities to discuss and adopt sustainable measures", and the project can "be carried out a faster pace".

Five participants (4.8%) stated that projects should embody sustainability in risk management, namely, "the risks intrinsic to the project itself and those related to the project's future sustainability", with a "[focus] on environmental impacts", and "on the risks (and their mitigation) of climate change".

Six participants (5.7%) manifested concern for the procurement processes, namely, related to the supply chain and logistics: "during resource acquisition, consider all the processes (industrial, logistical, and human) involved in the project, and the economic, social, and environmental impacts". With this regard, they suggest observing "the implementation of contractual practices"; "consider requirements and suppliers that have certificates at the level of sustainable practices"; and that "Whenever possible, project management should promote and include entities and companies that promote sustainability in the value chain, either because they are aligned with the guidelines defined to combat climate change or with the use of recycled products and materials". Nineteen (18.1%) of the respondents mentioned the need for effective resource management, comprising people, technology, and materials, enhancing the importance of this knowledge area ("Project resource management is likely the most important knowledge area, from the perspective of sustainable project management") and the need to properly manage project teams ("When there is overwork pressure and tight deadlines, sometimes one cannot follow sustainability orientations and teams become stressed").

4.3. Sustainability by the project

Thirty or 28.6% of the participants refer to sustainability in terms of the alignment with project objectives, to innovation and design of deliverable products and services, and sustainability in the long run, namely, regarding the project's impact on the triple-bottom line dimensions - economic, environmental, and social.

The alignment of project objectives with sustainability was mentioned by 13 (12.4%) of the sample. In particular, one of the most referred factors (11 or 10.5%) was the definition of objectives and their alignment with sustainability, expressed in statements such as "The sustainability in project management is only possible with clear objectives", "creating objectives related to sustainability", "aligning projects' objectives and benefits with [company's] sustainable development

goals", and "[the need to] set sustainable goals". Moreover, there was an emphasis on "achieving the goals with more sustainable means", and that the right approach is to "[integrate] the environment theme into … [projects'] objectives" at the project's initial stage: "the choice of materials, task execution processes, and parallel mechanisms for eliminating and treating waste must be taken into account from the initial definition of objectives". Two statements suggest that sustainability should be mandatory in project management, namely, "top-down imposition of objectives" and that "countries, organisations, governments, and companies [should] recognize that projects cannot be approved and executed without including sustainability in their scope and objectives, whether financial, social, or environmental".

Furthermore, building a business case "focused on sustainability" was mentioned as a means to "optimize natural resources in projects and the business". Also, "with a well-structured and well-defined project, it is possible to eliminate waste of materials, time, and resources". Thus, project formulation should consider "caring for sustainability in all assumptions".

Regarding project content, eight respondents (7.6%) mentioned innovation and design as key in delivering more sustainable products ("a more sustainable society will only be achieved through innovative and successful projects" and "through the execution and delivery of the project itself"), and the role of project management as a determinant to "seek innovation to achieve project success in the most sustainable way possible" and "[to create] a culture of innovation". The answers show concern for the selection of materials, which "must be taken into account from the initial definition of objectives" and should "involve all stakeholders (…) so that the final product or service is sustainable" and "goals [are achieved] using more sustainable means".

Fourteen participants (13.3%) manifested concern for sustainability in the long run ("thinking about the projects as a whole, assessing their impacts in the future"). The product environmental footprint (PEF) framework was suggested as a way to "measure sustainability performance and [assess] product's impact", and "projects can contribute to a better society by delivering products with reduced footprint". Thirteen respondents (12.4%) mentioned the triple bottom line dimensions as essential to sustainable project management, namely, as regards project policies and the resource acquisition processes ("fostering more economically, environmentally, and socially sustainable project management policies"; "during resource acquisition, consider all the processes - industrial, logistical, and human - involved in the project and their economic, social, and environmental impacts"). They agree that "stakeholders are usually concerned with profit and short-term; sustainability is about long-term effects and covers environment and people". The role of the project manager and the project team were also enhanced, as sustainable project management is possible if "there is a commitment of the project manager towards future generations, with a focus on balance between economic, environmental and social factors" and "through the inclusion of practices that promote literacy for sustainability in its main domains: economic, environmental, and social, not only among managers but also among team members". For such purpose, the project must "take into account all project externalities (like labour and pollution) and more focus on creating long-term value rather than reducing costs in the short term"; "Many people think that sustainability comes down to carbon emissions from cars and the use of renewable energy. CO_2 production, excessive consumption of resources, and the environment's effects are (…) a negative reflection of inefficient resource allocation. Besides accounting for the project's cost and risk increases, project management must consider the indirect impact of logistics, (…) production, low quality, and end-of-life product from the sustainability perspective".

Sustainable project management requires a balance, which is "essential, despite the differences in focus: more immediate project management (focused on objectives, customers, and deadlines), and long-term project management, focused on sustainability, the future, and the environment (more complex)".

4.4. Sustainability of the organisation

This study's third category includes the organisation's sustainability awareness and general organisational-related sustainability topics (transversal to different sustainability perspectives). Sustainability awareness is mentioned by 25 respondents (23.8%), who believe the topic should be considered in project management (by "including the theme in project management, one contributes to the sustainability of society and the company itself"; "promote awareness at the level of the theme in the project"), and even acknowledge that it is not new: "there is a high level of consciousness and a growing effort to the pursuit of sustainability (…) for a while now" and "sustainability as a concept is present at the society level and at the project level". Three participants mentioned social responsibility as a dimension to impact society ("focusing on (…) social responsibility"; "due to the enormous responsibility of using the planet's resources, which have to be (…) framed in sustainability and social responsibility"). A participant suggested that sustainable project management can "improve society, [implying] an organisation neutral ecological footprint [that] would bring enormous benefits". Sustainability should be present in decision-making: "[project management] must adapt so that sustainability is one more requirement to (…) the projects' decisions and thus contribute to the common good"; "act and make decisions with sustainability awareness"; "project management offers an opportunity to raise awareness among decision-makers and management".

Nine participants (8.6%) commented on governance, procedures, and the need for coordination among management levels across the organisation. Some defend that "sustainability in projects must be driven by management and stakeholders" and to make it effective, "organisational governance should enhance sustainability principles, otherwise projects tend to adjust sustainability-oriented decisions, sometimes risky and unclear". Therefore, the "organisation management must adopt clear principles and ethics to avoid contradiction between different organisation levels and projects", "adopt clear measures and activity feedback", and "have clear policies so that project teams know what to do regarding sustainability and make decisions accordingly". One participant argued that "there is constant pressure to deliver quality within budget in a timely manner, and that is hardly compatible with thinking 'sustainable', especially when the organisation is not clear about the matter nor the customer requires it". However, the organisation must care for "[demonstrating] the positive effects of sustainability in projects" so that they can "adopt clear sustainable policies and project managers become convinced of the benefits of sustainability towards project success".

Nevertheless, sustainability is seen as an important issue, which is explicitly mentioned by five (4.8%) of the respondents: "It's a very important topic", "project managers and organisations already know that sustainability is important", and "sustainability is a very import theme".

Eight respondents mention other sustainability concerns (7.6%), including references to a circular economy ("promoting the circular economy and having a rational and economic concept in the use of project resources"; "introduction of circular economy in the product life cycle"), and the organisation preference for sustainability over profitability ("putting organisation sustainability ahead of profitability"; "sustainability replaces the concept of corporate profitability, is more transversal, and gives more guarantees in the long term"). Four participants enhance the concern for the future of the planet and generations: "[there is an] enormous responsibility of using the planet's resources"; "commitment of the project manager towards future generations"; "managing available resources [rationally and consciously], without compromising their availability for future generations"; "any human activity has the potential to be adapted (…) [to] sustainability; thus, project management is also part of the activities that should contribute to the future".

4.5. Project manager's ethics and behaviour towards sustainability

Five participants (4.8%) consider the importance of the project manager's ethics and values as key elements for sustainable projects and organisations: "there should be a consideration towards maintaining ethics and social values in the project"; "project manager's ethics in decision-making"; "focusing on ethics management"; "anticipating ethical issues". As one respondent put it, "many decisions fall in the category of moral imperatives".

The role of the project manager is enhanced by sixteen participants (15.2%), namely, through "management practices that (…) promote sustainability". To promote sustainable project management "it is necessary to invest in the professionalization of the project manager's role so that it is possible to define, monitor, and ensure that [the sustainability development goals] are met". Respondents also pointed out the need for a qualified and dedicated team ("rethinking [the team's] purpose and individual roles in it"; forming a "team suitable for a company with a sustainable structure"; "forming a dedicated team"). For such purpose, "training (…) people on [sustainability, and creating] teams' awareness is essential for the theme of everyday recycling". Two participants referred to project management's effectiveness and efficiency as key for "more sustainable processes and results". Still regarding the project manager, some consider that "for a project to be sustainable, there must be strong leadership", but his/her performance must be assessed and valued, as "for a successful integration of sustainability in project initiatives, the project manager must know that he/she will be rewarded and properly assessed, otherwise he/she will not take sustainable-oriented decisions that are not required or valued by the customer and other stakeholders". Also, to engage the organisation and people in sustainability, it is suggested that "it would be useful to have examples of how sustainability contributes to project success; that would be a driver for sustainability practice engagement for companies and project managers".

5. Conclusion

The study reported in this paper intended to understand how project managers perceive the contribution of project management to a more sustainable society. The answers reveal that the sustainability theme is reasonably familiar to the 105 participants, though interestingly, most participants - 67 or 63.8% -, seem primarily concerned with project processes. Resource management, and stakeholders' involvement are the factors that the participants mostly refer to. This perception, 'sustainability of the project', of the contribution of project management to a more sustainable society, fits the traditional 'task' perspective on projects (Anderson, 2008). In this perspective, projects are seen as temporary endeavours of carrying out given tasks, that are ideally performed in isolation and detached from its organizational and societal environment.

In what is recognized as the Scandinavian School of project management, projects are considered from a more 'organizational' perspective (Silvius and Karayaz, 2018). In this perspective, a project is "*a temporary organization, established by its base organization to carry out an assignment on its behalf*" (Andersen, 2008). This perspective has more attention for the benefits and changes the project's deliverable generates in the project's context and environment. 30 Participants in our study (28.6%) demonstrated to perceive the contribution of project management to a more sustainable society also from this 'sustainability by the project' perspective.

As these two contributions of project management to sustainable development, sustainability by the project and sustainability of the project, also appeared from the literature, it is in itself not surprising that the study confirmed these. The degrees in which they appeared in the study, however, was surprising. The literature on sustainability in project management (for example Huemann and Silvius, 2017 and Silvius et al., 2012) assumes that the 'sustainability by the project' contribution is the more obvious one, with the 'sustainability of the project' being the more unexplored contribution. Our study, however, showed that the project managers perceive the 'sustainability of the project' contribution as the one that comes to mind first.

Next to the contributions 'sustainability of the project' and 'sustainability by the project', the study revealed two other perceived contributions of project management to a more sustainable society: 'sustainability of the organization' and 'project manager's ethics and behaviour towards sustainability'. This last contribution confirms the earlier studies on the project manager's behaviour with regards to sustainability that found that the project manager's behaviour towards sustainability is most of all a personal trait (Magano et al., 2021; Silvius and Schipper, 2020).

About the content of sustainability, most statements of the participants of the study related to environmental and economic aspects. One would expect more answers covering explicitly the triple bottom line dimensions (economic, environmental, and social) – therefore, within the scope of sustainability by the project.

Many statements also show that a more sustainable society appears to be the result of daily macro and micro-decisions and choices regarding which technologies and resources should be purchased at the project management level, possibly with greater impact, and at the individual level. Such decisions often imply a trade-off between the most competitive alternatives (from the economic and technical perspective) and the most sustainable alternatives (a dichotomy in both sustainability of and by the project views). Usually, for companies that operate in competitive markets, sustainability is not a priority, or sustainability objectives and measures are not adequate. Consequently, many decisions may be of moral nature, and the project manager's competence and behaviour toward sustainability become decisive. The development and adoption of proper metrics and the analysis of the supply chain, each manufacturer's sustainability policies, or the forecast of the equipment's durability could contribute to more sustainable project management. It is necessary to create an intrinsic commitment to decision-makers to explore solutions, methods of analysis, and criteria in a dynamic way to adapt to a complex and continuously evolving environment.

By exploring the awareness of project managers with regards to the contribution of project management to a more sustainable society, the study aimed to contribute to the further exploration of the human aspect in SPM. Overall, the findings reveal that project managers perceive the contribution of project management to a more sustainable society primarily related to the project processes and are less aware of the role projects play in changing organisations and society towards sustainability. As several studies (Marnewick et al., 2019; Silvius and Schipper, 2020) indicate that the majority of project managers is intrinsically motivated to consider sustainability, understanding how project managers see the role of their project in sustainability is relevant for a greater understanding of why the practical implementation of SPM is lagging behind the suggestions provided by literature and standards.

The limitations of this study include the sample size and the lack of more empirical data to strengthen the findings. Also, given the exploratory nature of the approach, the study does not provide a validated theory, but it provides empirical insights, useful for future research. The research topic could be deepened to confirm the conclusions obtained, namely, by using a large-scale sample and further exploring how project managers' perceptions relate to their socio-demographic characteristics.

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