

Article

Exploring the Project Owner's Behaviour of Addressing Sustainability in Project Assignment and Governance

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Abstract: The instrumental role of projects in the transition of organisations and society towards sustainability requires that the concepts of sustainability are considered in projects and project management. Within a project's organisation, the project manager and the project owner bear the most responsibility for integrating sustainability into the execution, management, and governance of the project. The project owner is expected to translate the organisation's commitment to sustainability into the assignment and governance of the project. However, several factors influence the behaviour of project owners, of which the organisation's strategy is only one. Following the studies that explored the stimulus of project managers to consider or address sustainability, this study explored the factors that influence the project owner's behaviour with regard to addressing sustainability in assigning and governing a project. A survey-based study with quantitative data analysis identified three factors that stimulate the project owners to address sustainability in assigning and governing projects: Organisational attitude, Private attitude, and Practical implementation. Of these factors, Practical implementation and Organisational attitude have the most influence. The importance of the Practical implementation factor highlights the need for practical, applicable tools and instruments that support the implementation of sustainability into projects and project management. The strong orientation on the organisational context may be explained by the managerial responsibility that project owners often have. The study contributes to the further understanding of how organisations can realise their transition to a sustainable enterprise.

Keywords: sustainable project management; project owner; project governance; sustainability



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1. Introduction

Sustainability is one of the most important challenges facing businesses and organisations today, and senior managers recognise that business will need to play the leading role in advancing sustainability in the future [1]. However, operationalising sustainability ambitions and strategies in an organisation's policies, processes, and practices is reported to be challenging [2]. The transition towards more sustainable business practices requires changing companies' products, services, business models, processes, policies, and resources [3]. Projects play an instrumental role in implementing these organisational changes and, thereby, the sustainable development of organisations and society [4].

Acknowledging the role projects play in sustainable development, Silvius and Schipper [5] conclude that sustainability concepts should be integrated into how projects are planned, organised, executed, managed, and governed. This sustainability perspective on project management [6] evolved into the concept of Sustainable Project Management (SPM).

At the core of SPM is the behaviour of the different actors in and around the project [7,8]. These actors include the project manager, which is “significantly placed to make contributions to Sustainable Management practices” [9], but also the project owner, or sponsor, who is ultimately responsible for the project [10]. The project owner, or sponsor, is an individual with appropriate seniority and power within the organisation which establishes the project [11]. The project owner has a governing and supporting task [12] and plays a vital role in the project. Therefore, the project owner’s behaviour, directly and indirectly, influences the project’s sustainability consideration: directly by the way sustainability is addressed in the project assignment, plans, and reports, and indirectly by the way the project owner reacts when the project manager brings up sustainability considerations during the planning and execution of the project. Silvius and Graaf [13] concluded that the perceived risk of hurting the relationship with the project owner discourages project managers from discussing sustainability. Therefore, next to the project manager, the project owner is the most influential role concerning the project’s sustainability.

In the past years, several studies, most notably [7,13–16], focused on the factors that stimulate or influence project managers to consider sustainability in their projects. These studies showed that the consideration of sustainability by the project manager is also enabled, or limited, by the project assignment and the governing role of the project owner. The factors that stimulate project owners to consider sustainability, however, still need to be investigated in depth. Barneveld and Silvius [17] provided the first exploration of the stimulus patterns of project owners, but further studies have yet to be found. As both roles are pivotal regarding the sustainability of a project, this represents a gap in the literature. The study reported in this paper addresses that gap and examines the question: Which factors stimulate the project owner to address sustainability in the assignment and governance of projects?

The study aims to contribute to further understanding of the human perspective on SPM. Sabini et al. [18] concluded that the current literature on SPM mainly focuses on the justification of sustainability in projects and its implications for project management methods and processes. In the developing body of literature, the individual’s perspective is only just emerging with the earlier referenced studies on the sustainability stimulus of project managers. However, the considerations and stimulus of the project owner still need to be explored.

The remainder of the article is organised as follows. The following section explores the concepts of sustainability, the transition organisations go through to become more sustainable, the role of projects in this, and the role of the project owner. The subsequent section presents the chosen research strategy and instruments. Section 4 presents the findings of the study, followed by the conclusions and limitations of the study in the final section.

2. Literature Review

In order to set the context of sustainability-related projects, this section will first introduce the transition organisations go through in their adoption of sustainability and the role of the project in this. Next, the role of the project owner in these projects, and earlier studies on factors influencing sustainability-friendly behaviour in organisations, will be discussed.

2.1. Sustainability and Projects

The development of an organisation towards (more) sustainability is a transition process, e.g., [3,19], that influences a wide range of functional areas in the organisation, such as strategy, research and development, procurement, supply chain management, information management, human resource management, and finance. And as projects are considered instruments to realise organisational change [20], projects play an instrumental role in the sustainable development of organisations and society [4]. Realising sustainable development through projects, often referred to as “Sustainability by the project” [21],

suggests that sustainability criteria are considered in the output that the project realises. The triple-bottom-line concept of environmental, social, and economic criteria [22] provides a framework for this [5], and several studies developed sets of indicators for different types of projects based on the three triple-bottom-line perspectives, e.g., [23–28]. These indicators can be applied to the specifications of the project's deliverables [29,30], the materials used in the project [31], the assessment of quality and success of the project [28], and the benefits and impact the project aims for [32,33].

In the past decade, the understanding developed that the instrumental role of projects in sustainable development also impacts the way projects are approached, planned, executed, managed, and governed [6]. The project itself should be performed sustainably, often referred to as "Sustainability of the project" [21], with the concepts of sustainability integrated into project management. Silvius and Schipper [5] define "Sustainable Project Management" (SPM) 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". Typical project management practices where the sustainability perspective can be applied are the identification and engagement of stakeholders [34,35], the selection of suppliers and contractors, and the procurement of materials for the project [36], the development and understanding of the business case [32,37], the identification and handling of project risks [38], the communication in and by the project [33,39], the recruitment and organisation of the project team [5], and the organisational learning from the project [40].

Despite the recognition of the role of projects in the transition of organisations and society towards sustainability [4], and the impact of the concepts of sustainability on the management of projects, the role of project governance in this development remains unexplored. Project governance is the linking pin between organisational strategy and projects [41]. Project governance should provide oversight and assurance and ensure that projects contribute to the organisation's strategic objectives and perform well and in line with that strategy. Project governance should, therefore, also ensure that the projects "reflect the organisation's commitment to ethical values and sustainability" [42]. However, the conclusion that the deeper integration of sustainability strategy into the processes and practices of organisations is still a challenge [2] signals that this linking role of project governance is not always effective.

In their analysis of the literature on project governance, Biesenthal and Wilden [43] point out that governance can be observed at different levels within the organisation. They identify an organisational level of governance, sometimes called *governance of projects* or *governance of project management*, that overarches all projects. This perspective can be found with Müller [44], who states that "Governance, as it applies to portfolios, programs, projects, and project management, coexists within the corporate governance framework. It comprises the value system, responsibilities, processes, and policies that allow projects to achieve organisational objectives and foster implementation that is in the best interests of all the stakeholders, internal and external, and the corporation itself."

Next to the organisational level of project governance, a project level of governance can be identified [43], which might be addressed as the governance of the individual project. This project level of governance is recognised in the Project Management Institute's definition of project governance as "The alignment of project objectives with the strategy of the larger organisation by the project sponsor and project team. A project's governance is defined by and is required to fit within the larger context of the program or organisation sponsoring it but is separate from organisational governance." [45].

Reflecting on these definitions, aligning a project's objectives with the organisation's strategy is relevant at all levels of governance. In fact, the organisational level of governance depends on aligning project objectives with organisational strategy at the project level.

As ultimately responsible for the project, the project owner plays a crucial role in this alignment. The following section will discuss this role.

2.2. The Role of the Project Owner

The project owner is logically one of the most influential roles with regard to the sustainability of the project [10], because he or she commissions the project and carries the final responsibility for the result and effects of the project [46]. The project owner is usually a manager whose organisation provides funding for the project and will benefit most from the project outcomes [46]. Therefore, the project owner is also likely to have a strong interest in the project's success [44]. In the project organisation, the project owner has a governing role: "The project owner realises the project-related company interests, coordinates project and company interests, provides context information and gives feedback to the project team on the project deliverables" [47]. Other titles used for this role are project sponsor, client, or project executive [46]. The study prefers to use the title project owner, as this expresses that the role "is not only providing financial resources in cash or kind to the project, but is responsible for strategic project decisions, and assigns and approves a project" [47]. The study follows Andersen [11] in using the title project owner as synonym for the other titles, although occasionally there may be separate roles of project owner and project sponsor in place.

Zwikael et al. [48] found that in many organisations, the tasks assigned to the project owner role are not formalised, despite the guidance on this provided by standards, such as the Global Alliance for Project Professionals GAPPS [49]. GAPPS details the project owner's task in three "units": Take accountability for the project, Support the project manager, and Support the project [49]. The project owner, as the ultimately responsible manager of the project, bears the responsibility of aligning the project and its intended outcomes with the organisation's strategies [40,50], including the organisation's sustainability ambitions and strategies. In the GAPPS framework, this is addressed in the first responsibility unit of the project owner: Take accountability for the project. Table 1 shows the details of this unit, showing the project owner's responsibility for aligning the project with the organisation's direction in performance criteria 1.1.1.

Table 1. Details of the "Take accountability for the project" responsibility unit of the project owner [49].

Unit	Elements	Performance Criteria
1. Take accountability for the project	1.1 Ensure the project is justified.	1.1.1 Alignment of the project with the defined direction of the organisation is maintained. 1.1.2 The project is justified and realistic.
	1.2 Sustain effective governance.	1.2.1 Authority levels, approval processes, decision making protocols, and reporting mechanisms are defined, communicated, and implemented. 1.2.2 Project governance complies with applicable requirements. 1.2.3 Socially responsible practice is actively supported. 1.2.4 Sponsorship role is clearly defined and communicated to relevant stakeholders. 1.2.5 Lessons learned process is supported. 1.2.6 Ownership of the product of the project is transferred.
	1.3 Orchestrate plans for benefits realisation.	1.3.1 The path to benefits realisation is clearly defined, feasible, and communicated. 1.3.2 Ownership of benefits realisation is identified, understood, and accepted by the by the relevant stakeholders.

The GAPPS framework also assigns responsibility for actively supporting socially responsible practice to the project owner, in performance criterion 1.2.3. Socially responsible practice is actively supported. In addition, performance criterion 1.2.2. Project governance complies with applicable requirements, can be understood to refer to sustainability criteria when these are included in the (corporate) social responsibility policies. It should be concluded that the GAPPS framework explicitly recognises a responsibility for the project owner to consider the organisation's sustainability strategies and social responsibility in projects.

2.3. Factors Influencing Sustainability-Friendly Behaviour in Organisations

As discussed above, one of the responsibilities of the project owner is the alignment of the project with the strategy of the organisation, including the sustainability strategy. These organisational strategies. It would, therefore, be expected that the project's objectives, as formulated by the project owner in the assignment of the project, reflect the organisation's commitment to sustainability. However, as human behaviour is influenced by various factors, this rational top-down perspective may not always be recognisable [51].

The different factors that influence the consideration of sustainability in the behaviour of individuals have been studied in a number of publications, e.g., [52–55]. These studies are insightful; however, they studied the consideration of sustainability in the context of consumer behaviour, thereby lacking the influence of an organisational context on behaviour. Therefore, we limited our consideration of earlier work to studies that focused on sustainability-friendly behaviour within the context of an organisation. These studies showed that the operationalisation of sustainability strategies within organisations is supported, or hindered, by the personal attitudes of business managers [51]. A positive attitude towards sustainability leads to more support for the organisation's sustainability strategy. In contrast, a negative attitude leads to more obstructive behaviour, often limiting environmental policies to regulatory requirements. A manager will align his or her behaviour not only with the organisation's strategy, but also with his/her "self-identity" [56] or attitude towards the behaviour. In line with this, the different studies that explored the factors that stimulate project managers to address sustainability in their projects, found that the basic attitude of the project managers towards sustainability was a strong influencer of sustainability-friendly behaviour [7,14–16,57].

Ruepert et al. [56] found that another factor that influences the adoption of sustainability-friendly behaviour of managers was formed by the structural factors within the work environment and how these factors support the desired behaviour. They concluded that "such structural barriers may strongly affect employees' control over their pro-environmental behaviour at work, and their possibility to act upon their feelings of moral obligation to behave pro-environmentally at work" [56].

In all studies, sustainability-friendly behaviour was stimulated by a mixture of personal and contextual factors. Personal factors included the attitude of the managers towards sustainability, and contextual factors included the organisational culture, strategy, and support. Most studies above use the Theory of Planned Behaviour (TPB) [58,59] as the theoretical foundation. TPB is an extension of the Theory of Reasoned Action [60] and is the dominant theoretical approach in studies on behaviour and aims to better understand, describe, and ultimately predict an individual's behaviour by linking beliefs to behavioural intention. According to the TPB, (intended) human behaviour is guided by three kinds of beliefs:

- *Behavioural beliefs*: beliefs about the likely outcomes of the behaviour and the evaluations of these outcomes. These beliefs produce a favourable or unfavourable *attitude* toward the behaviour;
- *Normative beliefs*: beliefs about the normative expectations of others and motivation to comply with these expectations. These beliefs result in perceived *social pressure* or a subjective norm;

- *Control beliefs*: beliefs about the presence of factors that may facilitate or impede performance of the behaviour and the perceived power of these factors. These beliefs give rise to perceived behavioural control.

In combination, these beliefs lead to the formation of a behavioural intention [59]. As a general rule, the more favourable the attitude and subjective norm, and the greater the perceived control, the stronger should be the person's intention to perform the behaviour in question. TPB is a popular way to examine underlying behaviour constructs, although it is not without criticism. Sniehotta et al. [61] criticised the limited explanation TPB provides for variability in actual behaviour. Furthermore, although several studies do show a sufficient explanatory or predictive value of TPB [61], Ajzen countered this criticism by stating that the critics of TPB "fail to realise that the theory is expected to afford good prediction of intentions" [62], and not so much actual behaviour, as "the prediction of behaviour from intentions is fraught with potential problems" [62]. As the study reported in this paper investigates the actual self-reported behaviour of the project owner regarding addressing sustainability in the assignment and governance of projects, this limitation of TPB could be seen as a limitation to the value of the study. However, as the study is aimed at exploring and understanding behaviour and not so much predicting behaviour, the authors did not consider this limitation of TPB to be a substantial limitation to the study.

Another point of critique on TPB is that it does not provide an adequate basis for behaviour change interventions [61]. This limitation is acknowledged by Ajzen [62], but with the addition that "TPB is, in fact, not a theory of behaviour change". TPB is meant to help explain people's intentions and behaviour; since that is also the aim of this study, the authors selected TPB as the conceptual starting point for the study.

3. Methods

This section presents the research strategy and design of the study. The study was designed as a quantitative, survey-based study, thereby mirroring the strategy of Silviu and Graaf [13], who performed a similar study, but aimed at the project managers.

3.1. Questionnaire Development

Based on the categories of beliefs of the TPB, a set of 30 questions, 10 per category, was developed as independent variables concerning the stimulus of the project owners. These questions were formulated based on examples from literature and research into factors that encourage thinking about sustainability. The questionnaire used in the study of Silviu and Graaf [13] on factors that stimulate project managers to address sustainability was also reviewed, and one of the principal researchers of that project was consulted.

All statements were formulated as answers to the 'umbrella question': "I am stimulated to explicitly address sustainability aspects in the project assignment if/because...". Five experts reviewed the formulation, content, and classification of the statements. Table 2 shows the set of questions that were developed to explore the stimulus factors of the project owner.

The dependent variable of our study, the project owner's behaviour, was operationalised in four questions (Table 3).

These stimuli and behaviour-oriented questions were all asked with a 5-point Likert answering scale, ranking from 'fully disagree' to 'fully agree'.

The questionnaire was completed with two sets of questions related to control variables. The first set included demographic questions about the respondent: position, management level, experience in the role of the project owner, age, and education. The second set included questions about the work environment of the respondent. This part of the questionnaire included questions about the type of projects the project owner usually acts on and the organisational context. The questions about the organisational context were focused on the role sustainability plays in the organisation, as this can rationally be expected to influence the considerations of the project owner with regard to sustainability.

Table 2. Questions on stimulus of the project owner.

TPB Category	Number	Question: Completing the Sentence “I Am Stimulated to Explicitly Address Sustainability Aspects in the Project Assignment If/Because. . .”
Attitude	A01	It is contributing to a better world
	A02	It is better for the future of my children
	A03	I care about nature
	A04	I want a better future for my children
	A05	I think that we are destroying planet Earth
	A06	I think that we should not deplete Earth’s resources
	A07	I think that the burden of sustainability is not equally shared over Earth’s population
	A08	I think that doing business sustainably is our responsibility
	A09	I am convinced of the benefits of doing business sustainably
	A10	I think we should comply with laws and regulations
Subjective norm	S01	My friends or family think that sustainability is important
	S02	My colleagues think that sustainability is important
	S03	Sustainability is part of our organisational strategy
	S04	My manager expects me to consider sustainability
	S05	We are required to comply with laws and regulations
	S06	We also require suppliers and contractors to consider sustainability
	S07	Our competitors will have an advantage over us when we don’t consider sustainability
	S08	My colleagues are already considering sustainability
	S09	I don’t want to look bad compared to my colleagues
	S10	Considering sustainability is normal in our organisation
Control	C01	I can mobilise the right expertise on sustainability in the project team
	C02	I expect that the project manager can consider sustainability without any issues
	C03	Our organisational environment provides adequate support for sustainability in the project
	C04	I get support for sustainability within the organisation
	C05	Our organisation offers adequate trainings on sustainability
	C06	I expect that I can stimulate the project manager to consider sustainability
	C07	I know that sustainability can be successfully considered in the project
	C08	Sustainability was successfully considered in past projects
	C09	Considering sustainability is for me a regular part of project management
	C10	I am educated in sustainability

Table 3. Questions on the behaviour of the project owner.

Variable	Number	Question
Behaviour	B01	I address sustainability in the project objectives
	B02	I include requirements on sustainability in the contracts with the (sub)contractors in the project
	B03	I require that project progress reports include reporting on sustainability aspects as part of the governance of the project
	B04	I discuss sustainability in the project board as a recurring point on the agenda

As recommended by Field [63], the questionnaire was pre-tested in a limited sample of ten respondents from the target group. The feedback that this pre-test generated was included in the development of the final questionnaire.

3.2. Data Collection and Analysis

As a project owner is a temporary role that is performed by managers holding a different (permanent) position, project owners are not an organised and identifiable group. Therefore, sampling was carried out using targeted convenience and snowball sampling. Data collection was conducted over a four-week period. The questionnaire was administered online, using ThesisTools Pro as a survey tool. Participants needed at least one year of experience as project owners to qualify as respondents.

As, in principle, all managers in an organisation, or even individuals without managerial responsibility but with appropriate seniority and power in the organisation, may fulfil

the role of the project owner, the total population of project owners is probably a multiple of the total number of organisations. As sampling was based in the Netherlands, the authors assumed that the number of project owners per organisation was at least one, resulting in a total population of over one million individuals, as the Netherlands counts approximately one million organisations. Accepting a 5% margin of error at a 95% confidence level, the targeted sample size was set to 384. However, project owners, such as project managers or other professions, are hard to reach because they lack a professional organisation. Therefore, the minimum sample size was set at 100 respondents, as Francis et al. [64] argue that a sample size of 80 would be acceptable, and Reio Jr and Shuck [65] strongly recommend at least 100 participants.

In total, some 850 (expected) project owners were approached for the study through personal email and social media, of which 230 (27%) provided a complete response. Based on the assumed total population of over 1 million project owners, the sample provides a 6.46% margin of error at a 95% confidence level, which was considered satisfactory.

The study was performed in the Netherlands, but the sampling reached out internationally in Europe, North America, and South Africa through social media and personal networks. As sustainability is inevitably a normative concept [66,67], its understanding is prone to cultural differences. Furthermore, although the study sample showed some level of cultural diversity, it cannot be excluded that the study's findings have been influenced by the sample's dominant (Western) culture. Table 4 provides an overview of the demographic data of the respondents.

Table 4. Demographics of the sample—Questions about the respondent.

Number	Question	Answer Categories	Percentage
D05	What is your position in the organisation?	General management	12.2
		Financial management	13.9
		Commercial management	7.4
		Operational management	15.2
		Facility management	3.0
		Information Technology management	13.0
		Human Resources Management	35.2
D03	On what organisational level do you position your position?	Executive management	13.0
		Senior management	19.1
		Middle management	28.7
		Operational management	13.9
		Not a management position	25.2
D02	How many years of experience in the role of project owner do you have?	1–5 years	42.6
		5–10 years	15.2
		10–15 years	14.3
		15–20 years	12.6
		>20 years	15.2
D01	What is your age?	<25 years	0.4
		26–35 years	9.6
		36–45 years	24.8
		46–55 years	37.8
		>55 years	27.4
D04	What level is your highest completed education?	Vocational training	7.0
		Undergraduate or Bachelor	43.0
		Graduate or Master	47.0
		Post-Graduate	3.0

Table 4 shows that the positions of the responding project owners are well distributed over the different functional areas of an organisation, although with a relatively large

representation of human resources management. Also, the management level of the respondents shows a broad distribution, with the largest group being middle management, which was not unexpected, as project owners often hold senior or middle management positions [46]. The educational level and age of the respondents fit this managerial profile, with 93% being educated at a bachelor's or higher level and 90% being over 35 years of age. About a quarter of the respondents did not hold a management position, but as they indicated experience with the project owner role, this was not considered a disqualification.

Table 5 provides an overview of the questions on the work environment of the project owners in the sample.

Table 5. The work environment of the respondent represented in the sample.

Number	Question	Answer Categories	Percentage
P01	In what type of projects do you usually act as Project Owner?	Construction (Infrastructure)	20.3
		Construction (Real Estate)	13.0
		Engineering	6.2
		Organisational change	17.4
		Information Technology	23.2
		Research and Development	4.0
		Social or Societal Development	5.4
		Other	10.5
P02	What is the project budget of the project that you are the Project Owner of?	<1	32.2
		1–5	23.0
		5–10	11.7
		10–50	14.3
		50–100	7.8
		>100	10.9
P03	What does most accurately describe the type of organisation you work in?	Commercial company	38.7
		Public organisation	45.2
		Private not-for-profit organisation	16.1
		Sustainability is not part of the strategy of the organisation.	16.5
P04	What is the position of sustainability in the strategy of the organisation that commissions the project?	Sustainability is part of the strategy of the organisation, although this is not explicitly mentioned in the mission, vision, or strategy statements.	28.7
		Sustainability is part of the strategy of the organisation and is mentioned as an integrated condition of this strategy.	48.3
		Sustainability is the main reason of existence of the organisation and the driver of its strategy and activities.	6.5
P05	Does the organisation that commissions the project has any form of sustainability reporting?	No, the organisation does not have any specific form of sustainability reporting.	31.7
		Yes, the organisation reports on their contribution as a part or section of the regular company reports (e.g., the Annual Report)	33.0
		Yes, the organisation reports on their contribution as a separate periodic sustainability report in a self-developed format.	20.0
		Yes, the organisation reports on their contribution as a separate periodic sustainability report in a format that is based on an accepted standard.	15.2

Table 5 shows the project owners are well distributed over the different project types. That suggests that the findings will not be biased towards a particular type of project. Also, the project size shows a satisfactory distribution with both large, smaller, and medium-sized project budgets in the sample. Concerning organisations, the public sector appears to be slightly overrepresented in the sample. Regarding the role of sustainability in these organisations' strategy, the sample is almost evenly split between an explicit mention of sustainability and no mention or no role of sustainability. Moreover, the answers on the sustainability reporting of the organisations show a wide distribution over the answer categories.

The diversity of the sample provides a good foundation for the data analysis, especially concerning potential correlations between the stimulus of the project owners and their work environment.

3.3. Data Analysis

The data from the survey were coded 1 ('fully disagree') to 5 ('fully agree') and analysed using SPSS release 23, thereby following the "intervalists" view of Likert-type scales [68]. The data analysis included Descriptive Analysis, Exploratory factor Analysis (EFA), and Multiple Regression Analysis. The results of this analysis are presented in the next section. Correlation analysis was performed using Pearson Correlation coefficients.

4. Results

This section presents the study's findings. First, the data will be reported descriptively, followed by the results of the exploratory factor analysis and the regression analysis.

4.1. Descriptive Analysis

Table 6 presents the means and standard deviations of the stimulus questions in the study.

The attitude questions all scored high in agreement (4 or above), with only A05 ("I think that we are destroying planet Earth") scoring slightly lower, indicating that overall, the project owners in the sample displayed a positive attitude towards sustainability.

The questions related to the subjective norm scored lower than the attitude questions, although almost all were still on the positive end of the scale. Question S09 ("I don't want to look bad compared to my colleagues") scored the lowest ($M = 2.69$), even within the disagree half of the scale. Apparently, the behaviour to address sustainability is more internally motivated than externally.

The results for the third group of stimulus questions, related to perceived behavioural control, also scored positive but lower than the attitude questions. The high-scoring questions C09 and C07 suggest that the project owners consider it *normal* that the project manager considers sustainability in the project without the project owner specifically addressing it in the project assignment.

The behaviour of the project owners was measured using four questions. Table 7 shows the descriptive results on these items.

Regarding the behaviour questions, the respondents scored more around the neutral position of the scale (3), with two questions still on the agree side and two on the disagree side. The highest-scoring questions referred to the operationalisation of sustainability in contracts with contractors or subcontractors and the project objectives. What is remarkable is that the questions related to the governance of what actually happens in projects scored lower, even within the disagree half of the scale. For the project owners, it apparently suffices to address sustainability in objectives and contracts and not to follow up on this in the governance during project execution.

Table 6. Descriptive results for the stimulus questions ($N = 230$).

	Items	<i>M</i>	<i>SD</i>
A01	It is contributing to a better world	4.00	1.15
A02	It is better for the future of my children	4.09	1.08
A03	I care about nature	4.34	0.89
A04	I want a better future for my children	4.24	0.96
A05	I think that we are destroying planet Earth	3.87	1.12
A06	I think that we should not deplete Earth's resources	4.36	0.84
A07	I think that the burden of sustainability is not equally shared over Earth's population	4.04	1.16
A08	I think that doing business sustainably is our responsibility	4.40	0.87
A09	I am convinced of the benefits of doing business sustainably	4.29	0.89
A10	I think we should comply with laws and regulations	4.07	1.08
S01	My friends or family think that sustainability is important	3.32	1.17
S02	My colleagues think that sustainability is important	3.43	1.05
S03	Sustainability is part of our organisational strategy	3.66	1.27
S04	My manager expects me to consider sustainability	3.33	1.21
S05	We are required to comply with laws and regulations	3.92	1.09
S06	We also require suppliers and contractors to consider sustainability	3.74	1.14
S07	Our competitors will have an advantage over us when we don't consider sustainability	3.28	1.19
S08	My colleagues are already considering sustainability	3.19	1.12
S09	I don't want to look bad compared to my colleagues	2.69	1.18
S10	Considering sustainability is normal in our organisation	3.55	1.14
C01	I can mobilise the right expertise on sustainability in the project team	3.33	1.09
C02	I expect that the project manager can consider sustainability without any issues	3.43	1.06
C03	Our organisational environment provides adequate support for sustainability in the project	3.32	1.13
C04	I get support for sustainability within the organisation	3.43	1.11
C05	Our organisation offers adequate trainings on sustainability	3.52	1.05
C06	I expect that I can stimulate the project manager to consider sustainability	3.73	1.02
C07	I know that sustainability can be successfully considered in the project	3.78	0.97
C08	Sustainability was successfully considered in past projects	3.37	1.06
C09	Considering sustainability is for me a regular part of project management	4.06	0.96
C10	I am educated in sustainability	3.30	1.17

Note: *M*—Mean; *SD*—Standard deviation.

Table 7. Descriptive results for the behaviour questions ($N = 230$).

	Items	<i>M</i>	<i>SD</i>
B01	I address sustainability in the project objectives	3.22	1.20
B02	I include requirements on sustainability in the contracts with the (sub)contractors in the project	3.38	1.22
B03	I require that project progress reports include reporting on sustainability aspects as part of the governance of the project	2.84	1.18
B04	I discuss sustainability in the project board as a recurring point on the agenda	2.91	1.25

Note: *M*—Mean; *SD*—Standard deviation.

4.2. Fit with the TPB Model

The internal consistency of the TPB categories was tested via the Cronbach's Alpha test (Details in Table A1 in the Appendix A). The Cronbach's alphas of the three TPB categories and behaviour all show good internal consistency, with scores between 0.869 and 0.879. This would indicate a confirmation of the TPB model. However, it should be noted that the fit of the TPB model can be challenged, as a number of questions show that the internal consistency would be improved if the question were removed. Moreover, although removing items from the analysis based on the internal consistency analysis is not uncommon, the number of questions that should be removed to optimise the internal consistency is rather high. In the TPB categories Attitude and Subjective norm, the consistency would be improved by removing three questions per category and one in the TPB category Behavioural. Therefore, the authors concluded that the TPB model does not provide the best explanation of the behaviour of the project owner. This conclusion was confirmed by the correlation

between the TPB categories, which were all significant, positive, and could be classified as high (between 0.75 and 0.90). As the TPB model did not provide the best explanation of the behaviour of the project owners, the authors performed an EFA.

4.3. Exploratory Factor Analysis

Concerning EFA, the correlation between the different TPB categories presents a challenge, as this might also indicate the multicollinearity of the individual items. As a measure of multicollinearity, the Haitovsky test was performed, suggesting that the determinant should be between 0 and 1. In EFA, items that show a very low correlation with the dependent variable also provide an issue as they do not contribute to explaining the behaviour. Tabachnick and Fidell [69] recommend keeping correlations between 0.3 and 0.8.

In order to prepare the data for the EFA, all items that did not meet the threshold correlation with a behaviour of 0.3 were removed. That resulted in a data set that showed a determinant of 0.000 in the Haitovsky test, which meets the criterion. Table A2 in Appendix A presents the resulting data set and their correlations. The resulting data set satisfied Bartlett's test of sphericity and the Kaiser–Meyer–Olkin (KMO) test (Table 8). KMO satisfies the requirements of >0.5, and Sig. of Bartlett's test = 0.000, satisfying the requirement of <0.05. The resulting data set was therefore considered suitable for EFA.

Table 8. KMO and Bartlett's test.

Kaiser–Meyer–Olkin measure of sampling adequacy		0.916
Bartlett's Test of Sphericity	Approx. Chi-square	4,502,217
	<i>df</i>	435
	Sig.	0

Note: *df*—Degrees of freedom; Sig—*p* value.

The initial factor analysis discovered three factors. The test ran again using this cut-off. Varimax rotation was added for the final run. Table 9 shows the total variance explained in this statistical analysis to be 66.3%, which was less than the "75% or more" textbook recommendation by Stevens [70] but more than the 52% average total variance explained that Henson and Roberts [71] report in their analysis of 60 EFA studies. The total variance explained was therefore considered satisfactory.

Table 9. Variance explained with three component extraction.

Component	Initial Eigenvalues			Extraction Sums of Squares Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.053	46.563	46.563	6.053	46.563	46.563
2	1.476	11.352	57.915	1.476	11.352	57.915
3	1.093	8.406	66.321	1.093	8.406	66.321
4	0.761	5.854	72.175			
5	0.658	5.058	77.233			
6	0.519	3.993	81.226			
7	0.458	3.520	84.746			
8	0.413	3.180	87.926			
9	0.403	3.099	91.025			
10	0.372	2.858	93.883			
11	0.307	2.361	96.244			
12	0.255	1.960	98.204			
13	0.233	1.796	100.000			

The structure matrix (Table 10) was used to find the new model for the loadings of the EFA, showing how the 13 items from the resulting data set fit into the three components.

Table 10. Structure matrix for EFA with three components.

Item		Component		
		1	2	3
S04	My manager expects me to consider sustainability	0.814		
C04	I get support for sustainability within the organisation	0.792		
S10	Considering sustainability is normal in our organisation	0.783		
S03	Sustainability is part of our organisational strategy	0.714		
S08	My colleagues are already considering sustainability	0.711		
A05	I think that we are destroying planet Earth		0.838	
A04	I want a better future for my children		0.788	
S01	My friends or family think that sustainability is important		0.686	
C07	I know that sustainability can be successfully considered in the project			0.768
C06	I expect that I can stimulate the project manager to consider sustainability			0.765
C01	I can mobilise the right expertise on sustainability in the project team			0.689
C02	I expect that the project manager can consider sustainability without any issues			0.621
C09	Considering sustainability is for me a regular part of project management			0.620

Note: Extraction Method: Principal Component Analysis; Rotation Method: Varimax with Kaiser Normalisation; Loading cut-off >0.60.

Table 10 shows that the component loadings deviate from the TPB model of attitude, subjective norm, and behavioural control but tend to mix the factors differently, creating a new model.

Component 1 consists of items that have to do with the organisational context of the project owners, such as the strategy, culture, and practices within the organisation. Some of these items represent the hard facts of the organisation—for example, S03 (“Sustainability is part of our organisational strategy”) and C04 (“I get support for sustainability within the organisation”)—while other items represent more the *softer* cultural aspects of the organisation—for example, S10 (“Considering sustainability is normal in our organisation”) and S04 (“My manager expects me to consider sustainability”). Therefore, we labelled this factor “*Organisational attitude*”.

Component 2 contrasts with Component 1 by including items that refer to the personal opinion and context of the respondent—for example, A05 (“I think that we are destroying planet Earth”) and A04 (“I want a better future for my children”) refer to the personal opinion of the project owners, whereas S01 (“My friends or family think that sustainability is important”) refers to his or her private environment of friends and family. Therefore, we labelled this factor “*Private attitude*”.

Compared to the TPB model of beliefs, components 1 and 2 combine behavioural beliefs (attitude) and normative beliefs (peer pressure). The distinction between the components is the environment that influences these beliefs: the organisational environment or the private environment.

Component 3 consists of items that all have to do with the practical implementation of the behaviour; for example, C06 (“I expect that I can stimulate the project manager to consider sustainability”) and C01 (“I can mobilise the right expertise on sustainability in the project team”), and the effect that this behaviour will have—for example, C07 (“I know that sustainability can be successfully considered in the project”). These items all are based on the behavioural control beliefs of the TPB. We labelled this factor “*Practical implementation*”.

All factors still show a good or acceptable level of internal consistency and a significant level of correlation with behaviour without having a high level of correlation between the factors (Table 11).

Table 11. Correlation analysis.

Factors	M	SD	Cronbach's α	Factor 1	Factor 2	Factor 3
Factor 1 Organisational attitude	4.05	1.039	0.766	1		
Factor 2 Private attitude	3.63	1.034	0.850	0.480 **	1	
Factor 3 Practical implementation	3.46	1.155	0.850	0.721 **	0.510 **	1

Note: ** $p < 0.01$; M—Mean; SD—Standard deviation.

4.4. Regression Analysis

The three factors' contribution to the project owners' behaviour were analysed using a multivariate regression analysis. R^2 was 0.523, indicating that the model provides a satisfactory level of explanation for the behaviour of the project owners.

Table 12 presents the result of the ANOVA analysis, which showed a Sig. of F of 0.000, indicating that the regression model is consistent with the data collected. The regression model itself is shown in Table 13.

Table 12. ANOVA.

Model	Sum of Squares	df	Mean Square	F	p
1 Regression	128.221	3	42.740	82.579	0.000 ^a
Residual	116.970	226	0.518		
Total	245.190	229			

Note Dependent Variable: B01 + B02 + B03 + B04. Df—Degrees of freedom; F—ANOVA statistic; p—p-value.
^a Predictors: (Constant), Factor 1, Factor 2, Factor 3.

Table 13. Coefficients of the multivariate regression model.

Model	Unstandardised Coefficients		Standardised Coefficients	t	p
	B	Standard Error	β		
1 (Constant)	−0.174	0.251	0.000	−0.693	0.489
Factor 1	0.416	0.076	0.369	5.464	0.000
Factor 2	−0.092	0.063	−0.079	−1.448	0.149
Factor 3	0.595	0.090	0.452	6.573	0.000

Note Dependent Variable: B01 + B02 + B03 + B04. t—t statistic; p—p-value.

Based on the regression analysis, the effect of the three independent variables (Factors 1, 2, and 3) on the dependent variable (the behaviour of the project owner) was found to be: Behaviour = $-0.174 + 0.416 * \text{Organisational attitude} - 0.092 * \text{Private attitude} + 0.595 * \text{Practical implementation}$. Figure 1 presents the resulting model.

The model suggests that the factors labelled Organisational attitude and Practical implementation provide the most stimulus for project owners, while the Private attitude provides the smaller stimulus, even slightly negative. The project owners involved in the study appear to be more stimulated by the factors from their work environment rather than from their private environment. A potential explanation for this may be provided by the responsibility they feel for implementing their organisation's strategy. The next section will add further discussion of these results.

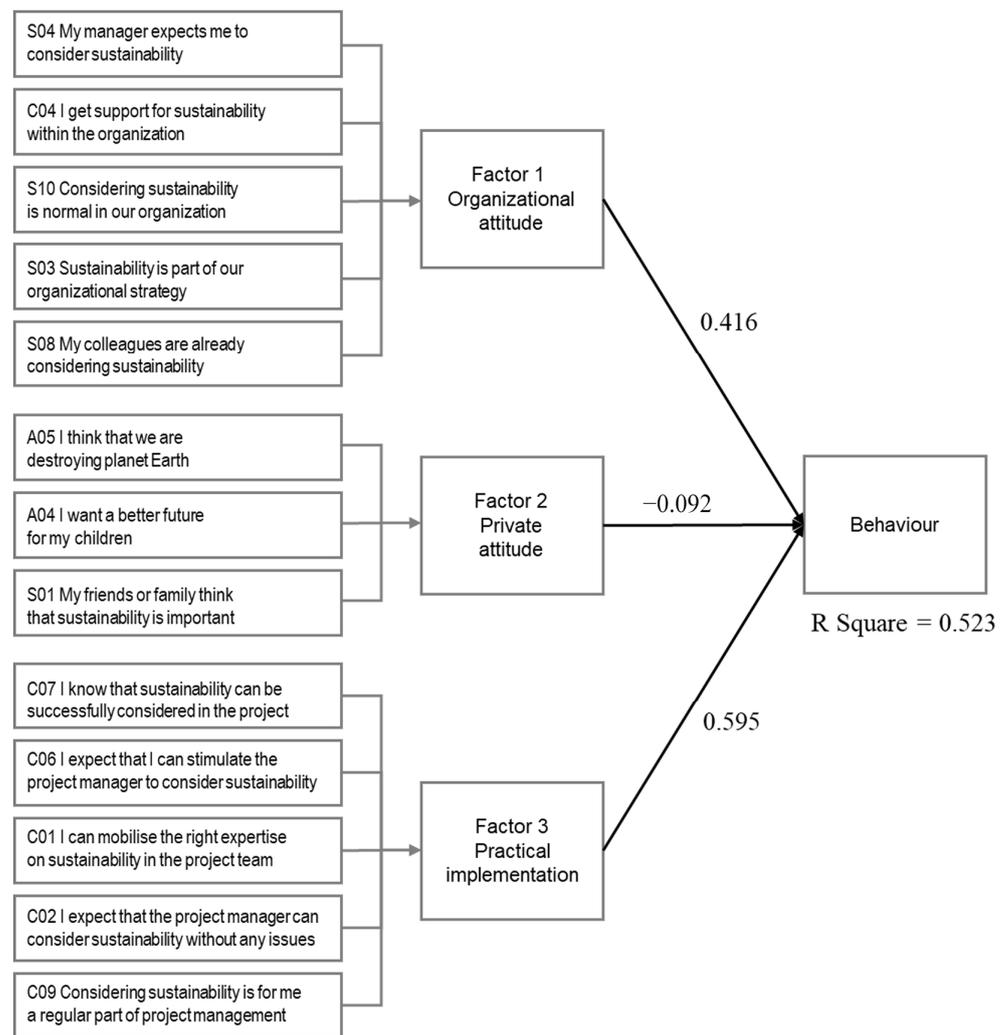


Figure 1. Model of factors influencing the project owner's behaviour.

5. Discussion

Based on the findings of the study, a number of reflections can be made.

Project owners are more likely to address sustainability in the project assignment than in project governance.

The behaviour of the project owner (dependent variable) was operationalised in four questions (B01 to B04). Questions B01 and B02 related more to the project assignment at the initiation and start of the project, whereas B03 and B04 were more concerned with the project's governance during the phases in which the project is executed.

Already, the descriptive analysis showed in Table 7 that the project owners scored higher in the items relating to the project assignment than in the items related to project governance. The governance items were evenly scored at the disagree half of the scale.

A potential explanation for this finding may be related to the findings of earlier studies that show that the governance role is often focused on process and control [72]. Too and Weaver [41] observed that many organisations appoint a project owner or Project Control Board (PCB) to govern a project, focusing on ensuring the project manager follows due process. The project owner assumes that if this due process is followed, the governance responsibility is fulfilled and that "someone else, typically the project manager, has the responsibility to ensure that the project meets its objectives" [41]. This process-oriented approach to governance may be fostered by the presence of a project portfolio management process in the organisation, as this process limits the decision-making power of the project

owner and, therefore, may also reduce his or her feeling of bearing the final responsibility for the project, as the GAPPS standard [49] suggests.

Project owners are more influenced by their organisational context than by their private attitude.

Much more than the project managers in the studies of Silvius and Graaf [13], Poon and Silvius [14], Marnewick et al. [16], and Magano et al. [15], the project owners in this study were stimulated to address sustainability by their organisational context. Marnewick et al. [16] concluded that most project managers were intrinsically motivated to consider sustainability, and this motivation did not depend on the type of project, industry, or organisational context they were working in. Silvius and Graaf [14] found a more balanced pattern of factors stimulating project managers, with the organisational fit of sustainability as an important factor. Our findings show that this organisational fit is even more important for the project owners than for the project managers. Given the responsibility of project owners to operationalise the organisational strategy by assigning and governing projects aligned with this strategy [41], this finding may not be surprising. What is surprising, though, is that the project owners' private context and personal attitude play only a very limited role. This suggests that the project owners leave their personal opinion at home when they step into the office. A discrepancy between private and professional selves is a known phenomenon in psychology [73]. A potential explanation for this phenomenon may be that project owners feel the weight of their professional responsibility and need to balance different and often conflicting interests of shareholders and other stakeholders [51].

A strong organisational orientation was found in all ages and experience levels of the project owners. Not surprisingly, the sustainability-friendly behaviour of the project owners showed a moderate correlation (as shown in Table 14) with the role that sustainability played in the strategy and external reporting of the organisation.

Table 14. Correlation between the role of sustainability in the organisation and the sustainability-friendly behaviour of the project owner.

Questions on the Role of Sustainability in the Organisation			Questions on the Sustainability-Friendly Behaviour of the Project Owner			
			B01	B02	B03	B04
P04	What is the position of sustainability in the strategy of the organisation that commissions the project?	Correlation Coefficient	0.421 **	0.481 **	0.399 **	0.441 **
		Sig. (2-tailed)	0.000	0.000	0.000	0.000
P05	Does the organisation that commissions the project has any form of sustainability reporting?	Correlation Coefficient	0.423 **	0.473 **	0.465 **	0.450 **
		Sig. (2-tailed)	0.000	0.000	0.000	0.000

Note: ** $p < 0.01$.

Sustainability receives more attention in larger projects.

When controlling for correlations between the sustainability-friendly behaviour of the project owner and demographic factors of the participants or projects they represented, only one correlation appeared, other than the correlations with the questions on the role of sustainability in the organisation discussed above. The size of the project, which was asked in terms of the project budget, appeared to be significantly positively correlated, albeit weakly. The correlation appeared for all four questions related to the behaviour of the project owner, with the questions referring to the project assignment scoring a somewhat stronger correlation than the questions related to the project's governance.

This correlation may be related to the type of projects, as several studies [74,75] show that addressing sustainability is more common in construction and infrastructure projects than in organisational or information technology projects. Moreover, although in our study, the type of projects did not show a consistent correlation with the items related to the

behaviour of the project owner, the weak correlations that did appear were in line with the conclusion of the earlier studies mentioned.

Practical implementation is crucial.

The model of factors that influence the sustainability-friendly behaviour of the project owner that emerged from the study showed that the project owner's possibilities for the practical implementation of sustainability in the project play an important role. Project owners may have a conceptual understanding of sustainability, but literature, standards, and company policies may provide "little guidance [...] on how to apply sustainability" [4]. This finding is in line with the structural factors' conditions within the work environment and how they support the desired behaviour, as found by Ruepert et al. [56]. Also, the studies of Silvius and Schipper [7] and Poon and Silvius [14] pointed out the importance of practically applicable tools and instruments for integrating sustainability into project management. Apparently, the project owner also needs support for his or her role in addressing the sustainability of projects. Professionals "do not have the time to 'translate' models and conceptual views into practical instruments" [8] and concludes that it is, therefore, up to "authors, standards and researchers to package the sustainability perspective in practically applicable tools" to support the transition towards sustainability that organisations need to realise [3].

The TPB model did not provide the best fit.

The model of factors influencing the sustainability-friendly behaviour of the project owner that the study developed deviates from the TPB model [59], which is commonly used to explain underlying constructs of behaviour. The found model merges the factors Attitude and Subjective norm and addresses more the contexts where these factors come from—organisational and private. The third factor, Practical implementation, still provides a good fit with the behavioural control factor from the TPB model.

The TPB is open to adding other factors, and numerous other studies also suggested modifications, e.g., [76]. Although the study reported in this article was not aimed at validating or modifying the TPB and used it merely as a conceptual starting point, the study's findings support the appeal by Conner and Armitage [76] for the further exploration of the use of the model.

6. Conclusions

The study reported in this article set out to explore the factors that influence the project owner's behaviour concerning addressing sustainability in assigning and governing a project.

The study used a survey-based research design with quantitative data analysis. With the TPB as a conceptual starting point, a questionnaire with 30 items for the TPB factors and 4 items for the behaviour of the project owner was developed. The study collected 230 valid responses from project owners from various industries and project types.

As the TPB model did not provide a satisfactory identification of the factors influencing the behaviour of the project owners, exploratory factor analysis was carried out. The study identified three factors: Organisational attitude, Private attitude, and Practical implementation, which influence the project owners to address sustainability in assigning and governing projects. Of these factors, Practical implementation and Organisational attitude showed to have the most influence on the behaviour of the project owner. The strong orientation on the organisational context may be explained by the managerial responsibility that project owners have, but the potential discrepancy between the private and professional selves of the project owners that the findings indicated may be a helpful direction for further research.

The importance of the factor Practical implementation, which appeared from our analysis as the most influential factor, highlights the need for practical, applicable tools, and instruments that support the implementation of sustainability into projects and project man-

agement. That need for translation of the conceptual views on and models of sustainability into practical instruments echoed the appeal made by Silvius [14].

By identifying the factors that influence to behaviour of project owners concerning sustainability, this study contributes to the further understanding of how organisations can realise their transition to a sustainable enterprise [3].

As project owner is a temporary role performed by managers holding a different position, they form a target group that is hard to identify. This makes random sampling impossible. As such, the sampling strategy used in the study—convenience and snowball sampling—introduces a potential bias. Also, the geographical reach of the study, mainly Western Europe and centred around the Netherlands, may generate a bias to the study.

A second limitation may result from the fact that the behaviour the study investigated was self-reported by project owners. It can, therefore, not be excluded that social, desirable response bias occurred in the answers to the behaviour questions. Another limitation is that not all variance could be explained by the model found in the study. Part of this might have to do with subconscious factors that come into play with all human behaviour [76].

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Appendix A

Table A1. Cronbach's Alpha analysis of the stimulus and behaviour questions (N = 230).

Items	Scale Mean If Item Deleted	Scale Variance If Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's α If Item Deleted
TPB category Attitude: Cronbach's Alpha =					0.897
A01 It is contributing to a better world	37.7	46.26	0.498	0.328	0.909
A02 It is better for the future of my children	37.62	43.04	0.786	0.770	0.889
A03 I care about nature	37.37	45.35	0.771	0.640	0.892
A04 I want a better future for my children	37.47	44.66	0.762	0.760	0.892
A05 I think that we are destroying planet Earth	37.84	42.94	0.760	0.626	0.891
A06 I think that we should not deplete Earth's resources	37.35	46.61	0.696	0.547	0.896
A07 I think that the burden of sustainability is not equally shared over Earth's population	37.67	44.74	0.599	0.430	0.903
A08 I think that doing business sustainably is our responsibility	37.31	45.91	0.741	0.713	0.894
A09 I am convinced of the benefits of doing business sustainably	37.42	45.85	0.726	0.681	0.894
A10 I think we should comply with laws and regulations	37.64	47.56	0.444	0.259	0.912
TPB category Subjective norm: Cronbach's Alpha =					0.869
S01 My friends or family think that sustainability is important	30.79	52.90	0.507	0.352	0.87
S02 My colleagues think that sustainability is important	30.68	51.98	0.652	0.514	0.859
S03 Sustainability is part of our organisational strategy	30.45	50.96	0.568	0.418	0.865
S04 My manager expects me to consider sustainability	30.78	49.02	0.737	0.588	0.851
S05 We are required to comply with laws and regulations	30.19	54.37	0.456	0.255	0.873
S06 We also require suppliers and contractors to consider sustainability	30.37	52.28	0.568	0.373	0.865
S07 Our competitors will have an advantage over us when we don't consider sustainability	30.83	53.02	0.487	0.262	0.871
S08 My colleagues are already considering sustainability	30.92	49.79	0.754	0.624	0.851
S09 I don't want to look bad compared to my colleagues	31.42	51.59	0.585	0.435	0.864
S10 Considering sustainability is normal in our organisation	30.56	50.74	0.673	0.575	0.857

Table A1. Cont.

Items	Scale Mean If Item Deleted	Scale Variance If Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's α If Item Deleted
TPB category Behavioural control: Cronbach's Alpha =					0.877
C01 I can mobilise the right expertise on sustainability in the project team	31.92	43.23	0.705	0.564	0.862
C02 I expect that the project manager can consider sustainability without any issues	31.83	44.62	0.621	0.445	0.868
C03 Our organisational environment provides adequate support for sustainability in the project	31.94	44.36	0.593	0.476	0.871
C04 I get support for sustainability within the organisation	31.83	43.50	0.674	0.525	0.864
C05 Our organisation offers adequate trainings on sustainability	31.73	45.27	0.581	0.493	0.871
C06 I expect that I can stimulate the project manager to consider sustainability	31.53	45.81	0.559	0.435	0.873
C07 I know that sustainability can be successfully considered in the project	31.48	45.10	0.657	0.499	0.866
C08 Sustainability was successfully considered in past projects	31.89	44.35	0.643	0.451	0.867
C09 Considering sustainability is for me a regular part of project management	31.20	45.76	0.608	0.432	0.870
C10 I am educated in sustainability	31.96	45.77	0.468	0.420	0.881
Behaviour: Cronbach's Alpha =					0.870
B01 I address sustainability in the project objectives	9.14	9.93	0.759	0.584	0.825
B02 I include requirements on sustainability in the contracts with the (sub)contractors in the project	8.98	10.56	0.640	0.410	0.870
B03 I require that project progress reports include reporting on sustainability aspects as part of the governance of the project	9.52	10.02	0.760	0.590	0.820
B04 I discuss sustainability in the project board as a recurring point on the agenda	9.45	9.67	0.750	0.590	0.830

Table A2. Correlation table of selected items.

Items	A04	A05	S01	S03	S04	S08	S10	C01	C02	C04	C06	C07	C09
A04 I want a better future for my children	1.000	0.635 **	0.416 **	0.332 **	0.222 **	0.0295 **	0.247 **	0.297 **	0.233 **	0.229 **	0.278 **	0.275 **	0.337 **
A05 I think that we are destroying planet Earth		1.000	0.456 **	0.226 **	0.202 **	0.255 **	0.265 **	0.342 **	0.179 **	0.200 **	0.337 **	0.259 **	0.454 **
S01 My friends or family think that sustainability is important			1.000	0.275 **	0.340 **	0.417 **	0.251 **	0.342 **	0.237 **	0.326 **	0.269 **	0.169 *	0.266 **
S03 Sustainability is part of our organisational strategy				1.000	0.518 **	0.492 **	0.581 **	0.366 **	0.360 **	0.519 **	0.278 **	0.363 **	0.348 **

Table A2. Cont.

	Items	A04	A05	S01	S03	S04	S08	S10	C01	C02	C04	C06	C07	C09
S04	My manager expects me to consider sustainability					1.000	0.621 **	0.649 **	0.487 **	0.467 **	0.736 **	0.324 **	0.447 **	0.378 **
S08	My colleagues are already considering sustainability						1.000	0.614 **	0.485 **	0.484 **	0.578 **	0.339 **	0.452 **	0.293 **
S10	Considering sustainability is normal in our organisation							1.000	0.419 **	0.427 **	0.625 **	0.339 **	0.403 **	0.440 **
C01	I can mobilise the right expertise on sustainability in the project team								1.000	0.527 **	0.505 **	0.540 **	0.508 **	0.453 **
C02	I expect that the project manager can consider sustainability without any issues									1.000	0.464 **	0.361 **	0.529 **	0.360 **
C04	I get support for sustainability within the organisation										1.000	0.373 **	0.438 **	0.427 **
C06	I expect that I can stimulate the project manager to consider sustainability											1.000	0.468 **	0.463 **
C07	I know that sustainability can be successfully considered in the project												1.000	0.472 **
C09	Considering sustainability is for me a regular part of project management													1.000

Note: ** $p < 0.01$; * $p < 0.05$.

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