

What drives sustainable procurement? Insights from the theory of planned behavior

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Abstract

Purpose – A fundamental research question is what leads some organizations, but not others, to be sustainable in their procurement operations. Extant theoretical frameworks, while valuable, do not fully reflect the nuances of decision-making in procurement operations. We aim to illuminate the role of individual attitudes, capabilities, and behavioral intentions in actualizing sustainable procurement.

Design/methodology/approach – We develop a framework by adapting the theory of planned behavior (TPB) to the context of sustainable procurement. We test the framework with a sample of 465 procurement professionals based in the EU through partial least squares structural equation modeling.

Findings – We find that sustainable purchasing behavior is predominantly shaped by behavioral intention, that is, willingness to pay for sustainability. This behavioral intention is significantly influenced by individual attitudes and capabilities in addition to awareness of consequences and perceived corporate social responsibility engagement but, interestingly, not by individual subjective norms.

Originality/value – The TPB is one of the most influential models for predicting behavior. However, the application of the theory in operations management is hitherto limited. The present study contributes to understanding individual-level antecedents of operations management practices and offers suggestions to practitioners engaged in fostering sustainable procurement.

Keywords Sustainable procurement, Theory of planned behavior, Willingness to pay, CSR, Awareness of consequences, PLS-SEM

Paper type Research paper

1. Introduction

Organizations are increasingly expected to adopt sustainable practices to mitigate rising environmental, social, and economic concerns (Batista *et al.*, 2023; Velázquez Martínez and Arnold, 2024). At the heart of this transformation lies sustainable procurement, a key lever for achieving sustainability goals through responsible sourcing practices (Johnsen *et al.*, 2022). Procurement professionals—who serve as the gatekeepers between organizations and their suppliers—play a pivotal role in embedding sustainability into procurement processes (Brammer and Walker, 2011). Yet, despite its recognized importance, sustainable procurement remains inconsistently implemented across industries (Velázquez Martínez and Arnold, 2024). This inconsistency raises a critical question: What drives sustainable procurement?

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Existing research has made significant progress in identifying organizational-level antecedents of sustainable procurement. Studies grounded in macro-level frameworks such as institutional theory, stakeholder theory, and the natural resource-based view have shed light on how organizations respond to external pressures and sustainability imperatives (Choudhary and Sangwan, 2022; Huang *et al.*, 2022; Yadav *et al.*, 2023). However, these studies often overlook the individual-level antecedents that influence sustainable procurement. Procurement professionals, tasked with translating sustainability strategies into actionable decisions, operate within complex environments where cost pressures, operational efficiency, and quality targets often compete with sustainability priorities (Kannan, 2021). As Hinterhuber and Liozu (2017) aptly note, “organizations do not act—individuals do.” Therefore, understanding the attitudes, motivations, and perceptions of procurement professionals is essential for uncovering the micro-foundations of sustainable procurement (Abell *et al.*, 2008; Zhao and He, 2022).

To address this gap, the Theory of Planned Behavior (TPB), developed by Ajzen (1991), offers a robust framework for examining individual-level antecedents of behavior. The TPB posits that behavioral intention—the strongest predictor of actual behavior—is shaped by three key factors: (1) attitudes toward the behavior, which reflect positive or negative evaluations; (2) subjective norms, or perceived social pressures to perform the behavior; and (3) perceived behavioral control, which represents an individual’s belief in their ability to perform the behavior (Ajzen, 1991; Sheeran, 2002). The TPB has been widely applied to predict pro-environmental behaviors including recycling, energy conservation, and green purchasing (Bamberg and Möser, 2007; Yuriev *et al.*, 2020). However, despite its external validity, most applications of the TPB focus on private contexts rather than professional or organizational settings (Shou *et al.*, 2023). We contend that it is worthwhile to explore the applicability of this theory to the context of organizational procurement, specifically examining sustainable procurement practices. This is thus the gap that we address.

While the TPB provides a strong foundation for understanding behavioral intention, extending the framework with context-specific variables can enhance its explanatory power. For example, awareness of consequences—defined as an individual’s understanding of the environmental, social, and economic impacts of their decisions—has been shown to significantly influence pro-environmental behaviors (Kollmuss and Agyeman, 2002). Similarly, perceived corporate social responsibility (CSR) engagement—an individual’s perception of how strongly their organization prioritizes sustainability—can foster an enabling environment that strengthens procurement professionals’ willingness to act sustainably (Foerstl *et al.*, 2021). Integrating these constructs into the TPB framework allows for a more comprehensive understanding of the behavioral and contextual drivers of sustainable procurement.

The present study seeks to address the gap in the literature by applying an extended TPB framework to investigate the antecedents of sustainable procurement among procurement professionals. Specifically, the study examines how attitudes, subjective norms, perceived behavioral control, awareness of consequences, and perceived CSR engagement influence procurement professionals’ willingness to pay for sustainability and their subsequent sustainable purchasing behavior. This focus on procurement professionals is particularly relevant because their decisions are instrumental in implementing organizational sustainability strategies and fostering change throughout supply chains. By uncovering the behavioral mechanisms that drive these decisions, this study contributes to a deeper understanding of the micro-foundations of sustainability in supply chain management (Arcidiacono *et al.*, 2023; Roscoe *et al.*, 2019).

Using partial least squares structural equation modeling (PLS-SEM) and analyzing a sample of 465 procurement professionals, the present study finds that behavioral intention toward sustainability—measured through willingness to pay for sustainability—strongly correlates with actual sustainable purchasing behavior. Importantly, behavioral intention is significantly influenced by individual attitudes, perceived behavioral control, awareness of

consequences, and perceived CSR engagement, while subjective norms – the perceived social pressure from significant others – have no effect.

The study makes three key contributions to sustainable procurement literature. First, it shifts the focus from macro-level antecedents to individual-level antecedents, addressing the underexplored role of procurement professionals' attitudes, perceived norms, and capabilities in shaping sustainable procurement behaviors. Second, it extends the application of the TPB to professional procurement settings, providing empirical evidence of its validity and relevance in operations and supply chain management (Yuriev *et al.*, 2020). Third, by integrating awareness of consequences and perceived CSR engagement into the TPB framework, the study offers a more nuanced understanding of how behavioral and contextual factors interact to influence sustainable procurement decisions (Walker *et al.*, 2012).

2. Theoretical framework

Sustainable procurement refers to sourcing decisions made to enhance performance across social, economic, and environmental dimensions (Carter and Rogers, 2008). The rich literature exploring why individuals and organizations adopt sustainable choices in purchase decisions lacks a unifying framework: "The question of what shapes pro-environmental behavior is such a complex one that it cannot be visualized through one single framework . . . developing a model that tries to incorporate all factors might neither be feasible nor useful" (Kollmuss and Agyeman, 2002, p. 239). This view is shared: "a general theory [of pro-environmental behavior] lies far in the distance" (Stern, 2000, p. 421). We first highlight some theoretical frameworks that may be used to investigate this topic and then present our hypotheses in light of the chosen theoretical framework.

Recent literature reviews indicate that the most widely used frameworks for examining sustainable procurement are the natural-resource-based view, stakeholder theory, and institutional theory (Choudhary and Sangwan, 2022; Huang *et al.*, 2022; Yadav *et al.*, 2023). The natural-resource-based view posits that firms achieve success by integrating environmental considerations into their planning and operations, thereby leveraging natural resources for sustained profitability (Hart, 1995). Stakeholder theory emphasizes the importance of considering the interests of all stakeholders in the strategic decision-making process (Freeman, 1984). Institutional theory argues that external pressure – norms, rules, competitive dynamics – shapes firm strategy and operations (DiMaggio and Powell, 1983).

However, these theoretical frameworks do not explicitly account for individual behaviors. The natural-resource-based view, employing mostly firm-level constructs, falls short in addressing the granular mechanisms through which individual behaviors influence organizational outcomes, stakeholder theory is more qualitative and lacks precise behavioral predictions, and institutional theory focuses on organizational conformity, missing direct insights into personal motivations and actions. The TPB complements these frameworks by focusing on individual decision-making processes and providing measurable constructs—attitudes, norms, and perceived control—that predict specific behaviors (Yuriev *et al.*, 2020). As organizations depend on individuals to implement strategies, understanding micro-level behaviors is essential for explaining macro-level outcomes.

The TPB posits that intention—shaped by attitudes, subjective norms, and perceived behavioral control—leads to behavior (Ajzen, 1991, 2011). Attitudes reflect the evaluation of the behavior, subjective norms refer to perceived social pressure, and perceived behavioral control represents the perceived ability to perform the behavior. By incorporating these constructs, the TPB provides a robust framework for understanding why procurement professionals engage in sustainable procurement.

Critics may now argue that the TPB, in contrast to theories commonly used in operations management (Huang *et al.*, 2022; Johnsen *et al.*, 2017; Khizar *et al.*, 2022; Zorzini *et al.*, 2015), takes an individual-level perspective ill-suited to investigate complex organizational phenomena. The TPB is an individual-level framework – true. We argue that understanding

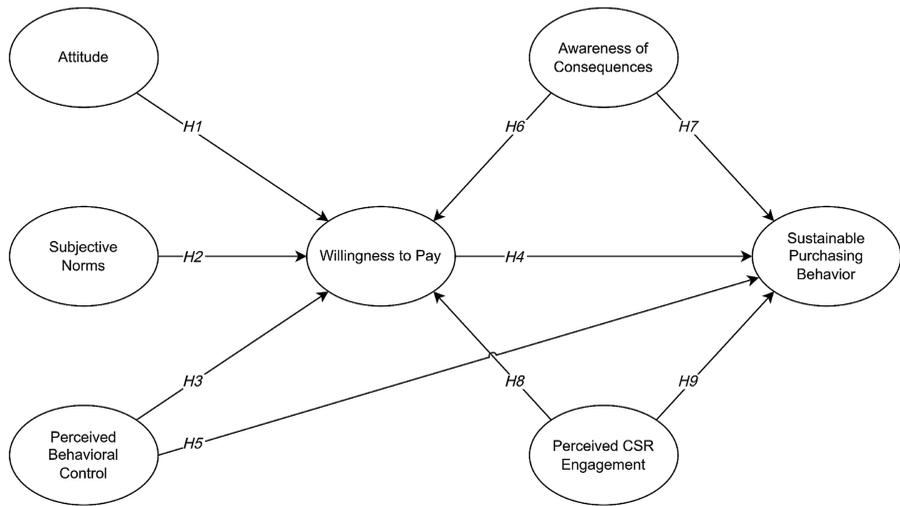
individual actions is essential to understanding outcomes at the organizational level. [Abell et al. \(2008, p. 492\)](#) emphasize that “strategic management should fundamentally be concerned about how intentional human action and interaction causally produce strategic phenomena.” The TPB aligns well with this perspective, offering a lens to investigate how individual-level decisions collectively influence organizational outcomes. The emerging research stream on microfoundations – defined as underlying individual-level behaviors, beliefs, and perceptions within companies that collectively influence organizational outcomes ([Zhao and He, 2022](#)) – is, after all, also starting to gain substantial traction in operations and supply chain management ([Arcidiacono et al., 2023](#); [Roscoe et al., 2019](#)).

Other studies also consider individual-level variables: A recent study exploring procurement’s role as a driver of organizational innovation applies the awareness-motivation-capability framework, which primarily focuses on the individual level ([Constant and Johnsen, 2024](#)). [Durach et al. \(2024\)](#) analyze the decision frames of individual procurement managers in financially distressed firms. Finally, [Zhang et al. \(2024\)](#) find that individual cultural values are a moderator between normative pressure and socially sustainable supply chain management. In brief: analysis at the individual level is fruitful for research about organizational decision-making.

The TPB has been infrequently applied in operations management, yet existing studies demonstrate its potential: [Arellano et al. \(2021\)](#) interview operations managers in multinational companies on antecedents of the adoption of new operations management practices. They report that commitment to new practice adoption is the result of beliefs related to efficacy, legitimacy, and normative pressures, thus supporting core tenets of the TPB. Similarly, [Miller et al. \(2018\)](#) examine ISO 9000 certification adoption in Chinese companies and find that core tenets of the model hold – with some creative adjustments for attitudes, norms, and perceived behavioral control. Importantly, they conclude that “firms that lack intention don’t obtain global certification” ([Miller et al., 2018, p. 971](#)). [Foerstl et al. \(2021\)](#) examine 145 production insourcing decisions and find that individual attitudes and social pressure – but not perceived behavioral control – drive intentions, which in turn lead to actual insourcing behavior, thus again documenting the theory’s external validity. Finally, [Shou et al. \(2023\)](#) examine one core element of the TPB – norms – omitting individual attitudes and perceived behavioral control and find that subjective norms lead to green innovations, thus empirically confirming a reduced form of the model. What we do not know yet is whether TPB offers insights also into the implementation of sustainable procurement in companies.

As we are interested in testing the TPB in the context of sustainable procurement, the two main elements of this theory – behavioral intention and actual subsequent behavior – are worth clarifying. The operations management literature is confirming, with an adaptation, marketing’s claim that “all of marketing comes to focus in the pricing decision” ([Corey, 1983, p. 93](#)), finding that the ultimate litmus test of sustainable procurement is procurement managers’ willingness to pay more for sustainability ([Khan and Hinterhuber, 2024](#)). One could thus argue that in operations management, all of sustainability comes to focus in procurement professionals’ willingness to pay for sustainability. Since willingness to pay is an indicator of intent – one that is, according to an important meta-analysis, highly correlated with auction prices indicating actual willingness to pay ([Schmidt and Bijmolt, 2020](#)) – and since sustainable procurement is the actual behavior, the two key variables are willingness to pay (WTP) and sustainable purchasing behavior (see [Figure 1](#)).

According to the TPB, attitude toward a behavior refers to the degree to which a person has a favorable or unfavorable evaluation of the behavior ([Ajzen, 1991](#)). Several studies report that the attitudes of managers positively influence their intention toward sustainability ([Cordano and Frieze, 2000](#); [Khan et al., 2022](#)). Similarly, a study with operations managers finds that managerial beliefs influence the intention to adopt new operational practices ([Arellano et al., 2021](#)). The idea that attitude influences behavioral intention fits well within the context of sustainable procurement: managerial attitudes about sustainable procurement are bound to vary (from unfavorable to favorable), yet its benefits have been documented extensively



Source(s): Authors' own creation

Figure 1. Research model

(Yadav et al., 2023). We propose that subjective managerial judgment and evaluation precede behavioral intentions concerning sustainability in procurement: the more favorable the individual attitude toward sustainable procurement, the higher the corresponding behavioral intention. Formally:

H1. Attitudes of procurement professionals positively influence their WTP.

Subjective norms reflect the perceived social pressure to perform a given behavior: “Normative beliefs are concerned with the likelihood that important referent individuals or groups approve or disapprove of performing a given behavior” (Ajzen, 1991, p. 195). The influence of subjective norms is quantified by multiplying the degree of approval or disapproval “by important others” with the motivation to comply (Ajzen, 1991, p. 195). Extant research indicates that subjective norms perceived by managers positively influence their intention toward sustainability (Cordano and Frieze, 2000; Khan et al., 2022). Similarly, the literature on sustainable supply chains provides evidence that subjective norms – the perceived external pressure toward sustainability – influence managers to act: subjective norms related to sustainability lead to more green innovations in supply chains (Shou et al., 2023). In turn, external pressure related to environmental responsibility increases pro-environmental behavior in SMEs (Zhao and He, 2022). We propose that subjective norms related to sustainable procurement influence the corresponding behavioral intention. Formally:

H2. Subjective norms perceived by procurement professionals positively influence their WTP.

The “perceived behavioral control refers to people’s perception of the ease or difficulty of performing the behavior” (Ajzen, 1991, p. 183). According to the TPB, the notion of perceived behavioral control reflects self-efficacy, the perceived confidence to perform the behavior, and is a function of perceived opportunities and resources (Ajzen, 1991). The absence of opportunities to purchase sustainable products is one important reason why actual purchase behavior differs from intent (ElHaffar et al., 2020). We contend that managers who indicate a high belief in their motivation, ability, and opportunity to procure sustainable products are more likely to exhibit the corresponding behavioral intention. Formally:

H3. Perceived behavioral control of procurement professionals positively influences their WTP.

Behavioral intentions precede the actual behavior. Based on a recent study (Khan and Hinterhuber, 2024), we argue that the higher the behavioral intention – that is, procurement professionals’ willingness to pay for sustainability – the higher the likelihood of sustainable purchasing behavior. Procurement professionals who are willing to pay for sustainability are better positioned to drive change within their companies, fostering a culture of environmental responsibility and ethical sourcing practices (Khan and Hinterhuber, 2024). Formally:

H4. WTP of procurement professionals positively influences sustainable purchasing behavior.

The TPB argues that behavioral intention leads to actual behavior if the behavior in question is under volitional control (Ajzen, 1991). Stated differently, actual behavior is the result of motivation (behavioral intention) and ability (perceived behavioral control). The higher this perceived ability to act, the more likely the behavior. Formally:

H5. Perceived behavioral control of procurement professionals positively influences sustainable purchasing behavior.

Ajzen (1991, p. 199) states that “the theory of planned behavior, is, in principle, open to the inclusion of additional predictors.” The scholar credited with developing the TPB thus allows model extension considering the context or objective of the research. Our interest in examining sustainability-related organizational practices requires the inclusion of additional variables.

Increasing the sustainability of companies and their procurement functions has obvious parallels to the “tragedy of the commons,” masterfully illustrated with the example of over-grazing and the intuition that the individual pursuit of self-interest leads to the depletion of common resources, thus damaging all (Hardin, 1968, p. 1243). Hardin (1968) indicates that education can counteract the tragedy. Subsequent empirical work confirms the intuition. The literature includes awareness of consequences as an important element in fostering pro-environmental behavior (Kollmuss and Agyeman, 2002). A meta-analysis of 38 studies on individual pro-environmental behavior finds that feedback on consequences is a highly effective intervention, especially when given regularly (Abrahamse *et al.*, 2005). Therefore:

H6. Awareness of consequences in procurement professionals positively influences their WTP.

H7. Awareness of consequences in procurement professionals positively influences sustainable purchasing behavior.

The organizational context influences individuals (Huang *et al.*, 2022). Since our focus is sustainable procurement, CSR initiatives are the relevant contextual influence. CSR encompasses a range of organizational activities and practices aimed at integrating social and environmental concerns into business operations and interactions with stakeholders (Huang *et al.*, 2022). CSR initiatives influence also how procurement professionals make their day-to-day decisions (Khizar *et al.*, 2022); they extend beyond mere compliance with legal regulations and involve proactive efforts to address social, environmental, and ethical issues. This company-wide commitment to address these issues leads to an increased willingness to pay for sustainability among procurement professionals. Formally:

H8. Perceived CSR engagement positively influences the WTP of procurement professionals.

Finally, CSR engagement positively influences sustainable purchasing behavior by fostering trust and credibility between buyers and suppliers (Huang *et al.*, 2022): when companies demonstrate a commitment to CSR through transparent and accountable practices, they

enhance their reputation as socially responsible entities, which in turn encourages buyers to prioritize sustainable purchasing decisions. Formally:

H9. Perceived CSR engagement positively influences sustainable purchasing behavior.

3. Methodology

3.1 Data collection

The European Union has implemented various policies to promote sustainable procurement as part of its commitment to sustainable development. Additionally, it has standardized eco-labels to reduce the risk of greenwashing (Calisto Friant *et al.*, 2021). Consequently, selecting a sample of procurement professionals from EU countries provides a logical and contextually relevant basis for testing our hypotheses.

Researchers acknowledge that approaching key informants such as procurement professionals is challenging (Montabon *et al.*, 2018). We therefore collect data from key informants in late 2023 with the help of a commercial online panel provider, Cint. Although several online panel providers exist, we choose Cint for quality and cost per completed response. Researchers specifically recommend online panel providers when the data collected is sensitive (Porter *et al.*, 2019). Questions regarding procurement are sensitive due to their potential impact on the company and decision-makers themselves (Christian, 1959). In addition, a recent meta-analysis indicates the convergence between online panel data and conventionally sourced data, concluding that online panel data are “suitable” for exploratory research questions (Walter *et al.*, 2019, p. 425). Taken together, these studies indicate that the use of an online panel provider is appropriate in the context of research focused on procurement professionals.

We employ stringent *a priori* criteria for participant exclusion to ensure data quality. The first question is a filter question asking respondents about their roles. Respondents who indicate that they are not procurement professionals working in an EU country are prevented from participating. We next embed two specific questions in different sections of the online survey to assess whether respondents are paying attention. Respondents who fail these attention checks are excluded. We are able to retain 465 responses for the final analysis. This sample size is sufficient to test the hypotheses.

The sample is diverse in terms of both individual and organizational characteristics. It includes procurement professionals from Belgium, France, Germany, Italy, Netherlands, Spain, and Sweden, representing mostly medium-sized companies and a wide variety of European industries, including industrials, healthcare, and IT. Respondents are experienced – about 70% report more than 5 years of work experience (see Table 1).

3.2 Non-response bias, common method bias, and hypothetical bias

Non-response bias, stemming from significant disparities between participants and eligible nonparticipants, is a threat to validity (Hulland *et al.*, 2018). We compare early and late responses (Armstrong and Overton, 1977) since late respondents are proxies for nonparticipants (Sturm *et al.*, 2023). We divide the sample into two groups and then randomly select indicators from each construct. We compare demographic variables (age, education, and work experience) using the Mann–Whitney U-test (Blome *et al.*, 2014). This test does not show any significant difference between early and late responses ($p < 0.05$). Thus, non-response bias does not appear to be present.

Scholars recommend that the data should not be simultaneously collected for both exogenous and endogenous constructs from a single respondent (Podsakoff *et al.*, 2003). Yet, given the nature of operations management research, relying on a single respondent is often the only practical choice (Montabon *et al.*, 2018). We take the recommended procedural measures: use concise language, employ reliable measures, ensure respondent anonymity, and apply

Table 1. Sample description

Characteristics	Description	Frequency	Percentage (%)
Respondent location	Belgium	58	12.47
	France	57	12.26
	Germany	74	15.91
	Italy	52	11.18
	Netherlands	78	16.77
	Spain	66	14.19
	Sweden	76	16.34
	Others	4	0.86
Respondent age	Below 20 years	4	0.86
	21–30 years	101	21.72
	31–40 years	166	35.70
	41–50 years	123	26.45
	Above 50 years	71	15.27
Respondent education	High School	74	15.91
	Graduate	133	28.60
	Postgraduate	215	46.24
	Doctorate	38	8.17
	Others	5	1.08
Respondent work experience	Less than 2 years	51	10.97
	2–5 years	98	21.08
	5–10 years	148	31.83
	10–20 years	112	24.09
	More than 20 years	56	12.04
Company sector	Energy	17	3.66
	Materials	31	6.67
	Industrials	88	18.92
	Consumer Discretionary	12	2.58
	Consumer Staples	19	4.09
	Healthcare	63	13.55
	Financials	43	9.25
	Information Technology	52	11.18
	Communication Services	18	3.87
	Utilities	32	6.88
	Real Estate	16	3.44
Company size	Others	74	15.91
	1–9 employees	73	15.70
	10–49 employees	96	20.65
	50–249 employees	98	21.08
	250–999 employees	103	22.15
	1,000–4,999 employees	56	12.04
	More than 5,000 employees	39	8.39
Company annual revenue	Less than 2 million euro	111	23.87
	2–10 million euro	89	19.14
	10–50 million euro	68	14.62
	50–250 million euro	73	15.70
	250–500 million euro	44	9.46
	500–1,000 million euro	22	4.73
	1,000–2,000 million euro	22	4.73
	2,000–5,000 million euro	13	2.80
More than 5,000 million euro	23	4.95	

Source(s): Authors' own creation

temporal separation by placing measures of endogenous and exogenous constructs in different sections of the survey (Hulland *et al.*, 2018; MacKenzie and Podsakoff, 2012; Podsakoff *et al.*, 2003). The use of a qualified and paid panel additionally reduces the likelihood of bias

(MacKenzie and Podsakoff, 2012). Furthermore, a meta-analysis finds that the average reliability of single respondents is “adequate,” with substantially higher reliabilities reported for respondents from SMEs (Homburg *et al.*, 2012, p. 605). Since respondents mainly work for SMEs, we anticipate a relatively high level of response accuracy, which helps to reduce bias.

As a statistical remedy, we perform the full collinearity test (Kock and Lynn, 2012). The test suggests that if VIF values of constructs are greater than 3.3, then common method bias may exist. Otherwise, potential common method bias can be ruled out (Kock, 2015). The VIF values of all constructs are below 3.3 in both scenarios, that is, with and without the inclusion of a random variable (see Table A1). In sum, the procedural and statistical remedies rule out common method bias.

Hypothetical bias refers to “the deviation in a predefined aggregate or disaggregate measure due to choice data being collected in a hypothetical setting instead of a more realistic (but not necessarily naturalistic) setting” (Haghani *et al.*, 2021, p. 3). The literature highlights several methods to mitigate hypothetical bias, but “cheap talk” is more frequently used and “has generally proven successful” (Haghani *et al.*, 2021, p. 10). We therefore include a cheap talk script in the online survey adapted from Fifer *et al.* (2014), reminding respondents to answer all questions as if real money is at stake and their answers can affect real-life policy decisions.

3.3 Constructs and measures

All scales and constructs are taken from prior studies with minor adaptations to the context of the present study.

Attitude (ATT): 4-item scale adapted from Ajzen and Driver (1992) and López-Mosquera *et al.* (2014). The scale measures individual inclinations to invest in sustainability objectives, reflecting beliefs in the benefits associated with these investments.

Subjective Norms (SN): 3-item scale adapted from López-Mosquera *et al.* (2014). The scale measures respondents’ conformity to social influences regarding paying a premium for sustainability, reflecting their tendency to prioritize sustainability based on the perceived expectations of individuals they consider important.

Perceived Behavioral Control (PBC): 3-item scale adapted from Ajzen and Driver (1992) and López-Mosquera *et al.* (2014). Based on the MAO (motivation, ability, opportunity) framework (Petty and Cacioppo, 1986), the scale measures the perceived ability, opportunity, and resources to invest to meet sustainability objectives.

Awareness of Consequences (AC): 4-item scale adapted from Han (2020) and Zhang *et al.* (2013). The scale measures respondent environmental awareness, recognition of the negative impacts of unsustainable consumption, and belief in the effectiveness of purchasing sustainable alternatives to mitigate environmental damage.

Perceived CSR Engagement (CSR): 8-item scale from Habel *et al.* (2016). The scale measures how employees view their company’s commitment to sustainability, social responsibility, and community engagement. It measures whether the company prioritizes eco-friendly practices, responsible environmental behavior, charitable giving, support for employees, and involvement in local projects, thus indicating a genuine concern for environmental and social issues, based on employee perceptions.

Willingness to Pay (WTP): 3-item scale adapted from Habel *et al.* (2016). The scale measures whether respondents prioritize sustainability and value it over lower prices when making purchasing decisions.

Sustainable Purchasing Behavior (SPB): 7-item scale adapted from Jaiswal and Kant (2018) and Kim and Choi (2005). The scale measures the actual frequency of engaging in environmentally conscious procurement behavior.

3.4 Data analysis

We analyze the collected data by employing PLS-SEM in SmartPLS 4 (Ringle *et al.*, 2024). We employ PLS-SEM instead of CB-SEM since the present study, by extending the original

TPB model, focuses on predicting how factors like willingness to pay and perceived CSR engagement influence sustainable purchasing behavior. The literature recommends PLS-SEM over CB-SEM when the research involves testing a model from a prediction perspective and/or extending an established theoretical model, in addition to requiring latent variable scores for follow-up analyses (Hair *et al.*, 2022, p. 22). Researchers describe that models encompassing multiple latent variables, numerous indicators, and mediating relationships are inherently complex and these complexities can make parameter estimation and interpretation more challenging, thus necessitating PLS-SEM (Chin, 2010; Hair *et al.*, 2022; Sarstedt *et al.*, 2020). Previous studies, having situations like extending theoretical frameworks and/or involving complex models or mediating relationships, have employed PLS-SEM (Akter *et al.*, 2021; Chand *et al.*, 2022; Khan and Hinterhuber, 2024). In summary, PLS-SEM is a robust statistical technique that has been widely utilized in management research, including studies in operations management (Bayonne *et al.*, 2020).

A PLS-SEM model is fundamentally a composite of two parts, a measurement model and a structural model, and therefore it is interpreted in two steps (Chin, 2010). Accordingly, we first assess the measurement model by executing the PLS algorithm with the default settings of the software and then assess the structural model by using the bootstrapping function with 10,000 subsamples. We strictly follow prescribed rules and guidelines while carrying out measurement model and structural model assessments (Hair *et al.*, 2019).

4. Results

4.1 Measurement model

The literature suggests measurement model assessment in terms of item loadings, Cronbach's alpha, composite reliability (CR), average variance extracted (AVE), and discriminant validity (Hair *et al.*, 2019). Ideally, item loadings are supposed to be above 0.708. However, items having loading values below 0.708 should not be removed from the model if the AVE of their respective construct is above 0.500 (Hair *et al.*, 2012). We find that item loadings range between 0.651 and 0.895, while the AVE values of all constructs range between 0.527 and 0.787 (see Table 2).

Ideally, Cronbach's alpha and CR values of constructs are supposed to be above 0.700 (Hair *et al.*, 2011). We find that Cronbach's alpha values ranged between 0.834 and 0.887, while the CR values of all constructs ranged between 0.886 and 0.917 (see Table 2). The literature indicates three approaches – cross-loadings, the Fornell-Larcker criterion, and the HTMT criterion – to test discriminant validity. HTMT is the method of choice (Hair *et al.*, 2019). We use all three approaches and report results only for HTMT for brevity (see Table 3). The discriminant validity is within the recommended values.

4.2 Structural model

The literature suggests structural model assessment in terms of multicollinearity, predictive power, predictive relevancy, and model fit indices (Hair *et al.*, 2019). We find no multicollinearity issue since the VIF values of constructs are below 3.3 (Hair *et al.*, 2019). The R^2 values depict the predictive power of a model. To draw comparisons, the standard R^2 values 0.250, 0.500, and 0.750 are taken into account which respectively depict weak, moderate, and substantial predictive powers (Hair *et al.*, 2019). We find that the R^2 values for SPB and WTP are respectively 0.571 and 0.638. The Q^2 values depict the predictive relevance of a model. To draw comparisons, the Q^2 values greater than 0.000, 0.250, and 0.500 are taken as reference values which respectively imply small, medium, and large predictive relevance (Hair *et al.*, 2019). We find that the Q^2 values for SPB and WTP were respectively 0.510 and 0.625 and that the SRMR value was 0.067 (Hair *et al.*, 2017).

Finally, we assess our proposed hypotheses as well as potential mediation relationships. The latter is assessed by following the given procedure (Hair *et al.*, 2017, p. 233; Nitzl *et al.*,

Table 2. Measurement model assessment

Constructs	Item code	Items	Loadings	Cronbach's alpha	CR	AVE
Attitude (ATT)	ATT1	I think paying a premium to achieve sustainability objectives is sensible	0.840	0.866	0.909	0.714
	ATT2	I think paying a premium to achieve sustainability objectives is responsible	0.835			
	ATT3	I think paying a premium to achieve sustainability objectives is beneficial	0.866			
	ATT4	I think paying a premium to achieve sustainability objectives is satisfying	0.839			
Subjective Norms (SN)	SN1	The people who are important to me think that one should pay a premium for sustainability objectives	0.843	0.834	0.901	0.752
	SN2	The people who are important to me expect that I will pay a premium for sustainability objectives	0.895			
	SN3	The people whose opinions I value would pay a premium for sustainability objectives	0.862			
Perceived Behavioral Control (PBC)	PBC1	For me to pay a premium for sustainability objectives is easy	0.874	0.847	0.907	0.766
	PBC2	I have opportunities to pay a premium for sustainability objectives	0.876			
	PBC3	I have the resources required to pay a premium for sustainability objectives	0.874			
Awareness of Consequences (AC)	AC1	Consumption of unsustainable products causes the exhaustion of natural resources	0.848	0.857	0.903	0.700
	AC2	Consumption of unsustainable products contributes to global warming	0.843			
	AC3	I am aware of the environmental impacts of purchasing unsustainable products	0.816			
	AC4	Purchasing sustainable products instead of unsustainable products would help minimize the environmental impacts	0.840			
Perceived Corporate Social Responsibility Engagement (CSR)	CSR1	My company values ecological sustainability	0.776	0.887	0.909	0.556
	CSR2	My company acts in a responsible way regarding the environment	0.791			
	CSR3	My company donates parts of its earnings to charity on a regular basis	0.689			
	CSR4	My company donates money to people in need	0.651			
	CSR5	My company treats employees in a socially responsible way	0.749			
	CSR6	My company cares for its employees beyond the regulatory framework	0.735			
	CSR7	My company engages in local community support projects	0.778			
	CSR8	My company cares for the people in the communities in which it operates	0.786			

(continued)

Table 2. Continued

Constructs	Item code	Items	Loadings	Cronbach's alpha	CR	AVE
Willingness to Pay (WTP)	WTP1	I am willing to pay a higher price for a sustainable product than its counterpart unsustainable product	0.884	0.865	0.917	0.787
	WTP2	I would like to keep buying a sustainable product, even if its counterpart unsustainable products are cheaper	0.885			
	WTP3	For the advantages I have buying a sustainable product, I would be willing to pay a higher price	0.892			
Sustainable Purchasing Behavior (SPB)	SPB1	When purchasing a product, I look at the ingredients label to see if it contains environmentally damaging things	0.720	0.850	0.886	0.527
	SPB2	When I have a choice between two equal functionality products, I purchase the one less harmful to other people and the environment	0.708			
	SPB3	I prefer sustainable products over unsustainable products when their product qualities are similar	0.680			
	SPB4	I buy sustainable products even if they are more expensive than unsustainable products	0.741			
	SPB5	I have avoided buying a product because it had potentially harmful environmental effects	0.734			
	SPB6	When purchasing a product, I look if the supplier has obtained environmental certifications	0.763			
	SPB7	I have switched suppliers for sustainability reasons	0.734			

Source(s): Authors' own creation

Table 3. HTMT criterion

	AC	ATT	CSR	PBC	SN	SPB	WTP
AC							
ATT	0.758						
CSR	0.620	0.593					
PBC	0.604	0.826	0.606				
SN	0.640	0.860	0.603	0.814			
SPB	0.686	0.735	0.670	0.656	0.712		
WTP	0.716	0.850	0.665	0.779	0.752	0.823	

Note(s): HTMT <0.90 is a threshold limit for conceptually similar constructs
Source(s): Authors' own creation

2016, p. 1853). This procedure suggests calculating and comparing both direct and indirect paths. If the indirect path is significant but the direct path is insignificant, then full mediation exists (Nitzl *et al.*, 2016, p. 1853). If both indirect and direct paths are significant, then partial mediation exists (Nitzl *et al.*, 2016, p. 1853).

The PLS-SEM analysis reveals that ATT, PBC, AC, and CSR directly influence WTP by respective correlation values of 0.357 ($p < 0.001$), 0.195 ($p < 0.001$), 0.140 ($p < 0.01$), and 0.189 ($p < 0.001$), while SN influences WTP by a correlation value of 0.070 ($p > 0.1$). Hence, H1, H3, H6, and H8 are confirmed but H2 is not (see Table 4). The PLS-SEM analysis further reveals that WTP, AC, and CSR directly influence SPB by respective correlation values of 0.431 ($p < 0.001$), 0.161 ($p < 0.01$), and 0.210 ($p < 0.001$), while PBC influences SPB by a correlation value of 0.081 ($p > 0.1$). Hence, H4, H7, and H9 are confirmed but H5 is not (see Table 4). However, interestingly, WTP fully mediates the relationship between PBC and SPB by a correlation value of 0.084 ($p < 0.01$). Moreover, WTP partially mediates the relationship between AC and SPB as well as CSR and SPB by respective correlation values of 0.060 and 0.082 (each $p < 0.01$). Overall, these mediating relationships indicate that the WTP of procurement professionals is a key driver of sustainable procurement (Khan and Hinterhuber, 2024).

4.3 Unobserved heterogeneity and endogeneity

Unobserved heterogeneity refers to significant differences in model relationships between groups of data that cannot be attributed to observable characteristics, such as gender, nationality, or age (Sarstedt and Ringle, 2010). It potentially distorts the relationships being studied and leads to incorrect conclusions. Therefore, addressing unobserved heterogeneity is crucial to ensuring the reliability and validity of research findings (Sarstedt *et al.*, 2020). For that, we follow the guidelines (Matthews *et al.*, 2016). First, we repeatedly perform FIMIX-PLS and thereby calculate fit indices from a one-segment solution to an eight-segment solution. The required minimum sample size indicates the range of advisable solutions (Matthews *et al.*, 2016, p. 211). We then mark the minimum values of fit indices. Finally, to test for unobserved heterogeneity, we follow a systematic procedure (Sarstedt *et al.*, 2017, p. 200). Since AIC3 and CAIC do not point to the same number of segments, we choose a six-segment solution based on the highest EN value (see Table A2). None of the solutions, from a six-segment solution to a three-segment solution, fulfill the minimum sample size requirements (see Table A3). The EN value of the two-segment solution is below 0.50. Hence, aggregate data can be used, since unobserved heterogeneity does not appear to be present (Sarstedt *et al.*, 2017, p. 200).

Endogeneity arises when the independent variable is correlated with the error term (Rutz and Watson, 2019). This correlation leads to inconsistent estimates because the coefficient estimate of the affected explanatory variable also includes the influence of unaccounted-for

Table 4. Structural model assessment

No.	Path	Type	Std beta	Std error	<i>t</i> -values	<i>p</i> -values	95% CI LL	95% CI UL	Significance	Remarks
H1	ATT → WTP	Direct	0.357	0.056	6.368***	0.000	0.261	0.446	Yes	Direct Effect
H2	SN → WTP	Direct	0.070	0.051	1.369	0.171	-0.012	0.156	No	No Effect
H3	PBC → WTP	Direct	0.195	0.056	3.496***	0.000	0.103	0.287	Yes	Direct Effect
H4	WTP → SPB	Direct	0.431	0.056	7.676***	0.000	0.336	0.520	Yes	Direct Effect
H5	PBC → SPB	Direct	0.081	0.046	1.747	0.081	0.006	0.156	No	Full Mediation
-	PBC → WTP → SPB	Indirect	0.084	0.026	3.232**	0.001	0.042	0.128	Yes	
H6	AC → WTP	Direct	0.140	0.046	3.038**	0.002	0.064	0.216	Yes	Direct Effect
H7	AC → SPB	Direct	0.161	0.048	3.369**	0.001	0.084	0.240	Yes	Partial Mediation
-	AC → WTP → SPB	Indirect	0.060	0.020	2.936**	0.003	0.027	0.095	Yes	
H8	CSR → WTP	Direct	0.189	0.045	4.247***	0.000	0.119	0.265	Yes	Direct Effect
H9	CSR → SPB	Direct	0.210	0.048	4.347***	0.000	0.131	0.290	Yes	Partial Mediation
-	CSR → WTP → SPB	Indirect	0.082	0.021	3.814***	0.000	0.049	0.119	Yes	

Note(s): ****p* < 0.001, ***p* < 0.01
Source(s): Authors' own creation

variables that partially explain the dependent variable. With endogeneity, the error term is thus not truly random. Sources of endogeneity are omission of variables, simultaneity in causality, and measurement errors (Zaefarian *et al.*, 2017).

There are various approaches to detect potential endogeneity. However, the Gaussian copula approach is recognized as the state-of-the-art approach and is preferred over the instrumental variable approach since the latter is difficult in practice due to its requirements and produces biased results if used with unsuitable variables (Eckert and Hohberger, 2023). “Copula” refers to a function that connects the individual distributions of variables to their joint distribution; Gauss, since it assumes that the marginal distributions of variables follow a normal distribution and that their correlation structure can be described by a multivariate Gaussian distribution (Eckert and Hohberger, 2023). When dealing with endogeneity, the Gaussian copula is very valuable. It offers a way to examine the relationship between the error term and the endogenous regressors, thus helping to address situations where regressors are in fact correlated with the error term.

We first examine the prerequisites of the Gaussian copula approach through the Kolmogorov–Smirnov test with Lilliefors correction. Using the bootstrapping function, we assess the significance of each Gaussian copula that we sequentially add to the model (Sarstedt *et al.*, 2020). We find that no copula is significant across 46 models in total (see Table A4). Hence, endogeneity does not appear to be present (Hult *et al.*, 2018).

5. Discussion

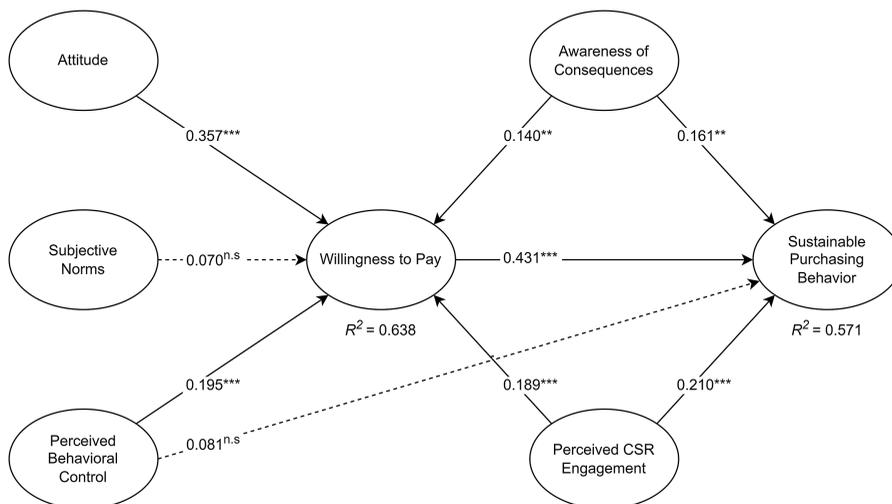
5.1 Summary of findings

We find that attitude and perceived behavioral control, but not subjective norms defined as pressure from individuals’ social circle, significantly influence procurement professionals’ willingness to pay, which in turn leads to sustainable procurement. Furthermore, awareness of consequences and perceived CSR engagement influence procurement professionals’ willingness to pay, which in turn leads to sustainable procurement. The two notable findings – (1) willingness to pay mediates relationships of sustainable purchasing behavior with other constructs and (2) the highest path coefficient is between willingness to pay and sustainable purchasing behavior – suggest that sustainable purchasing behavior is predominantly shaped by the willingness to pay for sustainability (see Figure 2).

When procurement professionals are willing to pay for sustainability, it indicates a commitment to selecting suppliers and products that align with sustainability goals, leading to the adoption of environmentally friendly and socially responsible procurement strategies. This willingness to pay for sustainability thus drives the implementation of initiatives such as green sourcing, supplier diversity, and ethical supply chain management, thereby enhancing the overall sustainability of the procurement function. This willingness to pay is contingent on attitudes, capabilities, awareness of consequences, and company-perceived CSR engagement. Overall, the present study demonstrates that understanding antecedents of individual behavioral intention is beneficial to understanding behavioral outcomes at the organizational level.

5.2 Implications for theory

The present study has several theoretical implications. We contribute to the emerging research stream that adopts the TPB to explore sustainability within organizational contexts (Arellano *et al.*, 2021; Foerstl *et al.*, 2021; Khan, 2023; Miller *et al.*, 2018; Shou *et al.*, 2023). While the TPB has been widely applied to predict individual pro-environmental behavior in the private sphere (e.g. recycling), its application to organizational contexts in operations management is limited (Yuriev *et al.*, 2020). By extending the TPB to an organizational setting, we demonstrate its robustness and applicability to explain the sustainable procurement decisions of professionals. This validates the TPB as a practical framework for understanding



Note(s): *** $p < 0.001$, ** $p < 0.01$, n.s. $p > 0.1$

Source(s): Authors' own creation

Figure 2. Research findings

individual-level behavior in professional environments, where decision-making is shaped by both individual and organizational factors (Khan *et al.*, 2020; Papagiannakis and Lioukas, 2012; Yuriev *et al.*, 2020).

Our findings thus contribute to the debate on the role of individuals in shaping organizational practices (Zhao and He, 2022). The finding that attitudes significantly influence willingness to pay for sustainability, aligns with the TPB's core assertion that attitudes are a primary driver of behavioral intentions (Ajzen, 1991). We extend this understanding by applying it to procurement professionals, demonstrating that positive attitudes toward sustainable procurement are critical in shaping willingness to pay. This result underscores the importance of attitudinal factors within operations management, where decisions are often made under competing organizational priorities. Prior studies have found similar relationships in consumer settings (Bamberg and Möser, 2007); our study illustrates the theoretical relevance of attitudes also in procurement contexts.

The finding that subjective norms do not significantly influence willingness to pay contrasts the finding of Shou *et al.* (2023), who report a significant influence of injunctive and descriptive norms on green innovations. This difference is due to the difference in variable operationalization: Shou *et al.* (2023) operationalize subjective norms as injunctive and descriptive norms stemming from customer and supplier pressure, framed within institutional theory (DiMaggio and Powell, 1983). Our study operationalizes subjective norms as perceived social pressure from other individuals, perceived as important, to pay a premium for sustainability (Ajzen, 1991; López-Mosquera *et al.*, 2014). Our findings indicate that this generic social pressure from important others has no effect on the willingness to pay for procurement professionals. Instead, the influence stemming from organizational values and practices – captured here as perceived CSR engagement – directly impacts both the willingness to pay and actual sustainable purchasing behavior.

Our study demonstrates that perceived behavioral control significantly influences willingness to pay, supporting the TPB's assumption that ability impacts intention (Ajzen, 1991; Sheeran, 2002). Interestingly, we find that the effect of perceived behavioral control on actual sustainable purchasing behavior is fully mediated through willingness to pay. This lack

of a direct effect aligns with findings in prior meta-analyses of the theory, which report that perceived behavioral control contributes only marginally to behavior beyond intention (Armitage and Conner, 2001). These results reaffirm the predictive power of intentions in professional settings and emphasize the importance of willingness to pay as the key driver of sustainable procurement outcomes.

Furthermore, we find that awareness of consequences affects both behavioral intention (WTP) and actual behavior (SPB), corroborating earlier studies that emphasize the role of learning and feedback in stimulating pro-environmental behavior (Stern, 2000). This finding advances the TPB by highlighting the relevance of awareness as an additional predictor that can enhance the explanatory power of the model, particularly in sustainability-focused research. Similarly, the impact of CSR engagement on willingness to pay and behavior aligns with the institutional pressures proposed in institutional theory (DiMaggio and Powell, 1983). By integrating awareness of consequences and CSR engagement into the TPB framework, this study establishes important links between individual-level drivers and organizational influences, contributing to a more comprehensive understanding of sustainable procurement behavior.

While we use the TPB to investigate organizational phenomena, the parallels to prevailing theoretical frameworks are evident: PBC mirrors capabilities in the resource-based view, individual attitudes about sustainability reflect stakeholder theory's considerations of actors beyond shareholders, and subjective norms reflect institutional pressure investigated by institutional theory.

The simplicity and external validity of the TPB make it particularly appealing for operations management research. As noted by Kollmuss and Agyeman (2002, p. 243), the TPB is "useful because of its clarity and simplicity." Additionally, meta-analytic evidence confirms the theory's ability to predict a wide range of behaviors, from physical activity to occupational choice (Sheeran, 2002). The TPB has demonstrated similar predictive power in management disciplines, including entrepreneurial intent (Kautonen *et al.*, 2015), ISO certification (Miller *et al.*, 2018), insourcing (Foerstl *et al.*, 2021), and green innovations (Shou *et al.*, 2023). By extending the theory to sustainable procurement, we position the theory as a robust and versatile tool for understanding behavioral intentions in professional settings.

Notably, the present study finds a path coefficient of 0.431 between WTP and actual behavior (SPB), reinforcing the strength of this relationship within the TPB framework. This data point provides a valuable contribution to future meta-analyses of the TPB in operations management. Meta-analytic approaches have been instrumental in advancing the understanding of fundamental questions in the field, such as sustainable supply chain practices and performance (Yadav *et al.*, 2023), just-in-time manufacturing (Mackelprang and Nair, 2010), and supply chain learning (Chen *et al.*, 2023). However, a meta-analysis examining the application of this theory in operations management has yet to emerge. By contributing empirical data to this evolving field, the present study lays the groundwork for future meta-analyses that could consolidate findings across studies and identify patterns in TPB-based research.

In summary, the present study enhances the theoretical understanding of sustainable procurement by extending the TPB to operations management and demonstrating its predictive validity in professional settings. By integrating individual and organizational factors—such as attitudes, perceived behavioral control, awareness of consequences, and CSR engagement—we provide a comprehensive framework for understanding the behavioral drivers of sustainable procurement. These insights not only contribute to the TPB literature but also strengthen its relevance as a theoretical foundation for addressing sustainability challenges in operations management.

5.3 Implications for practice

The present study highlights four specific levers essential for implementing sustainable procurement in organizations: (1) individual attitudes, (2) individual abilities (PBC), (3) awareness of consequences, and (4) CSR initiatives.

First, senior leaders should work to foster positive individual attitudes toward sustainability, addressing any unfavorable perceptions. Existing research suggests that unfavorable attitudes toward sustainable products often arise from perceptions, frequently unjustified, of reduced product quality, i.e. from the “sustainability liability trap” (Acuti *et al.*, 2022, p. 1939). Managers can address these negative quality inferences by emphasizing traditional performance first and by presenting sustainability as a secondary, additional benefit (Falchi *et al.*, 2022) and by emphasizing sustainability’s long-term advantages (Acuti *et al.*, 2022). Senior leaders can implement communication programs to educate procurement managers about the benefits of sustainable procurement, using case studies that quantify the value of sustainability in terms of price premiums, cost reductions, risk reductions, or strategic partnerships (Hinterhuber, 2024). Internal communication campaigns that consistently emphasize sustainability as a necessity, rather than an optional endeavor, can help reinforce this mindset shift. For example, sustainability updates in company newsletters, workshops, and regular town halls with leadership can institutionalize sustainability as a core organizational value. Since the “purchasing function is not yet sufficiently involved or held accountable for sustainability at most organizations” (Ellram and Tate, 2025, p. 5), CEOs should make sure that the procurement function is in fact accountable for sustainability.

Second, to enhance perceived behavioral control senior leaders should expand supplier networks creating access to sustainable products (ElHaffar *et al.*, 2020), allocate dedicated budgets for sustainability premiums, set organization-wide targets and reward systems to incentivize sustainable behavior, and simplify decision-making processes. Decision-support tools are helpful: supplier sustainability scoring systems, life-cycle assessment tools, total cost of ownership analysis, predictive analytics tools, cost-benefit analysis, or procurement decision trees are examples. Perceived behavioral control is about empowering individuals—capability development via training is one element. Procurement scholars comment that in their discussions with procurement professionals over more than two decades, “most do not have training or knowledge related to climate change” (Ellram and Tate, 2025, p. 4). Senior decision-makers should thus assess and then develop individual capabilities. By aligning processes, resources, and capabilities, senior leaders increase the perceived behavioral control of procurement professionals.

Third, raising awareness of the consequences of environmentally detrimental business practices is essential for aligning procurement decisions with sustainability goals. Organizations can achieve this by incorporating educational workshops and sustainability campaigns into employee development programs. Activities such as carbon footprint audits for procurement practices, simulations that demonstrate environmental impacts, and storytelling initiatives—where employees witness the positive outcomes of sustainability firsthand—can raise awareness effectively. For example, showcasing how procuring sustainable products contributes to resource preservation, carbon emission reduction, and overall environmental improvement can help procurement managers see the broader value of their choices.

Fourth, implementing visible CSR initiatives is very important for creating an enabling environment that reinforces sustainable behaviors. Senior managers should design CSR programs that are relevant and visible to employees. These include: promoting sustainability via sustainability targets, actively reducing emissions over time; obtaining ESG (Environmental Social and Governance) ratings, thus increasing legitimacy vis-à-vis suppliers of sustainable products (Ahmed and Shafiq, 2022); organizing volunteering events, such as tree planting, clean-up drives, or fundraising campaigns for environmental causes; launching community care projects, actively addressing needs of local communities; supporting people in need via charitable contributions. The point is: the perceived CSR engagement is all about specific actions that demonstrate the commitment to social and environmental causes. By implementing CSR initiatives, senior leaders foster a sustainability-oriented culture that supports sustainable procurement.

In short, by changing individual attitudes, developing individual capabilities to act sustainably, increasing awareness, and implementing CSR initiatives, organizations can empower procurement managers to embrace sustainability. These practical steps ensure that

sustainability goals are not merely aspirational but are effectively translated into procurement practices that create meaningful environmental, social, and economic impacts.

5.4 Limitations and future research

The present study has limitations that provide opportunities for further research. One is our regional focus: Although we investigated sustainable procurement using a relatively large sample from several EU countries and relied on the TPB for its widely recognized universal validity, future studies should explore the theory in different cultural contexts.

Another limitation lies in the cross-sectional design of this study, which restricts our ability to infer causal effects between the examined constructs. Longitudinal studies could provide deeper insights into the timeframe between intention and actual behavior in supply chains, allowing researchers to observe how sustainable procurement behaviors evolve over time. Such studies could also identify key factors that influence the persistence or change in procurement professionals' willingness to pay for sustainability.

The present study, like most prior studies, treats the implementation of sustainable procurement practices as practice spanning all product categories. However, extant research suggests that, following Kraljic's seminal matrix (Kraljic, 1983), the benefits of sustainable procurement vary by product category (Dabhilkar *et al.*, 2016). For example, products categorized as strategic or bottleneck items may demand a higher degree of sustainability commitment than those classified as noncritical. Future research could explore whether the intention-to-behavior link identified in the present study varies by product category, providing a more granular understanding of sustainable procurement decisions.

The present study relies on the rational behavior assumption embedded in the TPB framework (Kollmuss and Agyeman, 2002). While rational behavior is often posited in procurement decisions (Corey, 1989), organizations may not always operate under strict rationality. Future research could investigate whether the TPB remains valid in organizational settings where decisions are influenced by behavioral biases, emotions, or bounded rationality. Examining deviations from rational choice principles would offer valuable extensions to the existing theoretical framework.

The use of a commercial panel provider did not allow us to collect multiple responses per company. In addition, recent research suggests that perceived benefits and commitment to new initiatives can vary across hierarchical levels (Januszek *et al.*, 2024). For instance, middle managers, who are often closer to operational realities, may exhibit a stronger intention-behavior link compared to top managers, whose decisions may be shaped by broader strategic considerations. Future studies could examine how sustainable procurement adoption varies across hierarchical levels, providing insights into how organizational structure influences the translation of intention into behavior.

Finally, we assess sustainable purchasing behavior using a multi-dimensional scale that captures self-reported tendencies of procurement professionals to consider environmental impacts in their purchasing decisions. A very thoughtful recent article argues that, with few exceptions, research on greenhouse gas (GHG) emission reduction "is not focused specifically on measurable supply chain GHG reductions, lacks objective measurements" (Ellram and Tate, 2025, p. 6). We acknowledge the significance of this observation and emphasize the need for future research to collect objective, quantifiable data on the tangible environmental outcomes of sustainable procurement practices. It is this research that provides insights on how to make a real and lasting difference to our world.

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Supplementary material

The supplementary material for this article can be found online.

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