Antecedents and consequences of procurement managers' willingness to pay for sustainability: a multi-level perspective

Owais Khan and Andreas Hinterhuber
Venice School of Management, Ca' Foscari University of Venice, Venice, Italy

Received 23 February 2023
Revised 2 November 2023
17 November 2023
13 December 2023
Accepted 19 December 2023

Abstract

Purpose – The role of procurement managers is crucial for diffusing sustainability throughout the supply chain. Whether or not they are willing to pay for sustainability is an important and not yet fully understood question. The authors examine antecedents and consequences of their willingness to pay (WTP) for sustainability.

Design/methodology/approach – The authors develop a multi-level framework to examine the WTP for sustainability in a B2B context. The authors test this multi-level framework with 372 procurement managers from multiple sectors and countries using partial least squares structural equation modeling.

Findings – The authors find that individual values of procurement managers and institutional pressures directly, while ethical organizational culture indirectly influence WTP for sustainability. Functional and cognitive competencies of procurement managers improve the sustainability of procurement, but not WTP for sustainability. Importantly, WTP for sustainability directly influences the performance of the procurement function which in turn is positively associated with increased organizational performance.

Originality/value – The study, examining the interplay between individual, organizational and contextual factors, provides empirical evidence on the pivotal role of procurement managers in diffusing sustainability throughout the supply chain. The findings of the study, on the one hand, contribute to the literature on operations management and sustainability, and on the other hand, guide policy and managerial actions.

Keywords Individual values, Institutional pressures, Organizational performance, PLS-SEM, Resource-based view, Sustainable procurement

Paper type Research paper

1. Introduction

Scholars and practitioners have been increasingly emphasizing the incorporation of sustainability practices into business operations (Schmid and Kutzner, 2021; Sharma, 2020). Sustainability is critically important in the domain of B2B procurement (Huang *et al.*, 2022). B2B transactions, characterized by their large-scale operations and intricate supply chains, magnify the impact of sustainability practices. Within this context, the sheer volume of purchases occurring in B2B environments accentuates the significance of ethical decision-making (Yu *et al.*, 2022).

The authors thank the European Union and the Italian Ministry of University and Research (MUR) for funding this study under the National Operational Programme (PON) on Research and Innovation 2014–2020.

Conflict of interest: The authors declare that they have no conflict of interest.

International Journal of Operations & Production Management
Vol. 44 No. 13, 2024
pp. 1-33
Emerald Publishing Limited
0144-3577
DOI 10.1108/IJOPM-02-2023-0135

Awareness regarding issues associated with the conventional economic model has spurred a rapidly increasing interest from scholars across disciplines (Merli *et al.*, 2018). Consequently, the literature on sustainable consumption and production has made enormous progress over the last decades. Notable in the present literature is the well-documented willingness of consumers to pay premium prices for sustainable products (Tully and Winer, 2014). Furthermore, the extant literature highlights various strategies through which companies can increase their sustainability orientation. These strategies include increasing supply chain transparency (Adhi Santharm and Ramanathan, 2022), emphasizing learning (Sauer *et al.*, 2022), fostering CEO championing (Bendoly *et al.*, 2021; Zhao and He, 2022), and forging collaboration with suppliers (Peng *et al.*, 2022).

Despite enormous progress in literature, important challenges remain. One such challenge is the perceived trade-off between the environment and profits by top and middle managers (Hahn *et al.*, 2010). If sustainability comes at the expense of profitability, an emphasis on profits deemphasizes the pursuit of environmental and social goals – and this is, in fact, what the data on the slow adoption of sustainability seem to indicate (Pagell and Shevchenko, 2014). Second, while individual consumers have demonstrated a willingness to pay (WTP) for sustainable products (Li and Kallas, 2021; Tully and Winer, 2014), their decision-making processes are often clouded by biases and limitations (Ariely, 2008). Factors such as limited rationality and difficulties of detecting greenwashing – a deceptive marketing practice where a company falsely claims its products are environmentally friendly – influence consumers, deviating from the core tenets of sustainability (Belz and Peattie, 2012; Topal *et al.*, 2020).

To truly understand the essence of WTP for sustainability, a paradigm shift is necessary. This shift extends beyond the boundaries of individual consumers to encompass the realm of B2B procurement professionals. These professionals, operating within meticulously designed contexts that minimize biases, can play a "*central*" role in the diffusion of sustainability (Johnsen *et al.*, 2022, p. 1624). Put differently, these professionals, acting as agents of their companies, can navigate a delicate equilibrium between organizational mandates and personal convictions (Yu *et al.*, 2022). Their decisions reverberate through the entire value chain, influencing suppliers, partners, and, ultimately, end consumers. However, despite their central role, empirical studies examining B2B procurement managers' WTP for sustainability remain scarce in the present literature.

Against this backdrop, our study aims to address two questions. First, what are the antecedents of B2B procurement managers' WTP for sustainability? The literature is silent on whether or not B2B procurement managers are willing to pay for sustainable products but clearly indicates that a multi-level framework is necessary to understand sustainability (Khizar *et al.*, 2022). The inherent complexity of B2B procurement activities necessitates an approach that transcends surface-level analysis. A multi-level framework allows us to unravel the intricate web of influences shaping procurement managers' decisions. Second, what are the consequences of the B2B procurement managers' WTP for sustainability? Stated differently, the question is whether paying a price premium for sustainable products leads to an improvement in supply chain and organizational performance.

Investigating performance consequences in the context of sustainability is vitally important – and possible only in B2B. To be clear, purchase decisions about sustainability are made also in B2C, but here consequences regard individual, typically psychological, states such as the "*warm glow*" (i.e., feel-good) effect that Habel *et al.* (2016) document. In B2B, individual choices have organizational consequences, and we can examine if and how the decision to pay a price premium for sustainability affects organizational performance. Studies in this domain are rare. A recent literature review on sustainability in B2B flatly states: "*very limited research on outcomes emerged*" (Sharma, 2020, p. 324). We can speculate on reasons, but it seems that researchers investigating sustainability have paid more attention to the study of antecedents than to the study of consequences, not unlike early RBV

research (Newbert, 2007). Understanding the performance consequences of procurement managers' WTP for sustainability is important since this allows us to illuminate and examine the perceived trade-off between the environment, society, and profits. Summing up, assessing the antecedents and consequences of procurement managers' WTP for sustainability transcends academic curiosity – it stands as a pragmatic necessity.

Our study answers these questions by surveying 372 B2B procurement managers from multiple sectors and countries using partial least squares structural equation modeling (PLS-SEM). The intended contribution of our study is twofold. Our study provides empirical evidence on the pivotal role of procurement managers in corporate sustainability by testing a multi-level framework of contextual, organizational, and individual antecedents of WTP and sustainable procurement. Furthermore, our study provides actionable insights into the significance of sustainable procurement for organizational performance across multiple sectors and countries. Specifically, the data in our study suggests that a trade-off between the environment, society, and profits does not exist. The consequence of paying a price premium for sustainability is, according to the data in our study, an improvement in the performance of the procurement function and an improvement in environmental, financial, and operational performance. From a practical standpoint, our study offers valuable implications for businesses and policymakers.

The remaining parts of our study are structured as follows. In the next section, a theoretical framework is presented which explicates the formulation of our hypotheses. Then in the third section, our research methodology is explained including the steps taken for data collection and analysis. Next, the results of our study are expressed in the fourth section while their implications are discussed in the fifth section. Lastly, conclusions from our study as well as suggestions for further research are provided.

2. Theoretical background and hypotheses

There is increasing research on the antecedents and consequences of sustainability practices (Huang *et al.*, 2022). A systemic review of previous studies indicates that sustainability practices in companies are the result of multiple elements that can be fruitfully grouped into three broad categories: context, organization, and individual (Khizar *et al.*, 2022). The context refers to environmental or institutional factors, organization to characterizing features of the focal company, and individual to traits and dispositions of managerial decision makers, all of which must be analyzed to fully capture the multifaceted nature of sustainability drivers. Our study analyzes pertinent individual, organizational, and contextual factors by formulating hypotheses based on the resource-based view and institutional theory. It is worth mentioning that these two theories have been commonly employed in previous studies on sustainability (Blome *et al.*, 2014; Huang *et al.*, 2022).

The values of an individual can be interpreted as a set of underlying beliefs or norms learned through pragmatism that not just set personal preferences but also guide the course of action to achieve desired objectives (Bonn *et al.*, 2021). Individuals are generally inclined to follow a socially desirable course of action. Individual values toward environmental and social accountability are therefore considered the prime antecedent of green behaviors (van der Werff *et al.*, 2013). Over the years, several studies have demonstrated that individuals with high levels of moral attitudes compared to other individuals not just acknowledge environmental concerns but rather exhibit a strong responsibility to protect the environment irrespective of personal traits like age, gender, income, etc. (Al-Swidi *et al.*, 2021; Mohamed *et al.*, 2014). Simply put, the moral attitudes or environmental self-identity of individuals, whether directly or indirectly, lead to a wide range of positive behaviors, like energy conservation, recycling, green procurement, etc. (van der Werff *et al.*, 2013).

Ku and Zaroff (2014) showed a significant correlation between individual values and WTP to protect the environment. Carter and Jennings (2004) showed a significant correlation between the individual values of employees and sustainability-oriented initiatives introduced by employees. Bonn *et al.* (2021) showed a significant correlation between individual values and green procurement. Hence, we assume that procurement managers who possess positive moral attitudes or consider themselves environmentally friendly persons might be more willing to pay a premium for sustainability and thereby might actualize sustainable procurement. Based on the above discussion, we formulate the following hypotheses.

H1. Individual values of procurement managers positively influence their WTP for sustainability.

H2. Individual values of procurement managers positively influence sustainable procurement.

Competencies are characteristics such as traits, skills, and knowledge that enable an employee (or top and middle manager) to achieve superior performance (Schulze *et al.*, 2019). Individual competencies in the context of supply chain management can be classified into functional and cognitive competencies. The former covers occupational skills and knowledge while the latter refers to social skills and a general understanding of matters (Bonn *et al.*, 2021). Procurement managers can be seen as gatekeepers within a company who require specific competencies and cognitive thinking skills to address complex decisions underlying sustainability challenges. Knowledge about suppliers and experience in procurement may influence their WTP (Goebel *et al.*, 2018). Literature shows that individual competencies are important in formulating effective strategies and managing initiatives. Notably, Galleli *et al.* (2019) highlighted that if a set of peculiar, interconnected, and interdependent individual competencies is developed and utilized in line with organizational competencies then companies may overcome sustainability threats. A recent study showed that green procurement is influenced by the functional competencies of individuals (Bonn *et al.*, 2021). Based on the above discussion, we formulate the following hypotheses.

H3. Individual competencies of procurement managers positively influence their WTP for sustainability.

H4. Individual competencies of procurement managers positively influence sustainable procurement.

Organizational culture is a set of values, established procedures, and shared mental assumptions that guide and monitor the behavior of employees (Carter and Jennings, 2004). Organizational culture could be defined or measured in different ways. However, the behavior of top management is considered an essential element to measure organizational culture (Treviño *et al.*, 1998). The role of top management is very important not just in terms of their responsibility to introduce ethical values in organizational culture but also in terms of their commitment to allocating and deploying required resources for implementing green procurement and green supply chain management (Basana *et al.*, 2022).

Scholars pointed out that organizational culture determines how procurement managers account for environmental and social criteria when selecting suppliers (Goebel *et al.*, 2012). Put differently, organizational culture influences the decision-making of procurement managers. A recent study also showed a significant correlation between organizational culture and green employees' behavior (Al-Swidi *et al.*, 2021). Hence, we may assume a correlation between organizational culture and procurement managers' WTP for sustainability. It is worth mentioning that a procurement manager may select a supplier based on the lowest cost criteria instead of considering environmental and social criteria.

However, this compromise or morally incorrect practice is more likely to happen in such an organizational culture where obedience to authority is emphasized (Goebel *et al.*, 2018).

Carter and Jennings (2004) and Bonn *et al.* (2021) showed a significant correlation between organizational culture and green procurement. More specifically, the behavior of top management has been reported as a significant antecedent of green procurement (Basana *et al.*, 2022; Blome *et al.*, 2014; Bonn *et al.*, 2021; Yen and Yen, 2012). Furthermore, the behavior of top management through green procurement implementation yields improved operational performance (Basana *et al.*, 2022). A recent study showed a direct and significant correlation between organizational culture and environmental performance (Bakhsh Magsi *et al.*, 2018). Based on the above discussion, we formulate the following hypotheses.

H5. Ethical organizational culture positively influences the individual values of procurement managers.

H6. Ethical organizational culture positively influences procurement managers' WTP for sustainability.

H7. Ethical organizational culture positively influences sustainable procurement.

H8. Ethical organizational culture positively influences organizational performance.

Scholars stated that institutional pressures may influence the attitude or posture of top and middle managers such as procurement managers towards sustainability (Ye *et al.*, 2013). Notably, Zhao and He (2022) argued that institutional pressures may influence the personal values or cognition of managers which could enhance their sense of responsibility toward environmental protection. Hence, we may assume a correlation between institutional pressures and WTP for sustainability.

Scholars further argued that institutional pressures, like regulatory requirements, customer expectations, competitors' actions, etc., are the prime factors that cause the introduction of green procurement initiatives in companies (Kauppi and Luzzini, 2022; Yen and Yen, 2012). However, institutional pressures may not necessarily induce the same effect on companies as regulatory and market pressures may vary across business sectors and countries. For instance, Ghosh (2019) investigated green procurement in a developing country context and found insignificant correlations with both regulatory pressure and customer pressure. Other studies reported green procurement has an insignificant correlation with regulatory pressure but a significant correlation with customer pressure (Carter and Jennings, 2004; Yen and Yen, 2012). Nonetheless, many studies generally concluded that institutional pressures not only lead to sustainable procurement but also lead to green supply chain management which is a broader concept than the former one (Lu *et al.*, 2018; Zhu *et al.*, 2013). Based on the above discussion, we formulate the following hypotheses.

H9. Institutional pressures perceived by procurement managers positively influence their WTP for sustainability.

H10. Institutional pressures perceived by procurement managers positively influence sustainable procurement.

An important question in the literature on sustainability orientation is whether investing resources in sustainability initiatives is beneficial for companies (Khizar *et al.*, 2022). Simply put, do sustainability initiatives such as green procurement increase a company's competitiveness or increase merely a company's costs? Scholars and practitioners seem to be divided in this regard: some practitioners argue that companies that engage in green supply chain management or adopt green procurement increase their production costs and thereby diminish their profits, but scholars rebutted such arguments (Ghosh, 2019).

Green procurement minimizes raw materials consumption and creates operational efficiency (Basana *et al.*, 2022). Ghosh (2019) showed a significant correlation between green procurement and organizational performance. Several studies have demonstrated that green procurement leads to improved environmental and financial performance (Lu *et al.*, 2018; Yang *et al.*, 2022; Yook *et al.*, 2018). Zhu *et al.* (2013) reported an insignificant correlation between green supply chain management and financial performance. Likewise, Lee *et al.* (2012) reported an insignificant correlation between green supply chain management and business performance. Nonetheless, a recent meta-analysis concluded a significant correlation between green supply chain management and sustainability performance (Yadav *et al.*, 2023). A potential explanation for these contrasting findings is that green procurement is a multidimensional function whose effects may vary in companies. Furthermore, previous studies have mainly assessed the effect of green procurement in terms of financial performance (Carter *et al.*, 2000). That is, most previous studies did not take into account that the effects of green procurement on companies may not always be direct but rather mediated by other outcomes like operational performance (Song *et al.*, 2017). Several studies have demonstrated that green procurement leads to improved operational performance (Basana *et al.*, 2022; Yang *et al.*, 2022).

Carter and Jennings (2004) argued that top and middle managers who possess environmental values can likely play a key role in introducing initiatives linked to sustainability. Procurement managers compared to other managers are indeed more powerful change agents that can introduce and cultivate sustainability not just in procurement activities but also in other operations. We therefore assume that those companies, whose procurement managers are willing to pay a premium for sustainability, would be more likely to adopt sustainable procurement. And if those procurement managers pay a premium or companies adopt sustainable procurement, then this may consequently improve their organizational performance. Based on the above discussion, we formulate the following hypotheses.

H11. Procurement managers' WTP positively influences sustainable procurement.

H12. Sustainable procurement positively influences organizational performance.

3. Methodology

3.1 Data collection

We designed the survey instrument using Qualtrics and recruited respondents through Cint, a global panel data provider. Respondents in this survey are B2B procurement or supply chain managers. Data collection via panel providers, increasingly adopted in management studies, is especially recommended for research involving potentially sensitive questions (Franklin and Marshall, 2019; Porter *et al.*, 2019). Furthermore, there is no difference between conventionally sourced data and panel data (Walter *et al.*, 2019). We instructed the panel provider to collect responses from about 400 qualified respondents. Consequently, we received 423 responses in June 2022.

We employed stringent *a priori* criteria for participant exclusion to ensure the data quality. Firstly, we embedded two specific questions in different sections of the online survey to assess whether respondents were paying attention. Prior to data analysis, respondents who did not pass attention check questions were excluded (Kostyk *et al.*, 2021). Secondly, responses having missing values were deleted (Hair *et al.*, 2017). Lastly, speedy respondents or straight-lining responses were excluded (Franklin and Marshall, 2019; Kostyk *et al.*, 2021). In short, we were able to retain 372 responses for the final analysis. Based on Cohen's (1992) statistical criteria, this sample size was sufficient to test our proposed hypotheses (Hair *et al.*,

2017, p. 24). The final sample is indeed diverse in terms of both individual and organizational characteristics (see Table 1). We briefly note that our sample includes B2B procurement managers from the USA, the UK, China, India and Germany from mostly large companies representing a wide variety of sectors.

The literature points out that non-response bias, stemming from significant disparities between participants and eligible nonparticipants, can hinder the accurate interpretation of findings (Hulland *et al.*, 2018). A specific non-response bias occurs when some responses are excluded from the sample but "*in certain situations it is perfectly legitimate to exclude cases*"

Characteristics	Description	Frequency	Percentage (%)
Respondent location	Australia	9	2.42
	Canada	23	6.18
	China	60	16.13
	Germany	43	11.56
	India	56	15.05
	Ireland	10	2.69
	The UK	80	21.51
	The USA	91	24.46
Respondent age	Below 20 years	2	0.54
	21–30	83	22.31
	31–40	122	32.80
	41–50	117	31.45
	Above 50 years	48	12.90
Respondent work experience	Less than 2 years	23	6.18
	2–5 years	64	17.20
	5–10 years	167	44.89
	10–20 years	88	23.66
	More than 20 years	30	8.07
Sector classification (GICS)	Energy	17	4.57
	Materials	54	14.52
	Industrials	47	12.63
	Consumer discretionary	6	1.61
	Consumer staples	42	11.29
	Healthcare	23	6.18
	Financials	72	19.36
	Information technology	33	8.87
	Communication services	8	2.15
	Utilities	12	3.23
	Real estate	5	1.34
	Other	53	14.25
Organization size (number of employees)	1–9	4	1.08
	10–49	31	8.33
	50–249	61	16.40
	250–999	73	19.62
	1,000–4,999	132	35.48
	More than 5,000	71	19.09
Organization revenue (annual revenue)	Less than 125 million USD	77	20.70
	125–249 million USD	52	13.98
	250–499 million USD	49	13.17
	500–999 million USD	63	16.93
	1,000–1999 million USD	30	8.07
	2000–3,999 million USD	63	16.93
	Higher than 4,000 million USD	38	10.22

Source(s): Authors' own creation

Table 1.
Sample description

(Hulland *et al.*, 2018, p. 97). To check non-response bias, we compared early and late responses (Armstrong and Overton, 1977). This procedure, which posits late respondents serve as proxies for nonparticipants, is often utilized in empirical studies (Sturm *et al.*, 2023). The final sample was first divided into two groups and then randomly selected indicators from each construct and demographic variables (age and work experience) were compared using the Mann–Whitney U test (Blome *et al.*, 2014). This test did not show any significant difference between early and late responses (at $p < 0.05$). Therefore, non-response bias is not critical in our study.

Scholars point out that if the data is simultaneously collected for both exogenous and endogenous constructs from a single respondent then common method bias may occur (Podsakoff *et al.*, 2003). To mitigate this concern, necessary care was taken in research design and survey operationalization. For instance, we used clear and concise language, employed reliable measures from several studies, ensured the protection of respondent anonymity, and applied a sort of 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 of respondents increases both the motivation and the ability to answer accurately and thus further reduces potential common method bias (MacKenzie and Podsakoff, 2012). Nonetheless, we performed the full collinearity test (Kock and Lynn, 2012). This 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 were below 3.3 in both scenarios, that is, with and without the inclusion of a random variable (see Table 2). Therefore, our study seems to be free from common method bias.

3.2 Constructs and measures

Our research model is a mixed-determinants model, which involves both individual and organizational level constructs (Klein *et al.*, 1994). This approach has been adopted in various studies (Khan *et al.*, 2020, 2022). However, in terms of operationalization, our research model is a hierarchical component model (HCM) that contains first-order and second-order constructs (Sarstedt *et al.*, 2019). Put differently, some constructs were operationalized with their respective sub-constructs. We constructed individual values (IV) as a second-order construct with two sub-constructs namely, environmental self-identity (IV-ES) and moral attitude (IV-MA). We measured IV with eight items adapted from van der Werff *et al.* (2013) and Bonn *et al.* (2021). To do so, the respondents were asked in the online survey to rate on a Likert scale whether they agree or disagree with the given statements. We constructed individual competencies (IC) as a second-order construct with two sub-constructs namely, functional competence (IC-FC) and cognitive competence (IC-CC). We measured IC with eight items adapted from Schulze *et al.* (2019) and Bonn *et al.* (2021). To do so, the respondents were asked in the online survey to rate on a Likert scale whether they agree or disagree with the given statements.

We constructed ethical organizational culture (EC) as a second-order construct with four sub-constructs namely, ethical behavior of top management (EC-BM), code of conduct (EC-CC), obedience to authority (EC-OA), and incentives (EC-IN). We measured EC with fifteen items adapted from Goebel *et al.* (2018). To do so, the respondents were asked in the online survey to rate on a Likert scale whether they agree or disagree with the given statements. We constructed institutional pressures (IP) as a second-order construct with four sub-constructs namely, coercive market pressure (IP-CM), coercive regulatory pressure (IP-CR), normative pressure (IP-NP), and mimetic pressure (IP-MP). We measured IP with eighteen items adapted from Kauppi and Luzzini (2022). To do so, the respondents were asked in the online survey to rate on a Likert scale whether they agree or disagree with the given statements. We

Second-order constructs	First-order constructs	Item code	Items	Loadings	Cronbach's alpha	CR	AVE
Individual values (IV) VIF = 2.027	Environmental self-identity (IV-ES) Weights = 0.658 *t*-Value = 19.401 VIF = 1.934	IV-ES1	Acting environmentally friendly is an important part of who I am	0.824	0.833	0.888	0.666
		IV-ES2	I am the type of person who acts environmentally friendly	0.794			
		IV-ES3	I see myself as an environmentally friendly person	0.825			
		IV-ES4	I would want my family or friends to think of me as someone who is concerned about environmental issues	0.820			
	Moral attitude (IV-MA) Weights = 0.440 *t*-Value = 11.903 VIF = 1.651	IV-MA1	Sustainable procurement makes me feel like I contribute to protecting the environment	0.796	0.828	0.886	0.659
		IV-MA2	Sustainable procurement makes me feel like I am doing the morally correct thing	0.821			
		IV-MA3	Sustainable procurement makes me feel good about myself	0.808			
		IV-MA4	Sustainable procurement makes me feel like I am a responsible person	0.823			
Individual competencies (IC) VIF = 1.871	Functional competence (IC-FC) Weights = 0.581 *t*-Value = 22.249 VIF = 1.502	IC-FC1	I have basic sustainability knowledge	0.629	0.678	0.805	0.510
		IC-FC2	I am skilled at partnering with suppliers	0.715			
		IC-FC3	I clearly understand that my present procurement decisions have an impact on the future	0.776			
		IC-FC4	I have the ability to analyze future scenarios regarding procurement decisions	0.727			
		IC-FC5	*I adopt new and better practices to respond to market changes*	–			
	Cognitive competence (IC-CC) Weights = 0.543 *t*-Value = 20.808 VIF = 1.502	IC-CC1	I solve complex issues when making a procurement decision	0.853	0.606	0.835	0.717
		IC-CC2	I have the ability to think holistically when making a procurement decision	0.840			
		IC-CC3	*I have the ability to think in systems when making a procurement decision*	–			

(*continued*)

Table 2. Measurement model reliability and validity

Second-order constructs	First-order constructs	Item code	Items	Loadings	Cronbach's alpha	CR	AVE
Ethical organizational culture (EC) VIF = 2.838	Ethical behavior of top management (EC-BM) Weights = 0.355 *t*-Value = 9.783 VIF = 2.416	EC-BM1	Top managers in our organization regularly show that they care about ethics	0.838	0.860	0.905	0.704
		EC-BM2	Top managers in our organization guide decision-making in an ethical direction	0.836			
		EC-BM3	Top managers in our organization are models of ethical behavior	0.841			
		EC-BM4	Top managers in our organization represent high ethical standards	0.841			
	Code of conduct (EC-CC) Weights = 0.232 *t*-Value = 7.395 VIF = 1.595	EC-CC1	I am required to acknowledge that I have read and understood the code of conduct	0.769	0.778	0.857	0.601
		EC-CC2	Our organization has established procedures for employees to ask questions about code of conduct requirements	0.776			
		EC-CC3	The code of conduct is widely distributed throughout our organization	0.807			
		EC-CC4	I am regularly required to assert that my actions comply with the code of conduct	0.746			
	Obedience to authority (EC-OA) Weights = 0.273 *t*-Value = 9.818 VIF = 1.370	EC-OA1	Our organization demands obedience to authority	0.761	0.660	0.814	0.593
		EC-OA2	Employees in our organization are expected to do as they are told	0.758			
		EC-OA3	My immediate supervisor is always right in our organization	0.791			
	Incentives (EC-IN) Weights = 0.361 *t*-Value = 10.721 VIF = 2.468	EC-IN1	Our organization addresses unethical behavior when it occurs	0.762	0.785	0.875	0.701
		EC-IN2	*Unethical behavior is discouraged in our organization*	–			
		EC-IN3	People of integrity are rewarded in our organization	0.871			
		EC-IN4	Ethical behavior is rewarded in our organization	0.874			

Table 2.

(*continued*)

Second-order constructs	First-order constructs	Item code	Items	Loadings	Cronbach's alpha	CR	AVE
Institutional pressures (IP) VIF = 2.339	Coercive market pressure (IP-CM) Weights = 0.277 *t*-Value = 11.690 VIF = 2.073	IP-CM1	Our major customers frequently make requests for us to adopt certain practices in our purchasing procedures	0.816	0.798	0.869	0.626
		IP-CM2	Our major customers will withhold their contracts if our organization does not meet their requests to adopt certain practices in our purchasing procedures	0.821			
		IP-CM3	We sometimes have to modify our purchasing practices in response to consumer preferences	0.678			
		IP-CM4	Our major suppliers will withhold their contracts if our organization does not meet their requests to adopt certain practices in our purchasing procedures	0.839			
	Coercive regulatory pressure (IP-CR) Weights = 0.281 *t*-Value = 10.871 VIF = 2.051	IP-CR1	Government regulation impacts our purchasing decision making	0.680	0.735	0.834	0.558
		IP-CR2	There are frequent government inspections or audits on our purchasing practices to ensure we comply with laws and regulations	0.811			
		IP-CR3	We receive financial incentives from the government to adopt certain practices in our purchasing procedures	0.732			
		IP-CR4	International legislation (e.g. EU directives) impacts the purchasing procedures we use	0.761			

(*continued*)

Table 2.

Second-order constructs	First-order constructs	Item code	Items	Loadings	Cronbach's alpha	CR	AVE
	Normative pressure (IP-NP) Weights = 0.345 *t*-Value = 14.925 VIF = 2.704	IP-NP1	We prefer to use procedures and tools that we learned during our education	0.714	0.796	0.860	0.552
		IP-NP2	We are influenced by the procedures and tools advocated by the national purchasing association (e.g., Institute of Supply Management)	0.771			
		IP-NP3	We follow academic research on purchasing to learn about purchasing procedures to implement	0.775			
		IP-NP4	Our choice to implement purchasing procedures is influenced by what we see and hear at trade shows and vendor exhibitions	0.787			
		IP-NP5	It is evident that certain purchasing procedures are becoming a norm within our industry	0.659			
	Mimetic pressure (IP-MP) Weights = 0.259 *t*-Value = 10.670 VIF = 2.301	IP-MP1	Our organization has implemented purchasing procedures in response to what competitors and peers do and are doing	0.733	0.822	0.875	0.585
		IP-MP2	We pay attention to the purchasing practices and tools that appear to benefit our competitors and peers	0.777			
		IP-MP3	There is a need to imitate purchasing practices of key competitors that serve the same major clients	0.716			
		IP-MP4	We actively benchmark the purchasing practices and performance of our main competitors and peers	0.779			
		IP-MP5	We pay attention to the purchasing practices and tools used and adopted by our key competitors	0.814			

Table 2. (*continued*)

Second-order constructs	First-order constructs	Item code	Items	Loadings	Cronbach's alpha	CR	AVE
Organizational performance (OP) VIF = 1.705	Environmental performance (OP-EN) Weights = 0.457 *t*-Value = 19.067 VIF = 2.703	OP-EN1	Reduction of air emission	0.788	0.875	0.909	0.668
		OP-EN2	Reduction of wastewater	0.855			
		OP-EN3	Reduction of solid wastes	0.841			
		OP-EN4	Decrease in consumption of hazardous/harmful/ toxic materials	0.800			
		OP-EN5	Decrease in frequency of environmental accidents	0.801			
	Financial performance (OP-FI) Weights = 0.293 *t*-Value = 9.395 VIF = 2.576	OP-FI1	Growth in sales	0.842	0.907	0.931	0.729
		OP-FI2	Growth in return on sales	0.841			
		OP-FI3	Growth in profit	0.885			
		OP-FI4	Growth in market share	0.857			
		OP-FI5	Growth in return on investment	0.843			
	Operational performance (OP-OP) Weights = 0.358 *t*-Value = 11.016 VIF = 3.170	OP-OP1	Increase amount of goods delivered on time	0.798	0.865	0.903	0.651
		OP-OP2	Decrease inventory levels	0.736			
		OP-OP3	Improvement in products' quality	0.819			
		OP-OP4	Increase in the product line	0.831			
		OP-OP5	Improvement in capacity utilization	0.846			
–	Willingness to pay (WTP) VIF = 2.104	WTP1	I would be willing to pay more for sustainability	0.837	0.879	0.912	0.674
		WTP2	I would be comfortable paying more for sustainability	0.810			
		WTP3	I would have no problem paying more for sustainability	0.828			
		WTP4	Our organization would rather spend money on sustainability more than anything else	0.793			
		WTP5	Our organization is ready to pay a premium for sustainable goods or services	0.835			

(*continued*)

Table 2.

Second-order constructs	First-order constructs	Item code	Items	Loadings	Cronbach's alpha	CR	AVE
–	Sustainable procurement (SP) VIF = 2.264	SP1	Cooperating with suppliers for environmental objectives	0.830	0.902	0.919	0.513
		SP2	Selecting suppliers based on specific environmental criteria	0.798			
		SP3	Requesting suppliers to use environmentally friendly packaging	0.731			
		SP4	Ensuring that purchased products or services must contain green attributes	0.790			
		SP5	Using a life cycle analysis to evaluate the environmental friendliness of products and packaging	0.756			
		SP6	Adopting a just-in-time logistics system	0.514			
		SP7	Ensuring the safe and environmentally friendly transportation of products	0.679			
		SP8	Asking suppliers to commit to waste reduction goals	0.744			
		SP9	Asking suppliers to develop and maintain an environmental management system	0.753			
		SP10	*Purchasing from small or local suppliers*	–			
		SP11	Ensuring that suppliers comply with labor laws	0.573			
		SP12	Participating actively in philanthropic activities	0.646			

Note(s): SP10 was deleted to achieve AVE >0.5. Before deletion, the loading of this item was 0.481 while the AVE of SP was 0.487
EC-IN2, IC-CC3 and IC-FC5 were deleted to fulfill discriminant validity (HTMT criteria). Before deletion, the loadings of these items were, respectively, 0.606, 0.791 and 0.735, while the AVE of EC-IN, IC-CC and IC-FC were, respectively, 0.594, 0.622 and 0.485

Table 2. **Source(s):** Authors' own creation

constructed organizational performance (OP) as a second-order construct with three sub-constructs namely, environmental performance (OP-EN), financial performance (OP-FI), and operational performance (OP-OP). We measured OP with fifteen items adapted from Zhu *et al.* (2013) and Huo *et al.* (2013). To do so, the respondents were asked in the online survey to rate on a Likert scale the improvement level of given aspects.

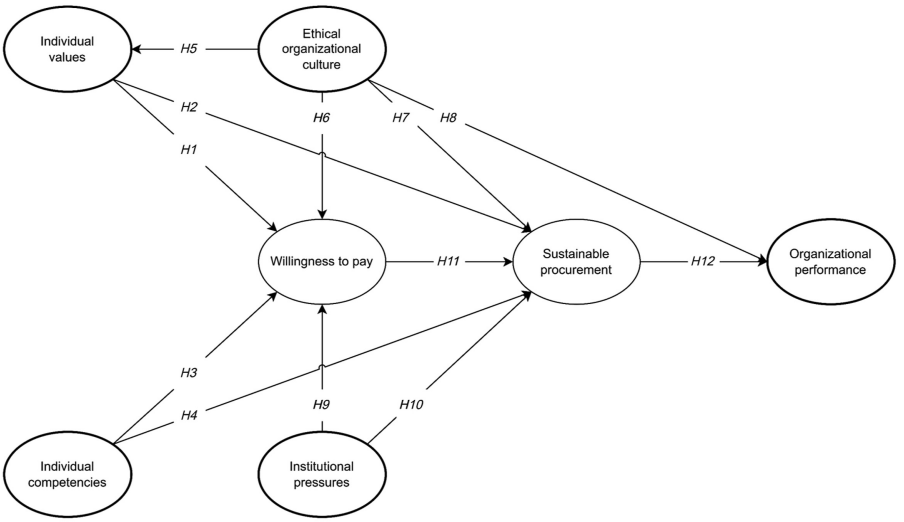
We operationalized willingness to pay (WTP) and sustainable procurement (SP) as first-order constructs. We measured WTP with five items adapted from Habel *et al.* (2016) and Winter *et al.* (2021). To do so, the respondents were asked in the online survey to rate on a

Likert scale whether they agree or disagree with the given statements. To increase the external validity of the WTP measure, we embedded two experiments in the online survey. We instructed respondents to imagine procuring two different items (laptops and electricity) for their companies and choose between two identical laptops and electricity providers differing only in sustainability aspects (high recyclability vs. low recyclability and renewable sources vs. fossil fuels). We thereby measured the price premiums paid for the sustainable options. We noticed that the price premiums paid for both items are significantly correlated ($\beta = 0.436, p < 0.001$) with the answers provided to the WTP constructs which affirms a high construct validity. We measured SP with twelve items adapted from Carter and Jennings (2004) and Zhu *et al.* (2013). To do so, the respondents were asked in the online survey to rate on a Likert scale whether their organization has been considering or has already implemented the listed measures. It is worth mentioning that first-order constructs (thinner circles) and second-order constructs (thicker circles) were respectively modeled as reflective and formative measurement models (see Figure 1).

3.3 Data analysis

PLS-SEM is acknowledged as an appropriate technique when the research objective is either to predict an unexplored phenomenon or to empirically test complexly modeled relationships (Hair *et al.*, 2011). We, therefore, analyzed the collected data through PLS-SEM with SmartPLS 4 software (Ringle *et al.*, 2022). We followed the embedded two-stage approach (mode B) instead of the repeated indicators approach for measuring our proposed HCM (Becker *et al.*, 2012). Sarstedt *et al.* (2019) pointed out that the repeated indicator approach is easy to apply but causes issues in HCM. Simply put, the R^2 value turns to one by default and thus path coefficient tends to be zero or insignificant. In contrast, the embedded two-stage approach yields better results (Ringle *et al.*, 2012).

The PLS-SEM model contains two parts: an outer part (measurement model) and an inner part (structural model). Chin (2010) suggests a two-step approach for executing PLS-SEM. We accordingly examined the measurement model in the first step. For that, the PLS algorithm



Source(s): Authors' own creation

Figure 1.
Research model

was executed with the default settings of SmartPLS 4 software. The structural model was examined in the second step using the function of bootstrapping with 10,000 subsamples. All given rules and guidelines were followed not just in performing PLS-SEM but also in presenting our study results (Chin, 2010; Hair *et al.*, 2019).

4. Results

4.1 Measurement model

Scholars point out that the assessment of the measurement model should be carried out in terms of reliability, convergent validity, and discriminant validity. The loading of items should ideally be above 0.708 but if the AVE of a construct is above 0.500 then in that case items having loading between 0.400 and 0.708 are also considered valid and retained in the measurement model (Hair *et al.*, 2012). The loading values of all items, excluding a few items of constructs EC-IN, IC-CC, IC-FC, and SP, are between 0.514 and 0.885 (see Table 2). The literature specifies that convergent validity cannot be established unless the AVE values of constructs are at least 0.500 (Hair *et al.*, 2011). The AVE value of most of the constructs in our study comfortably passed this criterion. However, two constructs, namely, IC-FC and SP, had AVE values below 0.500. Hence, the problematic items were deleted (Hair *et al.*, 2019). After that, the AVE values of all constructs are between 0.510 and 0.729 (see Table 2).

The literature emphasizes that CR and Cronbach's α values of constructs should ideally be above 0.700 (Hair *et al.*, 2011). The CR values in our study are between 0.805 and 0.931 (see Table 2). The Cronbach's α values in our study are between 0.606 and 0.907 (see Table 2). Scholars have recently criticized the way discriminant validity was assessed and reported in previous studies. They strongly advise that discriminant validity should be preferably tested by the HTMT criterion (Ali *et al.*, 2018). This criterion posits that HTMT values must be lower than 0.900 if the involved constructs are conceptually similar (Hair *et al.*, 2019). Our study comfortably fulfills this criterion (see Table 3).

The literature shows that before proceeding to the assessment of the structural model the psychometric properties of first-order constructs (i.e., constructs acting as formative indicators for second-order constructs in our proposed HCM) should be assessed in terms of the significance and relevance of second-order weights (Khan *et al.*, 2021). Our study satisfies this requirement too since the *t*-values of second-order weights are greater than 1.96 (see Table 2).

4.2 Structural model

Scholars point out that the assessment of the structural model should be carried out in terms of multicollinearity, predictive power, predictive relevancy, and model fit indices. Our study contains no multicollinearity since VIF values are under the threshold limits (Hair *et al.*, 2019). The predictive power of a model is mainly understood by the R^2 values of its endogenous constructs. The standard R^2 values such as 0.750, 0.500, and 0.250 respectively refer to substantial, moderate, and weak predictive powers (Hair *et al.*, 2019). The R^2 values for IV, OP, SP, and WTP are respectively 0.343, 0.580, 0.546, and 0.560. The predictive relevance of a model is understood by the Q^2 values of its endogenous constructs. The Q^2 values greater than 0.000, 0.250, and 0.500 respectively imply small, medium, and large predictive relevancy (Hair *et al.*, 2019). The Q^2 values of IV, OP, SP, and WTP are respectively 0.326, 0.424, 0.439, and 0.436. Our study satisfies the model fit criteria too since SRMR and NFI values are respectively 0.040 and 0.922 (Hair *et al.*, 2017).

Our proposed hypotheses were finally assessed using the function of bootstrapping. To gain an accurate and deep understanding, the indirect effects or potential mediation relationships were also checked as per the recommended guidelines (Hair *et al.*, 2017, p. 233;

	EC-BM	EC-CC	EC-IN	EC-OA	IC-CC	IC-FC	IP-CM	IP-CR	IP-MP	IP-NP	IV-ES	IV-MA	OP-EN	OP-FI	OP-OP	SP	WTP
EC-BM																	
EC-CC	0.694																
EC-IN	0.897	0.719															
EC-OA	0.596	0.505	0.670														
IC-CC	0.453	0.563	0.558	0.427													
IC-FC	0.606	0.630	0.654	0.508	0.896												
IP-CM	0.587	0.508	0.691	0.733	0.344	0.460											
IP-CR	0.622	0.633	0.620	0.727	0.433	0.476	0.755										
IP-MP	0.658	0.620	0.699	0.728	0.541	0.656	0.776	0.804									
IP-NP	0.680	0.615	0.763	0.765	0.483	0.595	0.844	0.863	0.872								
IV-ES	0.586	0.548	0.632	0.532	0.712	0.713	0.467	0.459	0.563	0.578							
IV-MA	0.489	0.503	0.518	0.373	0.734	0.669	0.354	0.321	0.403	0.407	0.735						
OP-EN	0.569	0.438	0.560	0.528	0.544	0.505	0.547	0.601	0.557	0.622	0.603	0.463					
OP-FI	0.458	0.266	0.545	0.521	0.420	0.521	0.519	0.416	0.451	0.579	0.415	0.343	0.679				
OP-OP	0.555	0.405	0.603	0.557	0.442	0.499	0.604	0.587	0.595	0.697	0.510	0.365	0.782	0.872			
SP	0.594	0.493	0.590	0.460	0.582	0.563	0.539	0.634	0.566	0.671	0.581	0.476	0.796	0.558	0.633		
WTP	0.606	0.442	0.679	0.569	0.568	0.584	0.653	0.614	0.591	0.686	0.701	0.559	0.654	0.550	0.638	0.724	

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

Table 3.
HTMT criterion

Nitzl *et al.*, 2016). Our PLS-SEM analysis revealed that IV and IP directly influence WTP by respective correlation values of 0.354 and 0.257 ($p < 0.001$ each) while IC and EC do not directly influence WTP. However, interestingly, IV fully mediates the relationship between EC and WTP by a correlation value of 0.207 ($p < 0.001$). Our PLS-SEM analysis further revealed that IC, IP, and WTP directly influence SP by respective correlation values of 0.115 ($p < 0.05$), 0.213 ($p < 0.01$), and 0.327 ($p < 0.001$) while IV and EC do not directly influence SP. However, again interestingly, WTP fully mediates the relationship between IV and SP by a correlation value of 0.116 ($p < 0.001$). Our PLS-SEM analysis lastly revealed that EC directly influences IV and OP by respective correlation values of 0.585 and 0.257 ($p < 0.001$ each) while SP directly influences OP by a correlation of value 0.527 ($p < 0.001$). Simply put, H1, H4, H5, H8, H9, H10, H11, and H12 are accepted; H3 and H7 are rejected; H2 and H6 can be, however, interpreted differently, that is, mediation (see Table 4). The direct relationship between IV and SP is not statistically significant, while the indirect relationship between these two variables through WTP is statistically significant. Similarly, the direct relationship between EC and WTP is not statistically significant, while the indirect relationship between these two variables through IV is statistically significant.

4.3 Robustness checks

The literature highlights that unobserved heterogeneity may lead to incorrect interpretation of results (Sarstedt *et al.*, 2020). To check this concern, we followed the recommended steps (Matthews *et al.*, 2016). We first executed FIMIX-PLS repeatedly to determine the exact number of segments. In other words, the fit indices were calculated starting from a one-segment solution to a seven-segment solution. This range of solutions was taken based on the estimation of the required minimum sample size (Matthews *et al.*, 2016, p. 211). We then checked the minimum values of fit indices. AIC3 and CAIC did not indicate the same number of segments but their alternatives AIC4 and BIC indicated a four-segment solution (see Table A1). However, all solutions, except a two-segment solution, did not fulfill the minimum sample size requirements (see Table A2).

It is worth mentioning that if fit indices show divergent results, one can conclude that "*unobserved heterogeneity does not significantly affect the data*" (Sarstedt *et al.*, 2020, p. 9). Nonetheless, we followed up with latent class analysis and subsequently formed two groups for each of these demographic variables: age (below 40 and above 40 years), work experience (less than 10 and more than 10 years), and location (developed and developing countries). However, the increase in (weighted) R^2 was not substantial, implying that "*heterogeneity*" is not a serious concern (Matthews *et al.*, 2016, p. 220). Furthermore, the objective of our study was not multigroup analysis. Hence, we could trust aggregate-level data in our study (Sarstedt *et al.*, 2017).

Scholars point out that omission of variables, simultaneous causality, and measurement errors may induce endogeneity (Zaefarian *et al.*, 2017). There are various approaches for assessing potential endogeneity. However, the Gaussian copula approach is preferred in PLS-SEM since the instrumental variable approach is difficult in practice due to its requirements, and estimations with an unsuitable variable may lead to biased results (Eckert and Hohberger, 2023). It is worth mentioning that operationalizing the Gaussian copula was difficult too since our research model is complex compared to most research models in management research. Put differently, our research model is HCM and contains four dependent variables namely, IV, OP, SP, and WTP. Nevertheless, we followed a systematic procedure to address potential endogeneity (Hult *et al.*, 2018).

We first checked the prerequisites of the Gaussian copula approach through the Kolmogorov–Smirnov test with Lilliefors correction and then using bootstrapping assessed the significance of Gaussian copula terms that were sequentially added to the model (Sarstedt

No.	Path	Type	Std beta	Std error	*t* Values	*p* Values	95% CI LL	95% CI UL	Significance	Remarks
H1	IV → WTP	Direct	0.354	0.063	5.661***	0.000	0.243	0.450	Yes	Direct effect
H2	IV → SP	Direct	0.052	0.060	0.874	0.382	−0.047	0.149	No	Full mediation
–	IV → WTP → SP	Indirect	0.116	0.031	3.776***	0.000	0.063	0.165	Yes	
H3	IC → WTP	Direct	0.033	0.056	0.591	0.554	−0.056	0.127	No	No effect
H4	IC → SP	Direct	0.115	0.048	2.391*	0.017	0.038	0.197	Yes	Direct effect
–	IC → WTP → SP	Indirect	0.011	0.018	0.598	0.550	−0.018	0.041	No	
H5	EC → IV	Direct	0.585	0.040	14.787***	0.000	0.523	0.652	Yes	Direct effect
H6	EC → WTP	Direct	0.095	0.071	1.339	0.181	−0.015	0.219	No	Full mediation
–	EC → IV → WTP	Indirect	0.207	0.040	5.127***	0.000	0.140	0.272	Yes	
H7	EC → SP	Direct	0.072	0.075	0.955	0.339	−0.045	0.202	No	No effect
–	EC → IV → SP	Indirect	0.030	0.036	0.856	0.392	−0.027	0.090	No	
–	EC → WTP → SP	Indirect	0.031	0.023	1.331	0.183	−0.005	0.072	No	
H8	EC → OP	Direct	0.257	0.058	4.431***	0.000	0.165	0.357	Yes	Direct effect
–	EC → SP → OP	Indirect	0.038	0.040	0.951	0.342	−0.024	0.107	No	
H9	IP → WTP	Direct	0.257	0.071	3.638***	0.000	0.147	0.377	Yes	Direct effect
H10	IP → SP	Direct	0.213	0.074	2.858**	0.004	0.089	0.335	Yes	Partial mediation
–	IP → WTP → SP	Indirect	0.084	0.030	2.834**	0.005	0.039	0.135	Yes	
H11	WTP → SP	Direct	0.327	0.063	5.165***	0.000	0.214	0.421	Yes	Direct effect
H12	SP → OP	Direct	0.527	0.065	8.157***	0.000	0.417	0.630	Yes	Direct effect

Note(s): *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$ control variables: respondent age, respondent work experience, organization size (number of employees), organization revenues (annual revenue), focus on cost savings and incentives for cost reductions

Source(s): Authors' own creation

Table 4.
Hypotheses and mediation analysis

et al., 2020). After assessing 50 models in total, we found that all cupolas were insignificant in the case of IV and WTP, but some cupolas were significant in the case of SP and OP. However, the first two referred sources of endogeneity can be ruled out considering that various level factors that could affect WTP and SP were included in our study and conceptually SP and OP cannot have a reverse relationship with their antecedents in the model. Hence, we may assume that endogeneity is not a critical issue in our study. Nonetheless, we included suitable control variables as per the recommended guidelines (Hult *et al.*, 2018).

5. Discussion

Bob Shapiro, CEO of Monsanto, one of the largest agrochemical companies globally, stated nearly three decades ago: "*far from being a soft issue grounded in emotion or ethics, sustainable development involves cold, rational business logic*" (Magretta, 1997, p. 81). Investments in sustainability follow, according to this view, not moral obligations, but economic rationality. As researchers we have to ask: Is this view supported by data? We need to know "*How do sustainable business strategies provide economic returns to business-to-business firms?*" A directly related question is "*[whether] business-to-business customers . . . willing to pay a premium for sustainable products and services?*" (Sharma, 2020, pp. 326–327). These are the questions that, according to a review of the literature on sustainability in B2B, future research should answer (Sharma, 2020). This study examines WTP for sustainability in B2B settings. Specifically, we aim to examine antecedents of B2B procurement managers' WTP for sustainability. Furthermore, we aim to understand whether B2B procurement managers' WTP for sustainability is beneficial for organizational performance. These two are the key research questions that this study aims to answer.

The foundational premises of our study are: (1) B2B procurement managers constitute the most important actors in the transition towards sustainability; (2) WTP is a valid predictor of future behavior. On the first premise: depending on the country, B2B activities account for 50%–80% of the gross domestic product (Lichtenthal and Mummalaneni, 2009) and, within B2B, the procurement function occupies a central role in implementing sustainability (Johnsen *et al.*, 2022). On the second premise: the marketing literature has examined approaches to measure WTP (Hofstetter *et al.*, 2021; Miller *et al.*, 2011) and documents that expressions of WTP, although hypothetical, align well with actual prices paid (Hofstetter *et al.*, 2021). Specifically, a recent meta-analysis of 115 effect sizes reported in 47 research papers with data for the same products with both hypothetical WTP measures and real WTP measures (e.g., auctions) finds an average hypothetical bias of 21% (Schmidt and Bijmolt, 2020). There is a relatively modest overestimation of true WTP, but "*hypothetically derived WTP estimates are often the best estimates available*" (Schmidt and Bijmolt, 2020, p. 515) and are thus valid. On these foundations, our study examined antecedents and consequences of B2B procurement managers' WTP for sustainability.

Our study shows that the prime antecedents of WTP for sustainability are institutional pressures and individual values. Institutional pressures are a multifaceted construct composed of coercive market pressure, coercive regulatory pressure, normative pressure, and mimetic pressure (Kauppi and Luzzini, 2022). Previous studies found an insignificant correlation between regulatory pressure and green procurement (Carter and Carter, 1998; Carter and Jennings, 2004; Yen and Yen, 2012). In contrast to those studies but in line with a recent study (Lu *et al.*, 2018), our study found that institutional pressures significantly influence both WTP and sustainable procurement. It implies that in the past, top and middle managers of companies perceived regulatory pressures as unimportant drivers of sustainability. How times have changed: Nowadays, institutional pressures have a strong and direct effect on procurement managers' WTP and sustainable procurement. The external environment – rules or norms and competitors – drives procurement managers' WTP for

sustainability which in turn improves the performance of the procurement function. Previous studies have documented that institutional pressure leads to pro-environmental operations that reduce environmental harm (Zhao and He, 2022). Our study documents the effect on WTP for sustainability and thus documents that individuals are willing to make a positive contribution to the environment. An important finding is that this is true across countries and sectors.

Our study shows that individual values, a multidimensional construct composed of environmental self-identity and moral attitude, are correlated with WTP for sustainability. Put differently, our study indicates that individuals with strong morality and with a concept of themselves based on pro-environmental attitudes are willing to pay more for sustainable products in the workplace. This finding lends further support to the research stream on micro-foundations advocating the need to investigate antecedents at the individual level as a means to understand phenomena at the organizational level (Hinterhuber and Liozu, 2017). Furthermore, our study finds that individual values do not influence sustainable procurement directly but influence sustainable procurement via WTP. Put differently, WTP fully and significantly mediates the relationship between individual values and sustainable procurement. Thus: individual values – environmental consciousness, ethical responsibility, and personal integrity – improve the sustainability of the procurement function only if WTP is high. Individual values thus require a behavioral intention – WTP – to influence the sustainability of the procurement function.

We also find that individual competencies do not significantly influence WTP, which indicates that, in terms of individual traits, WTP is primarily the outcome of individual values, not intellectual or functional competencies. Individual competencies have, in our model, a strong and direct effect on sustainable procurement. The degree of sustainability of the procurement function can therefore be increased by ensuring that managers are highly skilled in partnering with suppliers, forward-thinking in understanding the future impact of procurement decisions, adept at analyzing future scenarios, adaptable to market changes, proficient in solving complex issues, and capable of thinking holistically in their procurement decision-making. This finding is in line with results from a previous study on the role of functional competence in green purchasing (Bonn *et al.*, 2021). The sustainability of the procurement function is therefore the direct result of individual competencies, WTP, and institutional pressures.

Our study finds that ethical organizational culture does not influence WTP directly but influences WTP via individual values of procurement managers. Put differently, individual values fully and significantly mediate the relationship between ethical organizational culture and WTP. This finding is noteworthy. An ethical organizational culture, by itself, does not influence WTP for sustainability, it influences WTP only if managers are environmentally conscious, responsible, and morally inclined, with a strong sense of self-identity tied to sustainability and environmental issues. The data thus suggest that ethical organizational culture should be seen as a factor that has to influence individuals – their moral inclinations, self-identities, and environmental consciousness – so as to influence WTP. There is no shortcut – there is no direct effect on individual WTP. There is, however, a direct effect of ethical organizational culture on organizational performance. This is unsurprising and confirms a very substantial body of prior research highlighting the importance of ethics as an enabler of superior organizational performance (Chun *et al.*, 2013; Shin *et al.*, 2015).

Some control variables influence WTP and sustainable procurement. We find, as expected, a negative and significant correlation between age and WTP: younger procurement managers have a higher WTP for sustainability than older procurement managers, a finding that mirrors previous studies, albeit studies conducted with individual consumers (Diaz-Rainey and Ashton, 2011; Gerpott and Mahmudova, 2010). Analogously, we find a negative and significant correlation between age and sustainable procurement. We further notice a

positive and significant correlation between annual revenue and sustainable procurement which implies that larger companies are more likely to engage in sustainable procurement. This is, again, as expected.

Finally, and more importantly, our study shows the positive consequences of WTP on the sustainability of the procurement function. In other words, there is no trade-off between sustainability and performance: paying a price premium for sustainable products or services improves environmental, financial, and operational performance. This finding is in line with a recent meta-analysis examining the relationship between green supply chain practices and performance consequences (Yadav *et al.*, 2023). Scholars have been calling to examine causal relationships between established constructs across the research areas (Wiklund and Shepherd, 2011). Previous studies show that supplier selection (Roehrich *et al.*, 2017), environmental scanning (Yu *et al.*, 2019), and advanced practices promoting transparency, innovation, and broad stakeholder involvement (Croom *et al.*, 2018) are all positively associated with improved sustainability of the procurement function. Our study sheds light on traits at the individual level that can be cultivated in order to improve the sustainability of the procurement function. Overall, our study manifests that improving WTP at the individual level improves performance not just at the functional level but also at the organizational level (see Figure 2).

6. Conclusion

6.1 Main insights and implications for theory

This study of 372 procurement and supply chain managers from across the globe identifies antecedents and consequences of WTP for sustainability in B2B. We find two direct and one indirect antecedent: individual values and institutional pressures directly influence WTP for sustainability and ethical organizational culture indirectly influences WTP via individual values. WTP for sustainability improves the sustainability of procurement which, in turn, improves organizational performance. Additionally, we find that individual competencies play

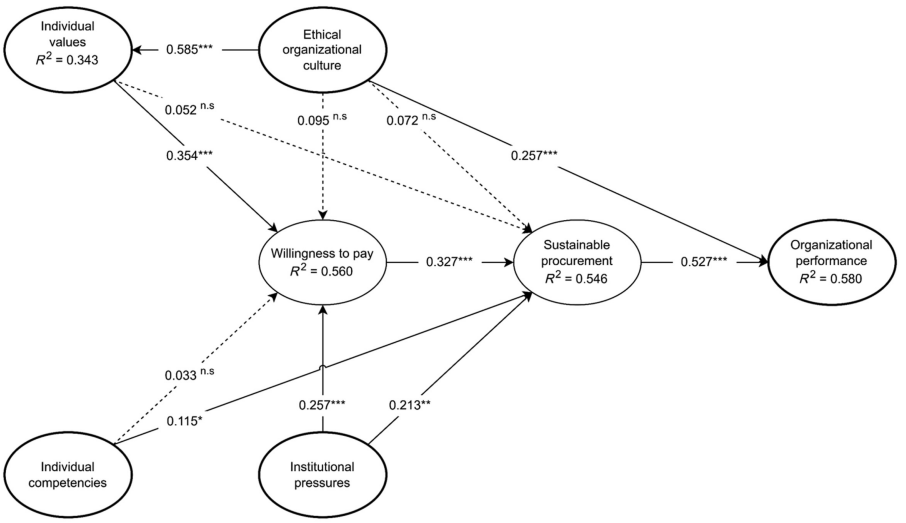


Figure 2.
Summary of findings

Note(s): ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$, n.s. $p > 0.1$

Source(s): Authors' own creation

a significant role in promoting sustainable procurement, but they do not directly influence WTP. Moreover, institutional pressures, apart from their impact on WTP, also contribute to sustainable procurement. These antecedents are therefore the key levers that senior production and operations managers should activate in order to improve functional and organizational performance. Taken together, these findings indicate that a multi-level framework is indeed useful to analyze sustainability in the context of operations management.

This study makes the following three substantiative contributions to theory. First, we highlight that in contexts designed to ensure rational choice – B2B procurement – professionals exhibit a significant WTP for sustainability. We advance our understanding beyond individual consumers where the effects that prior studies find (Nelson *et al.*, 2021) could be nothing more than another indicator of less-than-rational choice. Put differently, WTP for sustainability is significantly positive among B2B procurement managers – across studies the incremental price premium is about 15% – which indicates that sustainability is a relevant, as opposed to a fuzzy, differentiator in B2B. Procurement managers are willing to honor differentiation via sustainability of their suppliers and this, we think, is a very encouraging finding in the context of the monumental investments required to mitigate the effect of climate change (Pisani-Ferry and Mahfouz, 2023). Theoretically, this indicates that WTP for sustainability in B2B is unlikely to be driven by the "*warm glow*" effect that has been extensively documented in consumer markets (Andrews *et al.*, 2014; Habel *et al.*, 2016). In B2B, WTP for sustainability is driven by contextual, organizational, and individual factors – and the profit motive.

Our second contribution to theory, in fact, sheds light on these factors leading to WTP for sustainability and to sustainable procurement. Individual values, not competencies, influence WTP, whereas the context – institutional pressure – significantly influences both WTP and sustainable procurement; an ethical culture influences neither WTP nor sustainable procurement but influences WTP via a mediation effect through individual values. Individual competencies, finally, are very important to implementing sustainable procurement: We thus complement extant studies examining individual competencies for successful operations management (Schulze and Bals, 2020; Stek and Schiele, 2021) and shed further light on antecedents of sustainability (de Menezes *et al.*, 2022). The finding that individual values affect sustainable procurement via WTP supports extant research on subjective norms leading to green innovation and sustainability (Shou *et al.*, 2023; Zhang *et al.*, 2023). Third, WTP for sustainability and sustainable procurement contributes to an improved performance of the company. There is no trade-off between profits and the planet: sustainability improves performance (Yadav *et al.*, 2023). We thus contribute to the nascent research examining the consequences of WTP in B2B (Sharma, 2020). In conclusion, our findings lend support to the statement that the distinction between supply chain management and sustainable supply chain management will disappear (Pagell and Shevchenko, 2014): sustainability is and will be an integral part of all research in operations management, supply chain, and marketing.

6.2 Implications for practice

This study has important implications for production and operations management practice. Our study documents that procurement professionals exhibit a significant WTP for offers that are differentiated by being sustainable. We already know that B2C customers exhibit a significant WTP for sustainability (Morone *et al.*, 2021); that B2B customers do as well is an important finding: Suppliers that differentiate their offers on sustainability criteria will find B2B customers that are willing to pay a price premium. Our study documents that the institutional context (e.g., customer demands, industry norms, and regulations, etc.) influences WTP. It is eminently clear that contextual pressure is bound to increase in the future. Deloitte,

a consulting company, reports that ESG-mandated assets (i.e., assets that are selected for investment based on considerations that include sustainability) account for half of all professionally managed assets today, with a rapidly increasing upward trend (Taylor and Collins, 2022). Our study manifests that individual values (but not individual competencies) shape WTP for sustainability in B2B. Top management should hire and develop operations managers with respect to their values – their environmental consciousness, their moral inclinations, and their sense of self-identity tied to environmental issues – in order to influence WTP for sustainability. Top management thus has an educational role vis-à-vis managers with respect to sustainability. The data in our study also document that ethical organizational culture does not affect WTP unless individual values are strongly developed as well. This finding thus confirms the important role that the psychological structures of individuals play in sustainable supply chains (Silvestre *et al.*, 2023).

6.3 Limitations and future research

Our study, despite its merits, has some limitations. Given the nature of operations and supply chain management research, relying on a single respondent or key informant is often the most practical choice (Montabon *et al.*, 2018). It is worth noting that panel data, particularly recommended for sensitive topics such as "*ethical or moral behavior*", is suitable for our study but it inherently precludes the collection of multiple responses per company or objective data on the endogenous construct (Porter *et al.*, 2019, p. 326). We took great care to address the potential single-respondent bias via procedural and statistical remedies. However, single-respondent bias and social desirability bias cannot be completely ruled out. Future studies could fruitfully collect multiple responses per company and assess the consequences of WTP by a longitudinal, as opposed to our cross-sectional, research design. Our WTP measure is hypothetical. A meta-analytic study (Schmidt and Bijmolt, 2020) and two experiments in our study indicate that hypothetical WTP measures have high external validity, yet future studies could use a real WTP measure, such as auction data, as a key research variable.

Future research could examine possible unexpected consequences of implementing sustainable business practices and the role of learning processes (Sauer *et al.*, 2022), especially the role of learning by B2B procurement managers, as a variable influencing WTP for sustainability. B2B procurement managers' WTP for sustainability could be influenced, in addition to variables examined in our study, by the activities of their own suppliers (Peng *et al.*, 2022). How suppliers can influence WTP for the sustainability of their customers is thus a very promising topic of future research. Finally, networks and relationships between suppliers, customers, and other actors are defining features of B2B marketing. Future research thus could fruitfully examine how B2B networks contribute to the diffusion of sustainable business practices (Adhi Santharm and Ramanathan, 2022) and could thus drive B2B procurement managers' WTP for sustainability.

References

Adhi Santharm, B. and Ramanathan, U. (2022), "Supply chain transparency for sustainability – an intervention-based research approach", *International Journal of Operations and Production Management*, Vol. 42 No. 7, pp. 995-1021, doi: 10.1108/IJOPM-11-2021-0684.

Al-Swidi, A.K., Gelaidan, H.M. and Saleh, R.M. (2021), "The joint impact of green human resource management, leadership and organizational culture on employees' green behaviour and organisational environmental performance", *Journal of Cleaner Production*, Vol. 316, 128112, doi: 10.1016/j.jclepro.2021.128112.

Ali, F., Rasoolimanesh, S.M., Sarstedt, M., Ringle, C.M. and Ryu, K. (2018), "An assessment of the use of partial least squares structural equation modeling (PLS-SEM) in hospitality research",

International Journal of Contemporary Hospitality Management, Vol. 30 No. 1, pp. 514-538, doi: 10.1108/IJCHM-10-2016-0568.

Andrews, M., Luo, X., Fang, Z. and Aspara, J. (2014), "Cause marketing effectiveness and the moderating role of price discounts", *Journal of Marketing*, Vol. 78 No. 6, pp. 120-142, doi: 10.1509/jm.14.0003.

Ariely, D. (2008), *Predictably Irrational: the Hidden Forces that Shape Our Decisions*, Harper Collins, New York, NY.

Armstrong, J.S. and Overton, T.S. (1977), "Estimating nonresponse bias in mail surveys", *Journal of Marketing Research*, Vol. 14 No. 3, pp. 396-402, doi: 10.1177/002224377701400320.

Bakhsh Magsi, H., Ong, T., Ho, J. and Sheikh Hassan, A. (2018), "Organizational culture and environmental performance", *Sustainability*, Vol. 10 No. 8, p. 2690, doi: 10.3390/su10082690.

Basana, S.R., Siagian, H., Ubud, S. and Tarigan, Z.J.H. (2022), "The effect of top management commitment on improving operational performance through green purchasing and green production", *Uncertain Supply Chain Management*, Vol. 10 No. 4, pp. 1479-1492, doi: 10.5267/j.uscm.2022.6.008.

Becker, J.-M., Klein, K. and Wetzels, M. (2012), "Hierarchical latent variable models in PLS-SEM: guidelines for using reflective-formative type models", *Long Range Planning*, Vol. 45 Nos 5-6, pp. 359-394, doi: 10.1016/j.lrp.2012.10.001.

Belz, F.-M. and Peattie, K. (2012), *Sustainability Marketing: A Global Perspective*, 2nd ed., John Wiley & Sons, Hoboken, NJ.

Bendoly, E., Bachrach, D.G., Esper, T.L., Blanco, C., Iversen, J. and Yin, Y. (2021), "Operations in the upper echelons: leading sustainability through stewardship", *International Journal of Operations and Production Management*, Vol. 41 No. 11, pp. 1737-1760, doi: 10.1108/IJOPM-08-2021-0502.

Blome, C., Hollos, D. and Paulraj, A. (2014), "Green procurement and green supplier development: antecedents and effects on supplier performance", *International Journal of Production Research*, Vol. 52 No. 1, pp. 32-49, doi: 10.1080/00207543.2013.825748.

Bonn, M.A., Chun, Y., Yoo, J.J.-E. and Cho, M. (2021), "Green purchasing by wine retailers: roles of individual values, competences and organizational culture", *Cornell Hospitality Quarterly*, Vol. 62 No. 3, pp. 324-336, doi: 10.1177/1938965520978166.

Carter, C.R. and Carter, J.R. (1998), "Interorganizational determinants of environmental purchasing: initial evidence from the consumer products industries", *Decision Sciences*, Vol. 29 No. 3, pp. 659-684, doi: 10.1111/j.1540-5915.1998.tb01358.x.

Carter, C.R. and Jennings, M.M. (2004), "The role of purchasing in corporate social responsibility: a structural equation analysis", *Journal of Business Logistics*, Vol. 25 No. 1, pp. 145-186, doi: 10.1002/j.2158-1592.2004.tb00173.x.

Carter, C.R., Kale, R. and Grimm, C.M. (2000), "Environmental purchasing and firm performance: an empirical investigation", *Transportation Research Part E: Logistics and Transportation Review*, Vol. 36 No. 3, pp. 219-228, doi: 10.1016/S1366-5545(99)00034-4.

Chin, W.W. (2010), "How to write up and report PLS analyses", in Esposito Vinzi, V., Chin, W., Henseler, J. and Wang, H. (Eds), *Handbook of Partial Least Squares. Springer Handbooks of Computational Statistics*, Springer, Berlin, Heidelberg, pp. 655-690, doi: 10.1007/978-3-540-32827-8_29.

Chun, J.S., Shin, Y., Choi, J.N. and Kim, M.S. (2013), "How does corporate ethics contribute to firm financial performance?", *Journal of Management*, Vol. 39 No. 4, pp. 853-877, doi: 10.1177/0149206311419662.

Cohen, J. (1992), "A power primer", *Psychological Bulletin*, Vol. 112 No. 1, pp. 155-159, doi: 10.1037/0033-2909.112.1.155.

Croom, S., Vidal, N., Spetic, W., Marshall, D. and McCarthy, L. (2018), "Impact of social sustainability orientation and supply chain practices on operational performance", *International Journal of*

Operations and Production Management, Vol. 38 No. 12, pp. 2344-2366, doi: 10.1108/IJOPM-03-2017-0180.

de Menezes, L.M., Escrig-Tena, A.B. and Bou-Llusar, J.C. (2022), "Sustainability and quality management: has EFQM fostered a sustainability orientation that delivers to stakeholders?", *International Journal of Operations and Production Management*, Vol. 42 No. 13, pp. 155-184, doi: 10.1108/IJOPM-10-2021-0634.

Diaz-Rainey, I. and Ashton, J.K. (2011), "Profiling potential green electricity tariff adopters: green consumerism as an environmental policy tool?", *Business Strategy and the Environment*, Vol. 20 No. 7, pp. 456-470, doi: 10.1002/bse.699.

Eckert, C. and Hohberger, J. (2023), "Addressing endogeneity without instrumental variables: an evaluation of the Gaussian copula approach for management research", *Journal of Management*, Vol. 49 No. 4, pp. 1460-1495, doi: 10.1177/01492063221085913.

Franklin, D. and Marshall, R. (2019), "Adding co-creation as an antecedent condition leading to trust in business-to-business relationships", *Industrial Marketing Management*, Vol. 77, pp. 170-181, doi: 10.1016/j.indmarman.2018.10.002.

Galleli, B., Hourneaux, F., Jr and Munck, L. (2019), "Sustainability and human competences: a systematic literature review", *Benchmarking: An International Journal*, Vol. 27 No. 7, pp. 1981-2004, doi: 10.1108/BIJ-12-2018-0433.

Gerpott, T.J. and Mahmudova, I. (2010), "Determinants of price mark-up tolerance for green electricity – lessons for environmental marketing strategies from a study of residential electricity customers in Germany", *Business Strategy and the Environment*, Vol. 19 No. 5, pp. 304-318, doi: 10.1002/bse.646.

Ghosh, M. (2019), "Determinants of green procurement implementation and its impact on firm performance", *Journal of Manufacturing Technology Management*, Vol. 30 No. 2, pp. 462-482, doi: 10.1108/JMTM-06-2018-0168.

Goebel, P., Reuter, C., Pibernik, R. and Sichtmann, C. (2012), "The influence of ethical culture on supplier selection in the context of sustainable sourcing", *International Journal of Production Economics*, Vol. 140 No. 1, pp. 7-17, doi: 10.1016/j.ijpe.2012.02.020.

Goebel, P., Reuter, C., Pibernik, R., Sichtmann, C. and Bals, L. (2018), "Purchasing managers' willingness to pay for attributes that constitute sustainability", *Journal of Operations Management*, Vol. 62 No. 1, pp. 44-58, doi: 10.1016/j.jom.2018.08.002.

Habel, J., Schons, L.M., Alavi, S. and Wieseke, J. (2016), "Warm glow or extra charge? The ambivalent effect of corporate social responsibility activities on customers' perceived price fairness", *Journal of Marketing*, Vol. 80 No. 1, pp. 84-105, doi: 10.1509/jm.14.0389.

Hahn, T., Figge, F., Pinkse, J. and Preuss, L. (2010), "Trade-offs in corporate sustainability: you can't have your cake and eat it", *Business Strategy and the Environment*, Vol. 19 No. 4, pp. 217-229, doi: 10.1002/bse.674.

Hair, J.F., Ringle, C.M. and Sarstedt, M. (2011), "PLS-SEM: indeed a silver bullet", *Journal of Marketing Theory and Practice*, Vol. 19 No. 2, pp. 139-152, doi: 10.2753/MTP1069-6679190202.

Hair, J.F., Sarstedt, M., Ringle, C.M. and Mena, J.A. (2012), "An assessment of the use of partial least squares structural equation modeling in marketing research", *Journal of the Academy of Marketing Science*, Vol. 40 No. 3, pp. 414-433, doi: 10.1007/s11747-011-0261-6.

Hair, J.F., Hult, G.T.M., Ringle, C.M. and Sarstedt, M. (2017), *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*, 2nd ed., Sage, Thousand Oaks, CA.

Hair, J.F., Risher, J.J., Sarstedt, M. and Ringle, C.M. (2019), "When to use and how to report the results of PLS-SEM", *European Business Review*, Vol. 31 No. 1, pp. 2-24, doi: 10.1108/EBR-11-2018-0203.

Hinterhuber, A. and Liozu, S.M. (2017), "The micro-foundations of pricing", *Journal of Business Research*, Vol. 76, pp. 159-162, doi: 10.1016/j.jbusres.2016.11.018.

Hofstetter, R., Miller, K.M., Krohmer, H. and Zhang, Z.J. (2021), "A de-biased direct question approach to measuring consumers' willingness to pay", *International Journal of Research in Marketing*, Vol. 38 No. 1, pp. 70-84, doi: 10.1016/j.ijresmar.2020.04.006.

Huang, Y., Surface, D.L. and Zhang, C. (2022), "Corporate social responsibility and sustainability practices in B2B markets: a review and research agenda", *Industrial Marketing Management*, Vol. 106, pp. 219-239, doi: 10.1016/j.indmarman.2022.08.016.

Hulland, J., Baumgartner, H. and Smith, K.M. (2018), "Marketing survey research best practices: evidence and recommendations from a review of JAMS articles", *Journal of the Academy of Marketing Science*, Vol. 46 No. 1, pp. 92-108, doi: 10.1007/s11747-017-0532-y.

Hult, G.T.M., Hair, J.F., Proksch, D., Sarstedt, M., Pinkwart, A. and Ringle, C.M. (2018), "Addressing endogeneity in international marketing applications of partial least squares structural equation modeling", *Journal of International Marketing*, Vol. 26 No. 3, pp. 1-21, doi: 10.1509/jim.17.0151.

Huo, B., Han, Z., Zhao, X., Zhou, H., Wood, C.H. and Zhai, X. (2013), "The impact of institutional pressures on supplier integration and financial performance: evidence from China", *International Journal of Production Economics*, Vol. 146 No. 1, pp. 82-94, doi: 10.1016/j.ijpe.2013.01.013.

Johnsen, T.E., Caniato, F., Meqdadi, O. and Miandar, T. (2022), "Swimming against the tide: supplier bridging roles in diffusing sustainability upstream and downstream in supply networks", *International Journal of Operations and Production Management*, Vol. 42 No. 10, pp. 1605-1629, doi: 10.1108/IJOPM-02-2022-0110.

Kauppi, K. and Luzzini, D. (2022), "Measuring institutional pressures in a supply chain context: scale development and testing", *Supply Chain Management: An International Journal*, Vol. 27 No. 7, pp. 79-107, doi: 10.1108/SCM-04-2021-0169.

Khan, O., Daddi, T., Slabbinck, H., Kleinhans, K., Vazquez-Brust, D. and De Meester, S. (2020), "Assessing the determinants of intentions and behaviors of organizations towards a circular economy for plastics", *Resources, Conservation and Recycling*, Vol. 163, 105069, doi: 10.1016/j.resconrec.2020.105069.

Khan, O., Daddi, T. and Iraldo, F. (2021), "Sensing, seizing, and reconfiguring: key capabilities and organizational routines for circular economy implementation", *Journal of Cleaner Production*, Vol. 287, 125565, doi: 10.1016/j.jclepro.2020.125565.

Khan, O., Bellini, N., Daddi, T. and Iraldo, F. (2022), "Effects of behavioral intention and dynamic capabilities on circular economy adoption and performance of tourism SMEs", *Journal of Sustainable Tourism*, Vol. 31 No. 8, pp. 1777-1796, doi: 10.1080/09669582.2022.2066683.

Khizar, H.M.U., Iqbal, M.J., Khalid, J. and Adomako, S. (2022), "Addressing the conceptualization and measurement challenges of sustainability orientation: a systematic review and research agenda", *Journal of Business Research*, Vol. 142, pp. 718-743, doi: 10.1016/j.jbusres.2022.01.029.

Klein, K.J., Dansereau, F. and Hall, R.J. (1994), "Levels issues in theory development, data collection, and analysis", *Academy of Management Review*, Vol. 19 No. 2, pp. 195-229, doi: 10.5465/amr.1994.9410210745.

Kock, N. (2015), "Common method bias in PLS-SEM", *International Journal of E-Collaboration*, Vol. 11 No. 4, pp. 1-10, doi: 10.4018/ijec.2015100101.

Kock, N. and Lynn, G. (2012), "Lateral collinearity and misleading results in variance-based SEM: an illustration and recommendations", *Journal of the Association for Information Systems*, Vol. 13 No. 7, pp. 546-580, doi: 10.17705/1jais.00302.

Kostyk, A., Zhou, W., Hyman, M.R. and Paas, L. (2021), "Securing higher-quality data from self-administered questionnaires", *International Journal of Market Research*, Vol. 63 No. 6, pp. 685-692, doi: 10.1177/14707853211057172.

Ku, L. and Zaroff, C. (2014), "How far is your money from your mouth? The effects of intrinsic relative to extrinsic values on willingness to pay and protect the environment", *Journal of Environmental Psychology*, Vol. 40, pp. 472-483, doi: 10.1016/j.jenvp.2014.10.008.

Lee, S.M., Tae Kim, S. and Choi, D. (2012), "Green supply chain management and organizational performance", *Industrial Management and Data Systems*, Vol. 112 No. 8, pp. 1148-1180, doi: 10.1108/02635571211264609.

Li, S. and Kallas, Z. (2021), "Meta-analysis of consumers' willingness to pay for sustainable food products", *Appetite*, Vol. 163, 105239, doi: 10.1016/j.appet.2021.105239.

Lichtenthal, J.D. and Mummalaneni, V. (2009), "Commentary: relative presence of business-to-business research in the marketing literature: review and future directions", *Journal of Business-To-Business Marketing*, Vol. 16 Nos 1-2, pp. 40-54, doi: 10.1080/10517120802490004.

Lu, Y., Zhao, C., Xu, L. and Shen, L. (2018), "Dual institutional pressures, sustainable supply chain practice and performance outcome", *Sustainability*, Vol. 10 No. 9, p. 3247, doi: 10.3390/su10093247.

MacKenzie, S.B. and Podsakoff, P.M. (2012), "Common method bias in marketing: causes, mechanisms, and procedural remedies", *Journal of Retailing*, Vol. 88 No. 4, pp. 542-555, doi: 10.1016/j.jretai.2012.08.001.

Magretta, J. (1997), "Growth through global sustainability - an interview with Monsanto's CEO, Robert B. Shapiro", *Harvard Business Review*, Vol. 75 No. 1, pp. 79-88.

Matthews, L.M., Sarstedt, M., Hair, J.F. and Ringle, C.M. (2016), "Identifying and treating unobserved heterogeneity with FIMIX-PLS", *European Business Review*, Vol. 28 No. 2, pp. 208-224, doi: 10.1108/EBR-09-2015-0095.

Merli, R., Preziosi, M. and Acampora, A. (2018), "How do scholars approach the circular economy? A systematic literature review", *Journal of Cleaner Production*, Elsevier Ltd, Vol. 178, pp. 703-722, doi: 10.1016/j.jclepro.2017.12.112.

Miller, K.M., Hofstetter, R., Krohmer, H. and Zhang, Z.J. (2011), "How should consumers' willingness to pay be measured? An empirical comparison of state-of-the-art approaches", *Journal of Marketing Research*, Vol. 48 No. 1, pp. 172-184, doi: 10.1509/jmkr.48.1.172.

Mohamed, Z., Kit Teng, P., Rezai, G. and Sharifuddin, J. (2014), "Malaysian consumers' willingness-to-pay toward eco-labeled food products in klang valley", *Journal of Food Products Marketing*, Vol. 20 No. sup1, pp. 63-74, doi: 10.1080/10454446.2014.921876.

Montabon, F., Daugherty, P.J. and Chen, H. (2018), "Setting standards for single respondent survey design", *Journal of Supply Chain Management*, Vol. 54 No. 1, pp. 35-41, doi: 10.1111/jscm.12158.

Morone, P., Caferra, R., D'Adamo, I., Falcone, P.M., Imbert, E. and Morone, A. (2021), "Consumer willingness to pay for bio-based products: do certifications matter?", *International Journal of Production Economics*, Vol. 240, 108248, doi: 10.1016/j.ijpe.2021.108248.

Nelson, K.M., Partelow, S., Stäbler, M., Graci, S. and Fujitani, M. (2021), "Tourist willingness to pay for local green hotel certification", in Qiu, Y. (Ed.), *PLOS ONE*, Vol. 16 No. 2, p. e0245953, doi: 10.1371/journal.pone.0245953.

Newbert, S.L. (2007), "Empirical research on the resource-based view of the firm: an assessment and suggestions for future research", *Strategic Management Journal*, Vol. 28 No. 2, pp. 121-146, doi: 10.1002/smj.573.

Nitzl, C., Roldan, J.L. and Cepeda, G. (2016), "Mediation analysis in partial least squares path modeling", *Industrial Management and Data Systems*, Vol. 116 No. 9, pp. 1849-1864, doi: 10.1108/IMDS-07-2015-0302.

Pagell, M. and Shevchenko, A. (2014), "Why research in sustainable supply chain management should have no future", *Journal of Supply Chain Management*, Vol. 50 No. 1, pp. 44-55, doi: 10.1111/jscm.12037.

Peng, Y., Zhang, X., van Donk, D.P. and Wang, C. (2022), "How can suppliers increase their buyers' CSR engagement: the role of internal and relational factors", *International Journal of Operations and Production Management*, Vol. 42 No. 2, pp. 206-229, doi: 10.1108/IJOPM-06-2021-0387.

Pisani-Ferry, J. and Mahfouz, S. (2023), "*The economic implications of climate action: A report to the French Prime Minister*", available at: https://www.strategie.gouv.fr/english-articles/economic-implications-climate-action (accessed 15 November 2023).

Podsakoff, P.M., MacKenzie, S.B., Lee, J.-Y. and Podsakoff, N.P. (2003), "Common method biases in behavioral research: a critical review of the literature and recommended remedies", *Journal of Applied Psychology*, Vol. 88 No. 5, pp. 879-903, doi: 10.1037/0021-9010.88.5.879.

Porter, C.O.L.H., Outlaw, R., Gale, J.P. and Cho, T.S. (2019), "The use of online panel data in management research: a review and recommendations", *Journal of Management*, Vol. 45 No. 1, pp. 319-344, doi: 10.1177/0149206318811569.

Ringle, S., Straub and Straub (2012), "Editor's comments: a critical look at the use of PLS-SEM in 'MIS quarterly'", *MIS Quarterly*, Vol. 36 No. 1, pp. 3–14, doi: 10.2307/41410402.

Ringle, C.M., Wende, S. and Becker, J.-M. (2022), *SmartPLS 4*, SmartPLS GmbH, Oststeinbek.

Roehrich, J.K., Hoejmose, S.U. and Overland, V. (2017), "Driving green supply chain management performance through supplier selection and value internalisation", *International Journal of Operations and Production Management*, Vol. 37 No. 4, pp. 489-509, doi: 10.1108/IJOPM-09-2015-0566.

Sarstedt, M., Ringle, C.M. and Hair, J.F. (2017), "Treating unobserved heterogeneity in PLS-SEM: a multi-method approach", in Latan, H. and Noonan, R. (Eds), *Partial Least Squares Path Modeling*, Springer International Publishing, Cham, pp. 197-217, doi: 10.1007/978-3-319-64069-3_9.

Sarstedt, M., Hair, J.F., Cheah, J.-H., Becker, J.-M. and Ringle, C.M. (2019), "How to specify, estimate, and validate higher-order constructs in PLS-SEM", *Australasian Marketing Journal*, Vol. 27 No. 3, pp. 197-211, doi: 10.1016/j.ausmj.2019.05.003.

Sarstedt, M., Ringle, C.M., Cheah, J.-H., Ting, H., Moisescu, O.I. and Radomir, L. (2020), "Structural model robustness checks in PLS-SEM", *Tourism Economics*, Vol. 26 No. 4, pp. 531-554, doi: 10.1177/1354816618823921.

Sauer, P.C., Silva, M.E. and Schleper, M.C. (2022), "Supply chains' sustainability trajectories and resilience: a learning perspective in turbulent environments", *International Journal of Operations and Production Management*, Vol. 42 No. 8, pp. 1109-1145, doi: 10.1108/IJOPM-12-2021-0759.

Schmid, N. and Kutzner, M. (2021), "*Procurement in a circular economy: benefits beyond sustainability*", available at: https://www2.deloitte.com/content/dam/Deloitte/ch/Documents/strategy-operations/deloitte-ch-en-procurement-in-a-circular-economy.pdf (accessed 10 January 2022).

Schmidt, J. and Bijmolt, T.H.A. (2020), "Accurately measuring willingness to pay for consumer goods: a meta-analysis of the hypothetical bias", *Journal of the Academy of Marketing Science*, Vol. 48 No. 3, pp. 499-518, doi: 10.1007/s11747-019-00666-6.

Schulze, H. and Bals, L. (2020), "Implementing sustainable purchasing and supply management (SPSM): a Delphi study on competences needed by purchasing and supply management (PSM) professionals", *Journal of Purchasing and Supply Management*, Vol. 26 No. 4, 100625, doi: 10.1016/j.pursup.2020.100625.

Schulze, H., Bals, L. and Johnsen, T.E. (2019), "Individual competences for sustainable purchasing and supply management (SPSM)", *International Journal of Physical Distribution and Logistics Management*, Vol. 49 No. 3, pp. 287-304, doi: 10.1108/IJPDLM-01-2018-0036.

Sharma, A. (2020), "Sustainability research in business-to-business markets: an agenda for inquiry", *Industrial Marketing Management*, Vol. 88, pp. 323-329, doi: 10.1016/j.indmarman.2020.05.037.

Shin, Y., Sung, S.Y., Choi, J.N. and Kim, M.S. (2015), "Top management ethical leadership and firm performance: mediating role of ethical and procedural justice climate", *Journal of Business Ethics*, Vol. 129 No. 1, pp. 43-57, doi: 10.1007/s10551-014-2144-5.

Shou, Y., Shan, X., Dai, J., Xu, D. and Che, W. (2023), "Actions speak louder than words? The impact of subjective norms in the supply chain on green innovation", *International Journal of Operations and Production Management*, Vol. 43 No. 6, pp. 879-898, doi: 10.1108/IJOPM-04-2022-0265.

Silvestre, B.S., Gong, Y., Bessant, J. and Blome, C. (2023), "From supply chain learning to the learning supply chain: drivers, processes, complexity, trade-offs and challenges", *International Journal of Operations and Production Management*, Vol. 43 No. 8, pp. 1177-1194, doi: 10.1108/IJOPM-04-2023-0318.

Song, H., Yu, K. and Zhang, S. (2017), "Green procurement, stakeholder satisfaction and operational performance", *The International Journal of Logistics Management*, Vol. 28 No. 4, pp. 1054-1077, doi: 10.1108/IJLM-12-2015-0234.

Stek, K. and Schiele, H. (2021), "How to train supply managers – necessary and sufficient purchasing skills leading to success", *Journal of Purchasing and Supply Management*, Vol. 27 No. 4, 100700, doi: 10.1016/j.pursup.2021.100700.

Sturm, S., Hohenstein, N.-O. and Hartmann, E. (2023), "Linking entrepreneurial orientation and supply chain resilience to strengthen business performance: an empirical analysis", *International Journal of Operations and Production Management*, Vol. 43 No. 9, pp. 1357-1386, doi: 10.1108/IJOPM-07-2022-0418.

Taylor, T.L. and Collins, S. (2022), "*Ingraining Sustainability in the Next Era of ESG Investing*", available at: https://www2.deloitte.com/lu/en/pages/financial-services/articles/esg-investing-and-sustainability.html (accessed 15 November 2023).

Topal, İ., Nart, S., Akar, C. and Erkollar, A. (2020), "The effect of greenwashing on online consumer engagement: a comparative study in France, Germany, Turkey, and the United Kingdom", *Business Strategy and the Environment*, Vol. 29 No. 2, pp. 465-480, doi: 10.1002/bse.2380.

Treviño, L.K., Butterfield, K.D. and McCabe, D.L. (1998), "The ethical context in organizations: influences on employee attitudes and behaviors", *Business Ethics Quarterly*, Vol. 8 No. 3, pp. 447-476, doi: 10.2307/3857431.

Tully, S.M. and Winer, R.S. (2014), "The role of the beneficiary in willingness to pay for socially responsible products: a meta-analysis", *Journal of Retailing*, Vol. 90 No. 2, pp. 255-274, doi: 10.1016/j.jretai.2014.03.004.

Van Der Werff, E., Steg, L. and Keizer, K. (2013), "The value of environmental self-identity: the relationship between biospheric values, environmental self-identity and environmental preferences, intentions and behaviour", *Journal of Environmental Psychology*, Vol. 34, pp. 55-63, doi: 10.1016/j.jenvp.2012.12.006.

Walter, S.L., Seibert, S.E., Goering, D. and O'Boyle, E.H. (2019), "A tale of two sample sources: do results from online panel data and conventional data converge?", *Journal of Business and Psychology*, Vol. 34 No. 4, pp. 425-452, doi: 10.1007/s10869-018-9552-y.

Wiklund, J. and Shepherd, D.A. (2011), "Where to from here? EO-as-experimentation, failure, and distribution of outcomes", *Entrepreneurship Theory and Practice*, Vol. 35 No. 5, pp. 925-946, doi: 10.1111/j.1540-6520.2011.00454.x.

Winter, S.R., Crouse, S.R. and Rice, S. (2021), "The development of 'green' airports: which factors influence willingness to pay for sustainability and intention to act? A structural and mediation model analysis", *Technology in Society*, Vol. 65, 101576, doi: 10.1016/j.techsoc.2021.101576.

Yadav, S., Choi, T.-M., Kumar, A., Luthra, S. and Naz, F. (2023), "A meta-analysis of sustainable supply chain practices and performance: the moderating roles of type of economy and innovation", *International Journal of Operations and Production Management*, Vol. 43 No. 5, pp. 802-845, doi: 10.1108/IJOPM-05-2022-0328.

Yang, J., Wang, Y., Gu, Q. and Xie, H. (2022), "The antecedents and consequences of green purchasing: an empirical investigation", *Benchmarking: An International Journal*, Vol. 29 No. 1, pp. 1-21, doi: 10.1108/BIJ-11-2020-0564.

Ye, F., Zhao, X., Prahinski, C. and Li, Y. (2013), "The impact of institutional pressures, top managers' posture and reverse logistics on performance—evidence from China", *International Journal of Production Economics*, Vol. 143 No. 1, pp. 132-143, doi: 10.1016/j.ijpe.2012.12.021.

Yen, Y.-X. and Yen, S.-Y. (2012), "Top-management's role in adopting green purchasing standards in high-tech industrial firms", *Journal of Business Research*, Vol. 65 No. 7, pp. 951-959, doi: 10.1016/j.jbusres.2011.05.002.

Yook, K.H., Choi, J.H. and Suresh, N.C. (2018), "Linking green purchasing capabilities to environmental and economic performance: the moderating role of firm size", *Journal of Purchasing and Supply Management*, Vol. 24 No. 4, pp. 326-337, doi: 10.1016/j.pursup.2017.09.001.

Yu, W., Chavez, R., Jacobs, M., Wong, C.Y. and Yuan, C. (2019), "Environmental scanning, supply chain integration, responsiveness, and operational performance", *International Journal of Operations and Production Management*, Vol. 39 No. 5, pp. 787-814, doi: 10.1108/IJOPM-07-2018-0395.

Yu, X., Tao, Y., Wang, D. and Yang, M.M. (2022), "Disengaging pro-environmental values in B2B green buying decisions: evidence from a conjoint experiment", *Industrial Marketing Management*, Vol. 105, pp. 240-252, doi: 10.1016/j.indmarman.2022.05.020.

Zaefarian, G., Kadile, V., Henneberg, S.C. and Leischnig, A. (2017), "Endogeneity bias in marketing research: problem, causes and remedies", *Industrial Marketing Management*, Vol. 65, pp. 39-46, doi: 10.1016/j.indmarman.2017.05.006.

Zhang, C., Venkatesh, M. and Ohana, M. (2023), "The impact of normative institutions on socially sustainable supply chain management: the role of individual cultural values", *International Journal of Operations and Production Management*, Vol. ahead-of-print No. ahead-of-print, doi: 10.1108/IJOPM-10-2022-0691.

Zhao, L. and He, Q. (2022), "Explicating the microfoundation of SME pro-environmental operations: the role of top managers", *International Journal of Operations and Production Management*, Vol. 42 No. 4, pp. 500-525, doi: 10.1108/IJOPM-09-2021-0590.

Zhu, Q., Sarkis, J. and Lai, K. (2013), "Institutional-based antecedents and performance outcomes of internal and external green supply chain management practices", *Journal of Purchasing and Supply Management*, Vol. 19 No. 2, pp. 106-117, doi: 10.1016/j.pursup.2012.12.001.

(The Appendix follows overleaf)

Appendix

Table A1.
Segments fit indices

Criteria	No. of segments						
	1	2	3	4	5	6	7
AIC (Akaike's information criterion)	3240.025	3063.882	2957.248	2845.541	2856.416	*2810.25*	2827.212
AIC3 (modified AIC with Factor 3)	3256.025	3096.882	3007.248	2912.541	2940.416	*2911.25*	2945.212
AIC4 (modified AIC with Factor 4)	3272.025	3129.882	3057.248	*2979.541*	3024.416	3012.25	3063.212
BIC (Bayesian information criterion)	3302.727	3193.206	3153.192	*3108.107*	3185.603	3206.058	3289.641
CAIC (consistent AIC)	3318.727	3226.206	3203.192	*3175.107*	3269.603	3307.058	3407.641
HQ (Hannan–Quinn criterion)	3264.926	3115.24	3035.063	*2949.813*	2987.146	2967.436	3010.855
MDL5 (minimum description length with factor 5)	*3681.537*	3974.5	4336.971	4694.371	5174.352	5597.291	6083.359
LnL (LogLikelihood)	−1604.01	−1498.94	−1428.62	−1355.77	−1344.21	−1304.13	−1295.61
EN (normed entropy statistic)		0.565	0.722	0.721	0.668	0.682	0.708

Source(s): Authors' own creation

Table A2.
Relative segment sizes

No. of segments	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Segment 7
2	0.506	0.494					
3	0.490	0.432	0.078				
4	0.459	0.315	0.172	0.054			
5	0.401	0.260	0.207	0.078	0.054		
6	0.257	0.212	0.211	0.199	0.069	0.052	
7	0.302	0.253	0.158	0.120	0.086	0.052	0.028

Source(s): Authors' own creation

Corresponding author
Owais Khan can be contacted at: owais.khan@unive.it