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When challenges hinder: An investigation of buyer-imposed stressors on supplier flexibility

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ABSTRACT

Working with buyers may drive business growth but can also induce supplier stress. Drawing on Job Demands–Resources (JD-R) theory, this study explored how buyer-imposed work stressors affect supplier flexibility. Employing a scenario-based experiment involving 338 managers, we found that the imposition of challenge stressors increases supplier flexibility when hindrance stressors are low. Conversely, when hindrance stressors are high, imposing challenge stressors reduces supplier flexibility. We also found that supplier bricolage negatively moderates the relationship between buyer-imposed challenge stressors and supplier flexibility. Specifically, we confirmed that suppliers with higher bricolage are less willing to provide flexibility in response to challenge stressors. For practitioners, our study not only identified the type of work stressors they should impose on suppliers to boost flexibility but also highlighted bricolage as an important moderating factor.

1. Introduction

In today's rapidly changing and uncertain environment, supplier flexibility—the willingness of a supplier to adjust and customize products and services according to buyer requirements (Chu, Chang, & Huang, 2012)—has become increasingly important. Although supplier flexibility is positively associated with buyer performance, it may not necessarily benefit a supplier (Gligor, 2018). However, buyers often exert substantial demand on their suppliers to become more flexible (e.g., to increase the level of product and service customization). For instance, Ford placed immense pressure on its suppliers to offer the F-150 XL in over four billion different configurations (Appel, 2016). Similarly, when offering the Polo range, Volkswagen imposed a huge demand on suppliers (Scavarda, Reichhart, Hamacher, & Holweg, 2010). Given the importance of supplier flexibility for buyer value creation, practitioners must understand the factors that encourage or inhibit such behavior.

A growing number of business-to-business (B2B) studies examine the antecedents of supplier flexibility (see Table 1). While these studies (e.g., Cheng, Cantor, Grimm, & Dresner, 2014; Yang, Jiang, & Xie, 2019) enhance our understanding of the factors promoting (e.g., long-term orientation and sense of mutuality) or constraining (e.g., opportunism and length of distribution) supplier flexibility, they have three important limitations. First, the Job Demands-Resources (JD-R) theory suggests that the stress generated from work demands (hereafter referred to as stressors) imposed by a buyer can result in both desirable (e.g., more flexibility) and undesirable (e.g., less flexibility) behavioral outcomes depending on the nature of the demands (Cavanaugh, Boswell, Roehling, & Boudreau, 2000). Nevertheless, earlier studies on supplier flexibility did not consider the psychological aspect of a buyer's work demands, leaving the important question of whether and how the stress resulting from buyer demands influences supplier flexibility. This is a noteworthy limitation considering the unintentional negative effects of job demands, which may discourage supplier flexibility.

Second, while demands are the main predictor of behavior (i.e., flexibility), the JD-R theory posits that resources serve as a buffer assisting a firm to deal more effectively with job-demand stressors (cf: Bakker & Demerouti, 2017). Although the relevance of resources is well understood theoretically, a direct empirical study on how the interaction between job-demand stressors and resources affects supplier flexibility is lacking. A comprehensive view of the antecedents of supplier flexibility considers these effects. Third, prior research on work stressors in the B2B setting primarily employed surveys (e.g., Lee, Wang, & Grover, 2020; Üstündağ & Ungan, 2020; Yang et al., 2019), potentially resulting in

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Table 1
Indicated empirical studies on antecedents to supplier flexibility.

Source (chronologically)	Conceptualization	Context/Sample	Antecedents of Flexibility	Moderators	Theory	Key findings
Ivens (2005)	Service providers' flexibility	Survey of 206 German firms	(a) uncertainty (b) specific investments (c) mutuality (d) long-term orientation	–	Relational contracting theory and transaction cost framework	Uncertainty, specific investments, mutuality, and long-term orientation positively affect flexibility.
Lloréns, Molina, and Verdú (2005)	Manufacturing flexibility	Survey of 403 European firms from the chemicals, electronics and vehicles industries	(a) environment (b) financial resources (c) metaflexibility	–	–	The environment, financial resources and metaflexibility are positively related to manufacturing flexibility.
Sánchez and Pérez Pérez (2005)	Supply chain flexibility	Survey of 126 Spanish automotive suppliers	(a) environmental uncertainty (b) mutual understanding (c) interdependence (d) technological complexity (e) supplier dependence	–	–	Supply chain flexibility is positively related to high levels of environmental uncertainty, mutual understanding, technological complexity, and low levels of interdependence in the supply chain. It does not relate to supplier dependence.
Kamel, Kumar, and Kumar (2009)	Flexibility	Survey of 175 SMEs Canadian manufacturing companies	Strategy	–	–	Strategy has a direct and positive effect on flexibility.
Liao, Hong, and Subba (2010)	Supply flexibility	Survey of 201 manufacturing firms from apparel and textile products, rubber and plastics, metal products, industrial and commercial machinery, electronics, and transportation equipment industries	Supply management practices	–	Resource-based view (RBV)	Supply management practices are positively related to supply flexibility.
Tamayo-Torres, Ruiz-Moreno, and Verdú (2010)	Strategic flexibility	Survey of 204 European firms from telecommunications, chemicals, and vehicles sectors	Strategic and operative real options	Innovative capacity	–	The existence of real options drives strategic flexibility. This relationship is moderated by the firm's innovation capacity.
Chang and Huang (2012)	Supplier delivery flexibility	Survey of 122 multi-industry Taiwanese manufacturers	(a) coercive influence (b) requests (c) non-coercive influence	(a) trust (b) shared vision	Contingency theory	Request strategy negatively impacts the supplier delivery flexibility. The moderating effects of trust and shared vision offer mixed results.
Chu et al. (2012)	Supplier flexibility	Survey of 162 Taiwanese multi-industry purchasing managers	(a) coercive influence strategy (b) non-coercive influence strategy (c) trust (d) shared vision	–	–	Coercive influence strategies and shared vision both boost the supplier flexibility.
Santos-Vijande, López-Sánchez, and Trespalacios (2012)	Strategic flexibility	Survey of 181 cross-section Spanish manufacturing firms	Organizational learning	–	RBV	Organizational learning affects a firm's flexibility.
Cheng et al. (2014)	Organizational flexibility	Survey of 418 US manufacturing industries	(a) heterogeneity of supply sources (b) length of the distribution channel (c) scale economies (d) industry concentration levels	–	Supply network perspective	Heterogeneity of supply sources and scale economies have a positive effect on organizational activity, whereas industry concentration levels and length of distribution channel have a negative effect.
Han, Sung, and Shim (2014)	Supplier flexibility	Survey of 224 organizational buyers from electronics, chemicals, industrial equipment products	(a) opportunism (b) market uncertainty (c) specific investment (d) mutuality (e) long-term orientation	(a) planning level (b) conflict management	Relational contracting theory and transaction cost framework	Supplier's degree of opportunism and market uncertainty negatively influence flexibility, whereas supplier's specific investments have a positive influence. Mutuality and long-term orientation also influence flexibility. Contingency effects are examined.
Chaudhuri, Boer, and Taran (2018)	Manufacturing flexibility	Survey of 343 manufacturing firms in Asia	(a) internal integration (b) external integration	supply chain risk management	The agency theory	Both internal integration and supply chain risk management have direct and positive effects on manufacturing flexibility. The relationship between

(*continued on next page*)

Table 1 (*continued*)

Source (chronologically)	Conceptualization	Context/Sample	Antecedents of Flexibility	Moderators	Theory	Key findings
			(c) supply chain risk management			external integration and flexibility is moderated by the supply chain risk management.
Wagner, Grosse-Ruyken, and Erhun (2018)	Sourcing flexibility	Survey of 336 European and US manufacturing firms from various industries	(a) supplier evaluation and selection (b) information systems integration	–	Information processing theory (IPT)	Supplier evaluation and selection, and information systems integration are positively related to sourcing flexibility.
Yang et al. (2019)	Supplier flexibility	Survey of 199 Chinese manufacturing buyers	Strong buyer-supplier relationship	–	Outside-in perspective and relational theory	A strong buyer-supplier relationship drives supplier flexibility.
Lee et al. (2020)	Manufacturer-supplier flexibility	Survey of 141 Taiwanese manufacturing firms from various industries	IOS integration	(a) IOS integration (b) IOS-enabled Analytical Ability	Real options theory and bounded rationality	IOS integration enables better flexibility. Further, IOS-enabled analytical ability, boosting the effect of flexibility on manufacturer agility.
Üstündağ and Ungan (2020)	Supplier flexibility	Survey of 119 Turkish manufacturing firms from various industries	(a) information sharing (b) information quality (c) supplier relationship (d) environmental uncertainty	–	–	Environmental uncertainty, supplier relationship and information quality are positively related to supplier flexibility. However, buyer-supplier information sharing does not affect the supplier flexibility.
This Study	Supplier flexibility	Survey of 338 managers from various industries	Challenge stressors	(a) hindrance stressors (b) bricolage	JD-R Theory	Challenge stressors increase supplier flexibility when hindrance stressors are low. The moderating effect of bricolage on the relationship between challenge stressors and flexibility is also examined.

endogeneity issues (Viglia, Zaefarian, & Ulqinaku, 2021).

Our study aims to answer the following questions: (a) How do buyer-imposed challenge stressors influence supplier flexibility?, (b) How does the interaction between buyer-imposed challenges and hindrance stressors affect supplier flexibility?, and (c) How does supplier bricolage influence supplier flexibility by applying combined resources in problem-solving and new opportunities? Our study uses the JD-R theory as an overarching framework to address these questions. We suggest that supplier flexibility depends on whether buyer demand is perceived as beneficial or harmful (cf: Zaefarian, Robson, Najafi-Tavani, & Spyropoulou, 2022). We identified two types of stressors based on the JD-R theory: challenge and hindrance. The JD-R theory also allows us to identify bricolage as a unique resource that moulds the effects of job-demand stressors.

This study makes three major contributions to existing literature. First, we contribute to the literature by applying the JD-R theory to supplier flexibility literature. While previous studies have focused on challenge or hindrance stressors/demands *independently* (e.g., Chu et al., 2012; Dong, Ju, & Fang, 2016; Kumar, Rajan, Salunkhe, & Joag, 2022), the present research examines the *interactive* effects of challenge and hindrance stressors in buyer-supplier relations. Thus, we reconcile the positive and negative effects of buyer-imposed work stressors on supplier flexibility. Our findings show that suppliers offer varying levels of flexibility depending on the type and combination of demands imposed by buyers. Specifically, when hindrance stressors are low, challenge stressors increase supplier flexibility. Conversely, when suppliers experience high levels of hindrance stressors, challenge stressors reduce flexibility.

Second, we contribute to the literature on supplier flexibility by identifying novel conditioning effect of supplier bricolage. Our results reveal that supplier bricolage, as a key job resource, can be a double-edged sword. Prior studies have demonstrated the positive effects of organizational bricolage on innovation (Senyard, Baker, Steffens, & Davidsson, 2014) and growth capabilities (Yu & Wang, 2021). Our findings offer a nuanced view of supplier bricolage by identifying how it moderates the effects of work stressors and supplier flexibility. Specifically, we show that suppliers with higher bricolage do not respond positively to buyer-imposed challenge stressors. Rather than increasing flexibility, suppliers with high bricolage are less flexible towards their buyers who impose challenge stressors.

Third, our study answers the call for more experimental research with real managers to provide direct industry recommendations for business marketing (Viglia et al., 2021). As prior research on work stressors in the B2B setting has relied on surveys, the random allocation of supplier firms to low or high work-stressor conditions is difficult. Thus, self-selection is plausible, where suppliers could inherently be in low or high work stress conditions due to alternative factors, such as industry requirements. This allows for alternative explanations for the effect rather than work stressors. We circumvent this issue by randomly assigning managers to conditions to capture the causal impact of buyer-imposed work stressors on supplier flexibility. We also developed experimental manipulations for challenge and hindrance stressors.

2. Theoretical background and research hypotheses

2.1. Job Demands–Resources (JD–R) Theory

The JD-R theory has been widely applied to individual occupational characteristics and outcomes (e.g., salespersons' work stressors and burnout) (Hoppner, Mills, & Griffith, 2021). However, our comprehensive review of the literature on supplier flexibility reveals the limited application of the JD-R theory (see Table 1). This lack of attention is surprising given that in buyer-supplier relationships, a partnering organization can also experience stress resulting from excessive (Hammerschmidt, Wetzel, & Arnold, 2018) and ambiguous (Dong et al., 2016) job demands, which can ultimately decrease supplier flexibility

(Chang & Huang, 2012; Chu et al., 2012). The JD-R theory provides a baseline for addressing important yet neglected questions of whether and how work stressors and resources influence supplier flexibility.

The JD–R theory suggests that the behavioral outcomes can be explained by job demands and resources (Bakker & Demerouti, 2007). Job demands refer to work aspects that require significant investments in physical and psychological efforts and skills (Nahrgang, Morgeson, & Hofmann, 2011). JD-R studies further classified job demands into challenge and hindrance stressors. Challenge stressors are job demands that are pressure-laden yet offer growth opportunities. In business exchanges, buyers impose challenge stressors on suppliers by subjecting them to time pressure, workload, task responsibility, and complexity. Our study conceptualizes challenge stressors as a global construct involving the demands that buyers impose on suppliers (e.g., time pressure, task complexity, and high responsibility). As challenge stressors present potential growth opportunities and rewarding experiences, they can motivate suppliers to make extra efforts to meet buyer demands (Zaefarian et al., 2022). Conversely, hindrance stressors are job demands that do not present any opportunity for development and are often considered barriers to goal achievement (Cavanaugh et al., 2000). Examples of hindrance stressors in buyer-supplier relations include supplier role ambiguity and role overload due to buyer demand (Zaefarian et al., 2022). We focus on role ambiguity and red tape as hindrance stressors for suppliers. Role ambiguity refers to suppliers' uncertainty regarding their roles and obligations (Coelho, Augusto, & Lages, 2011), which can stem from conflicting and ambiguous buyer demands (Johnston & Kristal, 2008). Red tape pertains to bureaucratic constraints (Dennerlein & Kirkman, 2022) that can jeopardize supply chain coordination by eliciting negative coping strategies (Dong et al., 2016; Rodell & Judge, 2009). As hindrance stressors can act as barriers to suppliers in exploiting opportunities or achieving goals, they may interact with challenge stressors to shape behavior (i.e., supplier flexibility).

The JD-R theory also highlights the importance of examining the interaction between work stressors and resources (Bakker & Demerouti, 2007; Bakker, Demerouti, & Sanz-Vergel, 2014). Job resources refer to a job's physical, psychological, social, or organizational aspects that are essential in coping with job demands and associated physiological and psychological costs (Bakker, 2011). Thus, our study considers bricolage as an important job resource that may influence firms' ability and willingness to cope with challenging situations resulting from job demands (e.g., Busch & Barkema, 2021; Senyard et al., 2014). We define bricolage as "making do by applying combinations of the resources at hand to new problems and opportunities" (Baker & Nelson, 2005, p. 333). Bricolage involves three key elements that facilitate resource usage and combinations: (1) proactively solving problems or exploiting opportunities with immediate action, (2) utilizing in-house resources rather than seeking new resources, and (3) combining resources for new purposes beyond the original use or intention (Baker & Nelson, 2005). However, the presence of a high level of bricolage, which amplifies a supplier's accessibility to and connection with alternative buyers, can lead to the supplier becoming disengaged from their existing business partners and, hence, experiencing a lack of motivation to accommodate the requests made by those partners (Senyard et al., 2014). Thus, as an organizational resource, bricolage may condition the challenge stressor-flexibility relationship by affecting the supplier's ability and motivation to meet the buyer's demands.

2.2. The effect of challenge stressors on supplier flexibility

Studies on buyer-supplier relationships (e.g., Ivens, 2005; Kamel et al., 2009; Liao et al., 2010) have long emphasized issues related to supplier flexibility (e.g., changes in production routines), which is crucial for meeting customer demands, managing unexpected events, and maintaining competitive advantages. Suppliers, driven by their own agendas, may not always prioritize buyers' demands. However, suppliers may become more collaborative when they perceive a certain level of pressure, especially when it is linked to improved opportunities and benefits (Zaefarian et al., 2022). In this context, we posit that buyer-imposed challenge stressors can motivate supplier flexibility by amplifying suppliers' perception of the merits associated with the partnership.

Challenge stressors play a pivotal role in cultivating positive cognition patterns that are tied to achievement and growth, which can bolster work motivation and enhance overall performance levels (Cavanaugh et al., 2000; Podsakoff, LePine, & LePine, 2007). When suppliers are confronted with challenge stressors (e.g., time pressure and multiple demands from buyers), they become more cognizant of managing these tasks effectively to achieve desired outcomes, such as buyer satisfaction and the continuity of the partnership (Zaefarian et al., 2022). Challenge stressors also provide an opportunity to improve organizational position and status by impressing business partners (Ambos, Andersson, & Birkinshaw, 2010) and enhancing organizational performance (Nell & Ambos, 2013). For example, buyer pressure to adopt quality standards encourages suppliers to learn and develop collaborative problem-solving processes that benefit both partnership and market performance (Ueki, 2016). Consequently, suppliers experiencing such stressors are inclined to be more accommodating and flexible towards buyer demand. However, without challenge stressors and their associated benefits, suppliers may prioritize their self-interest over buyers' interests. As such, the diminished motivation to allocate time and resources in the partnership leads to a decline in flexibility levels (cf: Pearsall, Ellis, & Stein, 2009).

Furthermore, challenge stressors can enhance supplier flexibility by encouraging extra-role behaviors, which are voluntary work actions that are not explicitly demanded (Demerouti, Bakker, & Gevers, 2015). Suppliers facing challenge stressors, such as extra workload and time pressure, are motivated to adopt more efficient ways of completing tasks and demonstrate strong initiative in achieving desired outcomes (cf: Amabile, Barsade, Mueller, & Staw, 2005; Fay & Sonnentag, 2002). As such, suppliers may become more flexible (e.g., altering production planning or adjusting/improving products and processes) to meet the buyer's demands and contribute to the partnership. Therefore, challenge stressors can motivate suppliers to become more flexible and invest more in partnerships with buyers (Demerouti et al., 2015). We thus hypothesize:

Hypothesis 1. Challenge stressors have a positive effect on supplier flexibility.

2.3. The moderating role of hindrance stressors

We propose that hindrance stressors negatively influence the relationship between challenge stressors and supplier flexibility in different ways. First, hindrance stressors jeopardize the likelihood of goal achievement, resulting in unfavorable behavioral outcomes, such as frustration and reduced work motivation (LePine, Zhang, Crawford, & Rich, 2016). Suppliers find it difficult to meet challenging demands and develop flexible solutions when uncertain of their roles and responsibilities. Under such circumstances, they may perceive the relationship with a buyer as less beneficial and rewarding, leading to a lack of flexibility and becoming indifferent towards buyers' requests. Moreover, hindrance stressors prevent suppliers from tapping into opportunities provided by challenge stressors by hindering decision-making and reducing confidence in effectively handling job demands (Dong et al., 2016). Hindrance stressors also trigger suppliers' negative emotions (e.g., frustration with buyers' requests) (Shen, Tang, & Chen, 2014) and reduce buyers' satisfaction with exchange partners (Nygaard & Dahlstrom, 2002), thus discouraging suppliers from investing time and effort to accommodate buyers' challenging demands despite the potential achievement attached to them (Yang et al., 2012).

Furthermore, hindrance stressors also deplete cognitive resources and reduce the perceived efficiency of buyer-supplier exchanges,

thereby lessening positive evaluations of challenging tasks as well as the ability and willingness to become more flexible towards buyers' demands. In particular, in the presence of role ambiguity, a supplier should dedicate its cognitive resources to clarifying uncertainties regarding buyers' expectations (Nygaard & Dahlstrom, 2002). High levels of hindrance stressors deprive suppliers of the cognitive resources to become more flexible towards buyers' demands. Moreover, devoting cognitive resources to coping with hindrance stressors may be deemed unfair and wasteful, which ultimately encourages suppliers to avoid buyer requests instead of accommodating them (Ralston et al., 2010). Hindrance stressors, such as red tape, also impede timely access to resources that can facilitate the accomplishment of challenging tasks (Crawford, LePine, & Rich, 2010) by limiting resource access, decision-making, organizational commitment, and increasing transaction costs (Boehe, Qian, & Peng, 2016; Khanna, Palepu, & Sinha, 2005; Organ & Greene, 1981). However, when hindrance stressors are low, suppliers can positively appraise opportunities conveyed by challenge stressors and consider it worthwhile to provide flexible solutions. We thus hypothesize:

Hypothesis 2. Hindrance stressors negatively moderate the relationship between challenge stressors and supplier flexibility.

2.4. The moderating role of supplier bricolage

Bricolage enables organizations to overcome resource constraints and innovate supportive practices (Witell et al., 2017). This is associated with higher levels of process innovation and sustained competitive advantages in service firms (Salunke, Weerawardena, & McColl-Kennedy, 2013) and manufacturers (Chen et al., 2022; Chen, Tamilmani, Tran, Waseem, & Weerakkody, 2022; Chen, Xu, Rodas, & Liu, 2022). Bricolage also enables suppliers to develop product and customer-oriented services beyond their current offerings (Baines & Lightfoot, 2014; Kache & Seuring, 2017). Organizations with high bricolage actively exploit existing resources (e.g., technology stock, technicians, and marketing experience) to advance product functionality and operations (Storey, Cankurtaran, Papastathopoulou, & Hultink, 2016). While these findings highlight the positive effects of organizational bricolage, others have revealed its negative effects in buyer-supplier relationships, such as wasted effort (Bechky & Okhuysen, 2011), temporary solutions (Baker, Miner, & Eesley, 2003), and disengagement with business partners (Senyard et al., 2014).

Considering these conflicting findings, we posit that while bricolage may help suppliers deal with buyer-imposed demands, it might not always translate into supplier flexibility towards buyers. Although challenge stressors can motivate supplier flexibility, we argue that their effects depend on supplier bricolage for two reasons. First, when suppliers face challenging demands from buyers, relying solely on bricolage may not always be an effective coping mechanism. Specifically, continual reliance on bricolage is not only time-consuming but may also divert suppliers' attention from feasible to impracticable solutions in dealing with work challenges (Steffens, Baker, Davidsson, & Senyard, 2022). In addition, suppliers with high bricolage can devote excessive resources to developing initiatives that require access to significant new resources and capabilities beyond their organizational boundaries, resulting in resource depletion (Senyard et al., 2014). Under such circumstances, the supplier may be less willing to dedicate additional resources to accommodate the buyer's challenging demands. This, in turn, would attenuate the positive effects of challenge stressors on supplier flexibility.

Second, bricolage reduces suppliers' dependence on excessively demanding buyers. Bricolage facilitates product and service innovation by enabling firms to creatively exploit existing resources (Miner, Bassof, & Moorman, 2001). These capacities can significantly reduce suppliers' dependence on buyers (Kim & Zhu, 2018) and lower their desire to satisfy demanding partners (Andaleeb, 1996). Thus, high bricolage suppliers are more likely to adopt self-benefitting solutions than to be flexible towards buyers. Conversely, when bricolage is low, suppliers are more dependent on their buyers and thus perceive greater benefits in managing buyer-imposed challenge stressors and offering flexibility to buyers. Instead, higher bricolage distances suppliers from prioritizing buyer requirements, thus hindering their flexibility in response to buyer-imposed work challenges. We thus hypothesize:

Hypothesis 3. Bricolage negatively moderates the relationship between challenge stressors and supplier flexibility.

Taken together, the conceptual framework of this study (see Fig. 1) highlights that challenge stressors positively affect supplier flexibility (H1), and high-hindrance stressors (vs. low) can negatively moderate this effect (H2). Supplier bricolage also weakens the positive link between challenge stressors and supplier flexibility (H3).

3. Experiment

3.1. Overview

Our experiment aims to provide causal evidence of the effects of work stressors and bricolage on supplier flexibility. Extant research on challenge and hindrance stressors has primarily relied on survey methods (e.g., LePine, Podsakoff, & LePine, 2005; Rosen et al., 2020), in which endogeneity could be an issue (Ullah, Akhtar, & Zaefarian, 2018). We avoided participants' self-selection into specific conditions through random assignment into one of four conditions (i.e., low-challenge stressors–low-hindrance stressors, high-challenge stressors–low-hindrance stressors, low-challenge stressors–high-hindrance stressors, and high-challenge stressors–high-hindrance stressors). Because the difference between conditions is the challenge and hindrance stressor manipulation, our experiment minimized endogeneity issues to establish the causal effects of work stressors (Viglia et al., 2021). While earlier studies have classified work stressors as challenges versus hindrances (e.g., Cavanaugh et al., 2000), these stressors are probably not dichotomous and co-occur (O'Brien & Beehr, 2019). For instance, a manager can simultaneously experience heavy workloads (i.e., high-challenge stressors) and clear demands (i.e., low-hindrance stressors). Our scenario-based experiment addresses this dichotomy by allowing varying degrees of challenge and hindrance stressors to examine their interactive effects on supplier flexibility.

Specifically, this experiment aims to provide causal evidence of how challenge and hindrance stressors affect managers' willingness to offer flexibility at varying bricolage levels. We provide scenarios for managers in which the degrees of challenge and hindrance stressors imposed by the buyer are manipulated. Next, they indicated their willingness to offer flexibility to the buyer and their bricolage levels in their own firms. We expect managers with high (vs. low) challenge stressors to be more flexible when hindrance stressors are low (H1). Conversely, when hindrance stressors are high, we predict managers with high (vs. low) challenge stressors will be less flexible (H2). Bricolage is also expected to moderate the effects of challenge stressors on the willingness to offer flexibility. Under low bricolage, we predict that managers with high (vs. low) challenge stressors will offer greater flexibility. However, as bricolage increases, managers under high (vs. low) challenge stressors are expected to offer less flexibility (H3).

3.2. Recruitment procedure and sample

Four hundred managers were recruited from Prolific (www.prolific.co) to participate in a 2 (challenge stressors: low vs. high) × 2 (hindrance stressors: low vs. high) between-subjects experiment. Specifically, using pre-screeners on the Prolific panel, we recruited junior, middle, or upper management participants with decision-making responsibilities in sales, operations/production, or supply chain/logistics. As a further check, we verified their managerial roles by asking about their firm size and industry (Table 2). Our recruitment procedure was

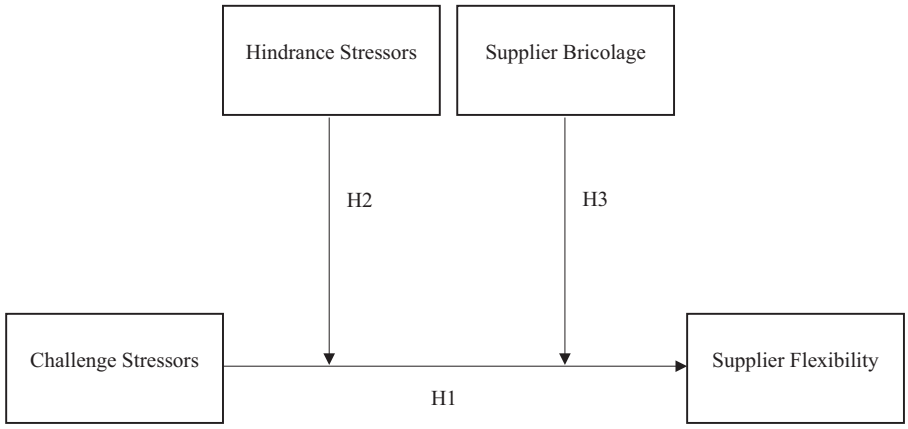

Fig. 1. Conceptual Model

Table 2
Managerial demographics.

Firm size	No.	%
Small size (⟨300)	234	69.2
Medium size (300−2000)	52	15.4
Large size (≥2000)	52	15.4
Firm age		
≤5	61	18.0
6–10	47	13.9
11–20	73	21.6
≥21	157	46.4
Firm income (in million USD)		
≤9,000,000	229	67.8
10,000,000-19,000,000	25	7.4
20,000,000-29,000,000	18	5.3
30,000,000-39,000,000	5	1.5
40,000,000-49,000,000	1	0.3
≥50,000,000	60	17.8
Industry		
Transportation/ Automotive/ Airspace	15	4.4
Accounting/ Finance/Banking	22	6.5
Food & Beverages	11	3.3
IT/Telecom/Software/ Information Technology/ Electronics	60	17.8
Retail	20	5.9
Manufacturing	26	7.7
Services (marketing, sales, tourism, hospitality, HR, education, events, arts, entertainment)	64	18.9
Pharmaceuticals/ Healthcare/Medical	25	7.4
Other services (gov, engineering, security, legal, logistics, real estate, recruitment, textile, renewable energy)	72	21.3
Chemicals/Biotech	6	1.8
Construction	17	5.0
Managerial age		
18–24 y.o	33	9.9
25–34 y.o	128	38.0
35–44 y.o	149	44.3
45–54 y.o	22	6.6
55–64 y.o	6	1.8
Managerial role		
Junior manager	115	34.0
Middle manager	159	47.0
Trained Profession	1	0.3
Upper manager	61	18.0
Data expired	2	0.6
Gender		
Female	155	45.9
Male	183	54.1

Note: The firm income has been translated to USD for consistency purposes.

similar to prior B2B research (e.g., Chen, Pu, et al., 2022; Chen, Tamilmani, et al., 2022; Chen, Xu, et al., 2022; Crisafulli & Singh, 2022). In exchange for participating, we paid participants a small monetary compensation (£1.50) that aligned with the platform's ethical payment principles and ensured reasonable response rates for a medium-length study (Buhrmester, Talaifar, & Gosling, 2018). We used Prolific Academic, as prior research found that their participants were less dishonest and more diverse than Amazon Mechanical Turk participants (Peer, Brandimarte, Samat, & Acquisti, 2017). Prolific has also been widely used in Marketing (e.g., Chen, Pu, et al., 2022; Chen, Tamilmani, et al., 2022; Chen, Xu, et al., 2022; Li, Hsee, & O'Brien, 2023), Organizational Behavior (e.g., Bennett, Campion, Keeler, & Keener, 2021; Shepherd, Kay, & Gray, 2019), and Social Psychology (e.g., Costin & Vignoles, 2020; Effron & Raj, 2020).

Our study consisted of two attention checks at the start and end to assess whether participants paid attention to the instructions (Paas, Dolnicar, & Karlsson, 2018; Permut, Fisher, & Oppenheimer, 2019). Both attention checks asked participants to ignore the standard response format and provide confirmation that they had read the instruction ("Please indicate [stipulated answer]"; Oppenheimer, Meyvis, & Davidenko, 2009; see Appendix E for both attention checks). As responding to surveys often requires cognitive effort, these attention checks address inattention among participants and improve data quality (Abbey & Meloy, 2017). As recommended by Oppenheimer et al. (2009), participants who failed attention checks were removed from the sample, leaving three hundred thirty-eight managers (see Table 2 for demographic details).

3.3. Manipulations

Participants were randomly assigned to one of four experimental conditions (i.e., low-challenge stressor–low-hindrance stressor, low-challenge stressor–high-hindrance stressor, high-challenge stressor–low-hindrance stressor, or high-challenge stressor–high-hindrance stressor).

As in their professional lives, the participants were asked to assume the manager role in a midsize supplier, the GMZ. They were responsible for selling their products to an important buyer with an ongoing two-year relationship. The scenario also stipulated that they could switch to alternative buyers at some cost and with disruptions in their operations.

Challenge stressors are manipulated in a scenario based on the nature of tasks and deadlines (Cavanaugh et al., 2000; LePine et al., 2005). Under low (high) challenge stressor conditions, managers had flexible (tight) deadlines and a few simple (numerous difficult) tasks. To strengthen the manipulation, participants were asked to describe a work event as challenging as the scenario provided.

Hindrance stressors are also manipulated in the scenario by the degree of role conflict, ambiguity, and hassle the manager experiences (Cavanaugh et al., 2000; LePine et al., 2005). Under the low (high) hindrance stressor condition, managers encountered little (a lot) red tape, a small (substantial) amount of paperwork, and no (huge) hassle

when completing the assigned tasks. To strengthen the manipulation, participants were asked to describe a work event that was as hindering as the scenario provided. We included episodic memory tasks, such as work stress scenarios, which might be difficult to imagine without genuine experience (Pham, 2013). By writing down their own experiences, we hoped that the tasks would improve the experimental realism of the challenges and hindrance manipulations. These manipulations were pretested. Appendix D presents the complete manipulations, measures, and results.

Next, supplier flexibility was measured by asking the managers if they were willing to engage in the following activities relative to their competitors ("reduction of manufacturing time," "reduction of product development," "increase the frequency of new product introductions," "increase level of customization," "adjustment of worldwide delivery capacity," "improvement of the level of customer service," "improvement of delivery reliability," "improvement of responsiveness of changing customer needs" on a 7-point scale 1 = *not at all,* 7 = *very much;* Gligor, 2018; α = 0.82).

Bricolage then was measured using eight items such as "We are confident of our ability to find workable solutions to new challenges by using our existing resources," "Our firm gladly takes on a broader range of challenges than others with our resources would be able to," "Our firm uses any existing resource that seems useful to respond to a new problem or opportunity" on a 7-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*; Senyard et al., 2014; α=. 90). We chose to measure rather than manipulate bricolage as it allows for floodlight analysis (Spiller, Fitzsimons, Lynch Jr, & McClelland, 2013). Hence, the experiment was able to identify the areas where the interaction (between challenge stressors and bricolage) is significant and where it was not" (Viglia et al., 2021, p. 199).

Finally, for purposes of demand effects, the participants were asked to posit the purpose of the study. Demographic information was gathered, and all participants were thanked for their involvement and contribution to the study. See Appendices A, B, and C for complete manipulation and measures.

4. Results

The Analysis of Variance (ANOVA) revealed a significant interaction effect between challenge and hindrance stressors on flexibility, $F(1,337) = 12.28$, $p < .001$. Consistent with H1, managers under high (versus low) challenge stressors offered more flexibility to the buyer when the hindrance stressors were low ($M_{high\ CS} = 5.08$, $SD = 0.77$ vs. $M_{low\ CS} = 4.80$, $SD = 1.27$; $F(1, 338) = 4.57$, $p = .03$, $\eta^2 = 0.01$). Conversely, in line with H2, managers under high (versus low) challenge stressors offered less flexibility to the buyer when the hindrance stressors were high ($M_{high\ CS} = 4.65$, $SD = 0.82$ vs. $M_{low\ CS} = 5.13$, $SD = 0.99$; $F(1, 338) = 7.95$, $p < .005$, $\eta^2 = 0.02$; see Fig. 2). The ANOVA did not reveal any significant main effects of challenge and hindrance stressors on willingness to offer flexibility, $F < 1$.

A moderation analysis using PROCESS Model 1 (Hayes, 2015) was conducted to analyze whether the effect of challenge stressors (X) on supplier flexibility (Y) was moderated by bricolage (W), $R = 0.44$, $F(3, 338) = 27.35$, $p < .001$. Challenge stressors have a significant positive effect on supplier flexibility ($\beta = 1.75$, $t(334) = 3.11$, $p < .002$), while bricolage has a significant positive effect on supplier flexibility ($\beta = 0.58$, $t(334) = 8.56$, $p < .001$). In support of H3, bricolage negatively moderates the effect of challenge stressors on supplier flexibility ($\beta = -0.36$, $t(334) = -3.52$, $p < .001$). We decomposed the interaction using the Johnson-Neyman technique and performed a floodlight analysis to examine the effects of challenge stressors on the willingness to offer flexibility across a range of bricolage (Spiller et al., 2013). When bricolage is low (3.79, $b = 0.37$, $t(334) = 1.97$, $p = .05$), challenge stressors increase supplier flexibility. When bricolage is high (i.e., 5.38, $b = -0.20$, $t(334) = -2.07$, $p = .04$), challenge stressors decrease supplier flexibility. In other words, as bricolage increases (i.e., 6.25, $b = -0.52$, $t(334) = -3.88$, $p < .001$), the relationship between the challenge stressors and supplier flexibility becomes more negative (see Fig. 3).

5. Discussion

Using a scenario-based experiment, we establish a causal relationship between challenge and hindrance stressors on supplier flexibility. Consistent with H1, managers under high-challenge stress offer buyers more flexibility when hindrance stress is low. Conversely, when hindrance stressors are high, managers under high-challenge stressors offer less flexibility to buyers (H2). Our findings provide clear insights for buyers seeking to boost supplier flexibility by highlighting a combination of work stressors to boost supplier flexibility. We also identify the supplier characteristics that can moderate the effect of challenge stressors on supplier flexibility (H3). Specifically, imposing challenge stressors improved supplier flexibility only when supplier bricolage was low. In contrast, when bricolage is high, buyers should not impose challenge stressors to boost supplier flexibility, as it backfires.

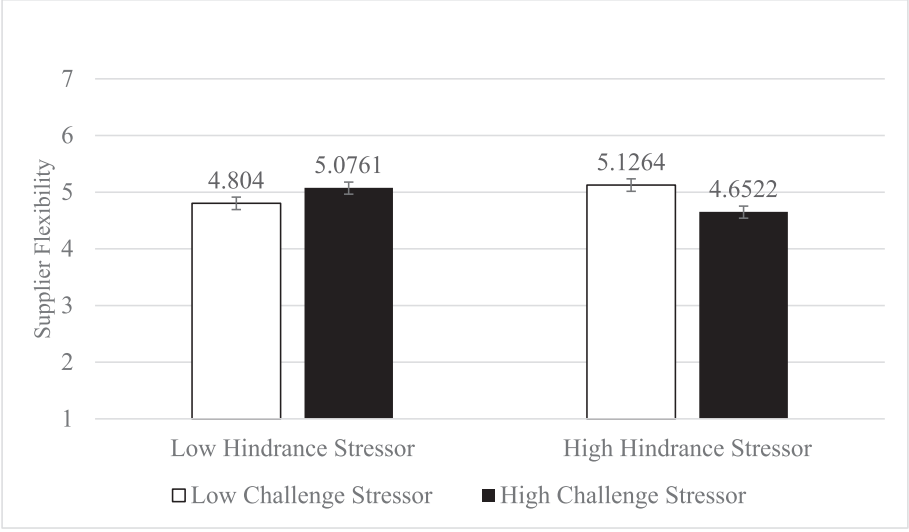

Fig. 2. The effects of challenge and hindrance stressors on supplier flexibility.

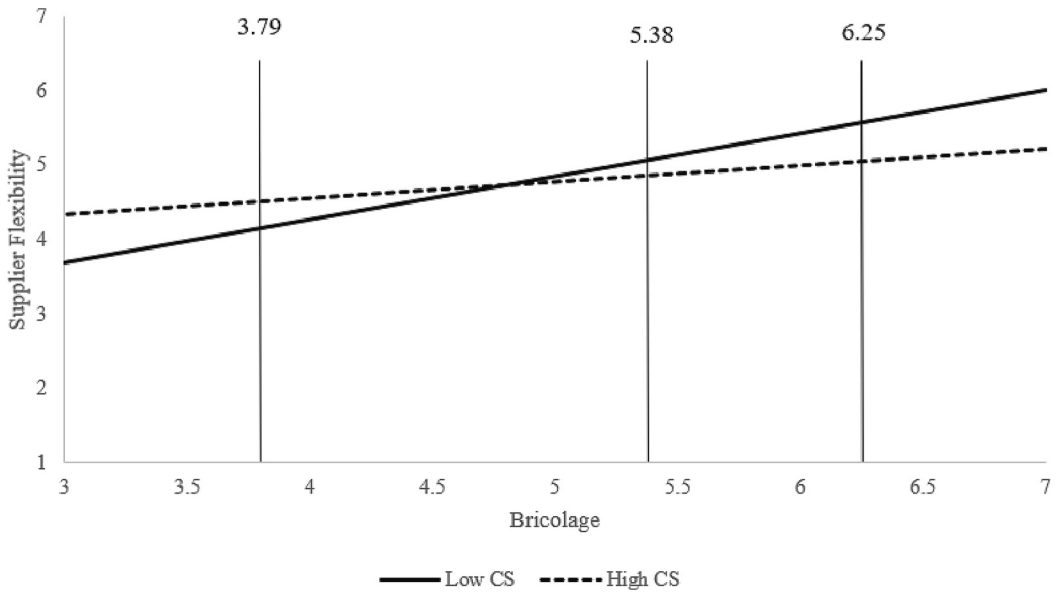

Fig. 3. Floodlight analysis depicting slopes for challenge stressors predicting supplier flexibility at varying levels of bricolage.

5.1. Theoretical implications

Our study contributes to the existing literature in three ways. First, it extends the literature by applying the JD-R theory to the supplier flexibility literature. While extant work focuses on challenge and hindrance stressors *independently* (Chu et al., 2012; Dong et al., 2016; Nygaard & Dahlstrom, 2002), we examine the *interactive* effects of challenge and hindrance stressors in buyer-supplier relationships. We demonstrate that hindrance stressors negatively moderate the effects of buyer-imposed challenge stressors on supplier flexibility. Specifically, high (versus low) hindrance stressors impede the development and implementation of solutions in response to challenge stressors, reducing flexibility for buyer demands. Thus, we reconcile the positive and negative effects of buyer-imposed work stressors on supplier flexibility. The existing literature has revealed the positive effects of challenge stressors (e.g., job responsibility) and the negative effects of hindrance stressors (e.g., role ambiguity) on performance (Dong et al., 2016; Muse, Harris, & Feild, 2009). We reveal that suppliers offer varying levels of flexibility depending on the type and combination of demands imposed by buyers. Our findings contribute to this theory by demonstrating the interactive effects of challenge and hindrance stressors on supplier flexibility.

Second, our study extends the JD-R theory by demonstrating the novel moderating effect of supplier bricolage. Suppliers with high bricolage are more innovative (Chen, Pu, et al., 2022; Chen, Tamilmani, et al., 2022; Chen, Xu, et al., 2022; Salunke et al., 2013) and depend less on buyers (Kim & Zhu, 2018). Thus, they do not need to offer flexibility when exposed to buyer-imposed challenging stressors. While the extant research on bricolage has vastly supported its benefits (Salunke et al., 2013; Witell et al., 2017), our findings provide a more nuanced perspective. We demonstrate that bricolage weakens the positive effects of challenge sttressors on supplier flexibility. This finding provides novel insights into when and how resources negatively impact suppliers' willingness to be flexible towards buyers.

Third, this study makes methodological contributions to literature. Previous work on work stressors has largely relied on survey methods (e.g., LePine et al., 2005; Rosen et al., 2020), making endogeneity a potential issue (Ullah et al., 2018). We mitigated the endogeneity issue through random assignment to conditions and avoided self-selection into specific work-related stressors. Thus, we accurately captured the causal effect of buyer-imposed work stressors on supplier flexibility. In addition, by developing manipulations for challenge and hindrance stressors, our experimental approach allowed both work stressors to co-occur when previous survey methods examined challenge and hindrance stressors independently.

5.2. Managerial implications

The findings also have implications for managers attempting to foster supplier flexibility. Managers should carefully assess the degree of challenging stressors imposed on suppliers. While challenge stressors increase supplier flexibility, hindrance stressors attenuate their positive effects. High-hindrance stressors trigger suppliers' self-protection and self-interest (Zaefarian et al., 2022), demotivating flexibility-oriented actions towards buyers. Given the impact of stressors on inter-firm relations, managers from buyer firms should prioritize strategies that mitigate the negative pressure of job demands. For instance, managers can reduce hindrances through frequent communication, organizational support, stress coping, minimizing red tape, and management training (LePine et al., 2005).

Although bricolage can benefit business development (Salunke et al., 2013), it also has a negative side. This study shows that supplier bricolage negatively moderates the effects of challenge stressors on supplier flexibility. Therefore, bricolage may be a limiting coping mechanism for supplier managers. Continued reliance on bricolage consumes managerial time and attention (Steffens, Baker, Davidsson, & Senyard, 2022), reducing their ability to offer flexibility to demanding buyers. Thus, supplier managers should regularly improve their knowledge of the resources they intend to utilize (e.g., by categorizing in-house resources based on differential purposes). Managers should also configure different types of bricolage in their strategic decisions and identify the most effective approach for accommodating buyer demand. Otherwise, bricolage could be time-consuming for suppliers, adversely affecting their flexibility towards buyer demand.

As bricolage does not always translate into supplier flexibility towards buyers, buyer-managers must be cautious about imposing challenge stressors on suppliers with high bricolage. Since high bricolage enables innovation (Miner et al., 2001), suppliers are less dependent on buyers (Kim & Zhu, 2018) and are consequently more reluctant to provide flexibility to accommodate challenging demands. Therefore, buyers should be cautious about the type and degree of stressors they impose on suppliers that are engaged in bricolage activities.

5.3. Limitations and future directions

This study has some limitations that present avenues for future research. First, although our findings confirm the positive influence of buyer-imposed challenge stressors on supplier flexibility, there is scope to examine other outcomes of job stressors, such as financial (e.g., revenue) and non-financial aspects of performance (e.g., innovativeness, relationship satisfaction, loyalty; Gligor, 2018). Second, our study focused on the supplier-perceived stressors-flexibility association, and it would be interesting to investigate how different types of stressors influence buyer behavior. This would provide a more holistic view of the stressors and their impacts. Third, we included hindrance stressors and supplier bricolage as moderating factors. Future research could benefit from examining other boundary conditions to enrich our understanding of supplier stressor impacts. Thus, research can identify different resources that are pivotal to organizational operations in adverse conditions. Specifically, job resources (e.g., supplier autonomy, support from buyers, performance feedback) and work motivation (e.g., engagement and burnout) could be empirically embedded in future studies (Bakker et al., 2014).

While our study demonstrates the causal effects of buyer-imposed stressors on supplier flexibility, we measure rather than manipulate bricolage. Although its measurement allowed floodlight analysis "to spot the area where the interaction is significant and where it is not" (Viglia et al., 2021, p.199), our experimental design does not rule out reverse causality between bricolage and supplier flexibility. Future research should manipulate bricolage to establish the causal links between these variables. Despite our sample having the relevant experience and background for the objectives of our study, we acknowledge that the sample size could be larger for better statistical power (Viglia et al., 2021). Although the participants spanned several industries and countries, the experiment was conducted in English. Future research could examine whether our findings extend to non-English-speaking buyers and suppliers. Although we tried to boost the experimental realism of challenge and hindrance stressor manipulations by asking participants to recall similar work experiences, the dependent variable was an attitudinal measure. In other words, managers were asked to indicate their intentions to offer buyers flexibility. Future research could investigate the extent to which these intentions manifest in diverse forms of engagement.

Data availability

Data will be made available on request.

Appendix A. Scenario description

We are interested in how you would act if you were in the following situation:
Imagine you are a manager of GMZ, a midsize supplier.
You are responsible for selling products to an important buyer.
GMZ has an ongoing relationship with this buyer and has been supplying components to them for two years.
There are multiple qualified buyers in the market and you can switch to them with some costs & disruptions in your operations.
The business interactions of GMZ and the buyer are described in the following scenario.
Assume the scenario description is accurate and realistic.
Please do not base your answers on how you think GMZ's top managers should work with the buyer, but rather on how they actually would work with the buyer.

Appendix B. Work stressor manipulations

Low Challenge Stressor

This buyer only imposes flexible deadlines, and assigns a small number of simple and routine tasks to GMZ.
As such, GMZ does not need to accomplish much work for this buyer and any timelines are very easily achievable.
It faces no real pressure to learn and incorporate this buyer's knowledge and is not required to use any complex skills and resources.
GMZ does not need to spend much time working with this buyer as, in effect, there is no strain associated with the responsibilities set by them.
These negligible demands are far below the industry standard, fail to place GMZ's top managers under any challenge-related stress, and provide no real motivation and opportunities for development.
Describe a work event that was just as **challenging** as this scenario.
TEXT BOX
High Challenge Stressor
This buyer often imposes extremely tight deadlines on, and assigns a large number of difficult tasks to GMZ.
As such, GMZ must accomplish a huge volume of work for this buyer in a limited timeframe.
It faces intense pressure to learn and incorporate this buyer's knowledge and is required to use many complex skills and resources.
GMZ spends a large amount of time working with this buyer to cope with the strain of all of the demands and responsibilities imposed by them.
These extreme demands are far above the industry standard, create overwhelming challenge-related stress for GMZ's top managers, and are highly demotivating as they are very difficult to meet.
Describe a work event that was just as **challenging** as this scenario.
TEXT BOX
Low Hindrance Stressor
With a 2 year working relationship with this buyer, there is relatively little red tape.
As there is a small amount of paperwork involved, it is almost no hassle to get the job done.
Moreover, the buyer has stipulated a specific staff member to liaise with, so responses are often prompt with clear & specific requests.
In short, it is pretty clear what you have to do to get this task done.
Describe a work event that was just as **hindering** as this scenario.

(*continued on next page*)

(*continued*)

Low Challenge Stressor
TEXT BOX **High Hindrance Stressor** Despite a 2 year working relationship with this buyer, there still a lot of red tape to get the job done. As there is substantial paperwork involved, it is a huge hassle to get the job done. Moreover, it is often difficult to get hold of them and they have often provide unclear and ambiguous requests. In short, it is pretty unclear what you have to do to get this task done. Describe a work event that was just as **hindering** as this scenario. **TEXT BOX**

Appendix C. Questionnaire items

Construct	Source
If you're the senior executive in the scenario, will you engage in the following activities relative to your competitors? (1 = not at all, 7 = very much)	
Supplier willingness to offer flexibility	Gligor (2018)
• Reduction of manufacturing lead-time	
• Reduction of product development cycle time	
• Increase of frequency of new product introductions	
• Increase of level of customization	
• Adjustment of worldwide delivery capacity/capability	
• Improvement of level of customer service	
• Improvement of delivery reliability	
• Improvement of responsiveness to changing customer needs	
To what extent do the following statements describe your firm? (1 = *strongly disagree*, 7 = *strongly agree)*	
Bricolage	Senyard et al. (2014)
• We are confident of our ability to find workable solutions to new challenges by using our existing resources	
• Our firm gladly takes on a broader range of challenges than others with our resources would be able to	
• Our firm uses any existing resource that seems useful to respond to a new problem or opportunity	
• Our firm deals with new challenges by applying a combination of its existing resources and other resources inexpensively available to it	
• When dealing with new problems or opportunities, our firm takes action by assuming that it will find a workable solution	
• By combining its existing resources, our firm takes on a surprising variety of new challenges	
• When our firm faces new challenges, it puts together workable solutions from its existing resources	
• Our firm combines resources to accomplish new challenges that the resources were not originally intended to accomplish	

Appendix D. Appendix

Hindrance Stressor Pretest

In the pretest, 217 Prolific Academic participants (74.9% female, $M_{age} = 38.11$) were asked to assume the role of a senior executive of a midsize electronics components supplier, responsible for selling products to overseas buyers.

They were randomly assigned to a low or high hindrance stressor scenario:

Low hindrance condition

With a 2 year working relationship with this buyer, there is relatively little red tape.

As there is a small amount of paperwork involved, it is almost no hassle to get the job done.

Moreover, the buyer has stipulated a specific staff member to liaise with, so responses are often prompt with clear & specific requests.

In short, it is pretty clear what you have to do to get this task done.

High hindrance stressor

Despite a 2 year working relationship with this buyer, there still a lot of red tape to get the job done.

As there is a huge amount of paperwork involved, it is a huge hassle to get the job done.

Moreover, the buyer has not stipulated any staff member to liaise with, so responses are often delayed with unclear and ambiguous requests.

In short, it is pretty unclear what you have to do to get this task done.

To assess the level of hindrance stressors ($\alpha = 0.91$), participants answered the following questions:

To what extent do the following statements describe your working relationship with this buyer? (1 = "strongly disagree", 7 = "strongly agree").

- Aspects of this task hindered my ability to succeed.
- I am unable to clearly understand what is expected of me on the job.
- A large amount of red tape is needed to get the job done.
- We know what our responsibilities are (reverse-coded).

As intended, participants in the high hindrance stressor condition reported significantly more hindrance stress than their counterparts in the low hindrance stressor condition ($t(215) = 6.03$, $p < .001$, $d = 0.96$.

Appendix E. Appendix

Attention Check 1

Most modern theories of decision making recognize the fact that decisions do not take place in a vacuum. Individual preferences and knowledge, along with situational variables can greatly impact the decision process. In order to facilitate our research on decision making we are interested in knowing certain factors about you, the decision maker. Specifically, we are interested in whether you actually take the time to read the directions; if not, then some of our manipulations that rely on changes in the instructions will be ineffective. So, in order to demonstrate that you have read the instructions, please ignore the mental abilities and processes provided, and simply choose the option "Fintech".

Which of the following industries are you familiar with? (check all that apply).

Options: Agriculture, Biotech, Fintech, Banking & Finance, Food & Beverage, Entertainment.

Attention Check 2

Please indicate your agreement with the statements below (Attention Check - Please indicate "strongly disagree").

I run across the English Channel every day (1 = strongly disagree, 5 = strongly agree).

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