

Organizational Toughness in Clothing Industry during Covid-19 Pandemic

João M. S. Carvalho^{1,2,3} ^a and Sílvia Faria¹ ^b

¹REMIT, Universidade Portucalense, R. António Bernardino de Almeida, 541 – 4200-072 Porto, Portugal

²CEG, Universidade Aberta, Lisboa, Portugal

³CICS.NOVA, Universidade do Minho, Braga, Portugal


Keywords: Organizational Toughness, Organizational Plasticity, Organizational Strength, Strategic Management, Economic and Social Sustainability, Clothing Sector.


Abstract: Today, the existence of natural (earthquakes, pandemics, etc.) and human (large strikes, revolutions, etc.) events that can lead to economic paralysis are more and more frequent. Thus, it is not surprising that researchers try to develop new concepts and theories to explain the phenomena's reality. It is the case of a new conceptual approach – organisational toughness – that can give us insights into an organisation's capacity to survive in turbulent environmental contexts, like this of the Covid-19 pandemic. This study aimed at analysing the survival capability of the Portuguese clothing sector, in the context of the Covid-19 pandemic, through a new tool to measure organisational toughness. A sample of 106 organisations was studied using a questionnaire, leading to the conclusion that the measurement tool is effective, reliable and valid for that purpose, contributing to helping entrepreneurs to be able to assess crucial management variables to face this type of crisis. Theoretical and practical implications were taken, highlighting the importance of other concepts like organisational plasticity and organisational strength as the main factors to face new market threats and opportunities, impacting companies' economic and social sustainability.

1 INTRODUCTION AND FRAMEWORK

It is known that any organisation is subject to multiple risks (e.g., financial, technological, market, competitive, reputational, political, economic), namely a systemic risk related to the possibility to occurring a pandemic, a terrorist threat, natural disasters, or strikes in sectors of activity that immobilise one's business. Thus, the government can prevent an organisation from working in emergency or catastrophe situations to avoid contagion or physical damage to workers. Another cause to stop production could be the absence of supplies or loss of their facilities. Wenzel, Stanske, and Lieberman (2020) reviewed the papers published in the journals of the Strategic Management Society and concluded that there would be four ways for organisations to respond to this crisis: retrenchment, persevering,

innovating, and exit. Beyond these possible strategic responses, Carvalho (2020) proposed the organisational toughness model, trying to explain which could be the main factors that organisations should take care more attentive to increase their chance of survival. This approach is interesting because it followed a research stream that adopted concepts about the properties of materials studied in physics to explain business phenomena. It is the case with the concepts of resilience as the ability of a material to absorb energy when it is deformed elastically, being a combination of strength and elasticity (e.g., Holbeche, 2019; Walker & Salt, 2006); flexibility as the ability of an object to bend or deform in response to an applied force (e.g., Reed & Blunsdon, 1998); plasticity as the ability of a material to undergo irreversible or permanent deformations without breaking or rupturing (e.g., Avey, Palanski, & Walumbwa, 2011; Gavetti & Rivkin, 2007; Hill, Cromartie, & McGinnis, 2017); and toughness as the

^a  <https://orcid.org/0000-0003-0683-296X>

^b  <https://orcid.org/0000-0002-7672-3972>

ability of a material to absorb energy or withstand shock and plastically deform without fracturing, being a combination of strength and plasticity (e.g., Carvalho, 2020). The advantage of this concept of organisational toughness is the acceptance that during these turbulent periods, the companies, besides their capacity to absorb shocks and adjust to them in a plastic way, may also become different and better adapted to future turbulent periods. This approach was somehow foreseen by Holbeche (2019) when she talked about organisational resilience, defining it as the robustness of the organisational systems and a response capacity to a disruptive environment. However, resilience means flexibility and plasticity, leading the organisation to adjust itself to the external shock in an elastic way but later return to what it was before that market turbulence. Thus, we think that what this author has defined is better described by the concept of organisational toughness, presented by Carvalho (2020) in a more precise way, respecting the original physics approach.

Therefore, this model was based on literature and pointed out the importance of staff preparation, internal structure adapted to change, and internal and external availability of resources to face those exogenous shocks. Each of these constructs presents literature support:

(1) Staff preparation was based on workers' flexibility (Bhattacharya, Gibson, & Doty, 2005; Wright & Snell, 1998), competencies (Eldridge & Nisar, 2006; Plonka, 1997) and motivations (e.g., Kreye, 2016; Locke & Schattke, 2019).

(2) A structure adapted to change and all types of contingencies (e.g., Holbeche, 2019; Uhl-Bien & Arena, 2018) asks for a versatile and agile leadership (Keister, 2014), flexible strategic planning to timely develop adaptive and/or innovative processes (Carvalho, 2018; Ivory & Brooks, 2018), and market-oriented organizational learning (e.g., Camps et al., 2016; Edwards, 2009; Levinthal & Marino, 2015).

(3) Internal and external availability of resources was based on the resource-based theory (Penrose, 1959; Wernerfelt, 1984), seeing an organization as a bundle of resources and capabilities (e.g., Beltrán-Martín et al., 2009; Bhattacharya et al., 2005; Ngo & Loi, 2008) that also depends on its environment for those resources (Sheppard, 1995).

As such, Carvalho (2020) defined organizational plasticity as the ability of an organization to change irreversibly and permanently its strategic approach to the markets to survive and/or grow (resilience), under different environment conditions (adaptability) and pressures (flexibility), and be able to timely and effectively (agility) react to threats and proactively

seize opportunities (p.4); and organizational strength as “the ability of an organization to access internal and external physical, human, intellectual and financial resources” (p.11).

However, this author did not provide any guidance about how the variables of the model might be measured in his seminal article, besides the fact that he stated five propositions that assumed organisational toughness, organisational plasticity, organisational strength, staff preparation, and structure adapted to change as latent variables; and competencies, motivation, flexibility, strategic planning, leadership, market-oriented organisational learning, internal availability of resources, and external availability of resources as manifest variables. Nevertheless, it is possible to see this potential model as integrating formative rather than reflective items, creating a way to directly and approximately measure each construct. In this way, any company will assess its strength, plasticity and toughness to face public health situations or others that may jeopardise its survival. This is our approach to this model, proposing the possibility that it includes only formative variables, which theoretically makes sense, and that facilitates its application by any entrepreneur in practical life. Additionally, we added a new variable to the model – economic and social sustainability – measured by economic performance and social impact items. This assessment is crucial to measure other variables impact on the results and performance of the organisations during the pandemic. These concepts of sustainability appeared after the first approach related to ecological sustainability (WCED, 1987). Elkington (1997) presented the triple bottom line – people, planet, and profit — as the pillars of sustainability. Other authors talked about sustainable entrepreneurship (e.g., Kuckertz & Wagner, 2010) and sustainable innovations (Khavul & Bruton, 2013), considering the preservation and enhancement of the natural environment, business ecosystems through the satisfaction of human needs with the available resources as a condition to the financial sustainability of the organisations, social cohesion (e.g., well-being, nutrition, shelter, health, education, quality of life), and psychological balance (e.g., positive emotional states, physical and mental health, and personal perception of quality of life (European Commission, 2011)). For this study, we decided to use only economic and social sustainability questions, as we have thought that these were the main concerns for the entrepreneurs during this pandemic period.

Based on these assumptions, one presented the following hypotheses:

- H1: Organizational Plasticity (OP) could be measured by Staff Preparation (SP), and Structure Adapted to Change (SAC).
- H2: Organizational Toughness (OT) could be measured by Organizational Plasticity and Organizational Strength (OS).
- H3: Organizational Plasticity has a greater impact on Organizational Toughness than Organizational Strength.
- H4: Organizational Toughness has a positive impact on Economic and Social Sustainability (ESS).

We have created new measures for these variables in order to analyse the survival capability of the Portuguese clothing sector, in the context of the Covid-19 pandemic.

1.1 The Model

The proposed recursive model is depicted in figure 1.

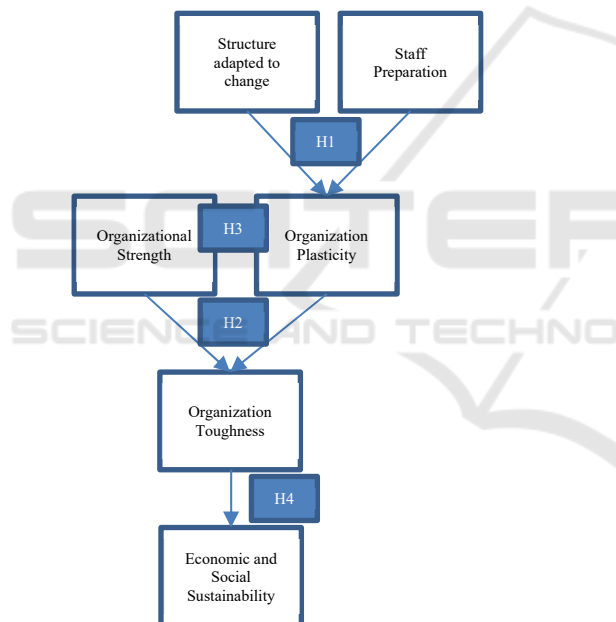


Figure 1: The organisational toughness model.

2 METHODS

Several references were consulted to decide the best way to conduct this exploratory study (e.g., DeVellis, 2012; Hair, Anderson, Tatham, & Black, 1998; Malhotra et al., 2012; Netemeyer, Bearden, & Sharma, 2003). Consequently, we followed eight sequential steps: (a) creation of an initial pool of items based on the literature review and six experts; (b) analysis of this pool by six field experts that

subsequently chose the items they considered to be more adapted to the constructs, and trying to be parsimonious as possible in their choice; (c) creation of a questionnaire that includes the chosen items and some questions to characterise the respondents; (d) pretesting of the questionnaire; (e) creation of the final version of the questionnaire to apply to all organisations of the clothing sector; (f) data collection; (g) data analysis; (h) analysis of the proposed model and validity of the hypotheses.

Besides the 30 questions to measure the variables, the questionnaire included questions about sex, age, and hierarchical position of each participant. Data analysis was performed with SPSS, v.26. and AMOS, v.26.

2.1 Participants

We used a database (<https://sabi.bvdinfo.com/>) that has information from 800 thousand Portuguese organisations. We chose the Clothing Industry (Code of Economic Activity - 14) because it had a tremendous impact from the pandemic, like many other activity sectors. There were 822 companies registered, but we discovered that 115 of them went bankrupt before 2020 and 53 during that year. Thus, 654 companies in this sector remained that we have contacted twice by email because we had the names and electronic addresses of their owners and/or top managers. Nevertheless, 82 emails were returned because they were no longer active, which led our sample to be reduced to 572 companies. The response rate of 18.5% (106 participants) is understandable because many companies may be closed entirely or working on minimal services.

The sample is characterised as follows: 48 female (45.3%) with an average age of 39.17 (SD = 9.01), and 58 (54.7%) male with an average age of 50.86 (SD = 11.54), being 52 (49.1%) owners of the companies, and 54 (50.9%) top managers.

2.2 Variable Measures

All the items in the questionnaire were based on the literature (Table 1). Malhotra et al. (2012) defended “that a tailor-made short scale with a modest number of items might be a better choice as it balances the cost constraints and information needed to cover key facets of the construct” (p.843). This approach allows obtaining high-quality survey responses and sufficient information for theory building and practical implication (e.g., Richins, 2004; de Jong et al., 2009).

The answer to the questions was performed on a Likert’s five-point scale: 1 – I absolutely disagree; 2 – I disagree; 3 – I neither disagree nor agree; 4 – I agree; and 5 – I absolutely agree. The questionnaires were pretested with 11 top managers to verify the reliability of their interpretation, being made some adjustments in the wording of the questions.

Table 1: Final items to measure the variables.

Variables	Items
Internal availability of resources	1. The company has always had the necessary number of staff to be able to work normally.
	2. The company has always had enough raw materials available internally to be able to work normally.
	3. We were able to recombine the internal available resources in new forms of organization in order to continue working.
External availability of resources	4. We always had a supply of raw materials to be able to work normally.
	5. We had easy access to outside labour, so that we could continue to work normally.
	6. We had easy access to finance to be able to continue working normally (not including State aid, if it had happened).
Strategic planning	7. There is, formally, a strategic plan that foresees difficult contingencies in the market, as a result of strikes, pandemics or potential catastrophes.
	8. All personnel, to the extent of their responsibilities, contributed to carry out the strategic plan.
	9. Our strategic planning process is flexible, and easily adapts to new market conditions.
Leadership	10. The leadership in the company is agile in adjusting the company to new market contingencies.
	11. The dominant leadership style of our managers is more reactive than proactive. *
	12. Our managers take into account that normal work situations can be totally changed from day to day, knowing how to adjust work teams quickly.
Market-oriented organizational learning	13. We learn quickly from mistakes when we fail to approach markets.
	14. We sufficiently research the needs of our current or potential customers.
	15. We have frequent training to develop our skills and serve our customers better, even in crisis situations.
Competences	16. All managers and employees have a high level of skills, knowledge and experience.
	17. Not all managers and employees have a high capacity to adapt quickly and constantly to new work environments. *
	18. All managers and employees are quick to solve problems, share information and knowledge, and work as a team.
Motivation	19. Our managers and employees have high levels of internal motivation, feeling very satisfied in their functions.
	20. Our managers know how to motivate company employees, even in the most difficult situations.
	21. Our employees feel positively challenged when difficulties at work increase.
Flexibility	22. Our managers and employees are flexible enough about their roles and what needs to be done for the company to succeed.
	23. The distribution of our human resources in quantity and quality is relatively difficult in our company. *
	24. Our managers and employees feel able to face any difficulties that may arise in the markets.
Economic performance	25. Even in a crisis, our economic and financial performance was excellent.
	26. We achieved a higher sales volume than expected.
	27. The breakdown in the business put the company's survival at risk. *
Social impact	28. We manage to maintain all jobs in the company.
	29. Our customers continued to be served, namely through online purchase and sale processes.
	30. We managed to innovate and create new products and services that were very useful for the community in which we operate.

* Reversed items

The score for each manifest variable was obtained by calculation of the mean of their respective items. Items 11, 17, 23 and 27 needed to reverse their punctuation.

Some variables follow a normal distribution (IAR, EAR, SP, and M), and others are relatively close. We

decided to keep the outliers because they represent real situations, and the sample is already short.

3 RESULTS AND DISCUSSION

To test the first hypothesis (Organizational Toughness could be measured by Organizational Plasticity and Organizational Strength), we have conducted an exploratory factor analysis on the independent manifest variables, using a Principal Axis Factoring with a Varimax rotation (Table 2). All indicators showed good values for factor analysis: Kaiser-Meyer-Olkin statistic = 0.75; and Bartlett Test of Sphericity that showed that the variables are suitable for this type of analysis (Approx. Chi-Square = 362.8; df = 28; p < 0.001). The determinant of the R-matrix of correlations (D = 0.055) was used to test multicollinearity, which should be greater than 0.00001 to show the absence of its excess. Also, the matrix of reproduced correlations showed less than 50% of its values greater than 0.05 (8 [28%]), which shows that the model does fit the data significantly. The result presented two factors that match the constructs of Organizational Plasticity and Organizational Strength before and after rotation, explaining 66.11% of the total variance and 55.7% of shared variance.

Table 2: Exploratory factor analysis of Organizational Toughness.

Variables	Factors	
	Organizational Plasticity	Organizational Strength
Strategic planning	0.528	
Leadership	0.576	
Market-oriented organizational learning	0.755	
Competences	0.728	
Motivation	0.794	
Flexibility	0.855	
Internal availability of resources		0.712
External availability of resources		0.731

The two factors presented good reliability, measured by the alpha of Cronbach, as well as convergent and discriminant validity, assessed by the fact that the compositive reliability (CR) is sufficient higher and the average of variance extracted (AVE) is higher than 0.5 and higher than the square correlation between the variables (Table 3). However, this result did not explicitly discriminate between Staff Preparation and Structure Adapted to Change. Thus, the first hypothesis is not validated. Nevertheless, all the variables of these two aspects contribute to the construct of Organizational Plasticity, which leads us to validate the second hypothesis.

Table 3: Assessment of the measures of Organizational Toughness.

Variables	Indicators			R ² OS – OP (0.043)
	α	CR	AVE	
Organizational Strength	0.738	0.685	0.521	
Organizational Plasticity	0.849	0.860	0.512	

Common method variance (CMV) was assessed by Harman's single factor test and Marker variable techniques, which showed that CMV did not significantly impact the correlation between OT and ESS. This test presented three factors (70.61% of total variance), with the first one accounting for less than 50% (42.4%) of the total variance (Podsakoff & Organ, 1986). The marker variable technique allows controlling CMV (Lindell & Whitney, 2001). According to these authors, we used the second smallest positive correlation among the manifest variables (0.039) to control CMV. Then, we have calculated the CMV - adjusted correlation between the variables, concluding that the spurious correlation caused by the CMV amounts just to 0.034, all correlations being equally statistically significant.

The third (Organizational Plasticity has a greater impact on Organizational Toughness than Organizational Strength) and fourth hypotheses (Organizational Toughness has a positive impact on Economic and Social Sustainability) can be assessed by regression analysis. In each model, it is possible to evaluate variable collinearity, ensuring that this is not a problem to the result analysis. One can see in table 4 the results of three regression analyses. It is possible to verify that we did not have concerns about multicollinearity because tolerance and variance inflation factor is near 1, or lower than the most exigent VIF threshold of 2.5 defended by Johnston et al. (2018).

Table 4: Regression analysis on Economic and Social Sustainability.

Models	Variables	Indicators				
		B	Std. error	β	Tolerance	VIF
1	OT	0.776	0.132	0.499***	1.000	1.000
	OS	0.179	0.084	0.175*	0.957	1.045
2	OP	0.786	0.124	0.520***	0.957	1.045
	OS	0.180	0.083	0.176*	0.957	1.045
3	SAC	0.523	0.168	0.345**	0.509	1.963
	SP	0.285	0.144	0.221*	0.505	1.982

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Thus, we can conclude for the validation of the H3 and H4: the impact of Organizational Plasticity is greater than the impact of Organizational Strength on Economic and Social Sustainability; and it exists a positive and statistically significant impact of Organizational Toughness on Economic and Social Sustainability. Also, this result allowed to show that

criterion-related validity exists because the independent variables showed the expected relationships.

More, if we use the two constructs based on Organizational Plasticity (Model 3), we can notice that a Structure Adapted to Change has the highest impact on ESS, followed by Staff Preparation and Organizational Strength. The first two impacts were already predicted in the literature (e.g. Basadur et al., 2014; Bhattacharya et al., 2005; Ketkar & Sett, 2010), as well as the third one (e.g., Beltrán-Martín et al., 2009; Bhattacharya et al., 2005; Ngo & Loi, 2008). Of course, the companies with higher workers' competencies, motivation, and flexibility presented more success. It may mean that in this activity sector, what was considered more important to survive was the flexibility of their strategic planning, the leadership in the company, and to learn quickly with the context to be more adaptable to the market. Finally, it seems that most of the companies did not have too many problems with their supplies, probably because they are used to adjusting fast to new orders at any time, which is very common in this activity sector (Truett & Truett, 2019).

4 CONCLUSIONS

This study aimed to analyse the survival capability of the clothing sector Portuguese companies in the context of the Covid-19 pandemic. Based on a published theoretical model about organisational toughness (Carvalho, 2020), we developed a questionnaire containing a parsimonious number of items to assess all the constructs. Based on the literature and experts' opinions, the questions looked to measure constructs like the levels of internal and external availability of resources, strategic planning, leadership, market-oriented organisational learning, competencies, motivation, flexibility, economic performance, and social impact. These variables are formative of broader and new concepts like organisational strength, organisational plasticity, organisational toughness, and economic and social sustainability. All these proxies worked very well, capturing what had happened in the companies of the clothing sector.

As such, we conclude that organisational strength and plasticity inform what is called organisational toughness. This construct presents a positive and significant impact on economic and social sustainability during the Covid-19 pandemic. These results imply some practical insights, which reinforces previous knowledge, but in a new extreme

context. More, these turbulent environments can occur in other contexts, like natural catastrophes, large strikes, revolutions, etc., which can lead to economic paralysis. Thus, it is crucial for companies' survival that they be prepared in terms of logistics of their resources to continue to produce. For instance, a just-in-time strategy would be disastrous in these types of contexts. Additionally, the companies' owners or managers should develop an organisational culture that considers a market-oriented perspective to learn how to be close to the clients' needs in any environment. These situations call for flexible strategic planning, adjusted leadership, and effective personal recruitment and training that properly comprehends the needed competencies, motivation, and flexibility to address turbulent times or unexpected events.

Thus, this study contributes to management theory because it presents a new model that highlights the crucial role of organizational toughness, composed of organizational plasticity and organizational strength, to assure economic and social sustainability during high turbulent times.

This study presents some limitations, namely those related to the gathering of data in the Covid-19 period and the exploratory character of the survey. Although the sample is sufficient to obtain credible results, it is still made up of companies that were available to respond to the survey in that period, i.e. the generalization to the population of companies in the sector should take this fact into account. Nevertheless, we think these concepts could be studied in other contexts, activity sectors, and countries. They are exciting and new in the literature, helping researchers and practitioners to think more closely about what might matter in times of great turmoil in the economies and the world.

REFERENCES

- Avey, J. B., Palanski, M. E., & Walumbwa, F. O. (2011). When leadership goes unnoticed: The moderating role of follower self-esteem on the relationship between ethical leadership and follower behavior. *Journal of Business Ethics*, 98, 573–582. doi:10.1007/s10551-010-0610-2
- Basadur, M., Gelade, G., & Basadur, T. (2014). Creative problem-solving process styles, cognitive work demands, and organizational adaptability. *The Journal of Applied Behavioral Science*, 50(1) 80–115. doi:10.1177/0021886313508433
- Beltrán-Martín, I., Roca-Puig, V., Escrig-Tena, A, & Bou-Llusar, J. C. (2009). Internal labour flexibility from a resource-based view approach: definition and proposal of a measurement scale. *The International Journal of Human Resource Management*, 20(7), 1576–1598. doi:10.1080/09585190902985194
- Bhattacharya, M., Gibson, D. E., & Doty, D. H. (2005). The effects of flexibility in employee skills, employee behaviors, and human resource practices on firm performance. *Journal of Management*, 31(4), 622–640. doi:10.1177/0149206304272347
- Camps, J., Oltra, V., Aldás-Manzano, J., Buenaventura-Vera, G., & Torres-Carballo, F. (2016). Individual performance in turbulent environments: The role of organizational learning and employee flexibility. *Human Resource Management*, 55(3), 363–383. doi:10.1002/hrm.21741
- Carvalho, J. M. S. (2018). *The Ties of Business. A humanistic perspective of entrepreneurship, innovation and sustainability*. Lambert Academic Publishing.
- Carvalho, J. M. S. (2020). Organizational toughness facing new economic crisis. *European Journal of Management and Marketing Studies*, 5(3), 156–176. doi:10.46827/ejmms.v5i3.873
- de Jong, M. G., Steenkamp, J.-B. E. M., & Veldkamp, B. P. (2009). A model for the construction of country-specific yet internationally comparable short-form marketing scales. *Marketing Science*, 28, 674–689. doi:10.1287/mksc.1080.0439
- DeVellis, R. F. (2012). *Scale development. Theory and applications*. London: Sage Publications Inc.
- Edwards, M. G. (2009). An integrative metatheory for organizational learning and sustainability in turbulent times. *The Learning Organization*, 16(3), 189–207. doi:10.1108/09696470910949926
- Eldridge, D., & Nisar, T. M. (2006). The significance of employee skill in flexible work organizations. *International Journal of Human Resource Management*, 17(5), 918–937. doi:10.1080/09585190600641164
- Elkington, J. (1997). *Cannibals with Forks: The Triple Bottom Line of Twenty-First Century Business*. Oxford, UK: Capstone.
- European Commission. (2011). *Mental Well-Being: For a Smart, Inclusive and Sustainable Europe*. A paper to present first outcomes of the implementation of the 'European Pact for Mental Health and Well-being'. Retrieved January 15, 2015, from http://ec.europa.eu/health/mental_health/docs/outcomes_pact_en.pdf
- Gavetti, G., & Rivkin, J. W. (2007). On the origin of strategy: Action and cognition over time. *Organization Science*, 18(3), 420–439. doi:10.1287/orsc.1070.0282
- Hair, J. F. Jr., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate data analysis*. New York, NY: MacMillan.
- Hill, M. E., Cromartie, J., & McGinnis, J. (2017). Managing for variability: A neuroscientific approach for developing strategic agility in organizations. *Creative Innovation Management*, 26, 221–232. doi:10.1111/caim.12223
- Holbeche, L. (2019). Designing sustainably agile and resilient organizations. *Systems Research and*

- Behavioral Science*, 36, 668–677. doi:10.1002/sres.2624
- Ivory, S. B., & Brooks, S. B. (2018). Managing corporate sustainability with a paradoxical lens: Lessons from strategic agility. *Journal of Business Ethics*, 148, 347–361. doi:10.1007/s10551-017-3583-6
- Johnston, R., Jones, K., & Manley, D. (2018). Confounding and collinearity in regression analysis: A cautionary tale and an alternative procedure, illustrated by studies of British voting behaviour. *Quality & Quantity: International Journal of Methodology*, 52(4), 1957–1976. doi:10.1007/s11135-017-0584-6
- Keister, A. C. (2014). Thriving teams and change agility: leveraging a collective state to create organization agility. In A. Shani & D. A. Noumair (Eds.), *Research in Organizational Change and Development* (pp. 299–333). Bingley, UK: Emerald.
- Ketkar, S., & Sett, P. K. (2010). Environmental dynamism, human resource flexibility, and firm performance: Analysis of a multi-level causal model. *International Journal of Human Resource Management*, 21, 1173–1206. doi:10.1080/09585192.2010.483841
- Khavul, S., & Bruton, G. D. (2013). Harnessing Innovation for Change: Sustainability and Poverty in Developing Countries. *Journal of Management Studies*, 50(2), 285–306. doi:10.1111/j.1467-6486.2012.01067.x
- Kreye, M. E. (2016). Employee motivation in product service system providers. *Production Planning & Control*, 27, 15, 1249–1259. doi:10.1080/09537287.2016.1206219
- Kuckertz, A., & Wagner, M. (2010). The influence of sustainability orientation on entrepreneurial intentions — Investigating the role of business experience. *Journal of Business Venturing*, 25(5), 524–539. doi:10.1016/j.jbusvent.2009.09.001
- Levinthal, D., & Marino, A. (2015). Three facets of organizational adaptation: Selection, variety, and plasticity. *Organization Science*, 26(3), 743–755. doi:10.1287/orsc.2014.0956
- Lindell, M. K., & Whitney, D. J. (2001). Accounting for common method variance in cross-sectional designs. *Journal of Applied Psychology*, 86, 114–121. doi:10.1037//0021-9010.86.1.114
- Locke, E. A., & Schattke, K. (2019). Intrinsic and extrinsic motivation: Time for expansion and clarification. *Motivation Science*, 5(4), 277–290. doi:10.1037/mot0000116
- Malhotra, N. K., Mukhopadhyay, S., Liu, X., & Dash, S. (2012). One, few or many? An integrated framework for identifying the items in measurement scales. *International Journal of Market Research*, 54(6), 835–862. doi:10.2501/IJMR-54-6-835-862
- Netemeyer, R. G., Bearden, W. O., & Sharma, S. (2003). *Scaling procedures. Issues and applications*. London: Sage Publications Inc.
- Ngo, H.-Y., & Loi, R. (2008). Human resource flexibility, organizational culture and firm performance: an investigation of multinational firms in Hong Kong. *The International Journal of Human Resource Management*, 19(9), 1654–1666.
- Penrose, E. (1959). *The theory of the growth of the firm*. Oxford: Oxford University Press.
- Plonka, F. S. (1997). Developing a lean and agile work force. *Human Factors and Ergonomics in Manufacturing*, 7(1), 11–20. doi:10.1002/(sici)1520-6564(199724)7:1%3C11::aid-hfm2%3E3.0.co;2-j
- Podsakoff, P. M., & Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management*, 12(4), 531–544. doi:10.1177/014920638601200408
- Reed, K., & Blunsdon, B. (1998). Organizational flexibility in Australia. *International Journal of Human Resource Management*, 9(3), 457–477. doi:10.1080/095851998341017
- Richins, M. L. (2004). The material values scale: measurement properties and development of a short form. *Journal of Consumer Research*, 31, 209–219. doi:10.1086/383436
- Sheppard, J. (1995). A resource dependence approach to organizational failure. *Social Science Research*, 24, 28–62. doi:10.1006/ssre.1995.1002
- Truett, L. J., & Truett, D. B. (2019). Challenges in the Portuguese textile and clothing industry: a fight for survival. *Applied Economics*, 51(26), 2842–2854. doi:10.1080/00036846.2018.1558362
- Uhl-Bien, M., & Arena, M. (2018). Leadership for organizational adaptability: A theoretical synthesis and integrative framework. *The Leadership Quarterly*, 29(1), 89–104. doi:10.1016/j.leaqua.2017.12.009
- Walker, B. H., & Salt, D. A. (2006). *Resilience thinking: sustaining ecosystems and people in a changing world*. Washington, D.C., USA: Island Press.
- WCED – World Commission on Environment and Development. (1987). *Our Common Future*. Oxford, UK: Oxford University Press.
- Wenzel, M., Stanske, S., & Lieberman, M. B. (2020). Strategic responses to crisis. *Strategic Management Journal, Virtual Special Issue*. doi:10.1002/smj.3161
- Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, 5, 171–180. doi:10.1002/smj.4250050207
- Wright, P. M., & Snell, S. A. (1998). Toward a unifying framework for exploring fit and flexibility in strategic human resource management. *Academy of Management Review*, 23, 756–772. doi:10.2307/259061