A ES
ISSN: 2096-3246
Volume 54, Issue 02, December, 2022
Special Issue

PROFITABLY MANAGING THE ADVERSITIES THROUGH SUSTAINABLE CAPABILITIES

Gunajn Tripathi, Sunil Kumar, Satish Chander Sharma
SGT University, Gurugram, Haryana, India

Alka Jain
Babu Banarasi Das University, Lucknow (U.P.) India

Abstract:
Businesses environment in contemporary times is complex and uncertain. The unpredictable changes, the disruptive consequences and discontinuity events are likely to impact a company. The events like Covid -19 have motivated companies to imbibe sustainability in their functioning. The companies have acknowledged the significance of development of sustainable dynamic capabilities which enable them to renew and modify their competencies as per the requirement of environment changes and to have a sustainable competitive lead. This study is an attempt to develop a scale for measurement of Sustainable Dynamic Capabilities of the firm. The study further examines empirically the impact of Sustainable dynamic capabilities on the firms profit performance. The profit performance is measured on three dimensions- financial performance; operational performance and market performance. The empirical investigation was conducted through a questionnaire survey of 139 manufacturing companies. The results have indicated that sustainable dynamic capabilities have a positive influence on firm's economic performance. The study contributes academically to the body of knowledge of Sustainable Dynamic Capability building and also provides a blue print to practicing managers to measure the level of sustainable dynamic capabilities developed in their company.
Keywords: Covid-19; sustainability, sustainable dynamic capabilities, competitive lead.

Introduction

The profound impact of COVID 19 has been that it has brought "sustainability" into spot light (Ivanov,2020) Sustainability cannot be viewed as a static phenomenon but is a highly dynamic aspect wherein the firms need to have capabilities to continuously adjust to the ever-changing business ecosystem. Thus building up Sustainable Dynamic Capability (SDC) is the new buzz word amongst the propagators of sustainable management (Sune, A. and Gibb, J. ,2015) The environment around is rapidly shifting. The consistently changing environment is earmarked with occurrence of diverse disruptive uncertainties (Zsidisin et al. 2004). The unpredictable changes, the disruptive consequences, discontinuity events are likely to impact a company(Mahmud M,
Sarpong D,2016) These catastrophic events cause disruptions to operations and it is imperative for the firm to anticipate these vulnerabilities and practice daily management of these risks to eventually overcome the threat imposed (Haimes, 2006). If a company does not have the capability to change with the fast pacing ecosystem then the very core competencies of the firm may become fruitless

and unless the company regularly endeavors to renew its capabilities in tune with changes, the company may lose its competitive advantage (Ivanov, 2020)

In 1997 the term Dynamic Capabilities was coined by Teece et al. They claimed that dynamic capabilities is the ability of the firm to integrate, build and reconfigure their resources and competencies to survive and sustain in a fast changing environment (Teece et al., 1997) In the years to come other related studies in the area refined the term Dynamic Capability and significantly highlighted the need to adopt Dynamic Capabilities to face the challenges of dynamic world. In the journey of redefining and refining term dynamic capability the literature has differentiated between Operational and Dynamic capabilities. Operational capabilities are first order capabilities which enable firm to perform day today activities in an operationally efficient manner whereas Dynamic Capabilities enable a firm to review, renew and modify their day to day operational capabilities in order to sustain long term competitive lead .

This capability of the firm to improve continuously through routine actions is termed as Dynamic Capability (SDC) (Teece, 2009). Firms focusing on sustainability cannot have a static positioning. In order to maintain sustainability, firms have to regularly build up competencies to take into account the ever changing market dynamism (Teece, 2018) and change, adapt and reconfigure themselves to continuously adjust to market complexity and unpredictability (Deshmukh, 2016; Liboni et al., 2017).

It has received attention of the academicians and the theoretical body of knowledge has many papers debating the significance of Dynamic Capabilities in sustainability of firms (Protogerou et al, 2011). However mostly the papers are theoretical in nature building upon the contextual understanding of Dynamic capabilities and its interdependence and mediating effect on the firms performance. There is lack of empirical studies in the areas to support the debate of theoretical concepts. Many papers have ended with a limitation and future scope of empirically testing the propounded theoretical constructs. (Eisenhardt and Martin, 2000; Helfat, 2007, Macher, J.T. and Mowery, D.C., 2009, Nedzinskas, et al, 2013). The recent literature has pointed towards the positive significance of SDC in sustainability and overall performance of the firms. (Hong et al., 2018).This study proposes to take up the suggested empirical research to examine the impact of dynamic capabilities on the firm's sustainable performance measured across 3 aspects- financial, people and environmental performance. In this research firstly the notion of Dynamic capabilities is viewed as a multidimensional composite capability buildup on with the interplay of 5 underlying capabilities namely knowledge absorption, market orientation, innovation, renovation and social network enhancement. And secondly an empirical investigation is carried out to examine the impact of these dynamic capability on the firm's sustainable performance. Firstly the paper contributes a comprehensive framework to quantify the measure of Dynamic capabilities buildup by a firm and secondly it proposes a model to investigate the impact of the capacity building on the firm's sustainable performance.

Sustainable Dynamic Capabilities (SDC)

Sustainable development in light of complexity and vulnerabilities calls for certain level of abilities

of a company which are not static but are dynamic enough to withstand the challenges thrown by the ever changing business ecosystem. Gimzauskiene et al., 2015 have defined dynamic capabilities as the routine ability of a company to readjust to the market volatility, thus supporting sustainable growth. The traditional Supply Chains were less exposed to the business vulnerabilities as compared to the present day supply chains with sustainability orientation. Thus the inclusion of Dynamic capabilities in sustainable practices has become inevitable in present day competitive and uncertain world. DC's can be viewed as competency of the company to reconfigure resources in face of approaching opportunities and threats, thus adapting swiftly to the risks and vulnerabilities and creating competitive advantage (Teece, 2016)

The themes of Sustainable dynamic disruption capabilities were gathered from extensive literature review and the key constructs of DC's in line with our objective are summarized as below:

Sustainable capability of Knowledge absorption:

The challenge to mitigate the supply chain vulnerabilities requires the development of capability to dynamically solve the problems by recombining the existing knowledge and acquiring and utilizing new knowledge. (Marsh and Stock, 2006). Acquiring, retaining, interpreting and integration of knowledge by the managers' serves as source of adoption and renewal to the changing market dynamics and becomes a competitive advantage. (Tseng and Lee, 2014). The companies like Toyota gain new capabilities by sharing knowledge through cross functional meetings, job rotation etc (Fujimoto ,2002) thus acquiring and absorbing new knowledge and complimenting it with the existing experience to effectively keep abreast with changing landscape of market and technology.

Sustainable capability of Demand oriented perception

The firm's capability to perceive the market demand helps the firm in acquiring knowledge and skills to navigate through the market vulnerabilities and in the process gain competitive advantage. It is the competency of the firm to react to the market dynamic shifts with focus on sustainable growth. (Bharadwaj and Dong, 2014). The marketing and technological shifts can positively impact the company growth strategy if the company has ability to proactively scout for new opportunities and threats and renew, modify and orient its operational capabilities to match with the market changes.

Sustainable capability of Innovation

When confronted with unexpected and powerful events the market dynamism calls for companies to continuously replace, rebuild new and transform their internal abilities, technologies, systems and processes (Protogerou et al,2011). The innovation capability as a SDC helps company to take transformative actions and prepares firms to quickly and flexibly adjust to the changing conditions. (Teece, 2017).

Sustainable capability of Renovation

The firms when faced with continuous changes in the ecosystem have to develop internal ability to respond to the risks and restore from the disruptive jolts. This SDC nurtures the ability of the firm

to efficiently absorb and mitigate the negative impacts of potential vulnerabilities threatening to jeopardize the continuity or longevity of the firm. (Brusset and Teller, 2017; Teece, 2017). In the absence of SDC a firm with strong competencies may fail to respond to renewal opportunities and may not respond to improve and renovate its operational capabilities at a pace as good as competitors and may be challenged to maintain its business advantage.(Protogerou et al, 2011)

Sustainable capability of Social network enhancement

The internal and external social network of a firm is wrought with potentially hazardous challenges with the ability to disrupt the entire business functioning. The firms try to inculcate and promote healthy relationships with all the active and inactive internal and external alliances who may influence the firm's business prospects. (Braziotiset al., 2013; Hong et al., 2018). Coordination with network partners promotes timely detection and assessment of market opportunities and uncertainties and effective linking of the required environment changes with the existing capabilities. (Protogerou et al, 2011, Helfat and Peteraf , 2015)

Firm's Profit –Performance

The research measures the profit performance across three dimensions- operation, marketing and financial aspect.

Under operation performance, parameters like increase in productivity, reduction in cost of production and energy consumptions and logistics efficiency are considered. (Elijido-Ten, 2017; Das, 2018)

Increased market performance is measured by firm's reflection in increased market share, flexibility to orient to market changes and increased customer loyalty. (Elijido-Ten, 2017)

The financial performance is measured by indices like increased turnover, ROI, improved profitability, decreased costs, better cash flows etc. (Gualandris & Kalchschmidt, 2016, Cantele & Zardini, 2018).

Research Model

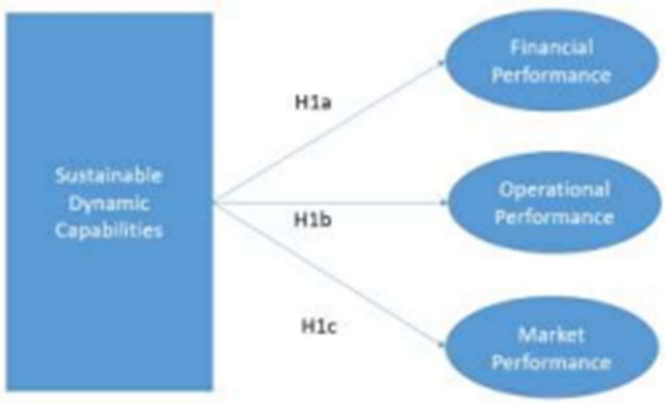

Figure 1: Research Model

Hypotheses

Based on the framework the following hypothesis have been postulated to test the proposed interrelationships of the three determinants.

SDC's(Sustainable Dynamic Capabilities) and Firms' performance

H1 Firms overall performance is positively influenced by Sustainable Dynamic Capabilities H1a Firms Financial performance is positively influenced by Sustainable Dynamic Capabilities H1b Firms Operational performance is positively influenced by Sustainable Dynamic Capabilities H1c Firms Market performance is positively influenced by Sustainable Dynamic Capabilities

RESEARCH METHODOLOGY

Survey Instrument

To analyze the proposed research model the study deploys survey of the selected manufacturing companies through a questionnaire. The survey instrument has been designed in a fashion to obtain relevant information from the respondents regarding the understanding and level of implementation of SDC's in their respective companies. The questionnaire has taken construct inputs from the extant literature and similar study by Hong et al., 2018. The first segment of the questionnaire is devoted to collect data of the individual respondent. The next section focus on SDC's. The third section seeks responses on financial, market and operational performance of the company. The responses are collected using five point Likert scale. The survey instrument was validated for content by seeking expert opinions and making necessary changes as per their recommendations.

Sample Selection and Data collection

The research deploys purposive sampling method and collects data from the selected manufacturing companies. The senior managers from the company with vast knowledge and experience in the field were purposely selected to obtain authentic data for analysis. The sector was selected considering the existence of matured systems with experienced senior supply chain professionals. The data was

collected using both online and offline method. Total 142 responses were obtained, however 3 questionnaires were rejected due to incomplete responses, hence total 139 responses were recorded.

Research method

As the study involved validation of multi-relation structural model hence Structural Equation Modelling was preferred over the traditional statistical techniques. (Kumar, 2018)

Smart PLS version 3.0 was used to analyze the structural relationship in SEM.A step by step analysis was conducted by first checking the validity and robustness of the proposed measurement model. Secondly the goodness of model fit was established and lastly the hypothesis of the proposed structural model were tested.

DATA ANALYSIS AND INTERPRETATION

A. Demographic profile

Firstly, data was analyzed to classify and understand the demographic profile of the respondents. The distribution of data in terms of annual turnover, employee strength, age of the company and was analyzed and the classification is as shown in Table 1.

Table 1: Categorization of Respondents

No of responding Organisations Based on Sectors		
Sectors	Frequency	Percentage
Automobile & Automotive	32	23.02
Food & Beverages	10	7.19
Chemicals & Petrochemicals	2	1.44
Consumer Goods including Pharmacy	19	13.67
Building Materials	3	2.16
Metal Machinery and Engineering	29	20.86
Textiles and Apparels	11	7.91
Electronic Products & Electrical Appliances	23	16.55
Publishing & Printing	5	3.60
Wood & Furnitre	4	2.88

Energy&Distribution	1	0.72
Total	139	100

Features	Categories	Frequency	Percentage
A Annual Turnover	<100 Cr	6	4.32
	100 Cr to < 500 Cr	19	13.67
	500 Cr to < 1000 Cr	32	23.02
	1000 Cr to < 5000 Cr	48	34.53
	>5000 Cr	34	24.46
Manpower	<100	5	3.60
	101-500	21	15.11
	501-1000	30	21.58
	1001-5000	66	47.48
	>5000	17	12.23

Age	Less than 3 years	4	2.88
	3-10 years	19	13.67
	10-20 years	52	37.41
	10-20 years	64	46.04

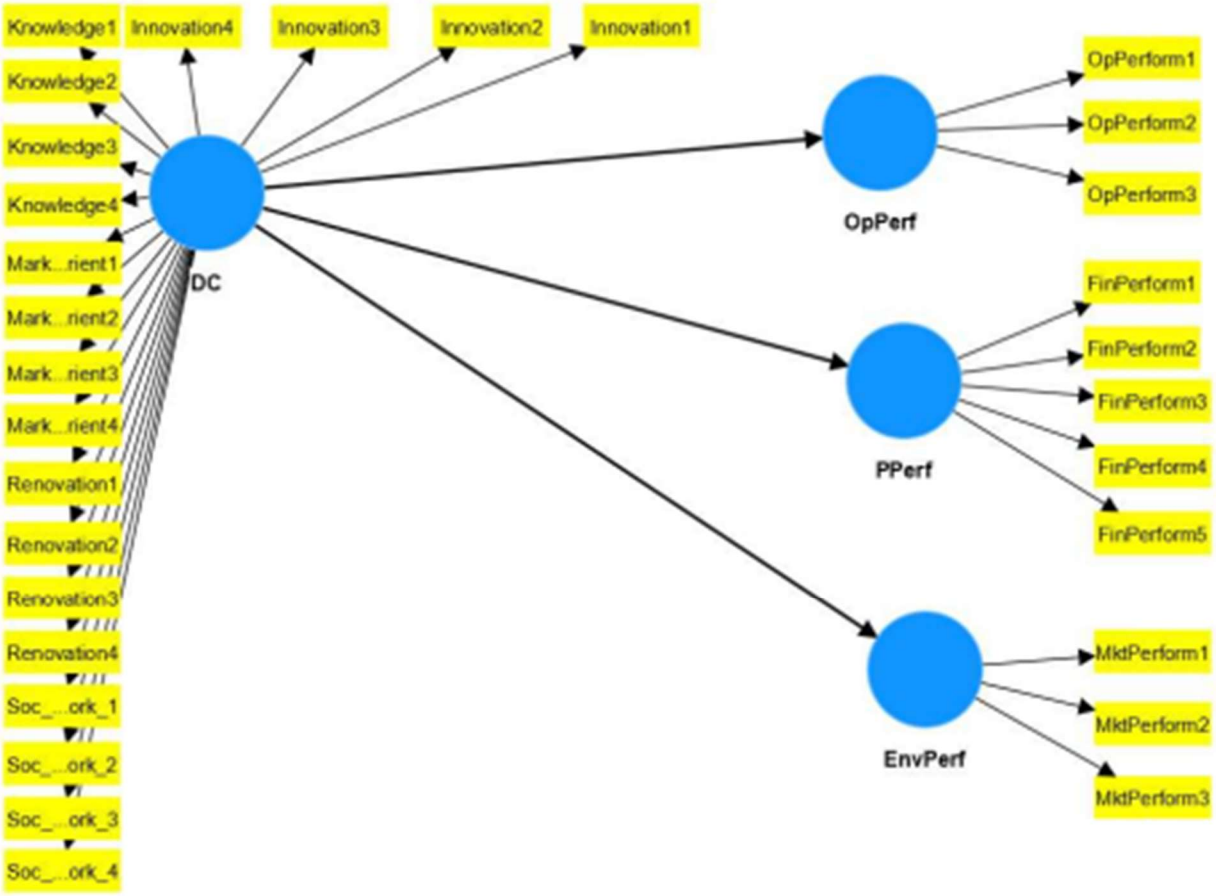

Figure 2: Research Model

Validity and Reliability Check

Content and Convergent Validity

Content validation of instrument implies to check if all items relevant to measure the construct have been appropriately included. (Hong et al 2018). This was done two fold, firstly the available literature was thoroughly spurred, prodded and deliberated to include all relevant factors. Secondly the designed instrument was then vetted by the experts to establish the clarity, the understanding and relevance of the items.

Similarly the convergent validity was also established by Average Variance Extracted (AVE) – the threshold limit to establish the average variance is 0.5 and as all factors had shown value above this limit hence the data is satisfactorily validated.

Reliability

The reliability of the instrument was established by Cronbach's alpha coefficient and composite reliability estimates. The threshold value is 0.7 and as the calculated values is more than the threshold limit hence signifying sound data reliability.

Fitness of the Model

The proposed model was then tested for its goodness of fit and the following values were obtained
Table 2: Fitness of Model

	Saturated Model	Estimated Model
SRMR	0.05	0.056
d_ULS	7.712	8.845
d_G	8.195	9.253
Chi Square	5,489.58	6,451.83
NFI	0.57	0.589

As shown above the calculated values of SRMR are less than the threshold limit of 0.08 , hence the model can be said to consistent with data and fits well to further analyze the structural relationship.

Hypothesis Testing

To further assess the structural relationship the hypothesis proposed in the study is subjected to boot strap test. The boot strapping gives us the significant path coefficients i.e. p values which is commonly referred parameter for acceptance or rejection of the hypothesis. The parameter value is <> .05.

Table 3: Boot Strapping result:

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values

DC ->FinPerf	0.498	0.512	0.132	4.127	0
DC ->OpPerf	0.482	0.491	0.143	3.35	0.002
DC ->Market Pe rf	0.238	0.257	0.147	1.547	0.082

For hypothesis H1a , H1b and H1c the p-value is significant (less than 0.5) hence the three hypothesis are accepted. The positive association of DC's with profit performance is indicated through the above assessment.

DISCUSSION

The theoretical foundation of literature in the subject suggest that the companies when faced with potential disruptions, need to orient, design and implement sustainable dynamic capabilities (DC's) to navigate through the catastrophic effects of the disruptions and also to gain competitive advantage in the process for long term survival. The study further explores how the implementation of SDC's has influence on the monetary, operational and market performance of a company.

The capability to recombine new and existing knowledge, development of capability to renovate the existing internal competencies and innovate new products, process and systems in the face of market dynamism and ability to restructure partner relationships when faced with hazardous disruptions has all added up to build a sustainable culture in the organization which is reflected in positive profit performance.

Dynamic capabilities can be classified as higher order capabilities that play a central role in renewing and reshaping the operational capabilities .The dynamic capabilities provide a support to the operational capabilities to adaptively bring improvements as per the requirement of underlying change.

They highlighted key point is that Dynamic capabilities cannot be only perceived as tool to manage changes but are now inevitable for sustainable continuance. Thus the company must continuously strive to advance their capabilities to a superior performance.

CONCLUSIONS

The validity of the five constructs SC Dynamic Capabilities and another three constructs of

economic performance was assessed through content validity, convergent validity and discriminant validity. The study outcomes gave satisfactory result, hence the constructs had good validity and can be used further for measurement of SDC's and enterprise profit performance.
The study develops a parsimonious scale to measure and evaluate SDC's for firm's performance which is a significant theoretical contribution in the field which is yet to develop a consensus on most appropriate sustainable capabilities. Apart from theoretical support this will also assist the practicing managers in quantifying the practices of SDC's.

The fast shifts in market and technology environment are compelling firms to take into account the environment dynamism and adjust its abilities as per the requirement. Thus the firms need to devlop hifh order Dynamic Capabilities to be able to maintain its market lead.The scale so developed on SDCs' will help managers prepare for these added concerns.

LIMITATIONS AND OPPORTUNITIES FOR FUTURE RESEARCH

The study attempts to develop a parsimonious scale for measurement of SDC's. Though the study is based on extant review of literature and expert opinions however there is a possibility that not all factors may have been included, hence it can act as triggering groundwork for upcoming researches. The small sample size and focus on only single industry may have biased results. Future studies with appropriately larger samples, different industries and different countries can be considered. .

REFERENCES

Ahi, P., Searcy, C., 2015. An analysis of metrics used to measure performance in green and sustainable supply chains. J. Clean. Prod. 86, 360 – 377.

Beske, P., Land, A., Seuring, S., 2014. Sustainable- supply chain management practices and dynamic capabilities in the food industry: A critical analysis of the literature. Int. J. Prod. Econ.152, 131 – 143.

Bharadwaj, N., & Dong, Y. (2014). Toward further understanding the market-sensing capability–value creation relationship. Journal of Product Innovation Management, 31(4), 799-813.

Blos, M. F., Hoeflich, S. L., & Miyagi, P. E. (2015). A general supply chain continuity management framework. Procedia Computer Science, 55, 1160-1164.

Bubicz, M. E., Barbosa-Póvoa, A. P. F. D., &Carvalho, A. (2019). Incorporating social aspects in sustainable supply chains: Trends and future directions. Journal of Cleaner Production

Cantele, S., & Zardini, A. (2018). Is sustainability a competitive advantage for small businesses? An empirical analysis of possible mediators in the sustainability–financial performance relationship. Journal of Cleaner Production, 182, 166-176.

Carter, C. R., Easton, P. L., 2011. Sustainable- supply chain management: evolution and future directions. Int. J. Phys. Distrib. andLogist. Manag. 41 (1), 46-62.

Chen, I.J., Paulraj, A., 2004 Towards a theory of supply chain management: the determinants and measurements. J. Opera. Manag. 22 (2), 119 – 150.
Chaudhuri, A., Srivastava, S. K., Srivastava, R. K., & Parveen, Z. (2016). Risk propagation and its impact on performance in food processing supply chain. *Journal of Modelling in Management*.

Das D, The impact of Sustainable- supply chain management practices on firm performance: Lessons from Indian organizations, Journal of Cleaner Production (2018), doi:10.1016/j.jclepro.2018.08.250.

Donadoni, M., Roden, S., Scholten, K., Stevenson, M., Caniato, F., van Donk, D. P., & Wieland, A. (2019). The future of resilient supply chains. In Revisiting Supply Chain Risk (pp. 169-186). Springer, Cham.

Dun & Bradstreet. (2020). Business Impact of the Coronavirus. *Dun & Bradstreet Team*, 1–10.
Gámez-Pérez, K. M., Sarmiento, A. M., Garcia-Reyes, H., & Velázquez-Martínez, J. C. (2020)

Eisenhardt, K. M. and J. A. Martin (2000), 'Dynamic capabilities: what are they?' Strategic Management Journal, 21(10–11), 1105–1121.

Elkington, J., 2004. Enter the triple bottom line. In: Henriques, A. and Richardson, J. (Eds), The Triple Bottom Line: Does It All Add Up?,Earthscan, London, 1 – 16.

Easterby-Smith, M. A., M. A. Lyles and Peteraf (2009), 'Dynamic capabilities: current debates and future directions,' British Journal of Management, 20, S1–S8
Fujimoto, T. (2002), 'Evolution of manufacturing systems and ex-post dynamic capabilities: a case of Toyota's final assembly operations,' in G. Dosi, R. R. Nelson and S. G. Winter (eds), The Nature and Dynamics of Organizational Capabilities. Oxford University Press: New York, NY, pp. 244–278.

Gouda, S. K., & Saranga, H. (2018). Sustainable supply chains for supply chain sustainability: impact of sustainability efforts on supply chain risk. International Journal of Production Research, 56(17), 5820–5835.

Govindan, K., Mina, H., & Alavi, B. (2020). A decision support system for demand management in healthcare supply chains considering the epidemic outbreaks: A case study of coronavirus disease 2019 (COVID-19). Transportation Research Part E: Logistics and Transportation Review, 138, 101967.
Gupta, H., Kusi-Sarpong, S., & Rezaei, J. (2020). Barriers and overcoming strategies to supply chain sustainability innovation. Resources, Conservation and Recycling, 161, 104819.

Helfat, C.E. and Peteraf, M.A. (2009), "Understanding dynamic capabilities: progress along a developmental path", Strategic Organization, Vol. 7 No. 1, pp. 91-102.

Helfat, C.E. and Peteraf, M.A. (2015), "Managerial cognitive capabilities and the microfoundations of dynamic capabilities", Strategic Management Journal, Vol. 36 No. 6, pp. 831- 850

Ivanov, D. (2020a). Predicting the impacts of epidemic outbreaks on global supply chains: A simulation-based analysis on the coronavirus outbreak (COVID-19/SARS-CoV-2) case. Transportation Research Part E: Logistics and Transportation Review, 136, 101922. Ivanov, D. (2020b). Viable supply chain model: integrating agility, resilience and sustainability perspectives—lessons from and thinking beyond the COVID-19 pandemic. Annals of Operations Research, 1-21.

Katkalo, V.S., Pitelis, C.N. and Teece, D.J. (2010), "Introduction: on the nature and scope of dynamic capabilities", Industrial and Corporate Change, Vol. 19 No. 4, pp. 1175-1186. Kor, Y.Y. and Mesko, A. (2013), "Dynamic managerial capabilities: configuration and orchestration of top executives' capabilities and the firm's dominant logic", Strategic Management Journal, Vol. 34 No. 2, pp. 233-244

López, S.V. (2005), "Competitive advantage and strategy formulation: the key role of dynamic capabilities", Management Decision, Vol. 43 No. 5, pp. 661-669.

McKelvie, A. and Davidsson, P. (2009), "From resource base to dynamic capabilities: an investigation of new firms", British Journal of Management, Vol. 20 No. 1, pp. 63-80.

MacLean, D., MacIntosh, R. and Seidl, D. (2015), "Rethinking dynamic capabilities from a creative action perspective", Strategic Organization, Vol. 13 No. 4, pp. 340-352.

Macpherson, A., Jones, O. and Zhang, M. (2004), "Evolution or revolution? Dynamic capabilities in a knowledge-dependent firm", R&D Management, Vol. 34 No. 2, pp. 161-177.

Macher, J.T. and Mowery, D.C. (2009), "Measuring dynamic capabilities: practices and performance in semiconductor manufacturing", British Journal of Management, Vol. 20 No. S1, p. S41.

Makadok, R. (2001), "Toward a synthesis of the resource-based and dynamic-capability views of rent creation", Strategic Management Journal, Vol. 22 No. 5, pp. 387-401.

Muller, R. and Turner, J.R. (2010), "Attitudes and leadership competences for project success", Baltic Journal of Management, Vol. 5 No. 3, p. 307.

Nedzinskas, S.A., Pundziene, A., Buoziute-Rafanaviciene, S. and Pilkiene, M. (2013), "The impact of dynamic capabilities on SME performance in a volatile environment as moderated by organizational inertia", Baltic Journal of Management, Vol. 8 No. 4, p. 376.

Newey, L.R. and Zahra, S.A. (2009), "The evolving firm: how dynamic and operating capabilities interact to enable entrepreneurship", British Journal of Management, Vol. 20 No. 1, pp. 81-100.

Pablo, A.L., Reay, T., Dewald, J.R. and Casebeer, A.L. (2007), "Identifying, enabling and managing dynamic capabilities in the public sector", Journal of Management Studies, Vol. 44 No. 5, pp. 687-

708.

Pandza, K. and Thorpe, R. (2009), "Creative search and strategic sense-making: missing dimensions in the concept of dynamic capabilities", British Journal of Management, Vol. 20 No. S1, p. S118.

Pitelis, C.N. and Teece, D.J. (2010), "Cross-border market co-creation, dynamic capabilities and the entrepreneurial theory of the multinational enterprise", Industrial and Corporate Change, Vol. 19 No. 4, pp. 1247-1270.

Schilke, O. (2013), "On the contingent value of dynamic capabilities for competitive advantage: the non-linear moderating effect of environmental dynamism", Strategic Management Journal, Vol. 35 No. 2, pp. 179-203. 524 JSMA 9,4 Downloaded by University of The West of England At 03:33 07 November 2016 (PT)

Schreyögg, G. and Kliesch-Eberl, M. (2007), "How dynamic can organizational capabilities be?: towards a dual-process model of capability dynamization", Strategic Management Journal, Vol. 28 No. 9, pp. 913-933.

Sune, A. and Gibb, J. (2015), "Dynamic capabilities as patterns of organizational change", Journal of Organizational Change Management, Vol. 28 No. 2, pp. 213-231

Rothaermel, F. T. and A. M. Hess (2007), 'Building dynamic capabilities: innovation driven by individual-, firm-, and network-level effects,' Organization Science, 18(6), 898–921

Teece, D. J. (2007), 'Explicating dynamic capabilities: the nature and micro foundations of (sustainable) enterprise performance,' Strategic Management Journal, 28(13), 1319–1350.

Teece, D. J., G. Pisano and A. Shuen (1997), 'Dynamic capabilities and strategic management,' Strategic Management Journal, 18(7), 509–533.

Tippins, M. J. and R. S. Sohi (2003), 'IT competency and firm performance: is organizational learning a missing link?' Strategic Management Journal, 24(8), 745–761. Tripsas, M. (1997), Surviving radical technological change through dynamic capabilities: evidence form the typesetter industry, Industrial and Corporate Change, 6(2), 341–377.

Tushman, M.vL. and P. Anderson (1986), 'Technological discontinuities and organizational environments,' Administrative Science Quarterly, 31(3), 439–465.

Winter, S. G. (2003), 'Understanding dynamic capabilities,' Strategic Management Journal, 24(10), 991–995.

Yadav, S. (2018) "Growing Human Population and Sustainable Development", IARS' International Research Journal. Victoria, Australia, 8(1). doi: 10.51611/iars.irj.v8i1.2018.87.

Zahra, S. A., H. J. Sapienza and P. Davidsson (2006), 'Entrepreneurship and dynamic capabilities: a review, model and research agenda,' Journal of Management Studies, 43(4), 918–955.

Zollo, M and S. G. Winter (2002), 'Deliberate learning and the evolution of dynamic capabilities,'

Organization Science, 13(3), 339–351.

Zott, C. (2003), 'Dynamic capabilities and the emergence of intra-industry differential firm performance: insights from a simulation study,' Strategic Management Journal, 24(2), 97–125.