



STRATEGIC FLEXIBILITY AND CORPORATE RESILIENCE OF OIL AND GAS SERVICING FIRMS IN SOUTH SOUTH, NIGERIA.

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Abstract:

This study examined the relationship between strategic flexibility and corporate resilience in the oil and gas servicing firms in South-South, Nigeria. The oil and gas servicing firms' ability to endure in business depends on their connectivity of network of their internal and external factors. These have not been more successful because of their inability to have high resilience capacity to withstand the competitive nature of the business world. Thus, it becomes imperative to achieve the objective of this research involving the determination of the relationship between strategic flexibility and corporate resilience which will enable them to be envisioned, get ready for and adjust to unexpected eventualities and gain competitive advantage. As a consequence, research questions and hypotheses were advanced. A sample size of three hundred and fifty-nine (359) employees was drawn from the population of 5000 employees. Data was collected with the use of copies of questionnaire which were administered and distributed to respondents. The simple random sampling technique was employed and data was analysed using Spearman's rank order correlation coefficient. Partial correlation was used to examine the relationship between the dimensions of Strategic Flexibility and the measures of Corporate Resilience. The results showed that the dimension of strategic flexibility improved corporate resilience. The study recommends amongst others, that oil and gas servicing firms' executives should embrace strategic resilient capacity in their decision making in order to enable them adjust quickly to environmental shocks and unexpected eventualities to be competitively advantageous.

Keywords: Corporate Agility, Corporate Resilience, Flexibility, Robustness, Strategic flexibility,

1.0 INTRODUCTION

Generally, the business environment has been characterized by high dynamism, and this has been intensified as a result of the recent outbreak of COVID-19, which has affected many firms, irrespective of the industry. Thus, it becomes imperative for these firms to be resilient, if they must survive the attendant dynamics. For organisations to be resilient, it is important for firms to be able to adapt to the changing business environment. Akhigbe and Onuoha (2019) argued that the survival of a firm is not about its fitness, but its ability to be resilient in adapting to unforeseen circumstances. The capacity of an organization to muddle through the effect of internal and external environmental influences is critical to its survival (Osita-Ejikeme & Amah, 2021). Thus, it is important for firms to retain the elements that support renewal and reconstruction of the system in the event of disturbances (Walker et al., 2004). The organisation's ability to endure depends on its resilience, which is an interconnected network of both the organisation's internal and external factors. Organizations that have

thriven over the decades are those that have high resilience capacity to withstand the impoundable nature of the business world. A resilience firm is able to envision, get ready for and adjust to unexpected eventualities which could thus enable them to gain competitive ground over rivalries. Resilience is extremely important to any business because without it, they may not recover from unexpected disruptions or adapt fast enough to sudden changes in market demand or regulatory requirements. In alignment with the above assertion, Onyokoko and Onuoha (2021) argued that only organizations with resilience ability are most likely to survive in a highly competitive industry. Annarelli and Nonino (2016) posited that the absence of firm's resilience makes it very tough for organizations to operate effectively when faced with high level of competitive force and uncertainties in the industry. Corporate resilience is the ability and capacity to endure system wide interruptions to business as usual and the ability to adopt a new risk environment (Starr, Newfrock & Delurey, 2003). They add that a resilient company that can conveniently assemble many operational, managerial, corporate governance,



and decision support systems, all of which can be rearranged according to any incoming risks or unexpected disruptions, creates a strategic competitive advantage over other firms (Starr et al., 2003).

1.1 Purpose of the study- the purpose of the study was to establish the relationship between strategic flexibility and corporate resilience of oil and gas servicing firms in South- South, Nigeria.

1.2 Research Objective – the research objective was to determine the relationship between strategic flexibility and corporate resilience of oil and gas servicing firms in South- South Nigeria

1.3 Research Question- the research question deemed necessary to guide the achievement of the research objective was 'what is the relationship between strategic flexibility and corporate resilience of oil and gas servicing firms in South-South Nigeria'

1.4 Research hypotheses- the research hypotheses formulated to advance the achievement of the research purpose and objective

was stated in their null form as follows;

Ho1 There is no significant and positive relationship between strategic flexibility and corporate resilience of oil and gas servicing firms in South- South Nigeria

1.5 Significance of the study- findings from this study will enable strategic managers and policy makers in oil and gas servicing firms in South-South Nigeria to absorb the need for strategic flexibility in terms of making strategic decisions that will eventually promote corporate resilience.

2.0. REVIEW OF LITERATURE

2.1 Conceptual Review

2.1.1 Corporate Agility

More recently, researchers have evoked agility to describe and explain organizational responses in contexts as diverse as information systems (Sarker & Sarker, 2009) market orientation (Grewal & Tansunaj, 2001) strategic alignment (Tallon & Pinsonneault, 2011) and social computing. Agility is the alertness to the changing situations in the work environment and the capacity to utilize the available resources in reacting to those changes on time. Changes that drive an organization to be agile come from every aspect of the external environment, including politics, economics, society and technology, as well as the internal environment, such as internal strategy and organization structure (Sharifi & Zhang, 1999). Changes in customer preferences, and rapid technological advances or strategic moves by aggressive competitors result in sustained competitive advantage being difficult to achieve (D'Aveni, 1994).

Organizational agility is the capacity of an organization to quickly recognize, utilize opportunities and tackle threats in an unstable environment. (Mathiassen & Pries- Heje 2006) refer to organizational agility as an enabler of competitiveness and a key business factor. Organizations that operate in a dynamic environment require greater agility than those that operate in less turbulent business environment (Moritra & Ganesh 2005; Tallon, 2008). Agility involves all aspect of organization architecture such as technology, business, processes, people, information and strategy. Likewise, various studies focus on agility from an overall organizational perspective (Arteta & Giachetti 2004; Dove 2005) or more specifically on particular areas of an organization. Organizational agility focuses on rapidity because for organizations to survive in the business environment, speed must not be overlooked. Time in organizational agility can be viewed in two aspects. First, it is how fast an organization can anticipate and react to threats and opportunities. Second, is how long organizations keep competitive edge over their competitors before being copied (Mathiassen & Pries - Heje 2006) To ensure that no threats or opportunities are missed, agile organizations require sensing and responding to changes to be quick and happen in real time (Panka; et al 2009; Seo et al 2006).

2.1.2 Corporate Resilience

Resilience, a concept originally derived from the field of ecology. It is seen as the ability of recovering and maintaining a state which existed before the disturbance occurred (Constas & Frankenberg, 2013). According to Hamel and Valikangas (2003) the issue of resilience came about because of the need for corporation to respond to turbulent times caused by natural disaster, economic downturns, and man-made disasters. They argued that it is only those organizations that anticipate, respond to threats and ready to adapt to unexpected disruptions in the environment that can succeed. Hamel and Valikangas (2003) asserted that successful organizations should constantly adapt and to reflect the changing external environment. The need for resilience is particularly important for organizations providing goods and services and to fashion out ways to prevent disruptions in their operations processes. The measures of organizational resilience include organizational agility and organizational adaptive capacity. McPhee (2014) defines resilience as the capability to withstand shocks, whereas Pal, Westerlind, and Torstensson (2013) and Smailbone et al. (2012) define resilience as a firm's ability to adjust to a crisis or a change while retaining its competitive advantage. These studies define



resilience as the capacity to revert to a previous level of equilibrium. They emphasize the adaptive components of resilience, such as dynamic shock absorption. Additionally, resilience has been quantified. According to this view, resilience refers to the degree of disruption that an organisation can tolerate while still surviving (Linnenluecke and Griffiths, 2010; Limnios et al., 2014). Assuring the safety of an organisation's operations and systems is vital and necessary for organisations with highly distributed and infinite network environments (Rexhepi & Modenesi, 2016). Resilience is the capacity to anticipate disturbances and to recover quickly and effectively from unfavourable circumstances. Resilience enables individuals to regain control quickly in the face of unanticipated change and to maintain a general sense of well-being while managing many changes concurrently without being affected. Corporate resilience refers to an organisation's capability to anticipate crises, respond to short-term shocks, and recover from unexpected disruptions. Additionally, organisational resilience is a critical approach for an organisation to thrive in today's dynamic world and may be built through time, ensuring long-term viability (Rexhepi & Modenesi, 2016). Historically, resilience has been defined as the capacity of an individual, group, or organisation to survive, adapt to, and recover from a disastrous event (Buckle, Mars & Smale, 2000). Although the term resilience originates in science, referring to a material's ability to revert to its original shape following deformation (Sheffi, 2006), it is also used to refer to a system's ability to absorb change, typically conceptualized as sudden shocks, while retaining its essential functionality (Walker et al., 2006).

2.1.3. Flexibility

Gebauer and Schober (2006) [21] defined IS flexibility as the efficiency with which the system function is used and provided (or changed) for the purpose of providing operability, not as a tool, but as a business process, and offered a cost-efficiency metric for evaluating a given business process. A flexible information system enables effective support for business activities such as procurement and customer relationship management (Nandakumar et al, 2014) [36]. It consists of systemic and usage flexibility, which enables the business to adapt to changing conditions, whether internal or external (Palanisamy & Sushil, 2003; Palanisamy, 2012) [41, 42]. The information system is defined as the configurations of people, data, procedures, and technology, as well as their interactions, that are required to accomplish organisational activities (Jacorne, 2007) [25].

Organisations can keep control and adapt to constant flexibility in hypercompetitive, fast changing settings through the use of flexible information systems.

Theoretical studies indicate that information systems exhibit links between flexibility and efficiency comparable to those discovered for industrial systems. Information systems are critical to an organisation's competitiveness in practically every business (Melville, Kraemer & Gurbaxani, 2004) [34]. In a commercial setting, an information system is typically thought of as being composed of numerous components: information technology components such as hardware, software, procedures, and data. A system is a collection of disparate components that work cooperatively to accomplish a common goal or purpose. As a result, an information system's components are integrated to meet certain corporate objectives and aims. Given that information systems are a critical component of determining a firm's competitiveness in an industry, these systems must be capable of adapting to any required changes in the firm's strategies and structures. It has been demonstrated that alignment of corporate strategy, organisational structures, and information systems is associated with organisational performance (Chan, Huff, Copeland & Barclay, 1997) [11]. As a result, it stands to reason that since organisations' business strategies and organisational structures are continually changing and altering in business settings, their information systems must likewise change in order to remain aligned. In such instances, information systems must be adaptable enough to change in lockstep with the businesses' strategies and structures. Prior work on information system flexibility has not taken this requirement into account when discussing information system flexibility (Byrd & Turner, 2000).

2.1.4 Robustness

A system is robust if it does not cause considerable loss of form or function, and merely a single mode of vulnerability deems a system insecure (Agarwal, Blockley & Woodman, 2007) [3]. Robustness, in a broad sense, refers to the capacity to tolerate or survive external shocks, to maintain stability in the face of uncertainty (Bankes, 2010). More precisely, robustness has been defined as a system's ability to endure structural perturbations without compromising its function (Jen, 2003). In all cases, robustness refers to a complex system's ability to continue functioning in the face of functional shocks or disturbances (Mens et al., 2011). This emphasis on shock resistance and systemic functioning pervades the majority of



robustness applications across multiple fields. The robustness of an organisation is defined as 'its capacity to preserve its fundamental pattern under changing situations, while retaining its core characteristics' (Van Oss & Van Hek 2011). Robustness quantifies a system's ability to adapt to unanticipated external changes (Golden & Powell, 2000). A system is robust as long as it retains functionality, regardless of whether it enters a new steady state or whether instability actually aids the system in coping with shocks (Kitano, 2007). The term "robustness" refers to the persistence of features in systems where the perturbations are not fluctuations in external inputs or internal system parameters, but rather changes in the system's composition, topology, or fundamental assumptions about the environment in which the system operates (Jen, 2003). Thus, robustness refers to the feature of institutional arrangements that enables a system to adjust or reestablish stability following times.

2.1.5 Strategic Flexibility

Strategic flexibility enables firms to detect and respond to key changes in their environment (Grewal & Tansuhaj; 2001), eliminates organisational inertia, and stimulates creativity and innovation (Zhou & Wu, 2010). Thus, strategic flexibility may have an effect on the performance of a business. However, published research reveals conflicting findings about this phenomenon. Numerous studies support the assumption that strategic flexibility enhances business performance (Grewal & Tansuhaj, 2001), but others have identified specific downsides of strategic flexibility, including greater expenses, increased stress, and a potential lack of strategic focus (Das & Elango, 1995). Strategic flexibility is one of the most critical assets an organisation can have in order to adapt to changing market conditions such as rising unemployment in the industry, technological advancements, economic competition, new regulations, and altered customer relationships (Gibson, 2000).

Furthermore, Strategic flexibility is concerned with identifying problems and reversing resource commitments in a timely manner if the initial activity and resource commitments prove ineffective (i.e., strategic mistakes). Strategic errors can occur as a result of an erroneous initial assessment of the environment or as a result of maintaining the status quo in the face of environmental change. Distinguishing strategic errors from temporary setbacks, on the other hand, is challenging. The decision-making process for retaining strategic flexibility is centered on the application of three

capabilities, each at a different stage: (1) the capability to pay attention to negative feedback (attention stage), (2) the capability to collect and objectively assess negative data (assessment stage), and (3) the capability to initiate and complete change in a timely manner, even in the face of adverse circumstances (Shimizu & Hill, 2004). Balancing commitment and change in a timely manner should result in outcomes that maximize possible advantages and minimize potential costs. Simultaneously, striking the proper balance is obviously difficult. Abandoning an endeavor prematurely due to initial difficulties may result in the loss of a significant future benefit, while an excessively strong commitment to a money losing enterprise would only compound problems. Maintaining strategic flexibility is a critical challenge for managers and organisations operating in a dynamic environment.

According to Holweg (2005), flexibility is the capacity to adjust to internal and/or external factors According to Escrig-Tena et al. (2011), flexibility refers to a firm's capacity to respond quickly to challenges, rethink its activities and strategy, and more effectively satisfy environmental demands. Flexibility is not a goal in itself, but a means to an end (Bernardes & Hanna, 2009). Flexibility refers to the innate ability to alter one's current course in. capability to accommodate and successfully adapt to changes in the environment. Strategic flexibility refers to a firm's capability to recognize environmental dynamics and quickly tap into sources in order to initiate new operations in response to these dynamics (Dehghan-Dehnavi & Nadafi, 2011). Strategic flexibility refers to a business's ability to respond to uncertainties using the information and skills it possesses, while also pursuing its objectives through continual development (Eryesil, Esmen & Beduk, 2015). It is a firm's capacity to adjust to the many demands imposed by dynamic competitive settings. The degree to which a business is willing to change its strategy in response to opportunities, threats, and changes in the external environment is referred to as strategic flexibility (Zahra et al., 2008).

3.0 Research Methodology

Research Design This study used a cross-sectional survey research method or known as the quasi-experimental.

Population for the study- the target population was three thousand five hundred and fifty-six (3556) staff strength of oil and gas services companies in South-South, Nigeria.



Sample size determination- The sample size was determined using the Taro Yamane (1968) formula for sample size determination.

Method of Data collection- Data was collected through the distribution of questionnaire. As a result, 359 copies of questionnaire were distributed to employees at the selected companies.

Sampling Technique- In this study, the simple random sampling technique was applied. This method was chosen because it ensures that all the study units are well represented in the sample case selection.

Measurement of variables- Strategic Flexibility (independent variable) was measured using information system flexibility. Corporate Resilience (dependent variable) was measured using Robustness and Agility. Items were rated on a 4-point Likert scale, with 1 indicating strong disagreement, 2 indicating

disagreement, 3 indicating agreement, and 4 indicating strong agreement.

Method of data analysis- Statistical Package for Social Sciences (SPSS) version 21 aided the analyses of the bivariate hypotheses using the Spearman Rank Order Correlation Coefficient statistical tool.

4.0 RESULT

A total of 359 questionnaires were distributed to respondent, however, only 350 (97.4%) copies were returned used for the study. The hypotheses test was undertaken at a 95% confidence interval implying a 0.05 level of significance. The decision rule is set at a critical region of $p > 0.05$ for acceptance of the null hypothesis and $p < 0.05$ for rejection of the null hypothesis.

Table 4.1: Spearman Rank Order Correlation result for hypothesis one

"HO₁: There is no significant relationship between Information system flexibility and Robustness".

Correlations				
			Information system flexibility	Robustness
Spearman's rho	Information system flexibility	Correlation Coefficient	1.000	.938**
		Sig. (2-tailed)		.000
		N	350	350
	Robustness	Correlation Coefficient	.938**	1.000
		Sig. (2-tailed)	.000	
		N	350	350

** Correlation is significant at the 0.01 level (2-tailed)

Source: SPSS (version 22) Output Display, 2019.

Table 4.2: Spearman Rank Order Correlation result for hypothesis two HO₂: There is no significant relationship between Information system flexibility and Agility".

Correlations				
			Information system flexibility	Agility
Spearman's rho	Information system flexibility	Correlation Coefficient	1.000	.942**
		Sig. (2-tailed)		.000
		N	350	350
	Robustness	Correlation Coefficient	.942**	1.000
		Sig. (2-tailed)	.000	
		N	350	350



** Correlation is significant at the 0.01 level (2-tailed)

Source: SPSS (version 22) Output Display, 2019.

5.0 DISCUSSION OF FINDINGS

Relationship between Information System Flexibility with Robustness and Agility

Spearman rank order correlation coefficient analysis result for hypothesis 1 & 2 showed relationship between information system flexibility with robustness and agility. The result showed rho values of .938** for hypothesis one and .942** for hypothesis two. Also p-value of .000 was recorded for the two hypotheses. The rho value result simply shows a very strong relationship between Information system flexibility and robustness and agility with information system flexibility.

6.0 Conclusion and Recommendation

Based on the result of the study (rho values of hypothesis), this research concludes that there exist a very strong significant positive relationship between Information system flexibility and corporate resilience of oil & gas services firms in Rivers State. Going by this, the study puts forward that information system flexibility as dimension of strategic flexibility strongly influence or affect corporate robustness and agility of oil & gas firms in Rivers State, Nigeria. Based on the results of the analysis of the data, this study comes up with certain conclusions. The key conclusion is based on how oil and gas servicing firms and other important stakeholders viewed strategic flexibility and its link with corporate resilience, which is in accordance with the study's goal. Strategic flexibility, according to this study, improves corporate resilience greatly. The following recommendations were proffer in this study:

- 1) Managers of oil and gas servicing firms should ensure that product development teams use flexible new product development and modification approaches to accomplish targeted project objectives, which would enable them to be adaptable to the business environment.
- 2) Managers of oil and gas servicing firms' should ensure organisational products and services are always

available; products are not diverted; and they are in compliance with the rules and regulations of their business environment.

- 3) Managers should ensure strategic flexibility in their market, as it acts as a driver of organisational positioning in a dynamic business environment and since it exists on a continuum characterized by the degree to which a firm acquires, allocates and reconfigures its resource portfolio.
- 4) Managers of oil and gas servicing firms should establish competitive market strategies that focus on business agility, sensing and responding capabilities linked to promptly finding new market opportunities.

REFERENCES

1. Agarwal J, Blockley DI, Woodman NJ. Vulnerability of systems. Civil engineering and environmental systems. 2007; 18:141-165.
2. Akhigbe, E. A., & Onuoha, B. C. (2019). Strategic Agility and Organizational Resilience of Food and Beverage Firms in Rivers State, Nigeria. *International Journal of Business Systems and Economics*, 12(2), 80-93.
3. Annarelli, A. & Nonino, F. (2016). Strategic and operational management of organizational resilience: Current state of research and future directions. *Omega*, 62, 1-18.
4. Arteta, M.B. & Giachetti, E.R. (2004) A measure of agility as a complexity of enterprise system. *Robotics and compulsory integrated manufacturing* 20(6), 495 – 503.
5. Bankes S. Robustness, adaptivity, and resiliency analysis. Association for the Advancement of Artificial Intelligence, Papers from Fall Symposium, 2010. Retrieved 24th September 2021 from <http://www.aaai.org/ocs/index.php/FSS/FSS10/paper/view/2242/2643>.



6. Bernardes, E.S. & Hanna, M.D. (2009). A theoretical review of flexibility, agility and responsiveness in the operations management literature: toward a conceptual definition of customer responsiveness, *International Journal of Operations and Production Management*, 29(1), 30-53.
7. Byrd TA, Turner D. Measuring flexibility of information technology infrastructure: exploratory analysis of a construct, *Journal of Management Information Systems*. 2000; 17(1):167-208.
8. Chan YE, Huff SL, Copeland DG, Barclay DW. Business strategic orientation, information systems strategic orientation and strategic alignment, *Information Systems Research*. 1997; 8(2):125-150.
9. Constas, M.A. & Frankenberger, T.R. (2013) A conceptual analysis of the relationship between vulnerability and resilience. Canberra: Australia 21.
10. D'Aveni, R. (1994) *Hyper Competition: Managing the Dynamic of Strategy Maneuvering*. New York: Free press.
11. Das, T.K. & Elango, B. (1995). *Managing strategic flexibility: Key to effective performance*. *Journal of General Management*, 20 (3). 60-75.
12. Dehghan-Dehnavi, H. & Nadafi, G. (2011). Can strategic flexibility bring profitability to firms through product innovation? *Modern Economy and Business Quarterly*, 30, 1-4.
13. Dove, R. (2005) *Agile Enterprise cornerstone: Knowledge, values and response ability*, ed. Richard Baskerville (Business agility and Information Technology diffusion: Springer
14. Eryesil, K., Esmen, O. & Beduk, A. (2015). The role of strategic flexibility for achieving sustainable competition advantage and its effect on business performance. *International Journal of Business and Economics Engineering*, 9(10), 3469-3475.
15. Escrig-Tena, A.B., Bou-Llugar, J.C., Beltran-Martín, I. & Roca-Puig, V. (2011). Modelling the implications of quality management elements on strategic flexibility, *Advances in Decision Sciences*, DOI:10.1155/2011/694080.
16. Gebauer J, Schober F. Information system flexibility and the cost efficiency of business processes, *Journal of the Association for Information Systems*. 2006; 7(3):122-147.
17. Gibson, V. (2000). *Property Portfolio Dynamics: The Flexible Management of Inflexible Assets*: In: Nutt, B. and McLennan, P. eds, *Facility Management: Risks and Opportunities*. Oxford, Blackwell Science.
18. Golden W, Powell P. Towards a definition of flexibility: In search of the Holy Grail? *Omega: The International Journal of Management Science*. 2000; 28:373-384.
30. Kitano H. Biological robustness, *Nature Reviews Genetics*. 2004; 5(11):826-837.
19. Grewal, R. & Tansuhaji, P. (2001) Building organizational capabilities, for managing economic crisis: The role of market orientation and strategic flexibility. *Journal of marketing*, 65(2) pp. 67- 80.
20. Grewal, R. and Tansuhaj, P. (2001) Building Organizational Capabilities for Managing Economic Crisis: The Role of Market Orientation and Strategic Flexibility. *Journal of Marketing*, 65, 67-80.
21. Hamel, G. & Valikangas, L. (2003) The Quest for resilience. *Harvard Business Review*, 81(9) 52 – 63.
22. Holweg, M. (2005). The three dimensions of responsiveness, *International Journal of Operations and Production Management*, 25(7/8), 603-622.
23. Jacome L. Evaluating Information Systems Flexibility: A Research Approach to Build a Framework, 13th Americas Conference on Information Systems, Keystone, CO: Association of Information Systems, 2007.
24. Jen E. Stable or robust? What's the difference? *Complexity*. 2003; 8(3):12-18.
22. Limnios, A.M., Mazzarol, T., Ghadouani, A. & Schilizzi, S.G.M. (2014). The resilience architecture framework: four organizational archetypes. *European Management Journal*, 32(1), 104-116.
26. Linnenluecke, M.K. & Griffiths, A. (2010). Beyond adaptation: resilience for business in light of climate change and weather extremes. *Business and Society*, 49(3), 477-511.
27. Mathiassen, L. & Pries – Heje, J. (2006) Business agility and diffusion of information technology. *European journal of information systems*, 15(2), 116-119.
28. Melville N, Kraemer K, Gurbaxani V. Information technology and organizational performance: an integrative model of IT business value, *MIS Quarterly*. 2004; 28(2):283-322.



29. Nandakumar MK, Jharkharia S, Nair AS. Organisational flexibility and competitiveness. New Delhi: Springer India, 2014. 41.
30. Onyokoko O, & Onuoha B (2019). Strategic management and workplace diversity of selected banks in Port Harcourt, Nigeria. *International Journal of Management Sciences*, 7(2): 22–41.
31. Osita-Ejikeme, U.E. & Amah, E. (2021). Strategic Flexibility and Corporate Resilience of Manufacturing Firms in South-South, Nigeria. *International Journal of Management Sciences*, 9(3), 50 – 73.
32. Pal, R., Westerlind, R., Torstensson, H. (2013). Exploring the resilience development process by implementing the crisis strategic planning framework: A Swedish textile SME perspective. *International Journal of Decision Sciences, Risk and Management*, 5, 50 - 59.
33. Palanisamy R Sushil. Achieving organizational flexibility and competitive advantage through information systems flexibility. a path analytic study. *Journal of Information & Knowledge Management*. 2003; 2(03):261-277.
34. Palanisamy R. (2012) Building information systems flexibility in SAP—IAP framework: A case study evidence from SNE sector. *Global Journal of Flexible Systems Management*. 13(1):57-74.
35. Panka, P. Hyde, M; Ramaprasad, A. & Tadisi-ina, S.K. (2009) *Revisiting agility to conceptualize information systems agility*. In: *Premier Reference source*. Emerging topics and technologies in information systems (pp. 19-54).
36. Panka, P. Hyde, M; Ramaprasad, A. & Tadisi-ina, S.K. (2009) *Revisiting agility to conceptualize information systems agility*. In: *Premier Reference source*. Emerging topics and technologies in information systems (pp. 19-54).
37. Rexhepi, E. & Modenesi, S.R. (2016, August 18). The Importance of Organizational Resilience, PECB, <https://pecb.com/article/the-importance-of-organizational-resilience>
38. Sarker, S. & Sarker, S. (2009) *Exploring agility in distributed information systems development teams*. An interpretive study in an offshoring context. *Information systems research*, 20(3), 440-461.
39. Sharifi, H. & Zhany, Z. (1999) A methodology for achieving agility in manufacturing organizations: An introduction *International Journal of Production Economics*. Vol.6(2), 7-22.
40. Sheffi, Y. (2006). Manage risk through resilience. *Chief Executive*, 214, 28-29.
41. Shimizu, K., and Hitt, M. A. 2004. Strategic flexibility: Organizational preparedness to reverse ineffective strategic decisions. *Academy of Management Executive* 18: 44-59.
42. Starr, Randy, Newfrock, Jim, & Delurey, Michael. (2003). Enterprise resilience: managing risk in the networked economy. *Strategy and Business*, 30, 70-79.
43. Tallon, P.P. & Pinsonneault, A. (2011) Competing perspective on the link between strategic information technology alignment and organizational agility: Insights from a mediation model. *MIS Quarterly*, 35(2), 463-486.
44. Tallon, P.P. (2008) Inside the adaptive enterprise: An information technology capabilities perspective on business process agility. *Information technology and management*, 9(1), 21-36.
45. Walker, B., C. S. Holling, S. R. Carpenter, and A. Kinzig. 2004. Resilience, adaptability and transformability in social–ecological systems. *Ecology and Society* 9(2), 5.
46. Walker, B.H., Gunderson, L.H., Kinzig, A.P., Folke, C., Carpenter, S.R. & Schultz, L. (2006). A handful of heuristics and some propositions for understanding resilience in socialecological systems. *Ecology and Society*, 11(1), 13.
47. Zahra, S.A., Hayton, J.C., Neubaum, D.O., Dibrell, C. & Craig, J. (2008). Culture of family commitment and strategic flexibility: the moderating effect of stewardship, *Entrepreneurship Theory and Practice*, 32, 1035-1054.