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**SUPPLY CHAIN AGILITY AND ORGANIZATIONAL PERFORMANCE OF  
MANUFACTURING FIRMS IN RIVERS STATE**

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**Abstract**

The study's overarching goal is to use empirical evidence to draw conclusions on the connections between supply chain agility, organisational performance, and manufacturing firms in the state of Rivers. Researchers conducted a study using statistical analysis to test all proposed ideas, after collecting numerical data through a survey. The study included all officially registered manufacturing companies in Rivers State, as most businesses were situated there. Rivers State has 29 legally registered manufacturing businesses. Six delegates were sent to each company, one from each of the six departments that comprised the organisation: purchasing, manufacturing, marketing, research and development, and customer service. The sample size for the quantitative study was 144 individuals. Researchers evaluated the internal reliability using the Cronbach's Alpha method. Each item needed to score above 0.7 on the Likert scale for this method to be applied. All hypotheses were confirmed as the data table showed strong positive connections (0.921, 0.874, 0.872, and 0.886) between the variables. The data indicated a positive relationship between all aspects of supply chain agility and the performance of manufacturing businesses in Rivers State. Researchers in Rivers State discovered that the performance of industrial enterprises would enhance if managers maintained professional relationships with their colleagues.

**Keywords: network integration, virtual integration, efficiency, profitability**

## **Introduction**

Due to the intensely competitive environment, supply chain agility (SCA) is now at a crucial point (Golgeci, Bouguerra, & Rofcanin, 2019). Information systems play a crucial role in the supply chain by facilitating supply chain agility, as highlighted by Gunasekaran, Yusuf, Adeleye, Papadopoulos, Kovvuri, & Geyi (2019). According to Gunasekaran et al. (2019) and Wei, Ke, Liu & Wei (2020), supply chain integration is a strategic approach that enables seamless integration and enhances the operational efficiency of the firm. Improving operational efficiency to enhance customer satisfaction is now crucial in today's competitive industry, as highlighted by Stock & Seliger (2016) and Xu & Liu (2017). Haidar (2019) reported that in Nigeria, the manufacturing industry plays a significant role, accounting for approximately 8% of the country's GDP. Adekoya (2019) claims that it is one of Nigeria's largest economies and contributes to the growth of the national economy. Levinson (2018) asserts that it creates jobs and improves the standard of living for residents. Among the highly concentrated sub-industries in this sector are cement, textile and apparel, chemicals, metal, computer and electronic goods, furniture and wood products, coal products, petroleum, etc. Due to fierce competition and a lack of regulation, enterprises within the industry are facing challenges in sustaining their operations. Despite being a concentrated sub-industry, the sector is experiencing a decline in predicted production, profit margin, and its contribution to the GDP, as noted by Adekoya (2019) and Haidar (2019).

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In light of the competitive business environment of today, organisations need to devise strategies for preserving their competitive edge, increasing profitability, and upholding corporate performance. Cho & Dansereau (2010) define organisational performance as a company's performance in reference to its aims and objectives. The total of actual results or organisational outcomes that are contrasted with anticipated outcomes is what Daniel & Kevin (2015) define as organisational performance. The performance of organisations greatly influences the interest that individuals have in management courses. The organisation puts a high priority on continuous implementation as it believes that it can grow by improving performance (Gavrea, Corina, Ilies, Liviu & Stegorean, 2011). A range of business factors, such as work processes, relationships within teams and groups, business culture and policy image, leadership and climate, all contribute to organisational performance and foster innovation, according to Cho, Park, Kim, Park, Moon, Chong, Sung, Kim, Jeong, Lee, Choi, Woo, Kim & Kim (2011).

The ability to respond promptly to customer needs is vital for success in the present economic landscape, as highlighted by Feizabadi, Gligor & Alibakhshi (2019). When discussing agility, it essentially comes down to enabling and prioritizing responsiveness. This suggests that for attaining supply chain agility, supply networks should prioritize customer needs over forecasts, as indicated by Afshan & Motwani (2021) and Gunasekaran et al. (2019). Technology utilisation is critical to a company's success. Strategic SC management has been shown to aid improve SSC performance (Khan, Waheed, Farrukh & Ashfaq, 2019; Afshan & Motwani, 2021). To further

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address uncertainties and changes, SCA aims to reconfigure all resources, including customer sensitivity, process integration, network integration, and virtual integration, as fast as possible (Hsu & Chang, 2021). Previous research on supply chains has concentrated on different sectors (Shah & Motwani, 2021; Manzoor, Baig, Hashim, Sami, Rehman & Sajjad, 2022; Chae, Olson, & Sheu, 2014; Rafique, Kai, & Waheed, 2018; Gunasekaran et al., 2019). Hence, it is crucial for this study to investigate the organizational performance and supply chain agility of industrial companies operating in Rivers State.

### **Statement of the Problem**

Adekoya (2019) reports that the manufacturing sector is experiencing a decline. This is attributed to a number of problems, including high exchange rates, poor infrastructure, power outages, multiple taxes, an increase in imported goods, a scarcity and high cost of raw materials, and, most recently, challenges in managing the reverse flows of input and output. Operations, which involve integrating and efficiently managing essential value-adding tasks, form the basis of supply chain management in the manufacturing industry. Effective supply chain management will enhance both the company's performance and the delivery chain for products to consumers (Sillanpaa, 2012 & Al-Madi, 2017). It has been observed that the manufacturing sector has not managed to decrease its dependence on locally produced and manufactured raw materials. Instead, it has experienced a sharp decline in productivity, high manufacturing costs, slow responsiveness to customer demands, lack of action on consumer complaints and returns, limited understanding of warranties, poor distribution and production quality, and ineffective supply

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chain management. The high rate of import tariffs imposed by the government and the uncertainty surrounding the import of raw materials with respect to marine safety and security seem to have alarmed the Manufacturers Association of Nigeria. These concerns contribute to the uneven supply chain cooperation in the industrial sector. Several inefficiencies have had an impact on the sector and reduced the output's quality.

### **Aim and Objectives of the Study**

The aim of this study is to ascertain empirically the relationship between supply chain agility and organizational performance of manufacturing firms in Rivers State. The specific objectives are to:

- i. Determine the relationship between network integration and operational efficiency of manufacturing firms in Rivers State.
- ii. Ascertain the relationship between network integration and goal attainment of manufacturing firms in Rivers State.
- iii. Investigate the relationship between virtual integration and operational efficiency of manufacturing firms in Rivers State.
- iv. Examine the relationship between virtual integration and goal attainment of manufacturing firms in Rivers State.

### **Research Questions**

This study seeks answers to the following research questions:

- i. How significant is the relationship between network integration and operational efficiency of manufacturing firms in Rivers State?
- ii. What is the relationship between network integration and goal attainment of manufacturing firms in Rivers State?
- iii. What is the nexus between virtual integration and operational efficiency of manufacturing firms in Rivers State?
- iv. How does virtual integration relate to goal attainment of manufacturing firms in Rivers State?

### **Research Hypotheses**

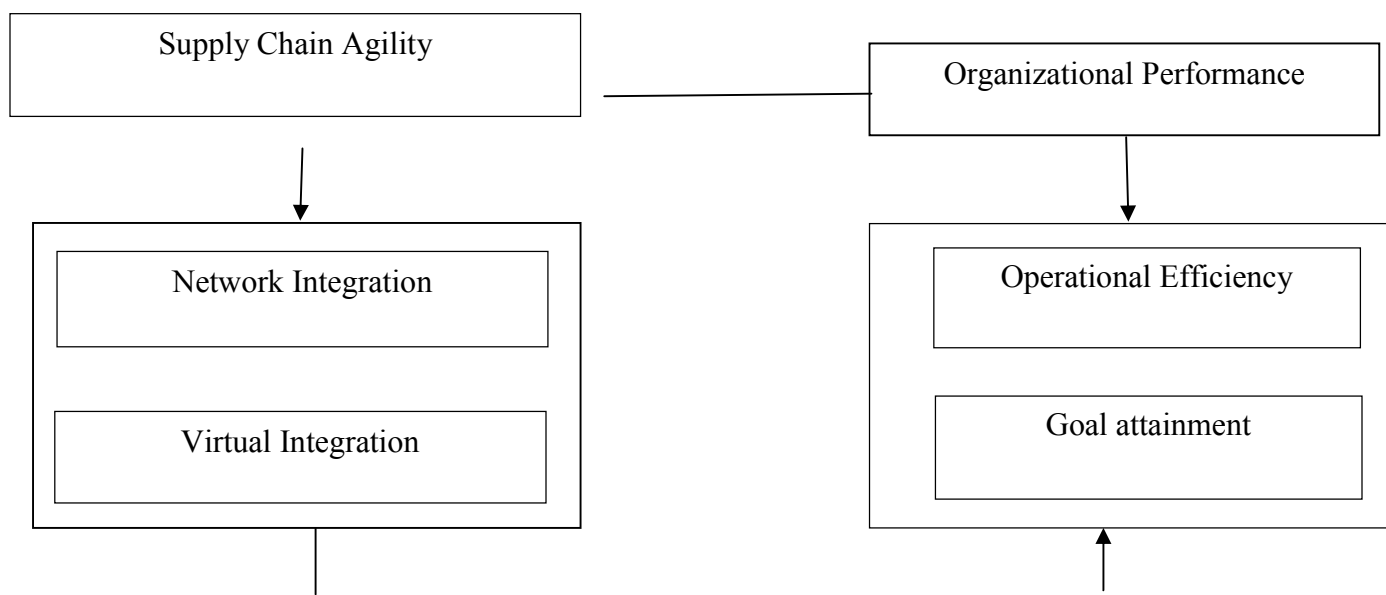
- H<sub>01</sub>:** There is no significant relationship between network integration and operational efficiency of manufacturing firms in Rivers State.
- H<sub>02</sub>:** There is no significant relationship between network integration and goal attainment of manufacturing firms in Rivers State.
- H<sub>03</sub>:** There is no significant relationship between virtual integration and operational efficiency of manufacturing firms in Rivers State.
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**H<sub>04</sub>:** There is no significant relationship between virtual integration and goal attainment of manufacturing firms in Rivers State.

### **Review of Related Literature**

**Theoretical Foundation:** The supply chain's alignment, agility, and flexibility are explained by the resource-based view (RBV) (Barney, 2001). Resource-based thinking (RBV) places a strong emphasis on resource heterogeneity, allocation, independence, utilisation, and replication in order to get a competitive advantage. A group of elements that together comprise the resource are owned or under the control of a company (Bromiley and Rau, 2016). They suggested integrating resources that provide a company a competitive advantage into cross-firm linkages. Competitive advantages may also come from relationships with outside resources (Bell-Hassan, 2019). This hypothesis explains why organisations extend beyond their planned destination and has implications for corporate management (StudyCorgi, 2020). A key theoretical framework in the modern manufacturing and processing sector is the resource-based approach (Eike & Chutter, 2009). This research, which is grounded on RBV theory, uses an integrated theoretical approach to create a conceptual model that aims to identify the essential elements of supply chain agility and verify the criterion variable role of organisational performance.

**Conceptual Framework****Figure 1 Conceptual Framework of Supply Chain Agility and Organizational Performance**

Source: Researchers' Conceptualization.

**Concept of Supply Chain Agility (SCA)**

According to Golgeci et al. (2019), Inman and Green (2021), and Wu (2019), supply chain agility refers to an organization's capacity to control costs and promptly address customer needs. Currently, many prominent companies prioritize building agile supply chains to enhance their responsiveness and efficiency. Manufacturing businesses may need to participate in the process of developing an agile supply chain, which includes raw material suppliers, manufacturers, and retailers. Sanders (2007) states that successful companies work closely with their partners to share real-time information and coordinate inventory management. To stay competitive,



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businesses have been experimenting with new technologies and business models. This experimentation includes strategies such as supply chain agility. In an effort to meet market demands with improved quality and flexibility, businesses are also striving to establish stronger connections with suppliers and consumers (Tse, Zhang, Akhtar & MacBryde, 2016). Businesses and their suppliers will rely more on the supply chain than typical in sectors like the automotive industry, where product manufacturing is complicated and largely reliant on supply networks. Jose and Shanmugam (2019) assert that supply networks are replacing individual enterprises as the unit of competition.

**Network Integration:** Instead of long-term partnerships, Van Hoek et al. (2001) explain network integration as collaborating through flexible groups of network associates. According to Barve (2011), coordinating supply and demand, maintaining reasonable prices, and leveraging partner strengths are crucial for gaining a lasting competitive edge in today's markets. It is recommended that suppliers participate in firm activities like joint product development, cooperative planning, inventory management, and shared systems (Moeen and Agarwal, 2017; Kumar et al., 2019).

**Virtual Integration:** The term "virtual integration" refers to the use of supply chain data. It highlights the importance of information, particularly in exchanging and sharing knowledge (Van Hoek, Harrison, & Christopher, 2001). Virtual integration allows for independent, real-time planning and execution between different companies in supply networks (Maheswari & Kalyan, 2020; Saleheen, Habib & Hanafi, 2018). Businesses gather and manage large amounts of data to collaborate with supply chain partners, leveraging the impact of information (Vickery, Jayaram,

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Droge & Calantone, 2003). Enterprise Resource Planning (ERP) is a widely adopted technology by manufacturing companies to oversee supply chain operations (Wagura, 2015). This change in the way supply chains operate also influences inventory levels. Traditional logistic systems, such as those described by Boone, Drake, Bohler & Craighead (2007), rely heavily on inventories.

### **Organizational Performance**

Organisational performance, according to Daft (2009), is the ability of an organisation to accomplish its goals by making effective and efficient use of its resources. Similar to Daft (2009), Richardo and Wade (2010) suggested that the ability of an organisation to achieve its goals determines how well it performs. Apart from problems related to definition, conceptual problems have also adversely affected the functioning of organisations. Hefferman and Flood (2006) claim that conceptual clarity problems plagued organisational performance as a concept in modern management across many areas. Workers at companies carry out a range of duties in order to fulfil their job. Therefore, it is imperative that organisations perform better because staff dedication increases the bar for individual employee success. A dedicated employee is very useful to the business as they can do assigned responsibilities with little to no supervision (Brown, McHardy, McNabb, & Taylor, 2011). John & Elyse (2010) contend that in today's competitive business environment, no organisation can achieve peak performance unless it maximises the utilisation of its personnel. Devoted employees stay with the organisation, saving it money on recruiting, onboarding, and training new personnel (Brown, McHardy, McNabb, & Taylor, 2011).

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**Goal Attainment:** Goal attainment is the process of organising people and additional resources to meet collective objectives and goals. Within a social structure, political action serves as a means of goal accomplishment, while the development and use of power facilitates mobilisation. The accomplishment of objectives in the manufacturing sector may also be linked to an organization's ability to identify and implement relevant strategies within the constraints of the goals it seeks to maintain its favourable image (Eneh & Abel, 2021). A manufacturing firm, for example, may want to be the best in its field, maintain its position as a profitable niche player, or even be the most successful in reaching the goals it has set for itself.

**Operational Efficiency(OP):** Espejel, Fandos, and Flavián (2011) assert that there is a tight relationship between an organization's total efficiency and its performance. Efficiency in operations is associated with making the best use of an organization's resources. To succeed, businesses must effectively create their product from their input. According to Wong & Sohal (2015), organisations worldwide use operational efficiency, which is also known as operational effectiveness or operational productivity. It determines the output of a business from each unit of input. "Output" refers to the good or service that is being delivered, while "input" refers to the capital, labour, time, and resources utilised in the creation of products and services. "Operational efficiency" describes the strategies that are used to optimise an organization's processes so that it can provide dependable, superior services.

## **Empirical Review**

In 2020, Nazempour, Yang, and Waheed conducted research on the impact of supply chain agility on the operational performance of organisations. Primary data was collected using questionnaires, which were sent to 500 SC managers from different tiers of Iranian SMEs. Next, SPSS and Structure Equation Modelling (SEM) were used to test the ideas. The results demonstrated a favourable association between SCA and OP in addition to positive correlations for each SCA characteristic (such as alertness, decisiveness, adaptability, accessibility, and swiftness). This essay assures that emphasising SCA may improve organisational OP in the present competitive scenario.

Macclever, Annan, and Boahen (2017) investigated firm performance, agility, and supply chain adaptability. Seventy-seven manufacturing and service businesses operating in the Kumasi metropolitan region made up the sample. The sample consisted of both non-management and key management individuals from the businesses. Surveys were used as a data collection method. The findings showed that there was a favourable correlation ( $p < 0.01/0.05$ ) between firm performance and SC Agility and SC Flexibility. Moreover, regulating SC Agility had a favourable effect on SC Flexibility, although this effect was small, indicating that SC Agility did not substantially reduce the beneficial influence that SC Flexibility has on firm performance. More precisely, SC flexibility predicts firm performance by employing SC Agility as a moderator instead of a moderator itself.

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The effect of an agile supply chain on the financial performance of an organisation was studied by Rafique, Kai, and Waheed (2018). Primary data were gathered using surveys, which were sent to 400 SC managers between December 2016 and May 2017. SEM was performed using IBM-AMOS and SPSS (21.0) to test study hypotheses. The results demonstrated a favourable association between SC agility and financial success as well as a substantial correlation between each sub-dimension—alertness, flexibility, accessibility, decisiveness, and swiftness—and financial performance. Nevertheless, the report makes recommendations for future scholarly and professional research and practice areas.

Manzoor, Baig, Hashim, Sami, Rehman, and Sajjad (2022) looked at the effects of lean methods and supply chain agility on operational performance from two different points of view: a resource-based one and a dynamic capabilities one. Two rounds of two-source questionnaires with a two-month interval between each round were used to collect data from general managers, supply chain managers, and operational managers. Two data collecting rounds were conducted in order to reduce bias resulting from common methods. The Likert scale (1–5) was used in the questionnaire's design. Smart PLS 3 and SPSS 23 were used for data analysis. It was shown that SCA had a positive and direct effect on OP. LP had a positive effect on OP as well. Moreover, CA acted as a complete mediator in the interaction between SCA, LP, and OP. This research suggests that managers of manufacturing organisations should adjust their supply chains (SCs) and LP to become more flexible in order to boost their OP and prosper in the market. This will allow them to adapt to changing market conditions and stay competitive.

## **Methodology**

Quantitative data were collected using a questionnaire, and all submitted hypotheses were validated after an empirical analysis utilising the cross-sectional multiple regression framework. Since the present research concentrated on manufacturing enterprises in Rivers State, all registered manufacturing firms in the state made up the sample population. Rivers State now has 29 manufacturing enterprises registered, per documents that can be seen at <https://www.finelib.com/> (14-08-2019). The Census statistics were utilised in this research due of the limited population. The sample for the quantitative study consisted of all 29 of the firms in the population. Specifically, the data was collected from the agents of these businesses. The random sampling technique was used. Owing to their suitable subject-matter expertise and relevant experiences, the respondents were employed as senior managers and supervisors. Each firm received six delegates, one from each of the six divisions that made up the organisation: quality assurance, buying, manufacturing, marketing, research and development, and customer service. The sample size for the quantitative study consisted of 174 individuals. The Cronbach Alpha technique was used to determine the internal dependability. This method followed the Likert measurement scale, where each item had a threshold value of 0.7. Therefore, if an instrument's reliability coefficient is 0.7 or above, it is deemed dependable.

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**Statistical Analyses using Spearman Ranking Correlation**

**Network Integration and Organizational Performance**

**H<sub>01</sub>:** There is no significant relationship between network integration and operational efficiency of manufacturing firms in Rivers State.

**H<sub>02</sub>:** There is no significant relationship between network integration and goal attainment of manufacturing firms in Rivers State.

**Table 1: Correlation of Network Integration and Organizational Performance**

			network integration	operational efficiency	goal attainment
Spearman's rho	network integration	Correlation Coefficient	1.000	.921**	.874**
		Sig. (2-tailed)	.	.000	.000
		N	174	174	174
	operational efficiency	Correlation Coefficient	.921**	1.000	.883**
		Sig. (2-tailed)	.000	.	.000
		N	174	174	174
	goal attainment	Correlation Coefficient	.874**	.883**	1.000
		Sig. (2-tailed)	.000	.000	.
		N	174	174	174

The findings indicate that, at a Rho = 0.874 and a P-value of 0.000, network integration positively and significantly correlates with operational efficiency. It also significantly and positively correlates with goal attainment at a Rho = 0.883 and a P-value of 0.000. According to the findings, network integration significantly and favourably affects the two organisational performance metrics used by industrial companies in Rivers State.

Consequently, because the P-value (0.000) < 0.05 threshold of significance, we reject the first and second null hypotheses on network integration and organisational performance.

**Virtual integration and Organizational Performance**

**H<sub>03</sub>:** There is no significant relationship between virtual integration and operational efficiency of manufacturing firms in Rivers State.

**H<sub>04</sub>:** There is no significant relationship between virtual integration and goal attainment of manufacturing firms in Rivers State.

**Table 2: Correlation of Virtual integration and Organizational Performance**

			virtual integration	operational efficiency	goal attainment
Spearman's rho	virtual integration	Correlation Coefficient	1.000	.872**	.886**
		Sig. (2-tailed)	.	.000	.000
		N	174	174	174
	operational efficiency	Correlation Coefficient	.872**	1.000	.896**
		Sig. (2-tailed)	.000	.	.000
		N	174	174	174
	goal attainment	Correlation Coefficient	.886**	.896**	1.000
		Sig. (2-tailed)	.000	.000	.
		N	174	174	174

The findings indicate that goal attainment further contributes strongly and positively to career resilience at a Rho = 0.886 and a P-value = 0.000. Visual integration also has a strong significant relationship and positively correlates with operational efficiency. According to the results, visual integration considerably and favourably affects the two organisational performance metrics,



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which benefits industrial companies in Rivers State. As a result, we reject the first and second null hypotheses for visual integration, operational effectiveness, and goal achievement since the P-value (0.000) < 0.05 threshold of significance.

### **Discussions of Findings**

The SPSS table confirmed the validity of all hypotheses by revealing significant positive correlations (\*0.921, 0.874, 0.872, and \*0.886) among the research variables. All aspects of supply chain integration were positively correlated with the organisational performance of manufacturing businesses in Rivers State, according to the data. Both the first and second hypotheses, suggesting a positive linear relationship between network integration and organizational performance, are supported by a direct positive association moving in the same direction (P-value = 0.000 < 0.05). The third and fourth hypotheses indicate a positive correlation between virtual integration and organizational success, demonstrated by a clear linear relationship with P-values below 0.05 (P-value = 0.000 < 0.05). Previous studies, including those conducted in 2018 by Rafique, Kai, and Waheed; 2022 by Manzoor, Baig, Hashim, Sami, Rehman, and Sajjad; 2020 by Nazempour, Yang, and Waheed; 2021 by Afshan and Motwani; 2014 by Chae et al.; and 2019 by Gunasekaran et al., have confirmed the positive correlation. They found that when companies integrate their supply chains, it makes them more effective.

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## Conclusion

In conclusion, the integration of supply chains in the areas of network integration and virtual integration is essential for the organisational performance of manufacturing enterprises in Rivers State, Nigeria, in order to adapt to the changing environment.

## Recommendations

Given the findings of the study and its conclusions, the following suggestions are made:

- i. Managers should keep working together through groupings of network associates as this will help improve the organizational performance of manufacturing firms in Rivers State.
- ii. In order to improve the operational efficiency of manufacturing companies in Rivers State, managers of manufacturing firms should promote the regular use of enterprise resource planning (ERP) as a technology.

## References

- Afshan, N. & Motwani, J. (2021). An investigation of antecedents and consequences of supplier integration: a study in Indian context, *Measuring Business Excellence*, 25(2), doi: 10.1108/MBE08-2019-0083.
- Barney, J. B. (2001). Is the resource-based 'view' a useful perspective for strategic management research? Yes, *Academy of Management Review*
- Barve, A. (2011). Impact of supply chains agility on customer satisfaction, 2010 International Conference on E-Business, Management and Economics, 3(5).
- Bell-Hassan, (2019). Analysis of Supply Chain Inventory Control Methods Within American Automotive Manufacturing Firms, (Doctoral dissertation, Capella University)

- 
- Boone, C.A., Drake, J.R., Bohler, J.A. & Craighead, C.W. (2007). Supply chain management technology: a review of empirical literature and research agenda, *International Journal of Integrated Supply Management*, 3(2), 105-124.
- Bromiley, P. & Rau, D. (2016). Operations management and the resource based view: Another view, *Journal of Operations Management*, 41(1), 95-106.
- Brown, S., McHardy, J., McNabb, R., & Taylor, K. (2011). Workplace performance, worker commitment, and loyalty. *Journal of Economics & Management Strategy*, 20, 925-955
- Chae, B.K., Olson, D. & Sheu, C. (2014). The impact of supply chain analytics on operational performance: A resource-based view, *International Journal of Production Research*, 52(16), 4695-4710.
- Cho, J., & Dansereau, F. (2010). Are transformational leaders fair? A multi-level study of transformational leadership, justice perceptions, and organizational citizenship behaviors. *The Leadership Quarterly*, 21(3), 409–421.
- Cho, O.-H., Park, K.-H., Kim, S.-M., Park, S.-J., Moon, S. M., Chong, Y. P., Sung, H., Kim, M.-N., Jeong, J.-Y., Lee, S.-O., Choi, S.-H., Woo, J. H., Kim, Y. S., & Kim, S.-H. (2011). Diagnostic performance of T-SPOT.TB for extrapulmonary tuberculosis according to the site of infection. *Journal of Infection*, 63(5), 362–369.
- Daft, R. (2009). *Organization Theory and Design* (11th ed), South-Western College Publishing. USA: Thomson Learning.
- Daniel R. T. & Kevin J. J. (2015). A comparison of core competencies of women and men leaders in the manufacturing industry. *The Coastal Business Journal*, 14(1), 13–25.
- Eike & Chu'tter (2009). The Resource-Based View and Transaction Cost Economics in Managerial Decision-Making: A Sequential Approach.
- Eneh, E. O., & Abel, U. F. (2021). Corporate social responsibility and goal attainment of manufacturing firms in South East, Nigeria. *Advance Journal of Financial Innovation and Reporting*, 5(1).
- Espejel, J., Fandos, C., & Flavián, C., (2011). Antecedents of consumer buyer supplier commitment to a PDO wine: An empirical analysis of Spanish consumers. *Journal of Wine Res*, 22, 205-225.
-

---

Feizabadi, J., Gligor, D. & Alibakhshi Motlagh, S. (2019). The triple-As supply chain competitive advantage, *Benchmarking: An International Journal*, 26(7), 2286-2317.

Gavrea, Corina; Ilies, Liviu; & Stegorean, R. (2011). Determinants of organizational performance: The case of Romania. *Management & Marketing Challenges for the Knowledge Society*, 6(2), 285–300.

Golgeci, I., Bouguerra, A. & Rofcanin, Y. (2019). The human impact on the emergence of firm supply chain agility: A multilevel framework, *Personnel Review*, 1-39.

Gunasekaran, A., Yusuf, Y.Y., Adeleye, E.O., Papadopoulos, T., Kovvuri, D. & Geyi, D.G. (2019). Agile manufacturing: an evolutionary review of practices, *International Journal of Production Research*, 57(15/16), 5154-5174.

Haidar, J. I. (2019). *Trading economics*, Nigeria GDP from manufacturing, sectors contributions to GDP remain static, Retrieved from <https://allafrica.com>.

Hefferman, M. M., & Flood, P. C. (2006). An exploration of the relationship between managerial competencies, organizational characteristics; and performance in Irish organizations. *Journal of European Industrial Training*, 23(11), 241-251.

Hsu, Y.-T. & Chang, K.-C. (2021). A study on top managers from a resource-based perspective, *Measuring Business Excellence*, 25(1), 58-77.

Inman, R.A. & Green, K.W. (2021). Environmental uncertainty and supply chain performance: The effect of agility, *Journal of Manufacturing Technology Management*, doi: 10.1108/JMTM-03-2021-0097.

John, P. M., & Elyse R, M. (2010). Employee commitment and well-being: A critical review, theoretical. *Journal of Vocational Behaviour*, 4(2), 123-134.

Jose, A. & Shanmugam, P.V. (2019), “Supply chain issues in SME food sector: a systematic review, *Journal of Advances in Management Research*, 17(1).

Khan, M.S., Waheed, A., Farrukh, M. & Ashfaq, M. (2019). Analysing the impact of agile supply chain on firms’ sales performance with moderating effect of technological-integration, *International Journal of Applied Decision Sciences*, 12(4), 402-423.

Kumar, M., Garg, D. & Agarwal, A. (2019). Cause and effect analysis of inventory management in leagile supply chain, *Journal of Management Information and Decision Science*, 22.

---

- 
- Macclever, A., Annan, J., & Boahen, S. (2017). Supply chain flexibility, agility and firm performance. *European Journal of Logistics, Purchasing and Supply Chain Management*, 5(3), 13-40.
- Maheswari, Y. & Kalyan, N.B. (2020). Inventory management pattern of steel industry in India, SSRN Electronic Journal, doi: 10.2139/ssrn.3563991.
- Manzoor, U., Baig, S. A., Hashim, M., Sami, A., Rehman, H. U., & Sajjad, I. (2022). The effect of supply chain agility and lean practices on operational performance: A resource-based view and dynamic capabilities perspective. *The TQM Journal*, 34(5), 1273-1297.
- Moeen, M. & Agarwal, R. (2017). Incubation of an industry: heterogeneous knowledge bases and modes of value capture, *Strategic Management Journal*, 38(3), 566-587.
- Nazempour, R., Yang, J., & Waheed, A. (2020). An empirical study to understand the effect of supply chain agility on organizational operational performance: SC agility and organizational performance. In *Supply Chain and Logistics Management: Concepts, Methodologies, Tools, and Applications* (pp. 1608-1630). IGI Global.
- Rafique, K., Kai, L., & Waheed, A. (2018). Understanding the impact of agile supply chain on organizational financial performance. In *Proceedings of the 2018 2nd international conference on management engineering, software engineering and service sciences* pp. 28-32.
- Richardo, R., & Wade, D. (2010). Corporate performance management: How to build a better organisation through measurement driven strategies alignment. Austria: Butterworth Heinemann Publishers.
- Saleheen, F., Habib, M.M. & Hanafi, Z. (2018). Supply chain performance measurement model: & literature review, *International Journal of Supply Chain Management*, 7(3), 70-78.
- Sanders, N.R. (2007). An empirical study of the impact of e-business technologies on organizational collaboration and performance, *Journal of Operations Management*, 25(6), 1332-1347.
- Stock, T. & Seliger, G. (2016). Opportunities of sustainable manufacturing in industry 4.0”, *Procedia CIRP*, 40, 536-541.
-

- 
- StudyCorgi (2020). Transaction cost economies and Resource-Based view j free essay example”, StudyCorgi, available at: <https://studycorgi.com/transaction-cost-economies-and-resource-based-view/> (accessed 4 October 2021).
- Tse, Y.K., Zhang, M., Akhtar, P. & MacBryde, J. (2016). Embracing supply chain agility: An investigation in the electronics industry”, *Supply Chain Management: An International Journal*, 21(1), doi: 10.1108/SCM-06-2015-0237.
- Van Hoek, R.I., Harrison, A. & Christopher, M. (2001). Measuring agile capabilities in the supply chain”, *International Journal of Operations & Production Management*, 21 1/2, 126-147.
- Vickery, S. K., Jayaram, J., Droge, C. & Calantone, R. (2003). The effects of an integrative supply chain strategy on customer service and financial performance: An analysis of direct versus indirect relationships, *Journal of Operations Management*, 21(5), 523-539.
- Wagura, W.S. (2015). Inventory Management and Supply Chain Performance of, No. August.
- Wei, S., Ke, W., Liu, H. & Wei, K.K. (2020). Supply chain information integration and firm performance: Are explorative and exploitative IT capabilities complementary or substitutive?, *Decision Sciences*, 51(3), 464-499.
- Wong, A. & Sohal, A. (2015). An examination of the relationship between trust, commitment and relationship quality. *International Journal of Retail and Distributing Management*, 30, 34-50.
- Wu, Y. (2019). Achieving Supply Chain Agility, *Achieving Supply Chain Agility*, Springer Nature Switzerland AG, doi: 10.1007/978-3-319-98440-7.
- Xu, X. & Liu, Y. (2017). Customer satisfaction of the third-party logistics enterprise based on AHP: A case study, *International Journal of Information Systems and Supply Chain Management*, 10(1), 68-81.
-