Operation Process Integration Using Supplier Selection, Supply Chain Agility and Logistic Management to Optimize Corporate Performance Based on Enterprise Resource Strategic

Umari Abdurrahim Abi Anwar[1,2](✉), Agus Rahayu[1], and Lili Adi Wibowo[1]

[1] Faculty of Economics and Business Education, Universitas Pendidikan Indonesia, Bandung, Indonesia
umariaaa@upi.edu
[2] Faculty of Economics and Business, Universitas Islam Bandung, Bandung, Indonesia

Abstract. Operations process integration is an important strategy in optimizing corporate performance. The rapidly changing environment becomes a big challenge for companies in managing their operating processes and resources so that they are able to work optimally. Effective and efficient operations process integration is built by supplier performance, supply chain agility, and optimal logistics management. The enterprise resource strategy is used by the company to optimize supply chain performance in order to improve the company's overall performance. However, there are companies that have not been able to achieve the desired level of performance through these strategic steps due to the emergence of implementation barriers. This study aims to examine the idea and design a model of operations process integration through supplier selection, supply chain agility, and logistics management to optimize corporate performance based on enterprise resource strategy. This study used a qualitative descriptive method using a narrative literature review with case studies on FMCG sector companies in Indonesia. The results of this study indicated that integrating operations processes through supplier selection, supply chain agility, and logistics management could bring companies, especially the FMCG sector, to be superior and able to face market competition. Challenges in its implementation included the cost of investing in resources, integrating information and management systems between supply chain partners, as well as the company's ability to align organizational culture across supply chain partner companies.

Keywords: Corporate Performance · Enterprise Resource Strategic · Logistic Management · Operation Process Integration · Supplier Selection · Supply Chain Agility

R. Hurriyati et al. (Eds.): GCBME 2022, AEBMR 255, pp. 1570–1584, 2024.
https://doi.org/10.2991/978-94-6463-234-7_165

1 Introduction

The change in the business environment towards digitalization has provided many opportunities and challenges in the corporate operating system [1, 2] in improving corporate performance, and especially in creating better product value. The rapid development of technology and changes in market trends, especially during and after the COVID-19 pandemic, have a significant impact on corporate performance. Corporate performance needs to be managed as optimally as possible by establishing a process, system, and strategy used to monitor and manage a company's business performance based on its resources. Enterprise resources strategic can manage data and translate strategically focused information into operational plans [3]. The entire operating process in the company includes procurement systems, supply chain management, manufacturing production processes, quality management, and logistics management.

In this case, the operation process integration plays a very important role. The company's internal and external environment and the performance of the entire supply chain from upstream to downstream form a major part of taking a role in improving corporate performance [4, 5]. Operation process integration is a combination of operations in one or several processes in an effort to streamline resources [6]. Another definition is a production system that is designed in an integrated manner from individual processes to processes that involve many parties with an emphasis on energy efficiency and reducing environmental effects [7]. Operation process integration to improve corporate performance is enabled by speed and accuracy of real time information, logistics and supply chain monitoring and control [8], dynamic product development, increased supply chain agility, and increased process efficiency.

In order to improve corporate performance and have a competitive advantage, the entire operating process must be managed in a reliable, effective, and efficient manner, so it is necessary to change the management of individual functions to become integrated with all activities of the operation process. Information technology is an important aspect in building the operation process integration because information technology is able to process more and more accurate information [9, 10]. Manual transmission of data and information carries a higher risk of being distorted. Accurate and real-time collection, sharing and exchange of information is very important in the information processes integration [10]. Exchange of information that is carried out automatically and in real-time can reduce human errors and process transparency so that information from partners becomes more accurate and integrated [11, 12]. Vagueness and delays in information in the supply chain can lead to inventory and cost problems that have an impact on operating process inefficiencies 13.

The supply chain performance, especially from the supplier aspect, plays an important role [14, 15], so it is necessary to periodically evaluate suppliers who are partners of the company [16]. One of the main problems in supply chain management is the supplier, because the main cost of the product is represented by the cost of raw materials and spare parts. Most companies expend product sales proceeds for supply procurement and may account for up to eighty percent of production costs [17, 18]. Selection of the right supplier is a very important decision because it can affect procurement costs [19, 20], assist product development and innovation, as well as assist the company's process effectiveness and efficiency [18]. Supplier selection is the process of selecting the best supplier through a series of supplier performance evaluations based on predetermined decision criteria [21]. Supplier selection not only focuses on lower costs, but includes product quality, delivery accuracy, as well as social and environmental sustainability [22–25]. Supplier selection gets special attention in supply chain management and operations processes because it can increase the corporate long-term competitive advantage [26].

Not only data and information are integrated, but also human resources and machines can be integrated to create effective and efficient operating processes. Advances in technology and increasingly rapid digitalization have increased the connection and globalization of supply chains, which can affect the effectiveness and efficiency of a company's operations [27–30]. Industry 4.0 digitization has changed value creation [31]. If digitally based value creation takes greater control of the market, it is very likely that the traditional institutional value creation effects will be eroded 32. It is important for companies to identify new forms of value creation and analyze their impact on the company's overall operating system and performance. Availability of information from all company partners is an important key in the operation process integration, which can ensure optimal value creation to customers.

Quite a lot of research has focused on utilizing the operation process integration in improving corporate performance and value creation [33, 34], however, the use of enterprise resources strategic as a supply chain performance optimization strategy is still under-explored. Several studies have proven how supply chain integration can improve a company's operational performance [35–37]. The impact of changing business environments and digitalization on corporate performance has received widespread academic and managerial attention, while evidence of the impact of operation process integration within companies is scarce. In addition, the development of enterprise resource strategy on corporate performance is still not given much attention. Based on this information, this study examined ideas and designs an operation process integration model through supplier selection, supply chain agility, and logistics management to optimize corporate performance based on enterprise resource strategy with case studies on FMCG industrial sector companies in Indonesia.

2 Method

This study used a qualitative descriptive method employing a narrative literature study with a case study approach. This research focused intensively on a particular object studied as a case. The companies that were the object of research in this case study were three FMCG companies in the category of multinational companies and local companies included in the ten companies with the highest market share in Indonesia in 2021. Case study data can be obtained from all related parties, in other words, this research data were collected from various sources including annual reports and company financial statements from 2015–2020.

In the research process, scientific methods were used, namely generalization and abstraction, comparison, structural analysis, and modeling. Information and research analysis basis consist of company annual reports, official statistics, analytical materials of scientific institutions and centers, scientific journals, books, and information about the company's practical activities.

3 Result and Discussion

3.1 Case Study: FMCG Industry Sector

One of the industries that makes a significant contribution to Indonesia's economic development is the Fast-moving Consumer Goods (FMCG) industry. The FMCG industry became the second largest industrial sector with an investment value of 55.68% in 2019. During the COVID-19 pandemic, the FMCG sector was the least affected sector, because people still needed household products, unlike other sectors which experienced a decline. However, this does not mean that the FMCG industry does not experience problems, at the global level the increase in the price of crude palm oil (CPO), which is the raw material for the FMCG industry, is a challenge for FMCG sector companies in Indonesia. In addition, the surge in raw material prices in all segments also affected the performance of the FMCG sector.

In 2020, the number of consumers in traditional trade market channels will be the largest in Indonesia, followed by mini markets (Fig. 1). Traditional trade has become a place for buying and selling and bargaining for products that are easily accessible and has become part of the daily life of Indonesian people.

However, the COVID-19 pandemic and rapid digitalization have changed consumer behaviour and preferences so that electronic market channels (e-commerce) are becoming increasingly popular. With easier access to both traditional and digital markets, the FMCG industry sector is increasingly optimistic about experiencing greater growth. The FMCG industry sector in Indonesia is dominated by both multinational and local companies, which both enjoy a sizable share of the FMCG market. Large multinational companies are able to revitalize the industry by offering a wide selection of product types. Meanwhile, local companies have higher market penetration and are able to reach a wider Indonesian market. In Indonesia, local companies are able to compete effectively and have a competitive advantage.

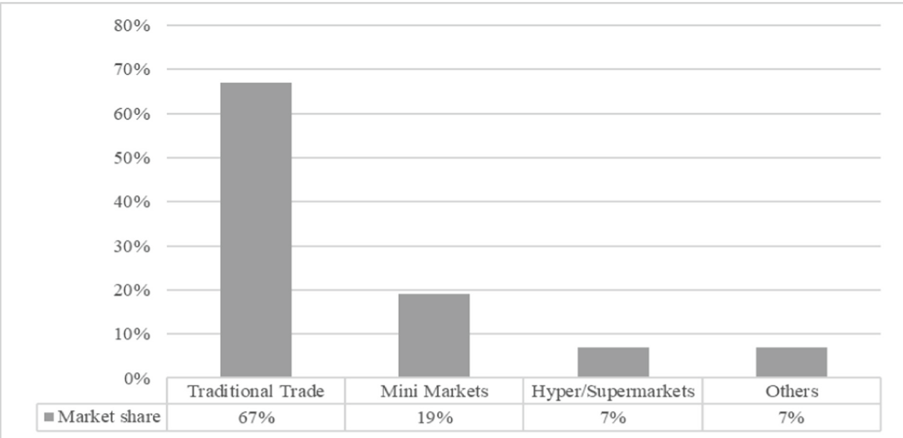

Fig. 1. Leading sales channels of fast-moving consumer goods (FMCG) in Indonesia

The FMCG industry sector in Indonesia is growing rapidly following changes in consumer behaviour. However, all businesses must have a challenge, including FMCG. Products from this industry can reach all walks of life. It could even be that all walks of life use the same products and brands. On the other hand, the availability of a large market is a challenge for this industry. Due to the type of product that runs out easily, producers must be able to produce efficiently with proper management. For this reason, companies must prepare strategic enterprise resources to manage all company operations.

Intense product competition is also a big challenge for this industry. Customers will remember which brand is the pioneer and buy that product over and over again. If this happens, it will be difficult for the new product to replace the pioneer product. Companies need to continue to innovate in making a unique product so that consumers become interested. Companies also need to make improvements, especially in the fields of information and technology, supply chain effectiveness, optimization of online sales, and product distribution.

There are three companies analyzed as case studies, one company is a multinational company, the other two companies are national/local companies. The three companies have a highmarket share in Indonesia.

Based on data taken from the three companies' 2015–2020 annual reports (Table 1), PT R has the ability to understand and relate to food service business actors to distinguish the company from other B2B food companies where data plays an important role for PT R's success in response to a market slowdown. With the shift in shopping and

Table 1. Comparison of three companies in the FMCG industry in Indonesia

Criteria	PT R	PT D	PT A
Company status	Multinational	National	National
Business activities and products produced	Production, marketing and distribution of consumer goods under the categories of home and beauty personal care, and foods and refreshment	Production and processing of consumer goods (food and beverages), distribution, agribusiness	Production and processing of consumer goods (food and beverage), wholesale trade, real estate and financial and insurance activities
Number of factories	9 factories	30 factories	29 factories
Types of products	43 products	9 products	6 products
Distributor network	800 distributor networks independent	Internal distribution group	Distributor network independent
Program	Strong cost efficiency as well as proactive commodity and foreign exchange management	Cost efficiency	Cost efficiency

consumption behaviour, as well as the increase in digital consumers, PT R invests in the e-commerce channel by ensuring that the product is available. PT R encourages all of the company's supply chain partners to take advantage of digital transformation with digitalization activities and the electronic route-to-market (eRTM) model. The company collaborates with global networks to ensure greater access to global suppliers and leverages digitalization and automation to address limited staff mobility to support operational processes.

PT D undertakes various cost-saving initiatives to strengthen raw material sourcing, agronomic practices, and inventory management. PT D has also improved the quality of some of its products and created new packaging according to current consumer preferences. Supply chain management in the company is also extended to the range of services to retail outlets that are close to the target consumers and take advantage of online stores. PT D obtains raw materials for its production from within and outside the country to maintain product availability in the market. In logistics management, internal transportation capacity was increased and market reach was expanded through the addition of wholesalers and sub-districts for distribution. The company has used information technology to integrate its operations and supply chain processes to monitor operations activities in real-time, improve the efficiency and effectiveness of the workforce, as well as drive sales results and product delivery.

PT A also focuses on cost-saving strategies through building mutual benefit relationships with all of the company's supply chain partners. PT A has many local suppliers who are always given training and development to be able to meet the needs of supplying raw materials to PT A and in accordance with the specified quality standards. Similar to the other two companies, PT A has utilized information technology to integrate the company's operating processes and utilized technology to expand its global market share. PT A's snack food products have begun to be known and favoured by foreign people, especially in the East Asia region, so the company must ensure that product demand is always met.

3.2 Operation Process Integration Model

In the three companies, the operation process integration plays an important role in improving company performance, especially with the existence of information technology that can facilitate communication and coordination across the entire network and company partners. The three companies already have products that are exported abroad and are well known to the public abroad. The demand for products is increasing and diverse, requiring FMCG companies to be more agile in meeting consumer needs.

Supply chain agility is the ability of the supply chain process to adapt agilely in the face of changes in the business environment, market changes, customer desires, competence with competitors, and so on [38, 39]. In addition to the ability to respond quickly, supply chain agility must also be able to save costs, be responsive to market and consumer demands, maintain flexibility, and keep productivity at the highest point every time [40, 41]. The fundamental drivers of supply chain agility are speed, cost, and efficiency. Supply chain agility is based on sensitivity to consumer demand 38,42. In this case, sensitivity refers to the main consumer demand in terms of demand volatility. The characteristics of the current business environment are shorter product life cycles and the level of uncertainty in customer demand. Supply chain agility is realized through the company's ability to quickly detect changes, opportunities, and threats (alert); quickly access relevant data (accessibility); make firm decisions about how to act (assertiveness); immediately implement the decision (speed); and modify the range of its supply chain tactics and operations to the extent necessary to implement its strategy (flexibility) [41, 43]. Supply chain agility, especially in response to market changes and changes in the business environment, will affect the effectiveness [44, 45] of the overall operation process integration [46, 47].

The existence of suppliers is a very important element for the success of production in the company [25, 48]. Suppliers form an important relationship in the company's overall value delivery system [49]. The existence of suppliers is one of the keys to the sustainability of a business to increase the value of the business. Supplier selection is a strategic activity, especially if the supplier will supply items that are in crisis or will be used in the long term as an important supplier [50, 51]. With the status of both multinational and national companies, the three companies have a network of international partners in distributing their products.

The increasingly fierce business competition in this era of globalization requires companies to restructure their strategies and logistics systems within the company 52. The essence of competition lies in how companies implement processes to produce better, cheaper, and faster products, goods, or services than their competitors, for that a company must be able to improve the performance of its logistics system in order to continue to compete and progress [53]. The scope of logistics activities are facilities, transportation, inventory, communication, handling, and storage [54]. There are at least three objectives in logistics management activities, namely: (1) so that the inventory of goods can be carried out with the correct quantity and quality, (2) so that the expenditure of funds for procurement purposes can be carried out more efficiently, and (3) to support and also maintain efficiency and effectiveness in order to achieve the company's main goals.

Companies must consider logistics issues in order to ensure that logistics support the company's strategy if the operational function supports the company's overall strategy, then logistics must support the operational function strategy. On the other hand, if the operational function does not support the company's strategy, the company's operations will be hampered such as late production due to the absence of raw materials which will affect customers. Logistics management at the FMCG company functions to ensure that the available inventory is accurate in quantity and quality standards in accordance with quality management standards at an efficient cost.

The need for coordination between units in a company is becoming increasingly complex, so the presence of an operation process integration system is even more crucial. In the FMCG industrial sector, the operation process integration system plays a role: (1) increasing cooperation between departments; (2) speeding up the process of communication between departments; (3) data access in real time; (4) ease of policy making; and (5) resource optimization. Thus, in the end, the integrated system will achieve the main objective of an operating process, namely to produce products according to consumer demand with an effective and efficient process.

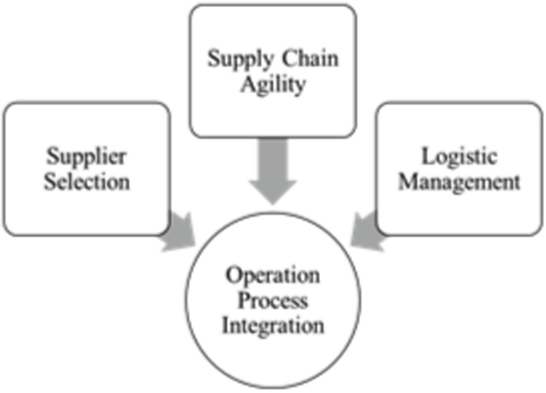

Fig. 2. Operation process integration model

Figure 2 shows the operation integration model formed by the supplier selection, supply chain agility, and logistics management variables. These three variables are important to be implemented and developed by FMCG companies to increase competitive advantage and company performance.

3.3 Enterprise Resource Strategy Model

Changes in the business environment can change the competition in the market as well as the company's previous strategic position [55]. Quite a lot of companies fail to adapt to a changing environment because of the company's inability to move on from the success they have achieved as much as the company's inability to learn to adapt and be agile from today's environment. In a competitive market environment, information technology does not only play a role as a supporter of the company, but also as a dominant driver from a strategic and operational perspective [56]. Information technology infrastructure is capable of controlling information processes, facilitating information, and managing transactions with corporate partners [57]. If the company does not strengthen the infrastructure, the company will find it difficult and unable to maintain the company's identity that it has today.

Resource strategy refers to a series of strategies, both the main and supporting strategies and how the strategy is implemented through the transformation and development of production potential in the company [58]. The strategy developed by the company will depend on the company's industry affiliation which is divided into the resource structure and decision-making system [59].

With the increasing role of information technology in improving company performance, information technology must be an element in the design of business strategies. Enterprise resource strategic (ERS) builds and provides facilities for resource management using information technology through corporate strategic planning considerations [60]. ERS links all company management activities to ensure that the company's strategic objectives are fully met. All company departments, subsidiaries, and company partners must integrate and align their individual goals to achieve the company's overall goals.

If the strategic objectives are not carried out effectively, failure is very likely to be experienced by the company.

Company management through performance indicators is carried out through identification of the business environment starting from an analysis of internal conditions (human resources, operations, marketing and finance) and external companies (economic, social and political conditions, shareholders and other stakeholders). The company's strategy must be clearly defined, including performance indicators for each activity by managing limited resources to produce better operational quality and company performance. ERS is a company strategy that uses information technology optimally based on software to direct various activities in accordance with the performance indicators that the company expects to achieve.

Optimizing the corporate performance can be done by adjusting the corporate strategy with the corporate internal goals and capabilities [61]. If the strategy is adjusted, the direction of the resource policy will be determined in a competitive framework aimed at ensuring the corporate has a competitive advantage [62]. Corporate policy determines the segmentation of the company, the direction of activities as well as the type of customers [63].

Based on the analysis of three companies in the FMCG industry sector in Indonesia, each strategy developed by each company will determine the structure, source of income, and direction of the use of various types of company resources in the context of achieving their respective goals. The resource strategy portfolio will cover logistics, finance, and human resources management.

Table 2 shows several enterprise resource strategies in the aspects of logistics, finance, and human resources that can be applied by FMCG companies to improve corporate performance. In the logistics aspect, the company can develop production equipment, transportation facilities and optimize suppliers. In the financial aspect, the company can use a strategy of funding, paying dividends and investing, and adding activities that increase the company's income. While in the aspect of human resources, the company uses a growth strategy by managing human resources and forming a comprehensive knowledge management.

By developing the right corporate strategy through the integration of operations processes by paying attention to aspects of supplier selection, supply chain agility and logistics management as well as the use of information technology based on strategic enterprise resources, it is expected to improve overall corporate performance. Figure 3 shows the model of operations processes integration through supplier selection, supply chain agility, and logistics management to optimize corporate performance based on enterprise resource strategic:

Table 2. Enterprise resource strategy portfolio to improve corporate performance

Strategy	Strategy type	Strategic alternative set
Logistical resources strategy	Production (trade) equipment	increase the utility of available equipment; purchase or lease new, more efficient production equipment; maintenance and reliability; recycle or reuse of waste and utilization of secondary resources; optimization of machine uptime
	Transport facilities	use of company-owned transportation; use of transportation services; use of rental transportation; combination of transportation from various sources
	Commodity resources	optimization of existing suppliers; find new suppliers to meet needs; build mutually beneficial long-term contractual relationships
Financial strategy	Financial resources	self-financing; loan financing strategy; combination of funding sources
	Dividend strategy	dividend payment (increase, decrease, deferred dividend payment)
	Functional strategies and investment projects	allocation of funding for projects, investments and other income-generating activities
Human resources strategy	Growth strategy	recruitment of new employees, training and development, knowledge management, the formation of a moral and psychological climate to increase engagement, career development
	Organization of mass layoffs and employment assistance	early retirement programs, staff retention, retraining

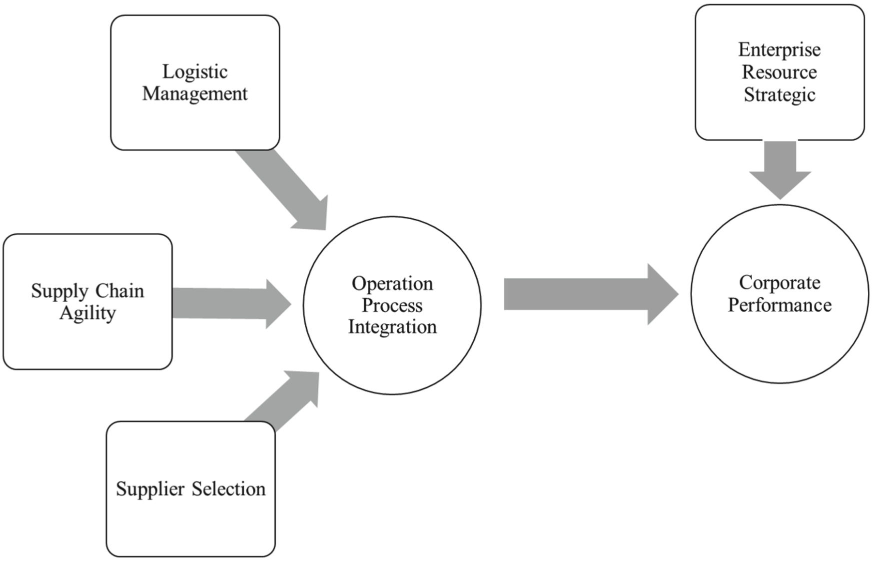

Fig. 3. Operations processes integration through supplier selection, supply chain agility and logistics management to optimize corporate performance based on enterprise resource strategic model

4 Conclusion

In the context of the economic digitization paradigm, the company focused on integrating data and information with the overall operational processes and activities of the company to achieve efficiency and effectiveness of resources in the company. Relationships with all company partners were increasingly optimized so that they could influence the company's responsiveness and agility in responding to changes and market demands. This also put pressure on logistics management to be able to work and coordinate optimally to increase the role of operation process integration.

It is clear that the company's information technology plays an important role in supporting interactions to align strategy through the use of enterprise strategic resources. Support from operation process integration and strategic enterprise resources can improve overall corporate performance.

This paper highlights the importance of operation process integration, especially on the aspects of supplier selection, supply chain agility and logistics management as the basis for integration and strategy development. It also analyzed the use of strategic enterprise resources in an effort to improve corporate performance.

However, it is important to note that although the operation process integration has been carried out, it is necessary to pay attention to managing and developing policies between the company's partners. The challenges of other factors such as the availability of information and the use of enterprise resource planning (ERP) should also be carried out in future research.

References

1. Rachinger, M., Rauter, R., Müller, C., Vorraber, W. & Schirgi, E. Digitalization and its influence on business model innovation. *J. Manuf. Technol. Manag.* **30**, 1143–1160 (2019).
2. Saarikko, T., Westergren, U. H. & Blomquist, T. Digital transformation: Five recommendations for the digitally conscious firm. *Bus. Horiz.* **63**, 825–839 (2020).
3. Tarifi, N. A Critical Review of Theoretical Aspects of Strategic Planning and Firm Performance. *Open J. Bus. Manag.* **9**, 1980–1996 (2021).
4. Wang, J., Zhang, Y. & Goh, M. Moderating the role of firm size in sustainable performance improvement through sustainable supply chain management. *Sustain.* **10**, (2018).
5. Golicic, S. L. & Smith, C. D. A meta-analysis of environmentally sustainable supply chain management practices and firm performance. *J. Supply Chain Manag.* **49**, 78–95 (2013).
6. Varbanov, P. S. Basic Process Integration Terminology. in *Handbook of Process Integration (PI): Minimisation of Energy and Water Use, Waste and Emissions* 28–78 (Woodhead Publishing Limited, 2013). doi: https://doi.org/10.1533/9780857097255.1.28.
7. Klemeš, J. J. & Kravanja, Z. Forty years of Heat Integration: Pinch Analysis (PA) and Mathematical Programming (MP). *Curr. Opin. Chem. Eng.* **2**, 461–474 (2013).
8. Sun, H. & Ni, W. The impact of upstream supply and downstream demand integration on quality management and quality performance. *Int. J. Qual. Reliab. Manag.* **29**, 872–890 (2012).
9. Ordanini, A. & Rubera, G. Strategic capabilities and internet resources in procurement: A resource-based view of B-to-B buying process. *Int. J. Oper. Prod. Manag.* **28**, 27–52 (2008).
10. Neubert, G., Ouzrout, Y. & Bouras, A. Collaboration and integration through information technologies in supply chains. *Int. J. Technol. Manag.* **28**, 259–273 (2004).
11. Gunasekaran, A. & Ngai, E. W. T. The successful management of a small logistics company. *Int. J. Phys. Distrib. Logist. Manag.* **33**, 825–842 (2003).
12. Londe, B. J. La & Masters, J. M. Emerging Logistics Strategies: blueprints for the next century identifying key logistics strategies. *Int. J. Phys. Distrib. Logist. Manag.* **24**, 35–47 (1994).
13. Lee, H. L., Padmanabhan, V. & Whang, S. Information distortion in a supply chain: The bullwhip effect. *Manage. Sci.* **50**, 1875–1886 (2004).
14. Vidrova, Z. Supply chain management in the aspect of globalization. *SHS Web Conf.* **74**, 1–10 (2020).
15. Gallear, D., Ghobadian, A., He, Q., Kumar, V. & Hitt, M. Relationship between routines of supplier selection and evaluation, risk perception and propensity to form buyer–supplier partnerships. *Prod. Plan. Control* **0**, 1–17 (2021).
16. Pikousová, K. & Průša, P. Supplier evaluation: The first step in effective sourcing. *J. Transp. Supply Chain Manag.* **7**, 1–4 (2013).
17. Goffin, K., Lemke, F. & Szwejczewski, M. An exploratory study of 'close' supplier-manufacturer relationships. *J. Oper. Manag.* **24**, 189–209 (2006).
18. Dey, P. K., Bhattacharya, A. & Ho, W. Strategic supplier performance evaluation: A case-based action research of a UK manufacturing organisation. *Int. J. Prod. Econ.* **166**, 192–214 (2015).
19. Ghodsypour, S. H. & O'Brien, C. The total cost of logistics in supplier selection, under conditions of multiple sourcing, multiple criteria and capacity constraint. *Int. J. Prod. Econ.* **73**, 15–27 (2001).
20. Luo, X. G., Kwong, C. K., Tang, J. F., Deng, S. F. & Gong, J. Integrating supplier selection in optimal product family design. *Int. J. Prod. Res.* **49**, 4195–4222 (2011).
21. Kim, D. Y. & Wagner, S. M. Supplier selection problem revisited from the perspective of product configuration. *Int. J. Prod. Res.* **50**, 2864–2876 (2012).

22. Scott, J., Ho, W., Dey, P. K. & Talluri, S. A decision support system for supplier selection and order allocation in stochastic, multi-stakeholder and multi-criteria environments. *Int. J. Prod. Econ.* **166**, 226–237 (2015).
23. Lin, R. H. An integrated model for supplier selection under a fuzzy situation. *Int. J. Prod. Econ.* **138**, 55–61 (2012).
24. Amid, A., Ghodsypour, S. H. & O'Brien, C. A weighted maxmin model for fuzzy multi-objective supplier selection in a supply chain. *Int. J. Prod. Econ.* **131**, 139–145 (2011).
25. Linn, R. J., Tsung, F. & Ellis, L. W. C. Supplier selection based on process capability and price analysis. *Qual. Eng.* **18**, 123–129 (2006).
26. Yoon, J., Talluri, S., Yildiz, H. & Ho, W. Models for supplier selection and risk mitigation: a holistic approach. *Int. J. Prod. Res.* **56**, 3636–3661 (2018).
27. Manavalan, E. & Jayakrishna, K. A review of Internet of Things (IoT) embedded sustainable supply chain for industry 4.0 requirements. *Comput. Ind. Eng.* **127**, 925–953 (2019).
28. Zaporowska, Z. & Szczepanski, M. Exploration of Lean Management Methods Used in Shared Services Centers, Drivers and Barriers to Process Selection for Improvements in the Light of Risk Management and ESG Reporting. *Sustainability* **14**, 1–20 (2022).
29. Kechagias, E. P., Miloulis, D. M., Chatzistelios, G., Gayialis, S. P. & Papadopoulos, G. A. Applying a system dynamics approach for the pharmaceutical industry: Simulation and optimization of the quality control process. *WSEAS Trans. Environ. Dev.* **17**, 983–996 (2021).
30. Gayialis, S. P., Kechagias, E. P., Konstantakopoulos, G. D. & Papadopoulos, G. A. A Predictive Maintenance System for Reverse Supply Chain Operations. *Logistics* **6**, 4 (2022).
31. Büyüközkan, G. & Göçer, F. Digital Supply Chain: Literature review and a proposed framework for future research. *Comput. Ind.* **97**, 157–177 (2018).
32. Reinartz, W., Wiegand, N. & Imschloss, M. The impact of digital transformation on the retailing value chain. *Int. J. Res. Mark.* **36**, 350–366 (2019).
33. Vilko, J. & Ritala, P. *IAM Value - identification, analysis, and management of customer value in supply networks.* (2016).
34. Aarikka-Stenroos, L. & Jaakkola, E. Value co-creation in knowledge intensive business services: A dyadic perspective on the joint problem solving process. *Ind. Mark. Manag.* **41**, 15–26 (2012).
35. Hatani, L. Integrated Supply Chain Management Practices in the Flow Information Toyota Car Dealer in Kendari. *Int. J. Eng. Sci.* **06**, 36–43 (2017).
36. Awad, H. A. H. & Nassar, M. O. Supply chain integration: Definition and challenges. *Proc. Int. MultiConference Eng. Comput. Sci.* **I**, 405–409 (2010).
37. Msimangira, K. A. B. & Venkatraman, S. Supply Chain Management Integration: Critical Problems and Solutions. *Oper. Supply Chain Manag. An Int. J.* **7**, 23–31 (2014).
38. Boubaker, S., Jemaï, Z., Sahin, E. & Dallery, Y. Supply chain agility: Review of situations. *Proc. 8th Int. Conf. Oper. Res. Enterp. Syst.* 270–276 (2019). doi: https://doi.org/10.5220/0007351602700276.
39. Christopher, M. & Rutherford, C. Creating Supply Chain Resilience Through Agile Six Sigma. *Critical Eye* 24–28 (2004).
40. Li, X., Chung, C., Goldsby, T. J. & Holsapple, C. W. A unified model of supply chain agility: The work-design perspective. *Int. J. Logist. Manag.* **19**, 408–435 (2008).
41. Gligor, D. M., Esmark, C. L. & Holcomb, M. C. Performance outcomes of supply chain agility: When should you be agile? *J. Oper. Manag.* **33–34**, 71–82 (2015).
42. Al Humdan, E., Shi, Y. & Behnia, M. Supply chain agility: a systematic review of definitions, enablers and performance implications. *Int. J. Phys. Distrib. Logist. Manag.* **50**, 287–312 (2020).
43. Gligor, D. M. The concept of supply chain agility: conceptualization, antecedents, and the impact on firm performance. *University of Tennessee* (2013).

44. Madhani, P. M. Agile, Adaptable, and Aligned Supply Chain: Enhancing Competitive Advantages. *Materials Management Review* 24–26 (2017).
45. Alzoubi, H. M. & Yanamandra, R. Investigating the mediating role of information sharing strategy on agile supply chain. *Uncertain Supply Chain Manag.* **8**, 273–284 (2020).
46. Hoek, R. I. Van, Harrison, A. & Christopher, M. Measuring agile capabilities in the supply chain. *Int. J. Oper. Prod. Manag.* **21**, 126–147 (2001).
47. Oliveira-Dias, D., Maqueira-Marín, J. M. & Moyano-Fuentes, J. The link between information and digital technologies of industry 4.0 and agile supply chain: Mapping current research and establishing new research avenues. *Comput. Ind. Eng.* **167**, 1–20 (2022).
48. Alfalla-Luque, R., Medina-Lopez, C. & Dey, P. K. Supply chain integration framework using literature review. *Prod. Plan. Control* **24**, 800–817 (2013).
49. Narayanan, V. G. & Raman, A. Aligning incentives in supply chains. *Harv. Bus. Rev.* **82**, (2004).
50. Han, W., Huang, Y. & Macbeth, D. Performance measurement of cross-culture supply chain partnership: a case study in the Chinese automotive industry. *Int. J. Prod. Res.* **56**, 2437–2451 (2018).
51. Lepori, E., Damand, D. & Barth, B. *Benefits and limitations of the SCOR model in warehousing. IFAC Proceedings Volumes (IFAC-PapersOnline)* vol. 46 (IFAC, 2013).
52. Fikri, M. H., Nainggolan, S. & Hutasuhut, J. Literature Review: Analysis of Gren Supply Chain Management (GSCM). *Ecobisma (Jurnal Ekon. Bisnis dan Manajemen)* **8**, 17–26 (2021).
53. Teece, D. J. Business models and dynamic capabilities. *Long Range Plann.* **51**, 40–49 (2018).
54. Li, X. Operations management of logistics and supply chain: Issues and directions. *Discret. Dyn. Nat. Soc.* 1–7 (2014). doi: https://doi.org/10.1155/2014/701938.
55. Clemons, E. K. & Hann, I. H. Rosenbluth International: Strategic Transformation of a Successful Enterprise. *J. Manag. Inf. Syst.* **16**, 9–27 (1999).
56. Jenson, R. & Richard Johnson, I. The Enterprise Resource Planning System as a Strategic. *Inf. Strateg. Exec. J.* 28–33 (1999) doi: https://doi.org/10.1201/noe0849311499.ch3.
57. Rygielski, C., Wang, J.-C. & Yen, D. C. Data mining techniques for customer relationship management. *Technol. Soc.* **24**, 483–502 (2002).
58. Di Giamberardino, P. & Iacoviello, D. An optimal control problem formulation for a state dependent resource allocation strategy. *Proc. 14th Int. Conf. Informatics Control. Autom. Robot. (ICINCO 2017)* **1**, 186–195 (2017).
59. Koev, S. R., Pavliuk, S., Derhaliuk, M., Sokolova, L. & Portna, O. Resource Strategy for Enterprise Management as a Tool to Ensure its Competitiveness. *Acad. Strateg. Manag. J.* **19**, (2020).
60. Oztemel, E. & Polat, T. K. A general framework for SERM (strategic enterprise resource management). *Prod. Plan. Control* **18**, 64–71 (2007).
61. Khan, M. W. J. & Khalique, M. Strategic Planning and Reality of External Environment of Organizations in Contemporary Business Environments. *Bus. Manag. Strateg.* **5**, 165 (2014).
62. Holdford, D. A. Resource-based theory of competitive advantage – A framework for pharmacy practice innovation research. *Pharm. Pract. (Granada).* **16**, 1–11 (2018).
63. Camilleri, M. A. Market segmentation, targeting and positioning. in *Travel Marketing, Tourism Economics and the Airline Product, Tourism, Hospitality & Event Management* 69–83 (2018). doi: https://doi.org/10.4324/9780080468570-15.