Guidelines for Inventory Cost Reduction in Finished Goods for Competitive Advantage

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Abstract: - Inventory cost is an important cost included in the total cost of logistics in Thailand, which tends to increase continuously, whereas entrepreneurs still encountered difficulty in draining existing inventory into the market thus affecting their performance in inventory management. The purpose of this study was to investigate inventory management and define guidelines to reduce inventory costs in finished goods to create competitive advantages in the industrial business sector. The finding, then, was used to develop a structural equation model. This study was conducted both qualitatively and quantitatively. Questionnaires were used to interview 500 executives of industrial business organizations. Descriptive, referential, and multiple statistics were employed to analyze the data. The study revealed that 4 major guideline areas for reducing inventory costs for the finished goods were found, prioritized as follows: data insight ($\overline{X}$ = 4.33), alliance-centric ($\overline{X}$ = 4.22), resource management ($\overline{X}$ = 4.22), and innovation technology ($\overline{X}$ = 4.19). As for the hypothesis test, it was found that small and medium-sized businesses, and large businesses differently prioritized guidelines to reduce inventory costs in the finished goods at the statistical significance level of 0.05. The analysis of the developed structural equation model revealed that the evaluation criteria were consistent with the empirical data with its Chi-square Probability, the Relative Chi-square, Goodness of Fit Index, and the Root Mean Square Error of Approximation of 0.055, 1.172, 0.959, and 0.019, respectively.

Key-Words: - Structural Equation Model, Inventory Cost Reduction, Finished Goods, Logistics

1 Introduction

According to a study of the situations in the context of changes within and outside the country that affects the development of the system, the next phase of Thailand's logistics needs to adjust its strategic direction to make it more cost management efficiency to increase the competitiveness of the country. This is in line with the important government policies and the long and medium term development plans, imposed in the 20-year national strategic framework (2018-2037), [1], and the 12th National Economic and Social Development Plan (2017-2021), [2], that aimed to enhance Thailand's logistics system. Due to the 3rd Strategic Plan for Logistics System Development of Thailand (2017-2021), the development plan, vision, goals, and indicators for the success of the strategic plan have been clearly defined. Four indicators to measure the success of the strategic plan in the issue of logistics were imposed, one of them has, however, set a target for Thailand's logistics costs less than 12% of GDP at annual prices of the year 2021, [2].

Logistics cost is an important indicator to assess the efficiency of logistics management of the country as a whole. It can be classified into 3 parts; transportation cost, inventory holding cost, and logistics administration cost as illustrated in the Thailand logistics report for the year 2020, [3], in Figure 1.
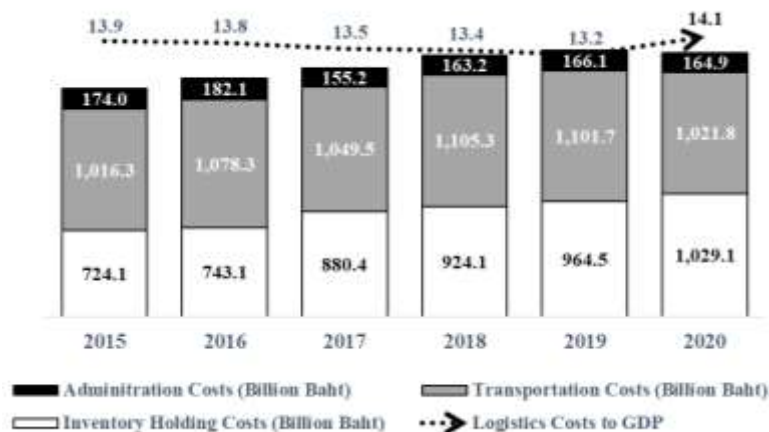
Fig. 1: Value of logistics costs in Thailand, [3].

Figure 1 shows that the value of logistics costs in Thailand has not yet achieved the target of the strategic plan's success indicators as defined as the proportion of less than 12% of the annual gross domestic product (GDP). According to the Thailand Logistics Cost Report 2020, the logistics cost was about 2,215.7 billion baht, decreasing from the year 2019 by 0.7 percent or the ratio of logistics costs to GDP of 14.1 percent at annual prices, showing an increase from the previous year. The decrease in the logistics cost was in line with the overall economic contraction in the country due to economic activities domestically and globally severely worldwide affected by the outbreak of the Coronavirus 2010 (COVID-19). This was no exception to Thailand and caused the logistics costs to fluctuate quite a lot. The growth rate in the country has decreased more than the cost of logistics, partly due to the severely affected tourism and service sectors. The ratio of logistics costs to GDP from the end of 2020 onwards tended to improve accordingly. The economic activities and domestic demand expanded, and the global economy recovered because the spread of COVID-19 could be controlled. As a result, consumption, and investment, as well as exports to major trading partners, resumed expansion. However, uncertain risk factors, including the tendency of world oil price and the freight index increase, still need to be assessed, especially the protracted outbreak of COVID-19 that causes the economic recovery to slow down or may halt. Entrepreneurs need to adjust their operating methods to be in line with situations with increasing costs and expenses within the organization which will affect the cost of logistics in Thailand in the future. The logistics cost structure in Thailand is presented in Figure 2.
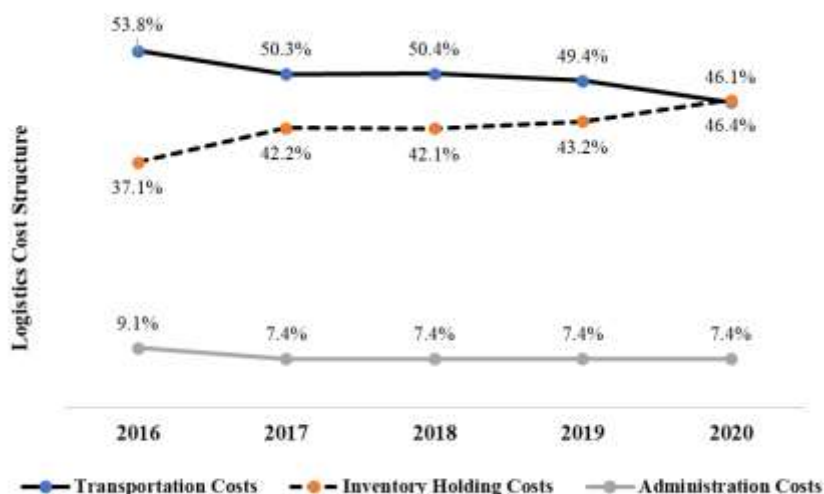

Fig. 2: Logistics costs Structure in Thailand, [3].

When the logistics cost structure from 2016 to 2020 was analyzed, it was found that the proportion of inventory holding costs tended to continue increasing. In 2020, the inventory holding costs became the largest component where it did in 2018. The main factor was because of the disruption of domestic economic activities, and the contraction of exports affected by the COVID-19 epidemic situation, which affected the entrepreneurs' efficiency of inventory management. In the year 2020, the inventory holding costs accounted for 46.4 percent of the total logistics cost, increasing from 43.2% in 2019, followed by the transportation cost which accounted for 46.1%, decreasing by 3.3 from that in year 2019. Logistics management costs, however, accounted for a constant proportion of 7.4 percent, equal to that in the year 2019.

Fig. 3: Inventory Holding Cost 2016-2020, [3].

According to the analysis, it was found that the inventory holding cost from the years 2016 to 2020 increased by 37.1, 42.2, 42.1, 43.2, and 46.4 %, respectively. Moreover, Figure 3 presents the inventory holding cost for 2016-2020. It is worth noticing that in 2020, inventory holding costs amounted to 1,029.1 billion baht while it was 964.5 billion baht in 2019, representing a 6.7 percent growth, contributing 6.5 % to GDP.
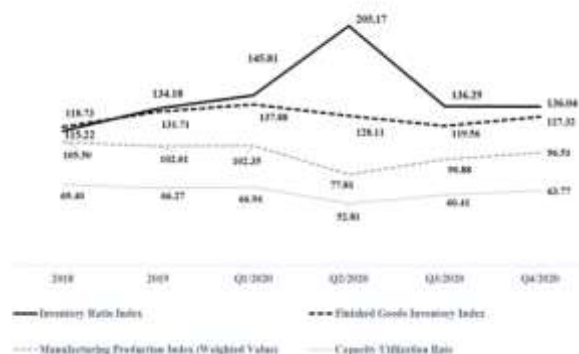

Fig. 4: Industrial Sector Index 2018-2020, [3].

In addition, an in-depth analysis found that the key factor causing the higher inventory holding costs could be observed by looking at the finished goods inventory ratio index. The average finished goods inventory ratio index of 4 quarters in 2020, was 155.8, increasing from 134.2 or 16.1 % in 2019. The increase in the finished goods inventory holding costs in comparison with the sales volume reflected that the entrepreneurs still encountered difficulty in draining existing inventory into the market thus affecting their performance in inventory management. The industrial sector index for 2018-2020 is presented in Figure 4.

As the inventory holding costs increase was one of the entrepreneurs' major problems, a study to find guidelines to reduce finished goods inventory cost was conducted to create competitive advantages for the industrial business and to increase the entrepreneurs' efficiency in inventory management that always affected Thailand logistics cost structure.

1.1 Research Objectives

1)To investigate the components of guidelines to reduce inventory costs in finished goods to create competitive advantages in the industrial business sector, and

2) To develop a structural equation model for inventory cost reduction in the finished goods to create a competitive advantage in the industrial business sector.

2 Literature Review

2.1 Inventory and Logistics

Inventory management includes those managements from upstream to downstream, starting from the methods of obtaining raw materials, transporting raw materials for storage, arranging materials to be taken through the production process, producing finished products, and delivering the products to other departments, or customers efficiently and effectively, [4], mentioned 8 techniques for controlling inventory which were: 1. Visual control, 2. Order level or order point, 3. Economic order quantity (EOQ), 4. ABC inventory classification, 5. Electronic data Interchange (EDI), 6. System controlling inventories in a timely manner (Just-In-Time: JIT), 7. Materials requirement planning (MRP), and 8. Physical inventory control.

As for guidelines for reducing inventory costs, [5], opinionated that reducing costs was considered very important for management because an increase in costs meant a decrease in profits. If business costs or logistics costs could be reduced, the business would certainly be able to make more profit.

2.2 Resource Management

Organizations in today's business environment encounter, as never did before, unprecedented global situations such as competitive conditions, constant market volatility, currency fluctuations, exchange rates, and threats from existing and potential competitors. Different ways of entry and exit of businesses, and competitors have been proposed to help organizations achieve competitive advantage over their competitors and to maintain these advantages in the long run, [6], dividing organization's resources into two categories: 1) Tangible resources such as investment capital, machinery, equipment, materials, raw materials, spare parts, products, services, equipment, technology, machinery, tools, use of technology to help management in transportation, and 2. Intangible resources including human resource capital, [7], are described as the Resource-Based Theory (RBT) or Resource Based View Theory (RBV) that various resources each organization owns cause different levels of efficiency and creates advantages in competition. This theory provides a theoretical understanding of how resources can be used for better results and has been widely used in various fields. In addition, the resource-based theory is one of the theories that explain the relationship between organizational resources and organizational performance in which resources are considered assets that enable companies to think and execute strategies. It is furthered that the success of the organization depends on the intrinsic qualities of the organization, tangible and intangible assets, knowledge, and competence, all of which are defined as a qualification within an organization, [8].

2.3 Innovation Technology

Application of information management to create and maintain an organization's competitive advantage requires strategic application of technology and the realization of the potential of information management that can be used to maximize the benefit of the organization's operations, [9], [10], has classified innovations into 4 groups depending on 2 factors: market, and technology. Innovations related to the market are those that help create new markets or deal with existing markets while the ones concerning technology are those that use new or existing technology. Market and technology are factors

that lead to 4 types of innovation; namely, 1. Incremental innovations, referring to those that improve the existing products or services, 2. Disruptive innovations, referring to those that some organizations introduce to change their industry while they contradict the traditional approach but signal to replace the own way, 3. Architectural innovation refers to those that occur when a new product or service uses existing technology to create new markets and/or new consumers who have never bought that product before, and 4. Radical Innovation refers to those that develop new products or services with new technology just open up a new market.

2.4 Data Insight

To create a logistics strategy, it is necessary to establish a system to manage the delivery of goods, data, and other resources from origin to the point of consumption according to customer needs. The efficient logistics process that involves a combination of information, logistics, inventory management, product handling, and packaging, can help add value to the supply chain. Big data consists of 4V's attributes; namely, volume, variety, velocity, and value, [11]. To utilize the data, a Big data management system in logistics must be provided by these 4 important actions: Data generation, data acquisition, data storage, and data analytics, [12].

2.5 Alliance Centric

Implementation of a business alliance strategy such as a supply chain management strategy can increase the opportunity to generate more sales and reduce the organization's cost, [13], said that supply chain management focuses on the flow of information, especially the reverse flow, to speed up the operation. To build the relationship between logistics and supply chain management in the manufacturing suppliers, all activities must be consistently coordinated, and strategic cooperation must be created, [14], described that there are 2 types of strategic cooperation: outsourcing, and joint venture. Outsourcing can reduce costs and transfer risks, but organizations should carefully assess the balance between risk and return before deciding to outsource their supply chain. Joint Venture refers to creating cooperation to promote the strength and sustainability of the business and establishing "Joint Venture Partners" to conduct business in a specific area by making an agreement or a contract between them to have a main mission to jointly invest and integrate resources. In addition, [15], explained that a strategic alliance is a cooperation with sellers to form a permanent alliance where two organizations have the ability to complement each other and participate equally as a partnership. Strategic alliances between organizations are a strategy to avoid supply bottlenecks during times of high production capacity utilization, instability, unpredictable events, changes, and market dynamics, [16], explained that alliances are an alternative to supply management strategies which is in a complex management group for the products that are of the utmost importance to the organization. In general, organizations try to jointly initiate alliances with partners to increase mutual income. The nature of alliance is of two forms: contractual alliance, and equity.

3 Research Methodology

3.1 Synthesis of Components

According to the concepts and theories reviewed above, guidelines for inventory cost reduction in finished goods to create a competitive advantage could be grouped into 4 components, namely, resource management, data insight, alliance centric, and innovation technology, as shown in Figure 6. The research conceptual framework (Figure 5) with theoretical concept led to the elements of the study entitled "Guidelines for inventory cost reduction in finished goods to create a competitive advantage of the industrial business sector".
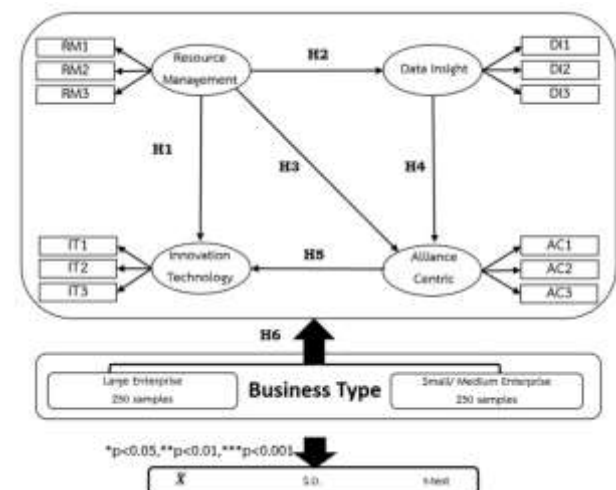

Fig. 5: Research Conceptual Framework
Source: Researcher

3.2 Population and Sample Group

The population used in this research was industrial business entrepreneurs or logistics executives from organizations awarded the Prime Minister's Export Award during 1992 - 2021 and the industry award during 1993 - 2021, amounting to 1,006. The

criteria for classifying business size was based on the number of their personnel; the number of personnel in large enterprises was 200 upward while that in small and medium ones was less than 200, [17]. The suitable size of the sample groups as specified by Comrey and Lee was 500, [18]. In this study, 250 informants were recruited from small and medium businesses and another 250 from large businesses.

3.3 Research Tools

The tool used in this study was a 5-point rating scale questionnaire constructed according to the Likert method, [19]. The created questionnaire draft was assessed by 5 experts to determine the quality of the tool. It was found that the calculated Index of Item-Objective Congruence (IOC) ranged from 0.60-1.00, where the appropriate value is 0.50 or more, [20]. Then the questionnaire was tried out with 30 informants with similar characteristics as the studied population. The purpose of the trial was to find its values of discrimination, standard deviation, correlation, and reliability. The calculation showed that the discrimination of the questionnaire varied from 0.32-1.55 while its reliability was 0.99 much greater than the normal criteria of 0.80. The tool was, therefore, considered as very good and appropriate for the study, [21]. Then the constructed questionnaire was used to collect the data from the set sample group.

3.4 Data Analysis

Both descriptive and referential statistics were employed to analyze the data via SPSS software while a structural equation model was developed with AMOS. Four criteria for evaluating the Data-Model Fit used included: 1) Chi-square Probability > 0.05, 2) Relative Chi-square < 2.00, 3) Goodness of Fit Index > 0.90, and 4) Root Mean Square Error of Approximation < 0.08, [22].

4 Results

1) The analysis of the component related to data insight revealed that entrepreneurs realized the importance of this component, as a whole, at a high level ($\overline{X} = 4.33$). When each item was taken into consideration, it was found that the item read "the calculation of carrying cost per unit for inventory planning" was rated at the highest ($\overline{X} = 4.61$).

2) The analysis of the component related to alliance centric showed that entrepreneurs realized the importance of this component, as a whole, that focuses on building alliances as a center at a high level ($\overline{X} = 4.22$, S.D. = 0.36). It was found in the by-item consideration that the one read "encourage major sellers to purchase multiple SKUs to reduce purchasing costs and inventory" was rated at the highest ($\overline{X} = 4.61$).

3) As for resource management, entrepreneurs rated this component at a high level ($\overline{X} = 4.22$, S.D. = 0.47) while the item read "the list of products should be reviewed appropriately (Rationalize SKUs) and the loss products should be eliminated to reduce the inventory holding costs" was ranked at the top ($\overline{X} = 4.52$).

4) Regarding innovation technology, the informants rated this component, as a whole, at a high level ($\overline{X} = 4.19$) while the item rated the highest was that read "select the effective operating system to support the inventory management process" with $\overline{X} = 4.55$.

Table 1. Comparison of the importance level of the guidelines for inventory cost reduction in finished goods to create a competitive advantage in the industrial sector, categorized by industrial business size, industry, as a whole, and by aspect.

Components of guidelines for inventory cost reduction in finished goods for competitive advantage in industrial business	t-Value	P-Value
The importance level of the components as a whole	-9.29	0.00*
Resource Management	-8.68	0.00*
Innovation Technology	-7.50	0.00*
Data Insight	-6.80	0.00*
Alliance Centric	-10.59	0.00*

*The statistical significance level of 0.05

Table 1 shows that the importance level of the overall guideline components for inventory cost reduction in finished goods for competitive advantage in industrial business, categorized by industrial business sizes, were different at the statistical significance level of 0.05.

As for the development of the structural equation model (SEM) on guidelines for inventory cost reduction in finished goods for competitive advantage in industrial business, Multivariate Statistics analysis and advanced statistical analysis software called AMOS were used to analyze the data. The model and the latent variables were adjusted until they were all consistent with the empirical data and the four criteria; namely, Chi-square Probability: CMIN-p, Relative Chi-square: CMIN/DF, Goodness of Fit Index: GFI, and Root Mean Square Error of Approximation: RMSEA).

The results of the structural equation model analysis are as follows:

5) The analysis of the study concerning objective 1, that is, to investigate the components of the guidelines for inventory cost reduction in finished goods to create competitive advantages of the industrial sector, revealed that there were 4 major components; namely, the resource management, data insight, alliance centric, and innovation technology all of which were obtained from relevant literature reviews. It appeared that empirical data were consistent with p-value = 0.055, CMIN/DF = 1.172, GFI = 0.959, and RMSEA = 0.019, at a statistical significance level of 0.001. They were consistent with the literature and the empirical data and passed the specified criteria as shown in Table 2 and Figure 6

Table 2. Observed variables for inventory cost reduction in the finished goods to create a competitive advantage in the industrial business sector.

| Abbreviation	Guidelines for Inventory cost reduction in finished goods for competitive advantage
Resource Management	
RM10	Provide a risk management contingency plan to manage inventory during a crisis (Risk Management)
RM11	Continuously support the budget for research and development of technology and innovation in warehouse and logistics systems.
RM12	Promote competition activities to win prizes for reducing costs and increasing logistics efficiency within the organization
RM20	Provide a knowledge management system in inventory management for efficient personnel development.
RM21	Push to transform the traditional management system to be digital throughout the supply chain
Innovation Technology	
IT1	Develop big data for integrated inventory management within the organization
IT4	Use predictive analytics technology to find trends in product demand.
IT6	Use artificial intelligence (AI) technology to process, predict customer needsบ, and plan inventory storage.
IT12	Connect the information system of the organization via digital technology with partners throughout the supply chain for real time inventory perception.
IT18	Use Internet of Things (IoT) technology to connect networks to check the status and point of inventory reorder.
Data Insight	
DI6	Gather in-depth customer behavior data to assess future demand for finished goods.
DI8	Use the data to create a model for forecasting the customers' demand for finished goods in advance.
DI9	Use the sales data of similar products to analyze the appropriate amount of inventory demand.
DI10	Plan inventory demand data for production and delivery throughout the supply chain.
DI13	Study finished product distribution information and select appropriate distribution points to reduce inventory.
Alliance Centric	
AC3	Coordinate with customers to deliver the goods just in time.
AC5	Encourage personnel to become partners to stimulate their commitment and dedication to work for the organization.
AC9	Provide a clearly defined unit structure responsible for strategic business alliances.
AC16	Build employee engagement to be responsible for the cost of the organization.
AC18	Encourage major sellers to purchase multiple SKUs to reduce purchasing costs and inventory.
AC23	Exchange logistics and supply chain knowledge with business partners.
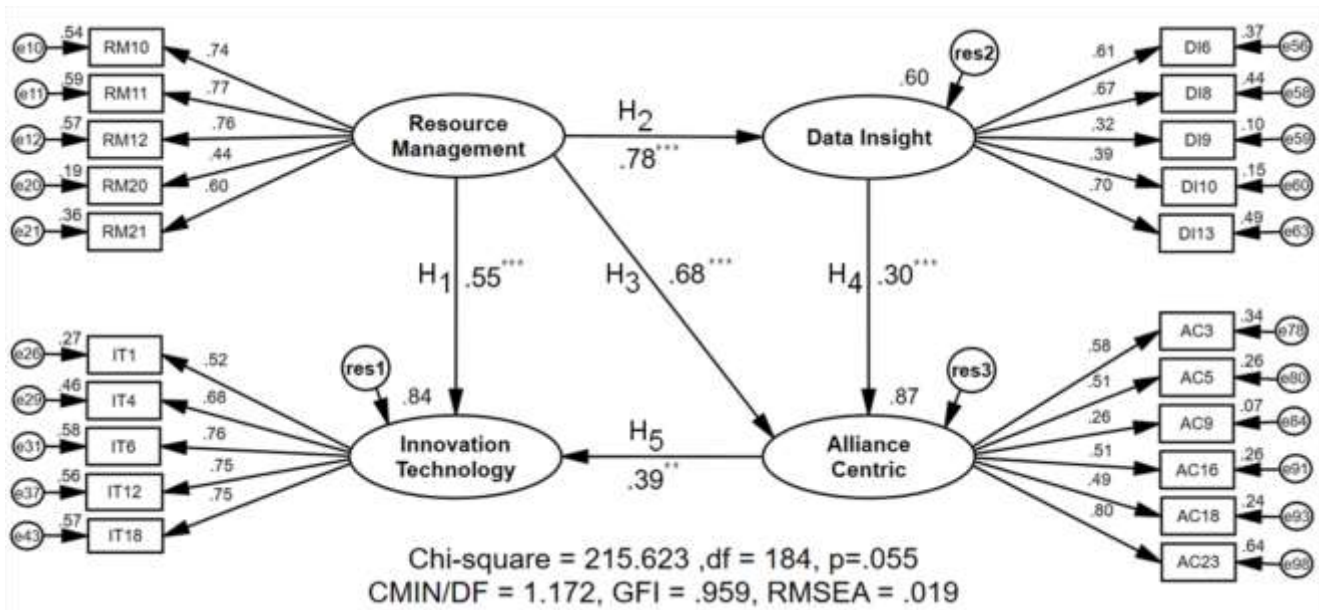
Fig. 6: Structural equation model for inventory cost reduction in finished goods (Source: Researcher)

Figure 6 shows the results of the analysis of the overall influence of the studied latent variables in the Standardized Estimate mode after the model was improved. It was found that the resource management component influenced the Alliance Centric component the highest with a Standardized Regression Weight of 0.91.

6) Regarding objective 2 of the study, to develop a structural equation model for inventory cost reduction in finished goods to create a competitive advantage in the industrial business sector, the direct and indirect influences of the model in the Standardized Estimate mode after the model being improved are shown in Table 3.

Table 3. Overall direct and indirect influences of in Standardized Estimate mode after the model is improved.

Latent Variables	Resource Management	Data Insight	Alliance Centric	Innovation Technology
Data Insight	0.78	0.00	0.00	0.00
Alliance Centric	0.91	0.30	0.00	0.00
Innovation Technology	0.90	0.12	0.39	0.00

The analysis of the overall influences, the direct and the indirect influences of the structural equation model revealed that the resource management component had an overall influence on the alliance centric with a Standardized Regression Weight of 0.91 consisting of the direct influence between the resource management and the alliance centric with a Standardized Regression Weight of 0.68 and the indirect influences between the resource management on the data insight with a Standardized Regression Weight of 0.78 and then influence on the alliance centric with a Standardized Regression Weight of 0.30 then the total of a Standardized Regression Weight 0.23.

5 Discussion and Conclusion

The research results can be concluded by using descriptive statistics and structural equation modeling. It can be concluded as follows:

1) That the resource management component had an overall influence on the alliance centric with a Standardized Regression Weight of 0.91 empirically showed that alliance centricity was correlated with operational efficiency. This was in line with the study of, [23], which examined the relationship between quality management and the operational performance of the logistics industry and found that the outsourcing model of logistics management could cope with the changing dynamics of the current environment with significant potential. However, there must be a backup planning system and an unexpected contingency plan to strengthen competitiveness, especially for the import-export industrial business. In addition, the study by, [24], also found that external logistics organizations (Third-Party) were important for customer relationship management in the digital transformation. Relationships with partners outside the organization, cooperation in information technology, and the development of

mechanisms should be provided and aimed at meeting customer satisfaction to create a strategic competitive advantage both in becoming the cost leader and making a difference in the long run. It was also in line with the research of, [25], that investigated the direction of the expanding networks throughout the worldwide supply chain and found that the number of networks in each region, investing, presenting products and services in each area, around the world tended to increase continuously, [26], said that a model of global supply chain management influenced by geopolitics had an impact on the decision-making style and Eco-system of supply chain management which was connected to the suppliers, the product transportation, production process, and the assets, management process, the government, and stakeholders, [27], also discussed the changing business model that aimed at local support of production to reduce steps and complexity of supply chain. They focused on procuring logistics service providers (LSPs), analyzing and grouping alliance networks to co-develop in-depth digital technology leading to business model adaptation at the same time, [28], also proposed a strategy for designing inventory to increase efficiency along the supply chain which required the cooperation of stakeholders to jointly manage inventory costs either at the level of safety stock or budget allocation by product type to achieve a balanced system, wide savings from upstream, midstream, and downstream all of which were considered an alliance-centered approach to support resource management under the Industry 4.0 conforming Circular Economy that, [29], has studied the use of renewable resources by bringing technology to support internal operations to achieve sustainability. He that resource management in modern times was indispensable to take into account the application of the concept of the circular economy for driving the organization to achieve efficiency and creating long-term stable effectiveness, [30], further mentioned the guidelines for managing financial performance in an organization in terms of sellers' roles and participation, and information exchange that sellers' participation had a direct relationship with financial performance (FP) and lean manufacturing practices which was a variable in creating a competitive advantage for the organization in the long run.

2) According to the research results, when comparing the importance of the studied guideline components rated by informants from different sizes of enterprises, it was found that importance was placed differently at the statistical significance level of 0.05. That is, those from large enterprises focused

on the cost of supply chain management more. This is consistent with the research of, [31], which found that the management and facilitation of transportation work and systems to facilitate management was considered an important factor in managing the revenue structure of global businesses. It could help reduce risk in the supply chain and bring about the pricing of consumer products in line with the market and demand. This finding was also in accordance with the study by, [32], which discussed the adaptation strategies of business organizations affected by the Covid-19 epidemic situation, especially those global organizations that need to adapt themselves to reduce costs from slowing down or blocking distribution to prevent the risk of an epidemic. The investigation by, [33], mentioned that industry has been considered an important foundation for national development and a mechanism for driving the economy, society, and the well-being of society for a long time. The economic slowdown resulted in structural problems for the industry in terms of adapting to ever-changing changes, causing many businesses to cease operation. The study revealed that organization indicators in resource management factors were inconsistent with policies and performance while those in innovation and technology indicated that lack of resource management planning via quickly reachable networks was a cause of failure. The study by, [34], reported research findings on the use of a digital supply chain management model in the COVID-19 crisis that the development of enterprise digital assets correlates with visibility and agility in supply chain operations, which enabled the organization to stably keep up with the digital transformation as well as to support the adaptation to the world's major changing trends in various dimensions and international business. According to the research, [35], changes in society, economy, politics, environment, and technology affected the global value chain of the industrial business both at the micro and macro levels. In addition, [36],'s research has found that large enterprises relied on risk management to focus on reducing costs and increasing revenues under uncertain circumstances. Moreover, [37], discussed reducing inventory costs in the production system with Game Theory and fuzzy logic for forecasting demand that inventory management of industrial businesses included purchasing policies and inventory management that focused on cost conditions based on the concept of the economic order quantity (EOQ) under On-Time demand management to meet the stakeholders' needs at all levels, avoiding loss of sales and

increasing net profit. The investigation of, [38], additionally found that the use of radio frequency identification (RFID) technology in the logistics industry was important for large organizations to support management decisions and plan management strategies throughout the value chain. This was in line with the research findings on the development of inventory control systems in the organization in that tools should be developed to improve work efficiency within the organization, software should be used to manage the inventory of the organization, how to manage and track the status of the products should be provided. The importance given to every process in organizations could certainly help reduce the costs in various departments and increase organizational profits.

3) Based on hypothesis tests, it was found that the Resource Management component directly influences the Data Insight component. Statistically significant at 0.001 with Standardized Regression Weight = 0.78 empirically demonstrates that resource management is one of the main tasks that drive policies and strategies into action within the organization. By using data analysis principles to support the organization's ability to plan business strategies effectively. Dealing with economic inversions, this is evident by, [39], studying the role of data analytics in inventory management found that insight management is important for organizational development. This is especially true for organizations with strategic goals to focus on growth through business expansion, [40]. It is necessary to manage it on many databases therefore, agility in integrating data for management throughout the value chain is fundamental to bringing about effective inventory data analysis and creating a competitive advantage. Data mining is important for logistics management planning, and organizations need to develop information technology to apply data analysis for decision-making. The study, [41], published the findings related to information systems in entrepreneurs' resource planning. (Enterprise Resource Planning: ERP) it was found that the development of software for use in the operation of the business will bring about the integration of inventory control systems. Accounting, purchasing, project management, and risk management, as well as operations throughout the supply chain, are connected in harmony and reflected in the overall performance of the organization that is consistently stable in line with, [5], Enterprise Resource Planning system (ERP) is the most important way to reduce inventory holding costs. The business connects information technology systems and brings warehouse and other departmental data together in the same database for sharing across the organization when an inventory management system is effective, it results in the lowest total logistics costs.

4) Approaches to reduce inventory costs in the finished goods segment to create a competitive advantage of the industrial sector in the data insight component averaged 4.33, which is the most important area, especially in the era of data analytics technology. Competitive advantage with insight management, and timely data management, is in line with, [42], research, on applying the science of data analytics to determine supply chain operational decisions. Production planning and control to increase competitiveness for responding to market demand, such as during the COVID-19 pandemic that has affected the world widely. One tool to gain a competitive advantage is to analyze data that fluctuates in both supply and demand markets over time therefore, it is necessary to focus on developing and improving insights to bring value to operations throughout the value chain. According to the research of, [43], the Internet of Everything Smart Logistic Network (IoE-SLN) gives accurate communication of transaction information in logistics Precise, error-minimizing, fast, and cost-effective. Also, [44], has mentioned that the application of technology to link data communication between devices in logistics is the key to information exchange to move towards transparent management through the collection and recording of secure data in a timely manner. It can be used as a basis to lead to the development of logistics activities designed to bring enormous benefits to the organization.

5) Guidelines for reducing inventory costs in the finished goods segment to create a competitive advantage in the industrial business sector. It was found that the collaboration of key vendors in purchasing multiple SKUs was created to reduce procurement costs and inventory volumes. This is in line with the research of, [45], which ultimately states that the goal of reducing inventory costs in procurement and logistics activities is stakeholder collaboration. In addition, [46], discussed the financial implications of in-transit inventory, which involves various sectors, saying that cost reduction operations require joint monitoring of all functions to achieve competitive costs throughout the value chain for first-mover advantages. The study, [47], also published guidelines for optimizing inventory management, which is impacted by factors related to cost, quality, time, and response to target markets. The goal is to reduce overall costs, including costs, according to

the Resource-Based View (RBV Theory) with a focus on creating long-term competitive advantage. This is in line with research by, [48], which also publishes the key to Lean Supply Chain Management practices. It also disseminated the key to Lean Supply Chain practices to achieve sustainable results by paying attention to customer relationship management. Vendor relationship management Just-in-time production management, waste reduction, cost reduction, and inventory reduction are components of long-term supply chain management efficiency development toward shared sustainability across all industrial business sectors.

6 Suggestions

1) Industrial business enterprises should accelerate the formulation of the organization's inventory management strategy plan with the concept of cost reduction throughout the supply chain. Elimination of waste and defects, and value addition should be made to achieve cost-effective products in the shortest possible time (Lean Six Sigma Deployment). Attention should be paid to customer and seller relationship management to reduce inventory leading to sustainable achievement. Competitiveness should be leveled in accordance with behavior and response to demand, and inventory management.

2) Industrial business enterprises, especially in this era of Industry 4.0, must have inventory management forecasts, taking into account purchasing policies and inventory management that focus on cost conditions, inventory management, and control systems. Analysis of inventory classified by types, necessity, and inventory budget in procurement (ABC and VED Analysis) should be made to provide economical order quantity by ordering goods each time in the amount that makes the total cost as low as possible, either the cost of purchasing or the cost of storing the products, based on the concept of the economic order quantity (EOQ).

3) Large industrial enterprises should pay attention to the management and facilitation of transportation work and the management facilitation system to bring about risk reduction in the supply chain and consumer product pricing to be in line with demand and the mass market. Digital technology should be used to develop a holistic supply chain. Good internal control is recommended to ensure compliance with regulations and inventory management policies to reduce costs and waste and to increase speed and operational flexibility. Its upper-level and lower-level operations should be supported. Executives should set policies and action plans to apply the concept of circular economy as a basis for making decisions on cost and time in creating products and services from upstream to downstream. Organizations should be driven to achieve efficiency and create long-term stable effectiveness.

4) Industrial businesses should be aware of the use of Innovation Technology to promote the process of reducing inventory costs to create a competitive advantage for the organization apply technology to analyze customer behavior and needs, which reduces losses in processes that don't create value, develop inventory management model by linking logistics communication in an instant, timely, transparent manner through timely collection and recording of secure information. Traceability to build trust in data and information systems. In addition, businesses should adjust their digital asset acquisition strategies in line with visibility and agility in supply chain operations (The Internet of Everything Smart Logistic Network: IoE-SLN) by incorporating Data-Driven Innovations (DDI) into capacity management within the organization.

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