

Optimizing Supply Chain through Corporate Strategy, Interface**Technology and Grouping Methods in Facing Digitalization 5.0**

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Abstract: This research aims to analyze the implementation of DHL Express Balikpapan's strategy in applying interface technology and grouping methods to enhance supply chain effectiveness in the era of Digitalization 5.0. The main issues faced include the complexity of the supply chain process and the lack of data integration, which hinder overall effectiveness. This research uses a mixed-methods approach, combining quantitative and qualitative data that has been collected by the researcher through the distribution of questionnaires and direct observation. The analysis using SEM-PLS shows that the grouping method has a significant direct effect on supply chain effectiveness with an R-Square value of 0.894 (89.4%), which means there is a 10.6% contribution from other variables affecting supply chain effectiveness that were not examined in this study. This finding shows that the application of the grouping method plays an important role in enhancing operational effectiveness. This research emphasizes the importance of refining interface technology and optimizing corporate strategies to maximize supply chain performance.

Keywords: *Corporate Strategy, Interface, Grouping, Supply Chain Efficiency*

1. Introduction

Mistakes in applying supply chain management in logistics flows would be fatal to the logistics company. Lack of knowledge about the proper and correct application of supply chain management will affect the logistical processes that occur in the company, such as increased distribution costs, distribution time that passes due time, overwhelming supply costs, costs and storage times that pass company predictions and much more. Supply Chain effectiveness is an important factor to be taken into account by logistics companies. The effectiveness of supply chain management is just as good as the logistics company in utilizing data sources in warehouse management such as receiving, put away, storage, picking and shipping (Heryadi et al., 2024).

DHL Express is a courier company that offers a variety of domestic and international shipping services. There are several kinds of service packages offered such as Dox, Wpx, Jumbo Junior, jumbo box and Express Pallet that have prices that vary depending on the weight of the goods and also the country of destination. Using the dollar exchange rate, shipping rates are set, so DHL Express shipping costs worldwide are equivalent. DHL Express has successfully shipped goods and documents to various countries, but there will be additional charges known as remote territory charges. These charges are largely dependent on the weight of the goods and the value of the delivered goods.

Based on the results of the latest information on the website www.dhl.com released on January 17, 2024, DHL Express was named the Global Top Employer 2024 for the 10th time in a row. DHL Express has achieved top company status in 50 impressive countries, in six regions: America, Asia-Pacific (excluding China), Europe, the Middle East/North Africa, and sub-Saharan Africa. The application is based on a comprehensive assessment of human resource management, working conditions, talent strategy, workforce planning, orientation process, training and development, performance management process, and corporate culture. With this agreement, DHL Express underpins the firm's unwavering commitment to developing a dynamic and supportive workplace for its employees.

One of the branches of DHL Express that has already implemented the grouping method and interface technology is DHL Express Balikpapan. In its application, showing positive results can be deducted from the development of the number of deliveries carried out by DHL expres Balikpapan.

Expected Delivery Year	Total		Average per Year	
	Volume	Weight	Volume	Weight
2020	23.295	720.608	1.792	55.431
2021	35.728	1.768.068	2.748	136.005
2022	43.040	2.454.921	3.331	188.840
2023	51.815	2.430.704	3.386	186.977
Total	153.878	7.374.301	11.837	567.254

Table.1 DHLE Balikpapan Delivery Data by year 2020-2023

Source : DHL Express Balikpapan

Based on the results of the above table, it shows that there has been a significant improvement in the shipping services carried out by DHL Express Balikpapan in the period of 2020 until 2023. The figures show the impact of the application of interface technology and also the implementation of the grouping methods performed by DHL Express Balikpapan.

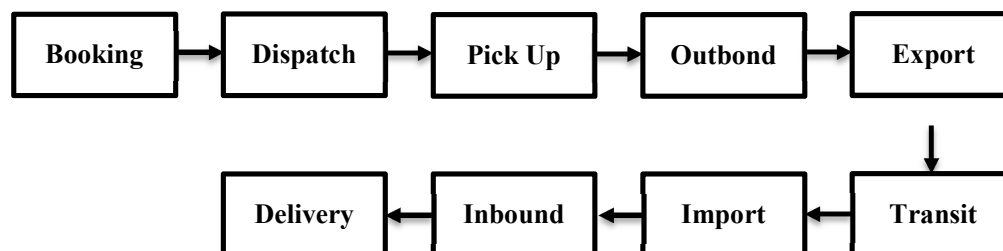


Figure.1 Flowchart Diagram of the DHL Delivery Process in Balikpapan

Source : DHL Express Balikpapan Branch

On the flowchart above shows how the process takes place in DHL Express Transactions. In the process, DHL Express Balikpapan involves technology in every process ranging from customers making bookings or bookings through My DHL applications, carrying out file-to-file processing using inter-integrated interface systems to delivering goods to customers whileining security and accuracy in delivery.

Based on what has been explained above, the researcher is interested in conducting a study to delve deeper in line with the research title that has been designed, which is **“Optimizing Supply Chain through Corporate Strategy, Interface Technology and Grouping Methods in Facing Digitalization 5.0”**

2. Literature Review

Company Strategy

According to Setiawati (2017), Strategy is an attempt to regulate how a company or organization utilizes its environment and how the internal structure of the company or organisation can be structured and regulated as intended by a company's predefined objective.

According to Gesah & Prabowo (2019) Corporate strategy is a comprehensive and integrated unity of corporate plan that is necessary to the objectives of the company. The chosen strategy will be implemented by the company and ultimately requires an evaluation of the strategy.

According to Mulyanagara & Ali (2023), A good company strategy also requires a corporate value management system to oversee its employees in running the company operatively well and good corporate governance. Without the company's values applied by its employees, the implementation of the corporate strategy can deviate from the set objectives. Thus, they will be more focused on the implementation of the company's strategy. So there are four indicators of the company's strategy: *Motivated People, Great Service Quality, Loyal Customers, Profitable Network*.

Interface Technology

According to Sitorus (2016), Management information systems are a series of computer-based information subsystems that provide comprehensive and coordinated information between one system and the other. Based on opinion from Saputra et al., (2023) Through one of his writings, the User Interface is a part of a computer as well as a software that can make a program with its users interact with each other, the user interface can give the user an experience like a touch, can be felt, and can be understood by the user. Interface technology in warehouses plays an important role in improving operational efficiency, security, and inventory management. According to Ganggi through the journal “**Pengaruh User Interface dan Variasi Produk Terhadap Minat Beli Konsumen**” Written by Saputra et al., (2023) , User Interface has an indicator that : *Connectivity, Simplicity, Directional, Informative, User Friendliness, Personalization, dan Continuity*.

Grouping Method

According to Muhayyaroh (2022), Grouping method is one of the methods used to classify goods based on criteria and specific characteristics such as size, weight, frequency of demand or type of goods in order to facilitate the search and placement of the goods on the warehouse. In defining the method of grouping in warehouses, some of the methods that can be used are randomized storage, class-based Storage, shared storage and dedicated storage (Rinaldy, R. & dan Yelita A., 2022). With the aim of minimizing the time and effort required in the inventory management process and reducing the risk of error.

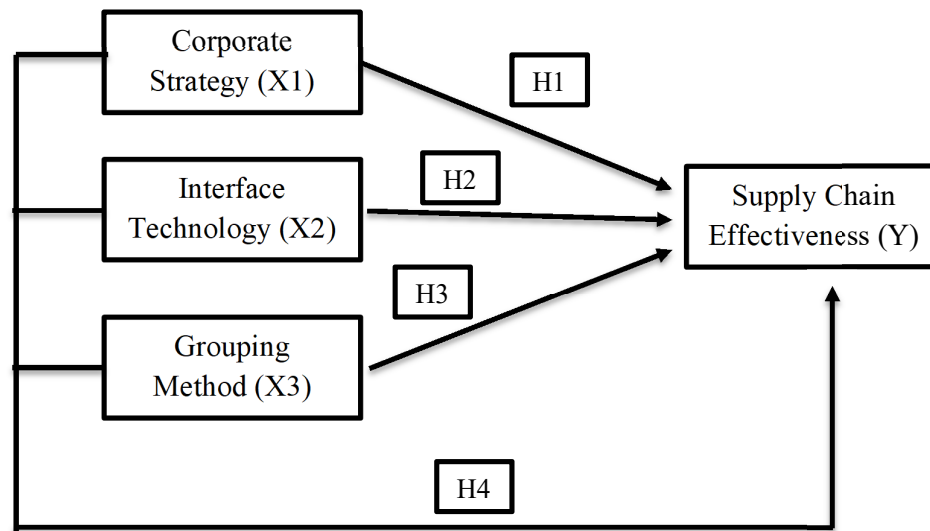
For example, in a study published by the Journal of Cleaner Production, Sustainable grouping methods are identified using indicators specific to warehouse management This study highlights the importance of classifying goods based on sustainability and operational efficiency to improve the overall performance of the warehouse (Torabizadeh et al., 2020).

Supply Chain Effectiveness

According to Suparman (2019), Supply chain management is a design, operation and system of flow of materials, information and money that involves the interconnection of the logistics company in its logistics process ranging from the supply of raw materials, production goods until the goods reach the end consumer. According to Santosa (2022), There are three indicators of supply chain effectiveness: Internal integration, Customer integration and Supplier Integration.

Variable	Operational Definition	Items	Source
Corporate Strategy	In order to identify and monitor a company's supply chain performance from start to finish, a company must implement supply-chain performance management, which is an appropriate and effective strategy in managing a good company.	1. <i>Motivated People,</i> 2. <i>Great Service Quality,</i> 3. <i>Loyal Customers,</i> 4. <i>Profitable Network.</i>	(Gesah & Prabowo, 2019)
Interface Technology	User Interface is a computer and software component that allows users to interact with programs. User Interfaces can provide users with experiences such as touch, sensation, and understanding.	1. <i>Connectivity,</i> 2. <i>Simplicity,</i> 3. <i>Directional,</i> 4. <i>Informative,</i> 5. <i>User Friendliness,</i> 6. <i>Personalization,</i> 7. <i>Continuity.</i>	(Saputra et al., 2023)
Grouping Method	Grouping methods classify goods according to specific criteria and characteristics to facilitate the search and placement of goods in warehouses.	1. <i>Inventory Accuracy</i> 2. <i>Turnover Rate</i> 3. <i>Order Fulfillment Time</i> 4. <i>On-Time Delivery Rate</i> 5. <i>Units Picked Per Hour</i> 6. <i>Space Utilization</i> 7. <i>Customer Satisfaction Rate</i> 8. <i>Return Rate</i>	Muhayyaroh (2022)
Supply Chain Effectiveness	Supply chain management, also known as supply chain, is the process of developing a business strategy to regulate, control, and motivate the resources involved in the service and material supply chains.	1. Internal Integration 2. Client Integration 3. Supplier Integration	(Yusri, 2020)

Table 2. Measurement of variables

**Figure.3** Conceptual Framework

On the picture of the conceptual framework above it can be concluded that the hypothesis or assumption determined in this study is:

H1 : Suspected Company Strategy has a significant impact on Supply Chain Effectiveness

H2 : Suspected the use of Interface Technology has a significant impact on Supply Chain Effectiveness

H3 : Suspected the use of Grouping Methods has a significant impact on Supply Chain Effectiveness

H4 : Suspected Company Strategy, Interface Technology, Grouping Methods has a significant impact on Supply Chain Effectiveness

3. Research method

This type of research is using both quantitative and qualitative designs. With a spread-of-questionnaire approach, live field observations and interviews. The sample determination method in this study uses the non-probability sampling method, which is to use a saturated sample because the number of employees at DHL Express Balikpapan as a population of 30 people, which means that the sample number follows the population number.

On the dissemination of the questionnaire carried out by the researchers, researchers disseminated questionnaires through google forms with the criteria of the respondents spread in this study are employees of DHL Express Balikpapan. This data is a Likert scale with a score from 1 to 5. Scoring criteria for each answer to the disseminated questionnaire are: (1) a score of 5 for a very agreed answer, (2) 4 for a agreeable answer, (3) 3 for a neutral answer, (4) 2 for a disagreement answer, (5) 1 for a highly disagreed answer. Data analyzed using Structural Equation Model-Partial Least Square (SEM-PLS 4).

In the field observations and live interviews conducted on this study focused on three main points namely how the implementation of the company strategy DHL Express Balikpapan in the process of its work, how the implementation of the technology interface on each company activities DHL express Balikpapan, and how to apply the grouping method used to all the work processes that occur in DHL Express Balikpapan warehouse.

Results and discussion

Validity and Reliability Testing

In this study, with the help of Smart PLS calculations, results were obtained from three measurement steps: Convergent validity Test, Discriminant Validity Test and Composite Reliability (Cronbach's Alpha) Test.

Variablel	Average Variance Extracted (AVE)
Company Strategy	0,720
Interface Technology	0,634
Grouping Method	0,585
Supply Chain Effectiveness	0,564

Tabel.3 Square root of AVE and Correlation Between Variable

Source : Processed Data (Smart PLS 4.0)

The AVE square root value of all variables is higher than the correlation coefficient value between other constructions so it can be concluded that such values have good discriminatory validity. From **Table.3**, it can be seen that the Company strategy variables, Interface Technology, Grouping Methods, and Supply Chain Efficiency can reflect any valid variable because the AVE value is > 0.5 .

Reliability Testing

A reliability test on a research instrument is a test used to determine whether the quioner used in the collection of research data can be said to be reliable or not (Dewi & Sudaryanto, 2020) in the journal (Rosita et al., 2021).

According to Arifin et al (2023) If the entire latent variable value has a Composite Reliability or Cronbach's Alpha value ≥ 0.70 it means the construction has a good reliability or the questionnaire used as a tool in this study has been consistent. But, according to Hair et al (2019) in a journal written by Dolinting & Pang (2022) Composite Reability method values are accepted well if the value is Less than 0.70 and less than 0.95.

	Cronbach's alpha	Composite reliability
Supply Chain Effectiveness	0,951	0,957
Grouping Method	0,926	0,937
Interface Technology	0,882	0,901
Company Strategy	0,903	0,936

Tabel.4 Composite Reliability Test Results and Cronbach's Alpha

Source : Processed Data (Smart PLS 4.0)

Validity Testing

According to this study, validity testing is carried out on two criteria, namely convergent validity and discriminatory validity. Convergence validity is a multi-item scale validity test that represents a situation in which an item measuring the same construction has a variance value greater than 70% (Hair et al., 2019). Convergence validity is used to measure how far it measures a correlated concept. Draw a conclusion from a concept and then associate it with the aggregate scale.

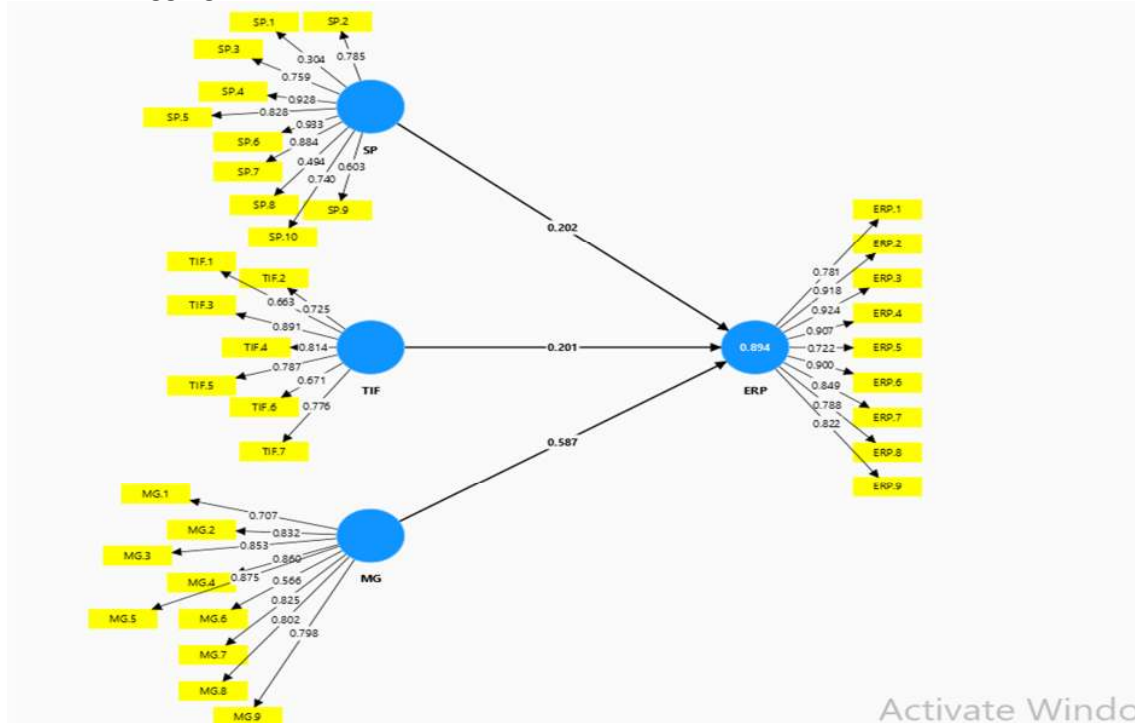


Figure.3 Structural Model Asses

Source : Processed Data (Smart PLS 4.0)

Based on the validity test results in the figure above, it shows that the load factor value of each dimension has a load factor of 0.894, so it can be concluded that it meets the convergence validity criteria.

Discriminant Validity

Discriminant validity can be seen from the value of cross load between the indicator and the measured construction.

	Supply Chain Effectiveness	Grouping Method	Interface Technology	Company Strategy
X1.1	0,269	0,203	0,323	0,304
X1.10	0,689	0,652	0,611	0,740
X1.2	0,667	0,737	0,580	0,785
X1.3	0,487	0,423	0,500	0,759
X1.4	0,843	0,813	0,726	0,928

X1.5	0,605	0,528	0,548	0,828
X1.6	0,744	0,750	0,688	0,933
X1.7	0,713	0,690	0,705	0,884
X1.8	0,248	0,306	0,219	0,494
X1.9	0,670	0,707	0,579	0,603
X2.1	0,455	0,502	0,663	0,314
X2.2	0,749	0,750	0,725	0,449
X2.3	0,835	0,812	0,891	0,863
X2.4	0,773	0,744	0,814	0,875
X2.5	0,670	0,703	0,787	0,388
X2.6	0,407	0,538	0,671	0,437
X2.7	0,651	0,635	0,776	0,595
X3.1	0,577	0,707	0,566	0,331
X3.2	0,748	0,832	0,727	0,761
X3.3	0,761	0,853	0,766	0,796
X3.4	0,783	0,860	0,738	0,631
X3.5	0,880	0,875	0,824	0,704
X3.6	0,480	0,566	0,394	0,260
X3.7	0,822	0,825	0,784	0,571
X3.8	0,832	0,802	0,799	0,926
X3.9	0,693	0,798	0,680	0,745
Y1	0,781	0,668	0,617	0,397
Y2	0,918	0,808	0,848	0,820
Y3	0,924	0,871	0,896	0,873
Y4	0,907	0,782	0,783	0,641
Y5	0,722	0,712	0,531	0,505
Y6	0,900	0,903	0,829	0,776

Y7	0,849	0,827	0,765	0,895
Y8	0,788	0,732	0,641	0,484
Y9	0,822	0,781	0,726	0,864

Table.5 Discriminant Validity
Source : Processed Data (Smart PLS 4.0)

From **Table.5** above, it can be concluded that latent construction can predict indicators in blocks well compared to other indicators. So the indicators used in this study already meet the criteria of discriminatory validity.

Inner Model

Determination Test (R^2)

R-Square on endogenous construction. R-square values are determination coefficients on endogenic construction. In evaluating models with PLS start by looking at R- Square for each dependent latent variable. R-Square values 0.75 (strong), 0.50 (modern), and 0.25 (weak)

	R-square	R-square adjusted
Supply Chain Effectiveness	0,894	0,883

Tabel.6 R-Square
Source : Processed Data (Smart PLS 4.0)

Path Coefficients

The estimate for Path Coefficients is the value of the path coefficient or the magnitude of the latent construction influence relationship. It's done with the Bootstrapping procedure.

	Original Sample (O)	T-Statistics (O/STDEV)	P Value	Remarks
Grouping Method > Supply Chain Effectiveness	0,587	2,725	0,006	Valid
Interface Technology > Supply Chain Effectiveness	0,201	0,900	0,368	Tidak Valid
Company Strategy > Supply Chain Effectiveness	0,202	0,987	0,324	Tidak Valid

Tabel.7 Path Coefficients
Source : Processed Data (Smart PLS 4.0)

From the above table we can see, only Grouping methods have a direct significant impact on Supply Chain Effectiveness with T-Statistics $2,725 > 1.705$ and P-value $0,05 < 0,006$. Whereas for Interface Technology and Enterprise Strategy have no direct significant influence on supply chain efficiency because Interface technology yields T-statistics of $0.900 < 1.705$, and P -value of $0,05 < 0,368$, whereas for T-Statistics of Enterprise Strategies of $0.987 < 1.705$ and $0,05$ P- Value of $< 0,324$.

So the influence of company strategy variables on supply chain effectiveness is:

According to the data analysis results using SmartPLS 4 from the questionnaire distributed to all employees of DHL Express Balikpapan, it was found that the company strategy variable does not have a significant direct effect on the Supply Chain Effectiveness variable at 0.324 ($0.324 > 0.05$) and does not have a positive effect with a t-value of 0.987 (THitung) which is less than 1.705 (TTabel), with a standard deviation of 0.205.

In its implementation, DHL Express Balikpapan applies the company's strategy, which first focuses on Motivated People, meaning how the company motivates employees to become better individuals. With employees who have high motivation, they will work with total commitment and without burden, allowing them to give their best in every task they undertake. Not only does DHL Express Balikpapan motivate its employees, but it also provides a comfortable working environment and facilitates employees' needs while working, ensuring that they feel at ease during their work. Not only that, DHL Express Balikpapan often provides training to its employees to support the development of each individual's skills, enabling DHL Express Balikpapan employees to adapt to every change that occurs in the company. With the mission of DHL Express Balikpapan being "Employer of Choice," the aim is to make DHL Express Balikpapan the primary target for people seeking employment, ensuring that DHL Express Balikpapan always delivers the best for its employees. All efforts that result in the award of "No.1 Best Workplace" with the slogan "Great Place To Work."

Then the second is by DHL Express Balikpapan proven by the achievements that DHL has obtained, namely the **Great Service Quality**, which is always providing the best service to customers who use DHL Express Balikpapan services. With the motto of DHL Express Balikpapan "Excellence. Simply Delivered." namely all services provided by DHL Express Balikpapan must be carried out and achieve excellence standards or quality. With the mission of DHL Express Balikpapan "Provider of Choice" which is always providing the best service in every transaction so that it becomes an international express delivery company that is trusted by logistics companies.

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The third is **Loyal Customers**, which is to provide the best service so that the logistics companies will always use the services of DHL Express Balikpapan and become regular customers. By always providing the best services and having a high standard in every quality of service provided by DHL Express Balikpapan, of course DHL Express Balikpapan has the goal of becoming a trusted international express shipping company so the logistic companies that use the DHL Express Balikpapan services will always trust the international shipping that they do to DHL.

The last one is the **Profitable Network**, which makes DHL Express Balikpapan a partner of logistics companies that give each other a profit. With good service and also good quality of service will provide a good experience and also give a sense of comfort to the customer so will provide benefits to both parties, DHL Express Balikpapan customers who feel easy in their logistics activities with the facilities and services provided by DHL Express Balikpapan as well as DHL Express Balikpapan who feel beneficial with the customers who are comfortable and continue to use the services of DHL.

Based on the results, the researchers concluded that the company strategy implemented by DHL Express Balikpapan does not directly have a significant impact on the effectiveness of

the supply chain. Due to the corporate strategy applied by the company, the strategy is more focused on improving the quality of the company's SDM and service quality, so that the customer can be satisfied and comfortable while using the service.

Based on a journal written by Feyissa (2019) shows the importance of SCM practice in implementing product design and related innovations. This study reveals a positive relationship between product-market innovation strategies and the strengths of SCI in various dimensions. This shows that the company's strategy has a positive impact on the integration of suppliers and customers.

So the influence of interface technology variables on supply chain effectiveness is:

According to the data analysis results using SmartPLS 4 from the questionnaire distributed to all employees of DHL Express Balikpapan, it was found that the interface technology variable does not have a significant direct effect on the Supply Chain Effectiveness variable with a value of $0.368 > 0.05$ and does not have a positive effect with a t-value of $0.900 < 1.705$ (t-table) with a standard deviation of 0.216.

In its implementation, DHL Express Balikpapan utilizes many systems that are integrated with one another to facilitate the internal processes of the company in carrying out all work processes that occur at DHL Express Balikpapan. Like the **OCNT** (Optical Character Number Transmission) system application found in scanners, which serves to provide checkpoint information at every stage of the process that each item goes through while being handled by DHL Express Balikpapan. Then there is the **Shipment Explorer & Locator** system, which functions to gather all information regarding the items, starting from the sender's name, recipient's name, item location, checkpoints that have been passed by the item, and much more. The **Shipment Explorer & Locator** system obtains this information from various integrated systems, such as the **OCNT** (Optical Character Number Transmission) system in employee scanners. Then there is the **Global Event Management Application** system that functions to communicate with all branches of DHL Express worldwide. This system integrates with the **Global Event Management Application** present in all DHL Express branches, making it easier to communicate with other branches. Next, there is the **Unifield Airline System**, which is used to check flight status so that DHL Express Balikpapan can know the departure and arrival times of flights. Next, there is the **HMS** (Handheld Mobile Scanner) system, which functions to provide information about items in the warehouse, such as the location of the items on the shelves, the quantity of items in the warehouse, and the status of those items. The **HMS** (Handheld Mobile Scanner) system is also integrated with other interface technology systems, such as **OCNT** (Optical Character Number Transmission) and **Shipment Explorer & Locator**. Next, there is the **Advance QCC** (Quality Control Center) system, which provides information regarding each checkpoint of the goods. The **Advance QCC** (Quality Control Center) also receives information from integrated systems. Next, there is the **DHL Clearance Engine** system, which serves to provide information related to customers, such as the names of the sender and recipient, the locations of the sender and recipient, and the status of the documents for the goods, with this information obtained from integrated systems. Next, there is the **Global Courier Application** system, which is used by couriers to know what items they need to pick up, the addresses of the items, provide information about the items such as checkpoints, and details about the recipient of those items. Next, there is the **Bank Dashboard** system used by employees to check the payment status that has occurred at DHL Express Balikpapan. Following that is the **My DHL** system, which integrates with the systems at DHL Express Balikpapan and can be used by customers to access all information regarding the items they have sent.

From the results announced, the researchers concluded that the application of interface technology did not directly have a significant impact on supply chain effectiveness. However, the implementation of the interface technology already implemented by DHL Express

Balikpapan is very helpful to the internal company in running all the logistics processes that occur. With the interfaces technology system implemented DHL express Balikpapan, employees feel facilitated in carrying out their tasks such as checking the status of goods, knowing the location of the items, managing the files of the goods and much more. So while indirectly affecting the effectiveness of the supply chain but by facilitating the internal processes of the company, interface technology is able to speed up the internal enterprise processes so that it can enhance the effectiveness of supply chains on the logistical circuit involving DHL.

So the influence of the grouping method variable on supply chain effectiveness is:

According to the results of data processing using SmartPLS 4 from the data in the form of a questionnaire that has been distributed to all employees of DHL Express Balikpapan, the result has been found that the Company Strategy Variable has significant direct influence on the 0,006 Interface Technology Variable $0,006 < 0,05$ and has positive influence on the value of $T_{Hitung} 2,725 > 1.705 (T_{Table})$ with the default deviation standard is 0,216.

In its implementation, DHL Express Balikpapan carries out various grouping processes to facilitate all operations conducted by DHL Express Balikpapan. Starting from the arrival of goods at the temporary storage location at DHL Express Balikpapan, there will be two grouping processes. The first is the separation of goods from documents, as they require different handling. Then, the separated items will be grouped according to their weight due to differing handling requirements. After the items are separated, they will undergo a verification process by Customs. Based on the Customs inspection, the items will be regrouped into two lanes: the green lane, which means the items have passed Customs inspection, and the red lane, where the items will undergo direct inspection. The items that have passed will be moved to the DHL Express Balikpapan warehouse. Next, the items will be regrouped into those that are ready for shipment and those that are awaiting confirmation for shipping. The items that are ready for shipment will be categorized according to their delivery destination, making it easier for the courier to pick up and deliver the goods.

From the results presented, the researchers concluded that the grouping methods already implemented by DHL Express have a direct impact on the role of DHL express to make the supply chain more efficient in the logistics stream. With the method of grouping implemented, all the processes that take place on DHL Express Balikpapan are easier and faster because DHL employees will be easier to process and find goods because they are already grouped according to the criteria and conditions of the goods so that employees no longer have to check and search items one by one in the processing of goods while in the DHL EXPRESS environment.

Based on a journal written by Adawiyah (2022) The results of the research that has been processed with factor analysis have formed the factor with the highest value of 0.932 on the company's "storage" attribute in storing goods according to the layout.

So the influence of company strategy variables, interface technology variables and grouping method variables on supply chain effectiveness is:

The researchers concluded that the impact of corporate strategy variables, application of interface technology and application of grouping methods on supply chain effectiveness variables totalled 89.4%. This means that the contribution of independent variables collectively has a very high impact on the dependent variables that we are looking at. So it can be assured that each variable contributes to each other's respective role in improving supply chain effectiveness and can be a reference for the logistic company to pay attention to the variables in this research to improve the effectiveness of its company's supply chains.

4. Conclusion

Based on the research results presented by the researcher above, the researcher can conclude in several points as follows:

1. From the results of this study, it is stated that the application of the grouping method implemented by DHL Express Balikpapan is the most important variable in supply chain effectiveness, as seen from the processing of questionnaire data that has been distributed by the researcher, which states that the grouping method has a significant direct influence on supply chain effectiveness.
2. The results of this study indicate that the implementation of company strategies and interface technology fully contributes to maximizing the application of the grouping method at DHL Express Balikpapan, as evidenced by direct research conducted by the researcher, proving the interconnection of the three variables on supply chain effectiveness.
3. From the results of this study, it is stated that the variables of Company strategy, interface technology, and grouping methods applied by DHL Express Balikpapan have a significant direct influence on supply chain effectiveness, as evidenced by the R-Square value of 0.894 (89.4%), which means only 10.6% contribution from other factors to supply chain effectiveness.
4. From the results of this study, it can be stated that the implementation of company strategies, interface technology, and grouping methods applied by DHL Express Balikpapan can be considered successful, as evidenced by the data table for the years 2020-2023, which shows a significant annual increase in delivery service reception.

5. Implications

Based on the conclusions already presented by the researchers above, researchers in this study can suggest that:

1. From the results of the research conducted by the researchers, researchers suggested to improve and develop the functionality of the interface technology implemented by DHL Express Balikpapan to make it easier for employees to use.
2. Based on the results of the research, the researchers suggested that the interface technology should be regularly maintained to minimize problem that occur in the use of such interface technology such as signal interference, failure to enter data, and problem in opening application interface technology.
3. From the results of the research conducted by the researchers, researchers suggested to maximize the grouping methods applied by DHL Express Balikpapan, such as goods placed according to the group and status of the goods, so that employees will be easier and more effective in finding and picking up goods.

From the suggestions that have been outlined by the researchers, it is expected to maximize all logistical processes that occur so that DHL Express Balikpapan can improve the effectiveness of the supply chain on the logistics processes and also DHL express Balikpapan can face the era of digitalization 5.0.

6. Research limitations

In this study, the researcher has limitations in conducting research so that there are things that are not researched and can be a reference in further research in conducting research. The limitations of this study are:

1. Time limits

In this study, researchers have a time limit that means that researchers focus only on the year 2023-2024, which means that the data or findings that are produced only describe the situation and conditions that exist in that year.

2. Variable Limits

In this study, researchers have variable constraints, which means that researchers focus only on observed variables such as Company Strategy, Interface Technology Application, Grouping Method Application and Supply Chain Effectiveness.

3. Place Limits

In this study, the researchers have a place limitation that the research focuses only on the company DHL Express Balikpapan.

Considering the various limitations that have been explained, the researcher hopes that future researchers can use this journal as a reference so that they can expand the scope of this research. This can be done by expanding new variables, research years, company locations as research objects that are different from those that have been studied in this study, so that they can produce deeper and higher quality research than the research that has been done.

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