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E-Grocery Logistics Challenges: Perspectives from Indonesia's Market Leaders

Ulfa Marjuati Mahmudah[1], Jonathan Nahun Marpaung[2]
[1,2] Universitas Indonesia

Abstrak

Penelitian ini dilakukan untuk mengungkapkan tantangan yang mempengaruhi dari setiap unsur logistik dan mendapatkan pengetahuan akan solusi yang diciptakan oleh perusahaan untuk mengatasi dampak dari tantangan yang telah diidentifikasi. Penelitian dilaksanakan dengan metode kualitatif, yang pengumpulan data yaitu melakukan wawancara semi struktur dengan para manajer pada salah satu perusahaan pemimpin pasar Indonesia. Hasil dari penelitian ini adalah e-*grocery* menghadapi beberapa tantangan dan telah menerapkan solusi bagi setiap tantangan yang dihadapi, adapun hasilnya adalah (1) ketersediaan produk dengan solusi memiliki pemasok utama dan alternatif , (2) kesegaran produk dengan solusi menerapkan pengaturan penyimpanan, (3) mengelola ekspektasi konsumen dengan solusi menyediakan variasi produk lebih banyak, (4) masalah logistik dengan salah satu solusi menggunakan jasa pengiriman lain, (5) keterampilan spesialis dan bergantung pada beberapa orang dengan solusi memberikan pelatihan kepada karyawan, (6) kepegawaian dan retensi kurir dengan solusi mempekerjakan pekerja harian dan melakukan pendataan kurir yang bersedia, (7) *human error* pada pengambilan dengan solusi pengembangan sistem, dan (8) kapasitas operasional terbatas dengan solusi melakukan pembatasan pesanan harian.

Kata Kunci: *Manajemen Logistik, E-Grocery, E-Commerce, Rantai Pasok*.

Abstract

This research was conducted to reveal the challenges affecting each logistic element and to gain knowledge of the solutions created by companies to address the impacts of the identified challenges. The research was carried out using qualitative methods, with data collected through semi-structured interviews with managers at one of the market-leading companies in Indonesia. The result of this study indicate that e-groceries face several challenges. The results are follows: (1) product availability with the solution of having primary and alternative suppliers, (2) product freshness with the solution of implementing storage arrangements, (3) managing consumer expectations with the solution of providing more product variety, (4) logistics problems with one solution being to use other delivery services, (5) specialist skills and reliance on a few people with the solutions of providing training to employees, (6) staffing and courier retention with the solution of hiring daily workers and registering willing couriers, (7) human error in picking with the solution of developing systems, and (8) limited operational capacity with the solution of limiting daily orders.
Keywords: *Logistics Management, E-Grocery, E-Commerce, Supply Chain*.

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Corresponding author :
Email Address : ulfamarjono@gmail.com

INTRODUCTION

The internet in Indonesia has grown rapidly, with the percentage of the population using the internet rising from 32.34% in 2017 to 62.1% in 2021 (Badan Pusat Statistik, 2022). The internet has become the primary distribution channel, where customers can browse stores and retailers can offer their goods and services online (Seitz et al., 2017). Technological advances are also increasingly helping people meet their basic needs, such as food and clothing (Asti et al., 2021).

E-commerce, or electronic commerce, can be defined as buying and selling activities conducted via the internet (Nurcahyo & Putra, 2021). According to the Katadata website, based on a survey conducted by We Are Social in April 2021, 88.1% of internet users in Indonesia have used e-commerce services to purchase specific products. In its 2021 E-Commerce Statistics report, the Statistics Indonesia (BPS) reported that 2,361,423 businesses are already utilizing e-commerce, with 75.15% of these businesses based on the island of Java (Badan Pusat Statistik, 2021).

The shift from in-person to online shopping is inevitable as technology advances. The COVID-19 pandemic has been one of many factors driving this shift. Restrictions on mobility have forced consumers to shop online to meet their needs. According to the 2021 E-Commerce Statistics, food, beverages, and groceries accounted for the highest sales at 40.86%, followed by 20.71% for clothing, 10.30% for household goods, 8.05% for cosmetics, and 38.40% for other goods and services. (Badan Pusat Statistik, 2021).

Some reasons why more and more consumers are buying groceries online—as is the case with all online purchases—include better prices, a wider selection, convenience, and time savings (Hays, Keskinocak, & de Lopez, 2005). According to the LEK Consulting website (Sethi & Bhutada, 2021) in "E-Groceries in Indonesia," the Gross Merchandise Value (GMV) in e-commerce shows an increase in the groceries category, rising from 6% in 2019 to between 22% and 25% in the second quarter of 2020. Given the significant percentage of sales in food, beverages, ingredients, and household essentials in Indonesia, this presents an opportunity for providers of online grocery services in the country.

As the e-grocery market in Indonesia continues to grow, the number of companies operating in this sector has reached 18 (eighteen) (Wen, 2022). The e-grocery companies operating in Indonesia as of 2022 are as follows:

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Table 1. List of Indonesian E-Grocery Companies, 2022

No	*E-Grocery*	N	*E-Grocery*
1	Alfagift	10	Klik Indomaret
2	Astro	11	Pasarnow
3	Bananas	12	Sayur Box
4	Chilibeli	13	Segari
5	Dropezy	14	Super
6	Eden Farm	15	TaniHub
7	Happy Fresh	16	Travelokamart
8	Kedai Sayur	17	Grabmart
9	Goto	18	Allo Fresh

Source: Compiled by the Author (2024)

The large number of e-grocery service providers has made competition increasingly fierce. According to LEK Consulting, the valuation of the e-grocery retail sector in Indonesia has increased; in 2020, the valuation reached up to 1 billion US dollars, representing a 150% increase compared to the valuation in 2017. LEK Consulting estimates that the e-grocery business will grow to between 5 and 6 billion US dollars by 2025. (Sethi & Bhutada, 2021).

The growth of e-grocery service providers came to a halt for several startups at the end of 2022. It began with TaniHub, which had to discontinue its B2C services in March 2022 and shift its focus to B2B services. Next, Brambang shut down its grocery service in May 2022 and transitioned into a marketplace for smartphones and electronics, followed by Food.id, which temporarily suspended its grocery service in August 2022 for an indefinite period. In the same month, Traveloka had to shut down Traveloka Mart, which was only 6 months old, and in October 2022, Bananas—which hadn't even turned 1 year old—also exited the e-grocery market.

The wave of bankruptcies among e-grocery service providers has sparked concern among business owners in the industry. Even large injections of capital from investors may not be enough to save these businesses from the brink of collapse. Some startups have already begun planning changes to their business strategies in order to remain competitive in the market.

The collapse of several startups in 2022 has prompted some e-grocery entrepreneurs to develop strategies to avoid falling into the same trap. Research by Mkansi et al. (2018) concluded that the challenges faced by online grocery businesses include inventory management, supply and demand, and the management of roles and responsibilities. Critical factors must be addressed by organizations to ensure the sustainability of their businesses. These critical factors encompass managerial and organizational activities that require special attention in order to achieve organizational goals. (Nurcahyo & Putra, 2021).

As explained in this study, inventory management becomes a challenge if retailers are not prepared for the availability of the products they sell or for providing substitute products. Faced with consumer frustration caused by Post-Purchase Out-of-

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Stock (PP-OOS) situations, e-grocery retailers typically replace products with substitutes rather than leaving customers empty-handed (Hoang & Breugelmans, 2022). Strategies to maintain the freshness of perishable products present another challenge, ultimately aimed at meeting consumer expectations. It is essential for companies to make efforts to maintain freshness to prevent spoilage, especially for retailers who must meet diverse consumer demands regarding freshness. (Yang & Tang, 2019).

The high demand for direct home delivery and the delivery options offered by competitors pose a challenge. One of the most significant challenges to the growth of e-commerce in general and the e-grocery business in particular is the lack of adequate home delivery logistics infrastructure. Current delivery systems, such as postal services or couriers, are not suitable when considering the needs of the grocery business (Punakivi & Saranen, 2001).

Managing roles and responsibilities is another challenge. The imbalance between costs and working hours due to rapid business growth, coupled with a shortage of reliable and trustworthy staff, affects the organization's ability to adopt e-commerce—specifically, expertise in ICT and market penetration through technology and culture. Lack of technological readiness. In general, readiness to adopt new technology depends on four personality traits: optimism, innovativeness, discomfort tolerance, and safety orientation. (Nurcahyo & Putra, 2021).

This study aims to identify the various challenges faced by e-grocery companies in Indonesia across each aspect of logistics management amid the rapid growth of e-commerce. In addition, this study also aims to analyze the solutions and strategies implemented by these companies to address these challenges, thereby supporting operational sustainability, improving logistics efficiency, and strengthening the competitiveness of the e-grocery business in Indonesia.

RESEARCH METHODS

This study began with the development of a systematic research plan to ensure that each stage of the research proceeded in a focused manner and was capable of addressing the research questions that had been formulated. According to Sekaran and Bougie (2016), business research is a structured and organized process for investigating problems that arise in the workplace and generating appropriate solutions. Therefore, this study was structured through a series of stages, beginning with problem identification, the development of a conceptual framework, the selection of research methods, data collection, data analysis, and finally, drawing conclusions. The arrangement of these stages also refers to the concept put forward by Cooper and Schindler (2013), who explain that a research sequence is necessary to ensure that the entire research process remains organized and proceeds systematically from start to finish.

The research conceptual framework was developed based on various previous studies on logistical challenges in the e-grocery industry. Mkansi et al. (2018) noted that there are three main areas of focus that pose challenges in e-grocery operations: inventory management, balancing supply and demand, and managing roles and

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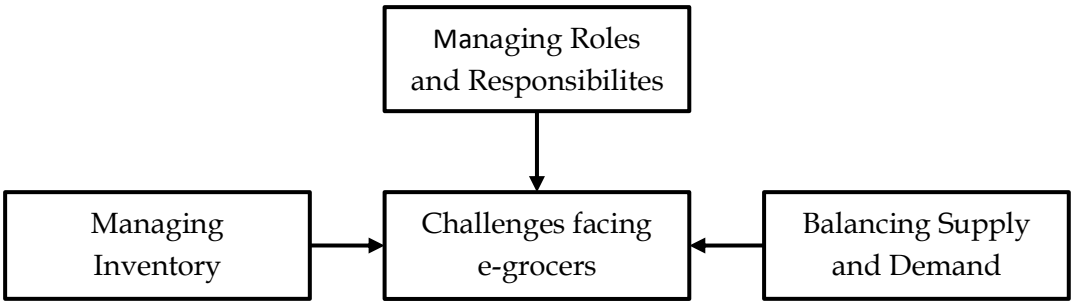
responsibilities. These findings are supported by Turban et al. (2015), who explain that challenges in the e-grocery industry are influenced by the digitization of wholesale channels, increasing consumer purchasing power, and increasingly intense business competition. Additionally, Sethi and Bhutada (2021) explain that e-grocery companies in Indonesia also face geographical challenges that require significant investment in warehousing and logistics infrastructure, supply chain complexity, and competitive pressures that impact the companies' profitability. Based on this review, this study employs a conceptual framework that focuses on three main aspects—inventory management, balancing supply and demand, and managing roles and responsibilities—as the basis for analyzing the logistical challenges faced by e-grocery companies.

Figure 1. Research Framework



Source: Mkansi et al. (2018)

This study employs a qualitative research method using a single-case study approach to gain an in-depth understanding of the logistical challenges faced by e-grocery companies in Indonesia. According to Creswell and Creswell (2018), qualitative research is an approach used to understand the meanings attributed by individuals or groups to a social phenomenon through an inductive process of data collection and analysis. This approach was chosen because the study focuses on the rise and decline of the e-grocery business in Indonesia by linking empirical conditions observed in the field with established theories. Furthermore, the case study method was used because it allows researchers to conduct an in-depth exploration of complex phenomena within a real-world context (Rashid et al., 2019). Yin (2009) also explains that a single-case study is appropriate for testing, confirming, or expanding existing theories. Therefore, this study aims to identify challenges in each aspect of logistics and explore the solutions implemented by companies to address these challenges.

The data used in this study consists of primary data obtained through semi-structured interviews with professionals who have experience in logistics management in the e-grocery industry, such as the Head of Supply Chain, Head of Fulfillment Operations, Inventory and Quality Manager, Logistics Field Coordinator, and Transport Planner Lead. According to Creswell and Creswell (2018), interviews are a data collection technique that allows researchers to obtain in-depth information

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through direct interaction with participants. Respondents were selected using purposive sampling, which involves choosing individuals considered to have the deepest understanding of the research issues so they can provide relevant information. The interview questions were formulated based on three main indicators: inventory management, balancing supply and demand, and managing roles and responsibilities. Next, the data were analyzed through the stages of data organization, reading the entire dataset, coding, identifying themes, interpreting meaning, and validating the analysis results, as outlined by Creswell and Creswell (2018). Data validity was ensured through triangulation techniques to achieve convergence of information from various sources (Creswell & Miller, 2000), while the objectivity of the research was maintained by ensuring that the researcher had no affiliation with the companies under study and that all interview results were reconfirmed with the informants to ensure they aligned with their actual experiences and perspectives.

RESULTS AND DISCUSSION

The e-grocery industry in Indonesia is growing at a rapid pace, driven by increasing internet usage, changes in consumer behavior, and the adoption of digital technology in commercial activities. According to Google Trends, searches for staple goods in the first quarter (Q1) of 2022 increased by 24% compared to the previous year, reflecting the public's growing interest in meeting their daily needs through digital platforms. This shift in behavior also opens up broader opportunities for fresh food producers to leverage digital marketing strategies to reach consumers (Septiani, 2023). In addition, Titipku Research (2022) reported that during the period of March 12–15, 2020, the number of online orders from grocery retailers increased by 151.1%, while the transaction value rose by 210.1%. This trend indicates that digital transformation has accelerated the adoption of e-grocery platforms by businesses while also strengthening the position of e-grocery as one of the e-commerce sectors with highly promising growth prospects in Indonesia.

A. Data Analysis Process

The data analysis process in this study, which employs the method developed by Cresswell and Cresswell (2018), consists of five stages: organizing and preparing the data for analysis; reading or reviewing the entire dataset; coding the data; generating descriptions or themes; and presenting the descriptions or themes. The researcher followed these five stages independently to ensure control over the selection and relevance of the data included in this study.

1. Preparing Data for Analysis

In this process, the researcher prepares the raw data to be analyzed. The raw data is obtained from interviews conducted with the respondents; the audio or video recordings of the interviews are then transcribed verbatim into interview transcripts. All resulting interview transcripts are rewritten using the exact words spoken by the respondents, without any changes or additions.

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Table 2. Sample Transcript Results

Timestamp	Respondents	Transcription
[18:57-19:14]	Res_01	The first thing we focus on is, of course, the source of the goods—that is, the supplier. We look for suppliers who can truly commit to meeting our expectations. If they aren't committed, we won't choose them as suppliers. That's the first thing. Then, from sourcing, we move on to the midstream.

Source: Compiled by the Author (2024)

2. Reading or Viewing All the Data

After preparing the raw data—namely, the interview transcripts—the researcher will listen to each of the interviews that have been conducted. In addition to listening to the recordings again, the researcher will review and read the interview notes and transcripts thoroughly at least once before coding the data; this is done to better understand the content and context. The researcher will mark sentences or words deemed relevant.

Table 3. Example of Highlighting Sentences

Timestamp	Respondents	Transcription
[12:46 - 13:25]	Res_05	We also have some additional information: for example, slot 0—the early morning slot—is from 5 to 8 a.m. When the SLA is about to time out, ***We have a notification system, so when we're running low, we'll check how many orders are still in progress. We'll record that information, and then we'll send a notification to the customer letting them know there will be a delay of X minutes.*** Because of what problem—for example, because of the rain or something like that. So we'll send out the information later, and customers will also receive a notification in this app.

Source: Compiled by the Author (2024)

3. Data Encoding

In this stage, the data coding process involves taking the text or images collected during data collection, dividing the sentences or images into categories, and labeling those categories with terms (Creswell & Creswell, 2018). Researchers will assign codes to specific themes to identify certain themes, meanings, or patterns. The coding categories used are "expected codes"—codes related to topics that readers would expect to find, based on the literature and general logic (Creswell & Creswell, 2018).

Table 4. Examples of Coding

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Timestamp	Respondents	Transcription	Code
[28:55 - 29:19]	Res_06	So the scheduling is bad. It's really poor. Well, so, how should I put it—even though we've been briefed on this, we say, "Oh, we do have customer demand," but it's rare, and it's uncertain whether it can be accommodated or not. So we manage the traders in small batches, so that when we need them there.	Poor harvest scheduling
[14:29 - 14:54]	Res_01	FMCG usually refers to basic necessities, right? Sometimes we end up competing for them, too. Sometimes suppliers run out of stock because certain items are in short supply.	Production Halt

Table 5. Examples of Coding (Continued-1)

Timestamp	Respondents	Transcription	Code
		Take rice, for example—we've run out before, but our strategy is to carry not just one brand, but several. Back then, Sumo rice stopped production, right?.	

Source: Compiled by the Author (2024)

4. Generate a Description or Theme

After labeling or coding the data, the next step for researchers is to identify patterns or themes that emerge from the data. In this process, researchers will look for connections between the themes or descriptions that have been identified and seek to understand the relationships among them.

Table 6. Examples of Descriptions or Themes

Theme	Subtheme	Code
Inventory Management	Product Availability	Seasons that affect farmers' harvests
		Poor harvest scheduling
		Import regulations that affect product availability
		Production Halt
	Product Freshness	Storage conditions affect quality

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		Product packaging affects quality
		Delivery time affects quality

Source: Compiled by the Author (2024)

5. Representing a Description or Theme

At this stage, the themes or descriptions that emerge from the data are interpreted and their meanings are understood. This involves linking the findings to relevant theory or literature, allowing the researcher to delve deeper into the significance and implications of those findings. By analyzing the findings within the context of existing literature, the researcher can develop a richer and more comprehensive interpretation of the underlying message and construct a strong argument to support the researcher's conclusions.

B. Logistics Challenges in the E-Grocery Sector in Indonesia

A total of five respondents participated in this study. Data collection took place from February to March 2024, with a total interview duration of approximately five hours—ranging from 45 to 60 minutes per respondent. Interviews were conducted online via Google Meet or in person, depending on each respondent's availability. All respondents participated voluntarily and signed a consent form agreeing to serve as research informants. Based on the interview results, the logistical challenges of e-grocery were grouped into three main aspects: inventory management, supply and demand, and the management of roles and responsibilities.

In terms of inventory management, the first challenge is maintaining product availability, particularly for fruits and vegetables, which are affected by seasonal factors, price fluctuations, and import policies. One respondent explained that *"...kita pengen availability kita tinggi, tapi kita struggling dengan rantai pasoknya si buah sayur ini... ada yang terikat dengan musim, ada yang terikat juga dengan harga..."* (*Source: Res_01 [12:43–13:35], 2024*). This finding is consistent with Li, Zhou, and Huang (2017), who state that supply chains for seasonal products are characterized by a high degree of uncertainty, making it difficult for companies to balance supply and demand.

The next challenge involves maintaining product freshness and meeting consumer expectations. A decline in product quality during storage leads to waste, meaning that available inventory cannot always be sold to customers. Respondents noted that, *"...kita maintain kualitas sayur itu... ternyata kualitasnya menurun... jadi kita waste..."* (*Source: Res_01 [16:13–16:42], 2024*). In addition, differences in customer perceptions of product quality also pose a challenge because consumers cannot see the items in person before purchasing them. Another respondent noted that, *"...ketika customer tidak melihat langsung barangnya, ekspektasi itu akan selalu ada..."* (*Source: Res_06 [19:48–20:52], 2024*). Therefore, the company continues to strive to expand its SKU variety to enhance customer satisfaction, as supported by Al-Tit (2020) and Mofokeng (2021).

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In terms of supply and demand, the biggest obstacle stems from the distribution process (last-mile delivery). Adverse weather, flooding, damaged delivery vehicles, accidents, package theft, and a limited fleet of refrigerated vehicles are the main challenges in delivering fresh products. One respondent stated, "*Satu yang paling kendala itu cuaca. Itu yang benar-benar tidak bisa kita hindari.*" (*Source: Res_05 [08:15–08:24], 2024*). In addition, another respondent added that "*...jasa pengiriman di Indonesia itu masih kurangnya ketersediaan armada berpendingin...*" (*Source: Res_04 [28:19–29:00], 2024*). This finding is consistent with Weber and Badenhorst-Weiss (2018), who explain that the success of last-mile delivery is a key determinant of service quality and customer satisfaction.

The aspect of role and responsibility management indicates that the company still faces challenges in ensuring an even distribution of human resource competencies. Differences in skills and understanding among employees at each operational location result in inconsistent work performance. One respondent stated, "*...problem ke managing massive blue collar...*" (*Source: Res_07 [05:10–05:17], 2024*), Meanwhile, other respondents explained, "*...skillset-nya belum tentu sepemahamannya sama...*" (*Source: Res_07 [12:15–12:32], 2024*). This finding supports the view of Alharbi and Aloud (2024), who emphasize the importance of organizational knowledge management in improving operational performance.

In addition to competency issues, companies also face challenges related to staffing and courier retention. Surges in orders are often not matched by the availability of workers, forcing companies to rely on casual daily workers. Respondents stated, "*...kalau order nge-bludak, isunya pertama tuh di manpower...*" (*Source: Res_01 [28:37–28:50], 2024*). On the other hand, the partnership system leads to unpredictable courier availability, especially on major religious holidays when many couriers choose to take time off. This finding is consistent with Zhong et al. (2020), who state that coordination among supply chain members is crucial for maintaining operational continuity.

Another challenge is the high rate of human error in the picking process. The use of a manual, paper-based system leads to errors in selecting products with nearly identical variants. One respondent explained, "*...kita masih manual banget picking-nya... jadi dia pesan varian, tapi yang keambil varian lain...*" (*Source: Res_01 [25:52–26:25], 2024*). These findings are consistent with those of Casella et al. (2023), who note that picking is the most costly process in a warehouse and also carries a high risk of errors if it is not supported by an automated system.

In addition, limited warehouse operational capacity also poses a challenge during spikes in demand. Limited storage capacity causes picking lanes to become congested and hinders the smooth flow of the order fulfillment process. Respondents noted that, "*...kalau ordernya nge-bludak di atas capacity kita punya, itu bakal penuh banget... bakal nutupin jalur picking...*" (*Source: Res_01 [28:51–29:06], 2024*). These findings

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support the view of Urquhart et al. (2022) that e-commerce operational capacity is influenced by warehouse size, workforce size, storage space, and a company's distribution capabilities. Overall, the research results indicate that e-grocery logistics challenges in Indonesia are not only related to inventory management but are also influenced by distribution effectiveness, human resource readiness, and a company's operational capacity.

C. *E-Grocery Logistics Solutions*

The research findings show that e-grocery companies implement various strategies to address logistical challenges, particularly in the area of inventory management. One of the solutions adopted is to evaluate and classify suppliers into primary and alternative suppliers so that the procurement process can continue when primary suppliers face capacity constraints. One respondent explained, *"...kita assess jadi supplier utama, supplier alternatif kedua, ketiga, dan seterusnya... ketika supplier utama punya capacity issue, purchasing tinggal beralih ke supplier alternatif..."* (*Source: Res_06 [25:23–26:13], 2024*). In addition, the company is also expanding its supply sources by collaborating with farmers in various regions, trading companies, and middlemen to mitigate the effects of seasonal fluctuations and harvest limitations. These findings are consistent with Choi, Kim, and Moon (2023), who emphasize the importance of supplier evaluation, as well as Greco et al. (2020), who state that strong partnerships with suppliers can enhance supply chain sustainability.

To ensure a continuous supply, the company also builds long-term relationships with farmers through regular, transparent, and timely payments, thereby increasing supplier loyalty. In addition, in light of import quota restrictions, the company does not rely on a single importer but partners with several importers to ensure product availability. One respondent stated, *"...cashflow yang rutin dan on time menjadi hal yang membuat petani lebih memilih memasok ke perusahaan..."* (*Source: Res_06 [32:12–32:57], 2024*). This strategy strengthens the relationship between buyers and suppliers, which, according to Choi, Kim, and Moon (2023), has a direct impact on company performance.

To maintain the quality of fresh products, the company implements storage management based on product characteristics, such as regulating room temperature, using refrigerated storage, and organizing products by type. In addition, packaging standards are tailored to the characteristics of each product to ensure that quality is maintained throughout the distribution process. The respondent explained, *"...yang pertama kali kita jaga adalah suhu... kemudian kita atur juga letak barangnya..."* (*Source: Res_01 [19:38–20:33], 2024*). The company also implements a picking priority system based on delivery distance, so that orders with the farthest delivery locations are processed first to ensure on-time delivery. This approach is supported by Yao and Sun

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(2020), who emphasize the importance of temperature control and expediting the order fulfillment process.

In terms of supply and demand, the company strives to maintain customer satisfaction when distribution disruptions occur due to weather, flooding, or accidents. The solutions implemented include sending delay notifications via the app, communicating with customers about alternative routes, offering to reschedule deliveries, and even rerouting deliveries to other couriers if the primary courier encounters issues. One respondent stated, "*...di aplikasi sudah ada notifikasi hujan...*" (*Source: Res_05 [12:01–12:31], 2024*), sedangkan responden lain menjelaskan, "*...kalau kurir mengalami kecelakaan, biasanya pengiriman dibantu driver lain...*" (*Source: Res_04 [37:20–38:58], 2024*). These findings are consistent with those of Liao and Keng (2013), who emphasize the importance of communication and rapid response as part of a service recovery strategy.

The company also manages delivery capacity by limiting the number of orders each courier carries based on on-site conditions and by utilizing on-call drivers when the number of orders increases. This strategy aims to reduce the risk of delays and ensure that service quality is maintained. These capacity adjustments are made based on traffic conditions, delivery distances, and each courier's capabilities so that distribution can proceed more effectively.

In terms of managing roles and responsibilities, the company enhances employee competencies through a learning center, periodic training, skills assessments, and performance evaluations using the balanced scorecard. In addition, to anticipate spikes in orders during certain periods, the company utilizes daily temporary workers through an outsourcing system and compiles a list in advance of couriers who are willing to work on major holidays. One respondent explained, "*...kita punya learning center, training period, testing, dan balance scorecard...*" (*Source: Res_07 [12:24–13:07], 2024*). This strategy is supported by Hajjar and Alkhanaizi (2018) and Al-Qirim (2003), who state that training and outsourcing can improve an organization's operational effectiveness.

In addition to human resource development, the company is also working to reduce human error in the picking process by replacing the manual system with a barcode-based system that can direct pickers to the correct locations and verify product accuracy before the process can continue. Respondents stated, "*...sistem akan ngedirect picker ke lokasi barang, lalu barcode harus sesuai, kalau salah tidak bisa lanjut...*" (*Source: Res_01 [26:42–27:39], 2024*). The use of this paperless picking system has proven effective in reducing picking errors and improving operational efficiency, as explained by Vijaykumar and Sgarbossa (2021).

Table 7. Summary of Research Findings

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No	Theme	Challenges	Solutions
1	Product Availability	Product unavailability due to seasonal factors, import regulations, and production halts	Conduct supplier assessments; in addition to having primary suppliers, it is also necessary to have alternative suppliers, and to utilize middlemen when supplies from farmers are insufficient, maintain partnerships with a commitment to timely payments
2	Product Freshness	Product damage—primarily to fruits and vegetables—and discrepancies in inventory records regarding the condition of products that are and are not fit for sale	Manage storage operations, including sorting products, setting temperatures, determining storage locations, and packaging. Additionally, plan shipments.
3	Managing Customer Expectations	Differences in consumer expectations regarding product quality based on the information provided, and the fulfillment of diverse consumer needs	Sort products based on consumer needs to ensure customer satisfaction and minimize losses.

Table 8. Summary of Findings (Continued-1)

No	Theme	Challenges	Solutions
4	Logistics Issues	Extreme weather, such as rain, can lead to further problems—including flooding, damage to delivery vehicles, accidents, and fleet constraints—which can hinder deliveries	Notify customers of delays, offer alternative shipping options, and use other shipping services to assist with delayed shipments
5	Special skills and reliance on certain people	The level of knowledge among employees varies, resulting in differences in understanding across regions	Provide training to employees and conduct evaluations using the balanced scorecard to ensure that employees have a thorough understanding of their operational tasks.
6	Courier Hiring and Retention	A shortage of personnel in the fulfillment process and the fact that	Hire day laborers; compile a list of couriers who are willing to work

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		couriers operate as partners causes logistics operations to be hampered when order volume increases	
7	Human Error in Sampling	a manual picking process that leads to picking errors	Development of a system that helps track locations and the pickup process
8	Limited Operational Capacity	The warehouse's capacity is causing congestion on the picking route	Imposing a limit on the number of daily orders accepted

Source: Compiled by the Author (2024)

CONCLUSION

The research findings indicate that logistical challenges fall into three main categories: inventory management, supply and demand, and the management of roles and responsibilities. From these three aspects, eight main themes were identified: product availability, product freshness, managing consumer expectations, logistics issues, human resource skills, courier staffing and retention, human error in the order-picking process, and operational capacity constraints. These challenges are influenced by various factors, such as seasonal changes, import regulations, the characteristics of fresh produce, weather, fleet limitations, and imbalances in human resource capacity. To address these challenges, the company has implemented various strategies, including supplier evaluation and diversification, strengthening partnerships with farmers, managing product storage and packaging, optimizing delivery schedules, providing a variety of SKUs to meet consumer needs, notifying customers of delivery delays, utilizing backup drivers, training employees, employing daily workers, and implementing a barcode-based automated system to reduce operational errors.

Overall, the research findings show that the operational success of e-grocery logistics depends not only on distribution efficiency but also on a company's ability to manage its supply chain, human resources, and operational support technologies. These findings support the research by Mkansi et al. (2018) regarding the importance of inventory management, supply and demand, and the management of roles and responsibilities as key challenges for e-grocery. However, this study also highlights specific characteristics of the Indonesian context, such as the impact of seasonal factors, import regulations, and the importance of partnerships with local farmers and suppliers in ensuring product availability. In addition, the use of technology, capacity planning, and adaptive operational strategies are key factors in improving logistics efficiency while maintaining customer satisfaction amid the increasingly competitive e-grocery industry.

References :

Al-Qirim, N. A. (2003). The Strategic Outsoutcing Decision of IT and eCommerce: The Case

of Small Business in New Zealand. Journal of Information Technology Case and Application, 32-56.

Al-Tit, A. A. (2020). *E-Commerce Drivers and Barriers and Their Impact on E-Customer Loyalty in Small and Medium-Sized Enterprises (SMES).* Business: Theory and Practice, 146–157.

Alharbi, G. L., & Aloud, M. E. (2024). The Effect of Knowledge Management Processes on Service Sector Performance: Evidence from Saudi Arabia. Humanities & Social Sciences Communications.

Asti, W. P., Handayani, P. W., & Azzahro, F. (2021). Influence of Trust, Perceived Value, and Attitude on Customers' Repurchase Intention for E-Grocery. Journal of Food Products Marketing, 157-171.

Badan Pusat Statistik. (2021). Statistik E-Commerce 2021. Jakarta: Badan Pusat Statistik.

Badan Pusat Statistik. (2022, Agustus). Statistik Telekomunikasi Indonesia. Jakarta, Indonesia: Badan Pusat Statistik.

Badan Pusat Statistik. (2022). Statistik Telekomunikasi Indonesia. Jakarta: Badan Pusat Statistik.

Casella, G., Volpi, A., Montanari, R., Tebaldi, L., & Bottani, E. (2023). Trends in Order Picking: A 2007–2022 Review of the Literature. Production & Manufacturing Research.

Choi, E., Kim, N., & Moon, J. (2023). *Evaluation of Food Suppliers by Multi-channel Buyers: Focusing on the Moderating Effect of Distribution Channel.* Cogent Business & Management.

Cooper, D. R., & Schindler, P. S. (2013). *Business Research Methods.* New York: McGraw-Hill/Irwin.

Creswell, J. W., & Creswell, J. D. (2018). *Research Design.* California: Sage Publications.

Creswell, J. W., & Miller, D. L. (2000). *Determining Validity in Qualitative Inquiry.* Theory Into Practice, 124–130.

Greco, L., Kolodinsky, J., Sitaker, M., Chase, L., Conner, D., Estrin, H., et al. (2020). *Farm Fresh Food Boxes: A Pilot That Examined Relationships in Value Chain Partnership.* Journal of Agriculture, Food Systems, and Community Development, 113–129.

Hajjar, S. T., & Alkhanaizi, M. S. (2018). *Exploring the Factors That Affect Employee Training Effectiveness: A Case Study in Bahrain.* SAGE Open, 1–12.

Hays, T., Keskinocak, P., & de Lopez, V. M. (2005). *Strategies and Challenges of Internet* Grocery Retailing Logistics. In Applications of Supply Chain Management and E-Commerce Research (pp. 1–36).

Hoang, D., & Breugelmans, E. (2022). "Sorry, The Product You Ordered Is Out of Stock": Effects of Substitution Policy in Online Grocery Retailing. Journal of Retailing.

Li, J. C., Zhou, Y. W., & Huang, W. (2017). *Production and Procurement Strategies for Seasonal Product Supply Chain Under Yield Uncertainty With Commitment-Option Contracts.* International Journal of Production Economics, 208–222.

Liao, T. H., & Keng, C. J. (2013). *Online Shopping Delivery Delay: Finding a Psychological Recovery Strategy by Online Consumer Experiences.* Computers in Human Behavior, 1849–1861.

Mkansi, M., Eresia-Eke, C., & Emmanuel-Ebikake, O. (2018). *E-Grocery Challenges and Remedies: Global Market Leaders Perspective.* Cogent Business & Management, 1–28.

Mofokeng, T. E. (2021). *The Impact of Online Shopping Attributes on Customer Satisfaction and Loyalty: Moderating Effects of E-Commerce Experience.* Cogent Business & Management.

Nurcahyo, R., & Putra, P. A. (2021). Critical Factors in Indonesia's E-Commerce Collaboration. Journal of Theoritical and Applied Electronic Commerce Research.

Punakivi, M., & Saranen, J. (2001). Identifying The Success Factors in E-grocery Home Delivery. International Journal of Retail & Distribution Management, 156-163.

DOI : 10.37531/amar.v6i2.4075

Rashid, Y., Rashid, A., Warraich, M. A., Sabir, S. S., & Waseem, A. (2019). Case Study Method: A Step-by-Step Guide for Business Researchers. International Journal of Qualitative Methods.

Sekaran, U., & Bougie, R. (2016). Research Methods for Business: A Skill Building Approach. John Wiley & Sons.

Septiani, S. (2023, June 28). E-Grocery: Inovasi Pemasaran Merespon Perubahan Perilaku Konsumen.

Seitz, C., Pokrovicak, J., Toth, M., & Plevny, M. (2017). Online Grocery Retailing in Germany: An Explorative Analysis. Journal of Business Economics and Management, 1243-1263.

Sethi, J., & Bhutada, B. (2021). *E-Groceries in Indonesia.*

Titipku Research. (2022). *Indonesia Online Grocery Report 2022: Redefining New Retail.*

Turban, E., King, D., Lee, J. K., Liang, T. P., & Turban, D. C. (2015). *Electronic Commerce: A Managerial and Social Networks Perspective.* Springer.

Urquhart, R., Newing, A., Hood, N., & Heppenstall, A. (2022). *Last-Mile Capacity Constraints in Online Grocery Fulfilment in Great Britain.* Journal of Theoretical and Applied Electronic Commerce Research.

Vijaykumar, V., & Sgarbossa, F. (2021). *A Literature Review on the Level of Automation in Picker-to-Parts Order Picking System: Research Opportunities.* IFAC-PapersOnLine, 438–443.

Weber, A. N., & Badenhorst-Weiss, J. A. (2018). *The Last-Mile Logistical Challenges of an Omnichannel Grocery Retailer: A South African Perspective.* Journal of Transport and Supply Chain Management.

Wen, T. T. (2022, March 23). Daftar Startup dan Supermarket di Pasar E-Grocery Asia Tenggara.

Yang, L., & Tang, R. (2019). Comparisons of Sales Modes for a Fresh Product Supply Chain with Freshness-Keeping Effort. Transportation Research Part E: Logistics and Transportation Review, 125, 425–448.

Yao, W., & Sun, J. (2020). *Research on Fresh Agricultural Product Inventory Management under Big Data.* IEEE Conference Proceedings.

Yin, K. R. (2009). Case Study Research, In Adoption Quarterly.

Zhong, Y., Lai, I. K., Guo, F., & Tang, H. (2020). Effects of Partnership Quality and Information Sharing on Express Delivery Service Performance in the E-commerce Industry. Sustainability.