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Original Article

Optimisation of Operational Management Through the Use of Information Technology to Improve Service Quality at the Expedition Services of Railway Logistics (KALOG) Madiun Representative

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Abstract

The purpose of the study was to determine how the application of information technology to improve operational efficiency and service quality at the expedition service of Railway Logistics (KALOG) Madiun representative. This research uses a qualitative approach with a case study at KALOG Madiun, focusing on the application of the KAI Logistics TRAX application to optimize operational management and improve service quality. Data were collected through in-depth interviews, participatory observation, and documentation studies. Data analysis was carried out by transcription, narration of findings, triangulation, and drawing conclusions and recommendations for operational improvement. Based on the results of the study, the use of the KAI Logistics TRAX application has facilitated KALOG's operations, especially in real-time tracking of goods, digital ordering, and tariff checking. However, the adoption rate of this application at KALOG Madiun is still low, due to the lack of promotion, customer preference for manual methods, and limited digital infrastructure. This low adoption hampers operational efficiency, increases costs, and reduces the quality of service to customers.

Keywords: Operational Management, Information Technology, Service Quality, Railway Logistics Expedition.

1. Introduction

Logistics plays a vital role in the movement of goods and services around the world, allowing countries to trade and establish economic relations with each other (Christopher, 2016). From 2024, logistics will experience major changes in terms of speed, efficiency, and accuracy due to technological advances and changes in the way trade is conducted around the world (Damayanti, 2024). In this context, the growth of global transport logistics faces many challenges and opportunities, such as digitalization, policy changes, and environmental consequences (Hermawan, 2023). Demand for logistics is increasing worldwide, mainly driven by the growth of e-commerce and international trade.

The development of Indonesia's transportation logistics system is intended to increase effectiveness and efficiency through the use of Artificial Intelligence (AI) and infrastructure improvements in the coming years. For example, the use of transportation management systems (TMS) and smart warehouses, also known as smart warehouses, will make it easier to monitor, manage, and deliver goods more efficiently (World Bank, 2021). One of the efforts to improve the logistics transportation system in Indonesia is Railway Logistics (KALOG).

Based on the performance data for the first semester of 2024 (kalogistics.co.id), it is evident that the courier and logistics industry, as well as the coal Lo/Lo industry, did not achieve all the set targets. On the other hand, the non-container and container sectors successfully exceeded their targets. This indicates differing trends across various transportation sectors. Performance in each sector may be influenced by several variables, including changes in market demand, economic conditions, and operational efficiency (Hasim & Holiawati, 2022).

Trains are one of the transportation modes that play a crucial role in supporting national logistics activities. PT Kereta Api Logistik (KALOG), a subsidiary of PT Kereta Api Indonesia, provides rail-based expedition services with competitive advantages, particularly in terms of timeliness and the volume of goods transported (Job, 2024). However, in its efforts to improve service quality, KALOG faces several operational challenges amid increasingly complex competition among logistics companies.

Some of the main challenges faced by KALOG in improving the quality of logistics services through optimizing operational management include limited railway infrastructure in Indonesia, which is still developing, making the capacity of lines and the frequency of train travel limited. This can affect the speed and timeliness of goods delivery. Proper Fleet and Travel Time management is essential to avoid delays and ensure customer satisfaction. However, technical and operational constraints often hinder this optimization.

Figure 1. Business process of transportation of various goods
Source: kalogistics.co.id

The flowchart above summarizes the process of shipping goods through the container transportation business process and BHP Courier & TRAX services. For containers, the process starts from the container's origin location, where the container is loaded onto a truck and taken to the railway station depot. At the station depot, the containers will be loaded onto trains for delivery to the destination station. Arriving at the destination station, the containers will be unloaded from the train and loaded back onto the truck for delivery to the final destination. Meanwhile, the business process for BHP courier and TRAX transportation starts with the customer handing over the goods to a KALOG agent. The goods are then sent to the hub, then through several gateways before finally reaching the destination hub and then delivered to the end customer.

Improved quality of responsive customer service and transparent delivery information. KALOG needs to integrate digital technology that is able to provide real-time information regarding delivery status, thus increasing customer satisfaction and trust. Operational Cost Efficiency is a strong reason in the fierce competition in the logistics industry which ultimately requires KALOG to maintain cost efficiency without sacrificing service quality. Operational optimization is the solution to maintain profitability while meeting the growing demands of the market.

The expedition industry is currently facing complicated dynamics. Logistics companies, including KALOG, are forced to continuously innovate and improve the quality of their services due to increasingly fierce business competition. The transformation taking place in the industry is also driven by the rapid growth of information technology (Wijaya, 2020). GPS-based tracking systems, data-driven warehouse management, and big data analysis are some examples of technologies that have great potential to improve operational efficiency and customer satisfaction. Conversely, customers continue to require faster, more accurate, and more open services. This means businesses must be able to meet evolving customer expectations and provide customers with a smooth and satisfying delivery experience (Bocij et al., 2015).

Prior to the KAI Logistic TRAX application, service management at PT Kereta Api Logistik (KALOG) was still done traditionally with various limitations. Many processes were carried out manually, both in terms of ordering, organizing, tracking, and managing documents, resulting in slow processing and high potential for human error (Warta Ekonomi, 2024a). Customers also experience difficulties in monitoring the status or position of goods in real-time, and to obtain information on the whereabouts of shipments, they often have to contact KALOG directly, which is time-consuming. In addition, the communication system between customers and KALOG is not centralized, resulting in information discrepancies or miscommunication, especially regarding delivery schedules and arrival times. Without an integrated system, the distribution of goods and logistics requires manual planning which is less efficient, especially in scheduling the delivery and receipt of goods.

The absence of an automated system also increases operational costs, as processes take more time and human resources. Another difficulty is monitoring customer performance and data, as transaction data, customer preferences, and service performance are not well tracked without an application, making it difficult to evaluate and improve services with accurate data. With the presence of the KAI Logistic TRAX application, these various processes become more efficient, real-time, and integrated.

After the launch of the KAI Logistic TRAX application in 2022, PT Kereta Api Logistik (KALOG) experienced increased operational efficiency and convenience for customers. The app provides real-time tracking, digital booking, and fare checking features that speed up access to information for customers and increase transparency, thus reducing reliance on previously time-consuming and error-prone manual processes (JPNN, 2024). In addition, the TRAX app expands KALOG's service coverage by providing pick-up services in 12 cities, and is targeted to reach more than 70 cities/districts.

This service allows the delivery of packages and heavy goods up to 300 kg, including motorcycles, which was previously unavailable on other platforms. From a business perspective, TRAX has helped drive KALOG's growth in the courier and freight sector. Increasing the number of users and service efficiency also supports the company's target of increasing revenue by 14% by 2024, with a focus on expanding the logistics service network throughout Indonesia.

Based on data from https://databoks.katadata.co.id explains that throughout 2023, PT Kereta Api Indonesia (KAI) Logistic has managed around 28 million tons of goods. Coal transportation in South Sumatra, as much as 25 million tons, occupied the largest share of the total volume of goods last year, reaching 90%. This is in line with KAI Logistics' efforts to support the 100,000-megawatt (MW) program by 2025 by building a Coal Charging Terminal in South Sumatra. Furthermore, the location will be a managed coal discharge terminal that can produce 20 million tons of coal per year. By 2023, KAI Logistics will also transport 2

million tons of containers, 858 thousand tons of cement, and 7.7 thousand tons of courier services.

President Director of KAI Logistics Ahmad Malik Syah said, this achievement was obtained through improved services and adjustments to transportation rates. In addition, Ahmad said, KAI Logistics pocketed revenue of Rp1.10 trillion or 88% of the target of the Company's Work Plan and Budget (RKAP) in 2023. "*Although the target has not been achieved, KAI Logistics has grown 9% compared to 2022*," Ahmad said in his official statement, Friday (19/1/2024). Meanwhile, for 2024, KAI Logistics is targeting revenue growth of 14% to Rp1.26 trillion. *"This growth is partly influenced by the Kramasan Terminal which will start operating in the fourth quarter of 2024,"* Ahmad said.

Based on the description above that has been written, the research objectives are obtained to find out how the application of information technology to improve operational efficiency and service quality at the expedition service of Railway Logistics (KALOG) Madiun representative.

2. Literature Review

2.1. Service Quality

Understanding the concept of service quality and the factors that influence it is crucial. According to Parasuraman et al. (1988), the SERVQUAL model consists of five main dimensions: tangibility, dependability, responsiveness, assurance, and empathy. This component helps companies understand and evaluate important elements of service quality that are expected to meet customer needs and expectations.

In another study, Kotler & Keller (2016) emphasized the importance of service quality as an important part of marketing strategy. They argue that good service quality can create a positive image of the company, attract new customers, and retain old customers. According to (Kotler & Keller, 2016; Lovelock & Wirtz, 2004), in an increasingly competitive market, superior service quality can make a significant difference.

2.2. Optimisation of Operational Management

According to Heizer et al. (2014), operational management optimization aims to structure and manage operational processes in a more efficient and consistent manner. In the context of an organization or company, operational management optimization helps ensure that every activity runs according to the best procedures, both in terms of product or service quality and in terms of timeliness (Krajewski & Malhotra, 2022).

In its application, operational management optimization also involves analyzing and utilizing data to identify areas in need of improvement, as well as implementing solutions that support a more effective decision-making process. Operational management optimization is influenced by various interrelated factors.

2.3. Use of Information Technology

More broadly, information technology can be defined as a combination of hardware and software that enables users to access, manage, and share information effectively (Laudon & Laudon, 2004; O'Brien & Marakas, 1997). According to Turban et al. (2015), information technology includes technologies used to collect, store, process, and disseminate information in various formats in various sectors, ranging from business, education, health, to government.

2.4. KAI Logistic TRAX App

KAI Logistic TRAX application is a digital platform developed by PT Kereta Api Logistik (Railway Logistics) to simplify the process of picking up, tracking packages, checking rates, and finding the nearest drop point from the user's location. This application is designed to provide comfort and convenience to customers with the concept of "with just a click". Currently, the pick-up and delivery of packages, bicycles, and motorcycles through the KAI Logistics TRAX application has reached 115 cities / regencies spread across 171 service points (Warta Ekonomi, 2024b). In addition, this application offers features such as checking rates, checking service point locations, package pickup, package drop, and real-time tracking of package positions. With this service convenience innovation, it is expected to be a solution for a variety of customers, especially for customers with high mobilization and limited time in big cities.

2.5. Conceptual Framework

The conceptual framework of this research aims to analyze the factors that influence the success and development of the Optimization of Operational Management of Railway Logistics (KALOG) Madiun Representative through the use of information technology with the KAI Logistics TRAX Application, and evaluate its impact on the operational performance of PT Kereta Api Logistik (KALOG). The following are the main components that are part of this conceptual framework:

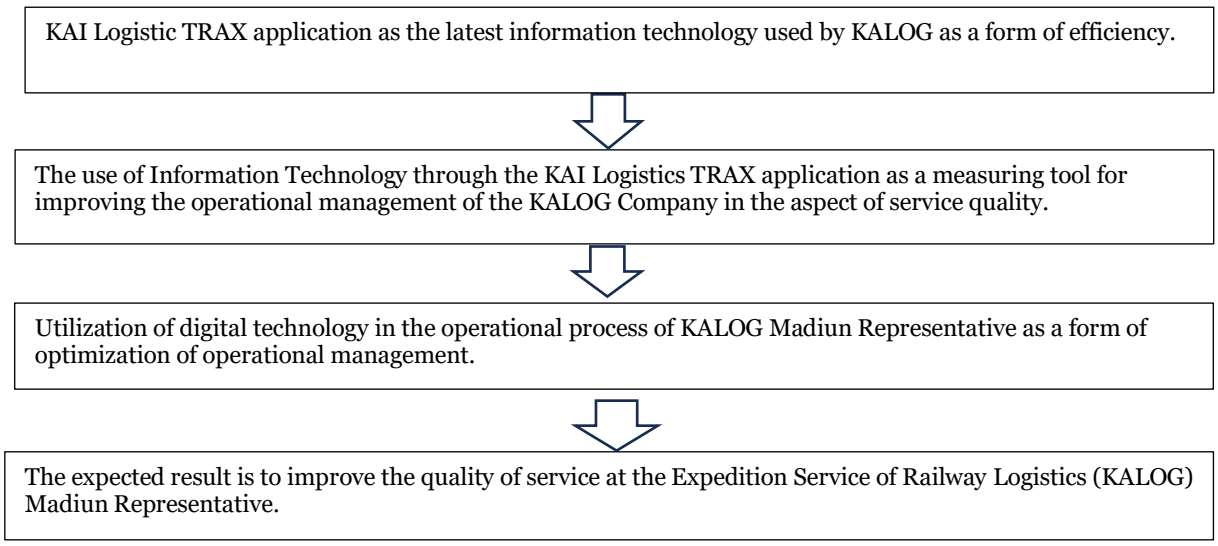

Figure 2. Conceptual Framework

3. Methods

3.1. Research Paradigm

In the context of this research, the paradigm that is trying to be used is the constructivist paradigm. This paradigm centers on the understanding that interactions and subjective experiences shape social reality. Data collected according to the constructivist paradigm consists of stories and context, in addition to numbers. To obtain information, researchers used participatory observation and in-depth interviews. The goal is for researchers to understand how the process of Optimizing Operational Management in the expedition services of Railway Logistics (KALOG) Madiun Representative through information technology in an effort to improve service quality.

3.2. Type of Research

This research is qualitative and uses a case study approach. The purpose of this study is to find out about the phenomena related to the optimization of operational management through information technology with the aim of improving the quality of services provided by the Railway Logistics (KALOG) in Madiun, using the KAI Logistics TRAX application as a benchmark for the optimization process.

3.3. Research Approach

The case study method is used to analyze phenomena in depth in a particular context, namely the Railway Logistics (KALOG) representative in Madiun. This case study allows researchers to focus on one unit of analysis (namely KALOG in Madiun) and observe how the KAI Logistics TRAX application plays a role in optimizing operational management and improving service quality.

The researcher will collect data through interviews, observations, and documentation to gain a more comprehensive understanding of the application of information technology in KALOG's operational management and its impact on the quality of services provided to customers.

3.4. Data Sources, Time and Place of Research

3.4.1. Data Sources

In this research, which uses a qualitative approach with a case study method, several data collection techniques are used, namely:

1) In-depth Interview
2) Participatory Observation

Researchers can make direct observations of the use of the KAI Logistics TRAX application in the KALOG operational environment in Madiun. This observation is carried out by being directly involved in operational activities that use the application, or by observing how the application is used by employees in carrying out their daily tasks. This observation aims to gain a deeper understanding of the work process, the obstacles faced in using the application, and the extent to which the application plays a role in facilitating or improving operational efficiency. This observation can also include interactions between employees and service users, as well as how the application affects the quality of service provided.

3) Documentation Study

This technique involves collecting documents and records related to KALOG operations, including:

a. Reports on the use of the KAI Logistics TRAX application.
b. Operational evaluation and performance reports, to see how the application impacts operational efficiency and effectiveness.
c. Internal documentation related to training or socialization of TRAX application to KALOG employees.
d. Surveys or feedback from customers, which may include information on the level of customer satisfaction with the quality of service provided after using the application.

4) Secondary Data Analysis

Secondary data can be obtained from annual reports, previous case studies, or existing research on the use of technology in operational management in the logistics industry. The location of this research is Representative of Railway Logistics (KALOG) in Madiun. This research was conducted at the KALOG office or operational facility located in Madiun, which is the unit of analysis in this case study. The focus of the research is to observe and analyze the

application of the KAI Logistics TRAX application in the context of operational management and improving the quality of services provided by KALOG in the region.

3.5. Subjects and Objects of Research

The subjects of this research are people or parties who are directly involved in the process of optimizing operational management through information technology at KALOG, especially those related to the use of the KAI Logistics TRAX application. The subjects of this research include:

1) KALOG employees - Those involved in using the KAI Logistics TRAX application to support operational activities and improve service quality.
2) KALOG Service Users - Customers who use services provided by KALOG, which may be affected by the use of the KAI Logistics TRAX application in the service process.
3) Managers and Parties Responsible for Operations at KALOG - Those who have a deeper understanding of the operational process and evaluation of the application of KAI Logistics TRAX in improving service quality.

The object of this research is the application of the KAI Logistics TRAX application as a tool for optimizing operational management and improving service quality at the KALOG Representative in Madiun. This research focuses on how this application is used in the operational process and how it affects the quality of service provided to customers. More specifically, the objects of this research include:

1) Use of the KAI Logistics TRAX Application - How the application is implemented in day-to-day operations, including in monitoring, managing and reporting operations.
2) Operational Management at KALOG - The managerial processes and practices applied to run logistics operations and how technology, in this case the TRAX application, supports the optimization of such management.
3) Service Quality at KALOG - The improvement in service quality resulting from the application of this information technology, as measured through various service quality indicators, such as speed, accuracy, and customer satisfaction.

Overall, the research subjects are the parties involved in the use and evaluation of the TRAX application, while the object of the research is the use of the KAI Logistics TRAX application itself and its impact on operational management and service quality at KALOG.

3.6. Data Analysis Techniques

The following are the steps of data analysis techniques that can be used in this research:

1) Data collection, such as in-depth interviews, participatory observation, and documentation studies. After the data is collected, it will be analyzed systematically.
2) The transcription of interview data and relevant conversations will involve converting audio recordings or field notes into written form. These transcriptions will serve as essential material for further analysis, providing a detailed account of the discussions and insights gathered during the research.
3) The narration and description of findings will explore the functionality of the TRAX application within the KALOG context, detailing how it influences operational processes and impacts service quality. This section will also highlight the key enabling factors that support its implementation, along with the challenges encountered during its adoption.
4) The triangulation process enhances the validity of the analysis by comparing data from multiple sources, such as interviews, observations, and documentation, as well as using different methods, including in-depth interviews and participatory observations. By

cross-verifying information, triangulation ensures that the research findings are consistent, reliable, and free from bias.

5) The drawing of conclusions and recommendations marks the final stage of the analysis, where the researcher synthesizes the findings and aligns them with the research objectives. Based on these insights, practical recommendations will be provided for KALOG representatives, such as strategies to enhance the adoption of the TRAX application or improvements in operational management to further elevate service quality.

4. Results and Discussion

4.1. Key Factors Behind the Low Usage of the Application

Several key factors influencing the low usage of the KAI Logistics TRAX app at KALOG Madiun have been identified in this study. These factors are interrelated and form a considerable barrier in encouraging customer adoption of the app. The following is a more in-depth explanation of these key factors:

1) Limited Promotion

One of the main factors hindering the use of the TRAX app is the lack of an effective and comprehensive marketing campaign. Most customers in Madiun are not aware of the app's existence or the benefits they can gain by using it. Promotions have been limited and not intensive, both through conventional and digital communication channels. In other branches such as Jakarta and Surabaya, app promotion is done more aggressively by utilizing various social media channels, digital advertising, and collaboration with business partners. In Madiun, the app marketing strategy has not been maximized, so many customers still rely on traditional methods to conduct transactions. This lack of marketing campaigns that reach a wider audience has resulted in the TRAX app not being widely recognized, despite providing convenience and efficiency for customers.

2) Technology Barriers

Many customers in Madiun are not familiar with digital technology, especially in relation to smartphone-based applications. Most of KALOG's customers in Madiun are small businesses that have long been accustomed to using manual methods in managing their logistics transactions. For them, digital applications like TRAX are more complicated and confusing. Not understanding how the application works makes them reluctant to try using the application. They feel more comfortable with the manual system that they have mastered and is more reliable. In addition, for customers who are unfamiliar with digital devices, feelings of anxiety or fear of technical difficulties-such as data charging problems or uncertainty in app usage-make them reluctant to switch to new technologies. Thus, technological barriers are a significant barrier to app adoption among Madiun customers.

3) Infrastructure Constraints

Uneven internet access in Madiun, especially in rural areas, is a big challenge for customers who want to use the TRAX app. In some areas, slow or unstable internet network quality makes it difficult for customers to access the app smoothly. Even customers who are interested in using the application are sometimes hampered by their inability to log in or process transactions due to internet connection issues. Limited technological infrastructure, including hardware that supports the use of apps, is also a factor that limits the use of digital apps in the region. Without a strong internet connection and adequate devices, customers tend to find it difficult to utilize the full potential of TRAX applications.

4) Lack of Incentives

The absence of incentives or attractive promotions makes the TRAX app less attractive to customers, especially those who are already comfortable with the manual system. In other branches, such as Jakarta and Surabaya, customers are often incentivized with discounts, vouchers, or loyalty points to encourage them to try using the app. Programs like these provide added value that customers immediately feel and become an attraction to switch from manual to digital systems. However, in Madiun, there was no similar offer to encourage customers to try the app. Without a clear incentive, the TRAX app is not attractive enough for customers who are already satisfied with the traditional methods they have been using. Therefore, with no direct benefits or added value to be gained, customers felt there was not a strong enough reason to switch to using the app.

5) Non-User-Friendly Interface

The complex interface design of the app is one of the major obstacles in increasing the adoption of TRAX apps. For many customers, an app with a complex and difficult-to-understand interface will only add to the confusion and frustration. Some users reported that they found it difficult to navigate the app due to the unintuitive layout and poorly organized features. For example, customers may struggle to find a particular function or find the ordering process too long and convoluted. For customers who are unfamiliar with technology-based applications, a non-user-friendly design can be a big deterrent to switching to a digital system. A simpler app interface, with clear and easy-to-understand navigation, can help reduce these barriers and make it easier for customers to use the app.

4.2. Observation of the Manual System

Manual systems at KALOG Madiun still dominate daily operations, which has implications for inefficiencies in the logistics process. Despite the potential to optimize operations through digitization, a number of stages in the manual process are still applied, which not only slows down performance but also increases the potential for errors and inefficiencies. The following is a more in-depth explanation of the stages in the manual process that still dominate operations at KALOG Madiun:

1) Direct Order Process

One of the main stages in the manual system at KALOG Madiun is the direct order process by customers. To order logistics services, customers must come directly to the KALOG office or contact by phone. This process requires physical interaction between customers and KALOG officers, which is not only time-consuming but also causes limitations in terms of flexibility and convenience. Customers who are busy or located far from KALOG's offices will experience difficulty and inconvenience in ordering services. In addition, this reliance on in-person interaction causes delays in the ordering process due to having to wait for their turn and manually complete various documents on the spot. By using a digital system such as the TRAX application, the ordering process can be done online without having to come in person, thus saving time and energy for both customers and KALOG officers.

2) Manual Verification

Manual document verification is another step that slows down and complicates the operational process. After a customer submits a service request, KALOG officers must manually verify documents, including order data and other supporting documents. This manual verification involves double-checking each document to ensure that the information provided is correct and complete. This process takes a considerable amount of time and is prone to human error. Errors in data verification or negligence in document checking can cause delays or even discrepancies in the delivery of goods. In a manual system, if any information is incorrect or missing, the clerk must contact the customer again for clarification,

which adds time and administrative burden. Digitizing document verification can reduce the risk of errors and speed up the process, as the system can check and store data automatically using more efficient technology.

3) Manual Tariff Calculation

Manual tariff calculation is one stage that also has the potential to cause inefficiencies and errors. Every time a customer places an order, KALOG officers must calculate the shipping rate based on various factors, such as the weight of the goods, shipping destination, and additional services. This rate calculation process is done manually using a calculator or other simple tools, which takes time and is prone to errors in calculation. Moreover, if there are many orders to be calculated in one day, the risk of human error is higher, which may result in inaccurate rates being provided to customers. This can lead to customer dissatisfaction and reduce trust in KALOG's services. With the digitization of tariff calculation, an automated application or system can calculate tariffs instantly based on pre-defined parameters, reducing the possibility of errors and speeding up the calculation process.

4.3. Strategies to Overcome Barriers

To increase the use of the KAI Logistics TRAX app at KALOG Madiun, several strategic measures can be implemented to overcome existing barriers and encourage app adoption among customers. These steps include increasing the visibility of the app, improving customers' understanding of its usefulness, and customizing products and services to better suit their needs. The following are more detailed steps that can be taken:

1) Promotion Campaign Enhancement

One of the main ways to increase customer awareness of the TRAX app is to increase the promotional campaign more aggressively and thoroughly. This promotional campaign should include various communication channels, both traditional and digital, to reach a wider audience. Using social media, online advertising, and local communication platforms can be an effective way to reach younger and tech-savvy customers. In addition, promotion through traditional media such as billboards, local radio and newspapers is also important to reach older customers or those in areas with limited internet access. Emphasis on the app's key benefits, such as ease of booking, time savings, and fare transparency, needs to be conveyed in a clear and compelling manner. Creative campaigns based on success stories of customers who have experienced the benefits of the app can also be an effective way to attract attention.

2) Customer Training and Education

Given that many customers in Madiun are not familiar with digital technology, the next step is to provide comprehensive training and education on the use of the TRAX app. This can be done face-to-face, either at the KALOG office or through online training sessions for those who are more familiar with technology. A hands-on tutorial session that demonstrates how to access, register, book services, and manage freight shipments through the app can greatly assist customers in overcoming initial confusion. In addition, the provision of clear and easy-to-understand user manuals-both in physical and digital form-would be particularly useful for customers who prefer written information. Ongoing education on the app's new features and how to optimize their use is also important for customers to feel more confident and comfortable with this technology.

3) Collaboration with Local Partners

Collaboration with local partners such as stores, business associations or local communities can accelerate the spread of information about the TRAX app. Local partners who have a close relationship with customers can help in introducing the app and convincing them of its benefits. A referral program where customers who successfully invite others to use the app can earn certain rewards or incentives can also be an effective strategy. Collaboration

with local partners can also involve organizing local events or seminars that discuss the benefits of digitizing logistics services and how the TRAX app can help ease small business operations. With the support of parties that are already trusted by customers, the TRAX app can be more easily accepted.

4) Application Features Development

Developing and customizing application features to make them more intuitive and relevant to customer needs is crucial to increasing the app's usage rate. An easy-to-navigate app interface, with a simple and clear design, can reduce barriers for customers who are unfamiliar with technology (Riswanto, 2021). Adding additional features that match market demand, such as real-time delivery notifications, item tracking, or easier digital payments, can make the app more attractive and useful to customers. Also, customizing features based on customer feedback will go a long way in improving user experience. For example, some customers may prefer more detailed item tracking services, while others prefer more flexible payment options. By continuously developing the app based on local market needs, KALOG can increase loyalty and usage of the app on an ongoing basis.

5) Incentive Program

Providing incentives or additional benefits to customers who try or regularly use the TRAX app can be a big draw to encourage app adoption. These incentive programs can be in the form of discounts on first orders, loyalty points that can be redeemed for additional services, or gift vouchers that can be used for future deliveries. Special discounts or promos for app users can also attract more price-sensitive customers, as well as provide more encouragement for customers who are still hesitant to try digital services. An attractive incentive program will create a sense of urgency and give customers an additional reason to switch from manual to digital methods. Repeat-use based incentives can also encourage customers to use the app more often and make it the first choice in their logistics process.

4.4. Potential Long-Term Impact

If the proposed strategies are successfully implemented, KALOG Madiun could experience a number of significant positive impacts on the company's operations and growth. Measures such as increased promotional campaigns, customer training, collaboration with local partners, development of app features, and incentive programs can not only increase the adoption of the TRAX app, but also generate long-term impacts that bring great benefits to the entire company. The following is a more detailed explanation of the expected positive impacts:

1) Operational Efficiency

With the wider adoption of TRAX application, KALOG Madiun's operations will become more efficient in various aspects. Manual processes that have been time-consuming and involve various stages such as document verification, tariff calculation, and manual booking, can be replaced with an automated and faster system. Digitalization of booking and verification will reduce reliance on manpower to perform repetitive administrative tasks, allowing employees to focus on more strategic tasks. Automated tariff calculation will reduce the possibility of errors and speed up the service costing process. In addition, real-time tracking of goods and digital payment systems will increase transparency and reduce the risk of errors in the delivery process. Shorter operational time and more efficient processes overall will help lower operational costs, such as additional labor costs and administrative costs. With increased efficiency (Parasuraman et al., 1998), KALOG Madiun can increase productivity without the need to add resources, which in turn will benefit the company in the long run.

2) Customer Satisfaction

One of the most significant impacts expected from increased use of the TRAX application is increased customer satisfaction. With a faster, more transparent and user-friendly system, customers will feel more valued and prioritized. The fare transparency provided by the app will make customers more confident in making transactions, as they can know the cost of the service clearly from the start. In addition, the more efficient speed of the ordering process will reduce waiting time for customers, providing a better experience and reducing the inconvenience that often occurs in manual systems. Real-time delivery notifications allow customers to easily track the delivery status of their goods, which will provide a sense of security and more control over the delivery process. As more customers experience the benefits of the app, customer satisfaction levels will increase significantly, which in turn has the potential to increase customer loyalty and encourage positive recommendations to other business associates or individuals.

3) Company Competitiveness

The digitization of operations through the TRAX application will give KALOG Madiun a significant competitive advantage in strengthening its position in the national logistics market. In an increasingly competitive market, the ability to offer faster, more efficient and transparent services will be an important differentiating factor. With easy-to-use applications and supported by sophisticated technology systems, KALOG Madiun can more easily attract new customers and retain existing customers, compared to competitors who still rely on manual systems. The company's competitiveness in terms of technology-based services will increase, and KALOG Madiun will be increasingly recognized as a modern, efficient, and customer-centric logistics service provider. In addition, the ability to automatically collect customer and transaction data will provide better insights for the company to understand market needs and emerging trends. This information can be used to design services that are more tailored to customer needs, improve product offerings, and identify new market opportunities. The improved corporate reputation associated with the use of this latest technology will strengthen KALOG Madiun's position as a leader in the local and national logistics sector.

4.5. Policy and Practice Implications

The adoption of digital technology in the logistics sector has the potential to bring about major changes in operational efficiency, transparency, and service quality. As customers' needs for fast, efficient, and reliable logistics services grow, digital technologies such as the TRAX app can be an important differentiating factor in enhancing a company's competitiveness. To maximize the positive impact of adopting these technologies, there are several policies and practices that KALOG and other logistics companies can implement.

1) Digital Infrastructure Upgrade

One of the main factors influencing the adoption of digital technology is adequate digital infrastructure. In many regions, especially in rural areas, limited internet access can be a major obstacle in the use of digital-based applications (Slack et al., 2010; Stevenson, 2014). Therefore, it is important for logistics companies to invest in the development of digital infrastructure, either by improving internet networks or by providing alternative solutions such as satellite-based communication networks or using more affordable communication systems. In addition, better hardware and software updates in branches with inadequate infrastructure can also accelerate technology acceptance among employees and customers.

2) Continuous Training and Education Program

Customer training and education is key to ensuring that digital technology can be used effectively. Not all customers are familiar with digital applications, especially in the logistics

sector which often involves customers who have old habits of using manual systems. Therefore, an ongoing training program for customers needs to be designed, ranging from orientation for new customers to advanced training for more experienced users. This program can be done through various channels, such as in-person training, online tutorials, or video guides. In addition, assistance in person or through a technical support hotline can also help overcome problems faced by customers during the transition process to a digital system. This training will increase customer confidence and comfort in using the TRAX application.

3) Targeted Marketing Campaign

To increase customer awareness and interest in the TRAX app, it is important to conduct a targeted marketing campaign. The campaign should utilize various existing communication channels, such as social media, email marketing, and traditional advertising, which are appropriate to the characteristics of the customers. In addition, the marketing campaign needs to emphasize the concrete benefits that customers can obtain through the use of the app, such as ease of booking, cost transparency, access to real-time information, and transaction security. In-person app introduction programs, such as app demos at community events or through cooperation with local partners, can also help create wider awareness of the app's advantages. To attract new customers, companies can offer special incentives, such as discounts for first-time users or loyalty points that can be redeemed for additional services.

4) Innovation and Development of App Features

One way to encourage usage of the TRAX app is to continuously develop the app's features to make them more relevant to customer needs. Customer feedback from surveys or interviews can be used as a basis for improving the app. For example, adding features such as automatic payments, live tracking of delivery status, or integration with business management systems used by customers. In addition, more intuitive and easy-to-understand features will make users feel more comfortable and confident in using the app. Ease of navigation and simple interface design are important elements that can reduce the level of confusion or errors in using the app, especially for customers who are not very experienced in using digital technology (Santoso, 2022).

5) Collaboration with Partners and Stakeholders

To accelerate the adoption of digital technology in the logistics sector, collaboration with partners and other stakeholders is necessary. For example, companies can work with the government to address digital infrastructure issues, or with technology service providers to create more integrated logistics solutions. In addition, cooperation with local technology companies or startups that focus on digital-based logistics solutions can result in faster innovation and higher relevance to local market needs. Participation in the broader digital ecosystem will provide a competitive advantage and accelerate the digitization process, which in turn can have a positive impact on the entire logistics supply chain.

6) Periodic Performance Measurement and Evaluation

To ensure that the adoption of digital technology goes well, it is imperative to conduct regular performance measurement and evaluation (Schroeder et al., 2000). Collecting data related to app usage, such as the number of orders, processing time, and customer satisfaction levels, will provide a clearer picture of the app's effectiveness. The results of this evaluation can be used to strategize improvements or introduce additional features that can enhance the app's performance. In addition, analyzing the economic impact of implementing digital technology, including reduced operational costs and increased revenue, will provide useful information for investment justification and future planning.

7) Strict Data Security Policy Implementation

In the digital world, customer data security is of paramount importance. As such, KALOG must implement strict data security policies to protect customers' personal information and transactions. The use of encryption technology, two-factor authentication, and periodic security audits will increase customers' sense of security in using the TRAX application. In addition, transparency regarding privacy and data protection policies will also strengthen customers' trust in the app, which in turn can encourage them to use it more actively.

5. Conclusion

Based on the results of research on operational management optimization, the use of the KAI Logistics TRAX application has provided significant convenience in KALOG operations, especially in terms of real-time tracking of goods, digital ordering, and tariff checking. This application is designed to provide customers with a more practical and efficient service experience. With this technology, customers can access important information without having to make direct contact with branch offices or service centers. However, the level of adoption of the TRAX application at the KALOG Madiun representative is still relatively low. Some of the factors that cause the low adoption rate include the lack of promotion and socialization, customer preference for manual methods, and limited digital infrastructure. Many customers do not understand the benefits and how to use this application due to the lack of digital marketing strategies and education. Most customers still feel comfortable with traditional methods such as direct booking or manual consultation at branch offices. In addition, not all customers have easy access to digital devices or a stable internet network to use the app.

The TRAX application has great potential in improving KALOG's operational efficiency, including in speeding up administrative processes, reducing human errors, and reducing operational costs. With this application, operational processes such as item tracking and order management can be automated and integrated. However, the implementation of this application has not been maximized, causing KALOG Madiun to still rely on manual procedures in many aspects of its operations. This has resulted in a lack of efficiency in operational processes, high operational costs, and difficulty in optimizing performance evaluation. The time needed to complete administrative tasks is longer because manual processes require more steps and direct interaction. Reliance on manual methods also leads to high operational costs, including labor costs, physical documents, and other administrative needs. In addition, without maximum technological support, the collection and analysis of performance data becomes slower and less accurate, hampering strategic decision-making.

The TRAX application is designed to improve KALOG's service quality through the provision of transparent information, increased service speed, and ease of access for customers. With this application, customers have direct access to track real-time delivery of goods, book services digitally, and obtain tariff information without having to contact KALOG staff. However, the low adoption rate of this application is a major obstacle in achieving optimal service quality. Some of the impacts of this low adoption include a lack of information transparency, slower service, and less than optimal customer satisfaction. Customers who do not use the TRAX app tend to rely on information from third parties or manual sources, potentially increasing the inaccuracy of information. Longer manual processes in item tracking and order processing reduce positive customer experiences. As a result, customer expectations of faster and more transparent service have not been fully met, so service quality has not reached the desired standard.

Based on the findings and conclusions that have been explained, some suggestions that can be given include improving promotion and education strategies, providing incentives for customers who use the application, improving digital infrastructure, conducting periodic evaluations, and establishing collaboration between branches. KALOG needs to improve promotional strategies to introduce the TRAX application to customers through digital-based marketing campaigns, such as social media and email. Education on how to use the application can be done through video tutorials, guidebooks, or in-person training at KALOG offices. Incentives such as discounted shipping rates, loyalty programs, or vouchers can be given to customers who use the TRAX application, as well as holding special promotional programs such as "Free First Use" to attract new customers. In addition, working with local internet service providers can help improve internet access in the Madiun area, while optimizing the TRAX app to be more lightweight can improve its stability on low-specification devices. Regular evaluation of the app's performance and customer satisfaction levels should be conducted, as well as improving the app's features based on feedback from customers and operational staff. Collaboration with KALOG branches in other regions with higher app adoption rates, such as Jakarta or Surabaya, can also help in implementing strategies that have proven effective in increasing TRAX app adoption in the Madiun branch.

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