

DIGITAL COMMUNICATION STRATEGIES THROUGH GPS TECHNOLOGY FOR MONITORING DRIVER PERFORMANCE

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Abstract

This study explores the use of GPS-based digital communication strategies to monitor driver performance at PT Mitra Jaya Persada. Using a descriptive qualitative approach, data were collected through in-depth interviews, observation, and documentation involving three key informants. The findings show that the company utilizes tools such as WhatsApp, SMS, and GPS Tracker to deliver instructions and track driver locations in real time. The monitoring team plays a central role in operational coordination. Key challenges include signal disruptions and the lack of formal training for drivers. Despite these limitations, the system has proven effective in improving discipline and accountability. The study recommends strengthening digital communication infrastructure and enhancing human resource competence in logistics operations.

Keywords: *Digital Communication, GPS, Monitoring*

Abstrak

Penelitian ini bertujuan untuk mengeksplorasi strategi komunikasi digital berbasis GPS dalam memantau kinerja driver di PT Mitra Jaya Persada. Menggunakan pendekatan kualitatif deskriptif, data dikumpulkan melalui wawancara mendalam, observasi, dan dokumentasi terhadap tiga informan kunci. Hasil penelitian menunjukkan bahwa perusahaan menggunakan media seperti WhatsApp, SMS, dan GPS Tracker untuk menyampaikan instruksi dan memantau lokasi driver secara real-time. Tim monitoring berperan penting sebagai penghubung operasional. Tantangan utama meliputi gangguan sinyal dan minimnya pelatihan formal. Meskipun demikian, sistem ini terbukti meningkatkan disiplin dan akuntabilitas kerja. Penelitian ini merekomendasikan penguatan infrastruktur komunikasi digital serta peningkatan kompetensi sumber daya manusia dalam sektor logistik.

Kata kunci: *GPS, Komunikasi Digital, Monitoring*

INTRODUCTION

Digital transformation has encouraged companies across various sectors, including logistics, to utilize information and communication technology (ICT) to support operations. One key technology that has been widely adopted is the Global Positioning System (GPS), which provides real-time vehicle position information and supports data-driven decision-making (Mahendra et al., 2018; Zohari & Nazri, 2021). In the era of digital communication, one of the most widely used technologies and a global trend today is the Internet of Things (IoT) (Tlili et al., 2022). This technology includes various devices such as sensors, actuators, microcontrollers, and motor systems that are used in various fields, including transportation, manufacturing, and security (Mounika & Chepuru, 2019). In the context of transportation, public attention is increasingly focused on securing valuable assets such as private vehicles and logistics fleets. One of the key technologies used to support this security and surveillance is the Global Positioning System (GPS) (Pardeshi & Tulsankar, 2017).

GPS is a satellite-based system capable of determining the location of objects in real time with high accuracy using latitude and longitude coordinates. This system becomes even more effective when integrated with digital communication devices such as GSM (Global System for Mobile Communication) modems, which enable direct two-way communication between the operator and the vehicle. (Khin & Nyein, 2018). With advances in GSM and IoT-based communication technology, GPS now functions more broadly as a dynamic monitoring and anti-theft system, particularly in the management of transportation and public transportation fleets. Combining GPS technology with digital communication systems enables efficient, cost-effective monitoring and facilitates real-time, remote control of vehicle operations (Nkem, 2020; Pradeep et al., 2024).

PT Mitra Jaya Persada, a national logistics company, has implemented a GPS-based digital communication strategy to monitor and evaluate driver performance. This system is used not only to track travel routes but also to convey instructions, respond to operational constraints, and optimize delivery times. The integration of GPS technology and digital communication has been proven to accelerate information flow, reduce the risk of delays, and increase accountability in delivery (Ningsih & Kurniawan, 2023) GPS-based communication systems are not only used to track vehicle travel routes in real-time, but also function as a strategic medium in managing and controlling the entire logistics distribution flow.

Through this system, management can convey operational instructions directly to drivers in the field, whether related to route changes, delivery time adjustments, or handling urgent technical issues. In addition to being a tactical communication tool, GPS also allows for comprehensive monitoring, from driving speed and stopping points to estimated travel times, which can be systematically analyzed through historical data. The integration of GPS technology with digital communication platforms such as WhatsApp, SMS, or fleet management system dashboards, enables real-time connectivity between the control center and the fleet in the field (Lee et al., 2014; Yigitcanlar et al., 2024). This has a direct impact on accelerating the flow of information within the organization, so that the decision-making process can be carried out more responsively and based on accurate data.

However, challenges such as GPS signal interference, limited digital literacy among drivers, and dependence on certain communication systems are obstacles in themselves (Xu et al., 2020; Anugrah I, 2024). Therefore, a thorough understanding of how digital communication

strategies are implemented in the context of driver performance monitoring is necessary, from a technical, communication, and managerial perspective. This study aims to explore the GPS-based digital communication strategy implemented by PT Mitra Jaya Persada and how this system can support effective internal communication, efficient monitoring, and increased productivity in logistics operations.

LITERATURE REVIEW

The development of information technology has changed the way humans communicate in everyday life, including in the work environment (Yulia & Sidharta, 2023). Digital communication is now an important aspect in organizations, because it supports fast interaction, across time and place, and is able to bridge operational coordination processes (Cosa, 2024). In the logistics sector, digital communications helps manage the complexity of shipping goods, particularly in establishing communication between management and field drivers (Naway & Rahmat, 2019; Dağdeviren & Erturgut, 2024). This technology enables real-time data-based message exchange, which is part of the efficiency of digital work systems.

Digital communication also adds value when integrated with technology-based monitoring systems like GPS (Global Positioning System). Using instant messaging apps like WhatsApp Business and Slack, as well as digital fleet management systems, allows companies to send instructions, receive reports, and re-strategize delivery quickly and efficiently (Al-Fuqaha et al., 2015). This is where the advantage of digital communication lies in modern logistics management: speed and transparency of information guarantee a more accurate workflow. GPS, a satellite-based tracking system, has been widely used in global transportation systems. It provides accurate, real-time vehicle location data. In logistics, this makes it easier for management to track vehicle positions, calculate estimated delivery times, and detect potential route deviations (Khan et al., 2020). This technology is very useful for companies in increasing delivery reliability and customer satisfaction.

The combination of GPS and digital communication systems creates a comprehensive solution for operational monitoring. When technical issues occur in the field, drivers can immediately contact management through the connected communication system. Meanwhile, management can immediately respond or provide further instructions based on vehicle location data. The Internet of Things (IoT), GPS, and mobile communication can improve efficiency and safety in vehicle operations (Humayun et al., 2020). Another advantage of this technology integration is increased transparency and accountability. With a data-driven tracking system, driver activity is recorded and can be periodically evaluated. This data is crucial for assessing performance, compiling operational reports, and identifying patterns of inefficiency. Research by Ushakov et al (2022) shows that the use of IoT and GPS-based vehicle tracking systems can reduce delivery delay rates by up to 35% in logistics companies in China.

To achieve this, a systematically designed digital communication strategy is needed. This strategy includes the use of appropriate media, formal communication procedures, and human resource capabilities to receive and act on messages sent digitally. As explained by Lai (2024), Organizations that have an adaptive and data-driven digital communication strategy have an advantage in facing operational challenges that are dynamic and real-time. (Lai, 2024).

Previous research has also highlighted the importance of clear and standardized communication in fleet management. A study by Petrov et al. (2020) emphasized that the effectiveness of a digital fleet management system is influenced by clear communication channels, a clear information structure, and the operational team's readiness to use technology (Sravanthi et al., 2025; Dintén et al., 2022). Without the right communication strategy, even the most sophisticated GPS system will not be optimal in supporting decision-making. Combining digital communications and GPS technology is a strategic step in improving the effectiveness of driver monitoring and the efficiency of logistics operations. Companies that can integrate these two technologies with the right communication strategy not only improve internal performance but also strengthen their competitiveness in the competitive logistics industry.

RESEARCH METHOD

This study uses a descriptive qualitative approach to gain a deeper understanding of the digital communication strategies implemented by PT Mitra Jaya Persada in monitoring driver performance through the integration of GPS technology. This approach was chosen because it allows researchers to explore social realities and communication practices within an organizational context in a broader, more natural, and contextual way (Creswell, 2018). Data collection was conducted through three main techniques: observation, in-depth interviews, and documentation. Observations were conducted at the PT Mitra Jaya Persada office, specifically during real-time fleet monitoring activities. In-depth interviews were conducted with three key informants who have strategic and technical roles in the company's digital communication system. Informant 1, Agus Mujiono, Transportation Manager, provided a comprehensive overview of the organization's communication flow, training system, and driver evaluation methods. Informant 2, Budi Apriyanto Agustin from the Monitoring team, explained the technical communication process, media used, and field response patterns. Informant 3, Rommi Ginting, an active driver, shared his experiences and perceptions regarding receiving and understanding digital instructions sent by the company.

The data obtained was analyzed using the interactive model from Miles and Huberman which includes the stages of data reduction, data presentation, and drawing conclusions (Miles, 2018). Each piece of information from interviews and observations was coded thematically to identify communication patterns, technical challenges, and the effectiveness of the media used. This analysis process was conducted continuously from the beginning to the end of data collection to ensure that each finding had strong consistency, relevance, and interpretive depth. To ensure the validity and reliability of the data, this study employed a source triangulation strategy, comparing data from management, the technical team, and field implementers. Furthermore, the researchers applied the principles of credibility, transferability, dependability, and confirmability, as recommended in qualitative research. This approach is believed to provide a comprehensive overview of digital communication practices via GPS in the company's driver performance monitoring system.

RESULTS AND DISCUSSION

The research results show that PT Mitra Jaya Persada has developed a GPS-based digital communication strategy integrated with a two-way communication system between management and drivers. This strategy involves the use of various communication channels such as WhatsApp, SMS, direct calls, and GPS tracking applications such as GPS Tracker and lacak.com. The main purpose of this digital communication is to convey real-time

operational information, including pickup points, customer locations, and route instructions for drivers.

Company management recognizes the importance of speed and clarity of messages in operational coordination. This is evident in the explanation of Informant 1, the Transportation Manager, who stated that work orders and item codes are sent via text messages, photos, or voice messages using WhatsApp, and, if necessary, direct phone communication is conducted. This communication is dynamic and adjusted to field conditions. When the signal is weak or drivers are difficult to contact, the company uses alternative channels such as HT radio or relies on phone calls to the nearest coordinate point (information from the monitoring team).

The monitoring team plays a crucial role in bridging information between management and drivers. They are tasked with monitoring fleet movements via GPS and providing direct instructions to drivers. Monitoring acts as an operational control center, actively monitoring vehicle positions, providing alternative routes in the event of congestion, and verifying successful pickups or deliveries. Information sent to drivers includes not only the location but also the customer's name, type of goods, final destination, and additional instructions related to goods handling standards.

According to Informant 2, who monitored the company, they don't set a standard for developing digital messages. Instead, they use a simple, easy-to-understand communication approach for drivers. This is because not all drivers have a high level of education or digital literacy. Therefore, the language used in digital messages is more practical and to the point.

Although the digital communication system has been operating quite effectively, several challenges remain. One major obstacle is network or signal issues, which can lead to WhatsApp messages or SMS not being sent. This is exacerbated by drivers' limited data plans, especially towards the end of the month when quotas run out. In situations like this, the monitoring team typically relies on regular phone calls, or even enlists the help of nearby drivers to relay messages directly to their colleagues in the field.

Another challenge is the lack of formal training for drivers regarding digital messaging. An interview with the informant, a driver, stated that the company has not provided systematic training on GPS usage or digital communication protocols. He stated that all communications are standard and occur like normal conversations via WhatsApp. Despite this, communication continues because the messages sent are clear and to the point.

The company's GPS system has significantly increased the effectiveness of driver performance monitoring. By tracking vehicle position in real time, the company can determine whether drivers are following predetermined routes, how long it takes to reach certain points, and assess whether parking or stopping times are within reasonable limits. From a managerial perspective, this data serves as a crucial tool in the periodic evaluation process, which is conducted every three days to assess driver discipline and efficiency.

The results of this evaluation are used to provide feedback or coaching to drivers whose performance is less than optimal. In some cases, if discrepancies between targets and results are found, drivers are called in and given additional guidance or training. This demonstrates that GPS is not just a tracking device, but has become part of a data-driven decision-making system, helping companies maintain service and operational standards.

To represent the results of interviews with research informants, the following word cloud image provides an initial overview of the most dominant thematic focus in the digital communication process in monitoring driver performance through GPS technology. This visualization displays the keywords that most frequently appear in the interview transcripts, so it can be used as an initial indicator to identify central topics, actors involved, and communication media used in the company's logistics operational system.



Figure 1. Word cloud. (Source: processed research data 2025).

Figure 1 shows a word cloud generated from qualitative data analysis using NVivo software. This word cloud visualizes the frequency of occurrence of keywords from interview transcripts of informants in a study discussing digital communication strategies using GPS technology in driver performance monitoring at PT Mitra Jaya Persada.

The word "driver" appears most prominently and is highlighted in large text, indicating that this topic is the primary focus of the conversation and analysis. Other key words that dominate are "communication," "digital," "monitoring," "message," "customer," "company," and "through." These words describe the main pillars of the operational communication system being analyzed: actors (driver, monitoring, management), communication media (WhatsApp, telephone, SMS), and processes and challenges (interference, signals, coordination, evaluation, obstacles).

The presence of words like "WhatsApp," "Direct," "Signal," and "Monitoring" reinforces the two-way, real-time nature of digital communication. Words like "Obstacle," "Forum," and "Feedback" indicate the dynamics, technical issues, and evaluations that are part of this communication process. This word cloud visually represents the full context of the research: the close relationship between communication technology, operational actors, and challenges in the field.

Thus, this word cloud serves as an initial exploratory tool that helps researchers identify dominant keywords and build a thematic structure for further analysis, as visualized in the NVivo node map. The word cloud also serves as a narrative reinforcement, demonstrating

that this research focuses not only on technology use but also emphasizes the human-to-human communication aspect of digital logistics management practices.

The thematic analysis results in Figure 2 are visualized as NVivo nodes to map the relationships between the main themes and subthemes that emerged during the research process. This structure provides a clearer picture of the role of technology, communication practices, and challenges faced in implementing the company's digital monitoring system.

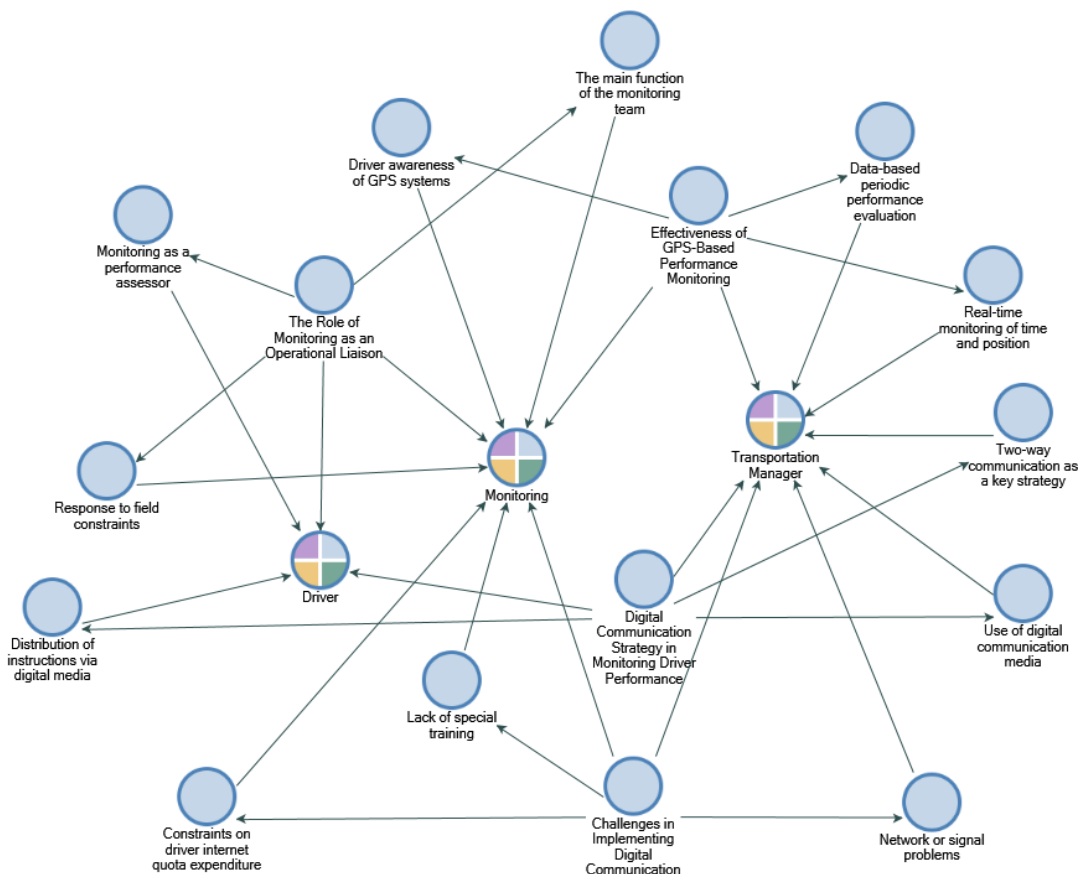


Figure 2. Communication Strategies For Monitoring Driver Performance. (Source: processed research data 2025).

The node visualization in Figure 2 displays a thematic structure that systematically connects the main categories (parent nodes) and thematic subcategories (child nodes) based on the results of interviews with three informants: Transportation Manager, Monitoring, and Driver. These nodes represent important aspects of the GPS-based digital communication strategy implemented by PT Mitra Jaya Persada in monitoring driver performance. Each node shows thematic topics that emerged consistently during the interview process, which were then coded based on the informant's contribution. This visualization clearly shows the relationship between data sources (informants) and the main themes of the study, while also showing the interrelationships between topics in an integrated logistics communication system.

The "Digital Communication Strategy in Monitoring Driver Performance" node is the center of the previous discussion. This node has three important derivatives: the use of digital communication media, two-way communication as the main strategy, and the distribution of instructions through digital media. These findings indicate that the company does not rely

solely on one type of media, but implements multiple communication channels such as WhatsApp, GPS, SMS, and telephone. This demonstrates that the communication system implemented is flexible and responsive to the situation in the field. Both the Transportation Manager and Driver directly stated that two-way communication is an important foundation for establishing clear work orders, effective coordination, and avoiding misunderstandings in task execution.

Meanwhile, the node "Monitoring's Role as an Operational Liaison" indicates that the monitoring team is a central actor in the company's daily operations. This node branches out into the main functions of monitoring, responding to field obstacles, and monitoring as a performance assessor. This data confirms that the monitoring team is not only passive as observers, but also actively provides direction, resolves technical obstacles in the field, and interprets GPS data to evaluate driver performance. This is reflected in the numerous relationships between the "Monitoring" node and other nodes such as "Challenges" and "Effectiveness," which indicates monitoring's strategic position as a bridge between digital information systems and field actors.

Furthermore, the nodes "Challenges in Implementing Digital Communication" and "Effectiveness of GPS-Based Performance Monitoring" illustrate two complementary sides of this system. Challenges such as signal interference, limited driver internet quotas, and the lack of formal training are technical and structural barriers that arise during the implementation of digital communication. On the other hand, the system's effectiveness remains clearly evident from the results of periodic performance evaluations, the ability to monitor real-time time, and drivers' awareness that each vehicle is digitally monitored. All three informants acknowledged that the presence of GPS contributes to driver discipline and work measurability. Overall, this visualization demonstrates that the digital communication strategy through GPS is not merely a technical system, but a structured and measurable managerial system, with the active involvement of all actors in the operational communication chain.

CONCLUSION

This research shows that PT Mitra Jaya Persada has developed an effective and adaptive digital communication strategy through the integration of GPS technology and various digital communication channels such as WhatsApp, SMS, and direct calls. The implemented communication strategy is two-way, enabling fast and responsive interactions between management, the monitoring team, and drivers in the field. This communication system not only functions to convey technical information but also serves as a strategic coordination tool to ensure timeliness, clarity of instructions, and increased operational accountability.

The monitoring team plays a central role in implementing this strategy. They act as the primary liaison between management and drivers, as well as operational implementers, monitoring vehicle movements in real time, conveying field information, and evaluating driver performance based on GPS data. However, implementing digital communication is not without challenges, including signal interference, limited internet quotas, and a lack of formal training for drivers. These obstacles highlight the need for strengthening technical infrastructure and developing human resource capacity.

Nevertheless, GPS-based monitoring systems have proven effective in improving driver discipline and performance. Data tracking vehicle position, travel time, and activity provides

an objective basis for regular performance evaluations. Drivers also recognize that their performance is continuously monitored, encouraging them to work more systematically and professionally. Thus, the integration of digital communications and GPS tracking systems serves not only as a technical tool but also as a managerial control mechanism that strengthens efficiency and accountability within a company's logistics system.

Overall, this study confirms that the success of a digital communication strategy in the context of driver monitoring depends heavily on a combination of appropriate technology, a structured coordination system, and a work culture that supports open and clear communication. These findings are expected to serve as a reference for other companies in the logistics sector to develop effective digital communication systems oriented towards improving operational performance.

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