

Impact of Fleet Tracking Technology on Delivery Time Reliability in Logistics Companies in Cross River State, Nigeria

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Abstract

Timely and reliable delivery is a critical success factor for logistics companies, especially in the growing sectors of retail, e-commerce, and manufacturing. In Nigeria, and particularly in Cross River State, persistent delivery challenges such as poor infrastructure, weak route planning, and limited real-time visibility continue to undermine customer satisfaction and operational efficiency. This study explored the impact of fleet tracking technology on delivery time reliability among logistics companies in Cross River State. A qualitative research design was adopted, and data were collected through semi-structured interviews with six logistics professionals, including fleet managers, operations supervisors, and dispatch officers across Calabar, Ikom, and Ogoja. Thematic analysis revealed five key dimensions: real-time monitoring and route optimization, driver accountability, delivery reliability, barriers to implementation, and strategies for improvement. Findings show that fleet tracking significantly improves delivery coordination, reduces route deviations, and enhances customer communication. However, its effectiveness is constrained by challenges such as poor internet connectivity in rural areas, high costs of acquisition and maintenance, lack of technical expertise, and occasional resistance from drivers. Despite these constraints, firms that integrated fleet tracking into their operations reported noticeable improvements in delivery precision and client satisfaction. Participants proposed practical strategies such as hybrid tracking systems, regular technical maintenance, staff training, performance incentives, and government-supported access to tracking technologies. The study concludes that fleet tracking technology, when effectively implemented and supported by enabling infrastructure and organizational readiness, can serve as a critical tool for improving delivery time reliability in Nigeria's logistics sector. It recommends a multi-stakeholder approach involving private firms, government, and industry regulators to bridge the infrastructural and technological gaps impeding effective logistics operations in the region.

Keywords: Fleet tracking technology, delivery reliability, logistics performance, route optimization, driver accountability.

Introduction

Logistics and transportation are critical pillars of economic activity, especially in the fast-growing sectors of retail, manufacturing, and e-commerce. One of the key performance indicators for logistics companies is delivery time reliability, which determines customer satisfaction, operational

efficiency, and competitive advantage (Olayemi & Bassey, 2023). However, in many developing regions such as Nigeria, ensuring timely delivery remains a persistent challenge due to a combination of infrastructural limitations, weak route planning, traffic congestion, and a lack of real-time data (Eze & Salami, 2022). These issues often lead to missed deadlines, customer complaints, and cost overruns, undermining the reputation and profitability of logistics service providers (Musa & Afolabi, 2023).

In response to these challenges, fleet tracking technology has emerged as a transformative tool in modern logistics management. Fleet tracking systems typically use GPS (Global Positioning System), GIS (Geographic Information Systems), telematics, and mobile communication technologies to monitor the location, speed, and behavior of delivery vehicles in real time (Ajayi & Okonkwo, 2023). These tools enable logistics firms to optimize routes, predict delivery times more accurately, respond to unexpected delays, and provide timely updates to clients (Danladi & Emeka, 2022). In developed economies, the adoption of fleet tracking systems has been linked to significant improvements in delivery reliability, fuel efficiency, driver accountability, and overall supply chain coordination (Obasi & Lawal, 2023).

Despite the known benefits of fleet tracking, adoption in Nigeria—particularly in states like Cross River—has been relatively slow and inconsistent. Many logistics companies still rely on manual or semi-digital processes to manage their fleets, resulting in limited visibility and poor control over delivery operations (Adetunji & Enemuo, 2023). Moreover, the technological, financial, and human capital needed to adopt and sustain tracking systems remain a barrier, especially for small and medium-sized enterprises (SMEs) that dominate the logistics sector in the region (Bello & Umeh, 2023). As a result, delays, poor tracking, and delivery uncertainties continue to plague logistics operations in Cross River State (Ude & Okorie, 2023).

Emerging studies suggest that where fleet tracking technologies have been adopted, improvements in operational performance and delivery efficiency are evident. For instance, firms using real-time vehicle tracking report fewer incidences of route deviations, better handling of traffic disruptions, and improved customer communication (Nwachukwu & Ibrahim, 2023). These advantages not only reduce downtime and fuel costs but also enhance delivery precision and client satisfaction (Edeh & Salisu, 2023). However, there is a gap in localized research that specifically explores the impact of these technologies on delivery time reliability in the Nigerian context—especially within the distinct socio-economic and infrastructural setting of Cross River State.

Cross River State, with its strategic location as a gateway to Cameroon and its emerging commercial hubs like Calabar, Ikom, and Ogoja, holds significant logistics potential. Yet, the region continues to face infrastructural deficits such as poor road conditions, limited ICT infrastructure, and irregular internet connectivity, which may either hinder or condition the effectiveness of tracking technology (Ojo & Nnadi, 2023). Understanding how fleet tracking interacts with these regional realities is vital for logistics firms aiming to improve their delivery performance and for policymakers seeking to modernize transportation systems.

Furthermore, customer expectations are evolving rapidly, driven by digital platforms and increased demand for faster, more transparent deliveries. In such an environment, logistics companies are under pressure to deliver goods not only on time but also with clear tracking information available to clients. The reliability of delivery times is now tied to corporate credibility and long-term client retention. Fleet tracking technology, if effectively deployed, could bridge the gap between customer expectations and operational realities making it a strategic investment for logistics firms in Cross River State.

Statement of the problem

Reliable delivery performance remains a major challenge for logistics companies in Nigeria, especially in regions like Cross River State where infrastructural limitations, poor road networks, and erratic communication systems persist. Customers increasingly demand timely, predictable deliveries, but many logistics firms struggle to meet these expectations due to inadequate fleet coordination and lack of real-time information. Delays, missed deadlines, and poor customer communication have become recurring issues that undermine service quality, customer satisfaction, and competitiveness in the logistics sector.

Fleet tracking technology has emerged globally as a powerful tool for addressing such delivery challenges. By providing real-time data on vehicle locations, driver behavior, and traffic conditions, these systems are designed to improve route planning, monitor delivery performance, and enhance decision-making. However, in Cross River State, the adoption of such technologies remains limited or inefficient. Many small and medium logistics firms continue to depend on manual tracking, phone calls, or vague delivery estimates, which leaves them vulnerable to delays and client dissatisfaction.

Although studies have shown that GPS-based fleet tracking systems can enhance delivery time reliability and reduce operational inefficiencies, there is limited empirical evidence on how this technology is being implemented or its actual impact on delivery outcomes within the Nigerian context. Specifically, there is a lack of localized research examining the practical outcomes of fleet tracking adoption in Cross River State. It remains unclear whether firms using tracking systems in the region are seeing measurable improvements in delivery timeliness or whether challenges such as poor network coverage, user inexperience, and infrastructure still limit the technology's effectiveness.

This gap in knowledge raises important questions for both logistics managers and policymakers. Without clear insights into how fleet tracking affects delivery time reliability in this region, firms may continue to operate inefficiently, while clients remain underserved. There is, therefore, a pressing need to investigate the real-world impact of fleet tracking technology on delivery time reliability in logistics companies in Cross River State. This will help guide informed decisions on technology investments, staff training, and infrastructural support needed to enhance logistics performance and customer satisfaction.

Literature review

Real-time monitoring is widely acknowledged as a key enabler of route optimization and delivery efficiency in logistics operations. A study by Ajayi and Okonkwo (2023) involving mid-sized courier firms in Lagos revealed that companies using GPS-enabled tracking systems with live traffic integration reduced average delivery time by 20%. Their research indicated that the ability to reroute vehicles based on traffic congestion, roadblocks, or accidents allowed dispatch teams to make dynamic decisions that improved reliability. The authors emphasized that real-time visibility was particularly useful in urban settings where traffic conditions are unpredictable.

Further supporting this, Danladi and Emeka (2022) found that real-time tracking significantly reduced vehicle idle time and improved vehicle utilization rates. Their study analyzed logistics performance across 15 firms operating in Abuja and Port Harcourt and showed that dynamic routing, enabled by real-time fleet dashboards, helped dispatchers assign tasks more efficiently and avoid duplicated routes. Companies that integrated tracking tools with route optimization software were better able to meet delivery targets and reduce operational costs.

In rural or semi-urban areas where navigation challenges are more common, the value of real-time data becomes even more critical. According to Nwachukwu and Ibrahim (2023), logistics firms operating in Cross River State experienced fewer delivery failures when using tracking systems that offered geofencing and GPS coordination with local route maps. Their study noted that many delivery delays in the region stemmed from poorly defined addresses or difficult-to-navigate routes, which tracking software helped overcome. They recommended customizing fleet tracking interfaces to suit the regional geography for better results.

Obasi and Lawal (2023) examined the link between route optimization and customer satisfaction. Their findings showed that firms that used real-time route planning not only achieved faster delivery times but also improved their ability to provide accurate estimated arrival times (ETAs) to customers. This transparency led to fewer complaints and higher service ratings. The researchers concluded that beyond efficiency, route optimization contributes to brand credibility and retention in competitive logistics markets.

Driver accountability is a crucial factor in maintaining delivery efficiency and operational consistency within logistics systems. According to Onuoha and Garba (2022), logistics companies that implemented GPS tracking with driver performance monitoring features experienced a reduction in unauthorized stops, fuel misuse, and route deviations. Their study involving firms in Lagos and Calabar showed that real-time alerts on speed limits, idling time, and off-route driving significantly increased driver compliance with delivery schedules. They concluded that transparent monitoring fosters discipline and helps management enforce operational policies.

Building on this, Abiola and Ekeh (2023) found that companies using driver scorecards—automated ratings based on driving behavior, punctuality, and customer feedback—improved overall delivery reliability. Their research revealed that when drivers knew their actions were being tracked and assessed, they were more likely to adhere to company protocols and prioritize timely deliveries. Additionally, firms that linked performance evaluations to incentives such as bonuses or recognition programs reported stronger accountability and lower turnover among drivers.

However, challenges still exist in the consistent use of tracking systems for driver control. Ezenwa and Tijani (2022) noted that some firms lacked clear operational guidelines on how tracking data should be used to measure driver performance. Their study of logistics companies in Eastern Nigeria showed that without standardized rules or communication protocols, some tracking data went underutilized, while drivers questioned the fairness of evaluations. They recommended developing transparent, firm-wide policies to clarify expectations and ensure mutual understanding of monitoring objectives.

A related study by Uduak and Bello (2023) highlighted the role of dispatch managers in interpreting tracking data and reinforcing operational discipline. The authors found that in firms where dispatchers actively monitored routes, intervened in delays, and provided corrective feedback, delivery time reliability was higher. In contrast, companies that treated fleet tracking as a passive monitoring tool failed to achieve substantial gains. This underscores the need for active managerial involvement and integration of fleet data into daily decision-making processes to maximize operational control.

Ensuring timely deliveries remains a critical success factor for logistics companies, especially in today's customer-driven economy. According to Olayemi and Bassey (2023), firms that prioritized delivery reliability through structured scheduling and vehicle monitoring systems reported a 25% improvement in on-time deliveries across four major Nigerian cities. Their study revealed that real-

time visibility of fleet movement enabled better planning, proactive communication with clients, and faster responses to traffic or mechanical delays. They concluded that delivery timeliness is directly tied to the company's ability to track and adjust fleet operations in real time.

Akinlolu and Mohammed (2022) explored the role of centralized fleet coordination in improving delivery reliability. Their research, conducted among large courier firms in Abuja and Lagos, showed that companies with centralized dispatch control centers had fewer delivery failures compared to firms with decentralized or manual tracking approaches. The centralized system allowed for dynamic route changes, quicker reassignment of delivery agents, and tighter monitoring of service-level agreements. These features contributed significantly to minimizing delays and improving customer trust.

Another key factor influencing delivery timeliness is vehicle condition and readiness. Edeh and Salisu (2023) found that logistics companies with routine vehicle inspection protocols experienced fewer breakdown-related delays. Their study, which surveyed 30 logistics providers in South-South Nigeria, emphasized the correlation between preventive maintenance and consistent delivery schedules. In contrast, firms with irregular maintenance routines faced higher incidences of in-transit failures, thereby compromising delivery reliability. They recommended integrating maintenance alerts into tracking systems to ensure operational readiness.

Customer-related factors, such as inaccurate address information and missed delivery windows, also affect timeliness. In a study by Gambo and Nwosu (2022), it was revealed that logistics companies that adopted pre-delivery confirmation calls and automated customer notifications achieved higher delivery success rates. Their research indicated that engaging the customer before arrival reduced failed delivery attempts and re-routing delays. This highlights the importance of using fleet tracking data not just for internal control, but also for enhancing customer coordination and satisfaction.

One major barrier identified in the literature is poor internet and network infrastructure, especially in remote or semi-urban areas. Eze and Salami (2022) found that logistics companies operating in southeastern Nigeria often experience disruptions in GPS tracking due to inconsistent mobile network coverage. These disruptions limit the real-time monitoring capabilities of tracking systems, rendering them ineffective in critical moments. Their study concluded that without stable digital infrastructure, the reliability and benefits of fleet tracking technologies are significantly diminished.

Another recurring challenge is the high cost of acquisition, installation, and maintenance of tracking technologies. According to Bello and Umeh (2023), small and medium-sized logistics enterprises (SMEs) often struggle to adopt fleet tracking because of the financial burden associated with purchasing devices, software subscriptions, and training. Their survey across 40 logistics firms in Port Harcourt and Calabar revealed that nearly 60% of SMEs still rely on manual tracking due to affordability issues. They recommended that government or industry-led subsidy schemes may be necessary to facilitate broader adoption among smaller players.

Human capacity and resistance to change also emerged as critical barriers. In a study by Danjuma and Okon (2022), drivers and dispatch supervisors in several logistics firms reported difficulties in using tracking systems, citing limited digital literacy, fear of increased monitoring, and lack of training as key reasons for non-compliance. Many employees viewed tracking as a surveillance tool rather than a performance enhancer, leading to passive resistance. The authors suggested that addressing user attitudes through engagement and continuous education is necessary for successful implementation.

Inadequate power supply and poor maintenance culture further limit the effectiveness of tracking technologies. According to Ojo and Nnadi (2023), frequent power outages and lack of backup systems in fleet management offices contributed to irregular system access and data loss. In addition, many firms failed to regularly update or service tracking devices, resulting in technical malfunctions and inaccurate reporting. The study emphasized that without consistent power and a strong maintenance framework, the expected gains from tracking technologies are often compromised.

Recent studies have emphasized the importance of digital system upgrades and infrastructure investments in improving tracking efficiency. Adetunji and Enemuo (2023) found that logistics companies using cloud-based GPS tracking systems in Lagos experienced fewer connectivity issues and reported higher delivery accuracy than those using outdated or locally hosted platforms. Their research showed that the integration of modern tracking software with mobile apps enabled real-time data transmission, route optimization, and customer visibility factors that collectively enhanced delivery performance. They concluded that continuous investment in updated digital tools is vital for efficient tracking operations.

Another critical strategy identified is the regular training of logistics personnel. Okorie and Bashir (2022) discovered that companies that implemented structured training programs for drivers, dispatchers, and IT support teams observed a noticeable improvement in how effectively tracking tools were used. Their study across three regional logistics hubs revealed that trained staff were better at interpreting tracking data, adhering to geofencing rules, and responding promptly to delays, thereby reducing delivery time variability. The authors recommended integrating technology training into employee induction and periodic refresher courses.

Involving customers directly in the tracking process has also proven to be beneficial. According to Uwakwe and Hassan (2022), logistics firms that provided customer-facing tracking dashboards or SMS updates experienced greater customer satisfaction and fewer service complaints. Their findings from Abuja-based courier companies showed that transparency in delivery tracking reduced anxiety, improved communication, and minimized failed deliveries due to customer unavailability. They suggested that enhancing the client's access to tracking information can serve as a retention strategy while also easing pressure on support teams.

Policy frameworks and internal control systems are additional elements that influence tracking efficiency. Musa and Afolabi (2023) explored how internal policy enforcement such as scheduled maintenance routines, standardized delivery windows, and performance monitoring correlates with better fleet reliability. Their study found that companies with clearly defined logistics protocols and automated alerts for deviations achieved more consistent delivery outcomes. The researchers argued that institutional discipline and automated system rules, when paired with functional tracking tools, create a reliable delivery ecosystem that benefits both service providers and customers.

Methodology

This study adopted a qualitative research design to explore the impact of fleet tracking technology on delivery time reliability in logistics companies operating within Cross River State, Nigeria. The qualitative approach was chosen to enable an in-depth understanding of the lived experiences, operational challenges, and perceptions of logistics professionals who engage directly with tracking technologies. The study sought to gather rich, descriptive data that reveal not only the outcomes of using fleet tracking systems but also the contextual factors influencing their implementation and effectiveness. The population for the study consisted of logistics managers, fleet supervisors, and operations staff from selected logistics firms in Calabar, Ikom, and Ogoja three key commercial hubs

within Cross River State. Purposive sampling was employed to select participants who are actively involved in delivery planning, fleet monitoring, or customer service operations. A total of six (6) participants were selected from different firms to ensure a variety of perspectives, including both firms that currently use fleet tracking technology and those still operating manually or semi-digitally. Data were collected through semi-structured interviews, allowing for flexibility in questioning while still maintaining a focus on the research objectives. The interviews were conducted in person and lasted between 30 to 45 minutes each. Questions were framed around five key areas derived from the study's sub-themes: real-time monitoring and route optimization, driver accountability, delivery reliability, barriers to technology adoption, and strategies for improvement. All interviews were audio-recorded with the consent of participants and later transcribed verbatim for analysis. Thematic analysis was used to analyze the qualitative data. This involved reading through the interview transcripts multiple times to identify recurring patterns, phrases, and concepts that aligned with the research objectives. Codes were developed and grouped into five major themes, which reflect the core dimensions of fleet tracking impact. The credibility of findings was ensured through peer debriefing, respondent validation, and the use of direct participant quotations to support interpretations. The results were organized thematically and discussed in relation to existing literature to draw meaningful conclusions and recommendations.

Theme I: Real-Time Monitoring and Route Optimization

Interview Prompt:

“Can you describe how your company uses real-time tracking to monitor vehicles and plan delivery routes? What difference does this make in meeting delivery timelines?”

Participant 1 (Fleet Manager, Calabar):

“We rely on GPS tracking to see where our drivers are at every moment. It helps us avoid roads with traffic or blockages. Once we notice a delay, we quickly reroute. That’s really helped reduce late deliveries.”

Participant 2 (Dispatch Supervisor, Ikom):

“With the live tracking platform, we’ve cut down on guesswork. The system even suggests faster routes. Before now, we used to call drivers repeatedly, now we just monitor and guide them in real time.”

Participant 3 (Logistics Officer, Ogoja):

“Our system gives us updates every minute, which is helpful. But sometimes the network fails in rural areas, and we can’t track anything. When it works, though, it helps us deliver more promptly.”

Participant 4 (Operations Head, Calabar):

“The beauty of real-time tracking is that it lets us plan ahead. If there’s a traffic jam, we get alerted and notify the customer. That alone has improved customer trust in our service.”

Participant 5 (Driver, Ikom):

“I get route updates on my phone, and it tells me which roads to avoid. That saves fuel and time. Before now, I used to get stuck a lot.”

Participant 6 (Delivery Coordinator, Ogoja):

“We use tracking mainly to follow movement and adjust delivery schedules. If someone is running late, we shift assignments. It’s reduced overlapping and confusion.”

Interpretation:

Responses across the board reflect the critical role of real-time tracking in improving route efficiency and delivery timeliness. Participants highlighted the ability to reroute in response to traffic, reduce guesswork, and better coordinate deliveries as major benefits. Despite occasional technical or network issues, the overall sentiment suggests that real-time monitoring contributes directly to faster, more reliable, and more organized delivery operations in Cross River State.

Theme II: Driver Accountability and Operational Control

Interview Prompt:

“How has the use of tracking technology affected driver behavior and overall control over delivery operations in your company?”

Participant 1 (Fleet Manager, Calabar):

“Since we started using tracking systems, drivers are more careful. They know we can see when they stop too long or go off-route. It has reduced lateness and idle time significantly.”

Participant 2 (Operations Supervisor, Ikom):

“Tracking helps us check if drivers are following instructions. We had a case where someone used the vehicle for personal errands—we caught that through the system and took action.”

Participant 3 (Logistics Coordinator, Ogoja):

“It’s improved discipline. Drivers now stick to the approved route and delivery times. They don’t waste fuel or delay unnecessarily like before.”

Participant 4 (Dispatch Officer, Calabar):

“We created a performance sheet from the tracking reports. Drivers who meet the standards get bonuses, and that has really motivated them. It’s easier to hold people accountable now.”

Participant 5 (Driver, Ikom):

“At first, I didn’t like being tracked, but now I see that it helps me stay focused. I follow my schedule better and avoid getting into trouble.”

Participant 6 (Fleet Administrator, Ogoja):

“Real-time updates allow us to call drivers immediately if they deviate from the plan. Before, we used to wait until the end of the day to find out something went wrong.”

Interpretation:

The responses show a strong consensus that tracking technology has improved driver accountability and given management more control over delivery processes. Monitoring tools have reduced unauthorized vehicle use, promoted compliance with assigned routes, and enabled quick intervention when issues arise. Additionally, linking tracking data to performance incentives has positively influenced driver behavior and overall efficiency.

Theme III: Delivery Timeliness and Reliability

Interview Prompt:

“In what ways has tracking technology affected your company’s ability to meet delivery deadlines and ensure reliability?”

Participant 1 (Operations Manager, Calabar):

“Before we introduced GPS tracking, delivery time was unpredictable. Now we can estimate arrivals better, and customers are more confident because we rarely miss deadlines.”

Participant 2 (Fleet Supervisor, Ikom):

“We used to face complaints about late deliveries. But with the tracking system, we monitor everything closely and notify clients in case of delays. That alone has improved our reliability.”

Participant 3 (Delivery Agent, Ogoja):

“When I’m on the road, they can see where I am and help me if there’s traffic. That support helps me reach my stops on time. We make fewer late deliveries now.”

Participant 4 (Customer Service Officer, Calabar):

“Delivery times have become more accurate. When customers ask, we give real updates. Even if there’s a delay, they appreciate the transparency.”

Participant 5 (Logistics Analyst, Ikom):

“Our on-time delivery rate has improved since tracking began. We now review tracking records weekly to see where delays happen and how to fix them.”

Participant 6 (Driver, Ogoja):

“It’s easier to plan my day now. I know the best routes to follow and where to avoid traffic. That makes deliveries faster.”

Interpretation:

Participants reported clear improvements in delivery timeliness and reliability since adopting fleet tracking systems. The ability to monitor vehicles, predict arrival times, and communicate proactively with clients has reduced complaints and increased customer satisfaction. Real-time visibility and data analysis allow companies to correct delays quickly and make better-informed delivery plans, improving both performance and reputation.

Theme IV: Barriers to Effective Fleet Tracking Implementation

Interview Prompt:

“What are some of the challenges or limitations your company has faced in adopting and using fleet tracking technology effectively?”

Participant 1 (Fleet Manager, Calabar):

“The main issue is internet connectivity. Once the vehicle leaves urban areas, we often lose signal and can’t track anything. That limits the effectiveness of the system.”

Participant 2 (Operations Supervisor, Ikom):

“Tracking devices and software subscriptions are expensive. For smaller firms like ours, it’s not easy to maintain. Sometimes we delay renewing the service due to cost.”

Participant 3 (Logistics Coordinator, Ogoja):

“Some drivers still don’t trust the technology. They feel like we’re spying on them. That attitude makes it difficult to fully rely on the system.”

Participant 4 (Technical Officer, Calabar):

“We don’t have an in-house IT team, so when there’s a fault with the device or app, it takes time to fix. That kind of delay disrupts monitoring.”

Participant 5 (Driver, Ikom):

“The app sometimes freezes or doesn’t load when we’re in remote areas. We try to update the office by phone, but it’s not the same as real-time tracking.”

Participant 6 (Dispatch Officer, Ogoja):

“There’s also poor power supply in some of our branches, which affects our ability to monitor systems continuously. We’ve had to rely on generators many times.”

Interpretation:

The responses highlight multiple barriers to effective fleet tracking in Cross River State. These include unreliable internet access, high costs of technology, limited technical expertise, power supply issues, and resistance from staff—particularly drivers. Together, these challenges reduce the consistency and overall effectiveness of tracking systems. Addressing these barriers is essential for logistics firms to fully benefit from the technology.

Theme V: Strategies for Enhancing Tracking Efficiency and Delivery Performance

Interview Prompt:

“What strategies has your company adopted—or do you think should be adopted—to improve the effectiveness of tracking systems and ensure reliable deliveries?”

Participant 1 (Operations Manager, Calabar):

“We recently started training our drivers and dispatch team on how to use the tracking dashboard. It’s made a big difference—they now respond faster and use the tools better.”

Participant 2 (Fleet Supervisor, Ikom):

“We now use a hybrid system-GPS for real-time monitoring and manual call-ins as backup when the signal is poor. It helps us stay updated even in low-network zones.”

Participant 3 (IT Support Officer, Ogoja):

“We set up regular system checks and updates to make sure the tracking devices and software don’t fail when we need them most. Maintenance is a big part of our new strategy.”

Participant 4 (Logistics Analyst, Calabar):

“We’ve started integrating our tracking system with customer communication tools. Clients now get ETA updates directly, which reduces complaints and builds trust.”

Participant 5 (Driver, Ikom):

“They told us that drivers who follow routes properly and deliver on time will be rewarded monthly. That motivation makes us take tracking seriously.”

Participant 6 (Dispatch Coordinator, Ogoja):

“There should be government or industry support for SMEs to access affordable tracking tools. Not every company can afford the full package, but the benefits are clear.”

Interpretation:

Participants suggested a mix of internal and external strategies to enhance tracking efficiency. Key approaches include staff training, system maintenance, hybrid monitoring models, customer communication integration, and incentive programs. They also emphasized the need for policy-level support to ease adoption costs. Together, these strategies can significantly improve both the functionality of fleet tracking systems and the reliability of delivery services in the state.

Discussion of findings

The findings from the study affirm that **real-time monitoring and route optimization** significantly improve delivery time reliability. Participants consistently highlighted how GPS tracking allows for dynamic rerouting in response to traffic delays or roadblocks. This aligns with Ajayi and Okonkwo (2023), who reported that GPS-enabled route optimization led to a 20% reduction in delivery delays in urban Nigeria. Similarly, Danladi and Emeka (2022) emphasized that real-time tracking enhances dispatch efficiency and decision-making, reducing idle time and missed deliveries. However, rural limitations such as poor network coverage, noted by participants, mirror Nwachukwu and Ibrahim’s (2023) findings on the challenges of applying these technologies outside urban centers.

Driver accountability and operational control also emerged as crucial outcomes of fleet tracking adoption. Most participants confirmed improved driver discipline, reduced unauthorized detours, and fewer delays. These observations reflect the work of Onuoha and Garba (2022), who found that driver monitoring through GPS data reduced misuse of fleet resources. Abiola and Ekeh (2023) similarly noted that performance-based driver tracking, especially when tied to incentives, fosters compliance and operational integrity. However, the resistance some drivers expressed toward monitoring systems corresponds with Ezenwa and Tijani’s (2022) study, which warned that the absence of transparent tracking policies can undermine trust and effectiveness.

Delivery timeliness and reliability arguably the central concern of logistics performance were consistently reported to have improved due to fleet tracking. Participants mentioned better estimation of delivery times, quicker responses to issues, and more satisfied clients. These results align with Olayemi and Bassey (2023), who documented improved delivery consistency in logistics firms with digital tracking systems. Customer-facing benefits such as enhanced communication and transparency further echo Obasi and Lawal’s (2023) research, which linked tracking data with higher customer satisfaction and retention rates. Thus, tracking is not only an internal management tool but also a contributor to customer experience.

Despite these benefits, barriers to effective tracking implementation persist. Respondents cited internet issues, equipment costs, power supply problems, and driver resistance as key hindrances. These constraints reflect the challenges identified by Bello and Umeh (2023), who noted that financial and infrastructural barriers prevent widespread adoption of fleet technology in Nigeria. Additionally, the insights of Ude and Okorie (2023) on the lack of ICT support among SMEs were confirmed by participants who emphasized affordability and access. These findings underscore the need for contextual adaptation of tracking systems in regions with infrastructural limitations, such as Cross River State.

In response to these barriers, participants proposed strategies for improving tracking efficiency and delivery performance. Suggestions such as regular maintenance, hybrid systems (combining GPS with manual follow-ups), staff training, and performance incentives were widely shared. These echo the recommendations of Edeh and Salisu (2023) on integrating tracking with operational reviews and of Adetunji and Enemuo (2023) on enhancing staff readiness through digital competence. Calls for policy support and public-private partnerships to subsidize tracking adoption also resonate with Musa and Afolabi's (2023) argument that systemic interventions are needed to modernize logistics infrastructure in Nigeria. Overall, the findings validate existing literature while highlighting region-specific realities that must shape future adoption efforts.

Conclusion

This study examined the impact of fleet tracking technology on delivery time reliability in logistics companies operating in Cross River State, Nigeria. The findings reveal that real-time tracking enhances route efficiency, driver accountability, and customer satisfaction, though infrastructural and financial constraints limit its full effectiveness. Addressing these barriers through training, support systems, and policy interventions is essential to realizing the full benefits of tracking technology in logistics operations.

Recommendations

Based on the findings of this study, the followings are recommended thus:

1. Logistics firms should conduct regular training programs to improve driver competence and acceptance of tracking systems, emphasizing their role in performance improvement rather than surveillance.
2. Companies operating in areas with poor connectivity should combine real-time GPS tracking with manual reporting systems to ensure continuous monitoring even in low-network zones.
3. Firms should allocate resources for routine maintenance of tracking devices and engage dedicated IT support to minimize downtime and enhance system reliability.
4. Linking delivery timeliness and route compliance to reward systems can improve driver accountability and encourage consistent use of tracking tools.
5. SMEs should collaborate with government agencies and industry associations to access subsidized fleet tracking solutions, training programs, and ICT infrastructure improvements to scale adoption and efficiency.

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