Proposed Enterprise Architecture on System Fleet Management: PT. Integrasia Utama

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Abstract: An information technology consulting firm that specializes in Global Positioning Systems provides fleet management services for many of its clients. The systems currently used by companies require more advanced modernization to ensure optimal service delivery. To overcome this challenge, a proposed enterprise architecture on system fleet management is presented in this paper. The proposed enterprise architecture is a comprehensive solution that includes the necessary hardware, software and operational processes to improve fleet management services. The proposed architecture is based on the Enterprise Architecture, which enables the integration of various systems and applications used by companies. The proposed architecture includes modules for vehicle tracking, fuel management, maintenance scheduling and driver performance monitoring. These modules work together to provide real-time data on fleet operations, enabling companies to make informed decisions regarding their fleet management services. The proposed architecture also incorporates an easy-to-use interface that simplifies the fleet management process and enhances customer satisfaction. The proposed system is scalable and easily adaptable to meet service requirements across multiple customers. In conclusion, the proposed enterprise architecture for system fleet management provides a comprehensive solution to the current challenges faced by companies as a corporate fleet service provider. The proposed architecture will improve service, reduce costs, and increase customer satisfaction.

Keywords: Driver performance monitoring; Enterprise Architecture; Fleet Management; Global Positioning System; Vehicle Tracking

INTRODUCTION

The fleet management system is one of the key aspects of a transportation company's business operations (Kotsialos & Vassilakopoulou, 2023), (Dintén et al., 2023), (Alexandru et al., 2021). PT. Integrasia Utama, a fast-growing transportation company, recognizes the importance of effective and efficient fleet management in ensuring timely delivery of goods and services to their customers. To achieve this goal, the company intends to develop a new enterprise architecture for their fleet management. The Proposal for Enterprise Architecture on PT. Integrasia Utama's Fleet Management System aims to provide an overview of the strategies and practical steps that can be taken by companies to increase effectiveness and efficiency in their fleet management. This enterprise architecture (Julia et al., 2017) was designed by considering several important factors, including information systems, technology infrastructure, and business requirements. This proposal includes

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several strategies and practical steps that can be implemented by companies to achieve this goal. One of the main strategies covered in this proposal is a sophisticated and integrated system design. The new fleet management system must be designed taking into account various aspects of the company's business, such as operational objectives, customer needs and internal policies. In addition, this system must also be integrated with other information systems in the company, such as supply chain management systems and inventory management systems. In this research, we will discuss several important aspects of this enterprise architecture, including system design, data integration, network management, and system maintenance. We will consider various technologies that can be used to build more sophisticated fleet management systems, such as the use of the Internet of Things (IoT) (Mourtzis et al., 2020), (Ushakov et al., 2022), (Wedha, Wedha, et al., 2022), Big Data Analytics and Artificial Intelligence (AI) (Hindarto & Santoso, 2021),(Wedha, Karjadi, et al., 2022). By implementing the Enterprise Architecture in this new Fleet Management System, PT. Integrasia Utama will be able to improve efficiency and effectiveness in their business operations. This will help companies achieve their goals of providing better service to customers and increasing their profits in the long run.

Remote monitoring technology (Mozaryn et al., 2022), (Paganelli et al., 2021) can be used to facilitate fleet management and maintenance by remotely gathering real-time information about fleet position, condition and performance. This can help transportation companies such as PT. Integrasia Utama to monitor and manage their fleets effectively and efficiently. One example of remote monitoring technology that can be used is Global Positioning System (GPS). GPS can be used to track fleet positions with high accuracy and send this information back to the fleet control center at headquarters. This allows fleet managers to know where the fleet is currently located and optimize route planning and delivery schedules. In addition to GPS, other remote monitoring technologies such as telematics sensors can be used to gather information on engine performance, fuel and fleet temperature (Achillas et al., 2019). This information can be integrated with fleet management systems and analyzed to identify potential problems with the fleet and prevent engine failure or damage that could affect fleet efficiency and service quality. Remote monitoring technology can also be used to facilitate fleet maintenance. With this technology, companies can monitor fleet conditions in real-time and fix problems as quickly as possible. This technology can also be used to manage maintenance schedules more effectively and extend fleet life. For system security, the company provides Cyber Security services such as Intrusion Detection and Prevention System, Malware Detection, Anti-Malware (Hindarto, 2022), (Hindarto & Santoso, 2022), (Hindarto & Handri Santoso, 2021) and other security systems. In this regard, the use of remote monitoring technology to facilitate fleet management and maintenance can help companies such as PT. Integrasia Utama to improve efficiency and effectiveness in running its business.

The purpose of this research on Enterprise Architecture on System Fleet Management (Korablev et al., 2021): PT. Integrasia Utama is to provide insights into strategies and practical steps that can be taken by companies to increase effectiveness and efficiency in their fleet management. This research will evaluate the company's current architecture and propose improvements and innovations that may be needed in fleet management, especially taking into account the use of the latest technology. In this regard, this research will focus on aspects such as remote monitoring, maintenance, risk management, cost reduction, and improving overall operational efficiency and effectiveness. By conducting this research, it is hoped that the company PT. Integrasia Utama can improve their performance in fleet management and provide better service to their customers. In addition, this research can also provide benefits to other transportation companies who face the same challenges in their fleet management. This research can provide guidance and examples to follow to improve effective and efficient fleet management by leveraging the latest technology and industry best practices.

Following are some of Research Questions (RQ) for the research topic Enterprise Architecture on System Fleet Management: PT. Integrasia Utama:

1. What is the current corporate architecture at PT. Integrasia Utama and are there areas that need improvement in fleet management? (RQ 1).
2. What are the remote monitoring technologies that can be used in fleet management and how can their use help companies improve operational efficiency and effectiveness? (RQ 2).

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3. What are the risk management strategies that can be implemented in fleet management and how can this help PT. Integrasia Utama reduce operational risk and ensure smooth business operations? (RQ 3).
4. How can using a more integrated enterprise architecture increase cost savings in fleet management and improve customer experience? (RQ 4).

LITERATURE REVIEW

Fleet management is a critical aspect of any organization that uses vehicles to support its operations. In recent years, advancements in technology have allowed companies to streamline fleet management processes, leading to increased efficiency and reduced costs. This literature review examines the role of enterprise architecture in system fleet management and how it can be used to optimize fleet operations.

According to the Open Group Architecture Framework (TOGAF), enterprise architecture is a comprehensive framework that defines how an organization's IT infrastructure should be designed and implemented. By using enterprise architecture, companies can ensure that their IT systems align with their business goals and objectives. In the case of fleet management, enterprise architecture can be used to design and implement a system that optimizes vehicle usage and reduces costs.

Enterprise Architecture for the Logistics Truck Industry in Indonesia (Wedha, 2022). In this study, the business model is described in the business model canvas, from nine business aspects into one unit with the company's goals. Enterprise architecture is visualized using elements from the ArchiMate Core Framework to obtain integrated enterprise system results between business elements, data and application elements, along with technology elements. The results of this study are enterprise architecture in the logistics truck industry along with modeling in ArchiMate.

Sustainability of Implementing Enterprise Architecture in the Solar Power Generation Manufacturing Industry(Hindarto et al., 2021). In this research, provide to the best solution for applying the enterprise architecture framework correctly. The purpose of this paper is to design a manufacturing industry information system that is in accordance with the business model canvas and enterprise architecture. The design also discusses the development of a large and integrated information system with other systems. The study of Business Model Canvas is a business model that can explain and focus on nine business aspects with a solid strategy.

IoT Adoption in Core Process Trucking in Indonesia Using the TOGAF Framework (Wedha, Helmi, et al., 2022). Implementation of IoT technology in trucking companies requires enterprise architecture planning, so that the technology implemented is in accordance with business needs. This journal will discuss how to use IoT technology to support business objectives and operational processes in the core processes of trucking companies in Indonesia, as well as provide recommendations for enterprise architecture according to TOGAF that can be implemented in the core processes of the trucking business in Indonesia.

Enterprise Resource Planning Study in the Bamboo Processing Manufacturing Industry using Enterprise Architecture (Oroh et al., 2022). The purpose of this research is to implement Enterprise Architecture aimed at making IT Planning on the Enterprise Resource Planning application system, in order to be more effective in implementing the application. The roadmap becomes clearer with the Enterprise Architecture. After doing Enterprise Architecture there is a Migration Planning stage, which is used for application to the Enterprise Resource Planning (ERP) application system.

METHOD

The methods that can be used by PT. Integrasia Utama in implementing Enterprise Architecture in the Fleet Management System are as follows:
1. Identify business needs and strategic objectives. PT. Integrasia Utama must first identify the business needs and strategic goals of the company. This will help in determining the right enterprise architecture to meet those needs. For example, if a company's strategic goal is to increase operational efficiency and effectiveness, then the implemented enterprise architecture must be able to support this.

*name of corresponding author

2. Existing architecture analysis; PT. Integrasia Utama must conduct an analysis of the existing architecture to find out the weaknesses and strengths of the architecture currently used. This can help in determining a new and better architecture that can overcome the weaknesses that exist in the current architecture.

3. Designing a new enterprise architecture. After knowing the business needs and strategic goals and analyzing the existing architecture, PT. Integrasia Utama can design a new corporate architecture that is more integrated and can meet the company's business needs and strategic goals. This new architecture must consider factors such as security, reliability, scalability, and ease of use.

4. Implement the new enterprise architecture. Once the new enterprise architecture is designed, the next step is to implement it. PT. Integrasia Utama must ensure that the new architecture can be implemented properly and can run smoothly. Companies must pay attention to the quality of implementation and carry out careful testing before the system is fully implemented.

5. Monitoring and evaluation. After the new enterprise architecture is implemented, PT. Integrasia Utama must continue to monitor and evaluate the system. This can help companies ensure that the new enterprise architecture can run smoothly and can meet the business needs and strategic goals that have been previously set.

Figure 1, is implementing the above methods, PT. Integrasia Utama can increase cost savings in fleet management and improve customer experience. A more integrated enterprise architecture can help companies manage data more effectively and efficiently so as to reduce operational costs. In addition, a more integrated enterprise architecture can also speed up the decision-making process and provide a better customer experience due to a more efficient and effective system.
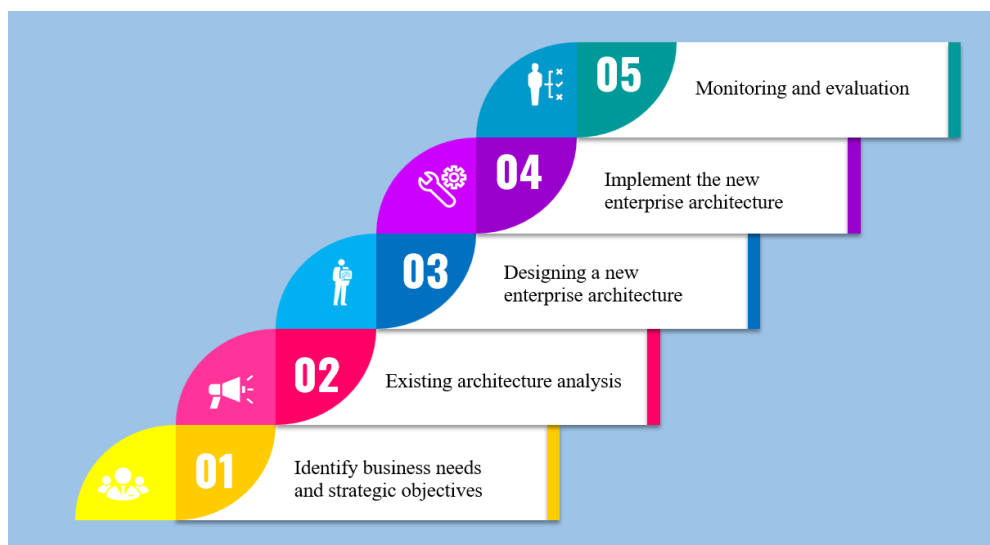

Figure 1. The methodology of the stages of implementing enterprise architecture PT. Integrasia Utama

TOGAF (The Open Group Architecture Framework) provides methodologies and guidelines for developing and managing an organization's IT architecture in a consistent and effective manner. Following are the steps for implementing Enterprise Architecture using TOGAF:

1. Preparation: Preparation begins with establishing the IT architecture objectives and determining the appropriate architectural organization that will support the development of the architecture. Preparation also involves forming an architectural team and preparing architectural documents.

2. Defining Architecture: This stage involves gathering relevant information to form an IT architecture that is consistent with the business objectives of the organization. This involves identifying architectural objectives, stakeholder analysis, identifying architectural requirements and developing architectural models.

3. Architectural Planning: At this stage, strategic planning is made based on the architectural model that has been developed previously. This includes developing an architecture implementation plan and creating an architectural transformation plan.

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4. Architecture Implementation: Architecture implementation involves developing and executing an approved architecture implementation plan. This involves building and testing architectural solutions, as well as ensuring compliance with the defined architecture.
5. Architecture Management: This stage involves managing the organization's IT architecture. This includes architecture oversight, architecture performance monitoring, architecture maintenance, and periodic architectural evaluations.
6. Architecture Evaluation: The final stage involves evaluating the organization's IT architecture on a regular basis to ensure the architecture remains aligned with the organization's business goals and needs. Evaluation can be done as part of the ADM (Architecture Development Method) life cycle or as a separate architecture evaluation.

By following these steps, organizations can develop and manage their IT architecture effectively using the TOGAF framework. This helps organizations achieve their business goals more efficiently and effectively, and ensures that the architecture fits the organization's business needs and goals.

RESULT

The following is an example of an application architecture that can be implemented by PT. Integrasia Utama in order to build an integrated Fleet Management system:

Table 1 is Application Components
1. Vehicle Management System: An application used to manage vehicle and owner data, such as vehicle information, technical specifications and owner data.
2. Vehicle Tracking Systems: Applications used to track vehicle position and monitor vehicle usage, including fuel consumption, engine usage, and overall vehicle performance.
3. Vehicle Maintenance Planning System: An application used to manage vehicle maintenance, including maintenance schedules, maintenance services performed, and associated costs.
4. Vehicle Resource Management System: Application used to manage vehicle and spare parts inventory, including spare parts requirement planning, inventory monitoring, and procurement of required spare parts.

Table 1 Application Components

No	Name
1	Vehicle Management System
2	Vehicle Tracking Systems
3	Vehicle Maintenance Planning System
4	Vehicle Resource Management System

Table 2 is Application Integration:
1. Integration between Vehicle Management System and Vehicle Tracking System to monitor vehicle position and vehicle performance in real-time.
2. Integration between the Vehicle Tracking System and the Vehicle Maintenance Planning System to enable vehicle maintenance planning based on real-time vehicle monitoring data.
3. Integration between the Vehicle Maintenance Planning System and the Vehicle Resource Management System to enable the planning of spare parts requirements and procurement of the required spare parts.

Table 2 Application Integration

No	Name
1	Vehicle Management System and Vehicle Tracking System
2	Vehicle Tracking System and the Vehicle Maintenance Planning System
3	Vehicle Maintenance Planning System and the Vehicle Resource Management

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DISCUSSIONS

What is the current corporate architecture at PT. Integrasia Utama and are there areas that need improvement in fleet management? (RQ 1).

To answer this question, more information about PT. Integrasia Utama is needed, such as company background, fleet size, and fleet management practices used. However, in general, PT. Integrasia Utama's current corporate architecture in fleet management may cover several aspects, such as fleet management information systems, fleet monitoring, fleet maintenance and repair, risk management, and fleet performance analysis. In the case of fleet monitoring, the company may use GPS technology or other remote monitoring to track the location and condition of the fleet. However, there may still be areas that require improvement in this regard, such as fuel monitoring, fleet availability and optimal fleet utilization. Meanwhile, in terms of fleet maintenance and repair, PT. Integrasia Utama may have a maintenance management system to ensure that the fleet is always in good condition and ready for use. However, improvements may still be needed in this regard, such as improving the periodic maintenance system, spare parts management, and improving the fault reporting system. Risk management may also be an area that PT. Integrasia Utama pays attention to, especially in terms of driver safety, regulatory compliance, and accident management. Risk management in fleet management is an approach that aims to identify, evaluate and manage the risks associated with fleet operations. Risks associated with fleet management can include accidents, fleet damage, delivery delays, financial losses, and so on. In terms of driver safety, risk management can help PT. Integrasia Utama to increase driver awareness and skills, such as driver training, driving skills assessment, and developing strict safety policies. In addition, risk management can help companies to identify and prevent risks related to road conditions, weather and the surrounding environment, and ensure that drivers always follow traffic regulations. Regulatory compliance is also an important aspect of risk management in fleet management. PT. Integrasia Utama must ensure that its fleet always meets legal and regulatory requirements related to fleet operations, such as licensing, taxation and compliance with environmental regulations. Violation of these rules can result in significant fines and legal sanctions, so risk management can help companies to minimize these risks. Risk management can also assist PT. Integrasia Utama in accident management, namely by designing emergency action plans and procedures to reduce accident risk. In addition, risk management can help companies to study the causes of accidents and implement appropriate countermeasures, such as regular repair and maintenance of the fleet, training of drivers, and monitoring of drivers in the operation of the fleet. Overall, risk management in fleet management can help PT. Integrasia Utama to reduce operational risks and ensure smooth business operations. Therefore, risk management is an important area to pay attention to in the enterprise architecture of the fleet management system. However, it may still need improvement in this regard, such as improving driver training and implementation of a more integrated risk management system. Overall, a more detailed and in-depth assessment is needed to find out PT. Integrasia Utama's corporate architecture in fleet management and which areas need improvement. However, improvements in aspects such as remote monitoring, fleet maintenance and repair, and risk management may improve the operational efficiency and effectiveness of the company.

What are the remote monitoring technologies that can be used in fleet management and how can their use help companies improve operational efficiency and effectiveness? (RQ 2).

Remote monitoring technology, also known as telematics, is an information system that allows sending data from vehicle-mounted devices via the internet to servers that can be accessed by users via applications or the web. This technology has been widely used in fleet management to monitor driver position, performance, condition and behavior. Following are some of the remote monitoring technologies that can be used in fleet management:

1. Global Positioning System (GPS) is a satellite navigation system that can provide information about the position and speed of the vehicle. In fleet management, GPS is used to track vehicle position in real-time and determine the best route that can save time and costs.
2. Vehicle Tracking System (VTS) is a technology that utilizes GPS and in-vehicle sensors to gather information about a vehicle's location, speed, direction, distance, travel time, fuel consumption and condition. This information can be accessed through applications or the web that allows users

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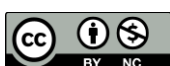
to monitor driver performance and behavior and optimize fleet usage. The Vehicle Tracking System (VTS) is a technology that utilizes GPS and in-vehicle sensors to gather information about the location, speed, direction, distance, travel time, fuel consumption and vehicle condition. VTS can be installed on all types of vehicles such as cars, trucks, buses and motorbikes. VTS works by collecting data from sensors installed on the vehicle, such as GPS sensors to determine vehicle position, speed sensors to determine vehicle speed, and fuel sensors to measure fuel consumption. The data is sent via the internet network to a server that can be accessed by users via applications or the web. Through the application or the web, users can monitor vehicle performance in real-time, determine the best route and optimize fleet usage. In addition, VTS can also provide notifications if the vehicle leaves the specified route, the vehicle speed exceeds the set limit, or if there is a problem with the vehicle such as a fuel leak or engine failure. The benefits of using VTS in fleet management are increasing operational efficiency and reducing operational costs. By monitoring vehicle position in real-time, companies can optimize fleet usage and determine the best route to save time and costs. In addition, VTS can also help companies reduce the risk of accidents and violations of the law by monitoring driver behavior and providing proper training.

3. Fleet Management System (FMS) is a solution that provides features for fleet management such as mileage monitoring, maintenance schedule management, fuel consumption monitoring, messaging, and data analysis for better decision making. FMS can also be integrated with Enterprise Resource Planning or Customer Relationship Management systems to facilitate business processes and resource management. Mileage monitoring is carried out using GPS and sensors on the vehicle. The FMS can display information about the vehicle's position, speed, distance traveled, travel time, and travel route. With this information, the company can monitor vehicle activity and optimize its use. Maintenance schedule management is also an important feature in FMS. FMS can provide warnings when a vehicle requires maintenance, such as an oil change or tire change. FMS can also help organize regular maintenance schedules to ensure the vehicle is always in good condition and avoids unforeseen breakdowns. Fuel consumption monitoring is another feature in FMS. FMS can measure vehicle fuel consumption and provide reports on fuel efficiency. With this information, companies can optimize fuel use and reduce operational costs. Messaging can also be done via FMS. Drivers can receive messages from the company and vice versa, so as to facilitate coordination and communication between the company and the driver. Lastly, data analysis is also an important feature in FMS. FMS can collect and analyze data collected from vehicles to provide valuable information for better decision making. For example, the FMS can provide information on fleet usage, fuel efficiency and operating costs. With this information, companies can make better and more effective decisions in managing their vehicle fleet. Overall, a Fleet Management System (FMS) can help companies improve their operational efficiency and effectiveness, reduce operational costs, and increase the productivity of their vehicles. With comprehensive features such as mileage monitoring, maintenance schedule management, fuel consumption monitoring, messaging, and data analysis, companies can optimize the use of their vehicle fleet and make better decisions for their business.

4. Driver Monitoring System (DMS) is a technology that uses cameras and sensors to monitor driver behavior such as speed, safe distance, use of seat belts and other irregularities. DMS can help companies reduce the risk of accidents and improve driver and passenger safety. Camera technology and sensors in the DMS can monitor the movement of the driver's head, eyes and face to determine whether the driver is focused on the road or distracted by other factors such as a smartphone or fatigue. If a driver seems sleepy or unfocused, the DMS can alert drivers to alert them and prevent accidents. Speed can also be monitored via DMS. DMS can provide a warning when the driver exceeds the specified speed limit or when the driver disobeys other traffic rules such as a red light or a yellow light. DMS can also monitor the safe distance between vehicles. DMS can warn when the distance between vehicles is too close, thereby reducing the risk of accidents caused by rear-end collisions. The use of seat belts can also be monitored by the DMS. If the driver is not wearing a seat belt, the DMS can provide a warning and remind them of the

importance of using a seat belt for the safety of the driver and passengers. In addition, DMS can monitor cell phone use while driving. If a driver uses a cell phone while driving, the DMS can provide a warning and prevent the driver from taking risks that could threaten their safety and that of others. By using camera and sensor technology, the Driver Monitoring System (DMS) can help improve driver and passenger safety, and reduce the risk of road accidents. DMS can monitor driver behavior such as speed, safe distance, seat belt use, cell phone use while driving, and other deviations from traffic rules. If there is a violation of the rules, the DMS can issue a warning to prevent accidents and maintain road safety.

The use of remote monitoring technology in fleet management can help companies improve operational efficiency and effectiveness in the following ways:

1. Increase fleet productivity. By monitoring driver performance and behavior and optimizing fleet utilization, companies can increase productivity and reduce operating costs.
2. Reducing the risk of accidents and breaking the law, By monitoring driver behavior and providing proper training, companies can reduce the risk of accidents and violations of the law and improve driver and passenger safety.
3. Improve fuel use efficiency. By monitoring fuel consumption and optimizing routes, companies can save on fuel usage and reduce costs

What are the risk management strategies that can be implemented in fleet management and how can this help PT. Integrasia Utama reduce operational risk and ensure smooth business operations? (RQ 3). Risk management strategies are actions taken to identify, analyze, evaluate and manage risks associated with business operations. In fleet management, there are several risk management strategies that can be implemented to reduce operational risk and ensure the smooth operation of PT. Integrasia Utama's business, namely:

Risk Identification, the first stage in risk management is identifying risks that might occur. Risks to fleet management can come from various things such as accidents, vehicle damage, driver negligence, or changes in road conditions. In this case, PT. Integrasia Utama can identify these risks through collecting data and information related to events that occur in their fleet. Risks to fleet management can come from several factors such as:

Accident is the most common risk in fleet management. Accidents can cause vehicle damage, injury to drivers or passengers, and endanger the safety of other road users. Vehicle Damage, another risk to fleet management is vehicle damage due to overuse, wear and tear, or accidents. Damage to the vehicle can cause long downtime and large repair costs. Driver Negligence, driver restraint can lead to risks such as fatigue while driving, using the phone while driving, or ignoring traffic signs. Driver negligence can increase the likelihood of an accident and harm the business. Changes in Road Conditions such as potholes or potholes can cause damage to the vehicle and are dangerous for the driver. Bad weather such as rain or snow can also increase the risk of an accident. Vehicle Theft is another risk for fleet management. Lost vehicles can be detrimental to business as they have to incur costs to purchase new vehicles and prepare them. In identifying risks to fleet management, it is important for PT. Integrasia Utama to collect data and information related to events that occur in their fleet. This data can assist PT. Integrasia Utama in taking preventive actions to reduce risks and minimize the impact arising from these risks.

Risk Evaluation, after the risks have been identified, the next step is to evaluate these risks. PT. Integrasia Utama can evaluate the risk by analyzing the possibility of the risk occurring and the impact that will occur if the risk occurs. Risk evaluation is an important stage in risk management that helps PT. Integrasia Utama to evaluate the level of risk that exists in their fleet and determine steps to reduce or minimize these risks. Analysis of the Likelihood of Occurrence of Risk. At this stage, PT. Integrasia Utama must determine how likely the risk is to occur. This can be done by collecting historical data on risk events in their fleet and analyzing the likelihood of those risks occurring. The results of this analysis will help PT. Integrasia Utama to determine which priority risks must be addressed first. Risk Impact Analysis. After determining the possibility of a risk occurring, the next step is to analyze the impact that will occur if the risk occurs. The impact of risk can be in the form of financial loss, fleet downtime, reputational loss, or even an accident resulting in injury or death. Risk impact analysis will

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help PT. Integrasia Utama to evaluate potential losses that may occur. Risk Level Determination. From the results of the analysis of the possibility of occurrence of risks and the impact of risks, PT. Integrasia Utama can determine the level of risk for each risk that has been identified. The level of risk is usually measured using a risk matrix that shows the level of likelihood and impact of the risk. Determination of Risk Priority. After determining the level of risk for each risk, PT. Integrasia Utama can determine the priority of which risks must be addressed first. Risks with a higher level of risk will be the top priority in risk management. In dealing with risks, PT. Integrasia Utama can choose a risk management strategy that is in accordance with the level of risk and priority. By conducting periodic risk evaluations, PT. Integrasia Utama can ensure that their fleet operates safely and efficiently.

Risk Reduction, after the risks have been identified and evaluated, the next step is to reduce the risks. PT. Integrasia Utama can reduce risks by providing training and supervision to drivers, carrying out routine maintenance on fleets, using security technologies such as GPS and cameras, and taking preventive measures to avoid risks such as changing lanes if there are damaged roads. Once risks are identified and evaluated, the next step in risk management is to reduce risks. PT. Integrasia Utama can reduce risks by implementing various strategies and preventive measures. Following are some examples of risk reduction strategies in fleet management: Driver Training and Supervision is one of the important strategies in reducing risks in fleet management. PT. Integrasia Utama can provide training to drivers on safe and responsible driving procedures. In addition, supervision of drivers can be carried out using monitoring technology such as GPS and cameras to ensure that drivers follow established driving safety protocols. Routine Maintenance on the Fleet is very important to ensure that the vehicles are in good condition and safe to use. PT. Integrasia Utama can carry out routine maintenance such as engine maintenance, oil changes, brake maintenance, and others. By carrying out routine maintenance, the fleet will avoid damage or failure that can cause accidents. Use of Security Technology. PT. Integrasia Utama can use security technology such as GPS and cameras to monitor the fleet and identify risks that may occur. GPS can help to ensure that the fleet is on the correct route and the driver is following a set schedule. Meanwhile, cameras can be used to monitor driver behavior and help to identify actions that have the potential to ending er safety. Preventive Measures, PT. Integrasia Utama can also take preventive actions to avoid risks that may occur. For example, if there is a road that is damaged or unsafe to travel on, fleets can change lanes to avoid that risk. In addition, PT. Integrasia Utama can also carry out periodic risk measurements and review existing policies and procedures to ensure that they are still effective in reducing risks to the fleet. In reducing risks to fleet management, PT. Integrasia Utama must take actions that are appropriate to the risks faced. In addition, risk reduction must be an ongoing and routine effort to ensure that the fleet always operates safely and efficiently.

Risk transfer can be done by purchasing vehicle insurance and obtaining appropriate protection against the risks associated with the vehicle. Vehicle insurance is an insurance product specifically designed to protect motorized vehicles from damage or loss due to various risks such as accidents, theft or natural disasters. By purchasing vehicle insurance, PT. Integrasia Utama can transfer the risks associated with its fleet of vehicles to the insurance company. In choosing vehicle insurance, PT. Integrasia Utama needs to pay attention to several things such as the type of insurance policy that suits the company's needs, the insurance coverage offered, the premium to be paid, as well as the reputation and reliability of the insurance company. In the event of a risk covered by the vehicle insurance policy, PT. Integrasia Utama can submit a claim to the insurance company to obtain compensation according to the agreed coverage value. In this case, the insurance company will assist PT. Integrasia Utama in handling these risks so as to reduce the impact of risks on fleet operations and ensure smooth business operations.

Risk control, after the risk has been successfully reduced or transferred, the next step is to carry out risk control by carrying out continuous supervision and monitoring to avoid the possibility of unexpected risks occurring. Risk control is an important step in risk management that must be carried out by PT. Integrasia Utama after the risk has been successfully reduced or transferred. In controlling risk, companies need to carry out supervision and monitoring continuously to avoid the possibility of unexpected risks and ensure smooth business operations.
Several risk control strategies that can be carried out by PT. Integrasia Utama include:

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Monitoring and Evaluation: PT. Integrasia Utama needs to carry out monitoring and evaluation of risks that have been identified, assessed and mitigated. Monitoring is carried out continuously to ensure risks do not re-occur or increase. Training and Education: PT. Integrasia Utama must provide training and education related to risk management to all employees, especially drivers. Employees must understand the risks associated with their job and must be able to take preventive actions to avoid those risks. Implementation of Policies and Procedures: PT. Integrasia Utama must have clear policies and procedures related to risk management, including actions to be taken if a risk occurs. These policies and procedures must be applied consistently by all employees of the company. Vehicle Maintenance: PT. Integrasia Utama must carry out routine maintenance on the vehicle to avoid the risk of unexpected damage. Vehicles must be inspected periodically to ensure that they are always in good condition and safe to use. Use of Technology: PT. Integrasia Utama may use technology such as GPS systems, cameras and sensors to monitor driver behavior and vehicle conditions in real-time. With this technology, companies can take preventive action if there are signs of imminent risk. By carrying out risk control continuously, PT. Integrasia Utama can ensure that risks remain under control and can reduce the impact of risks on fleet operations so as to increase the efficiency and effectiveness of business operations. By implementing the right risk management strategy, PT. Integrasia Utama can reduce operational risk and ensure the smooth operation of their business. By identifying risks, evaluating and reducing risks, transferring risks, and controlling risks, PT. Integrasia Utama can minimize possible losses and ensure the smooth operation of their business.

How can using a more integrated enterprise architecture increase cost savings in fleet management and improve customer experience? (RQ 4).
Adopting a more integrated enterprise architecture can help increase cost savings in fleet management and enhance the customer experience in a number of ways:

Data and system integration. By using a more integrated enterprise architecture, data and systems related to fleet management can be better integrated. This means that the necessary information can be exchanged more easily, and data related to fleet management can be used effectively and efficiently. This can help in cost savings as it reduces data duplication and allows fleet management to make more rapid and accurate decisions.

Process automation; By using a more integrated enterprise architecture, fleet management processes can be better automated. This can help in cost savings as it reduces the need for intensive manual work. For example, by utilizing a fleet management system that is integrated with a GPS device, the task of monitoring vehicle locations can be carried out automatically. In addition, automated processes can also increase service efficiency and speed, thereby enhancing customer experience.

Data analysis; By using a more integrated enterprise architecture, fleet management can better collect and analyze data. This can help in cost savings as it can reduce costs associated with ineffective or inefficient fleet operations. For example, by analyzing fuel consumption data, fleet management can identify less efficient vehicles and take action to improve fuel efficiency, thereby reducing operating costs. Data analytics can also assist in improving customer experience by enabling fleet management to understand customer preferences and provide services that match their needs. By adopting a more integrated enterprise architecture, fleet management can increase cost savings and improve customer experience. Data and system integration, process automation and data analysis can help fleet management to work more effectively and efficiently, and provide better service to customers.

CONCLUSION

PT. Integrasia Utama is proposing an enterprise architecture for system fleet management, which will provide a comprehensive framework for managing their fleet operations. The proposed architecture includes four layers: the business layer, application layer, data layer, and infrastructure layer. Each layer has its own set of components and functions, which are integrated to create a seamless system for fleet management. At the business layer, the proposed architecture includes functions such as fleet planning, scheduling, and tracking. The application layer includes software tools for managing the fleet operations, such as GPS tracking, vehicle maintenance, and driver management. The data layer includes databases for storing and analyzing data related to the fleet, such

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as vehicle performance metrics, maintenance records, and fuel usage. The infrastructure layer includes the hardware and network components that support the system, such as servers, routers, and storage devices. The proposed enterprise architecture for system fleet management will provide several benefits for PT. Integrasia Utama, including improved efficiency, increased visibility into fleet operations, better decision-making capabilities, and reduced costs. The architecture will also enable PT. Integrasia Utama to better manage risks associated with fleet operations, such as accidents, breakdowns, and theft. Overall, the proposed enterprise architecture for system fleet management will provide PT. Integrasia Utama with a comprehensive and integrated framework for managing their fleet operations, which will improve their overall business performance and enable them to stay competitive in the market.

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