**Business Requirements**

*Our team has meticulously analyzed the project requirements and identified six key business requirements essential for the success of our delivery management system. These requirements have been thoughtfully crafted to address the various challenges and demands of efficient delivery operations. They encompass a range of aspects including route optimization, cargo capacity management, and the flexibility of delivery processes. Each requirement has been designed to ensure maximum efficiency, safety, and customer satisfaction, forming the cornerstone of our strategic approach to this project.*

**Efficient Route Management:**

* This involves optimizing the routes taken by the delivery trucks to ensure timely and cost-effective deliveries.
* It includes planning and adjusting routes based on various factors like traffic, road conditions, delivery locations, and the specific needs of each shipment.
* The goal is to minimize travel time and distance, thereby increasing the efficiency of the delivery process.

**Capacity Management:**

* This requirement focuses on effectively managing the load capacity of each delivery truck.
* It includes ensuring that trucks are not overloaded beyond their capacity limits of 1500 kg of cargo and 48 cubic meters of space.
* Proper capacity management is crucial for safety, legal compliance, and maximizing the efficiency of each delivery trip.

**Delivery Optimization:**

* This pertains to the overall efficiency of the delivery process, including route planning, load scheduling, and delivery sequencing.
* It aims to optimize the delivery schedule in a way that maximizes the number of deliveries while minimizing costs and ensuring timely arrivals.
* Factors like customer preferences, delivery windows, and priority shipments are considered for optimal scheduling.

**Shipment Specification Adherence:**

* This involves ensuring that each shipment is handled according to its specific requirements in terms of weight, size, and destination.
* It is crucial for meeting customer expectations and maintaining service quality.
* This includes matching shipments to the appropriate truck based on their size and destination, as well as ensuring safe and secure packaging.

**Routing Flexibility:**

* This requirement addresses the need for delivery routes to be adaptable and flexible.
* Trucks must be able to deviate from their planned routes when necessary, such as for avoiding traffic jams or road closures, or for making unscheduled deliveries.
* Flexibility in routing is essential for responding to real-time challenges and ensuring timely deliveries.

**Load Balancing:**

* Load balancing involves evenly distributing the cargo among the available trucks to optimize their usage.
* It is important for preventing overburdening any single vehicle, thereby reducing wear and tear and the risk of breakdowns.
* Effective load balancing contributes to overall operational efficiency and prolongs the lifespan of the delivery fleet.