**AI-Driven Inventory Optimization and Working Capital Reduction at Renault**

**Challenges:**

As a key leader in Renault’s supply chain transformation, I was tasked with addressing the misalignment between demand forecasting and inventory management, which was leading to high working capital, disruptions, and excess inventory. This disconnect resulted in inefficiencies in meeting production demand, excessive safety stock levels, and slow inventory turnover. The challenge was to enhance inventory visibility and reduce both inventory levels and working capital by creating a closer organizational and technological connection between demand forecasting and inventory management. Additionally, the Material Planning team faced challenges in predicting production requirements accurately and struggled to synchronize material procurement with actual production schedules, resulting in delays and inefficiencies.

**Innovative Solution Design:**

I initiated the deployment of an AI-enabled control tower to transform Renault’s approach to inventory management, material planning, and demand forecasting. The solution was strategically designed to extend and connect existing inventory management systems and ERP platforms, enabling real-time visibility and data-driven decision-making:

* **AI-Enabled Control Tower:** I led the design and implementation of an AI-powered control tower that integrated data from Renault’s ERP systems and inventory management tools. This platform provided end-to-end visibility into supply chain operations, empowering both the supply chain and Material Planning teams to align material requirements with production demand more effectively.
* **Improved Demand Forecasting for Material Planning:** By utilizing AI to predict demand spikes and production changes more accurately, the Material Planning team was able to generate precise production forecasts and material requirements. This improved synchronization between production schedules and material availability, reducing delays and last-minute adjustments.
* **Real-Time Inventory and Production Insights:** The AI-enabled control tower gave the Material Planning team deeper insights into inventory levels and production needs, allowing them to optimize material procurement and adjust plans in real time to avoid shortages or excess stock.
* **Enhanced Data Correlation and Prediction with AI:** By correlating structured inventory data with third-party data, AI algorithms helped predict changes in demand, enabling both supply chain and Material Planning teams to plan proactively and avoid potential disruptions.
* **Streamlined Supply Chain and Material Planning:** I introduced real-time dashboards that enabled faster analysis of inventory data, allowing the Material Planning team to react swiftly to shifts in production needs, source materials efficiently, and ensure seamless production flow.

**Impact and Results:**

Under my leadership, Renault achieved significant improvements in both inventory management and material planning efficiency:

* **18% Reduction in Inventory Levels:** By leveraging AI to streamline demand forecasting and align inventory and material requirements with production demand, we reduced excess inventory and minimized obsolescence.
* **7% Reduction in Working Capital Costs:** Improved inventory turnover and reduced inventory levels directly contributed to a decrease in working capital, freeing up resources for other strategic projects.
* **Faster and More Accurate Material Planning:** The Material Planning team benefited from AI-driven predictions, enabling more accurate forecasting of material requirements and improved synchronization with production schedules, reducing last-minute procurement challenges.
* **Faster Response to Supply Chain Disruptions:** The AI-enabled control tower shortened the time to manage critical supply chain disruptions from days to just hours, preventing major supply assurance impacts and keeping production running smoothly.
* **Enhanced Demand and Inventory Predictions:** The AI-driven solution provided more accurate demand forecasts, allowing the Material Planning team to align material orders with actual production needs and adapt quickly to market changes.
* **Increased Agility in Material Sourcing:** The control tower enabled the team to rapidly identify alternative material suppliers or delivery options in response to potential disruptions, ensuring minimal impact on production.

**My Role:**

As the driving force behind this initiative, I:

* Led the design and deployment of the AI-enabled control tower, ensuring seamless integration with Renault’s ERP and inventory management systems, and specifically aligning it with the needs of the Material Planning team.
* Spearheaded the development of AI models to improve demand forecasting accuracy, allowing the Material Planning team to optimize material requirements, reduce procurement costs, and prevent production delays.
* Collaborated closely with the Material Planning and supply chain teams to ensure the solution addressed their specific challenges and secured buy-in from senior stakeholders.
* Managed the global rollout of the AI solution, overseeing change management efforts and ensuring adoption across all teams, including Material Planning and production.

This project not only delivered measurable improvements in inventory management, material planning, and working capital efficiency but also set a new standard for how Renault leverages AI to drive operational excellence and enhance its competitive advantage.