**Supply Chain Performance Recommendation Report**

* **Key Findings and Patterns**

1. **Late Delivery Performance by Supplier & Warehouse**
   * **Supplier D shows the highest late delivery percentage** overall, with the Dallas warehouse being the most affected (53.8%).
   * **Supplier C consistently performs better**, with a significantly lower percentage of late deliveries across all warehouses.
   * **Chicago and Dallas face higher delivery delays** when compared to New York and San Francisco.
2. **Reorder Point (ROP) and Inventory Relationship**
   * **Supplier C** has the highest reorder point requirements, i.e., its products have the highest demand or longest lead times, and hence **availability is most crucial** for it.
   * A strong linear relationship was observed between inventory levels and ROP across categories. Categories like Electronics tend to require higher ROPs, aligning with higher stockout risks if lead times aren’t managed.
3. **Cost Savings with Lead Time Reduction by 10%**
   * Definitely, all the suppliers show significant improvement in the inventory cost savings, with lead time reduced by 10%.
   * **Supplier C offers the highest savings opportunity (~$158K)**, followed by **Supplier B (~$143K)**. This indicates that even consistent suppliers can trigger high cost optimization if operations are optimized further.

* **Recommendations**

1. Prioritize high Supplier C and B for strategic orders since both possess reliability as well as maximum saving opportunity if lead times are reduced.
2. Negotiate Service Level Agreements (SLAs) with Supplier D to reduce Dallas Warehouse delays, or go to alternate sourcing if the performance does not show improvement.
3. Prepare a root cause analysis for Dallas and Chicago warehouses, which have higher late delivery percentages. The reasons may be inefficient routing, congestion, or local logistics coordination.
4. Revise ROP policies, especially for high-usage, high-lead-time items (Electronics, Furniture). Dynamically set reorder points in relation to supplier reliability to balance carrying costs with service levels.

* **If I Were the Supply Chain Manager**

As a Supply Chain Manager,

* I would set up quarterly supplier reviews, focusing on Supplier D’s service improvements and Supplier C’s lead time optimization.
* I would perform predictive analytics to dynamically adjust reorder points and safety stock levels, reducing stockout risks while keeping a thorough check on costs.
* Dallas and Chicago warehouses are weak points. So, in order to fix this, I would use multiple delivery partners, have alternate routes planned, and maintain extra safety stock.