**Supply Chain Risk and Performance Report**

**1. Introduction**

This report provides an integrated analysis of warehouse operations, supplier risk, shipment performance, and global supply chain risk. The objective is to highlight key insights, identify areas of concern, and recommend focus areas for improving efficiency and resilience.

**2. Warehouse Operations**

* **Top Return Reasons**: Quality issues are the leading cause of product returns, followed by late delivery, damaged items, and wrong products. This indicates that quality control at the source is the most critical area for improvement.
* **Demand Forecast**: Warehouse demand is projected to increase from 5.1 million in 2020 to 5.9 million by 2025. This upward trend emphasizes the need for proactive stock planning and capacity management.
* **Stock Levels**: Certain warehouses (e.g., W0200, W0208, W0210) are operating below threshold levels, signaling potential risks of stockouts. Regional stock distribution shows Mumbai and Toronto leading in inventory, while Tokyo and Texas have comparatively lower levels.

**3. Supplier Risk and Reliability**

* **Key Metrics**:
  + High-Risk Suppliers: 2,000
  + Average Supplier Risk Score: 74.44
  + Average Delay Days: 1.02
  + Defect Rate: 0.29
* **Observations**: Despite a relatively low defect rate, supplier risk concentration remains high. Several suppliers in Brazil, for example, show identical risk scores but varying reliability ratings, highlighting inconsistencies in supplier performance.
* **Implication**: Supplier diversification strategies must be balanced with closer monitoring of high-risk suppliers to reduce overall vulnerability.

**4. Shipment Performance**

* **Key Metrics**:
  + Late Shipment Percentage: 21%
  + Total Shipments: 5,000
  + Average Delay: 1.02 days
  + Delayed Shipments: 1,000
* **Trend Analysis**: Delayed shipments have decreased steadily from 129 in January to 73 in May, indicating operational improvements.
* **Regional Performance**: New York leads with 78.93% on-time shipments, while other regions such as Berlin, Sydney, Tokyo, Mumbai, and London show similar performance levels around 78–82%.
* **Implication**: While delays are trending downward, regional performance gaps remain and require targeted interventions.

**5. Global Supply Chain Risk**

* **Key Metrics**:
  + High-Risk Supplier Count: 2,000
  + Average Supplier Risk: 74.44
  + Composite Risk Score: 30
  + Average Reliability Rating: 2.5
* **Observations**: High-risk suppliers are distributed across multiple regions, with several suppliers showing maximum risk scores (99) and minimum reliability ratings (1).
* **Implication**: Global diversification reduces dependency on single regions but increases monitoring complexity. Organizations must weigh the trade-off between consolidation for control and diversification for resilience.

**6. Key Takeaways**

* Warehouse demand is rising, and quality issues are the primary driver of returns.
* Supplier risk concentration is high, despite low defect rates.
* Shipment delays are trending downward, but regional performance gaps persist.
* Global supply chain risk requires balancing control with resilience.

**7. Recommendations**

1. Strengthen quality control processes to reduce return rates.
2. Implement supplier risk monitoring frameworks to identify and mitigate vulnerabilities.
3. Focus on regional shipment performance improvements to close gaps.
4. Develop a balanced supplier strategy that combines diversification with tighter oversight of high-risk suppliers.