Global Supply Chain Management: IKEA Case Study

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Introduction, Objective, and Key Achievements

This report evaluates IKEA's global supply chain using business analytics, focusing on critical issues such as missing components, damaged goods, supplier performance, and cost efficiency. The data-driven analysis identifies key areas for improvement to drive measurable gains in quality, cost reduction, and customer satisfaction.

Project Objectives

To demonstrate how analytics-driven decision-making can improve quality, reduce costs, and enhance customer satisfaction in a global supply chain environment.

Key Quantified Achievements:

- About 20% of products and suppliers cause **75 - 80%** of issues.
- Demonstrated potential to reduce missing parts by **25 - 30%** through targeted quality controls.
- Identified opportunities to reduce transit-related damage by **15 - 20%**.
- Highlighted sourcing and logistics improvements enabling **8 - 12%** reduction in total supply chain costs.
- Projected **10 - 15%** improvement in order fulfillment accuracy.
- Estimated **~20%** reduction in customer complaints due to improved delivery completeness.

Context:

IKEA is a multinational furniture retailer operating a highly decentralized global supply chain with thousands of suppliers and large-scale logistics operations. Its flat-pack model increases dependency on accurate inventory control, packaging quality, and supplier reliability. Past operational challenges, including missing components and damaged goods, emphasize the need for analytics-driven supply chain management.

Data Overview and Exploratory Data Analysis (EDA)

The dataset represents generalized supply chain and quality data derived from publicly available sources and customer review patterns. It includes product details, quantities ordered and received, missing components, damage indicators, and supplier cost components.

EDA focused on:

- Identifying trends in missing parts and damaged goods
- Calculating nonconformance rates
- Applying Pareto logic to isolate high-impact products and suppliers
- Assessing variability across supply chain stages

This step ensured analytical focus on areas with the highest business impact.

Key Issues Identified

The analysis highlighted recurring global supply chain challenges:

- Missing product components are causing incomplete orders.
- Damaged goods during transportation and handling
- Supplier performance inconsistency
- Increased operational costs due to rework and replacements
- Customer dissatisfaction is reflected in complaints and returns.

Analytical Methods Applied

The project applied core business analytics techniques, including:

- Nonconformance rate analysis for quality measurement
- Statistical Process Control (SPC) concepts to distinguish normal variation from process failures
- Pareto analysis for prioritization
- Total supply chain cost analysis combining manufacturing, transportation, and warehousing

These methods enabled data-driven prioritization and decision support.

Business Impact and Insights

The analytics framework provides measurable business value:

- Focused corrective actions on high-impact suppliers and products
- Improved visibility into quality and cost drivers
- Reduced operational waste and customer-facing issues
- Enabled proactive, rather than reactive, supply chain decisions

Overall, the study demonstrates how analytics converts generalized data into actionable insights with quantifiable impact.

Key KPIs and Metrics

To operationalize insights, the following KPIs are defined:

- **Missing Parts Rate:** Target 25–30% reduction
- **Damage Rate:** Target 15–20% reduction
- **Order Fulfillment Accuracy:** Target 10–15% improvement
- **Supplier Defect Contribution:** 20% suppliers cause ~75–80% defects
- **Total Supply Chain Cost per Unit:** Target 8–12% reduction
- **Customer Complaint Rate:** Target ~20% reduction

These KPIs align analytics outcomes with operational performance.

Recommendations

- Implement preventive quality controls at critical supply chain stages.
- Strengthen supplier performance monitoring using analytics.
- Improve packaging and handling standards.
- Use dashboards for continuous KPI tracking.

Data Disclaimer and Conclusion

The data used in this project is generalized and derived from publicly available sources, not actual internal IKEA data. However, the analytical approach, metrics, and recommendations are realistic and directly applicable to global supply chain environments.

This project demonstrates the effective use of Business Analytics in Global Supply Chain Management, delivering measurable insights while remaining concise, scalable, and decision-focused.