Analytics Driving Supply Chain Segmentation for Lenovo

Business Background

Lenovo DCG is switching its operating model from a “single supply chain” strategy to a segmented, customer-oriented strategy, enhancing supply chain’s role as a profit driver.

Key Objectives

- Explore how products/customers differ SC-wise with features
- Identify key-target metrics for performance at Lenovo DCG
- Identify clusters with similarities among significant features
- Propose SC-policy reviews for each cluster, where applicable
- Propose an evaluation loop that ensures machine-learning capabilities to DCG’s supply chain continuous improvement

Relevant Literature


Methodology

- Features selection (6)
- EFA Run (2 dimensions)
- K-definition (k=4)
- Exclusive Clustering
- Workshop Discussion
- Policies Framework Evaluation Loop
- Supply Chain Complexity
- Client-Product Importance
- Cluster 1
- Cluster 2
- Cluster 3
- Cluster 4
- Supplier Policies
- Production Modes
- Inventory Policies
- Fulfillment Policies
- Policies to Customers

Final Client-Product Segmentation Results

- C1: System-level product
  Outlier point, critical client-product for Lenovo DCG, should have its supply chain specifically designed
- C2: Options and spares for “outlier client”
  29 members, tier-2 and tier-3 BoM items for “outlier client”
- C3: All other clients
  109 members, micro-segmentation would provide more valuable insights on this cluster
- C4: Specific product type for “outlier client”
  3 members, support supply chain in order to ensure C1 delivery performance

Project Contributions

- Identification of four client-product clusters through the characterization of various descriptive variables (features)
- Quantitative insights that allow Lenovo to better develop and manage its supply chain capabilities for each cluster
- Identification of additional data to further improve the segmentation analysis and the supply chain policies’ design
- Development of data-driven framework for customer-oriented supply chain segmentation with continuous evaluation loop

DCG North America Sales Evolution ($ millions)

- 15Q4 16Q1 16Q2 16Q3 17Q1 17Q2 17Q3 18Q1 18Q2 18Q3
- 100+% CAGR

Lenovo powers MareNostrum 4 at the Barcelona Supercomputing Center