

White Paper: Leveraging QubeXL, RouteXL, and SpatialXL for Cost-to-Serve (CTS)

Executive Summary

Cost-to-Serve (CTS) is a critical metric for organizations seeking to optimize logistics, distribution, and warehousing costs while maintaining profitability at the customer and SKU level. This white paper explores how QubeXL, RouteXL, and SpatialXL integrate to deliver a robust, automated, and scalable CTS solution capable of handling millions of data points and enabling real-time insights.

1. Introduction

CTS measures the total cost incurred to deliver a product from the point of production to the customer, excluding marketing and sales costs. It enables informed decisions on logistics and distribution, identifies cost drivers, and supports scenario planning and strategic route-to-market decisions.

2. Evolution of CTS Modeling

The evolution of CTS modeling has progressed from manual Excel-based models to automated systems leveraging QubeXL, SpatialXL, and RouteXL. Early models were slow and costly, while current systems provide real-time CTS at SKU and customer levels integrated with ERP systems.

3. Technology Stack Overview

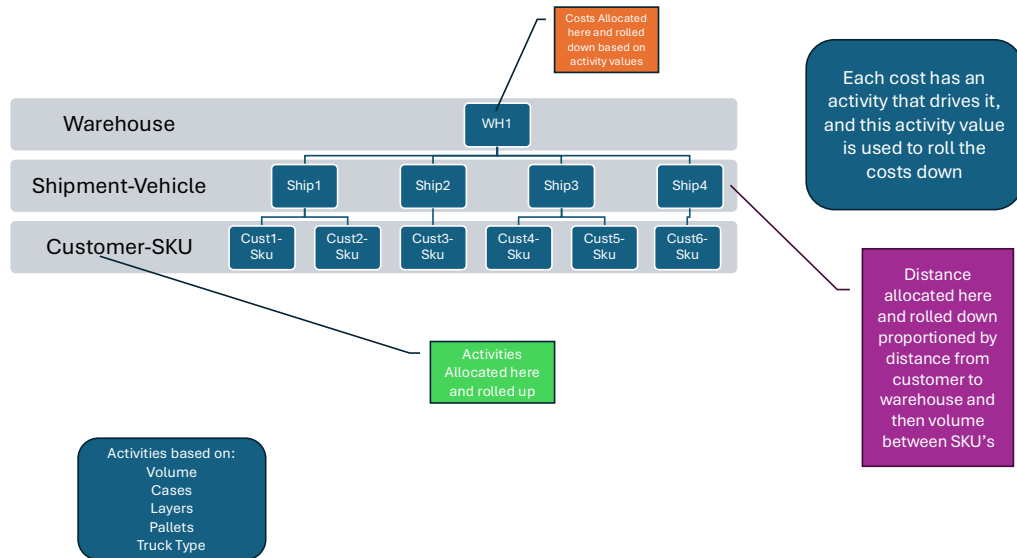
QubeXL: A techno-financial modeling tool using hierarchical data frames, capable of handling millions of rows efficiently.

SpatialXL: An Excel-based spatial analytics and mapping tool for visualizing CTS outputs geographically.

RouteXL: An add-in for SpatialXL that performs drive-time and distance analysis, routing optimization, and matrix calculations.

4. CTS Calculation Framework

CTS relies on a modified Activity-Based Costing (ABC) approach. Costs are grouped into collectors (Direct, FTE, Forklift, Truck) and allocated based on drivers such as volume, cases, pallets, layers, and distance. Roll-down logic ensures allocation from warehouse to shipment to customer to SKU.



5. Real-World Application

Case Study: CCBSA Implementation. Automated CTS model integrated with D365 ERP handles 11M rows/month for Warehouse-Customer-SKU activity-cost tables. Real-time scenario planning for route optimization and fleet planning using RouteXL-QVR.

6. Monitoring and BI

QubeXL generates consolidated CTS reports by cost collector. Power BI integration provides management dashboards, while SpatialXL layers enable thematic analysis for high-cost customers and regional trends.

7. Future Enhancements

Future enhancements include AI-driven predictive CTS modeling, IoT integration for real-time transport cost monitoring, and advanced simulation for RTM strategies.

Conclusion

The integration of QubeXL, RouteXL, and SpatialXL transforms CTS from a static, manual exercise into a dynamic, automated, and strategic tool. Organizations can now achieve real-time visibility into cost drivers, optimize logistics, and improve profitability at scale.

Appendices

SpatialXL output:

