Perfecting Visibility with Retailer Data

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Abstract

This thesis investigates the utility of using retailer point of sales (POS) data in the production planning process of a consumer-packaged goods (CPG) manufacturing company. The quantitative measurements of utility include the improvement of production forecasting, reduction of inventory costs, and reduction of equipment changeover costs. Qualitatively, we evaluate the effectiveness of using POS to drive a more collaborative relationship between the retailer and the manufacturer. The POS data include items sold, store inventory, and warehouse inventory of a retail partner for specific stock keeping units (SKUs) produced by the manufacturer. We develop production-planning models by combining POS data with customer orders, current production plans, and existing inventory positions to optimize manufacturing and inventory costs. The results illustrate that if the aggregate volume of customer orders approximately equaled to that of the POS, then the integration of POS data into manufacturing planning offers opportunities to reduce production and inventory costs. The analysis also points to situations where POS data and customer orders vary significantly; in these situations the proposed production-planning model does not apply, but the POS data provide useful evidence for aligning plans between the manufacturer and the retailer.

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