

Design and Development of Forecasting Interface for Sustainable Inventory Management at Qubes Company-Saudi Arabia

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Abstract

Several companies from supplier areas have issues of poor performance due to inadequate forecasting, which results to stock-outs and overstock conditions. The Qubes company of Saudi Arabia faces similar challenges. The adoption of an improved sales forecasting mechanism can soundly help Qubes and/or other such companies maintain adequate stocks, minimize the likelihood of stockout situations, and, in effect, improve their customer satisfaction. To address such challenges, a forecasting and inventory management interface is designed and developed. The interface is linked with the demand/sales historical data, the forecasting techniques, and the forecasting results. The main characteristics of the interface include its user friendliness, ease of data entry, graphical highlights, and the important quantitative indicators. The future period demand, safety stock, reorder point, and location-wise demand distributions of different products can be grasped through one-shot click and displayed a single screen. The presented forecasting-based inventory solution can improve resource utilization, reduce waste, and promote sustainable businesses. The interface can globally be utilized by different businesses, especially start-ups, having their historical demand/sales data of one year. The interface offers results with 10% error in forecasting as compared to historical figures. Moreover, the inventory solution and the reliability of the interface is validated through three different cases: 1) preparing for high demands during seasonal peaks, 2) Supplier lead time issues with varying lead times, and 3) a case of launching a new product. Hence, the inventory solution and the designed interface are considered as sustainable with a global impact on the business economy through controlling overstocking and understocking. The appropriate safety stock calculated by the dashboard will help achieve high customer satisfaction, which leads to a direct societal impact of the design.

Keywords

Inventory management, Forecasting, challenges, Business , Qubes