

AN EMPIRICAL RESEARCH ON PREVENTING PRODUCTS MISSING FROM THE SHELF

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ABSTRACT

Missing products from the shelf is highly ranked issue in the management agenda both for the product supplier and the retailer. The importance of consumer's satisfaction and value mandates that supply chain operations will meet the changing consumer's demand. The objective having the right product at the right place at the moment that consumer is looking for it, is not fully covered as several empirical researches suggest (Anderson et al, 2006; Gruen και Corsten, 2008). In more detail, most of the scholars measured that the Out-Of-Shelf frequency is 5% to 10% of the total products merchandized in a store. The problem of products missing from the shelf has been studied from scholars from the areas of Consumer Behaviour (Campo et al., 2000) and Inventory Control (Axsäter, 2000).

The objective of the proposed work is to study a method that prevents products missing from the shelf. In more detail the proposed method has been designed in order to discriminate the products that within the next couple of hours are more not to be available on the shelf of the store. The proposed method is based on artificial intelligence and statistical techniques (Fayyad et al., 2000). Preventing out-of-shelf could be easily understood and studied as a classification problem, where the class variable is binary (EXISTS and OOS). The proposed method is supported by an information system that monitors product sales every hour and generated predictions regarding the products that will be exposed to the Out-Of-Shelf conditions. Therefore it triggers the in-store shelf replenishment process or it could also suggest placing an order for the specific product.

The empirical research has been conducted with real data for six different stores (3 used as pilots and the remaining as control) for a limited number of product categories. An information system has also been developed and enhanced the proposed method. The empirical results suggested that there are certain cases that the system successfully prevented products missing from the shelf.

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