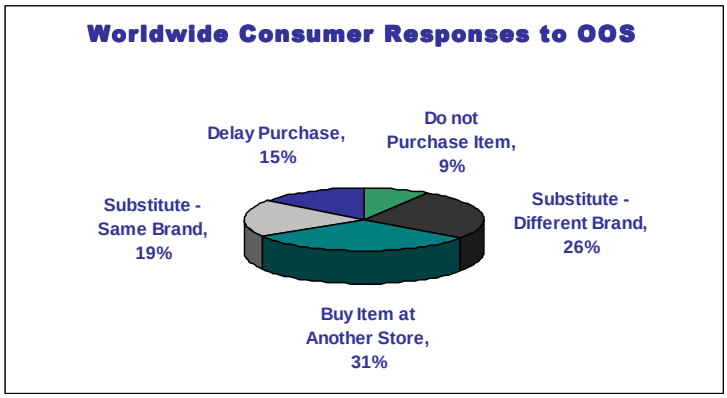
WARELITE REAL TIME DEMAND CHAIN MANAGEMENT

A simple solution to Retail Out-of-Stocks

The term "Retail Out-of-Stocks" (OOS) indicates a product's absence from its appointed outlet shelf. Globally, Out-of-Stocks rate is estimated to be around 8.3%[1]. **At any point in time, 8 products out of 100 are not available for sale. This figure doubles (16.5%[3]) for items under promotion**.

Consumers' reactions to the absence of a desired product vary, as summarised by Picture 1, based on the results of a 2002 study[1].



Picture 1 – Consumer Responses to Out-Of-Stocks[1,2]

The graph shows that the absence of a product from its shelf results in more than half of customers not making a purchase. The value of these lost sales amounts to around 4% of turnover[1,2]. This means that a supermarket chain turning over ten billion euros **loses around €400,000,000 every year** because of Out-Of-Stocks. This figure does not take into account the impact on profits of overstocking (estimated to cost retailers around $40 billion globally), the effect on turnover of cheaper products substitutions and, more importantly, it does not include the potential sales loss caused by those 31% of customers choosing to shop elsewhere. This percentage has actually more than trebled over the last 15 years – going from 14% in 1991[4] to 31% in 2002, and finally reaching 47% in 2005[6]. The ever increasing choice available to consumers has made it very easy to switch to a competitor as soon as the shopping experience at the favourite supermarket should prove less than optimal – and 'in retailing, the biggest single customer-service complaint is not having the item'[3].

Retail Out-of-Stocks have different causes, with different impact upon the overall OOS rate[1,2]:

- **25% - The product is available in the store's backroom but is not on the shelf**
- 47% - The product is not available in store because a quantity insufficient to meet the demand has been ordered
- 28% - The product is not available in store because of upstream issues (caused by manufacturers/distributors/carriers)

This means that the retailer in our example **loses €100,000,000 each year** because shelves are not refilled when necessary with **products that are already in store**, but are critically not available on shelves.

The Current Approach to Out-of-Stocks Reduction

In the executive summary to a 2002 research paper[1] sponsored by the Grocery Manufacturers of America, the authors write: 'Out-of-Stocks remains a large problem for retailers, distributors and manufacturers in the worldwide consumer goods industry. **The advances in supply chain management, the initiatives of Efficient Consumer Response (ECR) and category management, and the investment in inventory tracking**

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technology have not – by and large – reduced the overall level of out-of-stocks on store shelves from what was reported in previous studies'

The limitations of current supply chain management systems are to be found in their very name: management of the *supply* chain. In a supply driven economy it was perfectly sensible to concentrate investments in the automation of goods provision. In today's *demand* driven economy this is no longer sufficient – however, technology investments are still mainly directed to the implementation of systems automating *supply* management.

As an example, a major US retailer has installed RFID readers to automatically monitor the entry and exit of goods into and out of their stores' backrooms. The amount of product on a shelf is calculated based on the amount of product that has left the backroom – e.g. if washing powder A's shelf can carry up to 16 packs and 2 cases containing 8 packs each of A have left the backroom, then the inventory system knows that the washing powder A's shelf is full[5].

But the direct monitoring of actual on shelf availability of products during business hours – determined by the current demand for a given product – is still completely manual and based upon physical counting: shelf stackers and shop floor operators walk along aisles with pen & paper/scanners to monitor shelves levels. POS data – which captures demand information - is used only indirectly, i.e. retrospectively, to provide a 'prediction of likelihood of out-of-stock'[7]. As an example, a major UK retailer "has combined EPOS data with probability methodology to identify whether a SKU was out-of-stock. The methodology is conducted as follows:

- Probability of seeing zero sales during each hour of the week is calculated, by store
- EPOS data is then searched for consecutive periods of zero sales by SKU
- The probability of these zero sales is calculated
- Prediction of likelihood of out-of-stock is made
- Number and value of sales at risk is calculated"[7].

These examples show that even when the supply of goods is monitored in near real time, the actual demand for such goods will only be known retrospectively, by analysing POS sales data daily or weekly[5]. The results of this analysis will help determine the optimal amount of goods to keep on shelves, and thus to pick-up from the backroom – but only as *forecasts*.

Visibility over *actua*l on-shelf availability – and thus Out-of-Stocks rate – is still dependent upon manual activities and their obvious limitations.

The retail Out-of-Stocks issue can be successfully addressed only by an approach driven by product demand, not by its supply. For reasons of symmetry, we will name this new approach *Demand Chain Management*.

WareLite Real Time Demand Chain Management: a Simple and Direct Solution to the Out-of-Stocks Issue

WareLite Real Time Demand Chain Management, powered by WareLite Event Driven Application Platform, WL BOSS, addresses the OOS issue by using POS data directly and in real time to trigger replenishment operations.

Point-of-Sale (POS) terminals capture detailed information about the sale of each single product. Currently, however, much of the value of this information is lost, because POS sales data are used only indirectly, via aggregation and retrospective analysis.

In contrast, with WareLite Real Time Demand Chain Management, POS sales data

- are used directly
- are individually available – for each single product going through a till
- are immediately available – as soon as a single product goes through a till
- are immediately and automatically exploited to trigger replenishment operations
- are used to update demand forecasts in real time and to trigger real time responsiveness to individual consumers' behaviour
- are used to feed executive dashboards in real time, providing up-to-the-minute visibility over sales, sales trends, out-of-stocks, inventories and operational effectiveness at any level – by product, by category, by store, regional, global.

Picture 2

Picture 4

With WareLite Real Time Demand Chain Management the passage of each single product through a till immediately updates its on-shelf availability, its sales volume and its sales trend. At any time, by scanning a product barcode, the operator will be 'pushed' to his mobile device (e.g. Symbol MC50) real time on-shelf availability and real time sales figures (Picture 2). As soon as the shelf level reaches a chosen watermark, or as a sales trend that could lead to an OOS occurs, an operator receives an alert message on his mobile device (Picture 3). As the operator replenishes the shelf, he uses his mobile device to scan the item and to enter the amount placed on the shelf (picture 4). Alternatively, RFID readers placed at the backroom exit will signal that a case containing an amount X of product Y has left the backroom. In either case, this replenishment event immediately updates on-shelf availability and backroom availability for the product (Picture 2). As soon as the backroom inventory level for a product reaches a given watermark, an operator/manager receives an alert on a mobile device (Picture 3). Both shelf and backroom replenishment operations are timed, allowing their effectiveness to be measured.

Picture 3

This scenario can be integrated with current applications – both internal and on the suppliers/partners' side - and extended to cover the entire Demand Chain, e.g.:

- As the warehouse stock reaches a watermark, a replenishment order is sent to the distribution centre/the distribution centre delivery schedule is updated etc.
- The carrier is automatically alerted and his performance is monitored in real time
- As soon as the product leaves the distribution centre, its inventory level is immediately updated
- As the distribution centre inventory level for that product reaches a given watermark, an order is sent to the supplier/a standing order is updated etc.

Moreover, the process triggered by a product being scanned at a POS can include business rules providing suppliers with real time consumption data, thus enabling them to update in real time their own sales/distribution/manufacturing plans.

Real Time Demand Chain Management can be implemented using existing installations of labelling or identification technology, such as barcode or RFID, and is not dependant on the installation of any new identity monitoring system.

In addition to Real Time Demand Chain Management, it is possible to implement on the same software infrastructure (i.e. WL BOSS) other event-driven business scenarios, such as Automated Dynamic Pricing or Real Location Based Marketing.

Benefits of WareLite Real Time Demand Chain Management

WareLite Real Time Demand Chain Management provides immediate benefits to retailers:

- It brings an **instant 1% increase in revenues – an extra €100,000,000 for the retailer in our example** - by eliminating those 25% of Out-of-Stocks that arise when goods are available in store but are not on the shelves
- It makes more efficient use of shelf stackers' and shop floor operators' time, thus reducing costs and increasing employee satisfaction
- It improves the customers' buying experience, leading to increased loyalty and future revenues
- Provides real time visibility over sales volumes, sales trends, out-of-stocks, inventories and operational effectiveness, allowing both timely responsiveness to unexpected events and better planning, thus addressing those 47% of OOS that arise from inaccurate demand forecasting - increasing revenues by another 1.88%

By expanding the system further to give suppliers visibility over demand in real time, the final 28% of Out-of-Stocks that arise from mismatches between suppliers capabilities and customer demand can be addressed and eliminated, adding a final 1.12% to turnover.

In summary, WareLite Real Time Demand Chain Management turns the Supply Chain into a Demand Chain, starting by delivering performance where it counts - at the customer's buying experience.

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