

# Leveraging segmentation of customers, products and service levels for business purposes

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## Background

How can we ensure that all customers generate optimal value for the organization and are granted the service level they deserve?

Globalization, stiff competition and the more stringent regulation that typifies the business environment today have resulted in numerous changes in the supply chain over the past decade. Consequently, every organization's supply chain is obliged to deal with the following issues:

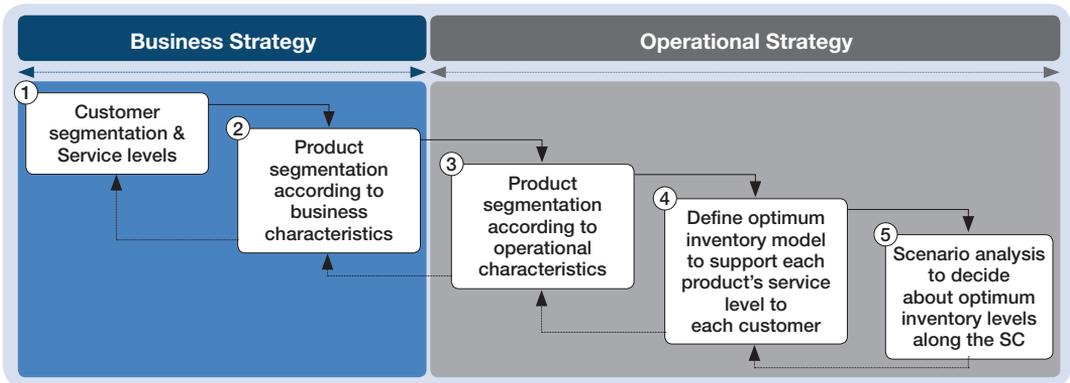
1. Difficulty in making forecasts due to highly competitive operations in global markets
2. Different cultures and different tastes.
3. Sophisticated customers with high demands and focused requirements.
4. Wider control of the value chain.
5. Numerous and exclusive products to achieve differentiation and to cater to niche markets
6. Many and varied regulations in the different markets.

The main implications for the organization are higher customer service levels, and generally an increase in stock levels all along the supply chain.

The end result is an increase in supply chain costs, creating a problem for the organization. On the one hand, organizations strive to provide customers with the best possible service levels. On the other hand, rising supply chain operating costs are liable to lead to unduly high expenses which hurt product and customer profitability. Consequently, higher supply chain operating costs make it necessary to ensure that every customer and/or product generates optimal value for the organization and is granted the service level corresponding with it.

## How is this achieved?

Tailoring the service level to each customer and/or product involves five stages. The first two are incorporated in the organization's business strategy, while the last three focus on the organization's operational strategy.



This article focuses on the first three stages in the process: customer and product segmentation.

## Stage A: Segmentation of customers and service levels

Customer segmentation means dividing the market into several segments, such that each segment contains a group of customers with clearly similar product/service needs and requirements

Through market segmentation the firm can provide higher value to customers by developing a market mix that addresses the specific needs and concerns of the selected segment

(Segmentation – Targeting – Positioning, Jorge A. Restrepo). That is, the organization can tailor value propositions to its customers on an individual basis. The purpose of customer segmentation is to ensure that the marketing methods, price, products and distribution methods are designed to meet the particular needs of the different customer groups.

Customer segmentation is important to both manufacturing and service organizations. In addition, segmentation is appropriate for both private customers (B2C) and business customers (B2B).

Following customer segmentation, it is vitally important that required service levels are established for each defined customer group. It is not appropriate to provide all customers with the same

service level; the right approach to adjusting the optimal service level to each customer is first and foremost by segmenting the service levels. Establishing the required service level for each group will help ensure that better service is delivered to those the organization considers its preferred customers.

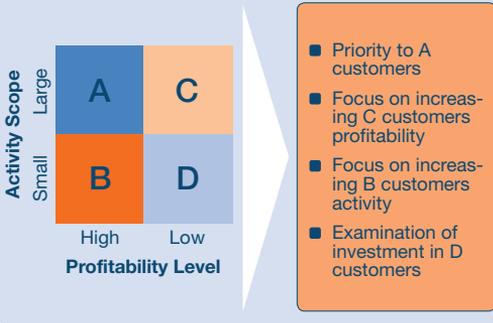
### Results of segmentation:

- Prioritized product development based on segmentation
- Development of appropriate service levels
- Formulation of an appropriate channels strategy
- Optimal product pricing

### Example of (business) customer segmentation

This example is taken from customer segmentation implemented in a company manufacturing raw materials for different industries. The company manufactures to order. However, the delivery schedules for the company's products are critical. Due to numerous problems in prioritizing customer orders on the assembly line and due to the great variation in product delivery schedules to different customers, a decision was taken to carry out customer segmentation. The criterion for defining customer groups was the customer's contribution to profit. This criterion incorporates two customer characteristics: volume of activity and the level of profitability for the company.

**Example of customer segmentation according to customer profitability and activity scope**



**Stage B: Product segmentation according to business characteristics**

In this stage, the focus is on the business characteristics of the products in order to segment them into groups. For example: sales share, product profitability, brand strength, designated market segment etc.

An example of segmentation characteristics is the Leo Aspinwall classification of products, which segments products into groups according to five business characteristics:

1. Replacement rate (How frequently is the product repurchased?)
2. Gross margin (How much profit is obtained from each product?)
3. Buyer goal adjustment (How flexible are the buyers' purchasing habits with regard to this product?)
4. Duration of product satisfaction (How long will the product produce benefits for the buyer?)
5. Duration of buyer search behavior (How long will consumers shop for the product?)

(Social marketing behavior book, 2008)

Following segmentation of products on the basis of business characteristics, required service levels must be established for each defined product group in order to help guarantee the organization's investment in the preferred products. In addition to high service level, efforts can be focused on preferred product groups in additional ways: shortened delivery schedules, extensive shelf space, marketing efforts etc.

**Example of product segmentation**

The following example is taken from segmentation implemented at a consumer product company. The company has numerous SKUs. The criterion for the segmentation was the percentage of products sold of each product at each one of the chain's branches. Group A was defined as the quantity of SKUs with the highest percentage of total products sold, such that combined, Group A would contain 60% of volume sold. Groups B, C and D were classified as defined in the table below. As part of the

Following segmentation into groups, required delivery schedules (service levels) were established for each customer segment. Using segmentation, the length of the delivery schedule was adjusted according to the customer's importance to the company, thereby resolving the problem of prioritization of customer orders on the assembly line.

**Product segmentation**

Product segmentation is based on the same principles as customer segmentation. It involves segmentation of all the products marketed by the organization into several groups based on specific characteristics in order to prioritize the products. As in the case of customer segmentation, the aim of product segmentation is to ensure that the organization invests the majority of its efforts in the products that are most important to the organization (based on the characteristics defined).

We shall distinguish between two types of product segmentation:

1. Product segmentation based on business characteristics
2. Product segmentation based on operational characteristics

The process that ensures that every product generates optimal value for the organization and is granted the service level commensurate with it includes both above types of segmentation.

segmentation, required service levels were established for each product group. The segmentation was implemented for each branch separately throughout the chain.

The following table presents an example of how segmentation was implemented at one of the company's branches and the quantity of SKUs in each defined product group.

Category	Definition	Quantity of SKUs	Service level
A	60% of products sold	25	99%
B	Rounding out to 75% of products sold	50	95%
C	Rounding out to 85% of products sold	85	90%
D	The remaining items (15% of products sold)	155	75%
Total		315	

In this case, product segmentation helped to reduce the inventory at the company's branches by 70%, at the same time improving the service levels for the leading products.

**Example of product prioritization based on business characteristics**

The following example contains an analysis of the business characteristics for products at convenience stores.

In this example, product service levels can be prioritized according to three parameters:

1. The percentage of the product's revenues for the store out of total revenues (top graph)
2. The percentage of profit from each product (what is the profit percentage incorporated in the product price?)

3. The percentage of the product's sales out of total sales.

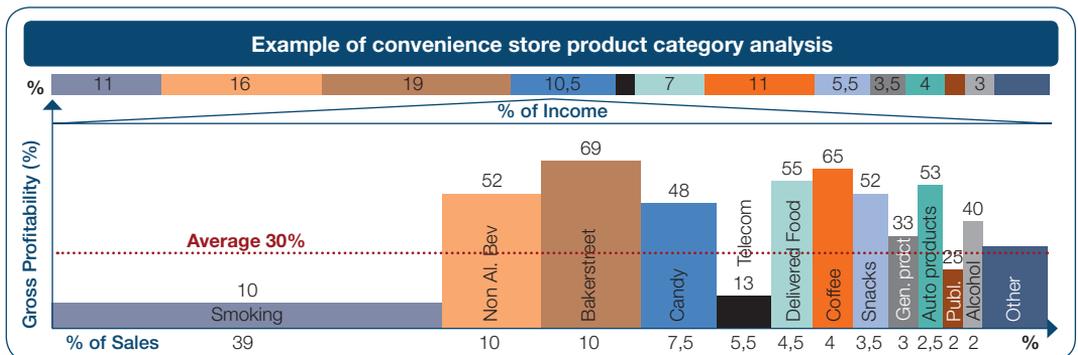
One can see from the example (see graph below) that while tobacco products constituted 39% of sales, earnings from them only constituted 11% (the weighted gross profit from sales). In contrast, earnings from nonalcoholic beverages amounted to 16% even though they comprised only 10% of sales. Therefore, assuming the goal is maximized profits (without any additional considerations) the service level for nonalcoholic beverages in the supply chain will receive priority over tobacco products.

**Stage C: Product segmentation according to operational characteristics**

In this stage, the focus is on the operational characteristics of the products in order to segment them into groups. For example: volume of demand, variation of demand etc.

By analyzing product behavior and dividing the products into groups, we can answer the following questions:

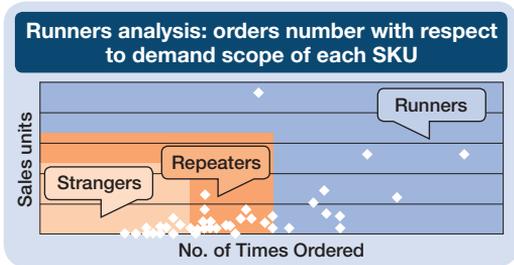
1. Are there any products that behave in the same way, for which a uniform policy can be formulated for manufacturing, orders and inventory?
2. Does the variation in demand for the product necessitate holding of stock for it?
3. What is the demand trend for new products and which products are on the way to being eliminated from the product portfolio?



**Runners analysis**

This is the most basic analysis required at this stage.

This analysis is based on an examination of the ratio of the number of orders/ runs to the volume of demand for each SKUs. With the aid of the following graph, we will categorize each SKU according to one of three possible groupings: runners, strangers or repeaters. Runners are characterized by a high volume of activity (high quantity of runs/orders and high volume), and also generally characterized by low variation in demand. In contrast, SKUs categorized as strangers are mostly characterized by a low volume of activity and by high variation (described as lumpy or slow demand). On the whole, 10% to 15% of the SKUs comprise at least 60% to 70% of the volume of activity (the runners). Accordingly, the organization must ensure that the whole supply chain is planned first and foremost around this group of products, and only afterwards look to the planning of the other groups. This approach reduces the variation in the chain as a whole and minimizes noise. Many organizations manage their manufacturing/order policy based on the SKUs that fall into the stranger category and consequently have the feeling that they are constantly lacking control and always putting out fires.



**Analysis of demand types**

In addition to the preliminary analysis, the variation in demand for each SKU must be examined in order for it to be tailored to a more suitable manufacturing/inventory policy. Demand type in the diagram describes demand behavior over time in order to discern clear-cut characteristics for the demand data, which we can then use to make an approximate forecast of future demand behavior (repetitiveness, distribution,

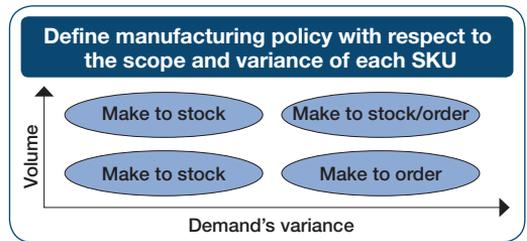
linear growth, etc.). A clear-cut demand type can lead to major cost savings in building a manufacturing/order and inventory policy for each SKU individually, and in building an all-inclusive policy for all the SKUs in the organization.

Organizations often feel that demand is erratic and unpredictable. This type of analysis often shows that the variation is not that great for most products, which simplifies building the said policy.

**Example of establishing a manufacturing policy**

The following diagram illustrates an example for establishing a manufacturing policy based on the relationship between the variation in demand and the volume of demand.

In the example, the greater the volume to variation ratio, the more we will prefer to manufacture to stock over manufacture to order.



The analysis of the demand in order to choose a manufacturing policy was, in this example, based on a general characteristic. Naturally, in practice, it might be necessary to analyze each group of products individually (additional variables that might have an impact: availability, raw materials, LT for delivery/raw materials, and shelf life).

**A world without segmentation**

Without segmentation, the most important/most profitable customers or products will generally not be granted the best service level.

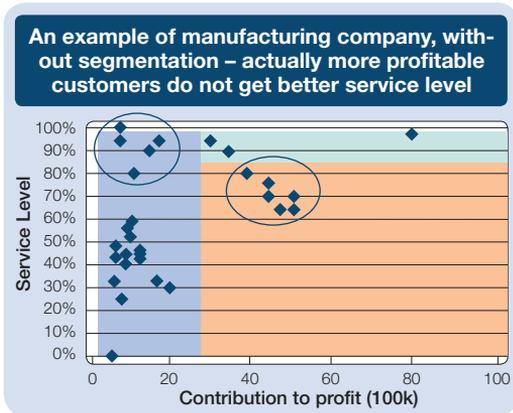
**The cost of not using segmentation:**

1. Loss of sales
2. Great difficulty in prioritizing customers on a current basis

3. Non-optimal safety stock levels.
4. Difficulty building an effective demand forecast
5. Difficulty in retaining customers

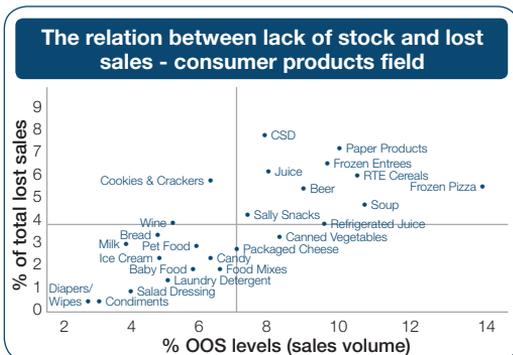
**An example of the service level for customers in a manufacturing organization without segmentation**

One can see that there are several customers who provide the organization with more profit than other customers but who enjoy an inferior level of service. This is liable to lead to the loss of customers bringing in considerable amounts of money into the organization.



A study of 500 stores in the United States examined the relationship between service level (OOS – Out Of Stock) and loss of sales for various consumer products. The graph presents the results of the study.

Example: for the cookies and crackers product, an OOS level of 6.5% results in a 5.5% loss of sales.



In this study one can see the variation in the response of customers to the absence of different products in the store. In order to minimize total losses from the loss of sales (at minimum cost), different service levels must be tailored to different products. In this case, product segmentation can also be executed on the basis of the anticipated loss of sales according to service level.

**Summary**

The constant conflict that organizations have, striving on the one hand to provide customers with the best possible service level and, on the other, faced with a need for cost savings in the manufacture and transportation of their products, is growing all the time due to the higher service levels that customers are demanding.

As a result, prioritization of required service levels for customers/products is fast becoming an essential tool for organizations to ensure that the customer/product is assigned the service level which matches its importance to the organization.

The prioritization process includes five stages and three types of segmentation, on the basis of which required service levels are established:

1. Customer segmentation
2. Product segmentation according to business characteristics
3. Product segmentation according to operational characteristics

The most important part of the process is to define the characteristics for each segmentation sector. Individual organizations have their own important customer/product characteristics and hence segmentation results will differ from one organization to another.

Bear in mind that the absence of segmentation in the organization is liable to come at a very high price: superfluous expenses in the supply chain and loss of customers.

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