

## Limits and opportunities in mass customization for “built to order” SMEs

Carsten Svensson<sup>\*</sup>, Ari Barfod

*Department of Manufacturing Engineering and Management, Technical University of Denmark,  
Building 358, DK-2800 Kgs. Lyngby, Denmark*

---

### Abstract

Customer satisfaction is at the focus for most manufacturers and mass customization can in some markets be one of the many tools used to increase the customer perceived value of a product by combining low price with extensive variation and adaptation. As a result, mass customization is on the agenda in many small and medium sized enterprises (SMEs) but the question is, what it will take for a SME to be successful in achieving mass customization? This paper will discuss mass customization and its influence on “built to order” SMEs.

© 2002 Elsevier Science B.V. All rights reserved.

*Keywords:* Mass customization; Industrialization; SME

---

### 1. Introduction

A market based on 1:1 relations between customer and manufacturers is starting to emerge. Products are being adapted on an individual basis for enhanced performance, and “cut to fit” has become the standard in some markets. For manufacturers this leads to a shift in the way that products are designed, manufactured and sold. The result of this evolution is that high quality customized products are replacing the well-known mass-produced products of past generations.

This development will pose a challenge for some small and medium sized enterprises (SMEs) within the “built to order” segment. The SMEs typically perceive the individualization trend as an opportunity to produce more customized craft products. In the past world of mass production, their justification for existence were

their responsiveness to the individual needs of the customers who could not have their needs satisfied by the mass-produced products. The core of these SME is not as much the product as it was the deep understanding of transforming a customer need into a specific “built to order” product. This competence, some SMEs rely on, will create an advantage on the growing market for mass customized products.

The question is whether this increased interest in “built to order production” will backfire in the long run? In the era of Fordisme as defined by Boynton and Milazzo [1] uniformity was the key to widespread availability for the public, if you wanted a product adapted to your specifications, you had to find a craft company to built it or make it yourself. You would indeed get a unique product; the price would be high, the quality inconsistent and the lead-time long. So in most cases the customer would turn to a mass-produced product with short lead-time, low price and high quality. The result of post Fordisme, is a merger of

---

<sup>\*</sup> Corresponding author.

*E-mail address:* csv@ipl.dtu.dk (C. Svensson).



Fig. 1. On the market for mass customization products the effectiveness of mass production will be weighed up against the individualization of customization production. The winner will be the one who finds the best balance, and in order to find the balance it is necessary to master both.

markets, the strict separation of mass-produced and customized products is dissolved, resulting in a more complex competitive situation where customizers and mass producers are to a higher degree targeting the same customers.

Customization is not necessarily relevant to all products, in most instances the needs of customers are uniform and can easily be satisfied by a mass-produced product. In other cases the benefits of customization cannot outweigh downfalls to customization (lead-time and cost). In these markets, mass production will remain unchallenged as the preferred form of production. But for an increasing number of products customization is becoming an option of the masses. The cost of customization have been reduced so dramatically that many customers have a actual choice between a mass-produced product and a customized version, e.g. with cars the premium of buying a car with the customers selection of color, interior and engine is minimal compared to buying a car directly of the lot. This is the reason why 75% of the British customers today buy a customized car, compared to 25% customers in the beginning of the 1990s [2], indicating the potential of customization for the masses, but there the change is painfully slow.

There will always be a market for cheap standardized product, but this market is a hostile environment for most western manufactures, and for most “built to order” SMEs this market will never become interesting. On the other end of the spectrum there is also a market that will remain the domain of “built to order” SMEs, markets what customers truly needs, and the ability to pay, this is the case of exclusive crafted furniture. But in between these markets there is an emerging battleground. Traditional mass producers will combine their newfound ability to customize with industrialization. And industrialization in the form of mass customization will be weighed up against individualization

of traditional craft production of build to order products represented by the SMEs (Fig. 1).

Consequently, it is argued in this paper that it will be necessary for the SMEs to shape up and industrialize their production in order to match the efficiency of the industrial production systems, thereby challenging the competitor on their own ground.

The key for SMEs to achieving the flexibility, agility and effectiveness needed on a competitive market for customized products is internal industrialization of information processing. The transformation of a need into a product is as much a transformation of information as it is a transformation of metal. When working with customized product, unique specifications are produced for each individual product, and if this is done in a traditional manner the result will be long lead-times, low quality and high cost, and today this is the case in many SMEs. When producing complex and customized products, the core of the company have shifted from processing material to the ability to managed information linked to the product and its production, and this will significantly affect the business processes.

In this paper, the evolution from crafting of customized products to the manufacturing of mass customized products will be described, indicating that industrialization is only a qualifying attribute. The aim is to present trends on the future market for “built to order products”, and therefore, give an indication of the measures needed in the industrialization of the future SME. The contribution is a focus on the sequential internal industrialization process of the administrative information generation systems of SMEs. This is done through a discussion of literature supported by observations from industry, and the discussion results in four steps that will help the SME identify the challenges of mass customization.

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات