

PREREQUISITES FOR SUCCESSFUL INTRODUCTION OF MASS CUSTOMIZATION STRATEGY IN CENTRAL EUROPE

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The challenges faced by companies in the times of the New Economy force to introduce innovative business strategies in order to remain competitive. One of the solutions is to offer customized products at the prices of mass products. This is a key element of the new business strategy, called mass customization offers opportunity to win customers and helps obtaining competitive advantage. The question is what the perspectives for successful introduction of mass customization are. The question is especially justified in case of Central Europe countries, where only few cases could be mentioned. The paper presents mass customization in general, discusses some of the prerequisites necessary to introduce this strategy as well as presents some recent research results related to this topic.

Keywords: Mass customization, prerequisites, Central Europe, new business strategies

1. MASS CUSTOMIZATION VIS-A-VIS TRADITIONAL PRODUCTION METHODS

Mass customization can be defined as a complex business strategy, which goal is to produce goods and provide services on a large scale, customized to the individual needs of every customer with the efficiency of mass production. Information obtained during the order processing might be a solid basis for establishing a long relationship with a given customer. Mass customization allows maximizing customer satisfaction from the product purchased and thus it may help to achieve competitive advantage in a given market.

Mass customization can be considered as the next step of the development of production methods, benefiting from the best elements of craft production, mass production and variant production. The development of these methods could be seen on the following diagram.

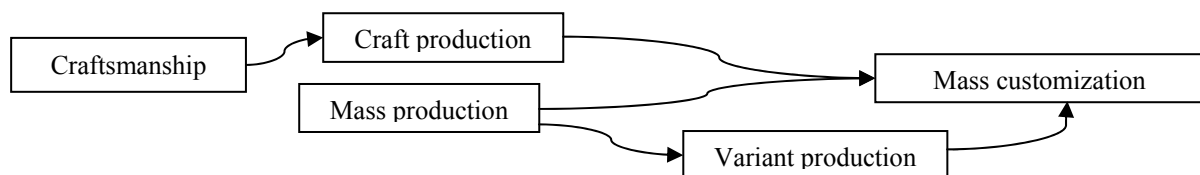


Figure 1. Development of production methods

Craftsmanship is the oldest and for thousands of years the only production method. It was based on the handmade production of goods and delivery of services in small workshops employing up to a few people. In the end of 18th century and in the beginning of 19th a breakthrough took place. Hand tools started to be displaced by machines. Continuing industrialization reduced the importance of craftsmanship in the production of goods and services. As a result craftsmanship transformed into so called craft production. Additionally new form of production appeared, known as mass production.

In the craft production, part of the handmade production is automated. Nevertheless the human factor (experience, skills and traditions) remains still very important. The example of craft production today might be the production of luxury goods (e.g. clothes from fashion designers' collections, luxury cars like Rolls-Royce, Bentley, jewelry, watches).

Different way of goods production and services delivery is mass production, which appeared simultaneously with manufacturing machines. The essence of mass production is an assumption, that the production costs might be significantly reduced by substituting human work for machines. The model case is the production of cars initiated by Henry ford (famous Model T). The use of machines, production lines, specialization of staff in repeating the same actions resulted in the colossal increase in the production volume and simultaneously in the decrease in car price.

Development of mass production initiated in the United States made many products, too expensive and luxury previously affordable for average consumer (e.g. cars, radios and TV sets, home electronics). Acceptable price for the middle class results from the fact, that the products are manufactured on a large scale, with the use of specialized machines and production lines, what allows to minimize the unit price (scale effect). Mass production is justified especially in case of large, homogeneous markets with stable demands and customers' preferences.

In the 20th century in the seventies and eighties companies using mass production faced a new challenge, related to the changes taking place on the markets, changes of customers' preferences and non-limited access to the information sources. As a result current markets are characterized by:

- large product diversity,
- changeable customers' preferences,
- changes happening on markets are turbulent and unpredictable,
- short product lifecycle,
- high customers' expectations as regards the available assortment and the quality of products,
- present markets more and more heterogeneous.

The above-mentioned phenomena lead to a point, where mass production is no longer a competitive strategy. Many manufacturers, who noticed this changes decided to introduce variant production – offering many versions of the same product. This strategy allows to a certain degree to fulfill the diverse customer preferences. Nevertheless it is extreme inefficient, because it leads to the significant increase in the production, storage and delivery costs. Moreover the risk, that part of the products will not be sold increases as well.

The complex business strategy called mass customization seems to be one of the potential solutions to overcome existing problems and to obtain competitive advantage. The following graphs present the discrepancies between the product features requested by customer and the product features offered by the manufacturer in the context of the three foregoing production methods.

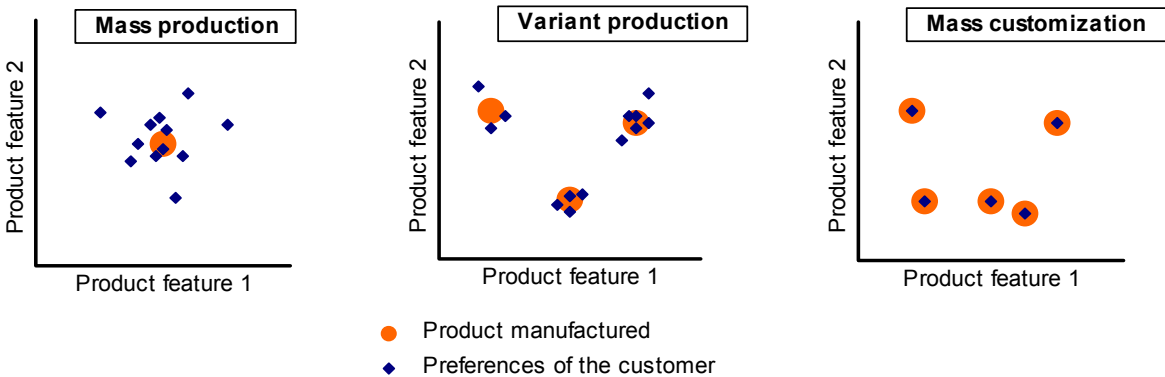


Figure 2. Mass production and variant production compared with mass customization [12]

On the one hand mass customization strategy accumulates the best characteristics of craft, mass and variant production, on the other hand it seems to be free of their disadvantages. The comparison of the main features of the mass production and mass customization is described in the following table.

Table 1. The main features of mass production and mass customization

| | Mass production | Mass customization |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Justification of the given model | <ul style="list-style-type: none"> ▪ the market is large and homogeneous ▪ customers' preferences are invariable with time ▪ stable demand | <ul style="list-style-type: none"> ▪ the market is heterogeneous, might be either niche or large one ▪ customers' preferences are changeable with time ▪ unstable demand (turbulent market) |
| Quality of the products | acceptable, mass product | acceptable or high, unique product |
| Price | low | the same, or a little higher than in mass production |
| New products' design time | long | short |
| Designer | manufacturer | customer |
| Product lifecycle | long | short |
| Goal | to design, manufacture and deliver product at the price low enough, that almost everyone can afford the purchase | to design, manufacture and deliver product customized to customers' needs and price competitive, that almost everyone could find something for him |

Mass customization strategy allows each customer to purchase the product matching individual preferences. The execution of an order requires the transformation of the classic value chain. The most important change is that, the customer designs and purchases a product, which is not manufactured or assembled while placing order. Mass customization strategy requires the use of new methods for interactive communication (e.g. Internet), in order to place an order at minimal service costs. The sample order execution with the use of mass customization strategy is presented below.

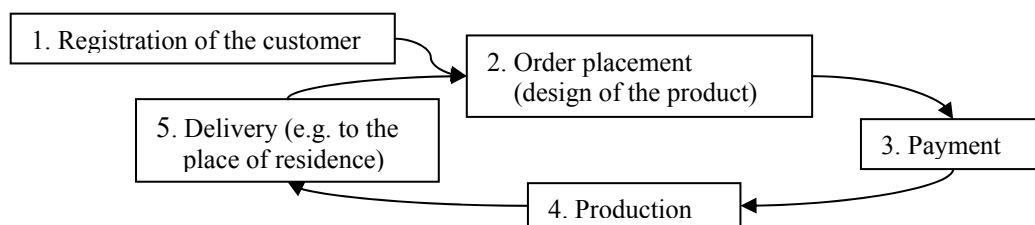


Figure 3. Mass customization – order execution

1. Customer provides basic information required to further order processing (e.g. address, contact details). This data is stored in a database and might be used to repeatedly to simplify further purchases (helps in building customers' loyalty).
2. Customer either in a store or via Internet defines individual product characteristics – configures product (specifies e.g. type, size, outer fabric, the cut way, colors, type of sole in case of purchasing shoes). Thanks to the computer visualization techniques customer might be able to see the ready product.
3. Customer makes payment. The price might differ according to the product configuration.
4. After the payment is confirmed, the order is sent to a factory. Manufacturer due to flexible manufacturing technologies and machines is able to create a unique product with the efficiency of mass production.
5. Finished product is automatically sent to the address provided by the customer. In the mass customization strategy some agents present in the mass production (e.g. wholesalers, retailers) might be omitted.

2. AREAS OF APPLICATION

Mass customization strategy might be implemented in almost every existing industry, both in case of manufacturing goods and provision of services. Sample areas of application are presented below.

Table 2. Mass customization – areas of application

| | | |
|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| car industry apparel shoes glasses jewelry watches furniture | telecommunication services banking insurance training, education services e-learning information delivery | music sport equipment computers cosmetics toys software tourism |
|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|

3. POTENTIAL BENEFITS

Introduction of mass customization strategy in a given case should be preceded by the analysis of potential advantages and disadvantages of such decision. This should be analyzed from both, customers and manufacturers point of view.

Table 3. Advantages and disadvantages of mass customization – the perspective of manufacturer

| Advantages | Disadvantages |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ▪ might help to obtain competitive advantage ▪ cost reduction (storage costs, costs related to the products not sold) ▪ higher incomes – agents profit margin in mass production might fall into manufacturers account, moreover customers are ready to pay higher price for customized product ▪ building customer loyalty ▪ better needs analysis – customers through designing their own products provide some information related to their preferences ▪ manufacturer less endangered by demand and preferences changes (market turbulences) | <ul style="list-style-type: none"> ▪ high requirements as regards the management and production systems ▪ sometimes expensive investment in IT, flexible manufacturing systems, trainings necessary ▪ risk of failure – apart from mass customization success stories, there are some failure cases too |

Table 4. Advantages and disadvantages of mass customization – the perspective of customer

| Advantages | Disadvantages |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ▪ product better fits customers' preferences ▪ higher opportunities to assess alternatives ▪ purchase is possible regardless of place and time (in case of purchase via Internet) ▪ customers convenience | <ul style="list-style-type: none"> ▪ longer delivery period ▪ impossible to experience the final product before the purchase ▪ more complicated purchase process ▪ purchase is usually not anonymous |

4. OUTER AND INNER PREREQUISITES FOR MASS CUSTOMIZATION

The shift from mass production to mass customization might seem for many companies questionable. The decision for such a change should be preceded by the analysis of potential advantages/disadvantages (discussed above) but also by the analysis of the prerequisites necessary for successful implementation. The prerequisites can be divided into the following groups:

- independent from the manufacturer in the short run (outer factors). In the long run manufacturer could influence these factors through e.g. marketing activities – these factors, if fulfilled might justify the shift from mass production to mass customization. Some of them include:
 - market factors – market homo/heterogeneous, market size, turbulence factor, product lifecycle, competition,
 - human factors – the readiness of customers to buy customized products (acceptance of longer delivery period, sometimes higher price, etc.),
 - logistics – the availability of fast and cost-effective ways of delivering products from factories to customers,
- dependent from the company (inner factors):
 - IT systems – in order to design, produce and deliver highly customized products with mass production efficiency all processes along the value chain must be supported by efficient IT architecture. Some of the processes which should be supported by IT solutions are: acquiring customers requests, web-based product configuration (so called product configurator), information flow management, production scheduling and planning, purchasing and procurement, delivery logistics of both components (modules) and finished products, Customer Relationship Management. All these functionalities should be linked together in the form of integrated ERP system [13],
 - infrastructure – this category encompasses both location of the factories (should be located relatively close to markets in order to reduce delivery time, some experts even propose the concept of minifactories as the most promising one [11, 14]) and production lines (the most important features sought-after are flexibility and efficiency in production unique products on a mass scale).

The proposed list of factors is the preliminary one, and might vary significantly depending on the product/service offered.

5. RESEARCH OUTLINE AND RESULTS, FURTHER WORK

The goal of planned research is to answer the question, what the perspectives for successful introduction are in Central Europe. One of the first steps, already carried out was identification of the products/services in case of which, potential customers might be interested in customization. The pilot study was carried out in the form of paper based questionnaire, on a representative group of university students (n = 140). Students were presented the principles of mass customization strategy together with its advantages and disadvantages in an objective manner. Then the group had to pick up product/services from the list, most suitable for customization (customer perspective). The results are presented in the following graph.

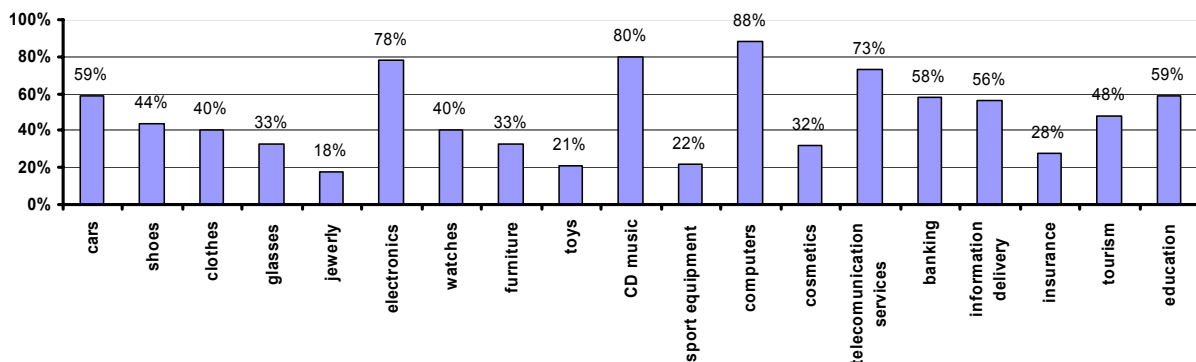


Figure 4. Percentage of students interested in buying customized products/services [2]

The above results prove that in case of some industries, introduction of mass customization seems to be justified. It is expected that these values would be even higher if more information

(accompanied with case studies from various industries) on mass customization was presented to the surveyed group.

The further research will concentrate on investigating in detail the prerequisites necessary to introduce mass customization successfully in case of each product/service mentioned. The research progress, methodologies used, assessment tools, results will be presented at the website: www.mass-customization.pl, where everyone is invited to comment and contribute.

6. CONCLUSION

The future of mass customization seems to depend highly on the interest of customers in buying customized products. In the last decades that's just the customers forced manufacturers to increase constantly the quality of products and to offer more and more diverse range of products. In developed societies, like in Western European countries and in the US a pressure is put on manufacturers to offer products better matching individual and diverse customers' preferences and expectations. Introduction of mass customization seems to be the best solution to changes happening on markets.

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