The international mass customisation case collection: an opportunity for learning from previous experiences

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Abstract: The International Mass Customization Case Collection (IMC3) is an initiative of more than 25 international researchers collaborating to build a broad basis for empirical research on mass customisation. The idea is to document current practices of mass customisation businesses in a form that allows rich cross-case analysis and learning from previous experiences. This paper provides an introduction to this special issue and compares all cases presented herein. It discusses the motivation and methodology and offers ideas as to how these case studies may be used for future mass customisation research and education in this field. In addition, managers will get inspiration for their own mass customisation initiatives by learning from the experiences portrayed here.

Keywords: mass customisation; case study methodology; overview.


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1 Introduction

Since the term ‘mass customisation’ was coined almost 20 years ago, much research attention has been brought to the concept and many companies have successfully launched mass customisation businesses (Davis, 1987; Pine, 1993; Tseng and Piller, 2003; Piller, 2006). Yet mass customisation is still a ‘buzzword’, not a discipline (Piller, 2005). In particular, a common understanding concerning the existing approaches and types of mass customisation is missing (Duray et al., 2000). Most recent research has focused on special aspects of the mass customisation business model, such as product modularity, configuration systems, flexible supply chains, or customer interaction. Much of this research is based on empirical studies or the analysis of anecdotic case studies. However, there is still a lack of research that provides a rigid aggregating perspective of the subject.

The objective of this special issue is to offer representative material and insights for filling this research gap. It presents the first results of the International Mass Customization Case Collection (IMC3), an initiative of a consortium of 25 international researchers collaborating to provide a better basis of empirical research in this field. The first edition of this case collection will cover 18 mass customisation cases, eight of which are presented in this special issue. The idea behind this project is to document current practices of mass customisation businesses in a form that allows rich cross-case analysis and learning, thus supporting the following objectives:

- The project aims to identify current business practices and to build a basis for future research. By creating a wide collection of different approaches to mass customisation, it shall allow investigation of the hypothesis that today’s mass customisation is present in various forms in many different industries from industrial goods, to services and consumer industries.
- The IMC3 will create a collection of cases for developing and deepening the theory of different types of mass customisation, and comparing the way this business concept is implemented across different cultural contexts.
- In doing so, the project seeks to explore the unique competencies applied by mass customisation companies operating this business concept.

As readers will discover in this special issue, such a case collection is able to demonstrate the scope of implementation of mass customisation. Companies differ from one another, for example, in their degree of offered customisation, scope of activities performed...
The international mass customisation case collection

internally, technologies applied, and other dimensions. First and foremost, however, these case studies afford insights into the motives and objectives of companies implementing mass customisation. These motives range from profit-taking, to acting as a sheer marketing gimmick (Moser, 2006). Other more generic questions of research, for which this case project may provide an empirical background, include:

- What strategic motivation do companies have in pursuing mass customisation?
- Is mass customisation a unique organisational form, and what are its underlying principles?
- What different types of mass customisation exist? What attributes differentiate these types?
- Which competencies do companies currently employing mass customisation possess?
- What are the success factors and challenges of different stages of a mass customisation business?
- What is the state of application in a particular industry?

2 Methodology

Case study research is “an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident” (Yin, 2003). Case study research is an appropriate method for studying mass customisation, since research in this field is still in an early stage (Eisenhardt, 1989; Piller, 2005). Table 1 lists some past research projects in the mass customisation domain that have been based on case study research. This project is primarily a research case study project (Yin, 2003). Most studies applying case study research in the current literature refer to Eisenhardt (1989), Hamel et al. (1993), Miles and Huberman (1994), Stake (1995), or Yin (2003), although this research design goes back to the work of Glaser and Strauss (1967). Generally speaking, there are two different types of case study research: teaching case studies and research case studies (Yin, 2003). Teaching cases are used to educate about specific aspects of management research, and due to this objective, the content of these cases is often changed to point out a specific aspect. In contrast to this, research case studies accurately document all empirical data in order to build a foundation for explorative research. The case studies in this project were not written as teaching cases (we have, however, already used some of these case studies as part of our mass customisation curriculum in several Executive MBA classes and received very good feedback).

Case data are developed and studied within a large research consortium of international researchers who have better access to companies in their home countries. The idea is to also demonstrate and document companies outside the USA, where most of the previous publications were based. The project was initiated by a group of five researchers at the INFORMS conference in Denver in October 2004. This research group had decided to collaborate on the development of case studies from practice. By March 2006, the project group had grown to a number of 25 participants. To deepen
the understanding of different types of mass customisation, companies from various industries were selected. Available classification schemes of mass customisation were used to select a broad range of business examples (the models of Lampel and Mintzberg, 1996; Amaro et al., 1999; Duray et al., 2000 were particularly considered for this purpose).

Table 1 Selected mass customisation research that builds on the case study methodology

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Case description</th>
<th>Research problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feitzinger and Lee, 1997</td>
<td>One case: Hewlett-Packard</td>
<td>How does a large electronics manufacturer deploy mass customisation?</td>
</tr>
<tr>
<td>Kotha, 1996</td>
<td>One case: the national industrial bicycle company of Japan</td>
<td>Identification of the competencies of a pioneering mass customisation company.</td>
</tr>
<tr>
<td>Peters and Saidin, 2000</td>
<td>One case: IBM Malaysia (IT vendor)</td>
<td>Identification of the internal and external factors supporting and hindering the adoption and implementation of mass customisation.</td>
</tr>
<tr>
<td>Piller, 2006</td>
<td>About 140 cases: various industrial sectors (about 60% B2C and 40% B2B) and locations (approx. 40% German, 40% USA, and 20% rest of world)</td>
<td>Development of a mass customisation classification and establishment of a management framework to implement and run mass customisation in manufacturing companies.</td>
</tr>
<tr>
<td>Zipkin, 2001</td>
<td>Around a dozen cases from various industries</td>
<td>Identification of the competencies of mass customisation companies.</td>
</tr>
</tbody>
</table>

All researchers utilised multiple sources of data collection, i.e., information was collected from many different sources. This collection method increased the internal validity of the data and ensured a higher level of proof of the derived hypotheses (Eisenhardt, 1989; Gummesson, 2000; Yin, 2003). The objective of using multiple sources “is to draw on the particular and different strengths of various data collection methods” (Pettigrew, 1990, p.277). In general, the data sources were interviews conducted with managers, archive sources provided by the companies, and secondary or external information. The selection of specific sources depended on each company-researcher setting, and whether or not there had been any previous collaboration between the two parties. Some researchers, such as the research group at the TUM Business School or the DTU group, had already been involved in project work with the targeted companies (either in past or current cooperation). In such settings, researchers were also able to derive information from direct observations (e.g., during company visits or workshops) or existing material (protocols, presentation material, project reports, etc.).

The documentation of each case and collection of all data followed a pre-defined, semi-structured case outline (Eisenhardt, 1989; Gummesson, 2000). Apart from an introduction to the industry and market, each case study presents the company, its products, and mode of operations. A chapter about the case-specific focus of each paper points out specific business models or competencies for mass customisation. A final section in each case provides an assessment of the company’s mass customisation business, summarised in the form of a SWOT analysis.
3 Overview of this issue

This issue presents eight recent cases from the work of the international mass customisation casebook project. Table 2 provides an overview of all eight case studies and their particular focus. Three cases discuss insights gained from applying mass customisation in business-to-business industries. Companies in this industry are often used to performing highly customised activities for one particular client. However, growing competitive pressure and cost competition are forcing these companies to employ mass customisation principles in order to gain efficiency while maintaining a high degree of customer-centricity. The three cases show how product modularity, postponement structures, and product configuration systems enable traditional craft manufacturers to increase their operational efficiency while continuing to offer the same degree of customisation. The three industrial goods cases presented in this issue are:

1. APC, a provider of data centre infrastructure and services from the USA and Denmark
2. MarelliMotori, a manufacturer of electric motors from Italy
3. F.L.Smidth, a Denmark-based manufacturer of complex process plants for the construction industry.

The remaining cases focus on consumer goods companies. Here, the change resulting from mass customisation can often be illustrated better than in the case of industrial goods, as such companies run on a pure mass production model without any direct connection between customers and the manufacturer. For this issue, we have selected three case studies from the footwear industry to provide an initial cross-case analysis in one industry. The analysis of the mass customisation systems of Adidas (athletic shoes) and Left foot (men’s dress shoes) provides insights into measures taken for implementing a sustainable mass customisation business. A third case study focuses on the infrastructure necessary for custom manufacturing in this industry, and presents an interesting approach of using a pilot plant as a means to motivate and change the dominant industrial structure (i.e., mass production) in a country. The three cases from this industry are:

1. Adidas, an international manufacturer of sports goods based in Germany
2. Left foot, a Finland-based worldwide operating provider of custom men’s shoes
3. Design&MC Lab, a research lab and model plant for the mass customisation of footwear based in the Italian shoemaking capital, Vigevano.

The two remaining cases focus on special objectives connected with the implementation of a mass customisation strategy. Taking the example of the bike industry, the Steppenwolf case discusses typical challenges of integration along the value chain of a mass customisation business. Turo Tailor, on the other hand, is a company that primarily uses mass customisation as a marketing tool to support its mass production business in the apparel industry:

1. Germany-based Steppenwolf, one of Europe’s leading manufacturers of custom bicycles
2. Turo Tailor, a Finnish manufacturer of apparel (men’s suits).
We hope that you enjoy this special issue and derive inspiration for future work on mass customisation when reading these cases. Last, but not least, a call for participation: The IMC³ project is an open initiative. If you are interested in participating in this research cooperation and would like to contribute a case of your own, please contact us. We are looking forward to your input.

Table 2  Overview of the case studies presented in this issue

<table>
<thead>
<tr>
<th>Company name</th>
<th>Industry</th>
<th>Mass customisation offering (product)</th>
<th>Case-specific focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>APC</td>
<td>Industry goods</td>
<td>Data centre infrastructure and services</td>
<td>Mass customisation competencies of product modularity and product configuration system</td>
</tr>
<tr>
<td>MarelliMotori</td>
<td>Industry goods</td>
<td>Electric motor manufacturer</td>
<td>Mass customisation competencies of postponement and product configuration system</td>
</tr>
<tr>
<td>F.L.Smidth</td>
<td>Industry goods</td>
<td>Process plant construction</td>
<td>Mass customisation competencies of product modularity and product configuration system</td>
</tr>
<tr>
<td>Adidas</td>
<td>Footwear industry</td>
<td>Athletic shoes</td>
<td>Transformation process towards a sustainable mass customisation business</td>
</tr>
<tr>
<td>Left foot</td>
<td>Footwear industry</td>
<td>Men’s shoes</td>
<td>Success factors for implementing a sustainable mass customisation business</td>
</tr>
<tr>
<td>Design&amp;MC Lab</td>
<td>Footwear industry</td>
<td>Research lab for mass customised shoes</td>
<td>Mass customisation business models and technologies for footwear businesses</td>
</tr>
<tr>
<td>Steppenwolf</td>
<td>Consumer goods</td>
<td>Bicycles</td>
<td>Integration challenges of mass customisation businesses</td>
</tr>
<tr>
<td>Turo Tailor</td>
<td>Consumer goods</td>
<td>Apparel/men’s suits</td>
<td>Mass customisation as a marketing tool</td>
</tr>
</tbody>
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References


