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Management Innovation the key element for extreme Mass Customization!

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Abstract:

This article will discuss the potential of Management Innovation being the key success factor of Mass Customization. A framework will provide an overview of core competencies and success factors. The core competencies will be evaluated with the help of a cube. The cube provides different views, which allows a transformation of the success factors into their underlying activities and application areas. Built upon the new categorization, requirements will be defined with regards to the supporting elements to successfully implement Mass Customization. The requirements for supporting elements will lead to the hypothesis that Management Innovation should be considered the key success factor for Mass Customization. Once the hypothesis has been formed, Management Innovation will be discussed. A definition of Management Innovation will be provided. It will elaborate on what Management Innovation is, what its strengths are and how it can be employed. The employment method will be tailored to support a Mass Customization environment and its specific need.

Introduction:
The success of Mass Customization as a business strategy has been challenged in many ways since its first appearance (Pine 1993). The business strategy has become a great success for some companies and others have struggled and have cancelled Mass Customization initiatives or had to file bankruptcy. In other cases Mass Customization might be used as a costly marketing instrument, in order to support the overall business from a marketing perspective. The question has been asked if Mass Customization is only a buzzword or if it can actually provide a competitive advantage (Piller, Ihl 2002). As market developments have shown, the demand for customized and personalized products is there (Pine 1993, Piller 2003). Therefore the conclusion should be that Mass Customization is the right strategy. One of the things that seems to be difficult compared to other business strategies is the diversity of ways Mass Customization can be applied. Firstly it is not exclusive to manufacturing or service industries and secondly the point of customization is dependent upon the level of integration of the customer and the decoupling point in the manufacturing process. There is not one model that can be applied across all organizations (Piller, Ihl 2002). This also leads to the impression that there is not a precise definition of Mass Customization to be found in the literature (Hilden et al. 2005). The fundamental concepts and technologies required have been defined (Piller 2003), however the implementation of such seems to be the area presenting difficulties. This is also described as the lack of relevant competencies to successfully operate a Mass Customization (Moser 2005, 2007). Moser has taken the step from the scientific definition of Mass Customization to an applied research study of the dominant competencies. These dominant competencies will be elaborated on in the next paragraph.
Framework:

The framework for this paper is an empirical research project that had been conducted by Moser in 2005 in corporation with a German industry research group. The research was based on the question: “What (internal) competencies do companies have that employ Mass Customization today?” As a first step, competence areas were defined, which support the consecutive empirical study. The competence areas include: Product development, customer interaction, production, logistics, IT systems, Complexity Management and Leadership & Organization. As a result of the research project, competencies were identified and evaluated, using McKelvey’s definition of dominant competencies.

The eight dominant competencies of Mass Customization:

<table>
<thead>
<tr>
<th>Dominant Competency</th>
<th>Category</th>
</tr>
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<tbody>
<tr>
<td>1 Customer integration</td>
<td>external</td>
</tr>
<tr>
<td>2 Application of product configuration systems</td>
<td>internal</td>
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<tr>
<td>3 Employment of product modularity</td>
<td>internal</td>
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<tr>
<td>4 Product variant management</td>
<td>internal</td>
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<td>5 Central production and logistics planning</td>
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<td>6 Management of mass and individual production</td>
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<tr>
<td>7 Management of flexible organization and processes</td>
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<td>8 Process documentation and IT support</td>
<td>internal</td>
</tr>
</tbody>
</table>

Figure 1: Dominant Competencies (Moser 2007)

In the following section the competencies will be elaborated on based on Moser’s summary as well as literature reviews.

1. Customer Integration
Customer integration is defined as the involvement of the customer in the value chain: from the customization of the product desired until after sales. Relationship building (learning relationship) (Piller 2003) is seen as an important factor of customer integration, it enables a personalization of the product offering towards the customer. This can support long lasting relationships between customers and vendors.

2. Application of product configuration systems

The design and implementation of product configuration systems enables product offering that leads the customer to the desired product. Product configuration systems provide a tool to reduce complexity that the customer is confronted with (Rogoll, Piller 2002). The integration of product configuration systems into manufacturing systems enables a more seamless flow of data and a reduction of complexity, which can result in lower cost and shorter lead times.

3. Employment of product modularity

The main objective of product modularity, also referred to as platform design is to reduce the number of components and parts, which will simplify production scheduling, enable postponement and minimize manufacturing and assembly complexities (Anderson, Pine 1997). Postponement refers to the ‘Make to Order’ concept, which simplifies forecasting and reduces inventory.

4. Product variant management

Product variant management, also referred to as variety management is described as the “number of available customization options” (Moser 2007), The number of variants is seen as the driver of complexity (Piller 2003), one of the objectives of Mass Customization is the reduction of the variants to the ones the customer really desires.
Both the reduction of the complexity for the customer in the customization process and a decreased internal complexity are seen as key success factors. The reduction of the internal complexity can influence the efficiency of demand management, business processes, production scheduling, manufacturing processes and logistics.

5. Central production and logistics planning

The complexity of business processes in a Mass Customization environment can be better supported by a centralized production and logistics planning scenario versus a decentralized approach. This is also referred to as process orientation versus departmentalization. Process design and centralized planning allows more efficient production and logistics processes and reduces coordination cost (Moser 2007).

6. Management of mass and individual production

In order to achieve economies of scale, it was identified that the utilization of mass produced components/parts in a Mass Customization environment are important. Therefore the design and management of forecasted (mass produced) and actual demand driven (customized) manufacturing processes are a critical competency. In order to take advantage of mass produced components/parts for customized products, product modularity plays an important role in this context.

7. Management of flexible organization and processes

“Processes should be standardized to a degree where flexibility can be adequately guaranteed” (Moser 2007). The research study has revealed that standardization of processes, which is referred to in the literature (Tseng/Jiao 2001, Piller 2003) might not allow the flexibility desired in a Mass Customization environment. The objective is to standardize the process along the entire value chain and the creation of cross functional
teams, which enable flexibility by reducing functional boundaries (Broekhuizen, Alsem 2002).

8. Process documentation and IT support

Information systems and business process definition and documentation have been defined as a dominant competency by the research study. Business processes in Mass Customization environments demand IT systems that are adjusted to the individual needs. These IT systems are also required to provide the flexibility that has been identified for the business processes. In other terms, if a business process has been designed and documented to support different scenarios the IT system needs to provide support. It has also been identified that not all business processes have to be supported by IT systems. Some might require too much flexibility and might therefore be accomplished outside the IT system.

Analysis:
The above listed dominant competencies will be evaluated using a concept that is used in relational databases named cube, which presents different views of the same set of data. The analysis is aimed to derive the underlying activities and application areas. Underlying activities will represent the involvement of resources and their activities in a merge to a Mass Customization environment. Application areas will provide a grouping into the areas in the organization that are affected. The underlying activities and application will be listed in figure 4 and 5.
Define objectives

The definition of the objectives seems to be one of the most important tasks in the course of the implementation of Mass Customization. All objectives should be derived from the corporate wide Mass Customization strategy.

Benchmarking

Benchmarking can be a helpful source for competencies that are not exclusively applicable to Mass Customization.

Define Process

Based on the previously defined objectives, the definition of affected business processes is a critical task.

Design

The design category represents activities such as innovation and design for IT systems and products.
Analyze

The analysis category includes ongoing analytical activities. Most competencies have analytical components in the initial implementation of Mass Customization, only few will be an ongoing activity.

Manage transition

The activities that are incorporated into this section only include activities that already existed, before merging to Mass Customization.

Manage organizational change

Organizational changes include competencies that affect the organization, IT systems related competencies are not affected.

Application Areas

<table>
<thead>
<tr>
<th>Dominant Competency</th>
<th>Business Process</th>
<th>Manufacturing Process</th>
<th>Product Offering</th>
<th>IT Systems</th>
<th>Value Chain</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Customer integration</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</tbody>
</table>

Figure 5: Application Areas

Findings:

The majority of the dominant competencies affect the organization, its structure and its business and manufacturing processes, which means that management becomes the most
important element guiding through the merge. The changes in business strategy will demand innovative solutions in the transitioning phase and management approaches. One of the things that seems to be a given, is the definition of objectives for the individual competencies. Objectives can only be defined if a transparent corporate-wide Mass Customization strategy is provided. Another arena that includes both employees and management is the definition of business processes; Mass customization requires both flexibility and standards in order to enable reliable and efficient processes. Business process design is a prerequisite for the design of IT systems.

**Hypothesis:**

Based on the above findings the hypothesis is formed that Management Innovation is the key success factor and competency when becoming a Mass Customization environment.

**What is Management Innovation?**

Gary Hamel (2006) defines a Management Innovation as “a marked departure from traditional management principles, processes, and practices, or a departure from customary organizational forms that significantly alters the way the work of management is performed”.

Put simply, Management Innovation is the creative element that allows managers to do things differently. They are free to find entirely new ways of organizing, leading, coordinating and motivating their employees and the organization. Like in science, a method is supportive to make innovation effective and efficient, leading to breakthroughs
in management. The methodology that Hamel (2006) described; will be altered to become more tailored towards Mass Customization.

Definition of a Management difficulty

While merging to a Mass Customization, management difficulties will appear. The task is to properly describe the difficulty and its scope. A definition of high level objectives might be helpful. Generally speaking, a too detailed definition of the problem will hinder the openness to new concepts.

Search for new principles

Mass Customization is a different way of doing business, using approaches that were used in a Mass Production environment, will only make business processes overly complex. The team working on the management difficulty, will need discover the core issues in order to provide new principles that will allow innovative solutions. Albert Einstein observed: “The significant problems we face cannot be solved at the same level of thinking we were at when we created them” (Covey 1989).
Deconstruction of management orthodoxies

Mass Customization as a business strategy itself is a change, management orthodoxies will make a transition difficult and deconstructing them will not be easy either. However, once a Mass Customization strategy is transparent, it will become apparent that management orthodoxies will not be able to last. The task here is the engagement of the individuals involved and a transparent objective that everybody can translate into a business need.

Redefine what’s possible

The definition of what is possible turns into the application of new principles, while not being limited to any previous managerial concepts. New management approaches will make Mass Customization a successful business strategy.

Discussion:

The empirical research project that had been conducted by Moser provides a valuable insight into the dominant competencies. It has provided a framework that allowed a review and evaluation of the competencies. Based on the evaluation, the main factors that influence the success of a Mass Customization environment seem to be strongly related to the business strategy and the transformation of such into business objectives.

Management Innovation can provide the necessary freedom to manage according to the
new strategy and to support innovations with regards to new business and manufacturing processes.

Management Innovation can also help an organization to further adjust to changes in the corporate Mass Customization strategy. A subject that hasn’t come into the discussion so far is the management of change when transitioning from Mass Production to Mass Customization. Organizations tend to be resistant to change, which can become a subject for Management Innovation and will eventually lead to new ways of introducing change to an organization.

**Conclusion:**

Transitions to Mass Customization or new ventures are facing difficulties like all other changes to corporate strategies. A difference may be that Mass Customization affects the organization in its entirety. The evaluation and review of the dominant competencies, shall lead to a different way of thinking, when merging or creating a Mass Customization environment. A new way of doing business will require new ways of thinking.

Management Innovation provides the freedom in the organization to make Mass Customization a successful business strategy. Thus Management Innovation can become the key element for extreme Mass Customization

**References:**


