

# How to motivate an organization to take on MC principles

C. Klock

MoveAhead Consulting & Executive Education

E-mail: [c.klock@moveahead.com](mailto:c.klock@moveahead.com) Tel: +49-89-37067-330

## Abstract

Although the principles of agile manufacturing & mass customization are widely known, the actual, full implementation of these principles has only taken place in a few rare cases. Even some of well regarded MC pioneers often only provide “false” mass customization. This means, their MC businesses are mainly set up for marketing/research purposes and not to make profits. They actually lose money which is subsidized by their sales out of the “traditional” operating system.

This situation leads to a few key questions:

- Are the core principles and necessary changes of the operating system (R&D & Manufacturing with SC) really understood and correctly implemented ?
- What types of products / businesses are suitable for Mass Customization ?
- What is a reasonable / necessary target level of adapting MC principles to gain competitive advantage ?
- What are the key inhibitors adapting Mass Customization principles ?
- **How to motivate an organization to start the journey transforming from traditional (manufacturing) operations to mass customization ?**

In this paper (knowledge presentation), we describe how to identify and quantify benefits, thus competitive advantages that can be gained through converting the traditional production system into a “lean & agile” operating system, capable of providing customized goods at mass production efficiency. The competitive advantages described in this paper derived from recent client case studies from the industrial goods sector.

Keywords: Mass Customization, Market Requirements, Cost of Variety, Cost Benefits, Change Management

## 1 INTRODUCTION

As we know, making mass customization *truly* work is not a simple task. In most cases it requires a redesign of each single and a realignment of nearly all existing functional processes to match mass customization needs. This is (management) time consuming and especially the transformation of the operating system requires lots of efforts (cost) and solid change management capabilities. Often, desired results can not be obtained to poor transformation planning, execution and change resistance.

So why embarking on this journey? Why changing the manufacturing / business strategy ? Why going through all this trouble ?

The first thing to do is to understand market requirements and strategic options.

## 2 MARKET REQUIREMENTS / STRATEGIC OPTIONS

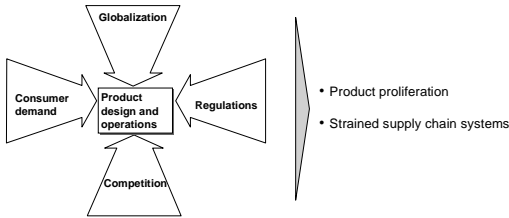
The increase in transparency of product offers combined with convenient information & ordering processes via the internet, customers more and more prefer products that exactly match their needs. If someone can get these products made:

- *the way they want it,*
- *when they want it,*
- *in an as convenient way as possible and*
- *at a price they are willing to pay, they will go for it.*

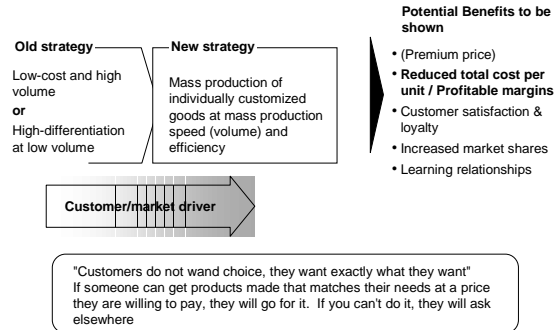
If you can't do it, they will buy from someone that can. Besides these pressures from Consumers and Competition the increasing Globalization and country specific Regulations driving product proliferation and strained supply chain systems.

In today's situation it is difficult to know what competition is doing and usually there is not enough time to react on competitive moves. Combined with the increasingly shorter product life cycles the best business strategy is to gain competitive advantage by being most responsive to customer needs.

**4 KEY FORCES DRIVE PRODUCT PROLIFERATION AND STRAIN CURRENT SUPPLY CHAIN SYSTEMS**



**CUSTOMERS DRIVING NEW MANUFACTURING STRATEGY**



On the long run you need to adjust your performance / financial management system to the new operating set-up. For right now to get momentum for change on of the best tools to show potential benefits of adapting mass customization is the *zero-base approach*.

Up to a certain extent, companies, without changing its processes dramatically, are able to provide customized goods in "acceptable" lead times (current market average) at a reasonable cost, at least based on the information from existing accounting system.

**3 UNDERSTANDING TOTAL COST OF VARIETY**

Unfortunately this information is often "false" and companies actually lose money on customized products. The reason is that the cost-accounting system often uses a "flaw" product/cost mixed-calculation in which standard and customized products get mixed together.

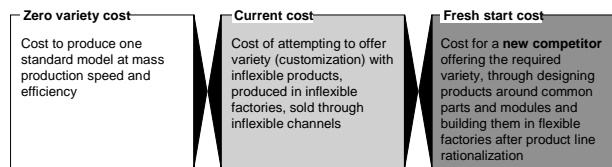
Typically overhead cost costs are not distributed correctly or are simply disregarded. Things get even worse if the portion of individually customized goods sold is increasing (what is usually happening). You can do the math yourself by manually performing a value stream cost-accounting for selected products. You will be surprised!

Unfortunately just increasing the prices for customized products is not an option. Customized products need to be offered at a price customers are willing to pay for. What makes things worse is that the price premium of such customized products is getting smaller and smaller.

So have no choice but embarking on the journey to stay competitive / not to lose business but ...

- How to justify cost to shareholders if the existing financial system is lacking transparency thus not clearly shown potential benefits?
- How to get people motivated/excited to change if what they are measured on does not reflect change.

**COMPUTING THE COST OF VARIETY\***



The difference between total cost starting of fresh and the current cost is the potential cost saving moving towards mass customization, or in other words, the current cost to provide variety the "old way"

[2] Here, current total cost of attempting to offer variety is compared with the cost of a "fresh starter" who perfectly applies *lean manufacturing* and *mass customization principles* (design of all products and the complete production system from scratch). This not only will reveal the huge potential cost saving but it also highlights the threat that might come from a "fresh" new competitor.

To identify the cost of variety, various cost groups need to be looked at [2].

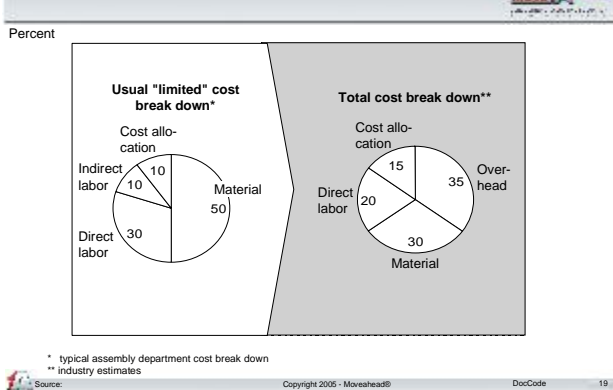
## IDENTIFYING THE COST OF VARIETY

<p><b>Inventory</b></p> <ul style="list-style-type: none"> <li>• Inventory itself <ul style="list-style-type: none"> <li>– Raw materials inventory</li> <li>– Work-in-process (WIP) inventory</li> <li>– Finished goods inventory: factory, distribution, dealer/store</li> </ul> </li> <li>• Inventory related <ul style="list-style-type: none"> <li>– Administrative labor, warehouse labor and data processing expense</li> <li>– Floor space costs</li> <li>– Write-offs, obsolescence and deterioration</li> <li>– Internal transportation: equipment (forklifts), labor, floor space (forklift aisles)</li> </ul> </li> </ul> <p><b>Set-up</b></p> <ul style="list-style-type: none"> <li>• Set-up labor cost</li> <li>• Machinery utilization</li> <li>• Labor resource utilization</li> <li>• Kitting: labor expense, floor space</li> </ul> <p><b>Cost of model changeovers</b></p> <ul style="list-style-type: none"> <li>• Tooling/labor changeover costs</li> <li>• Plant downtime</li> </ul> <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>• MRP/BOM administration</li> <li>• Parts administration/qualification</li> <li>• Internal parts distribution</li> <li>• Purchasing: Labor to purchase excessive variety, missed purchasing leverage and economy of scale, expediting cost</li> </ul>	<p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• Tooling, dies and fixtures over the minimum</li> <li>• Ramp delays caused by too many differences</li> </ul> <p><b>Customization/configuration</b></p> <ul style="list-style-type: none"> <li>• Plant labor to customize and configure</li> <li>• Custom engineering</li> <li>• Documentation expense for each customization and overall documentation roll-up</li> </ul> <p><b>Marketing</b></p> <ul style="list-style-type: none"> <li>• Product line management, documentation, catalogs</li> <li>• Missed sales from running out of parts or not responding quickly enough with products</li> <li>• Missed sales from building scarce parts into products that are not selling</li> <li>• Cost of forecast errors: discounts, rebates</li> </ul> <p><b>Quality</b></p> <ul style="list-style-type: none"> <li>• Cost of multiple defects, which can occur in batch manufacturing</li> </ul> <p><b>Service</b></p> <ul style="list-style-type: none"> <li>• Excess service cost due to excessive variety of parts and procedures</li> <li>• Spare parts logistics of excessive variety</li> </ul> <p><b>Flexibility</b></p> <ul style="list-style-type: none"> <li>• Cost of flexible manufacturing capabilities and supporting design and information systems</li> </ul>
---	--

Source: Copyright 2005 - Moveahead® DocCode 23

By performing this total cost “break down” exercise it becomes clear that the overhead cost (previously misc. cost allocation bucket) are significant.

## TOTAL COST PERSPECTIVE REVEALS POTENTIAL BENEFITS



## 4 IDENTIFICATION AND QUANTIFICATION OF POTENTIAL BENEFITS

Further analysis on cost drivers for each single cost category, it becomes clear that all costs are heavily driven by the number of different parts to be handled in the operating system. The dimensions become quite shocking if playing with numbers.

For example material cost: Knowing that every new part number increases cost (life-time material & sourcing cost) ranging from EUR 5,000 for standards parts to as high as EUR 80,000 for custom parts.

The zero-base analysis typically reveals a 60-80% reduction in part numbers for a given product range if a “fresh start” would be possible. With, for example 40.000 part numbers (avg. lifetime cost EUR 25,000 / 70% reduction of part numbers) to be handled this would lead to a cost reduction of about 70 Mio EUR over 5-7 years.

And these are only material cost. Additional analysis show major additional savings within direct labor, inventory holding cost and especially overhead cost.

(Examples will be shown and discussed during the presentation)

## 5 SUMMARY

To motivate shareholders and top management to start the journey (transition of the existing or to start a fresh new business model) it is necessary to clearly understand customer needs and market requirements.

As implementation cost are very high, motivation for change can only be obtained through a solid identification and quantification of cost savings as well as other required benefits (lead time / flexibility / product variety offer).

The zero-base approach combined with a cost driver analysis exercise can deliver the required information. This exercise also delivers the vision (the best possible target situation) which guides all decisions (system set-up) that follow during the transformation.

## 6 REFERENCES

- [1] Christian Klock, 2005, Mass Customization – Knowledge Presentation, various slides
- [2] David Anderson / Joseph Pine, 1998, Agile Product Development for MassCustomization, pages 43-72

Author contacts:

Christian Klock  
 MoveAhead Consulting & Executive Education  
 Postfach 1147  
 85729 Ismaning  
 Germany  
 Phone: +49-89-37067-330  
[c.klock@moveahead.com](mailto:c.klock@moveahead.com)  
[www.moveahead.com](http://www.moveahead.com)