MASS CUSTOMIZATION, PERSONALIZATION AND CONTEXTUALIZED MULTIPLE COMPETENCIES

Robert Freund

University of Information, Technology and Management, Rzeszów, Poland

Abstract: Customers and companies stay in an interrelationship that becomes continuously more and more complex. Customers are different from each other and every one of them goes through a fairly complicated choice process every time he or she wants to buy a product. The question is: How should a company be prepared for every single customer in several private and/or professional contexts? The complete situation is extremely dynamic and complex, therefore many companies and researchers favor technology-driven solutions (configurators, toolkits) - but this is not enough. In this paper, two different approaches will be examined: The European Project *LEAPFROG* and the strategy of *TommyKlein- individual tailoring.* It is finally argued, that the *concept of contextualized multiple competencies* can help to improve the communication/interaction with the customer, to facilitate the exchange of knowledge.

Key Words: *Mass Customization and Personalization, Customer Interaction, Multiple Competencies, Knowledge*

1. INTRODUCTION

The growth of IT and related developments in the recent past have turned the world into global marketplace. Gradually, national and regional economies are transforming into a single global economy (…). Globalization has given birth to intense international competition to expand trade and commerce and a desire on the part of every country to capture as much of the global consumer market as possible. All this demands superior skills of production, distribution and communication as never seen before in the history of human race. New skills are being demanded today, necessitated by competitive participation in the new economic world order [1].

If the past millennium has led to more democracy, it is expected, that the new that has just started will lead to more amplified individualization [2]. The companies that respond properly to these changes are now exploring and beginning to master yet another frontier in business competition, one whose terrain is decidedly different from that of Mass Production (…). They have found, that customers can no longer lumped together in a huge homogeneous market, bit individuals whose individual wants and needs can be ascertained and fulfilled (…). Leading companies have created processes for low-cost, volume production of great variety, and even for individually customized goods or services. They have discovered the new frontier in business competition: *Mass Customization* [3].

The concept of Mass Customization was first identified in "Future shock" by Toffler [4] and was later described in "Future perfect" by Davis [5]. Stan Davis, who coined the phrase in 1987, refers to Mass Customization when "the same large number of customers can be reached as in mass markets of the industrial economy, and simultaneously they can be treated individually as in the customized markets of pre-industrial economies"[5]. In order to address the implementation issues of Mass Customization, Tseng and Jiao [6] provide a working definition of Mass Customization that is very useful. The objective of Mass Customization is "to deliver goods and services that meet individual customers´ needs with near mass production efficiency**"** [7].
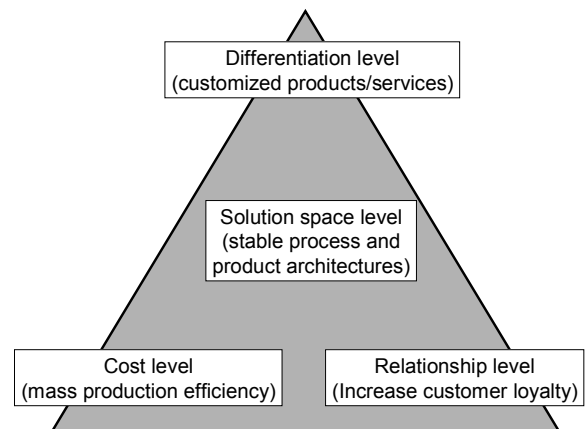

Fig. 1. *The four levels of Mass Customization* [8]

Doing so, Mass Customization is performed on four levels (Figure 1). While the differentiation level of Mass

Customization is based on the additional utility (value) customers gain from a product or service that corresponds better to their needs, the cost level demands that this can be done at total costs that will not lead to such a price increase that the customization process implies a switch of market segments. The information collected in the course of individualization serves to build up a lasting individual relationship with each customer and, thus, to increase customer loyalty (relationship level). While the first three levels have a customer centric perspective, a fourth level takes an internal view and relates to the fulfillment system of a Mass Customizing firm: Mass Customization operations are performed in a fixed solution space that represents [7] "the pre-existing capability and degrees of freedom built into a given manufacturer's production system" [9].

Personalization must not be mixed up with customization. While customization relates to changing, assembling or modifying product or service components according to customers' needs and desires, personalization involves intense communication and **interaction** between two parties, namely customer and supplier. Personalization in general is about selecting or filtering information objects for an individual by using information about the individual (the customer profile) and then negotiating the selection with the individual [10]. Until today the technological challenges of Mass Customization strategy were drawn at the center of attention, although Pine [3] and also Piller [11] have already pointed at the behavior and not the technology orientation. In the meanwhile the focus has actually changed. Twelve years after Pine [3], Piller [12] mentioned: "Have you ever wondered why so many Mass Customization projects fail? One cause beyond the typical reasons discussed (like incomprehensive IT systems, lack of branding, wrong scope of variety, etc.) may be the strong demand for internal change management -- an issue not discussed in the Mass Customization literature before. Mass Customization empowers customers to become co-creators and design their own, individual products or services. Empowered customers, however, have to meet motivated and **competent employees**. The company's employees have to understand Mass Customization and their roles in this co-creation process. Managing Mass Customization thus includes to manage the internal change in an existing organization that is moving from a closed production system towards a system of Mass Customization. Shifting the locus of value creation towards customers requires no less than a radical change in the management mind-set (…). Companies have to develop change management programs addressing this need." **The challenge of transformation for companies is basically intellectual rather than technological** [13, 14, 15].

2. Customer Interaction and competence in Mass Customization strategy

Customers and companies stay in an interrelationship that becomes continuously more and more complex, ranging from the simple manufacturing and delivery of products and services to Mass Customization and Open Innovation [16, 17, 18]. Because the customer is often not satisfied and usually overwhelmed from the various decision processes, many companies examine more and more often the various interactions with the customer. The technical and economical viewpoint [19, 20, 21] is favored versus a more social-psychological perspective.

Babutsidze [22] makes it clear "that consumers are different from each other and that every one of them goes through a fairly complicated choice process every time he or she wants to buy a product". Therefore capabilities for *self organization* will be required from the side of the customer as well as the provider. It is widely accepted, that competence on the individual level is *self organization disposition* [23]. According to Erpenbeck [24] "the individual acts self-organized: (p) reflective considering his/her own person, (a) more or less active, (f) technological-methodical concerning facts, (s) social and communicative concerning others". At the organizational level one may have various views at the company: Market-Based-View [25], Value-Based-View [26, 27, 28, 29, 30, 31]. The Resource-Base-View/Competence-Based-View sets usually on *core competencies* of a company. This type of performance attribution points at a rather static understanding of the competence model [32].
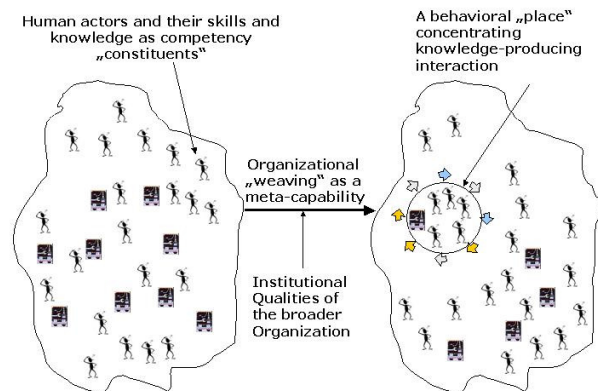

Fig. 2. *Conceptual framework [33]*

Figure 2 shows, assets become competencies when they are structurally coupled and connected [33]. This "organizational weaving" refers to a more dynamic model of organizational competencies. In recent years it became more and more clear, how important competence is for Mass Customization and Open Innovation strategy [18, 34, 35, 36]. But as Freund/Tsigkas [32] argue these concepts are focused on the resource-based-view and can therefore lead to path-dependency which can slow down innovation [31, 37, 38, 39, 40]. A dynamic concept should

- look over and above individual, group, organizational and network levels
- understand competence as self organization disposition,
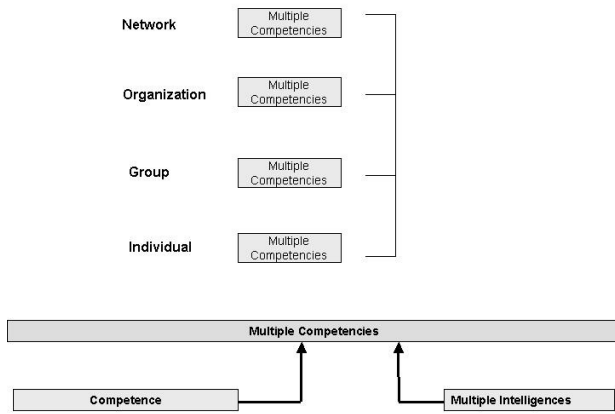- pay attention to the context reference

Fig. 3. Contextualized Multiple Competencies Framework

The question is: Which competence model can fulfill the requirements named? Grollmann [41] proposes in this case: "The attribution of human capabilities in a universal competence model is a question that research is dealing with since many years also in competition against the traditional intelligence concept. More honest seem to be contributions that have been developed for example within the debate of multiple competence/intelligence. Here various areas can be considered, in which expertise can be developed and in which talents exist. In the model of Gardner for example eight area specific ´intelligences´ will be differentiated [42]. If somebody would transfer different individual competence profiles on these eight dimensions, it would result in a much differentiated images." The author developed a suitable model based on *the concept of* contextualized *multiple competencies* [43].

3. THE LEAPFROG-PROJECT

LEAPFROG (Leadership for European Apparel Production From Research along Original Guidelines) is a joint research and innovation initiative of the European textile and clothing industry, led by Euratex, aiming at a technology breakthrough in the clothing industry. It brings together a critical mass of European textile and clothing companies and research centres which will attempt to develop and implement new ways of optimal fabric preparation for clothing production, automated garment manufacture, virtual garment prototyping, supply chain integration and mass customisation. The ultimate goal of LEAPFROG is to achieve a step change in productivity and competitiveness of Europe's clothing sector and to decrease its dependence on the labour cost factor. [44]. The project (2005-2009) has three main objectives:

- A step-change in productivity, quality and cost efficiency in the garment manufacturing process
- A radical move towards rapid customised manufacturing in one of the most demand-volatile sectors through flexibilisation and integration of cost-effective and sustainable processes from fabric processing through to customer delivery.
- A paradigm change in customer service and customer relationship management with a focus on value-adding product-services. Further development of concepts and tools for industrial **mass customization** and made-to-order of clothing and their effective integration with the point of sale

Quantifiiable results of LEAPFROG are

- reduction of 60% of physical prototypes through 3D virtual garment design and prototyping.
- an average 50% decrease of time of production ramp-up of new products in geographically spread production networks
- a reduction of average lead times at the future garment factory of 25%
- a reduction of machine times of complex garments by up to 50% in case of part automation of joining and up to 80% in case of full automation
- a reduction of production errors and quality faults in garment made-up from current 15-20% to close to zero due to removal of the human error
- an average decrease of fabric stocks at textile & garment manufacturers of 35% by intelligent, real-time distributed production planning systems and direct feedback from retail partners enabled in the xSGO
- an overall reduction of garment stock levels and waste resulting from unsold items at fashion retailers through an enlargement of the mass customisation and fast fashion segment from today's below 5% to 20% of the total market by 2015
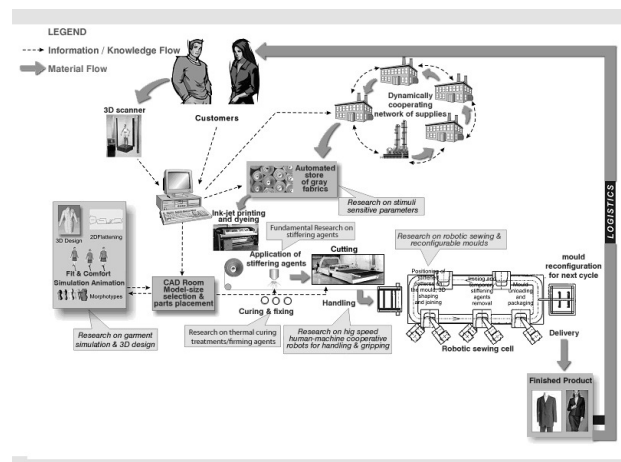

Fig. 4. *The LEAPFROG-Concept[44]*

Figure 4 illustrates the LEAPFROG-Concept which is focused on technological and economical aspects of the process. After collecting data from the customer by 3D-

Scanner (Material Flow) Information and Knowledge flows from the customer to the company/computer.
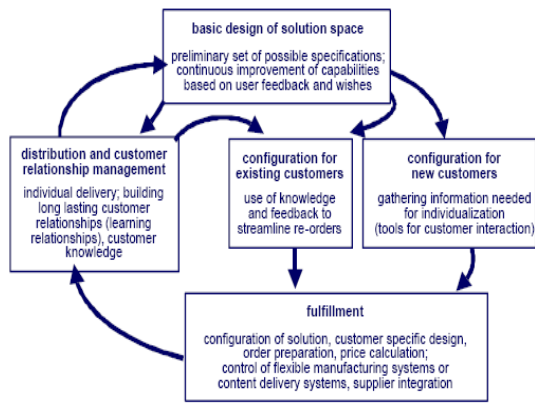

Fig. 5. The knowledge loop of Mass Customization [45] adapted from [46]

Figure 5 shows the knowledge loop of Mass Customization [45, 46]. As we know from »organizational weaving« (Figure 2) and from the concept ´interactive value chain´ [18] its fundamental to benefit from sticky informations: »We define the stickiness of a given unit of information in a given instance as the incremental expenditure required to transfer that unit of information to a specified locus in a form usable by a given information seeker« [47]. The concept of LEAPFROG is to aquire sticky informations with technology. This is quite common, but it´s not enough, because people do not only like to interact with companies by computers. They want also to communicate face-to-face with other people, preferably in their personal environment- in their personal context. It seems, that LEAPFROG doesn´t take this into account when designing the framework.

4. TOMMYKLEIN – INDIVIDUAL TAYLORING

The company *TommyKlein – individual tayloring* based in Bratislava (Slovakia) is offering taylor-made suites produced in a modern factory in the Czech Republic.
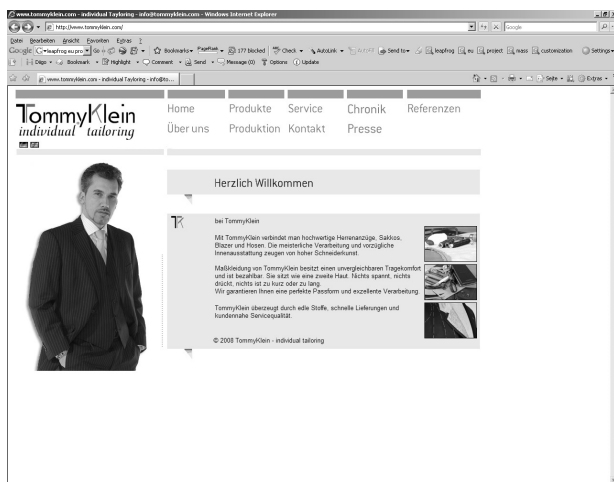

Fig. 5. *TommyKlein – individual tailoring [48]*

They sell their products to customers in Germany, Switzerland and Austria through special agencies and offer a quite unusual service: People from the agencies contact the customer and ask for a meeting wherever the customer wants. The salesperson drives to the customer. They do not have any shops. Because of all the opportunities to order a tailor-made suit, many customers are confused and ask for help. The salesperson is able to give **competent** answers because he knows the **context** and get »a feeling for the customer«. The company *TommyKlein – indivudual tailoting* argue, that it is very important for their business model to know the context, to have personal contact with the customer and to acquire sticky informations (tacit knowledge) in that way. The company is quite successful with this business model and think of expanding their business in Europe. The price for a tailor-made suite starts at €398 (service include), a price that is quite competitive. But two things a missing when we look at Mass Customization strategy:

- There is no configurator (web-based) available
- Learning relationship is missing

5. CONCLUSION

From the multiple-competencies point of view, the LEAPFROG-Project is focused on logical/mathematical, linguistic and visual competencies. *TommyKlein – individual tailoring* takes into account interpersonal, bodily/kinesthetic and intrapersonal competencies. It seems promising to adapt an overall framework based on multiple competencies to improve both strategies.
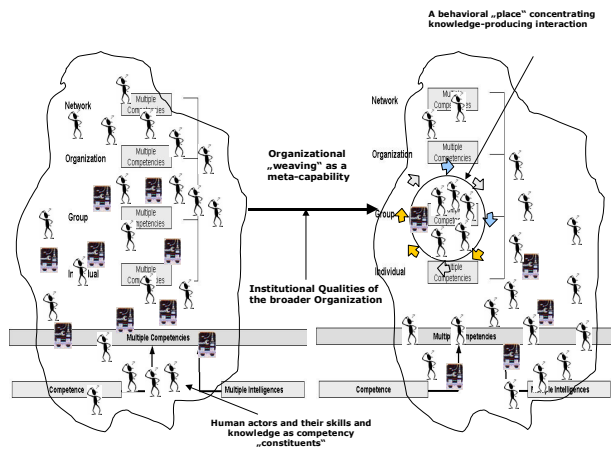

Fig. 5. Contextualized *Multiple Competencies and Organizational Weaving (adapted from [33])*

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CORRESPODANCE

Robert J. Freund, MA
PhD candidate
University of Information
Technology and Management,
ul. Sucharskiego 2,
PL-35-225 Rzeszów
Poland
Personal Blog:
http://www.robertfreund.de/blog
info@robertfreund.de