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THE ZMOT IN MASS CUSTOMIZATION

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Abstract: *Mass Customization (MC) companies can not sell their products in traditional stores. This implies that customers take their purchase decision on a different level, the Zero Moment of Truth (ZMOT). Companies need to know when and where this happens, how the decision making process of their potential customers works and how it is influenced by product-related concepts such as purchase intention, product knowledge and product involvement. This paper gives an answer to these questions and provides implications for marketing managers of MC companies. Finally, a definition of the ZMOT in MC is formulated.*

Key Words: ***Mass Customization, ZMOT, Marketing, Purchase Intention, Product Knowledge, Product Involvement, B2C***

1. INTRODUCTION

Mass Customization (MC) is the strategy to offer affordable goods and services with a high variety of personalization options. [1] [2]

MC literature has presented a significant increase in the 2000's and may be classified by the following research areas: (a) General Management, (b) Industrial/Manufacturing Engineering, (c) Information Systems, (d) Marketing, (e) Operations Management, (f) Operations Research/Management Science. [3]

This paper focuses on the Marketing aspect of products in MC and, in particular, on how and where companies should be present at the Zero Moment of Truth (ZMOT) of the decision making process of consumers.

In its 2011 marketing book "Winning the Zero Moment of Truth", Google defines the ZMOT as the "moment where marketing happens, and where consumers make choices that affect the success and failure of nearly every brand in the world." [4] The concept of ZMOT is inspired by the First Moment of Truth (FMOT), a marketing term introduced by Procter & Gamble which is described as the moment "at the store shelf, when a consumer decides whether to buy one brand or another." [5] The ZMOT and FMOT are followed by the Second Moment of Truth, which happens "at home, when (he or) she uses the brand – and is delighted, or isn't." [5]

In an increasing number of cases the decision making process of consumers starts and is decisively influenced before the FMOT, namely online, e.g. by using a laptop, tablet or smartphone at home, at work or at any other place. In this light, marketing may be viewed as an interactive process which co-creates value for both companies and customers, accelerated by modern internet and communication technology. [6]

Besides classical MC products such as sneakers from companies like Nike and personal computers from companies like Dell, there is a growing number of manufacturers of both complex and non-complex products which entered the MC market in recent years. Popular examples in Central Europe include producers and distributors of food (e.g. mymuesli), clothing (e.g. youtailor, herrenschmiede or amerano) and sports equipment (e.g. antero), to mention just a few business sectors.

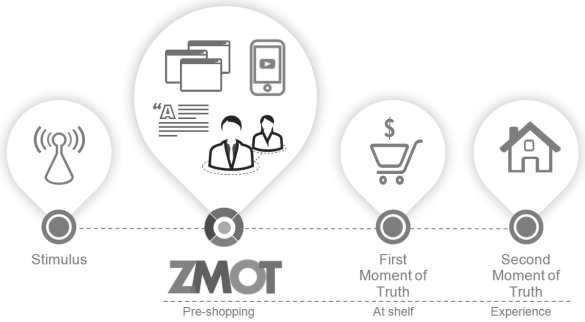

Fig. 1. *Decision making process of customers [4]*

The concept of ZMOT got some attention in marketing and sales magazines and received positive feedback from practitioners from various business sectors. As stores will serve little purpose in the future of marketing MC products [7] and because there is per definition no FMOT for a product which is not yet manufactured at the moment the customer orders it, the ZMOT gains particular importance for companies pursuing a MC strategy. The ZMOT should therefore be of highest interest for marketing managers from such companies.

Modern IT plays a crucial role as enabler of MC [8] and the vast majority of MC products is ordered online, at the end of the co-creation process, e.g. after designing a t-shirt. But the decision whether to buy a standardised product or to actually customize it happens before, at the ZMOT. It is critical for MC companies to know when,

where and how the decision making of customers, which are potentially interested in customizing a product, happens and how they can best reach them.

The approach of Wind and Rangaswamy [9], who defined the strategy of a buyer-centric customized marketing as "customerization", is one possibility to address potential customers of MC products in a digital marketing environment. In this strategy, customers are supposed to tell the company what they want to buy, taking control over the marketing process. Companies can, however, frame the choice options of their customers and therefore influence their decision making and choices. [9]

Even though recent developments support the validity of this strategy, as customers tend to share personal interests and information online with both friends and companies, it is important for MC companies to know how to approach customers at the ZMOT without knowing them and without having any personal information. Nevertheless, similarly to the concept of "customerization", the ZMOT relies on the necessity that the customer takes action by searching for information in the internet. Of course, it is essential for companies to understand if their (potential and existing) customers value customization. [10] This is, however, usually difficult to verify, because the company very often does not have any information about its customers and is therefore not able to assess their willingness to customize. The ZMOT approach allows companies to understand how these potential customers search for information about the product and therefore increases the possibility to reach the right customer at the right moment. In order to be successful at the ZMOT, MC companies therefore need to be aware of how this moment looks like for exactly those customers who are potentially willing to co-create the product they are looking for.

Franke, Keinz and Steger [11] showed empirically that the benefits of customization are contingent on the customers' level of insight into his or her own preferences, ability to express those preferences and product involvement. If customers have a low level of involvement, the benefits of customization are considerably lower. [11] Furthermore, expert consumers are considered to be an attractive target segment for MC, as the negative effects of complexity on MC utility are lower for them compared to non-experts. [12]

This paper takes into account these findings and tries to give an answer to the question where the ZMOT for MC products is exactly or, in other words, where the decision making process of customers starts in MC and how it is influenced by the customers' purchase intention, product knowledge and product involvement.

2. METHOD

A number of 440 customers participated in an online-survey on MC with a total of 52 closed and open questions in German language. 168 respondents answered all questions, which corresponds to a response rate of 38.2 %.

The average age of the participants is 29.3 years. 86.3 % are aged 40 years or younger. 40.5 % hold at least a Bachelor's degree and 90.5 % of the participants originate from (Northern) Italy, Germany and Austria, respectively.

Table 1. *Nationality of participants*

Country	Frequency	Percentage
Italy	115	68.5
Germany	28	16.7
Austria	9	5.4
Other	16	9.6
Total	168	100

In order to examine whether there is a correlation between the willingness to customize a product and the customers' purchase intention, product knowledge and product involvement, the respondents had to answer the respective question related to t-shirts, a non-complex product with a high purchase frequency.

First, it was measured the degree to which customers are willing to take part in the co-creation activities by using a variation of a 5-point Likert scale [13], where the respondent could choose a value between 1 and 5, with 1 meaning that he or she would "customize in any case" and 5 meaning that he or she would "buy standard in any case". The both extreme values were graphically visualised by showing a standardised t-shirt on one end and a customized t-shirt in terms of shape, colour and design on the other end.

Second, the purchase intention was evaluated by using an 11-point Juster scale [14]. This question is aimed to measure the purchase intention and purchase probability within a certain time range. In the present study this time range is indicated with "in the near future", which is not specific but implies a short term. The respondent could express his or her purchase intention with any value from 0 ("no chance, almost no chance") to 10 ("certain, practically certain").

Third, the participants had to indicate their product knowledge, based on the five questions specified by Rhoem and Sternthal [15] which were slightly adjusted. Even though Rhoem and Sternthal used these questions originally to find out the product knowledge of customers related to certain brands, these questions are typically applied in the literature for unbranded products. Therefore, this approach seems to be appropriate for the present study, as well. The answer choices on the 7-point scale ranged, depending on the question, e.g. from "never" (1) to "regularly" (7) and from "not very familiar" (1) to "very familiar" (7).

Fourth, the product involvement was assessed following the approach of Beatty and Talpade [16], who also defined five questions. Several studies and surveys, however, used a different number of questions, e.g. Kramer [17], for customizable products. The present investigation applies two out of these five questions, mainly because the others were not appropriate to test the product involvement for t-shirts. Like in Beatty and Talpade [16], a 5-point Likert scale was used.

In addition, the participants had the possibility to explain in an open question why they would customize t-shirts or rather buy a standardised version. For the qualitative analysis, answers were only taken into account if the respondent chose either one of the extreme

answers with regard to his or her willingness to customize ("customize in any case" and "buy standard in any case", respectively).

The following three research hypotheses (H_1) and null hypotheses (H_0) are the basis of this paper and essential to be able to define the ZMOT in MC.

H_1 (I): The higher the purchase intention of a customer, the higher is his or her willingness to customize the product.

H_0 (I): The purchase intention of a customer does not influence his or her willingness to customize the product.

H_1 (II): The higher the product knowledge of a customer, the higher is his or her willingness to customize the product.

H_0 (II): The product knowledge of a customer does not influence his or her willingness to customize the product.

H_1 (III): The higher the product involvement of a customer, the higher is his or her willingness to customize the product.

H_0 (III): The product involvement of a customer does not influence his or her willingness to customize the product.

Based on the result of these hypotheses, it will be possible to better understand how the ZMOT in MC looks like and if it is influenced by one or more of the three above mentioned concepts.

3. RESULTS

The results of the survey show to what extent the willingness to customize a product is influenced by the customers' purchase intention, product knowledge and product involvement, respectively. From these results it is possible to derive implications which are crucial to determine the ZMOT for MC t-shirts and, more generally, for non-complex products.

Even though the sample is not representative, neither in geographical terms nor in terms of age, a number of observations lead to interesting results and implications for companies which are currently selling or planning to market their MC products in Central Europe.

3.1. Purchase intention

The first observation is related to the correlation between the willingness to customize and the purchase intention of customers.

As shown in Fig. 2, there is a statistically significant correlation (Jonckheere-Terpstra Test 0.009; Kruskal-Wallis Test 0.130 (statistically not significant)) between the willingness to customize and the purchase intention of customers.

By considering the purchase intention variable as an interval scale instead of an ordinal scale, it is possible to use the average ratings of the willingness to customize for each value to perform a re-check. With this approach, the correlation between the willingness to customize and the purchase intention of customers is not statistically significant (ANOVA 0.133).

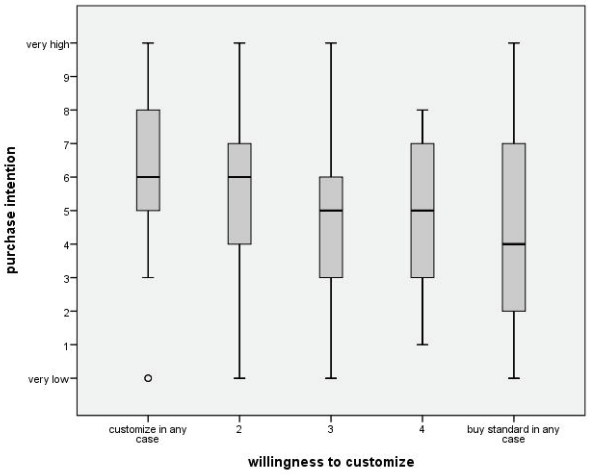

Fig. 2. *Boxplot of purchase intention and willingness to customize*

Overall, there is no statistically significant correlation between the willingness to customize and the purchase intention of customers and H_0 (I) fails to be rejected, meaning that it is not sure whether a high purchase intention of a customer increases his or her willingness to customize.

3.2. Product knowledge

The second observation is related to the correlation between the willingness to customize and the product knowledge of customers.

In order to test the influence of the product knowledge on the willingness to customize, it was formed an index from 0 to 1 from the values of the five answers. This was done by adding up the value of the questions, which were all between 1 (no product knowledge) and 7 (high product knowledge). From the obtained sum the value of 5 (number of questions) was subtracted and the result was divided by (5*(7-1)).

As shown in Fig. 3, there is a statistically significant correlation (ANOVA 0.023; Jonckheere-Terpstra test 0.067 (statistically not significant); Kruskal-Wallis test 0.028) between the willingness to customize and the product knowledge of customers.

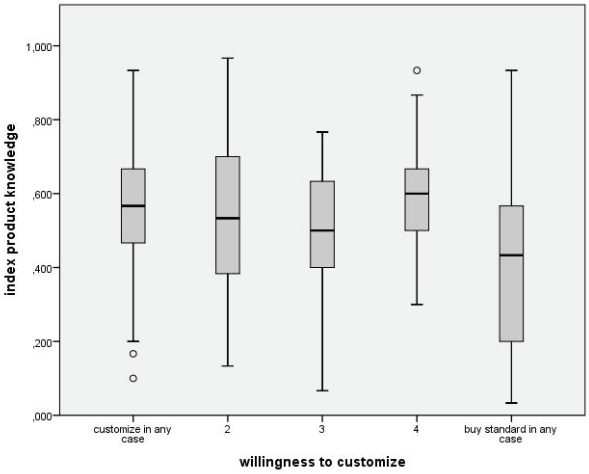

Fig. 3. *Boxplot of product knowledge and willingness to customize*

H_1 (II) can therefore be accepted, meaning that the higher the product knowledge of a customer, the higher is his or her willingness to customize.

3.3. Product involvement

The third observation is related to the correlation between the willingness to customize and the product involvement of customers.

In order to test the influence of the product involvement on the willingness to customize, it was formed an index from 0 to 1 from the values of the two answers. This was done by adding up the value of the questions, which were both between 1 (no product involvement) and 5 (high product involvement). From the obtained sum the value of 2 (number of questions) was subtracted and the result was divided by (2*(5-1)).

As shown in Fig. 4, there is a statistically significant correlation (ANOVA 0.011; Jonckheere-Terpstra test 0,005; Kruskal-Wallis test 0,015) between the willingness to customize and the product involvement of customers.

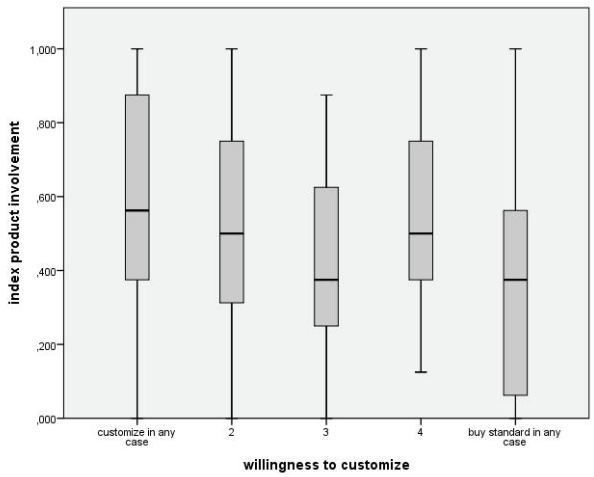

Fig. 4. *Boxplot of product involvement and willingness to customize*

H_1 (III) can therefore be accepted, meaning that the higher the product involvement of a customer, the higher is his or her willingness to customize.

3.4. Other findings

As mentioned previously, the participants had the possibility to explain in an open question why they would customize t-shirts or rather buy a standardised version. The following question was asked: "Please describe why you would prefer customizing a t-shirt rather than buying a standard version, or vice-versa."

By taking into account only those answers where the respondent chose either one of the extreme answers with regard to his or her willingness to customize ("customize in any case" and "buy standard in any case", respectively), the sample is reduced from 168 to 65 and distributed as shown in the following table.

Table 2. *Willingness to customize, distribution of extreme answers*

Answer	Frequency	Percentage
Customize in any case	34	52.3
Buy standard in any case	31	47.7
Total	65	100

On one hand, it could be found that 100 % of the non-missing answers of those who want to "customize [t-shirts] in any case" are related to individualism and self-expression of the customer.

Examples of such answers include:

- "Stand out from the crowd, reflects individuality in a better way."
- "Expresses individuality and creativity."
- "Individual touch. Underlines the personality."

On the other hand, the reasons why customers would "buy [t-shirts as] standard in any case" are manifold and related in this order to conformism, missing creativity, low effort and time expense, cheaper price as well as the desire for physical contact.

Examples of such answers include:

- "Physical properties of the t-shirt are verifiable before purchasing. Lack of creativity."
- "More inconspicuous."
- "Because my creativity is limited and I like it to go to a shop and say: 'That's it, that's what I like, that's what I want to have,' without having to realize my own ideas."

To sum up, it is evident that the reasons to customize non-complex products, like t-shirts, are primarily limited to the two extrinsic value drivers individualism and self-expression of the customer, whilst there are different reasons why customers tend to prefer a standardized product. These findings are in line with other studies, e.g. Jiang, Lee and Seifert ("mass customization fundamentally caters to customer individualism") [18].

4. CONCLUSION

The observations which are described in this paper allow to formulate the following definition of the ZMOT in MC:

The Zero Moment of Truth in Mass Customization is when a customer searches online for a product and shows a certain degree of product knowledge and/or product involvement.

Whenever this happens, MC companies must be ready to present their MC product range to these customers. If a customer shows a certain degree of product knowledge and/or product involvement, there is a higher probability that he or she is going to customize the product rather than buying a standardised version.

For example, when a customer searches online from an internet-capable device for information about keychains and shows some expert knowledge and/or product involvement, he or she is more likely to be willing to customize the product he or she is looking for, compared to a customer which is searching for more generic information about the same product.

The following table shows exemplary search terms for keychains and t-shirts, respectively as well as the assumed probability that the customer is willing to customize the product.

Table 3. *Examples of search terms and probability to customize*

Search term	Probability to customize
Blue keychain	low
High-quality keychain	medium
Keychain with rotating mini carabiner	high
T-shirt XL for men	low
60% cotton and 40% polyester t-shirt with zip pocket	medium
V-neck girls t-shirt from environmentally friendly production	high

MC companies should therefore not advertise their products to customers which do not show a at least a minimum degree of product knowledge and/or product involvement. Rather, MC companies are advised to find out how product knowledge and product involvement look like for their target group. Once these characteristics have been found, the company can start defining for which search terms they want to be present at the ZMOT, when the potential customer searches for specific information in the internet. Most obviously, this must be done in accordance to the company's customization offer, meaning that the company should be able to realise at least some of the researched product specifications in order to satisfy the customer.

This study is limited to t-shirts as an example for non-complex products. The influence of both product knowledge and product involvement on the customers' willingness to customize complex products will have to be tested in future research.

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