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► **To cite this version:**

Golboo Pourabdollahian, Donatella Corti, Chiara Galbusera, Julio Kostycz Silva. An Empirical Based Proposal for Mass Customization Business Model in Footwear Industry. 19th Advances in Production Management Systems (APMS), Sep 2012, Rhodes, Greece. pp.310-317, 10.1007/978-3-642-40352-1\_39 . hal-01472257

**HAL Id: hal-01472257**

**<https://inria.hal.science/hal-01472257>**

Submitted on 20 Feb 2017

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# An Empirical Based Proposal for Mass Customization Business Model in Footwear Industry

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**Abstract.** This research aims at developing a business model for companies in the footwear industry interested in implementing Mass Customization with the goal of offering to the market products which perfectly match customers' needs. The studies on mass customization are actually mostly focused on product development and production system aspects. This study extends the business modeling including also Supply Chain aspects. The research is based on analyzing Mass Customization application in reality, within some companies operating in footwear industry. Through the real cases of Mass Customization implementation, a business model proposal is developed as an attempt to generalize the empirical findings.

**Keywords:** Mass Customization, Business Model, Footwear industry

## 1 Introduction

Nowadays globalization has radically changed the industrial environment not only by creating a higher market turbulence and competition but also by increasing number of demanding customers which ask for unique products that perfectly match their needs and preferences. In this regard the adoption of a mass customization (MC) approach has been considered as a proper solution since it provides customers with individualized goods while being efficient at the same time. Considering the increasing interest of a higher number of companies to offer mass customized products, it is crucial to provide companies with a proper business model enabling them to implement MC in a successful manner. Going through literature, we found out that there is no proposal for a MC business model; hence this research aims at developing an empirical based MC business model for footwear industry to support companies since this sector in successful implementation of this strategy. The research is limited to footwear industry due to the fact that business model is highly sector dependent; therefore it is not easy to define a general business model which can be applied in all sectors. Moreover considering the fact that this research is an empirical based study, footwear industry was selected since it is a popular sector for

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implementation of mass customization with considerable amount of existing and emerging actors in the sector.

## 2 Business model: Definition and Reference Structure

From the very early emergence of the term “Business model” by Jones [4] different definitions have been suggested in literature to define the term and its role. These definitions reflect different perspectives which can be targeted by a business model such as value creation, simplification of a complex system, money generation, company behavior representation and etc. In this study we refer to Osterwalder to define business model as “a conceptual tool that contains a set of elements and their relationships and allows expressing a company's logic of earning money.”[6] The reference structure for the analysis of a business model in this study is the one proposed by Osterwalder and Pigneur’s (called business model canvas) with minor modifications needed to adopt it to the context of interest [7]. The initial business model canvas of Osterwalder and Pigneur includes 9 building blocks that can be logically grouped into 3 areas: Left side relates to efficiency (Key partners, key activities, key resources, and cost structure), the right side relates to value delivery (Customer segment, customer relationship, channels, and revenue streams) and finally the value proposition which is in between. The proposed change is the merging of the costs and revenues blocks into a single one named performance. This is mainly due to the fact that in a mass customization business not only cost and revenue are considered as critical issues but also evaluation of customization and efficiency level of the firm is important. Therefore the final structure of the business model is based on eight blocks illustrated in figure 1.

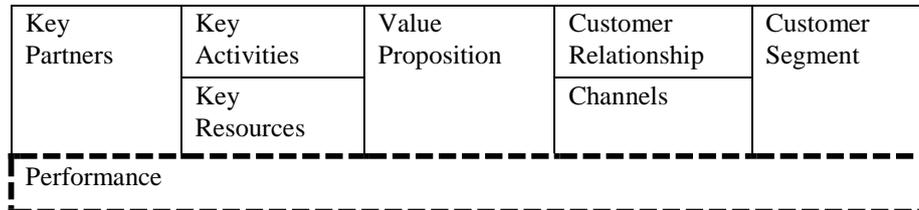


Fig. 1. Business model structure

## 3 Research Methodology

In order to come out with the empirical based MC business model for the footwear industry, we selected five companies in different countries operating in footwear industry that propose customized shoes to their customers. The analysis comprehends both cases of small companies and cases of medium/large companies, also already established companies with standard products and start-up mass customized born companies. Data were collected through different primary and secondary sources

including: questionnaire, personal interview, papers, releases and publications on scientific magazines, official company website, official financial reports, blogs, forums, communities and online sector magazine release. Table 1 presents a summary of information to introduce the five analyzed cases. For each case study the analysis of the business model in place has been carried out based on the use of the above-mentioned canvas.

**Table 1.** Analyzed case studies

Company	Country	Foundation year	Size	Mass production beside MC	Type of shoes
A	Germany	1924	Large	Yes	Sport
B	USA	1978	Large	Yes	Sport
C	Brazil	2011	SME	No	Sneakers
D	Germany	2001	SME	No	luxury shoes
E	Australia	2009	SME	No	Women's shoes

#### 4 Cross Analysis

Based on the cases analysis a set of different alternatives for each block of business model were identified and mapped (Table 2). These alternatives are mainly based on best practices of the analyzed companies. Obviously some of them have been applied by only one company while some others are applied by more companies. This is due to the fact that the analyzed cases vary in some factors such as size, customer segment and the level of customization they offer to their customers. In order to better demonstrate the position of each alternative in a MC solution space we defined three pillars for solution space naming product (PR), production system (PS) and supply chain (SC) and we allocated each alternative to the most suitable solution space pillar. This might facilitate for a company the act of focusing on a preferred pillar of solution space without compromising other important aspects of solution space.

**Table 2.** MC alternatives applied in case studies

BM Block	SS Pillar	Company A	Company B	Company C	Company D	Company E
Value proposition	PR	Customization (Style, function, fit)	Customization (Style, function)	Customization (Style, packaging), Customer involvement in parts design	Customization (Style, fit), Customers' feedback on raw material quality	Customization (Style), Customized reusable packaging
Key activities	PR	Product modularization & components standardization, solution space definition, customers' requirements elicitation				
	PS			Implement		

				postponement		
	SC	Integrate with logistics partners, Employees training, Information management	Integrate with logistics partners, Employees training		Integrate with logistics partners, Employees training	Integrate with logistics partners, Employees training
Key Resources	PR		Designers			Designers
	PS			Flexible manufacturing system		
	SC	Online configurator, trained personnel, IT infrastructure	Online configurator	Online configurator	Online configurator, Trained personnel, Point of sale systems	Online configurator, Experts to support customer in co-design
Key Partners	SC	Shoe producer, Logistic partner, customers	Shoe producer, Logistic partner, customers	Materials supplier, Logistic partner, customers, web platform provider	Shoe producer, Logistic partner, customers	Shoe producer, Logistic partner, customers
Customer Relationship	SC	Online profiles, Social networks,	Online profiles, Social networks, Serious games	Online profiles, Online customized school	Online profiles, Social networks	Online profiles, Social networks, Serious games, Online customized school, Customized relationship, Web-campaign
Channels	SC	Online store, physical store, third party retailer	Online store	Online store	Online store, physical store	Online store, physical store, third party retailer
Customer Segment	PR	Men & Women, Young web users, International market	Men & Women, Young web users, International market	Men & Women, Young web users, Local market (Brazil)	Women, Young web users, Local market (Germany & UK)	Women, aged between 22-55, International market

Performance	PR/PS/SC	Financial indicators	Financial indicators	Financial indicators	Financial indicators	Financial indicators, Limited set of indicators to measure efficacy
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Going through different alternatives applied in each case study three main points should be noticed. In following sections we describe each of these points.

#### 4.1 Implementation of Key Alternatives for MC

Analysis of collected data show that there are some alternatives applied by all five cases involved in this study. This emphasizes the fact that these alternatives should be considered as main attributes of a MC business model in footwear industry and possibly other industries. One of the most notable examples in this regard is “style customization” which is offered as a value proposition by all studied companies. This highlights the point that coming to a mass customization point, aesthetic/style is always a main aspect of customization in footwear industry. The same story is true for product modularization and components standardization which is a critical activity to increase efficiency in mass customization. Other examples in this regard are: Use of online configurator, Customers’ requirement elicitation, Web-design and online store.

#### 4.2 Lack of some MC Alternatives Proposed in Literature

One of the notable results of data analysis relates to lack of some MC attributes which are proposed in different studies in literature but have not been implemented in none of the analyzed case studies. A clear example in this regard is knowledge management and knowledge creation. There are numerous studies mention knowledge management and creation as a key issue in mass customization. Franke and Piller point out the importance of acquired knowledge to create a barrier against switching suppliers while Wu et al. emphasize on role of knowledge management in level of service and quality [3],[12]. Surprisingly no company in this study implements knowledge management as a key activity. Another example extracted from analysis is integration of partners in supply chain in order to increase efficiency which has not been followed by analyzed cases. Integration of supplier means the extent to which a supplier could collaborate and manage some inter-organizational activities with manufacturer. In mass customization operations where standardize modularization has been implemented, the role of integrated suppliers are more tangible due to the need of long-term collaboration between manufacturer and supplier.

Implementation of flexible manufacturing systems is another neglected alternative which is considered only by company C. In this case it is not difficult to discover the reason since it is mainly due to the fact that only company C produces shoes in-house and consequently flexible manufacturing systems are considered as a main key resource for them, while the other four companies outsource the whole production

which makes them independent to any agile production system. However the story is not so simple when it is related to integrated information system as a key resource. Based on our analysis company A is the only company using integrated information system to facilitate MC implementation. This can be due to many reasons such as high investment, non-readiness of supply chain for information integration, etc. Table 3 illustrates some of the main neglected alternatives by companies.

**Table 3.** Implementation mapping of MC alternatives in literature in analyzed cases

MC alternative	Company
Process modularization [2]	None
Implement postponement [13]	C
Web-platform and interaction system management [8],[2]	None
Flexible manufacturing system [2],[9],[10]	C
Integrating partners [8]	A
Knowledge management and knowledge creation [3],[11]	None
Support customers during co-design [1],[5]	D

### 4.3 Lack of MC Performance Measurement

As any other company, a mass customization company needs to use metrics in order to keep under control mass customization strategy and in particular to identify commonality and modularity level of products. Although monitoring and performance measurement is considered as a critical issue in MC but only one company uses a few metrics to measure the mass customization level while others never included it as a crucial step in their business model.

## 5 Proposal of MC Business Model

Taking into consideration all the previous considerations, a MC business model for footwear industry is proposed that could support a company in this sector to identify a possible path to implement MC. In order to develop the business model we tried to take into account best practices applied by each company however the proposed business model is not complete since as it has already been mentioned in previous section there are crucial MC alternatives in literature which have not been applied by none of the firms in this study. In this regard a complete business model can be developed through integration of current business model and a literature based MC business model. The following MC business model is a step forward to this aim since it clarifies the most important MC alternatives in a real industrial environment and possible challenges to implement mass customization. This might bring us one step closer to support companies in successful implementation of mass customization. The novelty of the proposed business model is not only based on what mentioned above but also on including supply chain elements in development of business model.

<b>Key Partners</b> <u>Supply chain:</u> Shoe producer Customers Logistic partner	<b>Key Activities</b> <u>Product:</u> Product modularization Component standardization Solution space definition Customers' needs elicitation <u>Supply chain:</u> Integrate with logistic partner Employees training Information management <u>Production system:</u> Postponement	<b>Value Proposition</b> <u>Product:</u> Co-design Style customization Function customization Fit customization Package customization	<b>Customer Relationship</b> <u>Supply chain:</u> Co-creation Online profiles Social networks Customized relationship Gamification	<b>Customer Segment</b> <u>Product:</u> Young people Web users
	<b>Key Resources</b> <u>Supply chain:</u> Online configurator <u>Product:</u> Designers <u>Production system:</u> Flexible manufacturing system		<b>Channels</b> <u>Supply chain:</u> Online store Physical store Third party retailer	
<b>Performance</b> <u>Product/ Production system/ Supply chain:</u> Financial indicators Customization indicators Efficiency indicators				

**Fig. 2.** Proposal of MC business model for footwear industry

Configuration of the final business model can be an iterative activity by measuring performance of the developed business using indicators mentioned in performance block and revising other blocks to reach the required level of cost, customization and efficiency.

## 6 Conclusion

The offer of mass customized shoes is a recent trend in the footwear industry and seems to be a promising business for the coming years that could fulfill evolving customer needs. Some brands have already developed the mass customized line and have entered the business since a few years ago, yet potentialities of mass customization could be further exploited being an opportunity for a higher number of companies. In this paper we propose a framework to support companies operating in shoe sector to develop a MC oriented business model. The proposal is a supporting tool for practitioners during the development of the business model. The decisional process can be more efficient since the framework provides not only a check-list of elements that need to be considered, but also a list of options that have been tested to be successful in the same context. On the other hand, this work adds also insights to

the mass customization literature providing a work that take into account at the same time all the elements that need to be configured when a business model has to be developed. Given the high number of variables, the proposed model can be hardly generalized to other sectors, so it is a contribution to the footwear industry. Nonetheless, the applied methodology can be replicated in other industries where mass customization is an opportunity of growth. Next step of this research is the implementation of the proposed framework to support a company not yet mass customized to extend its offer in this direction.

## References

1. Abend, J.: Custom-made for the masses: is it time yet? *Journal of Fashion Marketing and Management* 2: 48-54 (1996)
2. Blecker, T., Abdelkafi, N.: The Development of a Component Commonality Metric for Mass Customization. *Transaction on engineering management* 54(1):70-85 (2007)
3. Franke, N., Piller, F.T.: Configuration toolkits for mass customization setting a research agenda. *International journal of technology management* 6(5/6): 578-599 (2003)
4. Jones, G. M.: Educators, Electrons, and Business Models: A Problem in Synthesis. *Accounting Review* 35(4): 619-626 (1960)
5. Oleson, J. D.: Path ways to agility: Mass customization in action. New York (NY): John Wiley & Sons, Inc. (1998)
6. Osterwalder, A.: The Business Model Ontology - a proposition in a design science approach. Dissertation, University of Lausanne, Switzerland (2004)
7. Osterwalder, A., Pigneur, Y.: *Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*. 1<sup>st</sup> Edition, Hoboken: John Wiley & Sons, NYC (2010)
8. Piller, F.T.: Mass customization: reflection on the state of the concept. *International Journal of Flexible Manufacturing System* 16(4): 313-334 (2004)
9. Pollard, D., Chuo, S.: Strategies for Mass Customization. *Journal of Business & Economics Research* 6(7): 77-85 (2008)
10. Qiao, G., Lu, R., Mclean, C.: Flexible Manufacturing System for Mass Customization Manufacturing. *International Journal of Mass Customization* 1(2/3): 374-393 (2006)
11. Schreier, M.: The Value Increment of Mass-customized Products: An Empirical Assessment. *Journal of Consumer Behaviour*, 5 (July-August): 317-27 (2006)
12. Wu, J., Lin, I., Yang, M.H.: The impact of a customer profile and customer participation on customer relationship management performance. *International Journal of Electronic Business Management*. 17(1): 57-69 (2009)
13. Xuan, G.X.: Positioning of customer order decoupling point in mass customization. In: *Proceeding of the sixth international conference on machine learning and cybernetics*; August 19-22; Hong Kong (2007)