



# ADAPTING BUSINESS MODELS AND STRATEGIES FOR NEXT WAVE OF MASS CUSTOMIZATION

**Aleksandar Vekić, Jelena Boročki, Angela Fajsi, Slobodan Morača**

University of Novi Sad, Faculty of Technical Sciences, Novi Sad, Republic of Serbia

**Abstract:** *Changes occurring within the scope of business within all industries have a significant impact on the concept of Mass Customization (MC). Certainly, this leads to consideration of suitable strategies and business models that can be applied in light of new trends, primarily digitalization of business. The goal is to establish strategies and business models, which should result in business improvement through innovation, achieving significant competitive advantage and sustainability of business. Careful and thorough understanding of all challenges, which influence MC concept, is very important in order to establish efficient adaptation to them, which will result in improvement of this concept in practice. The aim of this paper is to show in which direction the MC is moving around the selection of business strategies, what kind of adjustments it requires and how it is possible to apply business models, especially Canvas, which is positioned as a very suitable tool for modern and highly innovative companies.*

**Key Words:** *Mass Customization, Innovation, Business Model and Strategies, Digitalization, Competitive Advantage*

## 1. INTRODUCTION

All forms of modern business require a high level of adaptation to current changes, this also applies to the MC concept as well as to its business models. The success and sustainability of the business will depend on the extent to which companies are willing to accept changes and adapt to them in an appropriate manner. Business models should provide guidance and create a specific development path for the given company, and mentioned MC concept certainly requires the creation of appropriate business models.

In the era of major changes and new trends which affect all industries, this issue is highlighted. Innovative and adaptable business models are as important as innovation in the process of work or innovative technologies.

First of all, understanding of the concept of mass customization is crucial and in some ways this concept represents special kind of business model. The goal is to achieve a new level of mass production with creating and

delivering wide-market goods and services that are modified to satisfy specific customer needs. This kind of business should lead to a significant reduction in costs per unit of product [1]. MC is seen as a systemic idea which involves all aspects of product sale, development, production, and delivery, full-circle from the customer option up to receiving the finished product [2]. MC is one of the leading strategies in satisfying customers and assuring companies survival in today's markets characterized by constantly changing environment, rapid technology progress and fierce market competition [3]. A detailed analysis of customers, their desires, habits and preferences is one of the key requirements of each efficient business models.

Customers today prefer and require personalized products and services, that can more efficiently satisfy their specific needs. This trend significantly influences the entire production process and some of the consequents are: reduction of production scale, expansion of product range and cost rising, changes in supply chain, new pricing strategies, change of corporate image, etc. Customers show great interest in getting involved in the process of designing and manufacturing products according to their preferences and interests, and this option is one of the main advantages of MC concept. This is companies way of providing unique value to their customers, and today it is easier by using a modern technology in digitalization era.

Companies cannot give the customers total freedom in their choice and decision, but also offer so many choices that customers it feels like customization. That means companies should listen more carefully to their customers [4]. Establishing this kind of a relationship with customers is not easy and represents a great challenge for companies. Companies are able to choose between several strategies in their business. Based on the chosen strategy and the level of mass customization, the adequate business model will be defined and selected, but that also depends on the consideration of customers as its most important part.

For defining the level of mass customization, the four points in the production cycle are important and those are: design, fabrication, assembly and use [5]. In process of creating innovative business models for MC, it is necessary to take care of key decisions and strategies in

order to improve company's business platform based on revenue, costs and risks.

## 2. RESEARCH METHOD

In order to present possibilities for innovation and adaptation of business models and strategies in mass customization, we performed a literature review. In this purpose, we used academic and management literature and other open sources, therefore we have investigated a number of articles which are relevant to this topic. The work is based mostly on conceptual analyses.

## 3. INNOVATION OF BUSINESS MODELS

All internal and external changes must be accompanied by certain corrections in the company's business model. Naturally, companies have to respect certain limitations in terms of innovating their business model, otherwise it would result in its contradiction. It is not recommended that companies develop business models based on the imitation of another business model, because the same idea or technology could have different business models and market orientation. It is necessary for companies to realize how provide certain capacities in terms of innovating the business model. Some approaches of business model show that business model are some of the most important tools in the business. The business model is a „statement of how a firm will make money and sustain its profit stream over time“[6]. That is “a conceptual framework that helps to link the firm’s strategy, or theory of how to compete, to its activities, or execution of the strategy [7]. According to the group of authors “ a business model is a description of an organization and how that organization functions in achieving its goals (e.g., profitability, growth, social impact, etc.)”[8].

According to BCG Research, typical business model consists of two basic elements: value propositions and operating model. Model shows that each of them has 3 subelements.

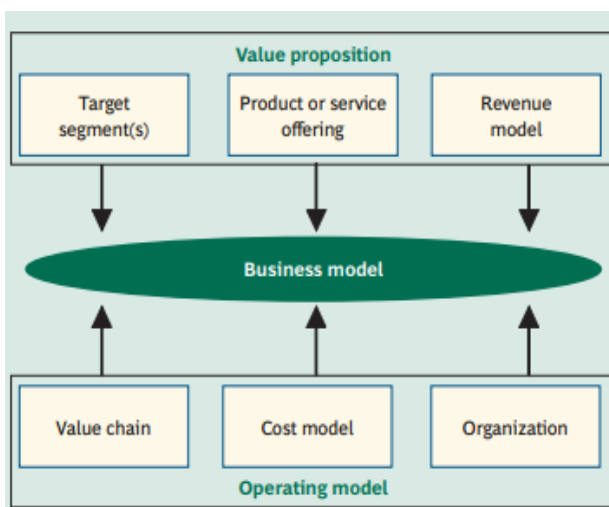


Fig.1. Elements of typical business model [9]

Authors Chesbrough and Rosenbloom state that a business models fulfill the following functions [10]:

- Articulates the value proposition (i.e., the value created for users by an offering based on technology);
- Identifies a market segment and specifies the revenue generation mechanism (i.e., users to whom technology is useful and for what purpose);
- Defines the structure of the value chain required to create and distribute the offering and complementary assets needed to support position in the chain;
- Details the revenue mechanism(s) by which the firm will be paid for the offering;
- Estimates the cost structure and profit potential (given value proposition and value chain structure);
- Describes the position of the firm within the value network linking suppliers and customers (incl. identifying potential complementors and competitors); and
- Formulates the competitive strategy by which the innovating firm will gain and hold advantage over rivals.

### 3.1. Economic business model Canvas

One of the most popular business model concepts today is the Canvas business model, and its authors state that “a business model describes the rational of how an organization creates, delivers, and captures value”[11]. The purpose of this business model is to enable shifting from production orientation to business orientation. Key elements of business models Canvas can be presented through next two figures (Fig.1, Fig.2):

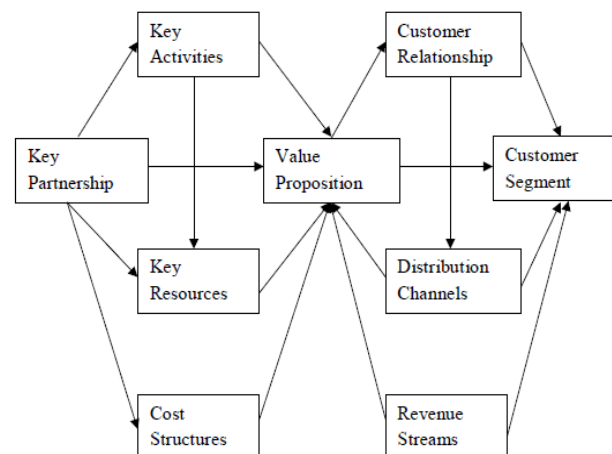


Fig.2. Osterwalder's 9 points of a Business Model [10]

This scheme represents key elements of business model Canvas and their interdependence. Central place has a value proposition segment which is one of two main elements in typical business model which was developed by BCG.

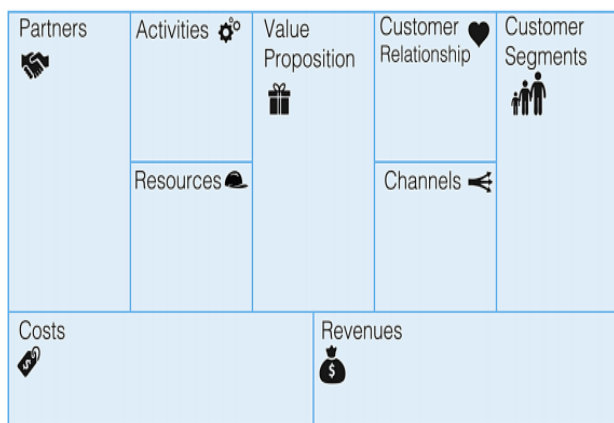


Fig.3. Economic business model Canvas [12]

Canvas business model represents a creative tool for business model innovation and can be used to support sustainability. The right side of the economic business model Canvas is focused on the customer and their needs, while the left side is focused on the business. These two sides come together with value propositions in the center to signify the exchange of value between given business and the customers.

*Customer segments* should explain the market, which company serves. Customers are the most important segment for which the company exists, for which it creates value and delivers it. Markets can be viewed as mass market, market niche, segmented market, diversified market, double market, etc.

*Value proposition* shows the value which company delivers to own customers. This value can be presented through quantitative or qualitative information.

*Channels* are the very important part of the Canvas business model, because they provide delivering of value to customers. A company can deliver own product/service through an own distributive channel or partner channel. It is necessary to take into account important issues such as harmonization of customer's habits with proposed channels, channel costs, how the channels are integrated, etc. Types of channels according to purpose can be: awareness channels, evaluation channels, shopping channels, distribution channels and post-selling channels.

*Customer relationship* significantly affects the efficiency and quality of the business model. Some forms of customer relationship are: dedicated personal assistance, self-service, automated services, co-creation, etc.

*Revenue streams* include different forms which generate a revenue stream. Revenue depends on quality and efficiency of other Canvas business model segments. Revenues can be generated through forms such as: assets sale, subscription fees, leasing, advertising, etc.

*Key activities* imply realization of certain key activities that enable creation of value, and its delivery to customers. Some of the key activities are: R&D, production, strategy, market research, marketing...

*Key resources* represent most valuable assets of the company. It can be: information and knowledge, physical resources, intellectual and human resources, financial resources. Primary goal of these activities is to help in process of defining, creating and delivering value.

*Key partners* are external companies or suppliers that company would need to perform key activities and deliver value to the customers. Important role of partners is to help in process of business model optimization, minimizing risk and uncertainty and easier procurement of raw materials and assets.

*Cost structure*- companies can choose cost-driven or value-driven cost model. A company with cost-driven model tries to minimize all costs, while a company with value-driven model is more focused on delivering great customer value in terms of quality or prestige. All segments of Canvas business model lead to certain costs. This part of model is most often changed and identified as the most expensive resources and activities.

### 3.2. Business model innovation and Mass customization

The renewed interest in innovating the business model, that is, how it creates and maintains value is discussed in the Strategic Market Creation: A New Perspective on Marketing and Innovation Management, a critique of the research of the Copenhagen Business School and the Bokoni University, editor Karin Tollin and Antonella Carù [13]. Then this topic becomes actual through a special edition of the Long Range Planning on Innovative Business Models from 2010, which attracted more than 150,000 downloads and more than 3,500 Google Scholar and more than 500 ISI citations [14]. A collection of these articles has been re-published in Harvard Business Review on Business Model Innovation (2012) [15].

In terms of innovating the business model, it is necessary to carry out detailed analysis and determine the advantages and characteristics that these changes bring. This process usually requests change in the structure of the entire business model or individual elements. According to Mitchell and Coles "business model innovation, means business model replacements that provide product or service offerings to customers and end users that were not previously available. The authors also refer to the process of developing these novel replacements as business model innovation" [16].

When considering the innovation of a business model, it is very important to take into account the concept of sustainability. The research in sustainable business model innovation has started relatively recently, and definitions combine business model innovation elements with sustainability considerations. One definition of sustainable business model innovation shows that this concept can be understood "as the adoption of the business model to overcome barriers within the company and its environment to market sustainable process, product, or service innovations" [17].

All companies which implemented mass customization concept in their business, try to find improved and innovative business model, which should result in improved value proposition, more efficient in business, cost reduction and revenue increasing. By applying an innovative business model, companies have the opportunity to achieve competitive advantage. To successfully implement innovative business model, companies must make the right trade-off between full

standardization and full customization. It is necessary to establish capacities that enable the creation of products and services designed for a mass market.

The introduction of new business models in MC concept is supported by current trends such as: higher customer awareness, circular economy, corporate social responsibility, sharing economy and corporate consumption, technological innovations, etc. Certainly, implementing of innovative business model depends on the type of industry in which the company operates. Currently, all companies that are custom-producing their product lines are charging a premium price as compared to companies that are mass-producing.

In the process of defining an innovative business model, it is important that the company conducts a detailed analysis about specific needs of customers, and accordingly that results, develops other elements of the business model. Modern mass customization creates an interface between the manufacturer or service provider with the customer, enabling collaboration and open innovation [18]. Many companies ambitiously venture into mass customization implementations only to find that their enterprise technology is configured precisely to a mass production model [18]. Recommendations for innovation of the future mass customization concept according to Kalypso Viewpoint on innovation are [18]:

- 1) Modularization of company's people, processes and products
- 2) Following the rules
- 3) Respecting the order abandoning the concept of BOOM (Bills of Materials)
- 4) Companies need to look their customer in the eyes
- 5) Preparing for changes

Companies need to identify customers' problems and provide optimal solutions while also minimizing the complexity and burden of choice. Companies also need to build a robust process design and create own mass customization strategies according to requirements of their customer base, and the state of the competition and available technology [19].

Distribution channels are very important for the concept of MC, and their definition is one of the most sensitive issues in creating a business model. With increased customization, the skill requirements of the channel increase [20].

Considering the concept of MC, it can be concluded that in this case automated service and self-service types of customer relationship is most often applicable. Of course, it is possible to apply other types of customer relationships, but in certain segments of the concept.

For the efficiency of the business model, it is necessary to define and establish appropriate pricing mechanism. This affects the formation of a positive cash flow and enables healthy and sustainable business. It is necessary to continually take care of revenue streams in order to keep up with the changes that are taking place in the business, as well as innovations that are being implemented in almost all business segments.

Modern mass customization concept requests a set of key activities to efficiently provide customized and innovative products to mass market. Some of the key activities in MC are [21]:

Table 1. *List of mass customization activities*

| Objective  | Alternative  |
|--|--|
| Elicit customer requirements   | Recognizing customer individuality   |
|  | Collecting customer feedback from the prototypes   |
|  | Translating customer requirements through co-creation  |
| Development product variants and solution space based on MC dimension (axes) | Developing product platform and modules by considering commonality in modules and components |
|  | Undertaking variety management   |
| Increase agility of supply chain   | Integrating with the supply chain partners in processes and in sharing information           |
|  | Reaching customers through efficient logistics services                                      |
| Share and manage customer knowledge  | Managing customer knowledge  |
| Arrange efficient production   | Applying efficient and flexible manufacturing system   |
|  | Implementing postponement strategy   |

The company's resources should enable the implementation of the MC concept and from ability to obtain them and managing their using, depends on the success of the whole concept. Key resources for MC concept can be viewed as [21]:

Table 2. *List of mass customization key resources*

| Objective  | Alternative                             |
|--|---|
| Increase flexibility of manufacturing system             | Automated manufacturing and assembly    |
|  | Automated material handling system      |
|  | Automated inspection system             |
| Increase reconfigurability of manufacturing system       | Reconfigurable machine tools            |
|  | Reconfigurable assembly system          |
|  | Reconfigurable inspection system        |
|  | Reconfigurable material handling system |
|  | Process monitoring system               |
| Increase customization level using point of sales system | Measurement devices                     |
| Increase level of information integration                | Configurators                           |
|  | Order processing system                 |
| Support customer in co-design via human resources        | Trained personnel                       |



In process of defining and implementing an innovative business model, partners represent an important support and driving force. In MC concept, key partners can most contribute in terms of obtaining key resources, as well as the distribution process and developing customer relationships.

Certainly, changes in the business result in changes in costs. Clear cost definition is of exceptional significance, in order to determine their origin and allocation to key activities and resources.

#### 4. INNOVATIVE STRATEGIES FOR MASS CUSTOMIZATION

Current trends in mass customization brings changes in the way of meeting customer needs, concept implies building of a unique and valuable product, for each customer. Customers can configure to their needs through MC concept. Successful process requires two broad areas [22]:

- Identifying opportunities for MC that create value for customers and are supported by smooth, swift and inexpensive transactions for both, consumers and producers.
- Achieving a manageable cost structure and cost level for the producers even as manufacturing complexity increases.

Some applicable strategies in process of mass customization are [23]:

*Differentiation-* this strategy represents process which allows differentiation of company's products or services to changing demands. Modern technology, especially digitalization, brings new possibilities to provide more efficient customization, which support innovative ideas and their realization. The implementation of this strategy should lead to achieving and retaining a competitive advantage over the long term.

*Strategy of lower cost-* in the mass customization approach, lower cost comes from lower inventory, higher cash flow, customer satisfaction maximization, quicker responsiveness, etc. By introducing innovations into all segments of the business model, considerably lower costs are expected, especially through the using of modern technologies and its possibilities. That significantly facilitates and accelerates the entire business process and communication with customers.

*Strategy of Supplier Relationships (Or Alliance) Outsourcing* - mass customization companies have to build up strong and broad relationships with suppliers to reduce the risk of input fluctuation. According to this strategy, it is very important to build a strong own network of suppliers that can be achieved by alliance with key input suppliers. Companies today often outsource the entire production, material growing, delivery service, etc. Outsourcing allows a mass customization company to avoid large investments on fixed assets that can lead to high fixed costs, thus decrease the risk of fixed cost leverage.

*Strategy for Development of Integration Distribution Network Of Customer Relationship-* it is important to use modern communication channels to develop and improve customer relationships, which have high

influence to success of the entire business model. Companies that are unable to integrate their distribution network cannot successfully apply mass customization.

*Strategy of development and implementation of innovative organizational structure-* the organization structure should be flatter with fewer levels, and creates a freedom for the coordination among processes. It focuses on a high degree of cross-functional integration and employee participation. This results in a much higher degree of decentralization in decision making and implementation of innovative solutions in business.

#### 5. CONCLUSION

In the light of understanding current changes, the adaptation of business models and strategies to the concept of MC has a huge importance, that represents a point of consideration of all successful companies in this field. These improvements should lead to satisfaction of both sides, producers and customers. In that direction, survival of companies in fragmented, diversified and competitive marketplace will be ensured. The aim of this paper was to show a link between MC, innovation and sustainability and to better plan the strategies which are important for the business objectives and achieving competitive advantage. A modern business model implies that changes can be expected in all business segments. The implementation of MC concept requires a profound system innovation along the entire knowledge and supply chain [24]. Improvements of each business model segment can be easily represented through the Canvas business model, which is intended for companies that introduce innovation in their business.

Implementation of appropriate business strategies can lead to higher efficiency in product development process, reducing cost and time, increasing revenue, developing a specific relationship with company's customers, etc.

Monitoring of trends that arise in the field of MC is of great importance for creating successful strategies and business model of the company. It means constantly looking for new options which include changes in: environment, modern technology, production process, specific customer requests, etc. This certainly requires confrontation with the big challenges and high level of commitment of the company in order to achieve success on the market.

#### 6. REFERENCES

- [1] Investopedia (2018). Mass customization. Retrieved June 19, 2016, from: <https://www.investopedia.com/terms/m/masscustomization.asp>
- [2] G. Da Silveira, D. Borensten, F. S. Fogliatt (2001). "Mass Customization: Literature review and research direction". *International Journal of Production Economics*, vol. 72, no. 1, pp. 1–13, June 2001.
- [3] Y. Xu, Y. Landon, S. Segonds, Y. Zang (2017). „S decision support model in mass customization“. *Computer & Industrial Engineering*, Vol. 114, pp.11–21. December 2017.
- [4] S. Fournier, S. Dobsch, D. G. Mick, (1998). Preventing the Premature Death of Relationship Marketing. *Harvard Business Review*, 76, 42–51.

- [5] E. Heuvelmans (2010). Implementation of a mass customization strategy - requirements to product and process design (bachelor thesis). *Tilburg University*.
- [6] D. W. Stewart, Q. Zhao (2000). Internet marketing, business models, and public policy. *J. Public Policy Mark.*, 19 (Fall). pp. 287-296.
- [7] J. Richardson (2008). The business model: an integrative framework for strategy execution. *Strateg. Chang.* 17, 133–144. doi:10.1002/jsc.821296.
- [8] L. Massa, C. Tucci, A. Afuah (2017). A Critical Assessment of Business Model Research. *Acad. Manag. Ann.* 11, 73–104. doi:10.5465/annals.2014.0072
- [9] Z. Lindgardt, M. Reeves, G. Stalk & M. S. Deimler (2009). Business model Innovation: When the games gets tough, change the game. *The Boston consulting group*.
- [10] H. Chesbrough (2010). Business model innovation: opportunities and barriers. *Long range planning*, vol. 43, pp. 354-363.
- [11] A. Osterwalder, Y. Pigneur (2010). Business model generation. *J. Wiley & Sons, Hoboken*.
- [12] A. Joyce, R. L. Paquin (2016). The triple layered business model canvas: A tool to design more sustainable business models. *Journal of Cleaner Production*, vol. 135, pp.1474-1486.
- [13] K. Tollin, A. Caru (2010). A strategic market creation: A new perspective on marketing and innovation management. *John Wiley & Sons, Ltd*.
- [14] C. B. Fuller, S. Haeffliger (2013). Business Models and Technological Innovation. *Long range planning*, vol.46, 99. 419-426.
- [15] A Harvard Business School Press (2012). Harvard Business Review on Business Model Innovation.
- [16] D. W. Mitchell, C. B. Coles (2004). Business model innovation breakthrough moves. *J. Bus. Strategy* 25, 16–26. doi:10.1108/02756660410515976
- [17] F. Boons, F. Lüdeke-Freund (2013). Business models for sustainable innovation: state-of-the-art and steps towards a research agenda. *J. Clean. Prod.* 45, 9–19. doi:10.1016/j.jclepro.2012.07.007 M4
- [18] Kalypso publications (2015). Modern mass customization: five rules to live. Viewpoints on innovations.
- [19] Innovation Management (2013). Innovation strategy: How to make mass customization works. Retrieved: July 5, 2018, from: <http://www.innovationmanagement.se/imtool-articles/innovation-strategy-how-to-make-mass-customization-work/>
- [20] M. Sievänen, M. Heiskala, J. Tiihonen, K.S. Paloheimo, T. Siirilä (2010). Analyzing service mass customization business models. *4th International Conference on Mass Customization and Personalization in Central Europe (MCP-CE 2010)* Novi Sad, Serbia.
- [21] M. Zabardast, G. Pourabdollahian, D. Corti, M. Taisch (2013). Analysis of factors for successful implementation of mass customization: Key resources and key activities. *International Journal of Engineering*. Fascicle 2. pp.79-88.
- [22] A. Gandhi, C. Magar, R. Roberts (2013). How technology can drive the next wave of mass customization. *McKinsey on business technology*. No.32.
- [23] D. Pollard, S. Chuo, B. Lee (2008). Strategies for mass customization. *Journal of Business & Economic Research*, vol.6, n.7. pp.77-86.
- [24] M. Hora, S. Hamkammer, L. Canett, S. K. Sel, S. Gomez. G. Gahrens (2016). Designing Business Models for Sustainable Mass Customization: A Framework Proposal. *International Journal of Industrial Engineering and Management (IJIEM)*, vol. 7, no. 4, 2016, pp. 143-152.

## CORRESPONDENCE



Aleksandar Vekić, Assistant-master  
University of Novi Sad  
Faculty of Technical Sciences,  
Trg Dositeja Obradovića 6  
21000 Novi Sad, Serbia  
[vekic@uns.ac.rs](mailto:vekic@uns.ac.rs)



Jelena Borocki, Associate Professor  
University of Novi Sad  
Faculty of Technical Sciences,  
Trg Dositeja Obradovića 6  
21000 Novi Sad, Serbia  
[borocki@uns.ac.rs](mailto:borocki@uns.ac.rs)



Angela Fajsi, Assistant - master  
University of Novi Sad  
Faculty of Technical Sciences,  
Trg Dositeja Obradovića 6  
21000 Novi Sad, Serbia  
[angela.fajsi@uns.ac.rs](mailto:angela.fajsi@uns.ac.rs)



Slobodan Morača, Associate  
Professor  
University of Novi Sad  
Faculty of Technical Sciences,  
Trg Dositeja Obradovića 6  
21000 Novi Sad, Serbia  
[moraca@uns.ac.rs](mailto:moraca@uns.ac.rs)