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# AUTOMOTIVE CONFIGURATOR AS A DIGITAL PLATFORM FOR PRODUCT CUSTOMIZATION

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## KONFIGURATOR MOTORYZACYJNY JAKO CYFROWA PLATFORMA DO DOSTOSOWYWANIA PRODUKTÓW

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**Abstract:** The paper focuses on the characteristics of product sales and services online in the automotive business. The study sheds light on product customization and its effect in the eyes of customers, and examines modern tools in marketing communication such as online configurator, online product videos, tutorials for customers, and online chatbots as a possibility of creating a positive experience for different customers. The authors investigated the automotive configurators of two global car producers, Skoda Auto and Opel. Based on the research conducted as an experiment configuring a vehicle by respondents in the Czech Republic, the results show that from the customer's point of view, the Skoda Auto configurator possesses more comprehensive characteristics in comparison to its competitor, Opel.

**Keywords:** automotive configurator, digital platform, product customization.

**Streszczenie:** W artykule skoncentrowano się na cechach sprzedaży produktów i usług *online* w branży motoryzacyjnej. Badanie rzuca światło na dostosowanie produktu i efekt tego dla klientów. Zanalizowano nowoczesne narzędzia w komunikacji marketingowej, takie jak konfigurator *online*, filmy o produktach *online*, samouczki dla klientów i chatboty *online*, zapewniające możliwość stworzenia pozytywnego doświadczenia dla różnych klientów. Zbadano konfiguratorzy samochodowe dwóch światowych producentów samochodów, takich jak

Skoda Auto i Opel. Na podstawie badań przeprowadzonych na terytorium Republiki Czeskiej stwierdzono, że z punktu widzenia klienta konfigurator Skoda Auto jest bardziej kompleksowy w porównaniu z konkurentem, czyli Oplem.

**Słowa kluczowe:** konfigurator motoryzacyjny, platforma cyfrowa, personalizacja produktów.

## 1. Introduction

Customization, i.e., adapting the product to the specific requirements of the customer, has become a common tool of the marketing mix across industries or branches (Kotler and Armstrong, 2016). In addition to the dominance of this approach, especially in the IT sector, it is an obvious part of the marketing strategy in the automotive sector. It has long been the case that the customer has the opportunity to choose the engine capacity and colour and then choose the basic, medium or exclusive equipment package. In today's highly competitive environment, it is necessary to proceed to a higher variability of customization so that the basic equipment variants can be additionally modified with additional elements or packages of elements in the categories: assistant, design and others. The obvious disadvantage is the increase in cost, i.e. there is a direct relationship between the expansion of variability and cost, while in the strategy of maintaining the producer's margin, this fact naturally affects the price level, i.e. shifting it from dimension 6P to dimension 6C, and also the marketing mix from the consumer's point of view.

The customer can compare whether the customer value represented, respectively increased by a wider degree of customization, is offset by its perception of price as a customer cost, taking into account two other elements, convenience and communication. In particular, the method of communication, namely, addressing customers, is a key element of the successful projection of activities related to the implementation of the philosophy of customization into the economic results of the company. In the case of customization, one can also talk about tailor-made products or services. According to Kotler and Keller (2016), up to a third of online customers are interested in the ability to customize the product they intend to purchase through an interactive tool (Kotler and Keller, 2016).

At a time of intensive e-commerce development, the interactive system platform in the online environment can be considered as a developing tool that will be user-friendly (Keegan and Green, 2013). In the case of the automotive industry, it is mainly an interactive configurator. With the advancing digitization, online education in all areas is beginning to be established. This is far from just being about the full-time education of children and young people in schools and universities, as the trend is also penetrating into adult education in a professional form, as well as education as a hobby. In addition to the classic Computer-Based Training, such tools also include the more advanced web-based training format, i.e. the acquisition of

knowledge using a video format (Zounek, Juhanak, Staudkova, and Polacek, 2016; Dvorakova and Serak, 2016).

Video as a tool on the company's website has more features. It belongs to the components of the marketing communication mix, addressing customers and the company's surroundings in a modern way both on the level of PR and that of interactive communication with the customer within the customization process. Possible tools may include instructional videos, a format that can be widely used in the implementation of a portfolio of elements focused on enabling customers to customize a selected product or service. Customization in the automotive industry can progress to a more advanced level by extending car configurators with this format, i.e. instructional videos. Today's cars contain a number of functionalities that not everyone has yet experienced, such as advanced safety elements and assistance elements, or elements that increase the comfort of the car. The purpose is to create a user-friendly educational material that will help the customer understand the selected functionality and then lead him/her within the customization management to select the most suitable car specification so that it can best meet the customer needs and requirements. Above all, the educational material should be a bridge to understanding how the given functionality works, what it is used for and what customer value it brings. The undeniable advantage is that the customer can get acquainted with this in advance and then make a qualified decision, which can reduce any reluctance to extend the equipment of the car with such an element, for fear of not being able to use it. In addition, the carmaker can exploit the potential of the fact that a customer who discovers the advantage of a given element and finds that it makes driving easier and increases safety and comfort, may want to have such elements in other cars as well. High-quality and professionally processed instructional videos available on the carmaker's website in the car configuration section have added value for the customer in the possibility of restarting; when configuring the car, the customer can return to the material. The result is a customized product, the specification of which was created on the basis of sophisticated support tools, hence the customer is fully oriented in the selected equipment components, knows their function and meaning and can control them in advance at a virtual level. The results of research carried out in a selected car manufacturer are proof that instructional videos are an important support tool in the configuration of the car for all age groups, especially if it is a newly introduced assistance or safety element. At the same time, in general, the greatest educational potential was identified in the age group 55+, who perceives this support very positively when becoming familiar with all types of assistance and safety elements.

## 2. Methodology

Customization is one of the key factors by which companies can differentiate their product from a competing product, and offers the customer the opportunity to customize the final product according to their own requirements and preferences. Instead of a limited offer of mass-produced models, the company will expand its product portfolio several times, which can subsequently attract a wider range of potential customers (Stedron, 2018). The current situation is very challenging for manufacturers to meet their needs. The demands of customers have a growing tendency and customers require the production of tailor-made products, while expecting, if possible, the same delivery time, price and also quality as with the standard products. The introduction of mass customization to the company means a significant change in its business strategy. Some elements of a mass strategy can be, for example:

- Targeted market strategy – a clear strategy that defines which customer will be served by the service and can reject customers who are outside the target segment. An example is the Ferrari brand in the automotive sector. The Ferrari brand produces certain series of vehicles which are intended only for customers who already have some cars of this brand and meet other criteria according to which the Ferrari carmaker decides on the sale of other cars.
- Sales and development for customized products that can use product/product configuration systems.
- Product line based on modules – the product line is assembled on modules, i.e. a customized product is assembled by a selection, combination or set of standard modules.
- Mass production of standard modules and assembly of customer products based on the use of modules.
- Installation and sales service based on module replacement (Hvam, Mortensen, and Henrika Riis, 2008).

There are two ways to customize a product. The first option is the specific design and production of a product for specific customer requirements using individual tools in a workshop where a product is made from scratch and resources are always used for each specific product. The second option is the implementation of mass customization, which aims to link mass production and adaptation. The main goal is to produce individualized goods with the efficiency of almost mass production (Blecker, Friedrich, Kaluza, Abdelkafi, and Kreutler, 2005). In bulk customization, customers are often influenced by the vast amount of information about product features and other product-related information. If there are many data, customers may be confused during the configuration phase. For the purposes of this study, the following options were taken into account: the configuration task is too complex; the information provided is not entirely clear and comprehensible; the information and options are so similar that the customer cannot fully orient him/herself.

The question therefore arises as to how to effectively orient the customer within information that may seem too complex, unclear or interchangeable. The impact of websites and the Internet has been studied many times and subjected to several studies, showing that customers' perceptions can significantly influence their shopping behaviour and satisfaction. In their study, Belanche et al. (2012) define usability and orientation on websites. If a website is designed in a way that makes it difficult to navigate it and thus makes it difficult to find the information that the customer is looking for, it leads to a higher degree of confusion on the part of the customer.

Sousa and Da Silveira (2019) defined a mass customization strategy. They introduced a classification framework for different levels of mass adaptation which consists of seven basic levels: Design, Production, Assembly, Additional custom work, Additional service, Packaging and distribution and Applicability.

Design refers to collaboration, where customers work with suppliers to design a product that meets specific requirements. Production is focused on making products that are designed exactly according to predefined customer specifications. This allows the introduction of some modifications of the product, whereas the assembly is focused on a combination of different variants that are made to meet customer requirements. Unlike the first three levels, i.e. design, production and assembly, where the customer can actively intervene in the production process, in the remaining levels the customers have no influence on production. It is at level four and five that bulk customization is achieved by providing additional custom work. Packaging and distribution provide little opportunity for customer customization. Applicability refers to adaptable products, whilst standardization refers to the adaptation of products that adapt to the specific needs of customers (Blecker and Friedrich, 2005).

### **Car Configurator as a tool for Product Customization**

When a customer decides to buy a new vehicle, the first steps lead to the car manufacturer's website of the car the customer has chosen. Today, almost every car manufacturer offers the option of a configurator on its website or at its dealers. The configurator itself is usually the first contact between the customer and the seller. For this reason, it is very important that the configurator makes a representative impression and has a positive effect. The configurator is a typical software tool for bulk customization. Its operation consists of an interactive application, where the customer defines his/her requirements from the selection of options, setting certain values and parameters. The result of all these operations is that the customer obtains his/her precisely defined product (Leclercq, Cordy, Dumas, and Heymans, 2018).

The word 'configurator' itself is an English word, which could be translated as arranging or combining. As such, the configurator works with the help of the Internet and the web environment. Its purpose is simple in that it serves to combine the wishes of the customer who is choosing a new car. The configurator does not necessarily have to be used for the needs of configuring a new vehicle for

the purpose of purchase, but can just be informational for customers who are not directly familiar with the car manufacturer's offered range, in terms of both model series and especially in equipment levels, which can be added and implemented in the equipment. Lastly, the configurator can be used for someone who intends to buy a used vehicle and is interested in the value of the new vehicle and what could be bought in the vehicle. Every car manufacturer should first think about how they want to present their configurator to customers. This should be kept in mind in order to maintain the practicality, the clarity of the configurator and also the visual presentation should be pleasing to the potential customer. For instance, the customer may be choosing between two cars, each offered by a different manufacturer. Even a tool such as a vehicle configurator can play an important role in choosing a vehicle, where the customer is eventually likely to turn to the manufacturer with a clearer and more user-friendly configurator, as he/she may think that this manufacturer may be more customer-oriented and caring.

The basis for product configuration is product modelling. In order to implement a configuration system, the product description model must be easily customizable for bulk customization. A frequently used approach is to describe a range of products, which is listed in only one model. Thus, such a product group can be viewed as a determination of the final product, which can be created with the help of predefined sets of modules. The product family model describes which modules are part of the product family and how they can be combined. When the product family model is implemented in the configurator, users can select modules for product configuration, and in some cases can select the desired end-product properties while the configurator proposes the corresponding modules (Blecker et al., 2005).

### **A Comparison of the Skoda Auto and OPEL Car Configurators**

For the potential customer who is considering buying a new car, the configurator is usually the first thing they reach for when trying to configure their dream vehicle. Most carmakers today offer their customers the option of configuring the vehicles they sell. Every car manufacturer has its own configurator, but most configurators work on the same principle and differ from each other only in the design, which is authentic for each brand. Most customers are oriented and focused on the most advantageous goods and prefer the ratio of the best possible quality at the lowest possible price. The configurator is a suitable tool for this purpose, as the customer has the opportunity to configure more vehicles of different brands, but with the same focus, and thus can obtain quite real and truthful information about each car manufacturer. Unless there are special requests and the customer adheres to more or less common configurations such as adaptive cruise control, he/she can assemble almost the same vehicle from two different brands, and then other aspects of customer behavior and choice come into play. As already mentioned, the customer configures the vehicle and having made the choice, he/she can usually order it from the nearest showroom. Thanks to the configurator, one can choose everything the

configurator allows, which depends on the car manufacturer and its focus. Thus, the customer cannot expect a similar product offer for Rolls Royce brands when configuring, for example, a Peugeot vehicle.

To evaluate the first part of the configurator analysis, the evaluation attributes are divided into three groups. The first group concerns the user interface. The second group is the general orientation of the website when configuring the vehicle. The third group deals with unexpected problems and their solutions.

Each group is then divided into three sub-areas, where each sub-area is evaluated by scores from 1 to 5, where 5 is the maximum number of points. In total, it is possible to accumulate 45 points.

User interface. The following points were selected for the user interface, which are important for the correct operation of the configurator.

- Too much information (configurator appearance) – the user is flooded with too much information; the situation is confusing for the user;
- Wrong position of control – the configurator contains an incorrect assembly of control, the user does not know what to click on;
- Feedback – the configurator does not provide any feedback to the user.

General orientation of the configurator. All actions that occur in the configurator must be completely clear and sequential, as the configuration is a process where there is mutual communication between the device and the person.

- Clarity of controls – the user is ‘driven into a corner’ and the customer does not have the opportunity to go to the next configuration step;
- Unclear configuration situation – an overview of what has been selected and is already included in the configurator;
- Price of the configured vehicle – the user has the opportunity to see the current price during configuration.

Unexpected problems in the configurator – insufficient settings of the configurator can lead to a bad result and the possibility of confusion and reconfiguration.

- Unexpected errors – the user is allowed to perform configurations where the options are not allowed together, for example the user selects 16 and 17 inch wheels;
- Explanation of the error – when reconfigured, the user will be informed about the problem and how to solve it to eliminate the problem;
- Corrections of errors – the configurator does not allow automatic correction of errors. Errors can be corrected automatically or manually.

### **Skoda Auto Car Configurator**

Skoda Auto offers vehicles from the lower class to middle class users. For example, the Skoda Octavia is one of the best-selling cars made by Skoda Auto, especially in emerging markets like India and Russia (Beranek and Velinov, 2017). This is evidenced by the fact that in 2019 it delivered 363,700 cars to its customers worldwide. Second is the Skoda Fabia with 172,800 cars (Skoda Auto, 2020) took the place.



These figures show that the difference of 190,900 in sales between the Octavia and the Fabia makes it a flagship and it is clear that the Skoda Octavia is absolutely crucial for Skoda Auto. The third and fourth place in the order of worldwide sales belong to the SUV cars, Kodiaq and Karoq, the fifth place was occupied by the Rapid and the sixth place was placed by its flagship, Superb, of which 104,800 units were sold. The Skoda Superb was updated and its facelift took place last year, increasing its attractiveness. It is available in two body versions, a lift-back and a practical estate. With the latter version, up to five trim levels can be configured. The proof that the Skoda Superb is a family and executive car, is that the trunk volume for the estate version is the boot volume of 660 litres (Skoda Auto, 2020). The vehicle configurator itself is designed in a very clear and elegant way, where the customer has everything ready to use. The configurator therefore offers the customer the following choices (see Table 1).

**Table 1.** Benchmarking of the online configurator by selected parameters

Equipment Level	Colour	Wheels	Interior	Optional equipment	Engine	Services	Summary
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Source: own work based on (Skoda Auto and Opel online configurators, 2019).

## Opel Car Configurator

Opel is a German car manufacturer. Since 2017 the company has been part of the French PSA Group, which includes brands such as Citroën, DS, Peugeot and others. The company designs, manufactures and distributes vehicles in Asia, Africa, Europe and South America. The PSA Group has a production plant in the Czech Republic located near Kolin. Until 2017 the company belonged to the GM Group, which mainly operates in the United States, Canada, China and Mexico.

Opel offers a wide range of cars in a configurator that is available to the Czech customer. These are small passenger cars up to large vans.

For Opel, the flagship is primarily the Opel Insignia available in both a short version and a larger boot version called the Sports Tourer. The Opel Insignia is a vehicle designed for professionals, but also for families who like to drive out of town using a spacious and comfortable vehicle. This car will be further compared in the forthcoming diploma thesis with its Czech competitor the Skoda Superb. The Opel configurator itself is very easy to access even for inexperienced customers, just by entering the Opel configurator into the search engine and being immediately redirected to the configurator, where he/she chooses the vehicle and can start configure. He/she sees the displayed vehicle first and then proceeds by filling in the equipment list, where the first point is the choice of engine. Then the gearbox is selected as the last equipment level. Opel's level of equipment plays a major role, as it no longer allows the vehicle to be as individualized as its other competitors.



### 3. Discussion

After performing a comparative analysis of the selected Skoda Auto and Opel configurators, an evaluation was performed on the aforementioned parameters such as position of the configurator controls, configuration options and configurator feedback on the selections made and the graphic design of the configurator, on their respective websites. After opening the carmaker's website, attention was focused mainly on the clarity of the page, customer orientation, ease of step leading to the launch of the configurator function and the functionality of the elements in terms of user-friendliness of the configurator control. In connection with the examination of the functionality of the configurator, the overall variability, the display of the vehicle during the configuration and the response of the configurator to the changes made were assessed. In this area, attention was focused on the design of the pages and the configurator and the graphic level of the display of the configured cars (Lafont, Bertolini, Caprioli, and Franceschi, 2020). The Skoda Auto website is well-arranged after opening; the customer has an easy way to find the configurator and can start the activity in the first step. The content of the site includes suitably arranged functionalities supplemented by current information about the car manufacturer. The configurator is clear, and the customer proceeds intuitively with it. The steps have a logical sequence. After opening, the Opel website is on average clear, which is due, for example, to the font size of the names of the individual functionalities. The path to start the configurator includes three steps, one of which is hidden. After selecting the intended model, the model's cars in stock are announced to the customer. The site contains promotions and current information. The configurator's clarity is rather worse; the order of the offered items is not arranged in the most suitable way. In terms of variability, the Skoda Auto configurator offers a greater number of configuration variants in a comparable class than in the case of Opel. During the configuration of the selected Skoda Auto cars, the selected item is added to the list with each step performed, the display of the car changes and the current price changes from the beginning. The customer has this information clearly displayed in the table and everything is listed on the updated page. When configuring the selected Opel, the updated price did not appear until after the third step. The updated version of the car is shown in the overview table. The car's graphics do not change in all steps. The user interface is addressed in a window-by-window format. During the configuration, the customer has a total of three windows on the page on view, which must be scrolled, while the actual control is not user-friendly. The website design, in respect of a configurator is a subjective category, but while respecting the rules of working with website design, it can be stated that the implementation of Skoda Auto is more dynamic, colour balanced and user-friendly for easy orientation, and clearer thanks to choice of font, shades of selected colours and their combination and images. The graphic presentation of the cars shown is at a higher level than in the case of Opel, the cars are viewed from several sides, and the display is significantly

better regarding the interior. In addition, Skoda Auto offers customers instructional videos during the configuration process. In terms of the examined parameters, namely the position of the configurator controls, variability and arrangement of the configurator and the graphic level, it can be said that the Skoda Auto configurator in terms of the level of user-friendliness for the customer can be assessed as better than that of the Opel configurator.

#### **4. Conclusion**

Vehicles made by Skoda Auto and Opel Insignia vehicles from Opel were benchmarked in particular indicators selected for the purposes of this study. A survey of a group of twenty respondents was conducted, which consisted of an empirical part, where the participants in the research configured Skoda Auto and Opel vehicles on time and according to the specified parameters. Their task was to configure the vehicle according to the assignment in the shortest possible time. This test was then repeated with the only difference being that the users switched roles and configured the vehicle of the other brand. During the configuration, the respondents filled in the attached questionnaires. The aim of the questionnaire survey was to determine how respondents perceived the individual configurators and what they found comfortable to use and not so. In the first phase, it was found that in terms of the defined parameters, the configurator from the Skoda Auto was the winner. The configurator from Skoda Auto had better results than Opel, especially in parts of the user interface and unexpected problems. Conversely, the Opel configurator was better in the general orientation section of the configurator. This result was repeated even when there was an exchange of the cars configured by the respondents. The second part of the test evaluation was to configure the vehicle on time. The respondents of Skoda Auto achieved better results regarding configuration, while the respondents for the Opel Group had worse times. There was a dramatic change after the switch of configured cars, where Skoda car owners configured Opel cars and vice versa. Configuring Skoda Auto cars took Opel owners a longer time than when the vehicle was configured directly by Skoda owners. There was a dramatic increase in the time taken when Skoda owners configured an Opel vehicle. It is clear from the results that the configurator from Skoda Auto emerged as the winner of the research in the study. In the future, Skoda Auto and Opel will try to optimize their car configurators as this will create a better customer experience and flexibility while designing their own model of car.

## References

- Belanche, D., Casalo, L. V., and Guinaliu, M. (2012). Website usability, consumer satisfaction and intention to use a website: The moderating effect of perceived risk. *Journal of Retailing and Consumer Services*, 19(1), 124-132.
- Beranek, M., and Velinov, E. (2017). Management marketing in Skoda Auto India. *Practice*, (25.3), 234-256.
- Blecker, T., and Friedrich, G. (2005). *Mass customization: concepts–tools realization*. Klagenfurt: Gito.
- Blecker, T., Friedrich, G., Kaluza, B., Abdelkafi, N., and Kreutler, G. (2005). *Information and management systems for product customization*. Klagenfurt: Springer.
- Dvorakova, M., and Serak, M. (2016). *Andragogika a vzdělávání dospělých*. Praha: Univerzita Karlova, Filozofická fakulta.
- Hvam, L., Mortensen, N., and Henrika Riis, J. (2008). *Product customization*. Berlin: Springer.
- Keegan, W. J., and Green, M. C. (2013). *Global marketing 7th edition*. PEARSON Education Limited.
- Kotler, P., and Armstrong, G. (2016). *Principles of Marketing 16th edition*. Harlow: Pearson Education Limited.
- Kotler, P., and Keller, K. L. (2016). *Marketing management 15th edition*. PEARSON Education Limited.
- Lafont, T., Bertolini, C., Caprioli, D., and Franceschi, A. (2020). Online configurator for the acoustic management of vehicles. *ATZ Worldwide*, 122(4), 40-45.
- Leclercq, T., Cordy, M., Dumas, B., and Heymans, P. (2018). *On studying bad practices in configuration uls* (ACMIUI 2018 Workshop on Web Intelligence and Interaction (WII2018). Tokyo, Japan, March 11).
- Opel Online Configurator. (2019). Retrieved from <https://www.opel.cz/nastroje/konfigurator.html>
- Simek, Z. (2019). *Analýza videí produkovaných firmou SKODA AUTO a.s. pro potřeby vzdělávání koncových zákazníků. Závěrečná práce*. Škoda Auto Vysoka skola.
- Skoda Auto Online Configurator. (2020). Retrieved from [https://cc.skoda-auto.com/cze/cs-CZ/?gclid=Cj0KCQjwsLWDBhCmARIsAPSL3\\_3U40DliddBKD6sLvUAcLp0uEUSXc96Xnj5hEyOzA76v6IqOwOVix0aAmhCEALw\\_wcB&gclid=aw.ds](https://cc.skoda-auto.com/cze/cs-CZ/?gclid=Cj0KCQjwsLWDBhCmARIsAPSL3_3U40DliddBKD6sLvUAcLp0uEUSXc96Xnj5hEyOzA76v6IqOwOVix0aAmhCEALw_wcB&gclid=aw.ds)
- Sousa, R., and da Silveira, G. J. (2019). The relationship between servitization and product customization strategies. *International Journal of Operations & Production Management*, 39(3), 454-474.
- Stedron, B. et al. (2018). *International Marketing* (1. vyd.). Prague: C.H. Beck.
- Zounek, J., Juhanak, L., Staudkova, H., and Polacek, J. (2016). *E-learning: learning with digital technologies*. Prague: Wolters Kluwer ČR.