

THE IMPORTANCE OF ANALYZING CONFIGURATOR USAGE DATA TO LEVERAGE PRODUCT INNOVATION AND SALES PERFORMANCE

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Abstract: *With the rise in popularity of product configurators, many research findings offer guidance in building up product configurators that match the requirements of users and companies. However, applicable real life data on user behaviour in existing configurator solutions is mostly difficult to obtain due to the technological restrictions and inabilities of hard coded configurator approaches. The product configurator management system Combeeneration leverages the advantages of mass customization by providing a powerful cloud based technology for high scalability while maintaining control of all interaction steps within configuration processes. As a result, Combeeneration offers the flexibility and analysis power needed in order to focus on specific customer needs throughout different industries. In analyzing real configuration process data from a set of 16 product configurators in the B2C and B2B domain, this paper sheds light on how many started user configuration processes are actually finished and converted into a sale, differentiating according to different industries, time of year and interface parameters like product visualization and offered configuration options. In addition, insights are given on how the extracted data can be applied for product innovation cycles and data driven marketing processes and thus further boost sales success through the usage of a flexible configurator management system.*

Key Words: *Product Configurator, Mass Customization Sales Performance, Data Tracking, Innovation*

1. INTRODUCTION

The modern customer is beginning to like and demand individuality from companies. In the age of industry 4.0 and additive manufacturing, it has become increasingly easier to produce goods in the batch size of one faster and more efficiently. The increasing need in the past years to accommodate the rising demand for user-friendly e-commerce solutions has also accelerated sales for companies with customizable products. There has been an ongoing and continuing trend in terms of sustainability, individualization, and customization. To remain

competitive, these companies need to put major focus into their e-commerce solutions by implementing product configurators that, at the same time, are able to serve as business and market intelligence tools [1]. By doing so, loyalty and revenues from online purchases, on the one hand, can be maintained and further developed. On the other hand, implementing clever solutions enables those companies to gain unprecedented knowledge insights into customer behavior and feed this knowledge back into their innovation process.

While this may sound like a very straightforward method to be implemented, most companies offering product configurators on their websites use hard-coded solutions. The parameter data within such a configurator solution is initially written into the backend (i.e. hard-coded). This method makes changing or adapting the data challenging and the process as such inflexible if conditions or requirements change or need to be updated. In consequence, companies using this method face difficulties to react to changing market conditions and evolving customer demands. In addition, complementing the configurator with further products, additional variants or simply updating and bug fixing becomes a somewhat complicated process. The ability to react to these changes or simply have reduced time-to-market is impaired in comparison to competitors with more flexible configurator management systems.

The past decade has brought a very large number of new product configurators on the B2B but also B2C consumer market to the surface. From a customer perspective this is indeed a very welcoming trend as initially stated. However, only few configurators actually serve the purpose of making configuration processes straight-forward, simple, and efficient – many of the product configurators overwhelm customers instead of guiding them. In very many cases, this leads to higher frustration at the customer end. At the same time, dropouts from the configuration process without an actual conversion into a sale become more likely. Instead of tackling the root cause of this challenge, companies usually

ramp up marketing efforts to pour as many sales leads into their funnel as possible in order to increase the chances for conversion. Hard-coded configurator solutions rarely provide real case data, which could be used to improve both the configurator and the sales and marketing process feeding it.

Here, the benefits of having a software-as-a-service (SaaS) based, flexible configurator management system comes into play. What makes those configurator management systems stand out, aside from managed cloud hosting and high availability, is their ability to track and measure interaction data. Therefore, analytical insights can be gathered faster and data driven experiments, such as A/B testing, can be set up faster and with less effort.

Dating back to 2007, in an effort to get the most comprehensive overview on configurators on the market, the Configurator Database Project was started. It now includes a large enough bandwidth over 1,250 configurators from a range of a total of 17 industries [2]. Today, it is the biggest online collection of web-based customization tools available [3]. Ranging from industries such as *Accessories, Apparel, Beauty & Health, over Electronics, Motor Vehicles, Industrial Goods and Printing Platforms*, it becomes also evident that a large number of configurators can be found in the B2C sector. Ease of usability and appealing design can lead to increased sales - an effort worth looking at.

The aim of the paper is to investigate the importance of measuring and gathering data of how users interact with product configurators in order to better understand user experience tendencies and product preferences. Making use of said data allows for deeper insights and improves performance, resulting in more effective marketing efforts.

2. BACKGROUND

As highlighted in the introduction, extracting the usage data from a product configurator is when things get really interesting and pave the way for further optimization and leverage. Successful companies have understood this leverage of business intelligence and data driven sales and marketing measures to an extent that will give them a competitive advantage, regardless of industry cluster or product offer due to a very high grade of product specialization and a targeted customer group approach.

2.1. Performance and Growth Marketing - hack or necessity?

From a very traditional and classical perspective, marketing is seen and treated as a tool to raise awareness, to introduce new products to the market, or simply communicate relevant information to the existing customer base, as well as reach potential new customers by attracting them into your marketing funnel. In addition, marketing as a discipline within a company is mainly seen as a cost center rather than a profit center, as usually marketing activities do not generate direct revenues through sales and the impact of such measures on the actual revenue figures cannot be measured directly. With the impressive rise of Google over the past decade and their enormous ability to crawl, capture and analyse figuratively speaking every click on the internet to improve their search engine and their ecosystem and suite of tools, a new era of data-driven

marketing has emerged at a rapid pace into what is commonly known as performance or growth marketing. The most common tool used to analyse and track user behaviour on websites is Google Analytics according to Captterra.com [4]. Today, implementing performance marketing campaigns gives companies the tools at hand they need to measure everything from brand reach to conversion rate down to a single ad. Valuable insights into their performance can be extracted, which help optimize according to the best cost per acquisition. With help of analytics tools and business intelligence software, at relatively low cost and maintenance, leveraging return on investment (ROI) when it comes to marketing activities can be a game changer for doing business online.

In a nutshell, performance marketing has one major goal centered around its objective - be it sales, leads or sign-ups: to create a positive ROI and leveraging data to increase this return over time.

2.2. From marketing to product innovation

Taking the leap from marketing to product innovation, let us dive into what innovation is and how it has actually transitioned in the past years - similarly to marketing - from a very closed, traditional approach, to a more iterative and open approach.

Innovation from a traditional and rather scientific point of view can be assigned to the field of research and development. Within the boundaries of an organisation, innovation is seen as a tool to foster product development and improve internal processes that have an impact on manufacturing, testing, production, and other touch points in the entire product cycle. Input and feedback for this innovation process comes from internal stakeholders - be it the product manager, the marketing department, production and assembly lines - it all happens under the hierarchy of the organisation and results are usually distributed and circulated solely within the organisation rather than shared to the outside beyond the boundary of the organisation. Without prior customer feedback, the product (or a new iteration of an existing product which went through the innovation process) is released to the market directly after production. This approach has the advantage of quick market penetration, but ignores any market and customer feedback until the next product release or iteration.

On the contrary, companies that innovate in an open manner and apply open innovation principles completely remove the boundaries between research and development and bring in external stakeholders to dynamically fuel the innovation process. Generally large parts of the innovation process (or the entirety of it) is pushed outside of the company to individuals (e.g. customers) and communities or environments that stimulate open exchange between experts, customers, producers, and other entities. For this process to function properly, the organisation needs to become an open organisation - it needs to allow contributions from the outside to effectively execute the open innovation strategy.

2.3. Product configuration as an amplifier for open innovation processes and sales conversion

In the previous subchapters we learned about how both the marketing and the innovation process have matured

over the past decade to both become very powerful tools as a sales fueling and supportive measure in optimizing the touchpoints to the customer. From creating and developing a product to pushing it out to the customer while constantly improving it in order to meet evermore demanding customer expectations, it would only make sense to try and marry them up in order to try and create additional gains. While traditionally both pillars could do without one another, the batch size one industry has understood how to match the two disciplines up and scale sales and especially internal innovation processes to an unprecedented level. Carried over to the world of product configurators, where customers actively work with your website and the different configurations available, every click and every step, including viewing time, amount of changes for every change in parameter, or how far along in the configuration process the customer has cancelled their request - all of this information is stored and can be extracted easily from a configurator management system in a structured and useful way.

2.4. Typical analysis metrics and their relevance for product configurator management systems

There is a certain set of parameters that can be of real value for the product innovation and sales process drawn from the configurator management system. The first two, visit data and interaction data, can be extracted from website analytics tools to a certain extent, but the latter - configurator usage and input data - is best drawn from the configurator management system itself directly.

2.4.1 User & visitor metrics

Generally speaking, the metrics of user and visitor data entails all the measurements taken and divided into daily, weekly, and monthly unique visitors and could include some traces that these visitors would create while browsing your site. Parameters such as time spent on a particular part of the site or, in our example, the configurator, how many times a specific page has been opened or how much time the visitor or potential customer has spent on which part of the site. Another interesting dimension can be the origin of the visitor, both geographically but also if they were diverted or forwarded from a different site or typed in the website address directly into their browser. As part of the customer journey, being able to trace back whether a customer has found your website or product configurator through a specific marketing measure you have implemented or not can be extremely valuable to measure the success of your marketing and sales strategy and implement adaptations along the way. This ensures that the measures in place always directly correlate with user behaviour and target customers directly rather than applying a widespread funnel approach, or in other words a hit-and-miss affair. With today's analytics technologies this should, and can be a thing of the past.

2.4.2 Behavioural metrics

The next layer of data relevant for our use-case is behavioural metrics and especially insightful if you want to identify concrete action points that need to be tackled to become more relevant and user-friendly through your site. This metric gives a deeper insight into the actual interaction of the user i.e. with a specific page, different

modules or parts of the website or the configurator itself. However, there are limitations as to how interaction or usage data can be extracted and analysed, based on the programming language or content management system used and how well the parameters of the site visited are optimized for such collection of data. Some of the most valuable and important metrics include the bounce rate and the top exit page, to name only a few.

2.4.3 Configurator usage and input metrics

With the metrics mentioned in the previous paragraph, the basic foundation can be laid for getting the visitor stay on a website. Generally speaking, the maintenance of these standard metrics is the housekeeping part of running an online business, while if one seriously plans on developing products with an open user base through collecting useful and processable data, then the usage of a SaaS based configurator management system like Combeentation with its analytical capabilities is of utmost importance. Alongside the possibility to analyse every configuration step in detail, there is a large range of further metrics that the system can generate output from:

- Which products of configurations did the customer look at?
- Why might they not have chosen or ordered a specific product or a variant thereof?
- Which role does the pricing variations play in different configuration settings?
- How does lack of information during the configuration process influence the decision making process?
- At what configuration step will most customers exit and what is the relevant criteria for this exit (price, configuration options, color, or other)?

These are some of the most common metrics amongst many others that a powerful configurator management system can generate for the producing company and certainly the list is far from being exhaustive - the system is far more powerful than regular website analytics can cover. However, what becomes relevant for the success of these metrics is how they are being fed back into optimization and used for better understanding of the customer's behaviour.

2.4.4 Conversion Rate

All the metrics outlined yield one target: increased conversion. In practical terms, conversion is a sale that is generated from a visitor of your website. More generally speaking, the conversion rate is the percentage of users who take a desired action. With the efforts being put into creating a unique buying experience, effectiveness needs to be tracked ideally over time as a relative metric in order to identify if the measures in place work out or not and what corrective measures might have to be applied to correct a negative conversion rate trend. In conclusion, conversion rates are amongst the most meaningful key performance indicators (KPIs) to review the effectiveness of e-commerce websites.

2.4.5 Real world metrics application

In other words, what are potential use cases for the application of the extracted data, or how can we build

better product configurators based on the every day usage data that is collected automatically? Over the past decade, in which we developed and constantly refined Combeeneration, we have come across a range of companies that have completely re-designed or even built up their business model on the usage of a product configurator and the data that has been collected from real world usage.

Targeting your efforts in terms of product development and sales towards your relevant customer groups should always be the top priority when recalling what your marketing strategy is being developed for. As such, a powerful product configurator system is able to not only help execute your marketing and sales goals but also refine them by outlining more clearly which products or product features your customers are looking for, what short- to long-term trends in customer behaviour are and consequently where to increase your investments (e.g. add products to the product line, alter existing products, or completely kill a product) to increase the ROI. While most companies have to develop personas upfront, companies with more sophisticated product configurator management systems can refine and develop their personas as they go and thus constantly take out of the equation as much guesswork as possible.

3. METHOD AND SAMPLE

The previous chapter focused primarily on highlighting the technological advances and advantages of measuring your marketing effort as well as diverting every extracted data back into product innovation and development, but which industry clusters within the batch size one environment can be identified and how many unique product configurators are found in each industry?

The following table shows the range of collected industry clusters ranked according to the number of product configurator entries within the Configurator Database [2].

Table 1. *Industries in the Configurator Database ranked by entries*

Industry / Industry Cluster	Number of entries
House & Garden	198
Accessories	152
Apparel	152
Motor Vehicles	128
Sportswear & Equipment	104
Food & Packaging	100
Paper & Books	78
Kids & Babies	58
Printing Platforms	56
Electronics	45
Footwear	36
Games & Music	30
Industrial Goods	29
Uncategorized	27
Office & Merchandise	21
Beauty & Health	18
Pet Supplies	18

4. RESULTS

In this chapter, we will take a look at some sample configurator applications and their conversion rates. This compilation aims to shed light on how configurators can serve e-commerce websites as an effective measure to increase conversion rates. Over the course of 2019, this data was collected from a sample size of customers that have implemented a Combeeneration configurator on their e-commerce platforms.

Conversion Rate in the context of this chapter has to be read as Rate of finished configurations in relation to started configurations, i.e. Add-to-Cart rate in a more traditional e-commerce benchmarking schema.

In the following table we have compiled a sample list of real life Combeeneration configurator data from 2019 with the number of configurations (i.e. how many configuration sessions have been started), the number of finishes (i.e. how many configuration sessions have been finished and ordered) to give an overview on the different conversion rates overall per configurator and their industry cluster. The list is ranked from lowest to highest conversion rate, with the overall conversion rate highlighted in bold letters at a value of 8.56%.

Due to applicable non-disclosure agreements (NDAs) signed between Combeeneration and its clients the company names in table 2 have been anonymized and instead represent each company's segment and whether the configurator's main functionality is design (cosmetic or form configurators) or logic (functional or modular configurators).

Table 2. *Sample list of Combeeneration configurators*

Company	Cfgns.	Fin.	C-Rate	Industry
B2C-Logic 1	4,867	33	0.68%	Accessories
B2C-Logic 2	5,530	38	0.69%	House/Garden
B2C-Design 1	15,267	183	1.20%	Uncategorized
B2C-Logic 3	9,808	194	1.98%	House/Garden
B2C-Logic 4	15,463	386	2.50%	House/Garden
B2C-Logic 5	8,767	310	3.54%	House/Garden
B2C-Design 2	20,808	949	4.56%	Uncategorized
B2C-Logic 6	2,187	106	4.85%	House/Garden
B2C-Logic 7	30,252	1,603	5.30%	Apparel
B2C-Design 3	19,480	1,322	6.79%	Accessories
B2C-Logic 8	2,105	165	7.84%	Food/Packaging
B2B-Design 1	1,346	121	8.99%	Industrial G.
B2C-Logic 9	34,091	3,868	11.35%	House/Garden
B2C-Design 4	33,766	4,652	13.78%	Food/Packaging
B2C-Logic 10	4,772	957	20.05%	Food/Packaging
B2C-Logic 11	8,970	3,734	41.63%	Kids & Babies
Grand Total	217,476	18,621	8.56%	

Source: Combeeneration configurator analysis report, full year 2019, Configurations, Finished Configurations and Conversion Rate

As a general observation, neither the total number of configurations nor the associated industry provide a significant enough indication as to whether the configurator conversion rate is above or below the average. However, 2 configurators in the top quartile by conversion rate, *B2C-Design 4* and *B2C-Logic 10* can be found in the *Food/Packaging* industry cluster, and one third of all surveyed configurators belong to the *House/Garden* industry segment.

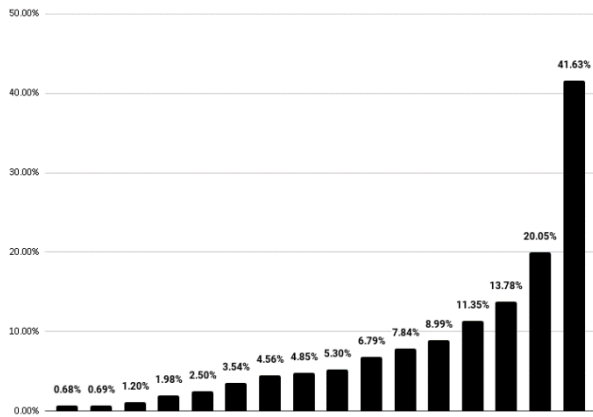


Fig. 1. Conversion rates from configurators from table 2. in ascending order

While quartiles 1 to 3 show a rather homogenous inner constellation and relation to the others, the 4th quartile is quite the outlier, meaning that there is a portion of companies who have to perform extraordinarily well, both in regards to user experience and product-market fit.

This finding supports the statement that a product configurator by itself is not a business model but rather a tool for better integrating and enabling the mechanics and advantages of mass customization or a key element in building a business model with product customization at its core.

Comparing the configuration conversion rates (i.e. Add-to-Cart rates in a more general e-commerce focus) with benchmarked data from *Littledata.io* [5] once more proves the higher performance of configurator-based e-commerce sites compared to their standard webshop counterparts. The average Add-to-Cart rate for US and UK based e-commerce websites is 4.19% while the Add-to-Cart rate for surveyed configurators averages out at 8.56% which is more than double.

Looking at the *House/Garden* industry cluster the benchmark lies at 2.86% while the average for the data from the surveyed configurators reaches 4.15% which translates to a 45.10% increase.

Combining data from *Accessories* and *Apparel* to enable comparison with the Fashion benchmark from *Littledata*: While providing the smallest deviation from the benchmark, the average Add-to-Cart rate from *Accessories* and *Apparel* configurators is 4.26% with the benchmark at 4.04%, it still shows a better performance, although with less significant validity.

5. CONCLUSION

As the trend for product individualization and mass customization drives the demand for web-based product configurators and stretches out its reach, having a flexible product configurator online is the crucial fundament but not enough to outperform the market. In fact, many other variables contribute to the success of a configurator project, e.g. how tightly the configurator is integrated into the broader business model, user experience and whether companies leverage behavioral data to further innovate and improve their value propositions.

Parallels can be drawn between this development and the evolution of e-commerce in general: As e-commerce

adoption rates increased, so did the amount of new trends and technologies while the time it took the broad market to integrate said innovations decreased, primarily caused by institutional pressure within this domain [6].

In conclusion, companies now more than ever have to stay ahead of the curve in order to outperform the market. They have to develop innovative ideas, use data to their advantage and come up with new ways to integrate mass customization and its tools into their business model ever more so tightly.

6. REFERENCES

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