

DESIGN APPROACH IN E-COMMERCE – SELECTED ASPECTS OF THE BUSINESS MODEL

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Introduction/background: E-commerce has become one of the most important innovations in today's economy delivering significant economic value. It is not surprising, therefore, that businesses around the world operating in various industries are inclined to use e-commerce to optimise their performance. The use of e-commerce is fostered by the huge increase in internet accessibility. Businesses working on e-commerce models have the ability to deliver products to customers within a short period of time. These advantages have resulted in a high level of competition in the e-commerce industry today. Some online shops succeed and others fail. The paper looks at this problem from a business model perspective. Business models are generally oriented towards creating value for the customer, but the paper looks for its most valuable components in the context of e-commerce.

Aim of the paper: The purpose of the study is to identify the business model of a successful e-commerce company. All its components are analysed, in particular the correlation between the selection factors of the online shop and the consumer values of the shop under study. The paper designs a process for creating a business model for e-commerce.

Materials and methods: This paper uses materials from the master's thesis "Business models in ecommerce", defended at the Silesian University of Technology in 2022 by Justyna Koloch. A case study analysing the business model of an e-commerce company was used as the main research method.

Results and conclusions: As a result, the paper shows the process of a design approach to building and testing an e-commerce business model. An overview of this process provides a glimpse into the problem of finding effective e-commerce business models. The design approach to creating a business model and the use of different schemes increases sales opportunities, attracts different types of customers and encourages collaboration to achieve success in the highly competitive e-commerce market.

Keywords: e-commerce, business model, project management.

1. Introduction

E-commerce has become one of the most important innovations in today's economy. Businesses across the globe in various industries are inclined to use e-commerce to optimize opportunities and improve their overall performance. E-commerce has experienced significant growth in recent years, mainly due to the huge increase in internet accessibility. With the growth of internet users worldwide, e-commerce revenues are increasing significantly. This is indicated by data that show a steady increase in the number of people using the Internet. According to data, the country with the largest digital population in the world is China (Statista.com, 2023a). Overall, it was recorded that more than 64,6% of the world's population used the internet in 2023 (Statista.com, 2023b). Statistics also prove that the volume of e-commerce is growing strongly worldwide. As internet access and acceptance is growing rapidly worldwide, the number of digital shoppers is increasing every year. In 2020, more than two billion people bought goods or services online, and in the same year, e-retail sales exceeded \$4.2 trillion worldwide. One of the most visible trends in the world of e-commerce is the unprecedented use of mobile devices. In 2021, smartphones accounted for almost 70 per cent of all retail site visits worldwide (Statista.com, 2022). By 2040, it is estimated that 95 per cent of purchases will be made via e-commerce (Kitonyi, 2017). Additionally, the coronavirus pandemic has led to an increased reliance on e-commerce via online networks and electronic applications and reaping the benefits of e-commerce (Rosenthal, Strange, Urrego, 2021). As millions of people stayed at home in early 2020 to contain the spread of the virus, digital channels became the most popular alternative to crowded shops. In June 2020, global e-commerce traffic reached a record 22 billion visits per month, with exceptionally high demand for everyday items such as groceries, clothing, but also tech retail items (Statista.com, 2022). The e-commerce industry continues to grow, with more and more people using online shops, different types of e-businesses.

E-commerce has led to increased efficiency in production and operations management. With an online presence, companies have become more flexible to take orders from customers, produce and deliver the goods and services needed in an efficient manner. Companies working on e-commerce models have the ability to deliver products to customers within a short timeframe. These advantages have resulted in the current competition in the e-commerce industry. Some online shops succeed and others fail. The purpose of this study is to identify the business model of a successful e-commerce company.

2. E-commerce business model as a project venture

Business models are focused on creating value for the recipient. This is very important and should be kept in mind when constructing the business model itself, which should be created as an original project, individually for a given enterprise. Each organisation, company is different, there are different principles, ways of management, values, so the business model should be tailor-made for the enterprise in question. Adam Wisniewski (Wiśniewski, 2017) in his paper mentions that in order to create a business model, it is necessary to learn the specifics of the organisation, analyse its components and configure them accordingly. These processes make it possible to describe the logic of the company's functioning. The final stage is to establish a hierarchy of business model elements. This stage helps to compare the models of different companies and identify sources of competitive advantage. It also helps to develop further actions to make the company more competitive (Wiśniewski, 2017). This procedure is illustrated in Figure 1 below.



Figure 1. Procedure for constructing a business model.

Source: Wiśniewski, 2017.

In their book, Osterwalder and Pigneur outline several techniques for creating a business model. The first technique is the **empathy map**, which recommends taking the customer's own point of view, understanding it. In the process of creating a business model, the selection of the elements of the model is oriented towards the customer's needs, which can be discovered through the empathy map (Osterwalder, Pigneur, 2011). The process of creating it is shown below Figure 2.

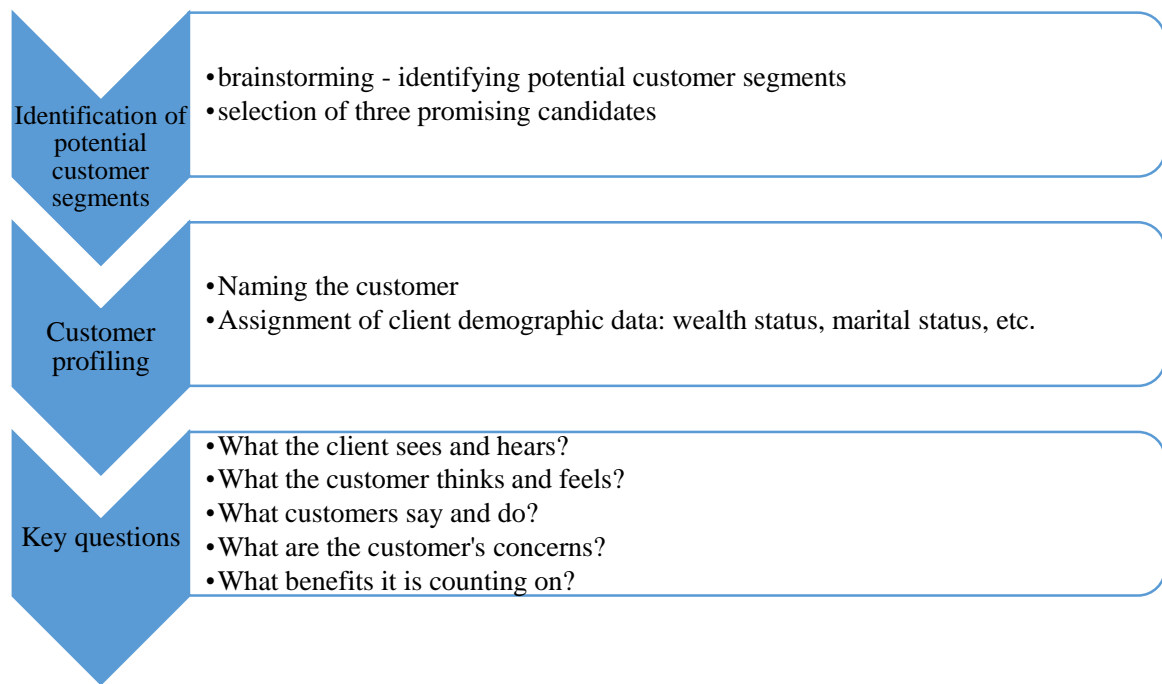


Figure 2. Diagram of the empathy map.

Source: own work based on: Osterwalder, Pigneur, 2011.

The empathy map answers six key questions about a specific person, enables the creation of a profile of the customer and their needs. This in-depth identification of needs, together with the use of e-commerce, gives companies the opportunity not only to sell their products and services online, but also to offer products to a huge number of consumers. There are three main types of e-commerce that are implemented in today's environment and these are business-to-business (B2B), business-to-customer (B2C), and consumer-to-consumer (C2C). The presence and development of e-commerce has provided many opportunities for organisations and has had a diverse impact (Gregory, Ngo, Karavdic, 2019). E-commerce has today become a very useful business model used by a huge number of organisations worldwide. The business model is designed to make its offerings available online and allow consumers to select and purchase the products they want. Project-based planning of an e-commerce business is crucial as it allows a company to consider the associated dynamics and implementation of the business model, to consider the likely adversities and challenges that may arise during the process (Tzavlopoulos et al., 2019). Planning furthermore takes into account the associated risks and constraints to which the company may be exposed, so that an effective contingency plan can be developed. The second aspect is the choice of technology along with media and approaches. In order to function in a network, it is important for a company to select the most appropriate technology to perform the desired tasks and activities (Nyagwencha, 2018). Therefore, the model should be planned according to the nature and type of customers together with the capabilities, resources and type of activities involved in the process. The use of technology may vary between companies and their specific target audiences, and critical analysis in this regard can be carried out to ensure optimal results.

The intention behind the creation of web-based e-commerce is that a company can significantly reduce its operating costs, expand its market without geographic restrictions, provide global exposure to the business, provide effective remote customer service and increase the overall value of the product (Afuah, Tucci, 2001). In this way, the web-based e-commerce model enables small and medium-sized companies to compete with a larger company on a level playing field; sometimes even providing an advantage to the smaller company, as it usually has lower cost structures and is more agile (Elliot, 2002). Table 1 below provides a brief description of business models and identifies B2C and B2B business models that are relevant in the current e-commerce environment.

Table 1.
Descriptions of e-commerce business models

Business model	Description	Type of e-commerce
E-shop	Selling products and services on e-commerce sites.	B2C
E-commerce centres	It consists of a number of e-shops, allows for customised processes transactions in one place.	B2C
E-procurement	E-tendering, the purchase of goods and services from suppliers, where there is a dedicated procurement system that is shared with suppliers and the e-commerce business.	B2B
E-auctions	Intermediary services provided to buyers and sellers who use the services to trade in the form of auctions. Invoicing is provided by the company dealing with electronic auctions, and dispute resolution processes are also made available online.	B2C
Virtual communities	Bring additional value to the e-commerce site, gather community member feedback.	B2C
Cooperation platforms	Business-to-business cooperation through the toolkit.	B2C
External market	It represents the creation of a market through customer requests and supplier responses.	B2C
Chain integrators values	Represent the function of a specific company in the value chain, such as payment and management services.	B2B
Value chain service providers	Specialise in a specific function within the value chain of a value chain service provider.	B2B
Intermediary services information and trust	Use open networks to deliver massive amounts of data from, integrated business operations.	B2B

Source: Timmers, 1998.

The problems of building e-commerce business models are of great interest to researchers. For many years there have been attempts to classify the types of e-commerce business models (Abdollahi, Leimstoll, 2011), which try to expose the differentiating components. Many articles also address the issue of improving the business model of e-commerce (Nathaniel, Purnomo, Persada, S. Rosyidah, E. 2022) giving guidance on the direction of their optimization. This is further helped by an overview of business process management in e-commerce (Sun, Grondys, Hajiyevev, Zhukov, 2021). Each model will be different, depending on whether it is directed at delivering value to another company or to an individual customer. A project-based approach will ensure that the entire process of creating a business model goes well.

3. Method

The article uses a case study method to describe the process of creating a business model in a successful e-commerce company. A case study was carried out using data collection and analysis techniques and tools - document analysis, reports, websites of the entities studied. A case study of a company that has an online shop and is successfully operating on the Internet was conducted. The study examined the financial statements, website visibility reports and information contained on the websites of the studied entities. An entity offering sportswear was selected for the study. The choice was dictated by the receipt of confidential reports and documents from the companies, which were useful and interesting for the entire research process. The hemp and sports online shop are connected to Google Analytics, so it was possible to obtain data on the visibility of the online shops under study, their revenues and the channels used. The data obtained in this way, provides a lot of valuable information that was important for the entire research process. The sports shop operates successfully online. It generates considerable profits every month, so it can be considered successful in e-commerce.

The research work on the selected company started on 01.03.2022 and was completed on 31.05.2022. The study aimed to find out the business models of the e-commerce companies. The companies' data were sourced internally. The structure of the case study is based on Alexander Osterwalder's concept that a business model describes the rationale behind the way an organisation creates value and provides and profits from this created value (Osterwalder, Pigneur, 2011).

4. Results – described cases

The study was conducted on the example of an ecommerce company operating in the clothing sales business. It is part of the Polish capital group Martes Sport - owner of more than 350 shops in Poland and abroad. They have focused on seamlessly combining online sales with stationary sales. Sales are mainly made online, while the company, through stationary shops, wants to provide the customer with contact with the product, the possibility to try it on, touch it and evaluate it. When analysing the customer segments of the sports shop, it was noted that the company strongly emphasises the exclusivity of its products: "the shop (...) is a premium shop where active people will find top-quality products that meet their needs and expectations", "You will only find branded clothing and accessories that are characterised by exclusivity and functionality", "Feel a touch of luxury by putting on high-quality clothing from the best brands in the world".

Referring to Alexander Osterwalder's (Osterwalder, Pigneur, 2011) principles for distinguishing customer segments, it can be concluded that the company does not reach the mass market because only a part of the population can afford premium brand products. The online shop under study reaches affluent people who care about having good quality branded products. This segment can still be narrowed down to people who like sports, any physical activity or simply sports accessories. According to reports from Google Analytics, a large proportion of customers within the above group are aged 25-34 and the largest are aged 34-44.

The next step of the study was to look at the shop's proposed values. When looking for the value proposition of a sports shop, the question was asked at the outset: what does the surveyed company offer and what customer problems does it solve? What does the company focus on? What benefits does it offer the customer? What needs does it satisfy? Osterwalder and Pigneur distinguished several elements that can contribute to customer value creation (Osterwalder, Pigneur, 2011). By analysing the offer of the company under study, several of these elements can be selected and assigned to the model under study. In this case, the elements contributing to customer value creation are:

- novelties (new collections, products, trends),
- brand and status (luxury brands),
- lower risk (party discloses opinions, communicates that it belongs to a large group, publishes awards received),
- convenience (user-friendly website, application, online purchase without leaving home),
- price (special prices for club members).

According to the Ubeyko study, price, discounts and loyalty programmes are most attractive to the user (Убейко, 2017). In the business model studied, all three elements were used. In addition, during the analysis of the sports shop, the table "Correlation of online shop selection factors with consumer values" (Убейко, 2017) was used and enriched with a column that takes into account the ways in which the listed consumer values and selection factors are delivered by the studied shop (Table 2).

Table 2.

Relation between online store selection factors and customer values

Factors for choosing an online shop	Consumer value	Forms of delivering value to the customer
Acceptable price	Savings	Frequent sales
Availability of discounts and promotions	Savings	Sales, discount codes, discounts for club members
Participation in the shop's loyalty programme	Savings	Application with discounts and promotions for club members

Cont. table 2.

Customer feedback and recommendations	Trust	Sharing of reviews, possibility to add opinions about the shop and products, sharing of rewards received
Individual approach	Quality of service	Contact via form, shop chat, Facebook chat and Instagram
Availability of the shop's mobile app	Time saving, trust	Club member app that shows the latest promotions and facilitates online purchasing
Large assortment	Possibility to choose	Huge range of branded products
Fast and convenient delivery	Time saving, high quality service	Shipping up to 24 hours on working days, choice of delivery type, home delivery or parcel machine delivery
In-store shopping experience	Trust	Stationary shops are designed by a professional agency with consideration of Customer Experience, neat web design, proper navigation, easy product search
Ease of ordering and payment	Convenience	Easy online purchase, several payment methods
High-quality presentation of the goods on the website, completeness of information on the product card	Comfort, trust	The products are presented by means of high- quality photographs and detailed descriptions
Easy navigation on the site	Convenience	Clear menu, sorting and filter options
Cost of shipping	Savings	Cheap shipping - same shipping price for delivery via DHL, DPD and InPost

Source: own work based on: Убейко, 2017, and webshop analysis.

By analysing the table above, it can be concluded that all the factors for choosing an online shop and value have been incorporated into the shop's business model. This means that the company is aware of its customers' needs and aims to give them value. By doing this, it is possible to stay ahead of the competition, satisfy most of the customers' needs and ensure that they keep coming back.

Another very important element of the business model that has been studied is channels. The purpose of creating channels is to reach customers and enable them to buy. In addition, they are responsible for supporting the customer after the purchase and allowing them to post their feedback on the products or services. The company mainly uses its own channels, i.e. retailers in stationary shops, the online shop and external channels - partners. This is how customers make purchases. Purchases made online are divided in the company into 9 channels: Paid Search, Organic Search, Referral, Direct, Display, Social, Email Affiliates, Other.

The surveyed online shop invests in Google Ads, which brings them meaningful profit. It also works with an SEO agency, which helps it to increase the visibility of its website in Google search, thereby increasing the number of visitors to their website. In order to determine which channels matter most to the company, reports from Google Analytics were analysed, which take into account total user acquisition from 1 January 2019 to 30 March 2022. The results obtained include:

- Sessions.
- New users.
- Average session duration.

- E-commerce conversion rate.
- Transactions.
- Revenue.

The data obtained is presented in the form of Table 3, which shows the total user acquisition by each channel for the period from 1 January 2019 to 30 March 2022.

Table 3.

Acquisition of users in total by individual channels in the sports shop

Channel	Sessions	New users	Average session duration	E-commerce conversion rate	Transactions	Revenue
Paid Search	5203384	2867666	89.90	1.47%	76268	20165935.09
Organic Search	685770	349777	176.83	1.91%	13067	3985874.89
(Other)	549988	190980	145.47	0.62%	3419	1024996.72
Referral	529024	334974	136.33	2.61%	13805	4027609.51
Direct	430661	281274	190.28	1.93%	8292	2700612.95
Display	426513	214956	95.80	0.41%	1728	460905.22
Social	144369	97528	137.85	1.63%	2351	632927.96
Email	19275	8726	207.42	1.02%	197	55330.19
Affiliates	1	1	0.00	0.00%	0	0.00
Total/average	7988985	4345882	111.14	1.49%	119127	33054192.53

Source: Google Analytics report, 4.04.2022.

Without doubt, paid search generates the most revenue. Referral and organic search channels perform similarly. The smallest revenues are generated by partner channels and emails. From this, it follows that the company allocates part of its budget to Google's paid ads, which bring high results. Entering into a partnership with an SEO agency also yields high results in terms of high revenues generated from Referral channels and organic search.

The work also explored another element of the business model, namely customer relationships. Maintaining good customer relationships is very important in order to generate revenue not only from new users, but also from regular customers. The company studied maintains customer relationships through various means: Newsletter, Chat, Club member app, Social media, Personal support in stationary shops. According to the Google Analytics report, the surveyed company uses 10 social media. Facebook is the most popular and effective, accounting for 95.55% of sessions generated. In second place is Instagram - by far the majority of sessions are created using Instagram Stories accounts. The least effective here are Pocket and LinkedIn.

Based on data from the Business Model Navigator (businessmodelnavigator.com, 2021), Table 4 was developed, which takes into account all the schemes whose presence was noted in the surveyed company.

Table 4.
Business model scheme of the surveyed company

Scheme name	Example of use
Cross-selling	The company advertises itself as a shop selling sporting goods: clothing, sports equipment, footwear. In addition to sporting goods, the range also includes elegant belts, handbags, protective masks for men, leather wallets or GUESS-branded leather bags. In this way, the online shop generates additional revenue.
Customer loyalty	Customers are retained through the Club Members app. The company increases loyalty by creating an emotional bond and rewarding Club Members with special offers and discounts.
E-commerce	The products are sold via an online shop, providing customers with greater accessibility and convenience.
Use of customer data	The company uses customer data to create newsletters that are sent to the customer's mailbox. This provides the user with information on promotions and news, which can lead to additional sales.
Long tail	The company sells not only current hits, but also many other products that might be considered niche. The product range is huge - there are more than 1,000 models of men's shoes alone. The sum of profits resulting from the sale of even single pieces of niche items is large.
Orchestrator	The company surveyed does not do all the activities itself. It focuses only on core competences, deals with sales. It outsources marketing, paid Google Ads campaigns, website positioning and other activities to external companies. In this way, it increases efficiency and ensures a high level at every stage of the process.
Self-service	The company surveyed saves on some processes - it has only opened a few stationary shops. With the help of the online shop, the customer handles him-/herself, selects products and makes payments. This allows products to be offered at competitive prices.
Supermarket	The online shop offers a very wide range of products and accessories. It provides not only clothing, but also footwear, sports equipment and accessories - everything you need for sport. In addition, it offers a multitude of respected brands - all in one place. This kind of solution attracts customers.
The ultimate luxury	The company surveyed focuses on the affluent part of society. It openly communicates that their products are luxury and branded. As a result, it is not necessary to focus only on the low price of the products, but on providing customers with the best brands. This enables the company to impose a margin.

Source: own work based on: businessmodelnavigator.com, 2021; Gassmann et al., 2015.

The company surveyed incorporates several patterns in its business model that affect the company's performance and success.

5. Discussion

The research process revealed a diagram for creating a business model for an e-commerce industry company. It is presented in Figure 3. The developed diagram can be a guideline for creating a properly designed business model for the e-commerce industry. It takes into account team building, brainstorming, the 9 elements of a business model along with the most important questions in the e-commerce industry and the subsequent analysis. It is designed to guide, step by step, any person who has a business idea but does not know how to start creating a business model. The entire process can be carried out according to the logic presented in Figure 3. However, the proper implementation of the individual components requires a thorough

understanding of the mechanism of creating and delivering value to the customer. All components of the model should focus on this and the very result of the process should be tested and, as a result, create further versions of the business model.

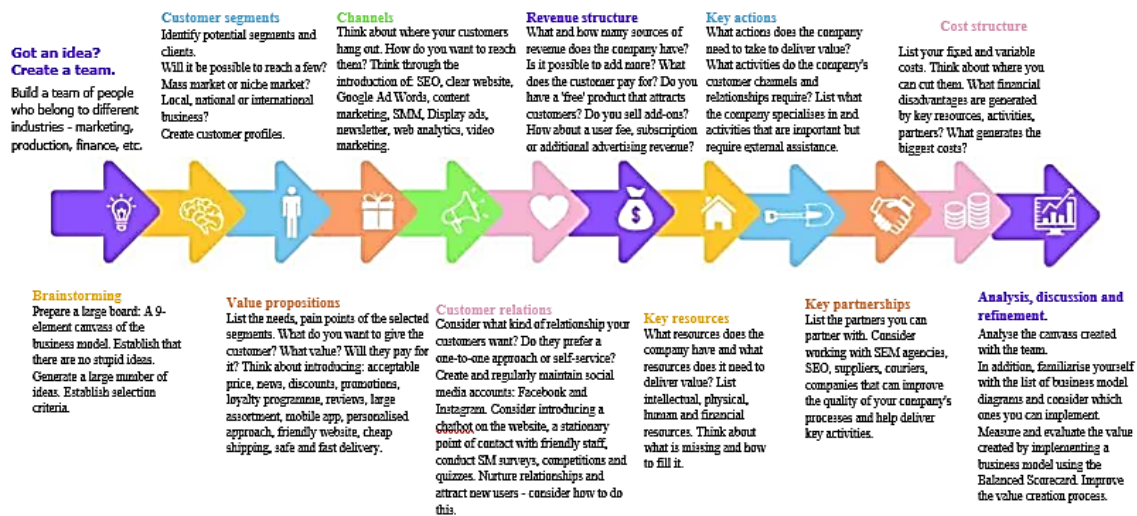


Figure 3. Creating a business model for e-commerce.

Source: Own work.

6. Conclusions

The company under investigation has an elaborate and well-thought-out business model. It reaches a well-defined target group - affluent people who want to own branded luxury sporting goods. The company succeeds in reaching the selected group. The researched company knows its customers' needs very well. It not only provides branded products, but also allows them to give and review the opinions, which has a positive impact on the user experience - they feel secure and are more likely to trust the supplier. In addition to this, with the help of the mobile app, the company retains its customers, influences their emotions and loyalty. In this way, it generates more revenue and earns regular customers.

The business model that has been developed consciously takes into account the selection factors of the online shop and the values that the customer expects: providing novelty, security, convenience and a good price.

The company includes several channels in its business model. Some of them are doing well, others need deeper analysis and improvement. Paid Google Ads campaigns generate the most visits, new users and revenue. This channel performs worse in average session duration and e-commerce conversion rate, i.e. much of the traffic generated is empty. This means that paid adverts attract a lot of people to the website, whereas once they enter the site, they quickly give

up and return to the search list. However, this does not change the fact that this channel delivers the highest volume of transactions, is efficiently run and contributes to the success of the business.

Organic search, on the other hand, generates a high average session duration and ecommerce conversion rate. This means that organic search results in Google's browser are well-targeted. Sub-pages are appropriately attributed to the key phrases that a potential customer types into the search engine. When they go to the shop page, they spend time there and are interested in the content. This channel has enormous potential. As the visibility of the site in Google increases, revenue increases, so the website positioning activities are effective. It is worth noting that the company is connected to Google Analytics reporting, which enables it to study the effectiveness of its activities and continuously improve them. This perfectly supports the principle of continuous evaluation and adaptation of the business model to changes in operating conditions.

The company supports the process of delivering value to customers with numerous physical, intellectual, human or financial resources. Some of these belong directly to the company, but a large part is provided by external partners. The company's activities largely focus on taking care of the online shop platform, providing customers with a wide range of branded products. Some of the key activities are carried out in-house, while others such as marketing, website positioning and fast shipping are outsourced to maintain a high level. This is a good strategy because they focus on the core activities they can do. While others are put in the hands of specialists, which optimises the sales process.

The analysed company willingly enters into partnerships that support it. It often emphasises that it belongs to the Polish capital group Martes Sport, thus gaining popularity, gaining trust and building the brand faster.

The company has incorporated several schemes in its business model that contribute to revenue growth. The researched company has an extensive business model with a strong emphasis on luxury products, a wide range of products, Google Ads campaigns, website positioning, security and fast delivery. The researched entity takes care to generate value for customers by: providing sales, discounts, a loyalty programme, good prices, providing reviews and the opportunity to add feedback on the shop, easy contact, social media presence, fast and safe delivery, large assortment, ease of ordering and payment, high-quality product presentation, valuable blog.

The design approach to creating a business model and the use of different schemes increases sales opportunities, attracts different types of customers and encourages collaboration to achieve success in the highly competitive e-commerce market.

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