IDENTIFICATION OF THE FACTORS INFLUENCING THE COSMETIC PRODUCTS MARKET (UKRAINE CASE)

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Abstract:
The global cosmetics market is dynamic and significant in size. Cosmetic products’ market is constantly expanding its influence to different target audiences and covers all classes of consumers. Marketing strategy of cosmetics corporations exists on different levels: main (global) and adapted (for the region or definite country). Generally, it connects with different influencing factors. Based on this, the main aim of this study is to identify and evaluate the key factors globally and evaluate the same for the Ukrainian market. To collect data about global tendencies authors accumulated existing statistical data, annual reports and scientific papers on this topic. For receiving results and collecting data about Ukrainian consumers, close-ended questionnaires were used as a method of collecting preliminary information. Results were classified, most important key success factors were highlighted and then machine learning techniques were used to provide an analysis of correlation. Our results demonstrated that despite the general difference of financial well-being of consumers in USA, Canada and European countries, Ukraine does not differ in consumer preferences by price, as a main factor. For sure it should be noticed, that price is the most influential in third world countries, but Ukrainian market has its own more influential specific factors.

Key words: cosmetic products market, product strategy, consumer behaviour patterns, factor analysis, machine learning methods.

1. Introduction

The global cosmetic products industry, which includes such categories as skincare products, make-up, hair care, nail care and fragrances, can be characterized as a big-sized dynamic market. Loreal in its 2021 annual report estimated the cosmetic products market of more than 228 billion euros (L’Oréal Finance Annual Report, 2021). Estimated growth of this
market varies from source to source and starts from 5.5% CAGR (Global Market Estimates, 2021). Cosmetic products industry is not only significant in size, but is also able to respond positively to any crisis. Statista Research Department in their reports shows positive annual growth of this market from 2004 year with one deviation in year 2020 with parameter of – 8% (Statista Research Department, 2022). In 2021 the cosmetic products industry made a strong recovery with an 8% growth in 2021 (L’Oréal Finance Annual Report, 2021).

It is obvious that the reason for this is COVID-19 pandemic, which affected almost every industry. It should be mentioned that the cosmetics usage on a regular basis was dependent on rapid growth of fashion and entertainment sector. These industries were the major driving factors for the cosmetics market (Global Market Estimates, 2021). It is important to highlight that consumer behaviour is a complex of its needs, the motivation to buy, which are influenced by social and cultural trends, level of the development of science, technological evolution, changes in the media. As a result, it is necessary to conclude that marketing management also changes its vectors and gets more complicated as a system.

Between the years of 2008 and 2017 research was mainly based on traditional elements of differentiation among competitors: price, place, promotion and directly the product. During these years there were a lot of studies concerning impact of pricing, packaging, product information, specifics of points of sale, variety of sales materials and advertising forms on consumer buying behaviour (Kotler, P., 2012; Rundh, B., 2009; Zekiri, J., 2015; Kim, M., Lee, K. 2017). At the moment, from the available data it is possible to draw a definitive conclusion, that the main factors of influence for the cosmetics products market changed differently and provoked new trends and perspectives after the COVID-19 pandemic.

Simultaneously millennials reached the age of bigger purchasing power in comparison with other groups and this fact makes a great influence on the market in general. For instance, there were forecasts, that had come close, that millennials are projected to spend $1.4 trillion in 2020 (5WPR Consumer Culture Report, 2020). Millennials are the largest category of social media users and the most likely to shop online. According to the latest research, Millennials and Generation Z, who have similar buying tendencies (the latter are still considered as a less significant group in terms of their purchasing power), are dictating new market rules. Thus, the tendency of these groups to make impulsive purchases, a specific subjective assessment of the price of a product or service due to its value and social significance, form new factors of influence on the activities of companies. To a certain extent, the price factor is relegated to a secondary role, approaches to advertising and points of sale change, new requirements for communication with the consumer are formed, and emphasized the need for social responsibility of the manufacturer. Another option, that should be taken into account by companies is research of methods of building trust among different groups of consumers. Because of Millennials the influence of celebrities and such a category of public figures as influencers has increased. Of course, Millennials and Gen Z trust friends and online reviews the most, but in the category of product awareness a recommendation from a trusted influencer can be decisive and turn into a spontaneous purchase.

It is an undeniable fact that the cosmetic products market is in the process of transformation, and especially companies felt these changes after the aggressive impact of
the COVID-19 pandemic. As a result, the main factors affecting this market have changed or been transformed – partially or radically. To be more specific, most researchers study the influence of such factors as: the need for personalised consumer experience, development of e- and m-commerce and artificial intelligence presence; sustainable business development and consumer values and attitudes; wellness as a lifestyle (Chen, Y., & Sharma, S., 2019; Epsilon, 2018; Kalia, S., & Sharma, V. K., 2020; McKinsey, 2020).

2. Methods

Because of mentioned arguments authors investigated new factors of influence on the formation of the strategy of companies, in particular in the cosmetic market, to understand their scope and specifics in the processes of bringing new products to the market and developing existing ones. Thus, the authors identified and described the following four factors that are considered relevant for research during market research and strategy creation. This research has the potential to be a valuable resource for the marketing strategies of cosmetics companies, as they can use this knowledge to improve the effectiveness of their marketing campaigns and attract new customers. In general, research of the factors influencing the beauty industry can have a significant impact on the success of businesses in this industry by understanding of the variables in consumer behavior.

Main idea of the article is to extrapolate the identified factors of influence and global trends to Ukrainian local market. But it should be noted that a cluster of markets or a national one may have specific features that can nullify part of the strategy formulated on the basis of global research only. In order to study trends in Ukraine and compare them with global changes in the industry, a broad survey of a stratified sample was conducted regarding such factors as age, gender and level of wealth of respondents to identify key drivers of consumer behavior in the cosmetic services market.

In particular, 504 respondents took a participation in the survey, with age from 19 to 56. The survey included 16 questions and answers were collecting from 12/10/2022 till 28/10/2022. The aim of the authors was to test a number of hypotheses, including:

Hypothesis 1: The price factor is not the most important key factor in choosing a cosmetic product for Ukrainians.

Hypothesis 2: Covid-19 did not affect changes in the cosmetic basket of Ukrainians as much as the trend for wellness or naturalness.

Hypothesis 3: Appearance remains a leading category of wellness for Ukrainians, regardless of global trends, where health is.

Hypothesis 4: Ukrainians do not feel a strong influence of social networks and influencers, in particular. The opinion of experts (cosmetologist, dermatologist, etc.) or acquaintances is more authoritative for them.

Also, in this study, machine learning algorithms were used for clustering – K-Means and algorithms such as principal component analysis (PCA) and MinMaxScaler were used for data reprocessing. At the heart of clustering algorithms is the minimization of efficient ways of distributing data points between groups in order to select groups as close as possible to each other that have such attributes to remove key respondents in our study. We chose the number of centers according to the shoulder assistance algorithm.
Thus, the following factors were selected for PCA analysis and clustering:

- sex;
- age group;
- wealth level;
- price sensitivity (binary variable);
- indicator of propensity to choose natural products (binary variable);
- indicator of inclination to a healthy lifestyle (binary variable);
- indicator of a tendency to choose based on social network recommendations (binary variable);
- frequency of purchases through online channels (binning).

3. Results

3.1. Factors of influence

A. Personalized consumer experience. Latest surveys show that almost 80% of consumers expect a personalized experience (Epsilon, 2018). This trend is quite specific, because it primarily requires technological improvements from brands: either directly to the product to satisfy unmet market needs or marketing innovations to make customers experience exclusive during the purchase. During product lifecycle phases, such as introduction to the market, it also requires a deeper analysis of consumer insights to form further strategy of product development, so companies are developing machine learning solutions for data collection and analysis.

Researchers claim that brands should respond to the personalized experiences demand not in order to differentiate themselves but to survive in the market. They connect customer-experience satisfaction level with sales-conversion rates and shareholders returns that can be three times higher for the companies with stable high score of customer satisfaction than the returns generated by the companies with low customer-satisfaction scores (McKinsey, 2020).

Global cosmetics market players are not the exception. They also follow this trend and most often resort to omnichannel consumer personalization. In fact, starting the communication online, most often realizing the actual purchase offline (McKinsey, 2020), and continuing the communication with the loyal customer again through online channels. For example, Sephora, which is one of the largest cosmetics retailers, and is represented internationally, uses exactly this logic. The company encourages consumer engagement through classic digital channels such as e-mails or banner ads, but the most personalized is communication through the mobile application, where the “in-store companion” helps the consumer with the most frequent requests: finding the nearest offline point of sale, checking the availability of certain items or booking the desired product. The opportunity to get a make-up done by a specialist right in the store deserves special attention. In this way, Sephora allows the consumer to see the product in action and get an important point of touch. Further, data on the consumer's preferences, recommendations of specialists, progress in the loyalty program and other elements of interaction are stored in the consumer's personal profile.
Furthermore, through the loyalty program Sephora continues communication with the consumer by forming special offers in the form of bonuses, additional opportunities, invitations to events, etc. But in addition to working with customer loyalty, this approach also forms a significant information base about consumer behavior both online and offline, which makes it possible to track insights, changes, purchasing patterns and respond promptly to them.

The experience of Sephora as an example is quite important for the entire industry, because this retailer has a very wide representation of brands of various segments and at the same time has a very powerful loyalty system. In 2020 the number of Sephora loyalty program members was about 25 million people, and in 2018 it was recorded that 80% of all company transactions are carried out by registered users.

This undoubtedly has an impact both on the sales of individual brands, directly encouraging them to support the loyalty program of Sephora and on setting the bar for brands in creating individual contacts with the consumer. Individual programs for the personalization of consumer experience are also important for brands in the context of building loyalty, as well as for data collection. Further, this information is used both at the level of creating a product launch or development strategy, but also for more local solutions, for example, adapting merchandising strategies or advertisement creative plan solution.

B. Development of e- and m-commerce. The development of electronic commerce and mobile commerce is a logical addition to the trend towards personalized consumer experience. Although, to a certain extent, it can be argued that it was the development of mobile commerce and electronic commerce that provoked the opportunity to provide individual offers, better research consumer behavior, better understand and encourage consumer loyalty.

In early 2010s not many companies committed themselves for m-commerce development even though researchers forecasted mobile spendings to increase and recommended to have m- and e-commerce as a part of strategy (Swilley E., 2012). Today it is difficult to imagine the possibility of business development without at least minimal online presence, but even in 2010 around 80% of retailers in the United States had not invested in mobile business capabilities development (eMarketer, 2010). To some extent, this is due to the fact that such business development requires significant investments in effective supply chain management, security and platform service. Also, 13 years ago it was not yet obvious that the future: the question of business existence will depend on online presence.

In 2016 m-commerce consisted 52,4% of all e-commerce sales, in 2021 this number raised up to 73%. Such data is impressive, because in 2021 mobile commerce sales were estimated to be around $3,5 trillion after $0,97 trillion in 2016, and the scale is accelerating (Forbes, 2021). Moreover, in 2021 the growth of sales through e-commerce was driven by mobile commerce, when a part of mobile commerce was on 73% rate.

From the consumer side e- and m-commerce is not only about shopping, but also about additional functions like instant mobile payments. It provides an additional consumer engagement, offers better experience through cutting of time spent on a search, payment and delivery. For companies e- and m-commerce give possibility to serve customers worldwide (new markets and business expansion) provide an omnichannel communication,
more conversions and detailed analytics for future researches of shopping behavior and better forecast options.

C. Sustainable business development. Currently, a component such as corporate values is an integral part of every company’s activity and is often a key factor in making a decision to support the company especially by the younger generations. This provokes companies not only to form, but also to follow the declared values, to introduce innovations in the context of sustainable business development, which permeate all areas of the company’s activity: from production to marketing strategy and transparency of business conduct. 83% of Millennials claim that it is very important for them whether their values and beliefs coincide with those declared by the company (5WPR Consumer Culture Report, 2020). Thus, companies are forced to play by new rules, because in case of non-compliance or violation of socially acceptable norms, they are threatened not only with non-support, but also with complete cancellation.

D. Wellness. This trend is relatively new and does not have clear characteristics and definitions, but according to the latest research by McKinsey, the global wellness market was estimated at $1.5 trillion and it is predicted that the market will grow steadily from 5 to 10% annually (McKinsey, 2021). Such forecasts create new opportunities for businesses, giving impetus to recovery after the crisis and stagnation caused by COVID-19. Due to the fact that there is no clear definition of the concept of wellness, and it would not be entirely correct to attribute it purely to a "healthy lifestyle", a study was conducted on how direct consumers of this market see its main components for themselves. In this way, six main categories were distinguished:

- Health: products for health tracking, supplements and vitamins, remote services etc.
- Fitness: sport clubs, equipment for exercises at home, wearables etc.
- Nutrition: diet programs, consultations and apps, food services by subscription etc.
- Appearance: skincare, non-surgical procedures, hair care etc.
- Mindfulness: therapist consultations, yoga and meditation clubs, mindfulness apps etc.
- Sleep: sleep medications, apps for sleep tracking etc.

These categories do not have strict demarcations, because the consumers themselves see the whole complex as a lifestyle, and not individual categories that they prefer. But nevertheless, due to the fact that in some categories there is a larger scale of the market and supply saturation, spendings for these categories are different. The average distribution of spendings for each of the categories is shown in Figure 1.

For cosmetics product market this trend is quite supportive, because almost every category contains some cosmetic product or service in which it can be used. Thus, it is possible to distinguish several subtrends for the market of cosmetic products: an increase in the skin and body care segment, an increase in the hair care segment, make-up category reduction, a greater focus on the business-to-business category, which is realized in the form of sales through specialists such as cosmetologists, dermatologists, stylists etc. Another point, that should be highlighted for wellness market and for its part of cosmetics market, is that spendings by products and services differ considerably with an indicator of
70% of spendings for products and 30% for services. Simultaneously with this forecast, which is based on surveys, it claims that in the future the ratio will shift in the direction of increasing the share of services. For the market of cosmetic products, this information dictates new market conditions in the form of closer cooperation with representatives of the "services" category for the further sales of cosmetics products to end consumers.

![Fig. 1. Average Global Spendings by Category](source)

3.2. Ukrainian case

Hypothesis 1. According to the collection of statistical data from our survey (three questions oriented on this hypothesis), we obtained first result based on question one (Fig. 2) that 52.45% of respondents are not sensitive even to a high price increase (50% and above the initial price increase). This result indicates low substitutability in the market. Products suitable for a specific group of users do not always have good analogues that provide similar characteristics and qualities for consumers. The study needs to be clarified, since only 2.94% of respondents are ready to answer radically negative and only 44.61% are a certain gray area that cannot answer unequivocally without input data about the availability of interchangeable goods.

![Fig. 2. Results of survey. Question: If there is a product that you have been loyal to for the past few years. If its price increases by 50%, will it stay in your cart?](source)
In order to clarify if a price factor is or not the most important factor additional questions were provided (Fig. 3): “How do you feel, has your "cosmetic basket" has changed over the past 1–3 years?” and “If it has changed, what do you think characterizes these changes?” (last one with multiple answer possibility).

Based on the results of this survey, it is possible to make certain assumptions that the "cosmetic basket" of the Ukrainian consumer was changed under the influence of trends for naturalness and sustainability, as well as reasonable consumption, rather than under the influence of price changes. Of course, it remains relevant to conduct additional research on the price elasticity of Ukrainian consumer demand, but this part of the survey is enough to partially confirm the proposed hypothesis and not to classify Ukraine as a third world country, which will obviously have completely different trends.

Hypothesis 2. In the study, the two main direct questions related to this hypothesis. First one: "Do you like the trend for naturalness? Do you follow it? Do you feel the influence on your consumer behavior?", where 83,2% of respondents positively answered about trend for naturalness influence. Second one is "How do you feel the COVID-19 pandemic has affected how your cosmetic basket' has changed?" and only 15,7% of the audience was affected by COVID-19.

At the same time, it is worth noting that the impact of COVID-19 on the sample in the structure of respondents according to the indicator of the importance of the trend on naturalness is steady (Table 1).
Table 1. Results of survey. Question: Has the COVID-19 pandemic affected your attitude to your own health and appearance?

<table>
<thead>
<tr>
<th>Options</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No, my lifestyle has not changed in these aspects</td>
<td>48,5%</td>
</tr>
<tr>
<td>Yes, the attitude towards both elements has changed</td>
<td>13,9%</td>
</tr>
<tr>
<td>Yes, the attitude towards a health has changed</td>
<td>5,9%</td>
</tr>
<tr>
<td>Yes, the attitude towards an appearance has changed</td>
<td>31,7%</td>
</tr>
<tr>
<td>Total:</td>
<td>100,00%</td>
</tr>
</tbody>
</table>

Source: (Survey provided by authors)

Hypothesis 3: Global vector rating of spendings on wellness categories is looking like: Health – Appearance – Fitness – Nutrition – Mindfulness – Sleep (McKinsey, 2021), when Ukrainians upon results of a survey has next vector rating, which gives us a possibility to agree with Hypothesis: Appearance – Health – Fitness – Mindfulness – Nutrition – Sleep (based on a spendings of Ukrainians consumers on these categories – Figure 4).

![Graph showing vector rating of spendings on wellness categories](source)

Fig. 4. Results of survey. 2 questions (with multiple answer possibility) results presentation

Hypothesis 4: Results of a survey show that Ukrainians are ready to trust the advice of acquaintances (73%), online reviews (45%) and the advice of experts – cosmetologists, dermatologists (25,5%). Trust in influencers is not the same depending on the channel: for example, influencers on Instagram can be trusted by 32% of respondents, on YouTube – by 9%, while podcasts, Facebook, as well as star recommendations together are trusted by about 6% of respondents. Thus, the hypothesis is not refuted or confirmed and requires further research.

Factors such as gender, age (age groups: 18–34, 35–54, and 50+), and wealth level were selected for the sample study. At first glance, such a list of factors may not be sufficient
to identify the presence of an organic distribution of the sample. However, for such a small-scale study, this list of factors provides enough statistical power to draw conclusions about the consumer trends of Ukrainians.

Having obtained the results of testing several hypotheses, the scientific problem of finding common characteristics of consumers arose, which can provide a deeper understanding of the portrait of a market representative. Furthermore, the results of such a study can be used by companies in the cosmetic products market for the personalized, targeted promotion or launch of new products and to satisfy the wishes of different groups of consumers.

A dataset was formed to describe the cosmetic products market audience, including endogenous factors collected during the survey and the quantified survey results described earlier.

In this article, machine learning algorithms were used for clustering – K-Means. KNN (k-nearest neighbours, k-means) is a machine learning algorithm that can be used for clustering and classification tasks. In the cosmetics products industry, KNN can be used for several applications, including:

- Product recommendations: to make a choice of cosmetics products for customers based on their preferences and purchase history. The algorithm can identify the most similar products to the ones that a customer has purchased in the past and recommend them.
- Product categorization: to make a classification of cosmetics products into different groups based on their ingredients, benefits, and uses. The algorithm can identify products with similar characteristics and group them together, making it easier for customers to find what they are looking for.
- Quality control: to detect defects in cosmetics products during the manufacturing process. The algorithm can compare the characteristics of each product to those of the products that meet the quality standards and identify any deviations.
- Customer segmentation: to segment customers based on their demographic, behavioural, psychographic or any other characteristics. The algorithm can identify groups of customers with similar characteristics and create targeted marketing campaigns for each segment. According to this approach, 5 clusters were selected.

![Distortion Score Elbow for KMeans Clustering](image)

Fig. 5. Distortion Score Elbow for KMeans Clustering
After that, the algorithm calculated the distance from each point in the data set to the centroids, updated the position of the centroids, placing them in the position of the arithmetic mean of the points of the cluster they describe. In the following steps, the algorithm lists the points belonging to the clusters and again updates the position of the centroids. In addition, a silhouette analysis (SI) was performed to confirm the selection of the optimal number of clusters. The choice was made according to the most balanced result.

Based on the analysis of the main components, we can see that the clusters are sufficiently separated by the result of the machine learning algorithm (Fig. 7).

Clusters can be differentiated, because while survey authors asks not only closed-up questions with one option of answer, but multiple also. So 5 clusters were highlighted:
• Ukrainians who support wellness tendencies, but are not open to online shopping.
• Ukrainians who support wellness tendencies, are open to online shopping and are not influenced by social media and celebrities.
• Ukrainians who support wellness tendencies, are open to online shopping after product test offline and are not influenced by social media and celebrities.
• Ukrainians who support wellness tendencies, are open to online shopping and are influenced by social media and celebrities.
• Ukrainians who do not follow wellness tendencies but are open to online shopping and are influenced by social media and celebrities.

Such clusterization can be used for targeted marketing campaigns, further development of the product, that meet the unique needs of each group. Also, it can be helpful for pricing and distribution strategy.

4. Discussion

Main idea of the article was to find a correlation and to assess which factors have bigger influence on consumer demand: global trends or local obstacles, and how to prepare foundation for an adequate market analysis for Ukrainian local cosmetics brands and affiliates of worldwide corporations. The article revealed the main trends that affect consumer choice and, accordingly, the activities of companies. Among them are the trend for personalization of the consumer experience, the trend for wellness as a lifestyle, the development of electronic and mobile commerce, sustainable business conduct and values. Each of these factors was considered in the context of the cosmetic products market. By identifying and understanding new factors that influence consumer behavior, businesses can better tailor their products, marketing strategies, and customer experiences to meet changing consumer needs and expectations by tracking changes in consumer preferences to remain competitive. Also it helps to improve marketing effectiveness, development of more effective marketing campaigns that resonate with their target audience. This can lead to increased brand awareness, customer loyalty, and sales. Also, it can be a driver of innovation by identifying unmet consumer needs or untapped markets.

Based on the information gathered, the authors conducted a survey among Ukrainians to reveal or refute the dependence between global trends and the local market. Most of the hypotheses were confirmed these findings could be used when creating strategies for bringing goods to the market or developing them. However, this research may have an additional development, because during the survey it was found that even though Ukrainians did not feel the impact of the COVID-19 pandemic on their behavior as consumers of cosmetic products, the majority of respondents admitted that following the full-scale escalation of the conflict in Ukraine, their preferences and purchasing patterns have changed. Therefore, it would be worthwhile to continue research in this area.
5. References


