








“Tourism product consumers clustering for developing the tailored marketing mix”

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TOURISM PRODUCT CONSUMERS CLUSTERING FOR DEVELOPING THE TAILORED MARKETING MIX

Abstract

The constant change in consumer preferences requires adjusting sales strategies according to the consumer's current needs. The study aims to cluster the consumers of tourism products based on the factors influencing their decision-making process when choosing tourism products and to classify them according to the marketing mix. The study is based on the analysis of data from 196 respondents in the Lviv region, collected through an online survey using Google Forms in the first decade of 2023. The sample is representative, as it was calculated considering the population of the Lviv region aged 16 and above, ensuring the results' reliability and relevance. The results revealed that representatives of each cluster are, on average, willing to spend up to 10,000 UAH per person during their vacation. In the decision-making process regarding the purchase of components of a tourist product, accommodation holds the most significant importance for representatives of the first and second clusters (4.51 and 3.27, respectively), insurance is the most important for the third cluster (4.71), and food is the priority for the fourth cluster (2.54). The decisive components of tourist services and risks for all clusters include up-to-date information about the vacation destination and pandemics/diseases, although the significance of their influence varies. Additionally, the clusters differ regarding the elements of place and promotion of tourist products. The results demonstrate that the marketing mix elements vary across clusters despite certain similarities in respondents' assessments.

Keywords

factors of impact, decision-making process, consumer clustering, marketing mix, Lviv region

JEL Classification

Z33, Z31, M31

INTRODUCTION

Tourism is one of the most dynamic and promising sectors of the economy, rapidly evolving in the context of globalization and digitalization. According to the World Tourism Organization (UNWTO), international tourism receipts amounted to USD 1.5 trillion in 2023, demonstrating a gradual recovery after the COVID-19 pandemic. Tourism plays a significant role in the global economy, contributing 9.1% to global GDP (Statista, 2024). However, global challenges such as pandemic and economic instability have significantly reshaped consumer behavior. These shifts, along with the rise of individual preferences, necessitate adopting innovative approaches to developing tourism products.

The full-scale war in Ukraine, which began in 2022, has brought profound changes to the structure of domestic and international tourism. Safety concerns, economic hardships, and loss of stability have forced many Ukrainians to forgo travel. The Ukrainian tourism market, which has not fully recovered from the pandemic, has faced new challenges. Despite this, the industry remains operational: in 2024, its expected revenue was projected at USD 1.75 billion, yet it reached only 700 million (Mashuta, 2024). At the same time, in the first three

months of 2024, the industry contributed UAH 616,391 thousand to the state budget, marking a 61% increase compared to the same period in 2023 and nearly reaching the levels of 2021 (DART, 2024). This demonstrates that tourism enterprises have adapted to challenging conditions and continue to develop even under martial law.

Modern travelers increasingly seek personalized offerings that align with their interests, budgets, travel durations, and safety concerns. For example, family trips within a country require a different approach compared to short trips with friends. The research on consumer preferences (Bremner, 2023) highlights that destination safety has become a key factor for most travelers, a trend shaped by the pandemic. Alongside safety, other aspects of travel remain vital and must be considered when developing tourism products and strategies.

Personalization is not merely a trend but a fundamental transformation shaping the future of travel (Brainberry, 2024). According to a WTTC report, generational differences influence travel characteristics and booking channels: younger generations tend to book via smartphones, millennials favor air travel, and 70% of young people in France and Spain aged 18-23 use Instagram as a source of travel inspiration. Consequently, social media and digital marketing remain practical tools for engaging travelers (WTTC, 2021). Employing cluster analysis as a tool for consumer segmentation opens new opportunities for tour operators. This approach enables a deeper understanding of consumer needs, the creation of tailored offerings, and the adaptation of marketing strategies to the unique characteristics of each segment. Such measures will enhance the development of tourism enterprises and bolster their competitiveness, even under challenging conditions.

The scientific problem of this study lies in the need to develop a comprehensive approach to grouping the various factors influencing the choice of a tourism product for the purpose of clustering the consumers and determining the elements of the marketing mix. Given that previous studies typically focused on individual components of tourism products, services, or risks, there is a lack of a comprehensive methodology that combines all these factors for consumer segmentation and the adjustment of marketing strategies based on the results of this classification. This research contributes to the development of a new approach to market segmentation and the optimization of the marketing mix for tourism companies, directing their strategies toward the specific needs of different consumer groups.

1. LITERATURE REVIEW

The main goal of consumer research is to understand their needs to ensure complete satisfaction. The peculiarity and complexity of determining the impact on the tourist consumer are associated with the lack of trial experience. Two people may have different experiences and influencing factors when choosing the same product. Consumer behavior and preferences are constantly changing. The purchase decision is based on preferences, brand loyalty, and previous experience. Marketing plays a crucial role in ensuring the competitiveness of tourism enterprises. A marketing mix is a concept used to describe a set of tactics used by businesses to achieve goals through the effective promotion of their products or services to a specific target audience. Tourism marketing is creating

a product or providing a service that meets existing or potential demand.

Internal factors of consumer behavior affect the buyer's behavior as an individual, while external factors affect the buyer's behavior as a social group member. External factors affect mainly the social aspects of customer behavior, while internal factors relate primarily to the psychological aspects of consumer behavior (Gasimova, 2016). Tourism is an experience that consists of tangible and intangible attributes (Mckercher et al., 2008). Consumer behavior is driven by the psychological evaluation of the outcomes that will be obtained due to the purchase (Deng et al., 2021; Woodside & Lysons, 1989). These outcomes include specific attributes of goods or services, including perceived benefit (Khan et al., 2015; Prastiwi & Fitria, 2021), per-

ceived usefulness (Wang et al., 2021; Zhao & Zhu, 2023) and perceived value (Zhao & Chen, 2021; Zauner et al., 2015; Biao et al., 2021). The price factor affects where people travel (Crouch, 1995), what types of vacations they choose, and how long they will travel (Fleischer & Rivlin, 2009).

The consumer decision-making process has become a topic of research for many scholars. Consumer decision-making is choosing one of the alternative options that lead to purchasing a service (Buhajoti, 2013). The most critical stages in the consumer decision-making process are searching for information and purchasing a product or service (Deng et al., 2021), and choosing between two or more possible options (Djeri et al., 2007). In general, the decision-making process consists of five stages: (1) problem recognition; (2) search for alternative information; (3) alternative evaluation and selection; (4) choice and purchase; (5) the post-purchase process (Moutinho, 1987). Building on this foundation, Haubl and Trifts (2000) proposed a two-stage decision-making theory focused on studying consumer behavior when buying goods or services. The first stage is the search for information about the product, and the second is the comparison and evaluation of alternatives. After passing these two stages, the consumer purchases a product or service. This theory has been developed in many areas. In particular, several scholars have studied the behavior of consumers in exhibition halls based on the two-stage model (Singh & Jang, 2020). Other scholars have focused on the first stage – information seeking, namely the study of factors influencing consumers (Balladares et al., 2016), factors influencing retail consumers' online search and purchase intentions (Deng et al., 2021). Um and Crompton (1990) also considered travel costs among the stages of the travel decision process when, after learning about the price of a product, the consumer develops an attitude toward a specific destination. Therefore, understanding how consumers make decisions, whether using detailed five-step models or simplified two-step theories, provides valuable information about consumer behavior across industries.

According to Prastiwi and Fitria (2021), decision-making indicators are recognizing needs, using certain products, searching for information, evaluating alternatives, making a purchase decision,

and evaluating the results. This scheme of the purchase decision process differs from the general theory primarily because it includes an assessment of the results of the decision. This approach is challenging to apply in the tourism sector because the consumer must first use the product to evaluate the result. Besides, in the tourism sector, it is vital to consider the influence of external factors that can significantly worsen the overall impression of the decision to purchase a product.

The consumer decision-making process is complex and multi-stage, starting from information search, evaluating alternatives, and ending with deciding to purchase a product or service. Most theories focus on two key stages – information search and evaluation of alternatives. Despite the universality of these models, in the tourism sector, the purchase decision process has its own characteristics.

1. It is important to take into account external factors that can significantly affect the perception of the product.
2. Evaluation of the result often becomes possible only after using the tourist service, which complicates the application of standard decision-making schemes.
3. The specificity of tourism decisions requires consideration of such aspects as travel expenses, which form the attitude towards the destination even before making a purchase.

Therefore, although general models of consumer decision-making can be adapted to the tourism sector, they need to be modified, taking into account the specifics of the industry, including the influence of external factors and the limitations associated with the evaluation of results.

A tourism product is the complete experience of the consumer from the moment he leaves home to the moment he returns to it. A tourism product is a set of many components or a package that all tourists buy, regardless of whether they use the services of travel operators and agents (Yarcan & Cetin, 2021). Consumers prefer products that offer the best value for money in terms of these elements. Among the components of a tourism product, were highlighted accommodation, food,

transfer, excursions and insurance. Elements of tourism service affect the satisfaction of consumers' needs, the formation of their loyalty, and the willingness to reuse the services of a tourism operator or agent. It is proposed to include the following elements of tourist services in the system of indicators: the level of customer support, price-quality compliance, up-to-date information about the place of rest, availability of discounts, a regular customer card, online support and customer feedback. These elements can best characterize the activities of a tourism enterprise and the level of interaction with customers to retain existing customers further and encourage new ones.

Travel risks significantly impact consumers' decisions to choose a travel offer. Given the events related to the COVID-19 pandemic, consumers have become more cautious in choosing travel products and prefer products that provide security measures, including health insurance and the possibility of a refund in case of force majeure. Consequently, safety has become one of the primary criteria for consumers when making travel decisions. Zou and Meng (2019) explored the concept of perceived safety in travel, identifying 20 influencing elements grouped into five categories: security issues, tourist environment, facilities and services, regional culture, and security information. This comprehensive framework highlights the multifaceted nature of safety in the tourism sector (Zou & Meng, 2019). Similarly, Huang et al. (2020) emphasized that risks like viral infections significantly influence destination choices, often leading to the avoidance of certain regions. Their study identified nine major travel risks, including air pollution, terrorism, pandemics, natural disasters, and data privacy concerns, all of which shape consumer preferences (Huang et al., 2020).

Beyond individual risks, broader market disruptions also affect consumer behavior. According to a study by Orisys Infotech (2018), factors like evolving customer expectations, mobile technology adoption, big data analytics, and regulatory changes are reshaping the tourism landscape (Orisys Infotech, 2018). These disruptions, coupled with travel risks, require businesses to innovate and address emerging consumer demands for safety and flexibility in their offerings.

Tailored marketing mix refers to the customization of the traditional marketing mix elements – Product, Price, Place, and Promotion – to meet the specific needs and preferences of a particular customer segment or target audience. The purpose of segmentation is better to understand an enterprise's competitive position in the market. It provides detailed information about customer preferences and behavior, expanding the supply of goods or services that meet the stated demand (Shi et al., 2018). Haley (1968) noted that for effective market segmentation, it is necessary to classify customers based on the benefits they seek in a product. The advantage of such segmentation is the formation of strategies (marketing and communication) based on grouping consumers with the exact needs that are crucial when purchasing a product (Kotler & Turner, 1993). Shi et al. (2018) consider market segmentation as a strategy for developing products and marketing materials that target groups with different needs and interests. Travel brands and marketers use segmentation information to identify the most profitable segments and understand consumer preferences. Thanks to market segmentation, it is possible to personalize offers for specific customer groups (Shi et al., 2018; March, 1997).

Segmentation of the tourism market arises from the heterogeneity of tourists (Dolnicar, 2007; Ahani et al., 2017) and is strategically vital for identifying target segments (Li et al., 2013). By grouping consumers based on shared characteristics, tourism enterprises can tailor specific offers to maximize demand and influence its formation. Understanding consumer motivations when choosing destinations, accommodations, and services is key to improving service quality and meeting current tourist needs (Pinto & Castro, 2019).

Cluster analysis is an essential tool for segmentation, identifying homogeneous groups of tourists based on measurable characteristics. This method is widely used in tourism to analyze demographics, travel preferences, motivations, and expectations (Fernández-Morales, 2021). The results enable tourism businesses to (1) develop personalized marketing strategies for each cluster, (2) create products tailored to the needs of target audiences, (3) enhance customer loyalty by analyzing behavior, such as spending patterns or booking habits (Tiwari & Tripathi, 2023).

The integration of cluster analysis with the marketing mix (4P) – Product, Price, Place, Promotion – ensures that marketing strategies align with the specific characteristics of consumer groups. For example, the insights gained from cluster analysis can guide decisions about pricing strategies, product development, promotional campaigns, and distribution channels tailored to specific tourist clusters. By combining segmentation results with the marketing mix, tourism enterprises can adapt to market demands, achieve strategic goals, and enhance customer satisfaction. Thus, segmentation, cluster-

ing, and the marketing mix are interrelated tools that collectively contribute to understanding and meeting the diverse needs of tourists while increasing business efficiency and competitiveness.

Figure 1 illustrates the research conceptual model.

Thus, understanding the factors that are important to the consumer and influence the purchase decision process contributes to better interaction between the organization and the client, creates additional competitive advantages, and ensures

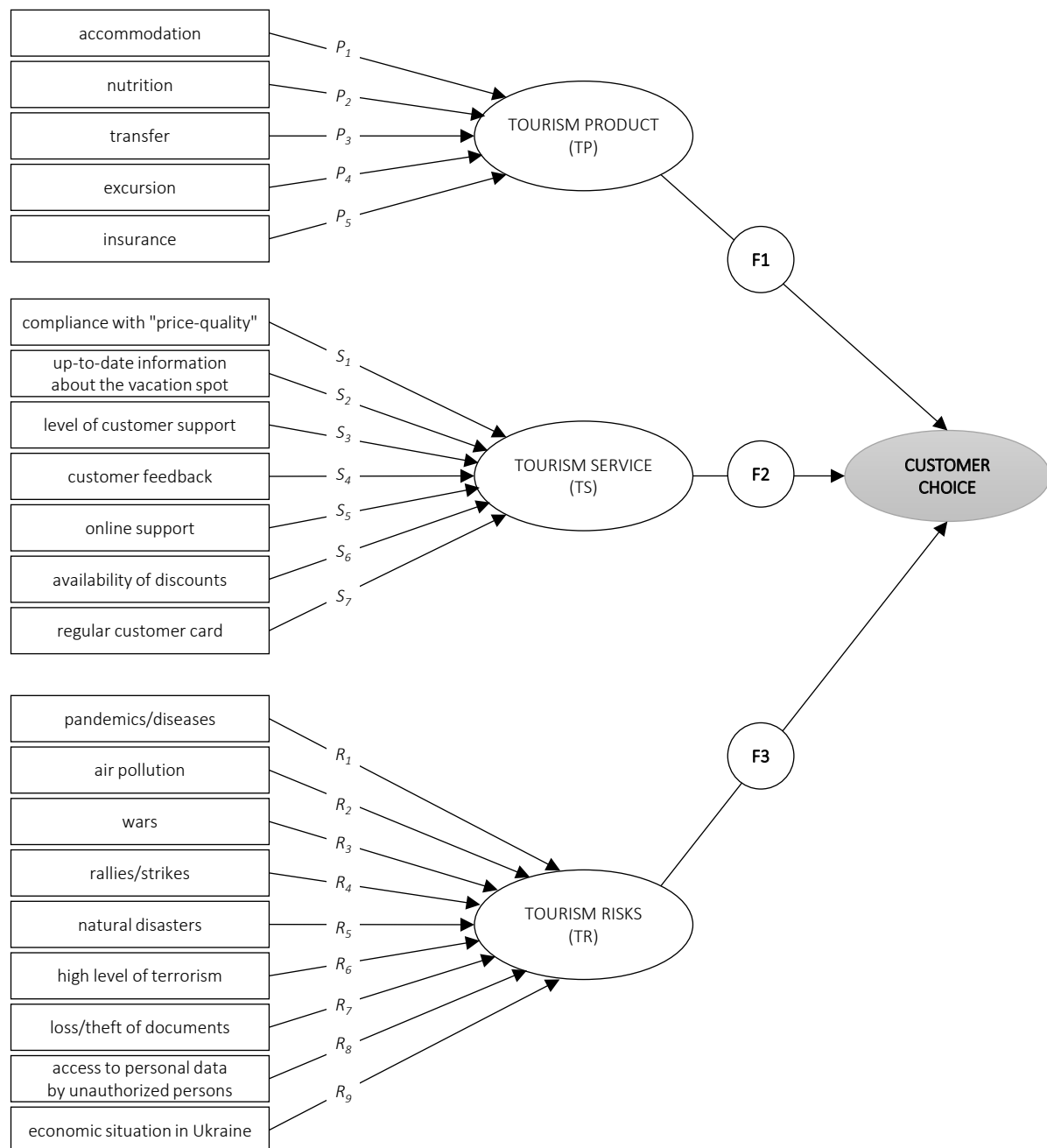


Figure 1. Research conceptual model

the stable development of the enterprise. To sell a product or service, you must know what consumers want and their expectations regarding their purchase and use. However, each consumer has formed a scale of decisive factors in purchasing. Identification of these factors is the goal of many studies, and the authors consider the impact of both individual factors and their components, as well as grouping them by specific characteristics. However, there is no general scheme for assessing the effects of different groups of factors – product elements, features of tourist services, and risks that may arise during the trip.

The study aims to cluster consumers of tourism products based on the factors influencing their decision-making process when choosing tourism products and to classify them according to the marketing mix.

2. METHODOLOGY

An online survey was conducted to study the elements that are important to consumers when traveling. The questionnaire consisted of three blocks and began with information about the research topic and its importance. The first block collected demographic information from respondents, such as gender, age, and field of activity. The second block contained questions about important elements that influence tourist travel, including average spending per person, frequency, and duration of travel, with whom respondents travel more often, and so on. In the final block, participants were asked to answer questions related to the importance of each research variable under study, as well as questions about the elements of the marketing mix that are important to them. The questionnaire was distributed among travelers in the Lviv region via the Facebook platform. This study examines 21 variables that influence consumers' choice of tourism products. The proposed variables are grouped into three components that play an essential role in the decision-making process of tourism consumers when purchasing a tourism product.

Consumers prefer products that offer the best value for money in terms of these elements. Among the components of a tourism product, we highlight accommodation, food, transfer, excursions, and insurance. Elements of tourism service affect the

satisfaction of consumers' needs, the formation of their loyalty, and the willingness to reuse the services of a tourism operator or agent. We propose to include the following elements of tourist services in the system of indicators: the level of customer support, price-quality compliance, up-to-date information about the place of rest, availability of discounts, a regular customer card, online support, and customer feedback. These elements can best characterize the activities of a tourism enterprise and the level of interaction with customers to retain existing customers further and encourage new ones. It is proposed to consider nine travel risks that affect consumer choice, including air pollution, terrorism, wars, rallies/strikes, pandemics/diseases, loss of documents, natural disasters, access to personal data by third parties, and economic situation in the country of residence.

The variables were assessed using a five-point Likert scale adapted by the authors to measure each variable's impact on the component group's overall impact. According to the scale, each answer has its score: (5) – very important, (4) – quite substantial, (3) – difficult to answer, (2) – almost unimportant, (1) – not at all important. The data were collected online using a questionnaire on the Google Forms platform.

First, the average values of the variables in the group for each cluster are determined. In order to determine the overall influence of a group of factors on consumer choice in each cluster, the following formulas is used (1) - (3):

$$TP_i = \frac{\sum P_j}{N}, \quad (1)$$

where TP_i – impact of tourism product elements, i – cluster number, P – elements of tourism product, j – variables in a group, N – maximum possible score in the group;

$$TS_i = \frac{\sum S_j}{N}, \quad (2)$$

where TS_i – impact of tourism service elements, S – elements of tourism service;

$$TR_i = \frac{\sum R_j}{N}, \quad (3)$$

where TR_i – the impact of tourism risks elements, R – elements of tourism risks.

The denominator reflects the maximum value of all indicators that can be obtained in this group (for example, in the group of indicators of the tourist product, 5 variables, each of which can get a maximum average value of 5, respectively, the number of variables multiplied by the maximum score will be 25).

Cluster analysis is often used in marketing research to segment competitors and consumers (Klebanova et al., 2018). Segmentation based on cluster analysis groups consumers into homogeneous groups, allowing the enterprise to develop a marketing strategy for each cluster by the consumer's needs. The marketing strategy should be based on the main components of the marketing mix – Product (service), Price, Promotion, and Place (Rjasna & Lytvynenko, n.d.).

The algorithm of tourist offers consumers clustering for developing tailored products and services was developed (Figure 2). The study will enable to identify consumer groups in which the level of importance of the components is similar and, on their basis, to form clusters to determine what characteristics are shared among the surveyed consumers and to form a marketing mix to create tourist offers that take into account the essential elements of different consumer groups.

The survey involved 196 people, including residents of Lviv region aged 16 and older. A total of 44 men and 152 women participated in the market research, which is 22.45% and 77.55% respectively. According to the age criterion, 74 respondents are aged from 16 to 27, 65 are aged from 28 to 43, 51 are aged from 44 to 59, and 6 are aged over 60. The majority of respondents are employees. The structure of the respondents, depending on the type of activity, is distributed as follows: 38.27% are employees, 23.98% are students and pupils, 17.35% are civil servants, 11.22% are businessmen/entrepreneurs, 6.12% are housewives, and 1.53% of respondents are unemployed and retired. 48.47% of respondents travel with their families, 27.55% – with friends, 12.24% – with a boyfriend or girlfriend, 8.16% – alone, and 3.57% – with colleagues. 51.02% of respondents travel from 3 to 7 days (the structure is dominated by employees and students/pupils – 64%), 32.65% rest for 1-2 days (this duration of travel is typical for civil servants (47.05%), and the most minor travel for more than 14 days (1.53%).

The analysis results yielded 4 clusters. Cluster 1 includes active youth (16-25 years old) who travel more than twice a year, mainly with family or friends, for leisure. The main source of informa-

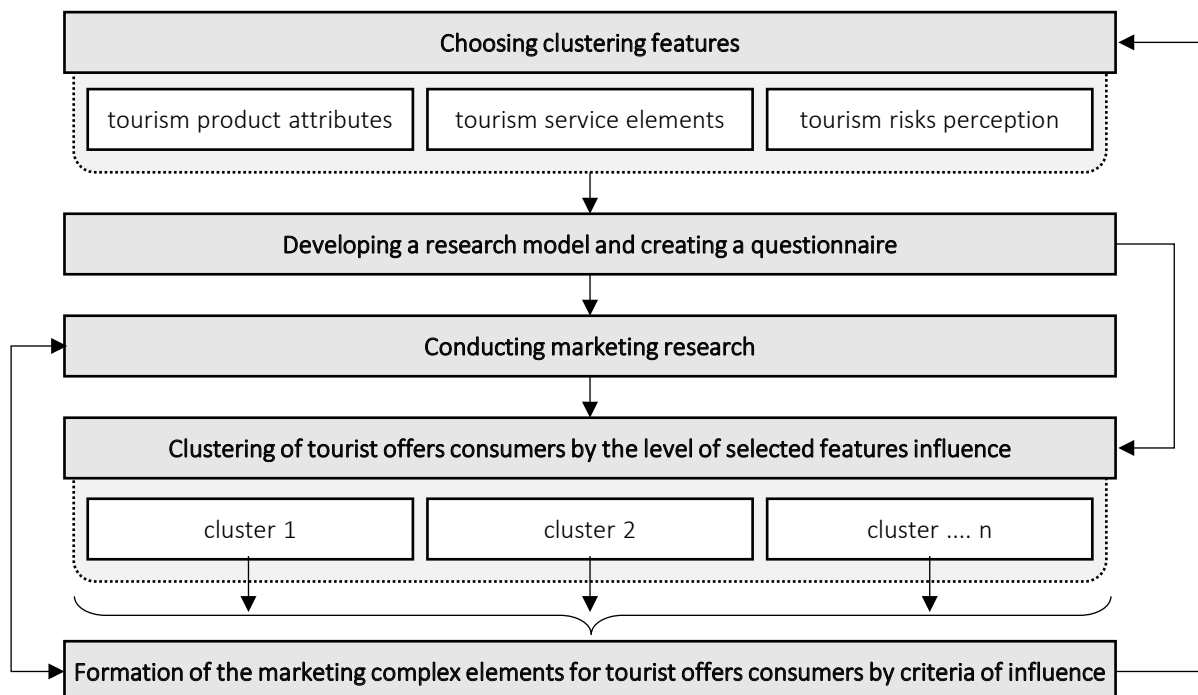


Figure 2. Algorithm of tourism product consumers clustering for developing the tailored marketing mix

tion is social networks, and most often planning is done independently. Cluster 2 consists of active middle-aged travelers (26-43 years old), who also travel more than twice a year, mainly with friends, for leisure or treatment. They use social networks but trust the advice of family or friends the most. Cluster 3 unites family travelers of all ages (16-43 years old) who travel once a year with their family for leisure, actively searching for information on social networks, but trusting acquaintances more. Cluster 4 consists of youth (16-43 years old) who travel more than twice a year, mainly with friends, for leisure or shopping. They rely on the advice of acquaintances and trust recommendations from their close circle.

3. RESULTS

According to the cluster analysis conducted in the SPSS program, four clusters were obtained based on the questionnaire survey of tourism products consumers following the similarity in assessing the degree of influence of individual components on choosing a tourism product. The first cluster includes 88 people, the second – 37, the third – 58, and the fourth – 13.

Respondents were enrolled in each cluster according to their assessment of the impact of each variable. The values of average frequencies by cluster are shown in Figures 3-5.

For representatives of the first and second clusters, the most crucial factor when choosing a tourist product is accommodation, followed by transfer, and then meals included in the tourist package.

The least important for representatives of these clusters is the availability of excursions included in the travel package. As for the components of tourist services, it is essential for representatives of the first and second clusters that the price of the tourist product corresponds to the quality received during its consumption. It is also necessary for them that the company provides up-to-date information about the vacation destination and provides customer feedback.

In the first cluster, the mean values for the tourism product variables are higher. The average value for the same variables is lower in the second cluster. Representatives of the third cluster prioritize the structure of influence factors differently. For them, the most crucial factor in choosing a travel product is the inclusion of insurance in the package. The second most vital factor, slightly higher than the third, is accommodation, and the third is food. Transfer is equally essential as excursions (although this factor is the last in the cluster, its importance is relatively high). For representatives of the fourth cluster, the most critical components of the tourism product are food, accommodation, and insurance. They gave the lowest score to the variable “transfer,” less essential than excursion services. These clusters differ in terms of the components of the tourism product, but there is a similarity in the components of tourism service (Figure 4).

Looking at the components of tourist services, we can observe that the most and least important criteria are the same across all clusters. Providing up-to-date information about the destination has the highest average values in all clusters. This in-

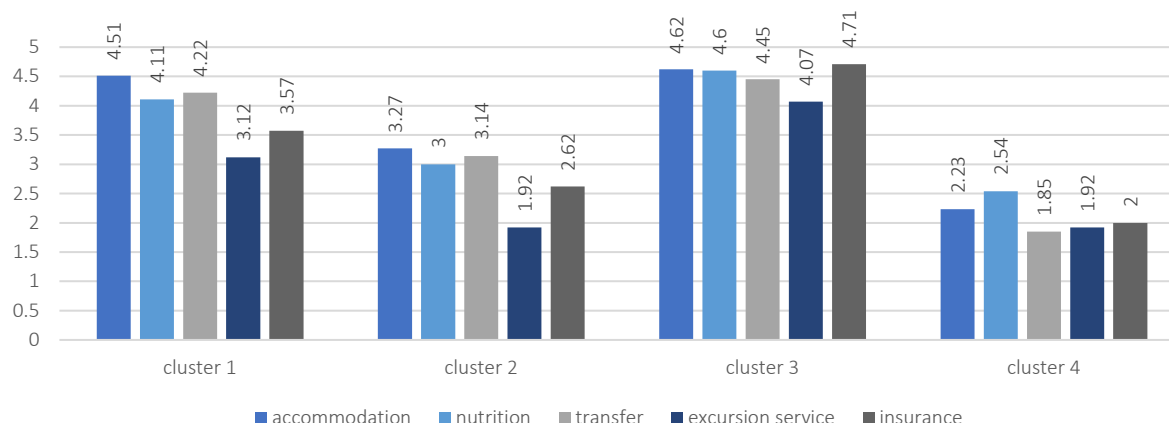


Figure 3. Average values of assessments of the impact of tourism product components by cluster

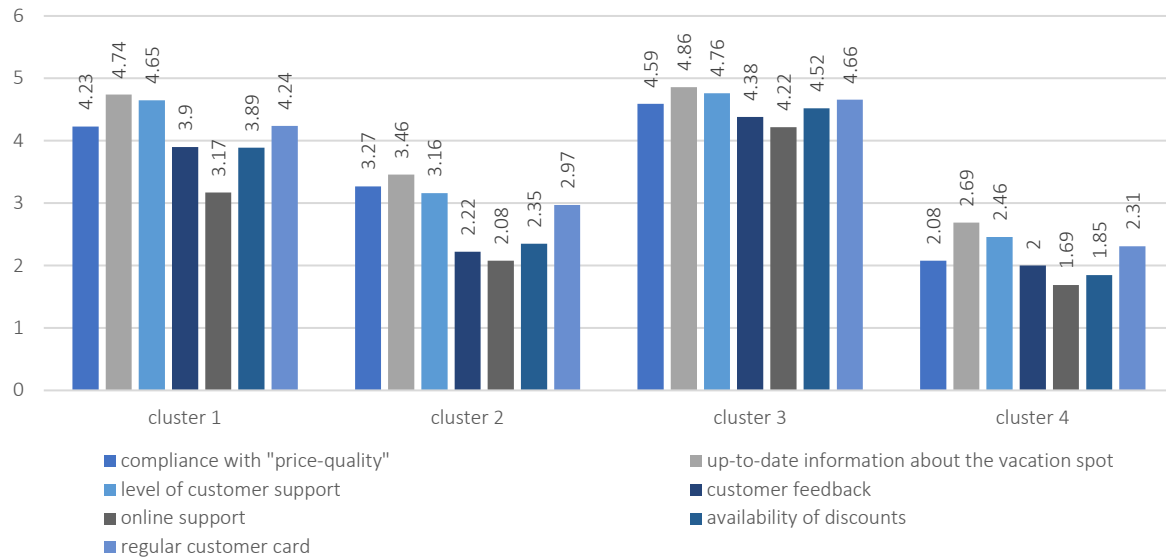


Figure 4. Average values of assessments of the impact of tourism service components by cluster

indicates that the relevance of information is a key component of tourist services, regardless of the cluster. Consumers expect detailed information about the travel destination before making a decision. In contrast, online support, customer feedback, and the availability of discounts have the lowest average values across the clusters, suggesting that these criteria are less critical for tourists or are not sufficiently developed and do not attract consumers.

Considering the impact of travel risks on consumer choice in each cluster (Figure 5), one can see that the variables are more important than other

components (product and service). For representatives of the first and second clusters, travel risks such as pandemics or diseases, access to personal information by unauthorized persons, rallies or strikes, high levels of terrorism at the destination, and wars have the most significant impact. The last two risks in these clusters are of reverse importance.

For the third and fourth clusters, pandemics or diseases and access to information by third parties have the most significant impact. In the third cluster, the top five factors are wars, natural disasters, and air pollution. The fourth cluster includes

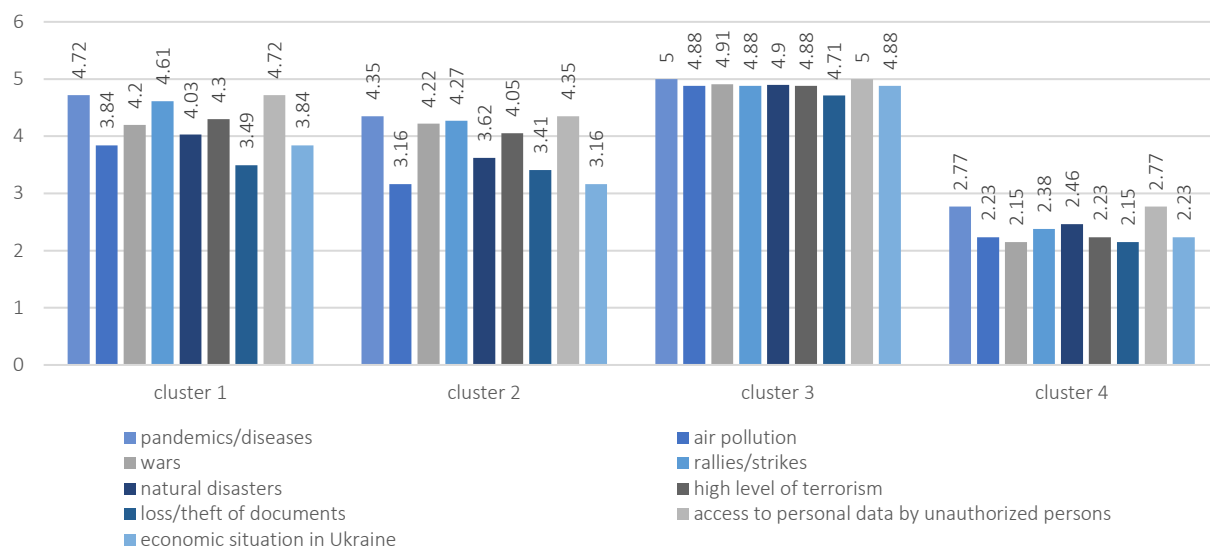


Figure 5. Average values of assessments of the impact of tourism risk components by cluster

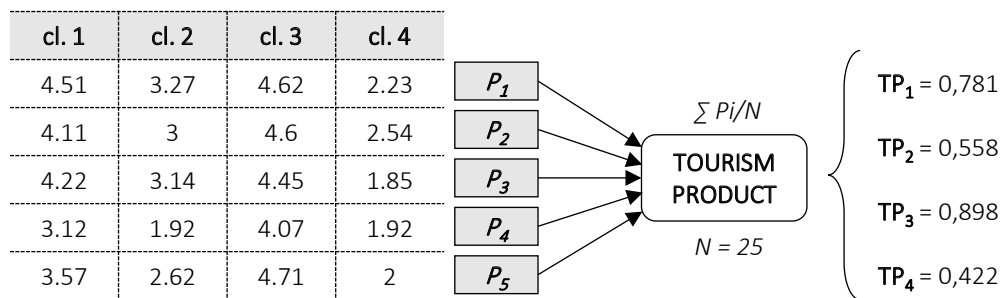


Figure 6. Group values of tourism product components by cluster

natural disasters, rallies, strikes, and air pollution. As we can see, for all four clusters, the security factor is significant today. Consumers fear that their health and personal data may be leaked to unauthorized persons. The difference between consumers in the fourth cluster is that for all groups of components, the average values range from 2-3 points. As one can see from the data in Figures 5-7, the average values of the variables in clusters 1 and 2, 3 and 4 are different. Still, these needs have the same priority among the representatives of these clusters. Although certain variables in these clusters are equally crucial for choosing a tourism product (Figure 6), there are differences in the perception and evaluation of specific product characteristics.

Determining group values for clusters enables to understand which consumers are flexible in their requirements and respond only to certain key factors. For example, in cluster 4, the group value is 0.422, and the most important factor for them is food, which is included in the tourist product. Among the components of tourist services (Figure 7), it is important for them to have up-to-date information about the place of rest.

The defined criteria can be used to select and offer tourist products that will best meet the needs of this cluster.

For representatives of the third and fourth clusters, an essential element of tourist services is a price-quality ratio, up-to-date information about the place of rest, and customer feedback. The least important factors for representatives of all aspects are the availability of discounts, a loyalty card, and online customer support. Calculated group values indicate how respondents rate all components on average. Forming a tourist product requires a complex approach, so it is necessary to understand not only individual factors but also the general importance of a particular group of criteria. Despite the closeness of group values in cluster 4 (group value of tourist product components – 0.422; tourist service components – 0.431; tourist risks – 0.475), it can be seen that today, tourist risks are the most important criteria for consumers when choosing a tourist product. Consider the impact of travel risks on consumer choice in each cluster (Figure 8).

It can be seen that the variables of tourism risks are more important than other components (product

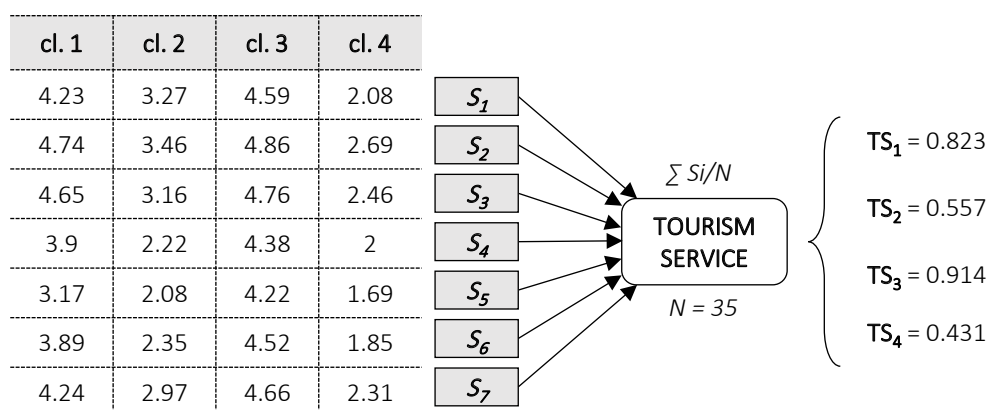


Figure 7. Group values of tourism service components by cluster

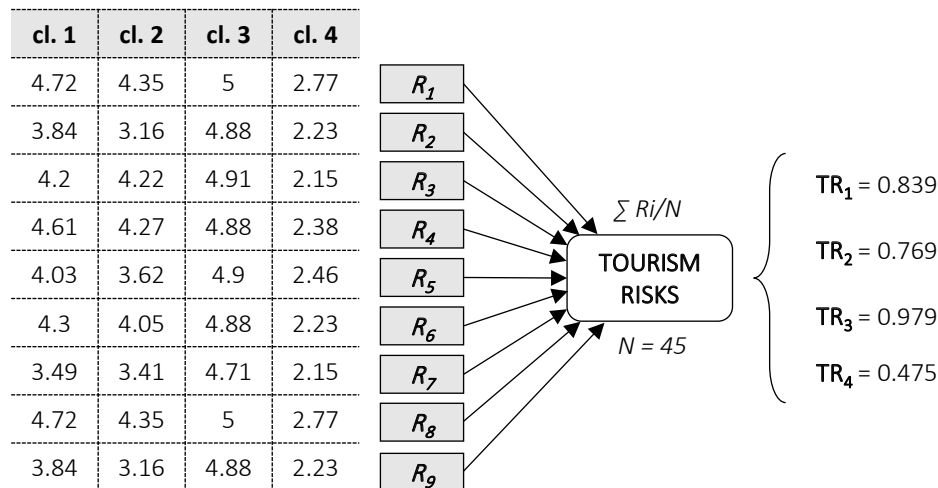


Figure 8. Group values of tourism risk components by cluster

and service). The equal importance of variables in some clusters means consumers recognize these characteristics as key in their decision-making process. This may be because these variables are fundamental to all groups, regardless of their preferences or needs. For example, the study shows that safety is vital to all tourists, but the safety expectations differ. Based on the differences in average values across clusters, tourism businesses should develop differentiated marketing strategies for each cluster to make the decision-making process for purchasing a tourism product less time-consuming. This approach can also increase the

customer base by attracting new customers and offering them an individualized approach.

Overall scores for each component by clusters are presented in Table 1.

To develop effective marketing strategies, it is necessary to determine what characteristics, in addition to the equal importance of the components of the tourism product, tourism services, and tourism risks, unite them, which are essential when deciding to purchase a tourism product. This segmentation enables the creation of targeted market-

Table 1. Overall scores for each component by clusters

Components of tourism offer	Clusters' type			
	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Tourism product	0.781	0.558	0.898	0.422
Tourism service	0.823	0.557	0.914	0.431
Tourism risks	0.839	0.769	0.979	0.475

Table 2. Marketing mix for forming strategies by clusters

Marketing mix	Cluster 1		Cluster 2		Cluster 3		Cluster 4	
Price	Up to UAH 10 thousand per person							
Product								
Tourism product	Accommodation	4.51	Accommodation	3.27	Insurance	4.71	Nutrition	2.54
Tourism service	Up-to-date information about the vacation spot	4.74	Up-to-date information about the vacation spot	3.46	Up-to-date information about the vacation spot	4.86	Up-to-date information about the vacation spot	2.69
Tourism risks	Pandemics/ diseases	4.72	Pandemics/ diseases	4.35	Pandemics/ diseases	5	Pandemics/ diseases	2.77
Place	Would like to be able to view and select your options online				Prefer live communication with a manager because you can get more information			
Promotion	Messages through social networks				E-mail and sms notifications			

ing campaigns, offering personalized experiences, which increase the likelihood of engagement and satisfaction. By understanding the unique needs of each cluster, businesses can develop specific tourist products or services that appeal to each group's interests, maximizing the relevance and appeal of offerings (Table 2).

Representatives of the first cluster prefer travel companies that offer the possibility of independent viewing and selection of tour options online (place), and the way to be acquainted with travel offers (promotion) is through social media. Representatives of the third and fourth clusters consider the offices of travel companies to be the best option for the point of sale, as they value live communication with the manager to get more information, and e-mail and SMS messages are the channels for receiving promotional products. These clusters differ regarding important product components, with insurance being the most important in the third cluster and catering being the most important in the fourth cluster.

Clustering can enable businesses to stand out from competitors by offering more personalized and unique tourist products, catering specifically to the needs and wants of well-defined consumer groups. By consistently meeting the needs of particular consumer clusters, businesses can build strong relationships and long-term loyalty, reducing customer churn.

4. DISCUSSION

The study results confirm the importance of clustering consumers by factors influencing the decision-making process of purchasing tourism products. In the context of Ukrainian consumers, safety factors play a unique role. In addition to traditional factors such as quality of service and price, the influence of risk-related factors (pandemics and diseases, wars, terrorism, and access to personal data) has significantly increased.

In comparison with other methods, the groups of elements have been generalized and supplemented that influence the choice of consumers of tourism offers, which allows us to obtain a

comprehensive characterization of the factors of influence (not only product elements but also the service during its purchase and external influences that have become decisive in recent years) on the process of consumer choice of tourism offers.

According to the survey, specific components of travel products, such as transportation, accommodation, and food, are among the main factors influencing consumer choice. Respondents also emphasized the importance of travel services, such as providing up-to-date information about the destination, having a loyalty card, and possibly receiving discounts. According to the data obtained, security has become one of the main elements in the choice of travel products, which is consistent with the results of other studies, in particular, to study the impact of the COVID-19 pandemic (Huang et al., 2020), the possibility of access to personal data by third parties (Brown et al., 2007; Ioannou et al., 2021) and geopolitical tensions (Smith, 1998; Walters et al., 2019; Sonmez & Graefe, 1998; Neumayer, 2004). This is especially true for domestic tourism in Ukraine, where political stability and physical security are priorities for consumers. Exposure to risks, such as air pollution and natural disasters, also plays a significant role in choosing vacation destinations. This is in line with the findings of previous studies that have shown that modern tourists are more likely to refuse to travel to regions with increased risks of natural disasters or environmental conditions (Rodrigues et al., 2021; Rosselló et al., 2020; Robaina et al., 2020; Chen et al., 2017).

In summary the clustering tourism product consumers is to help tourism businesses better understand, serve, and market to different consumer groups. Identifying different clusters allowed us to deepen understanding of the certain groups preferences. For example, consumers who travel more than twice a year and mainly within Ukraine rate security factors higher than those who travel abroad. This may be due to the current situation in the country when risks to domestic tourism are perceived to be more significant than risks to foreign travel. These findings are essential for developing marketing strategies aimed at relevant tourism market segments.

The prospect for further research is to determine the importance of each element based on the data of the general population. Also, the impact of the pandemic and war on the choice of Ukrainian consumers requires a more detailed study. One of the limitations of this study is that the sample population consists of Ukrainian tourists living in the Lviv region, which may

reduce the generalizability of the results to Ukrainian regions closer to the frontline, as well as other countries or regions. The results show that travel operators need to pay more attention not only to the traditional aspects of service and components of the tourist product but also to factors that create a sense of security for tourists.

CONCLUSION

The aim of the study was to cluster consumers of tourism products based on the factors influencing their decision-making process when choosing tourism products and to classify them according to the marketing mix. The conducted analysis showed that, despite some differences between the clusters, aspects such as up-to-date information about the destination and the management of external risks (wars, pandemics, illnesses) remain priorities for all consumer groups.

The main contribution of this article lies in the development of a model for determining the impact of various elements of a tourism offer on the consumer's purchase decision, which groups together all key components important to consumers, allowing for assessing their impact on choice. Additionally, an algorithm for clustering consumers of tourism offers for marketing purposes by selected groups of attributes has been developed based on their evaluations of the impact of each element on the decision. Furthermore, a set of 4Ps marketing activities important to consumers in each cluster is identified.

In comparison with other methods, the groups of elements have been generalized and supplemented that influence the choice of consumers of tourism offers, which allows us to obtain a comprehensive characterization of the factors of influence (not only product elements but also the service during its purchase and external influences that have become decisive in recent years) on the process of consumer choice of tourism offers. In summary, the clustering tourism product consumers is to help tourism businesses better understand, serve, and market to different consumer groups. It enhances customer satisfaction, improves operational efficiency, and allows for more strategic decision-making, ultimately driving growth and profitability.

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REFERENCES

- Ahani, A., Nilashi, M., & Ibrahim, O. (2017). Market segmentation and travel choice prediction in Spa hotels through TripAdvisor's online reviews. *International Journal of Hospitality Management*, 80, 52-77. <https://doi.org/10.1016/j.ijhm.2019.01.003>
- Balladares, G., Miralles, F., & Kennett, C. (2016). The role of perceived risk in online information search and pre-purchase alternative evaluation of products with significant experiential attributes. In Kavoura, A. (Ed.), *Strategic Innovative Marketing* (pp. 44-53). Switzerland: Springer. Retrieved from https://ideas.repec.org/h/spr/prbchp/978-3-319-33865-1_36.html
- Biao, L., Liru, L., & Ying, S. (2021). Understanding the Influence of Consumers' Perceived Value on Energy-Saving Products Purchase Intention. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.640376>
- Brainberry. (2024). *The Role of Personalization in Travel*. Retrieved from: <https://brainberry.ua/newsroom/blog/role-of-personalization-in-travel>
- Bremner, C. (2023). *Understanding Consumer Preferences for Destination*. Retrieved from <https://www.euromonitor.com/article/understanding-consumer-preferences-for-destination-marketing>
- Brown, M., Muchira, R., & Gottlieb, U. (2007). Privacy Concerns and the Purchasing of Travel Services Online. *Information Technology & Tourism*, 9. <https://doi.org/10.3727/109830507779637620>
- Buhaljoti, A. (2013). Identifying Key Factors Affecting Customer's Decision-Making of Internet Service Providers in Albania. *Management Dynamics in the Knowledge Economy*, 7(3), 407-422. <http://dx.doi.org/10.25019/MDKE/7.3.08>
- Chen, C.-M., Lin, Y.-L., & Hsu, C.-L. (2017). Does air pollution drive away tourists? A case study of the Sun Moon Lake National Scenic Area, Taiwan. *Transportation Research*, 53, 398-402. <https://doi.org/10.1016/j.trd.2017.04.028>
- Crouch, G. I. (1995). A Meta-Analysis of Tourism Demand. *Annals of Tourism Research*, 22, 103-118. [http://dx.doi.org/10.1016/0160-7383\(94\)00054-V](http://dx.doi.org/10.1016/0160-7383(94)00054-V)
- DART (2024). *[Turystyczna statystyka Ukrainy za I kwartał 2024 roku [Tourism statistics of Ukraine for the first quarter of 2024].* (In Ukrainian). Retrieved from <https://www.tourism.gov.ua/blog/u-2024-roci-doderzhbyudzhetu-vid-turistichnoyigaluzi-vzhe-nadiyshlo-616-mln-grn>
- Deng, W., Su, T., Zhang, Y., & Tan, C. (2021). Factors Affecting Consumers' Online Choice Intention: A Study Based on Bayesian Network. *Frontiers in Psychology*, 12, 731850. <https://doi.org/10.3389/fpsyg.2021.731850>
- Djeri, K., Plavša, J., & Cerovic, S. (2007). Analysis of potential tourists' behaviour in the process of deciding upon a tourist destination based on a survey conducted in Bačka region. *Geographica Pannonica*, 11, 70-76. <https://doi.org/10.5937/Geo-Pan0711070D>
- Dolnicar, S. (2007). Market segmentation in tourism. In Woodside, A., & Martin, D. (Eds.), *Tourism management: analysis, behaviour and strategy* (pp. 129-150). Cambridge: CAB International.
- Fernández-Morales, A. (2021). Cluster Analysis in Tourism. In Jafari, J., & Xiao, H. (Eds.), *Encyclopedia of Tourism* (pp. 1-2). Cham: Springer. https://doi.org/10.1007/978-3-319-01669-6_319-2
- Fleischer, A., & Rivlin, J. (2009). Quality, Quantity and Duration Decisions in Household Demand for Vacations. *Tourism Economics*, 15(3), 513-530. <https://doi.org/10.5367/000000009789036558>
- Gasimova, M. (2016). The Study of the Factors, Affecting Consumer Choice. *Path of Science*, 2(12), 39-43. <http://dx.doi.org/10.22178/pos.17-20>
- Haley, R. I. (1968) Benefit segmentation: a decision-oriented research tool. *Journal of Marketing*, 32, 30-35. <https://doi.org/10.1177/002224296803200306>
- Haubl, G., & Trifts, V. (2000). Consumer decision making in online shopping environments: the effects of interactive decision aids. *Marketing Science*, 19, 4-21. <https://doi.org/10.1287/mksc.19.1.4.15178>
- Huang, X., Dai, S., & Xu, H. (2020). Predicting tourists' health risk preventative behaviour and travelling satisfaction in Tibet: Combining the theory of planned behaviour and health belief model. *Tourism Management Perspectives*, 33, 100589. <https://doi.org/10.1016/j.tmp.2019.100589>
- Ioannou, A., Tussyadiah, I., & Miller, G. (2021). That's Private! Understanding Travelers' Privacy Concerns and Online Data Disclosure. *Journal of Travel Research*, 60(7), 1510-1526. <https://doi.org/10.1177/0047287520951642>
- Khan, S. A., Liang, Y., & Shahzad, S. (2015). An empirical study of perceived factors affecting customer satisfaction to re-purchase intention in online stores in China. *Journal of Service Science and Management*, 8, 291-305. <https://doi.org/10.4236/jssm.2015.83032>
- Klebanova, T. S., Gur'janova, L. S., & Chagovec, L. O. (2018). *Biznes-analytika bagatovymirnyh procesiv [Business Analysis of Multidimensional Processes]* (272 p.). Kharkiv: KHNEU im. S. Kuznetsya. (In Ukrainian)
- Kotler, P., & Turner, R. (1993). *Marketing management: analysis, planning, and control*. Prentice-Hall Englewood Cliffs.
- Li, X. R., Meng, F., Uysal, M., & Mihalik, B. (2013). Understanding China's long-haul outbound travel market: an overlapped segmentation approach. *Journal of Business Research*, 66(6), 786-793. <https://doi.org/10.1016/j.jbusres.2011.09.019>
- Mashuta, Yu. (2024, November 19). *Tested by war. What the survey of the tourist business in 2024 showed [Vyprobuvannia viinoiu. Shcho pokazalo opytuvannia turystychnoho biznesu v 2024 rotsi.]*. (In Ukrainian). Retrieved from <https://omore.city/articles/391576/stan-turizmu-v-ukraini-2024>
- March, R. (1997). Diversity in Asian outbound travel industries: A comparison between Indonesia, Thailand, Taiwan, South Korea and Japan. *International Journal of*

- Hospitality Management*, 16, 231-238. Retrieved from: https://scholar.google.com/scholar_lookup?title=Diversity+in+Asian+outbound+travel+industries+A+comparison+between+Indonesia,+Thailand,+Taiwan,+South+Korea+and+Japan&author=March,+R.&publication_year=1997&journal=Int.+J.+Hosp.+Manag.&volume=
27. Mckercher, B., Chan, A., & Lam, C. (2008). The Impact of Distance on International Tourist Movements. *Journal of Travel Research*, 47, 208-224. <https://doi.org/10.1177/0047287508321191>
 28. Moutinho, L. (1987). Consumer Behaviour in Tourism. *European Journal of Marketing*, 21(10), 3-44. <https://doi.org/10.1108/EUM0000000004718>
 29. Neumayer, E. (2004). The Impact of Political Violence on Tourism: Dynamic Cross-National Estimation. *The Journal of Conflict Resolution*, 48(2), 259-281. <https://doi.org/10.1177/0022002703262358>
 30. Orisy Infotech (2018). *Factors Influencing the Consumer Decision for Travel Planning*. Retrieved from <https://www.orisyinfotech.com/factors-influencing-the-consumer-decision.php>
 31. Pinto, I., & Castro, C. (2019). Online travel agencies: factors influencing tourists' purchase decisions. *Tourism & Management Studies*, 15(2), 7-20 <https://doi.org/10.18089/tms.2019.150201>
 32. Rjasna, M. V., & Lytvynenko, Ju. O. (n.d.). *Klasternyi analiz v marketyn-hovykh doslidzhenniakh [Cluster analysis in marketing research]*. (In Ukrainian). Retrieved from <https://core.ac.uk/download/300238166.pdf>
 33. Prastiwi, I., & Fitria, T. (2021). Benefit Perception Analysis, Risk Perception, Hedonic Motivation, Psychological Factors, Web Design To Online Shop Purchase Decisions. *RELEVANCE Journal of Management and Business*, 4(1), 039-057. <https://doi.org/10.22515/relevance.v4i1.2883>
 34. Robaina, M., Madaleno, M., Silva, S., Eusébio, C., Carneiro, M. J., & Gama, C. (2020). The relationship between tourism and air quality in five European countries. *Economic Analysis and Policy*, 67, 261-272. <https://doi.org/10.1016/j.eap.2020.07.012>
 35. Rodrigues, V., Carneiro, M. J., Eusébio, C., Madaleno, M., Robaina, M., Gama, C., . . . Monteiro, A. (2021). How important is air quality in travel decision-making? *Journal of Outdoor Recreation and Tourism*, 35, 100380. <https://doi.org/10.1016/j.jort.2021.100380>
 36. Rosselló, J., Becken, S., & Santana-Gallego, M. (2020). The effects of natural disasters on international tourism: A global analysis. *Tourism Management*, 79, 104080. <https://doi.org/10.1016/j.tourman.2020.104080>
 37. Shi, T., Liu, X., & Li, J. (2018). Market Segmentation by Travel Motivations under a Transforming Economy: Evidence from the Monte Carlo of the Orient. *Sustainability*, 10, 3395. <https://doi.org/10.3390/su10103395>
 38. Singh, S., & Jang, S. (2020). Search, purchase, and satisfaction in a multiple-channel environment: how have mobile devices changed consumer behaviors? *Journal of Retailing and Consumer Services*, 10, 10-16. <https://doi.org/10.1016/j.jretconser.2020.102200>
 39. Smith, V. L. (1998). War and tourism: An American ethnography. *Annals of Tourism Research*, 25, 202-227. [https://doi.org/10.1016/S0160-7383\(97\)00086-8](https://doi.org/10.1016/S0160-7383(97)00086-8)
 40. Sonmez, S., & Graefe, A. (1998). Influence of terrorism risk on foreign tourism. *Annals of Tourism Research*, 25(1), 112-144. [https://doi.org/10.1016/S0160-7383\(97\)00072-8](https://doi.org/10.1016/S0160-7383(97)00072-8)
 41. Statista (2024). *Global tourism industry – statistics & facts*. Retrieved from: <https://www.statista.com/topics/962/global-tourism/#topicOverview>
 42. Tiwari, M., & Tripathi, S. (2023). Application of Clustering Algorithms on Tourism Industry. *International Journal for Research in Applied Science and Engineering Technology*, 11(5), 2290-2294. <https://doi.org/10.22214/ijaset.2023.51380>
 43. Um, S., & Crompton, J. L. (1990). Attitude Determinants in Tourism Destination Choice. *Annals of Tourism Research*, 17, 432-448. [http://dx.doi.org/10.1016/0160-7383\(90\)90008-F](http://dx.doi.org/10.1016/0160-7383(90)90008-F)
 44. Walters, G., Wallin, A., & Hartley, N. (2019). The Threat of Terrorism and Tourist Choice Behavior. *Journal of Travel Research*, 58(3), 370-382. <https://doi.org/10.1177/0047287518755503>
 45. Wang, M., Sun, L.-L., & Hou, J.-D. (2021). How emotional interaction affects purchase intention in social commerce: the role of perceived usefulness and product type. *Psychology Research and Behavior Management*, 14, 467-481. <https://doi.org/10.2147/PRBM.S301286>
 46. Woodside, A. G., & Lysonski, S. (1989). A General Model of Traveler Destination Choice. *Journal of Travel Research*, 17, 8-14. <https://doi.org/10.1177/004728758902700402>
 47. Yarcan, Ş., & Cetin, G. (2021). *Tour Operating Business*. Istanbul: Istanbul University Press.
 48. Zauner, A., Koller, M., & Hatak, I. (2015). Customer perceived value – Conceptualization and avenues for future research. *Cogent Psychology*, 2(1). <https://doi.org/10.1080/23311908.2015.1061782>
 49. Zhao, J., & Zhu, C. (2023). Modeling and Quantifying the Impact of Personified Communication on Purchase Behavior in Social Commerce. *Behavioral Sciences*, 13(8), 627. <https://doi.org/10.3390/bs13080627>
 50. Zhao, S., & Chen, L. (2021). Exploring residents' purchase intention of green housings in China: an extended perspective of perceived value. *International Journal of Environmental Research and Public Health*, 18, 4074. <https://doi.org/10.3390/ijerph18084074>
 51. Zou, Y., & Meng, F. (2019). Chinese tourists' sense of safety: perceptions of expected and experienced destination safety. *Current Issues in Tourism*, 23(15), 1886-1899. <https://doi.org/10.1080/13683500.2019.1681382>
 52. WTTC (2021). *Emerging consumer trends in Travel & Tourism in 2021 and beyond trending in travel*. Retrieved from https://wtcc.org/Portals/0/Documents/Reports/2021/Trending_In_Travel-Emerging_Consumer_Trends-231121.pdf