Balancing Interests in the Field of Tourism Based on Digital Marketing Tools

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Abstract

Digital technologies are actively implemented in all areas of tourism. The article identifies the main areas of balancing interests in the field of tourism on the basis of optimization of digital marketing tools. Analytical research has shown that a set of sales channels in the Internet environment and a set of tools are formed, depending on the marketing strategy of the travel company. The main tactics and tools of digital marketing in tourism are highlighted. These are: the company's website, digital marketing channels - online channels for promoting and attracting customers: SEO, online advertising, email marketing, sales funnel, content

marketing, teaser advertising, SMM, etc. The study proposes the application of portfolio investment theory to optimize investment in digital marketing tools to achieve a specific goal. The article uses a method of building a mathematical model that will optimally distribute financial investments in digital marketing. Thus balancing of interests in the field of tourism on the basis of digital marketing tools is offered on the basis of KPI indicators, according to the allocated purposes.

Keywords: Balancing interests in tourism; Digital – marketing; Portfolio investmen; KPI; Tourism.

Introduction

According to forecasts *UN, in the next five years, the newest opportunities for socio-economic development opens the economy of impressions (> $ 6.5 trillion) (*Future Possibilities Report, 2020). Based on the economy of impressionsover the past few decades, the tourism industry has become the most dynamic and profitable industry. According to the World Tourism and Travel Council, the world tourism sector accounts for 10.3% of world GDP and 330 million jobs, accounting for almost 10% of the total employed population. Therefore, it is important for the tourism industry to constantly search for new and innovative ways to promote their brand and attract new visitors. The current 2020 year has been special for tourism brands, as COVID-19 has halted much of this sector of the economy. In such conditions, travel companies have to act creatively, show a creative approach.

With almost two-thirds of the population having mobile phones and the number of people going online increasing by 7% annually, the smart technology process will continue to streamline processes and services in many sectors, especially tourism and travel. Marketing is now using more and more digital technology, opportunities to meet the target audience online, shift the focus of activities and contacts on the Internet. Thus, the issue of introduction of digital marketing tools as a priority in balancing interests in the field of tourism is relevant.

The hypothesis of this study: to increase the efficiency of the tourist enterprise in the market requires active implementation of instrumental marketing solutions to identify the target audience and convey to consumers the value of the product or service through modern digital channels and marketing tools. Thanks to this study, the main directions were identified balancing interests in the field of tourism on the basis of optimization of digital marketing tools.

Literature Review

The field of tourism is in constant search of new forms and models for managing the activities of tourism enterprises that will increase their efficiency and competitiveness at the regional and international levels.To understand motivation and behavior of tourists, it is important to understand the essence of the tourist experience as a set of impressions formed by the tourist from the trip (Leiper, 1979). Therefore,experience, hobbies, expectations, desires of potential travelers are the driving force of tourism (Cooper & Hall, 2008).

Transformational changes in the tourist system, within the framework of the fourth industrial revolution, is based on the following areas:

• Internet of things (LoT);

• Cyber-Physical Systems (CPS);

• convergence of information and communication technologies with tourism experience, their further expansion and integration into the platform, which includes all stakeholders operating in the tourism sector: tourists, local population of the tourist destination, municipal authorities, tourism service providers.

Under the influence information and computer revolution in the production structure of the tourist system there are significant qualitative changes that affect all components. It becomes more complicated and instead of technological chains takes the form of a network platform, which is organized on the basis of the principles:

• interaction of all participants, their connection with each other;

• unlimited number of participants in the interaction;

• increasing quantity and quality connections between participants.

Thus, a single environment for joint management is being formed on the global Internetbusiness in the field of tourism. The specific features of such an environment are its ability to provide the possibility of simultaneous operation of all economic entities and end users - visitors in real time. In addition to the real ones, there are virtual (network) enterprises, which are also called limitless or expanded, because their borders are blurred due to intensive information exchange with numerous partners - other enterprises, organizations, teams and individuals (Gontareva et al., 2020). The development of digital technologies has a significant impact on the development of tourism, becomes the basis of overall pervasive integration. Integration processes affect not only the organization of the tourism business, but also the process of forming a system of tourist values and creating the value of the tourist system. Each of the participants has its own goals, but there is an interdependence of network interaction, when the participants together create greater value for the end user, ie synergistic effects are formed (Lappiet al., 2015; Holovatyi, 2014).

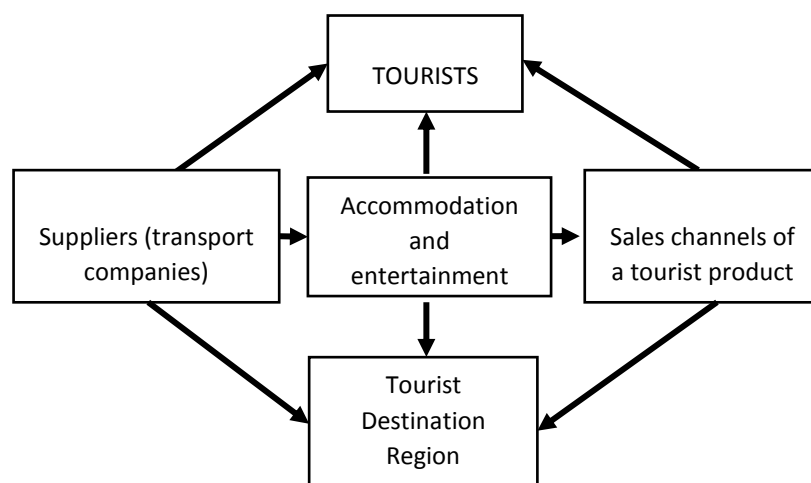Value chains are replaced by the cost network (Fig. 1).

Figure 1. Components of the cost network of the tourist system

Value creation is a complex dynamic process of interaction between a system of actors who jointly create value and at the same time ensure the commercialization of such value, which acquires the qualities of an asset, with its value characteristics (Pinho & Fisk, 2014). Thus in a network value and cost is created as a result of much more intensive cooperation of all participants, so the presence of connections, their concentration and density of connections are so important for this process. The tourist system is aimed at the joint integrated use of tourist and recreational resources and increase the competitiveness of the local tourist product through the cooperation of partner companies. Consumer value comes to the fore and becomes the core of the tourism product. The service concept is aimed at obtaining the expected values of the tourist. The tourist product offered to the consumer is an integrated experience (complex of emotions and impressions) (Pavlenchyk et al., 2019; Ramazanov et al., 2020). Marketing and management of tourism and service consider the tourist (consumer) as a partner, "cocreator" of the tourist product and the process of providing services (Romanenko & Chaplay, 2016). Marketing is evolving towards a focus on services with a human-centered approach (Sudomyr, et al., 2020). In this sense, the focus of marketing is relationships and intangible resources.

Digital marketing is a set of promotion tools that involve digital channels for communication with the consumer. This creates endless marketing opportunities for brands. According to modern trends in tourism marketing, experts highlight new technologies, personalization and development of conscious tourism. Travel marketing strategies can help you find the best way to improve your business and regain your position in the industry.

Methodology

The methodological basis of this article was a systematic approach to the analytical review of modern digital channels, SMM-technologies, based on which a set of marketing tools to improve the efficiency of tourism services. To study the modern market of tourist services

from the standpoint of digital channels and SMM-technologies, a comprehensive approach to the study of this problem through scientific methods of analogy, analysis and synthesis, methods of observation, statistical information processing, description and generalization.

In order to develop a flexible promotion strategy and get the most out of itdigital marketing,you need to competently set goals that are the key interests of the parties. To do this, it is proposed to use the KPI system as a reflection of goals. This simulates all marketing activities that managers seek to relate to the final profit, with the identification for each channel of their performance indicators. These indicators can more objectively reflect the result, but to be higher in the sales funnel, are transformed into KPIs that are as close as possible to the ultimate goal.

The article uses a method of building a mathematical model that will optimally distribute financial investments in digital marketing.The product of this study is a model for planning and optimizing the budget for digital marketing programs. With balancing interests in the field of tourism on the basis of digital marketing tools are offered on the basis of KPIs, according to the selected goals. These developments are presented on the basis of the analysis and the identified problems intourism, which arose as a result of the global crisis during the pandemic COVID-19.The study is based on the experience of countries around the world in the restoration and development of tourism, the transformation of the interests of all participants and modern technologies and andtools of digital marketing in balancing interests in the field of tourism.

Results

Modern marketing tools for travel brands

For tourism, 2020 has become a starting point for global changes that have affected absolutely all areas, tools and approaches to working with potential audiences and promoting the tourism product.

There are a number of tactics and tools that pertain to the concept of digital marketing. This is the company's website and digital marketing channels - online channels for promoting and attracting customers: SEO, online advertising, email marketing, sales funnel, content marketing, teaser advertising, SMM and more.

The presence of web representation has become an integral part of the corporate style for tour companies, hotels and other participants in the tourism business.

Sites of the tourism sector are divided into the following categories:

• General purpose sites that have tourist sections. The catalogs contain many links to travel projects, sites of portals, forums, travel agencies, hotels, in general, everything related to tourism. The most popular sites for the period September-October 2020 are presented in Figure 2.

			%
1	G	google.com	92,6
2	▶	youtube.com	68,8
3	f	facebook.com	63,9
4	W	wikipedia.org	49,7
5	●	rozetka.com.ua	43,9
6	prom	prom.ua	41,4
7	olx	olx.ua	40,0
8	P	privatbank.ua	35,6
9	U	ukr.net	34,8
10	◉	instagram.com	34,5
11	sinoptik	sinoptik.ua	26,2
12	УП	pravda.com.ua	25,4
13	HB	nv.ua	22,6
14	UNIAN	unian.net	22,2
15	ria	ria.com	20,6
16	24	24tv.ua	17,6
17	VK	vk.com	17,2
18	comfy	comfy.ua	16,9
19	gordon	gordonua.com	16,8
20	edu	edu.ua	16,2
21	TCH	tsn.ua	16,1
22	K	korrespondent.net	16,0
23	allo	allo.ua	16,0
24	🐾	bigl.ua	15,9
25	⊛	osvita.ua	14,7

September 2020
October 2020

Figure 2. Rating of the most popular sites (Kantar, Ukraine, 2020)

The most popular sites in September-October 2020 steel: Google, Youtube, Facebook.

• Specialized tourist portals and sites: Otiumportal, Camping.dp.ua, Boundless, City Card, Cosmopolitan, oriole.in.ua, RestLib, Green Odessa, Free Travel, Travel Sale, Rhythm of my life. Nand they collected information about travel agencies, tickets, individual tours, etc. Very convenient resources for posting information about the company, firm, hotels, users of the portals are mainly interested audience.

• Sites of tour operators, travel agencies, on the pages of which you can learn about the company's activities, choose a tour, contact a company representative, ask questions and get advice, as well as discuss the terms of interaction.

• Sites of hotels, rest homes, tourist bases and others. They allow users without intermediaries to decide on a place of rest or residence, learn about prices, conditions, book a room, contact a company representative and discuss the details of cooperation.

Parameters that determine the quality of the tourist web resource: professional design; loading pages; informativeness; ease of navigation; updatability of pages; functionality, interactive services; browser compatibility; search engine optimization.

Search engine optimization (search engine optimization, SEO) - a set of measures aimed at raising the position of the web resource in search results for specific user queries. SEO is

most often used to attract traffic from search engines, ensuring effective communication with the target audience that comes to the site from any source. SEO tools: websites, blogs, infographics, search engines.

The main trend of the modern online environment is the socialization of the Internet. There are tens of thousands of different social networks and services: communication, news, professional, graphic, blogging, video, etc.

Social Media Marketing (SMM) - a set of measures to promote a product or service through communication with representatives of the target audience in social resources. The task of SMM is to interest Internet users and attract them to the site directly, bypassing search engines. SMM's activities are aimed at increasing the loyalty of the target audience to a particular brand or media person. SMM provides a number of comprehensive products: promotion; customer support; reputation management; monitoring of social networks. One of the main advantages of SMM is the wide coverage and the ability to select the target audience with a very high degree of accuracy. Channels used by social media marketing (SMM): Facebook; Twitter; LinkedIn; Instagram; Snapchat; Pinterest. Each of the social networks has its own characteristics that should be considered when choosing a site and forming a strategy. For example, Facebook is suitable for publishing long articles and news, graphics. YouTube is perfect for posting product reviews. Instagram is good for working with people and sharing values, and Twitter is good for posting short posts with links to articles and products. Tourism is actively promoted through SMM. Users are attracted by high-quality thematic content, so the key component of promotion on social networks is the publication of posts by an SMM-specialist according to the content plan and approved strategy. But it is not enough to make interesting posts - it is vital for business to find those who will read them. Thematic hashtags, contests, work with bloggers, paid posts and stories are used for this purpose. As part of the promotion of social networks, an active loyal audience is recruited, brand awareness is increased and sales take place. Marketers create different types of SMM content - collages, photos, videos and GIFs, which receive millions of coverage and views. But the most powerful tool for promotion - targeted advertising on social networks.

Content marketing - creating and promoting content to increase brand awareness, increase traffic, communicate with the target audience, generate leads and attract new customers. Content marketing is considered to be one of the most effective tools for promoting an online business. Channels for implementing the content marketing strategy: blog posts; e-books and articles; podcasts; deposits; ice magnets; infographics; online brochures and catalogs.

E-mail mailing is a very effective marketing channel in the tourism industry. In the tourism industry, emails are relevant throughout the life cycle of the client: from vacation planning to transaction letters throughout the trip. Email mailing in tourism - it is the development of a logical scheme of work with subscribers, based on their preferences and life cycle (attraction, retention, reactivation). The purpose of e-mail marketing in tourism is to create a trusting relationship between the agency and the client, increase loyalty and make

one-time customers permanent. Email mailing in tourism is the fastest and most personalized news feed. Personalization in tourism is a very promising way to improve communication with consumers. According to the Experian study, personalized email topics in tourism and consumer products give impressive results - 40.8% and 41.8% respectively. Additional sales are possible. In addition, there is a real opportunity to build a more trusting relationship with customers, because there is simple feedback.

The marketing agency iVOX Ukraine conducted a survey which showed that 78% of respondents prefer to receive news by e-mail and only 7% - from social networks. So, e-mail is availablethe most accessible advertising channel.

A new marketing trend in tourism is mobile first. Relatively recently, the Google search engine announced that it would rank sites primarily on the basis of how well optimized content is for mobile devices. According to the latest analytical data, the website of a travel agency (tour operator) is visited by 40% or more of visitors from a mobile phone. If the site is not adapted for viewing on mobile devices, the travel agency loses its potential customers.

Mobile advertising can be implemented in different ways: ads in applications; static advertising inserts; video advertising; ad playback; mobile web ads; native advertising.

A business that uses different digital marketing channels has the opportunity to interact with the target audience much more efficiently and in a timely manner, thereby constantly increasing the number of new customers and audience loyalty to the brand.

To promote themselves in the market, companies use digital channels, such as search engines, social networks, e-mail and other web resources, to communicate with current and potential customers. The main techniques of modern digital marketing are:

1. Voice search. The peculiarity is that the key phrases in SEO are selected not from the standpoint of grammar, but with an emphasis on how these words are pronounced by people.

2. Chatbots. This technology is used for personalized automatic assistance.

3. Video marketing, ie placement of thematic videos on relevant Internet resources.

The main advantage of Internet marketing is through analytics, when information about purchases is transmitted to the system, and it is possible to see how many applications for tours were received from advertising and how many tours were bought, and most importantly - what income the travel agency received.

The latest market instruments include the following:

1. Social commerce, which is based on the purchase of goods directly through publications, advertising, contacts and completed transactions on social networks. This method helps reduce the number of transactions that the customer needs to do to order.

2. Personal contacts, messages to any messengers or social networks. This tool optimizes service, helps to establish relationships with the client, allows you to quickly respond to his order, complaint, give advice.

3. Micro- and nanoinfluencers, which the audience considers experts, and therefore, advertising campaigns with a "microblogger" have higher rates of involvement. Unlike large bloggers, they have a small number of followers, but they can pay more attention to each subscriber.

4. Interactive and high-quality email, as a communication channel, which is currently upgraded with the latest tools (mailing with reduced text content, e-mails with quality design, reminiscent of the design and content of the web page, have interactive keys, other elements of interaction, etc.).

5. Mood analytics - the purpose of which is to study the reaction of the target audience and users of the Network to the service / product.

6. Software advertising, the production of which is engaged in work. At the same time, contextual advertising is set up as a way to attract the target audience by means of automation (using artificial intelligence, machine learning).

   One of the trends of 2020 is working with messengers. Most of the communications flowed from mailboxes to Whatsapp, Telegram, Facebook Messenger. Many large companies, which until recently held huge telephone support states, are now switching entirely to chatbots. It has already become the norm to set up online chat and stay in touch 24/7 on websites. Chatbots, regular mailing, sales managers who advise potential customers online - this is something that is being actively implemented in 2020.

   The attitude to such an advertising channel for potential consumers is different (Fig. 3).

   According to the survey, for 40% of respondents, advertising in messengers is an annoying factor that distracts from communication. 16% of respondents do not accept advertising in any of its manifestations. 23% treat commercial messages positively if the information is useful and relevant. 12% of respondents are willing to tolerate advertising, as this is a guarantee of free use of applications.
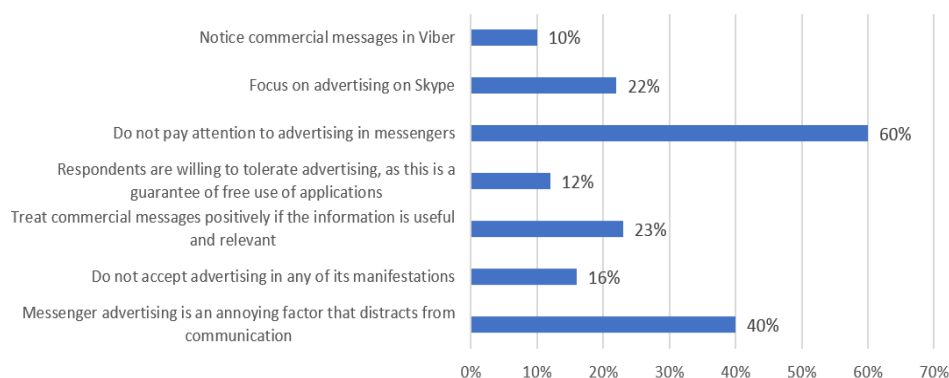

Figure 3. Relation to the advertising channel messenger from potential consumers

60% of study participants said that they do not pay attention to advertising in messengers. 22% of respondents focus on advertising on Skype, 10% notice commercial messages on Viber.

According to iVOX Ukraine, these two messengers are the most famous among Ukrainian Internet users: 94% and 84% respectively know or have heard something about them. In third place is ICQ (69%), which is more to the liking of older people. It is used by 14% of respondents aged 45-59, 12% of respondents aged 30 to 44 and only 9% of young people who took part in the survey.

KPI systems in the modeling of marketing activity with identification for each channel of performance indicators

The condition for the effectiveness of the strategy to promote and maximize the effect of Internet marketing channels is the correct and timely delivery of goals.

Digital marketers are responsible for increasing brand awareness and generating leads through all of the company's digital channels (both paid and free) (Bila et al., 2020). These channels include: social networks; own company website; search engine ranking (SEO); email marketing; media (banner) advertising; company blog.The KPI system displays such goals (although it does not necessarily contain them in their original form). The digital marketer tracks the key performance indicators (KPIs) of each of these channels. This allows you to adequately assess the performance of the company for each of the marketing tactics. Balanced KPI (Key Performance Indicators) includes indicators from different groups, each of which is assigned its own weighting factor, according to the priorities of the customer and the degree of influence of the performer on a particular metric. For example, the number of orders may have a high share if adjustments aimed at improving the relevant characteristics of the site are implemented as quickly as possible.

Figure 4 shows the main groups of indicators used in assessing the effectiveness of SEO and other Internet marketing channels.
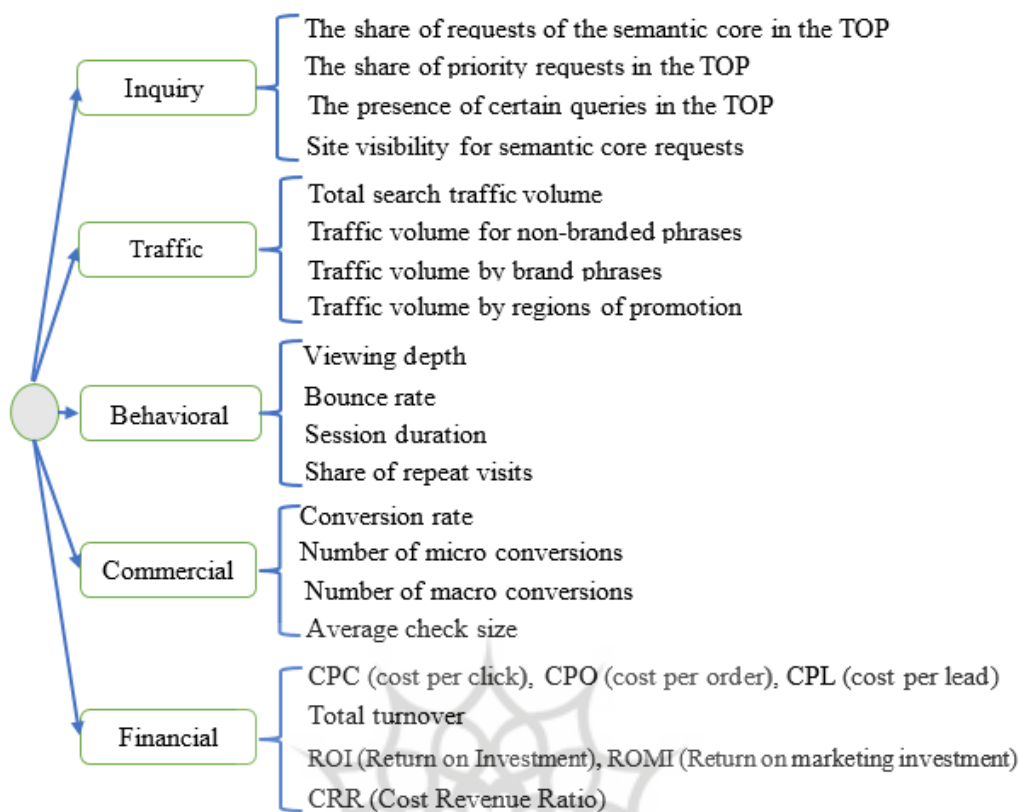
Figure 4. Indicators of the effectiveness of SEO and other Internet marketing channels

Table 1 presents an example of KPIs, in accordance with the selected goals and weights of KPIs.

Table 1. KPI system, according to objectives

Target	KPI	Specific weight, %	Plan	Fact	The result of the indicator,%	The result of the norm,%	Bonus amount,%
Attracting audiences from search engines	Total search traffic	45	15000	14500	97%	97%	44%
Form a tourist brand	The volume of traffic on brand phrases	10	10000	8000	80%	80%	8%
Positions by target search phrases	The share of priority requests in the TOP-10	25	14%	17%	121%	100%	25%
Increase in sales in the regions	Number of orders in the regions	20	180	80	44%	0%	0%
				The amount of the bonus reward			77%

For the selected KPIs, their specific weight is indicated. It is also important to determine the ranges of acceptable results for each indicator.

In the proposed KPI system, they looked as shown in Table 2.

Table 2. Permissible range of indicators of the KPI system

KPI	Valid result range
Total search traffic	80-100%
The share of priority requests in the TOP-10	60-100%
Number of orders in the regions	50-100%
The volume of traffic on brand phrases	30-100%

Accordingly, the KPI of total search traffic (97%), traffic on brand phrases (80%) when calculating the bonus was taken into account on the fact, KPI on queries (121%) - as 100% of the plan, and KPI on order (44%) - as unfulfilled plan.

In terms of search query encryption, any estimate of the ratio of branded to non-branded traffic will have a significant error. After all, today in statistical systems, as a rule, there are no more than 60% of queries (in particularly severe cases, 5-10% in general). Optimizers try to get more information on key phrases, but the brand / non-brand ratio can only be determined by extrapolating the data. Therefore, such a division of traffic is de facto conditional, but for the process of branding a tourist product is important. Branding traffic is allocated in the implementation of branding goals. If non-landing pages are ranked in the issue of branded queries, which significantly reduces the effectiveness of conversions.

It is important to note that the maximum value is not always limited to 100%. Many clients encourage contractors to overfulfill the plan, so they do not set an upper limit for commercial and financial performance (Vovk et al., 2020).

It is recommended to include up to 4-6 performance indicators in the reward system.

In many cases, one basic KPI is sufficient, as the growth of other indicators is necessary to achieve the goal (or is a direct consequence). But a large number of metrics, on the contrary, "blurs" the results and causes a feeling of insufficient SEO effectiveness, especially in the short term.

An effective digital marketing strategy combined with the right tools and technologies allows you to track all sales, up to the first digital contact with the customer.

Such tools and technologies are called attributive modeling. It allows you to track how people interact with the content or site of the company and buy the product.

This helps to make more informed decisions about marketing strategy. Namely: which direction deserves more attention, and which elements of your sales cycle need refinement.

Modeling of optimization of digital marketing tools in tourism

The set of sales channels in the Internet environment and a set of tools are formed, depending on the marketing strategy of the tourist enterprise.

Because the cost of keeping digital Marketing tends to increase, so planning, control and resource allocation in online promotion and sales are becoming major challenges for successful business.

Typically, an organization's digital marketing program includes several tools that form a permanent (or for some time permanent) set - a portfolio. For various reasons, often by expert method, the budget for digital marketing is distributed, with identification for each tool. There is a specific task - to optimize the distribution of investments in a set of digital marketing tools so as to maximize the profitability of a set of tools.

In this study, it is proposed to consider costs as investments. We define the channels of involvement as the sources of the target audience, and the means of establishing contact are the tools of digital marketing. A set of digital marketing tools is an investment portfolio where each tool is an asset with its own return. Therefore, it is proposed to apply portfolio investment theory to optimize investment in digital marketing tools to achieve a specific goal. The Harry model is based on the valuation of the portfolio investment of securities Markovica (Markowitz, 1991). The idea of applying the Markovic model is the interdependence of the profitability of different assets of the portfolio: the growth of the profitability of one asset can cause different effects on other assets (simultaneous growth of some, falling of others, sometimes lack of response). That is, portfolio diversification (inclusion of assets with different indicators of covariance) allows for regulatory adjustment of a set of digital marketing tools, which reduces portfolio risk. However, determining the correlation coefficient is quite time consuming. In contrast to the Markovitz model, which considers only the profitability of each digital marketing channel, Sharpe's index model (Sharpe, 1963) considers the relationship between the profitability of each tool (digital marketing channel) and the profitability of the web resource as a whole.

This model has the property of linearity:

$$r_i = \alpha_i + \beta_i + \varepsilon_i \tag{1}$$

where r_i - profitability of the instrument for this period;

α_i - regression coefficient, shows the excess profitability of this tool (positive or negative), ie how the tool works better or worse than the entire web resource as a whole;

β_i - regression coefficient, explains the relationship between the profitability of the instrument and the profitability of the resource as a whole, indicates the systematic risk;

ε_i - non-systematic risk, which is called residual risk, which characterizes the degree of variance of the values of deviations of the profitability of the digital marketing channel relative to the regression line. Residual risk is defined as the mean deviation of the empirical points of return of the instrument from the regression line (random error variance).

Therefore, the risk of investing in a channel with a corresponding return is determined β_i-risk and residual risk ε_i. Equation (1) is a linear pairwise regression equation. In the situation of its application to a widely diversified portfolio, the values of random errors ε_i compensate each other. Therefore, the value of the random variable for the portfolio as a whole is close to zero. Thus, in terms of investing in a widely diversified portfolio, the specific risk can be neglected. According to the model, the profitability of the portfolio of digital marketing tools is the weighted average value of the profitability of the tools of its components, taking into account the β_i risk.

The indicator of profitability of the digital marketing tool is taken to be the calculated expected profitability of the ROI tool equal to its average value, in the dynamics of the profitability of the tool for a time equal to the number of calculation n periods:

$$\overline{ROI} = \frac{\sum_{t=1}^{n} ROI}{n} \tag{2}$$

Depending on the type of web resource, a set of digital marketing tools, the ability to organize the collection of statistical and economic data, it is proposed to consider the profitability of the ROI channel as an indicator of return on investment based on the actual gross profit of digital marketing tool:

$$ROI_i = \frac{V_i - S_i - I_i}{I_i} \tag{3}$$

where V_i - revenue from the use of tools;

S_i - cost of goods and services and tools;

$V_i - S_i$ - gross profit and tools (W_i);

I_i - investment in the instrument.

Revenue and cost are economic data of the company, investments are economic data and data from the report of the web analytics system. Depending on the specifics and organization of the company, the ROI profitability indicator can be chosen revenue, net profit or other

profitability indicator, at the discretion of the manager or digital marketing specialist. The period is also assigned individually: day, week, month or other. The expected return on the portfolio of digital marketing tools for the period is calculated as the weighted average of the expected returns of digital marketing tools:

$$\text{ROI}_p = \sum_{i=1}^{k} V_i \overline{\text{ROI}_i} \tag{4}$$

where V_i - the share of the instrument in the portfolio, calculated by the formula:

$$V_i = \frac{P_i}{P_p} \tag{5}$$

where P_i - the value of investments in the i - th tool for the period, P_p - the total value of investments in the portfolio of digital marketing tools of the company for the period.

Similar considerations are made to calculate the ROI of the resource as a whole. The calculation is made for all digital marketing channels and / or additional sources of the target audience, which brings income. At the discretion of management and digital marketers, the profitability of the "web resource as a whole" may be not only profitability from the company's corporate website, but also profitability from other sites, such as social networks.

Portfolio risk is found by estimating the standard deviation and is determined by the formula:

$$\sigma_n^2 = \left(\sum \beta_i \cdot V_i\right)^2 \cdot \sigma_p^2 + \sum \sigma_{\varepsilon i}^2 \cdot V_i^2 \tag{6}$$

σ_n^2 - standard deviation of resource profitability, ie the risk indicator as a whole;

$$\sigma_{\varepsilon i}^2 = \frac{e\left(\text{ROI}_{it} - \alpha_i - \beta_i \cdot \text{ROI}_{pt}\right)^2}{(n-1)} \tag{7}$$

where n - is the number of considered periods, t - is the period.

Using this model, to calculate the characteristics of the portfolio, the task of maximizing profitability, at a given level of risk, takes the form:

$$
\begin{cases}
\sum \alpha_i \cdot V_i + ROI_p \cdot \sum \beta_i \cdot V_i \rightarrow \max \\
\left(\sum \beta_i \cdot V_i\right)^2 \cdot \sigma_p^2 + \sum \sigma_{\varepsilon i}^2 \cdot V_i^2 < \sigma_n^2 \\
\quad V_i > 0 \\
\quad\quad \sum V_i = 1
\end{cases}
\tag{8}
$$

This model takes into account the relationship between the profitability of the portfolio of digital marketing tools from the web resource as a whole and by individual tools. Accordingly, any changes that occur in the resource itself, external factors influencing the behavior of the target audience are reflected in all channels of digital marketing and the model takes into account these risks (both positive and negative).

This paper presents the results of applying the model to a specific organization. The company operates in the tourism market and is a small business representative. The company is represented in the global network by the company's website, the state has a marketing manager who deals with site maintenance, analytics, as well as online advertising and works with contractors on some other digital marketing tools.

The digital marketing complex includes the following set of tools:

1. Advertising on web resources in thematic directories with a tourist theme.

2. Contextual advertising Google.

3. Advertising in mobile applications.

4. Promotion of the brand and tourist product in paid search.

5. Newsletter.

A total of 5 digital tools are considered. The period (T) is the month, the data for the year are considered. Economic data on profit and investment are modeled by an expert method. Indicators ROI and $\overline{ROI}$ calculated by formulas (2) and (3). The data are presented in table 3.

Table 3. Evaluation profitability of digital marketing tools

T	Advertising on web resources in thematic directories with a tourist theme			Contextual advertising Google			Advertisingin mobile applications			Brand and travel product promotion in paid search			Newsletter		
	I_i	W_i	ROI_i	I_i	W_i	ROI_i	I_i	W_i	ROI_i	I_i	W_i	ROI_i	I_i	W_i	ROI_i
1	14	21	0.50	28	32	0.14	11	29	1.64	40	120	2.00	15	25	0.67
2	17	22	0.29	33	27	-0.19	12	33	1.75	38	77	1.03	15	0	-1.00
3	21	38	0.81	27	29	0.07	14	36	1.57	39	89	1.28	15	10	-0.33
4	18	30	0.67	29	34	0.17	14	18	0.29	41	102	1.49	15	32	1.13
5	20	25	0.25	31	37	0.19	20	29	0.45	35	140	3.00	15	18	0.20
6	22	27	0.23	30	33	0.04	18	42	1.33	36	99	1.75	15	26	0.73
7	15	29	0.93	35	24	-0.31	13	45	3.23	38	125	2.29	15	32	1.13
8	16	20	0.08	34	39	0.15	14	47	2.36	39	212	4.44	15	5	-0.67
9	17	37	1.18	32	36	0.13	15	29	0.93	41	88	1.15	15	19	0.27
10	20	23	0.15	27	31	0.15	22	28	0.27	40	102	1.55	15	25	0.67
11	21	24	0.14	29	39	0.34	14	24	0.71	38	65	0.71	15	0	-1.00
12	12	18	0.5	26	38	0.46	22	26	0.18	39	99	1.54	15	25	0.67
Σ	213	314		361	399		189	386		464	1318		180	217	
$\overline{ROI}$			0.53			0.05			1.23			1.94			0.21

I_i, W_i - in thousands of monetary units; ROI_i- share from 1.

According to table 3, the characteristics of the initial portfolio of digital marketing tools of the tourist enterprise has the following indicators:

$V_1 = 0.151$; $V_2 = 0.257$; $V_3 = 0.134$; $V_4 = 0.330$; $V_5 = 0.128$.

$\sigma_p^2 = 0.35$; $ROI_p = 0.92$.

To increase the effectiveness of digital marketing tools, it is advisable to use an active strategy - to increase profitability at a given estimated level of risk. The optimization model (8) was used. Data on portfolio optimization are given in table 4.

Table 4. Optimization of the portfolio of digital marketing tools

Tool	Initial portfolio		Optimized portfolio
	V_i	$\overline{ROI}$	V_i
Advertising on web resources in thematic directories with a tourist theme	0,151	0,53	0,30
Contextual advertising Google	0,257	0,05	0,10
Advertising in mobile applications	0,134	1,23	0,20
Brand and travel product promotion in paid search	0,330	1,94	0,30
Newsletter	0,128	0,21	0,10
ROI_p	0,92		1,458
σ_p^2	0,35		0,35
Magnification ROI_p	1,5848 / 158,48%		

Optimization increased the portfolio's return by 58.48% with the same level of risk. If necessary, the digital marketer can vary the restrictions at its discretion.

Therefore, the mathematical model (8) presented in the paper can be used for planning and budget optimization for digital marketing programs.

Conclusion

In this study the main aspects of using digital marketing tools in balancing interests in the field of tourism are considered. It is established that the use of the most effective digital marketing channels is important for the tourism business. This makes it possible to interact with the target audience more efficiently and in a timely manner, thereby constantly increasing the number of new customers and audience loyalty to the brand. The basic tactics and tools related to the concept of digital marketing are considered. The article uses a method of building a mathematical model that will optimally distribute financial investments in digital marketing. A set of digital marketing tools is an investment portfolio where each tool is an asset with its own return. It is proposed to apply the theory of portfolio investment to optimize investment in digital marketing tools to achieve a specific goal.The product of this study is a model for planning and optimizing the budget for digital marketing programs. With balancing interests in the field of tourism on the basis of digital marketing tools are offered on the basis of KPIs, according to the selected goals. These developments are presented on the basis of the

analysis and the identified problems intourism, which arose as a result of the global crisis during the pandemic COVID-19.The basis of the study is the experience of transforming the interests of all participants and modern technologies and andtools of digital marketing in balancing interests in the field of tourism.

Conflict of interest

The authors declare no potential conflict of interest regarding the publication of this work. In addition, the ethical issues including plagiarism, informed consent, misconduct, data fabrication and, or falsification, double publication and, or submission, and redundancy have been completely witnessed by the authors.

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