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Tykha T.

DEVELOPMENT OF INFORMATION AND ANALYTICAL MODEL OF THE STIMULATING INTERNET MARKETING

Об'єктом дослідження є Інтернет маркетинг у сучасному інформаційному мережному просторі. На тлі бурхливого розвитку інформаційних технологій мережа Інтернету все більш займає провідні позиції у сферах просування та продажу різноманітних товарів. Водночас з цим класичні методи та підходи маркетингу зазнають очевидних втрат домінуючих позицій. Одним з найбільш проблемних місць є ефективне застосування сучасних методів та підходів для розвитку Інтернет маркетингу та, зокрема, стимулюючого Інтернет маркетингу, який сприяє просуванню товарів відповідно до уподобань потенційних споживачів. Також існує потреба у збалансуванні задіяних ресурсів щодо упровадження Інтернет маркетингу відповідно до можливих обсягів отриманого результату.

В ході дослідження використовувалися класичні методи ведення маркетингу та новітні інформаційні технології розповсюдження та обробки інформації у мережевих системах. З метою усунення недоліків було запропоновано поєднання класичних та новітніх підходів воєдино, маючи на меті зробити стимулюючий Інтернет маркетинг більш простішим в управлінні процесом.

Узагальнено інформаційну модель стимулюючого Інтернет маркетингу. Ця модель складеться з окремих, взаємопов'язаних блоків, що спрямовані як на задоволення потреб потенційних клієнтів, так й дотримання вимог тих, хто надає відповідні інтернет-послуги. Саме врахування потреб та вимог усіх сторін, задіяних у стимулюючому Інтернет маркетингу у вигляді окремих взаємопов'язаних блоків моделі, дозволяє розкрити особливості такого процесу.

Відтак, забезпечується можливість визначення аналітичного опису інформаційної моделі стимулюючого Інтернет маркетингу. Це дозволяє визначати шляхи розвитку стимулюючого Інтернет маркетингу, напрями оптимізації його ведення. Це забезпечує такі переваги, як гнучкість процесу ведення стимулюючого Інтернет маркетингу та точкове доведення інформації до обраної цільової аудиторії.

Ключові слова: *інформаційна модель, стимулюючий Інтернет маркетинг, кількість переходів (відвідувань сайту), цільова аудиторія, пошукова оптимізація.*

1. Introduction

Internet marketing is developing rapidly in a practical way as well as from a theoretical point of view.

The basis of this development is:
– traditional marketing methods [1];
– methods of searching and analyzing information, making decisions in various areas and areas of human activity [2, 3];

– methods based on the capabilities and specificity of information technologies used on the Internet [4].

Internet marketing is aimed at finding the target audience. With the use of various search tools and tools for analyzing information through the use of Internet marketing, new products are promoted in the market, the use of various types of advertising, which affects the target audience and increases purchasing power. At the same time, classical marketing is viewed as a knowledge system aimed at managing consumer demand from the standpoint of a manufacturer of goods and a service provider.

That is, Internet marketing is one of the components of modern information technologies; it uses classical marketing methods to conduct marketing activities on the Internet in accordance with the conceptual framework for the functioning of information systems [5].

Therefore, the current research is aimed at the improvement and development of modern methods of conducting Internet marketing, the disclosure of individual components of this process, where it is worthwhile to highlight stimulating Internet marketing.

2. The object of research and its technological audit

The object of research is Internet marketing in the modern information network space. Against the background of the rapid development of information technology, the Internet network increasingly occupies a leading position in the areas of promotion and sale of various goods. At the same time, with this classic methods and approaches of marketing are experiencing obvious loss of dominant positions. One of the most problematic places is the effective application of modern methods and approaches for the development of Internet marketing and, in particular, stimulating Internet marketing, which contributes to the promotion of products in accordance with the preferences of potential consumers. There is also a need to balance the resources involved in the implementation of Internet marketing in accordance with the possible volume of the result.

Modern Internet technologies allow to track the number of transitions (visits) of the site, made with each hosted information and advertising message. So, it is possible to collect statistics:

– how many users came from a specific information platform;

– how long they were on the target site;

– what actions they performed on the site;

– determine the geography of visitors;

– by what keywords visitors find a site in search engines and the like.

All these data should be used to assess the effectiveness of management decisions from the point of view of all stakeholders using Internet marketing. At the same time, the latest advances in information technology have significantly expanded the possibilities of storing and processing information. This makes it possible to combine large amounts of information from several sources and to have as the most comprehensive information concerning a particular subject area.

However, one of the limiting disadvantages of the further application of classical marketing is that the number of buyers and suppliers decreases, their number approaches each other. The solution to this question is quite simple –

to make marketing a simpler process to manage. Consequently, it is necessary to analyze in more detail such an idea as market segmentation and positioning of individual sellers of goods, buyers, consumers in accordance with the operating conditions of the relevant market segments [5]. Consequently, there are modern approaches to the introduction of Internet marketing, among such approaches it is worth highlighting – landing, targeting, methods of multiple criteria for analyzing solutions, search engine optimization, etc. [6]. This leads, above all, to the definition of essentially different classifications of Internet marketing – both classical and using modern methods and approaches to the introduction of the latest information management concepts. In particular, the introduction of new approaches to the definition of the essential understanding of Internet marketing can lead to a schedule of marketing combinations, where it should be highlighted – stimulating marketing, developing marketing and conversion marketing [5]. Consequently, there is a need for a detailed consideration of individual varieties (combinations) of Internet marketing, which will contribute to a more efficient use of available resources, and the promotion of goods in the markets, and the needs of potential consumers.

3. The aim and objectives of research

The aim of research is development of information and analytical model of stimulating Internet marketing, which takes into account the specific features of the implementation of existing Internet marketing schemes in order to distribute manufacturers' products and attract potential buyers to purchase such goods. To achieve this aim, it is suggested that it is expedient to solve such individual objectives:

1. To formulate the general goal of building information and analytical model of stimulating Internet marketing.

2. To expand the individual blocks and general concepts of the functioning of the proposed model.

3. To provide a formal description of the relationships between the individual elements of the model.

4. Research of existing solutions of the problem

The problem of the disclosure of modern methods and approaches of the functioning and development of Internet marketing can be found in a fairly large number of scientific studies.

In particular, in the works [7, 8], the issue of determining and disclosing the conceptual bases of marketing research, the use of various search engines for these purposes are analyzed in detail, first of all. At the same time, in [7] special emphasis is placed on determining the motivation factors for making purchases over the Internet. Consequently, the question of the motivational factor is extremely important when summarizing the conceptual model of stimulating Internet marketing. However, in the works [7, 8] there is no clear definition regarding the consideration of such factors in a particular model of conducting Internet marketing.

In [9], the authors investigate the reasons for the low use of the Internet from the point of view of the marketing process for certain potential groups of the target audience. Therefore, such conclusions are very useful from

the point of view of developing a common ideology for building information and analytical model of stimulating Internet marketing.

Next to this, in work [10] issues of social orientation of Internet marketing are revealed in accordance with the existing conditions for the implementation of such a process. Similar issues are also highlighted in [11, 12]. Consequently, when developing the information model of the stimulating Internet marketing, one should pay attention to the blocks that allow to take into account and operate not only with the needs of certain groups of consumers of Internet services, but also to identify such groups of consumers. That is, the information model of stimulating Internet marketing should be aimed at individual groups of consumers, therefore, such groups should be pre-ranked. But the authors of the works [11, 12] do not define how and with the help of what to do it.

The authors of the studies [13, 14] reveal the general concept of models for evaluating the effectiveness of doing online marketing. These models are determined from the point of view of individual subjects of Internet activity. However, such models are not integrated into the general model of conducting Internet marketing. Moreover, in [14] there is no analytical component of the proposed model, which makes it difficult to plan the development of the process of implementing Internet marketing.

There are also a number of studies that disclose specific impact tools for the implementation of Internet marketing. But such tools usually concern media advertising or brand promotion. An example of such research is the work [15, 16].

Thus, the results of the analysis allow to conclude that the chosen research direction is promising and identifies a number of general issues of Internet marketing development. However, a significant number of issues of the functioning and development of Internet marketing require further improvement. Therefore, the formed tasks of this study allow to reveal the share of such problematic issues.

5. Methods of research

The following scientific methods are used:
– method of analysis – in the study of the issues and the formulation of individual research problems;
– method of generalization, abstraction and explanation – for the disclosure of the information model of Internet marketing and the relationships between its individual blocks;
– method of mathematical analysis and optimization – to determine the analytical formalization and description of the information model of stimulating Internet marketing.

6. Research results

According to the set aim, the generalized goal of building information and analytical model of stimulating Internet marketing is determination of a set of tools. They are aimed at meeting the needs of consumers and promoting products (goods and services) to the market using an ad-

ditional set of tools. A set of tools aimed at support is designated on a temporary basis in accordance with the prevailing conditions of the selected combination of Internet marketing is, according to the signs of classical incentive marketing, the main goal of building information and analytical model of stimulating Internet marketing is finding the optimal way to achieve the goals. As well as determining ways of obtaining maximum income and meeting all the needs of customers, taking into account their interests and opportunities, and the costs of using resources should be minimized.

The main issue of the considered model arises, above all, the disclosure of its individual elements and the definition of their interrelationships in interaction both among themselves and with various market participants. As well as identifying the set of individual consumers, which form the so-called target audience and sellers of goods and services, determines the appropriate competition in the field of marketing. In addition, each of the sellers of goods and services operates with some of its own base, which is aimed at achieving its own advantages in the struggle for potential consumers. It is the individual elements of such a database that determine, on the whole, the substantive content of the information model of incentive Internet marketing. These elements can be relevant and differentiated according to specific customer requirements and practical application. The general concept of building information model of stimulating Internet marketing is presented in Fig. 1.
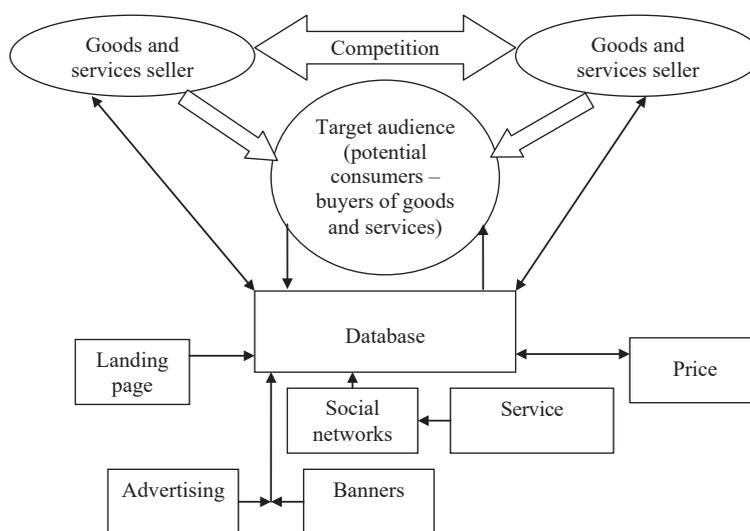
Fig. 1. Information model of stimulating Internet marketing

According to Fig. 1, the participants of the proposed model of stimulating Internet marketing are interested not only in achieving their goals, but also in obtaining new knowledge. New knowledge is formed thanks to the «database» block by influences from the «target audience», «goods and services seller» blocks, individual elements of the «database» block formation. The goal of introducing the «target audience» block is a management model of incentive marketing aimed at the consumer goods and services industry, the development of ideas about the formation and implementation of alternative marketing strategies. The «target audience» block influences the opinion and

decision among consumers and their equal communication Acts as a source of information about goods and services. The development of the Internet and modern means of communication allow the audience to interact with each other, create a powerful information tool that quickly spreads and becomes more cost-effective in adaptation. Therefore, the use of various information forms of the communication network significantly affects the increase in target information audience. Among such information forms for the needs of the block «target audience» it is worth highlighting:

– Word of Mouth (WOM) method, which allows to actively share content in the network of consumers [17];

– Customer Relationship Management (CRM) method, which is focused on the relationship of interventions to build loyalty among the audience of consumers who require personalized efforts for specific groups of consumers. They will be effective in increasing the profitability of companies in the event that these efforts are implemented [18]. In this way, the «target audience» block is focused on full support of sellers of goods and services. At the same time, such support is also achieved due to the database (the «database» block), which is formed under the influence of a number of individual elements of the incentive Internet marketing model.

The model element in the form of a «social networks» block is aimed at attracting the potential audience of consumers, turning them into buyers. On the one hand, social networks consider the source of advertising of goods and services, and on the other hand, consumers perceive social networks as an extension of their own capabilities, as a new channel of information. However, the lack of use of social networks has dissatisfied customers who can spread negative information among many other users and harm the image of sellers of goods and services. To avoid the impact of spreading relevant negative information, companies must align their social network marketing with a global marketing strategy, select customer profiles that match their target segment, and communicate with them accordingly. The tool for this alignment is social media marketing (SMM). SMM – Internet resources that have similarities with marketing methods. SMMs allow to advertise a website, brand or business to constantly interact with potential customers and consumers of goods and services through social media channels. The implementation of such an instrument as a whole is entrusted to the «service» block. Therefore, the «service» block should be considered auxiliary in the «social networks» block. The essence of such auxiliary action is stimulation of the informative content of the «database» block from the point of view of the «social networks» block.

Auxiliary elements to the element of social networks should be considered advertising and banners to increase the audience. The purpose of the «advertising» block is convincing consumers of what they see in confidence. The purpose of the «banners» block is studying the influence of the information price and the promotion of advertising in banner advertisements that may be the subject of interest of the audience. These can be short text ads or rectangles of various sizes that contain various images designed by advertisers (banners). The disadvantage of using the «banners» block is that banners are sold at a price for a certain number of impressions. Therefore, prices can reduce the call rating for banners in the target location.

It is also necessary to understand the importance of the relationship between price and advertising and the type of its placement. Consequently, the «price» block also becomes decisive in the proposed model. Information about prices that are used in promotions, trade-oriented, its role is defined as attracting customers or convincing people who are already in the right place to purchase the advertised product. The «price» block is a key element of stimulating Internet marketing, with the help of which there is not only an influence on consumer preferences, but also an influence on the competition between suppliers (sellers) of goods and services. At the same time, such an effect occurs through the formation of a «database» block. The connection of such a block with the «target audience» block and a number of «goods and services seller» blocks. So, the «price» block performs the control function and is one of the key elements of feedback in the information model of stimulating Internet marketing.

The «landing page» block is used as a page, which directs the user to commit certain actions. That is, the landing page block forms a set of effective impulses generated in accordance with the database block, creating a general mechanism for influencing the target audience according to the actions of the sellers of goods and services. First of all, the system's methods for determining landing pages use testing of various landing pages according to the actions of the sellers of goods and services under the influence of the established data of the «database» block and price shift in time. In particular, the user's entry points to the target page, has sections, fragments of the page are defined, which are added to the target pages and work when interpreted by the browser on the client side.

The purpose of the use of the «Landing page» block is attracting more visitors, who in the future may become potential buyers. And also to keep the attention of site visitors by telling them about the benefits of products or services to encourage them to interest in the following actions. In general, the functions of the information model of stimulating Internet marketing are personnel management, product promotion, promotion of potential consumers, and profit.

According to the proposed information model of incentive Internet marketing should at least:

– a lot of sellers of goods and services – $\{P_i\}$, which is formed from a variety of goods and services ($k = \overline{1,s}$), which offers a separate i-th seller ($i = \overline{1,n}$) – $T_i^{k_i}$. This allows to record a specific functional relationship between the individual seller and the variety of products offered in this form $P_i = T_i^{k_i}$. Then the set of sellers and services should be interpreted as a set of goods in accordance with the proposals of each seller – $\{P_i\} \rightarrow \{T_1^{k_1}\} + \{T_2^{k_2}\} + ... + \{T_n^{k_n}\}$. Taking into account the availability of identical goods and services from different sellers (T^s), as well as the presence of individual (exclusive) goods and services (T_n), it is also possible to write the following expression – $\{P_i\} \rightarrow \{T_1^{k_1}\} + \{T_2^{k_2}\} + ... + \{T_n^{k_n}\}$;

– a lot of potential consumers (buyers) – $\{Z_j\}$ ($j = \overline{1,v}$), who can buy different products from their existing set – $T_i^{k_i}$ from different sellers – $\{P_i\}$;

– set of individual characteristics, which is formed and accumulated in the «database» block. Considering the importance and integrity of the «Price» block in the information model and the reverse influence element in the proposed model, many individual characteristics

should be recorded in the form of a variety of commodity prices – $\{Z(T_i^k)\}$, that are offered by various sellers – $\{P_i\}$. Then, according to the above, it is possible to make the following entries:

$$\{Z(T_i^k)\} \rightarrow \{Z(T_1^{k_1})\} + \{Z(T_2^{k_2})\} + ... + \{Z(T_n^{k_n})\},$$

or

$$\{Z(T_i^k)\} \rightarrow \{Z(T^1)\} + \{Z(T^2)\} + ... + \{Z(T^s)\} +$$
$$+ \{Z(T_1)\} + \{Z(T_2)\} + ... + \{Z(T_n)\},$$

where $Z(T_i^k)$, $\{Z(T_n^{k_n})\}$, $Z(T^s)$ and $\{Z(T_n)\}$ – determine the total cost of the set of relevant goods and services.

To apply an analytic formalized description of the sets that are involved in the information model of stimulating Internet marketing, it is also necessary to proceed from the individual goals of applying such a model. Among such goals should include:
– assessment of the impact of using the proposed model of stimulating Internet marketing. This estimate can be determined through the ratio of the total cost of goods and services sold over a period of time (t) to costs (W), which were made in support of such promotional Internet marketing activities. At the same time, from the point of view of the development of stimulating Internet marketing, this ratio should be maximized:

$$\frac{\{Z(T_i^k)\}_t}{W_t} \rightarrow \max,$$

where a number of conditions are fulfilled that correspond to the possibilities of implementing this type of Internet marketing. These conditions should include taking into account the ratio of the same type of goods and services to exclusive, the ratio of the available volumes of goods and services to the total set of both potential consumers and individual customers, and the like;
– assessment of the growth of potential consumers and their transformation into real customers. This can be determined from the point of view of the ratio between the corresponding sets, where the goal is covering the greatest number of real customers with the multitude of potential consumers;
– estimation of profit growth, which is defined as the difference between the total amount of funds received from the sale of goods and services ($Z(T)$) and the costs of applying incentive Internet marketing (W). As well as costs that are due to the manufacture, purchase of relevant goods (WT). Then this difference should be maximized, in terms of more effective use of stimulating Internet marketing:

$$Z(T) - W - WT \rightarrow \max,$$

where a number of conditions are also fulfilled, as defined previously. However, it is possible to consider the conditions for stimulating sales and attracting potential consumers to certain groups of goods. Therefore, to the conditions of profit maximization is to add the price ratio of individual groups of goods.

Thus, the developed author's formalization of the description of the components of the stimulating Internet marketing and its individual goals in accordance with the information model proposed by the author (Fig. 1) makes it possible to form diverse assessments to determine the effectiveness of the respective activities. As well as the use of stimulating Internet marketing in this process.

7. SWOT analysis of research results

Strengths. A conceptual integrated information and analytical model of incentive Internet marketing is developed. Interrelations between separate elements of the constructed model are determined and disclosed. This allows to quickly direct and influence individual areas of incentive marketing, to carry out analytical calculations in order to optimize them in accordance with the terms of the costs incurred and the possible receipt of some income.

Compared to similar developments, this allows to:
– coordinate the functioning and development of stimulating Internet marketing;
– achieve the flexibility of conducting stimulating Internet marketing in accordance with the changing conditions for the provision of Internet services;
– take into account the existing many different groups of potential Internet consumers;
– point to bring information to the selected target audience.

Weaknesses. The weak point is that in order to achieve a more positive effect from the implementation of the developed information and analytical model of stimulating Internet marketing, it is proposed to take into account a more structured distinction between the potential target audience of consumers and the existing group of products. This leads to an increase in computing power, on the basis of which the corresponding calculations are made.

The negative internal factor also includes an increase in the cost of maintaining an incentive Internet marketing, if necessary, to increase the positive effect of its implementation.

Opportunities. For the further development of the proposed information and analytical model of stimulating Internet marketing, it is necessary to determine the boundaries of the increase in efficiency from its implementation in accordance with the possible increase in expenses for this.

However, the proposed model allows to improve the process of managing Internet activities and achieve its unification. This allows to increase profits from the introduction of stimulating Internet marketing.

Threats. To implement the proposed model, it is necessary to set up individual blocks and databases in order to achieve the desired effect from stimulating Internet marketing. Therefore, this requires primary investments, which can be increased by decomposing the proposed model and setting it into separate groups of potential Internet consumers. The existing analogues of the Internet marketing model are narrower in terms of the offered products and the selected group of potential Internet consumers. Therefore, this compared to the proposed model reduces previous investment costs in comparison with the proposed model.

8. Conclusions

1. On the basis of a generalizing analysis on the coverage of the proposed perspective, the issue in similar existing studies and taking into account the classic marketing trea-

sures formulated the overall goal of building information and analytical model of promotional Internet marketing. It is shown that the main goal of this model is determination how to maximize income and meet all the needs of customers, taking into account their interests and capabilities. At the same time, the costs of using resources should be minimized.

2. To achieve the main goal of building a model of stimulating Internet marketing, the main blocks of its construction are identified and disclosed, to which, in particular, the following are assigned:
– «Database»;
– «Target audience»;
– «Goods and services seller»;
– «Social networks»;
– «Advertising»;
– «Banners»;
– «Price»;
– «Service»;
– «Landing page».

3. A formalized description of the relationships between the individual elements of the model is proposed. The formalized description of personnel management, promotion of goods, promotion of potential consumers, making a profit is given. A model for assessing the impact of using the proposed model of stimulating Internet marketing and a model for estimating profit growth is developed. This allows to build diverse assessments of the effectiveness of the implementation of the corresponding development.

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