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FROM LIKE TO SALES: TO THE QUESTION OF AUTOMATION OF LEAD GENERATION PROCESSES IN SOCIAL NETWORKS AND LEAD QUALITY ASSESSMENT

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Abstract. The paper describes the process of lead generation in social networks and identifies the main methods of this process. The connection of lead generation with the work of a lead manager or other specialist performing his functions is shown, and a method for reducing the employee's time costs by automating the lead generation process is proposed, as well as a model for the formation of an integral indicator for evaluating the quality of leads. The research tasks were solved using the simulation modeling method in the AnyLogic program. The economic efficiency of the proposed methodology and its positive impact on improving the quality of marketing are substantiated. The results of the study can be used to create advanced models of the process of automation of lead generation and setting tasks for IT specialists, in the development of software products.

Keywords: conversion, lead, lead generation, social networks, simulation modeling, lead scoring

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ОТ ЛАЙКА ДО ПРОДАЖИ: К ВОПРОСУ ОБ АВТОМАТИЗАЦИИ ПРОЦЕССОВ ЛИДОГЕНЕРАЦИИ В СОЦИАЛЬНЫХ СЕТЯХ И ОЦЕНКИ КАЧЕСТВА ЛИДОВ

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Аннотация. В данном исследовании описан процесс лидогенерации в социальных сетях и обозначены основные способы генерации лидов. Показана связь лидогенерации с работой лид-менеджера или другого специалиста, исполняющего его функции и предложена методика сокращения временных затрат работника путем автоматизации процесса лидогенерации, а также предложена модель формирования интегрального показателя оценки качества лидов. В модели учтены факторы, ранее не использовавшиеся в подобных моделях, что представляет научную новизну. Задачи исследования были решены с помощью метода имитационного моделирования в программе AnyLogic. Обоснована экономическая эффективность предложенной методики и ее положительное влияние на повышение качества маркетинга. Результаты исследования могут быть использованы при создании расширенных моделей процесса автоматизации лидогенерации и постановке задач перед it-специалистами, при разработке программных продуктов.

Ключевые слова: конверсия, лид, лидогенерация, социальные сети, имитационное моделирование, лид-скоринг

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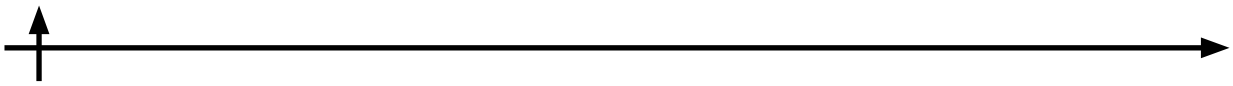
Introduction

Despite the large number of methods of lead generation and advertising, the process of evaluating the quality of leads, as well as the quality of sources of lead generation, remains largely at an intuitive level and is evaluated only at the last stage of evaluating the overall effectiveness of advertising investments. When even large companies have only a general idea about the assessment of the quality of leads and, as a rule, do not evaluate the dynamics of changes in leads and the quality structure of the sources of lead generation, then small companies may not have an idea at all about the possibility of lead generation from various sources.

In the article about sources of lead generation in Russia, the national researcher D.Yu . Savinovskikh asserts that the majority of Russian companies located outside of Moscow and St. Petersburg have a distant idea of the possibilities of lead generation (Savinovskikh, 2017). Meanwhile, companies in the world are spending more and more on lead generation services. Statistics show that the world's companies are increasingly interested in increasing the loyalty of their clients and the growth of the costs of working with advertising companies that rely on lead generation.



Materials and Methods

The purpose of this study was to create a model for automating the process of assessing the quality of leads (potential customers who have shown interest in a product or service) and automating the activities of smm-managers (lead managers or other specialists performing the functions of working with leads).

The methodological basis of the study was the method of computer simulation of complex systems, implemented in the AnyLogic software product. The program was created as a result of interest in constructing a mathematically interpreted description of the interaction of parallel processes in the early 1990s by a group of scientists from the St. Petersburg Polytechnic University and since then has seriously increased its capabilities in studying and modeling complex processes (Wikipedia, nd.). The presentation of the theoretical foundations and analysis of trends in the lead generation market was made on the basis of the work of Russian researchers (Nazarova, nd.; Andreeva, 2015; Volkov and Melekhova, 2012; Savinovskikh, 2017). The methodology for calculating marketing metrics was used according to the work of the Russian scientist Baranov (Baranov, 2017). Features of lead generation in marketing were described by the work of business analyst Laura Ramos (Ramos, nd.). The current problems and nuances of lead generation in social networks were studied on the basis of materials from marketing agencies (Web.com Academy, nd.a).

Results and Discussion

Nowadays, there is no solution on the Russian software market that allows the complex automation of the funeral and ritual sphere processes. Citizens who are faced with the decease of relatives and someone else are forced to go through several organizations in order to get the necessary documents for organizing the burial, and then search the most suitable funeral organization based on budget and services. The activities of funeral and ritual organizations are also poorly automated, interaction with applicants and clients is carried out through communication with ritual agents.

The object of the study was lead generation; the subject was the process of automating lead generation in social networks. In the course of the study, problem areas were identified in the approach to lead generation automation, namely, the discrepancy between implicit and explicit lead generation methods, which it was decided to combine in the process of lead generation automation. To solve the problem, it was proposed to create an integral indicator of the quality of leads. The result of the study was the construction of two simulation models: a model for creating an integral indicator of the quality of leads and a model for automating the work of a lead manager, which directly affects lead generation. The economic efficiency of the proposed measures was also substantiated.

1. Theoretical foundations of the lead generation process

To determine the process of lead generation, we will use the definition given by the Russian researcher AS Melikhova : "this is the process of obtaining contact information of a consumer who is interested or potentially interested in a product or service offered by a company" (Melekhova, 2013). Note that the consumer does not necessarily leave his information himself, it is enough for him to leave a like, repost, when it comes to social networks.

Lead manager - should be engaged in both lead generation and client management from the first targeted action on the site or in a social network to purchase (Goodleads, nd.). He is also responsible for evaluating leads for distribution to managers, depending on the client's readiness to buy. In practice, these functions are distributed among various employees: from the marketing director to the content manager. It is also possible to automate these processes in the CRM system. There are small companies in which sales are carried out exclusively on social networks.

In such companies, all of the above functions are performed by the smm manager.

It is believed that the following types of companies are primarily interested in high-quality work with leads:

1. firms in which a long cycle is built from interest to purchase is especially long. So, in construction organizations, it starts, as a rule, from several months;

2. firms that use large client bases, where direct communication with the client is maximally standardized or difficult;

3. firms whose product is "complex" and its purchase is not obvious to the buyer.

The process of lead generation and lead conversion can be broken down into five main tasks:

1. Lead generation - creating a lead base through various types of advertising or promotion.

2. Lead registration - entering lead data into the system for further work.

3. Lead assessment - ranking potential customers according to their readiness to purchase.

4. Lead development - a set of measures to "warm up" the lead, that is, push the client to buy before closing the deal.

5. Lead conversion - making a deal and completing the work with the lead.

The objectives of this article include the study of the lead evaluation stage. Our assumption is that lead scoring algorithms need more scientific elaboration and significant improvement through automation. Lead evaluation often occurs on an intuitive level, and the existing lead ranking algorithms are very primitive. this stage of work with a lead falls entirely on the shoulder of a specialist working with leads. Thus, this process is directly related to its activities and is interdependent with them.

2. Trends in the lead generation market and the main methods of the process

Indeed, many large companies are thinking about automating the lead scoring process. According to Laura Ramos, an expert at the international analytical agency Forrester Research, who analyzes the B2B segment of the business, many marketers focus not on the quality, but on the number of leads, thereby reducing sales efficiency, increasing the expenditure side of budgets and creating a gap between sales and marketing. In her opinion, marketers need technologies that will allow them to evaluate, verify, rank and grow leads (Ramos, nd.; Markov, 2023).

This issue is directly related to creating quality metrics and implementing them into lead management software. We list the useful functions that can be implemented by evaluating leads to the work of a lead manager or an employee performing his functions:

1. Identification of individuals and organizations

2. Qualification of leads according to the degree of readiness to buy (usually these are: cold, warm and hot lilas).

3. Ranging leads to customers who need additional information or discounts.

4. Saving time for an Internet marketer or other specialist working with leads.

Ultimately, these actions lead to an increase in the overall effectiveness of marketing, an increase in the speed of transactions and the competent management of ROI - a coefficient illustrating the level of profitability or loss of a company, taking into account the number of investments made .

According to the marketing agency MWI, an increase in the quality of leads by only 10% is then expressed in a 40% increase in sales (What is a lead, nd.). Moreover, these indicators are achieved by working only with the so-called “warm” leads, that is, those with an average level of readiness for a deal. The main technique here is assigning evaluation points to clients and calculating the indicator of the reasonableness of working with leads. The percentage probability of the possibility of concluding an agreement is compared.

From the point of view of the impact on the overall effectiveness of marketing, the following

positive factors in the lead evaluation process can be noted:

1. Improving the relationship of structures involved in promotions and direct sales. This is achieved due to the fact that sellers have the opportunity to significantly save their labor costs and work only with leads that have a high potential to close a deal.

2. A more complete picture of the typical buyer is formed, his expectations and the ability to offer the right goods or services in a timely manner.

3. An algorithm for maintaining a client is being formed. What is important is that the functions of marketers do not overlap with the work of sales managers.

Let's move on to the description of the functional features of lead generation. There are two main types of lead evaluation: explicit (direct, built on quantitatively measurable methods and evaluation algorithms) and implicit (qualitative, built on a voluntaristic definition by a marketer or difficult to formalize criteria for evaluation).

Explicit lead evaluation is based on data that is either provided by the client himself or obtained by working with him on the Internet. Such data can be ranked in order of importance and have a clear quantitative measurement, and, importantly, can be verified in one way or another.

This assessment method includes methods such as: BANT technology, demographic data provided by the buyer himself, according to his desire, and many others.

Let's give specific examples.

BANT - technology involves obtaining data from the buyer himself in 4 main categories: Budget - budget, Authority - authority, Need - needs and Timeline - terms (Marketing juice, nd.). Accordingly, it is necessary to understand whether the client has sufficient budget to complete the transaction, whether he has the authority to make this decision, whether the product meets his needs and what is the time range for making a purchase decision.

Implicit lead evaluation is based on data obtained implicitly, focused on the analysis of the client's behavior and its characteristics. Such data includes behavioral factors and reactions on the Internet, demographic data that is obtained without the participation of the client. For example, an analysis of a person's behavior on the Internet can be determined by what kind of materials he is interested in, what he views more often. And his location data can be used without his consent, by tracking IP.

Table 1. Methods estimates leads

A source of information	Implicit	Explicit
Behavior	Internet reactions	BANT-complex, consisting of budget, authority, needs and deadlines
Demographic data	Obtained without the participation of the client, with the probability of unreliability	Obtained with the consent of the client, with a greater degree of reliability

In modern lead generation, as a rule, these methods are distinguished and focus on either explicit methods or explicit methods. In the future, when constructing our model, we will try to take this circumstance into account. It should also be noted that the idea to combine implicit and explicit factors when ranking and evaluating leads in social networks does not belong to us, but was gleaned from the report of one of the world market leaders in creating marketing software, Marketo . Its closest competitors include IT industry giants such as Oracle and SAP. According to the latest information, TADVISER company was recently acquired by Adope (Tadviser, nd.). In the new software products of the company, intended mainly for B 2 B business, the idea of combining these factors is implemented (Lpgenerator, nd.). The program itself

ranks leads based on the gemographic data obtained as a result of content analysis, and then performs a new ranking based on the data received from the clients themselves or entered by managers as a result of communication with the client. The company's website states that the use of its products increases the effectiveness of marketing by 30%.

However, at the moment, other business segments and, especially, social networks do not have such software tools.

3. Features of lead generation in social networks

For the purposes of this article, we have limited our research to lead generation in social networks. The benefits of promoting through social networks include the following factors:

1. direct cooperation with potential clients;
2. no additional costs for website promotion;
3. advertising campaign can be accurately calculated and all metrics are measurable;
4. you pay for real buyers;
5. collection is carried out in different ways (direct, indirect, automatic, targeted).

Content plays a huge role in social networks (Web.com Academy, nd.b). First of all, the client pays attention to the content, so the lead may not be a selling headline, but a post with a photo of the director's dog. At the same time, there is a problem of leading a lead from the first like to the sale. In modern social networks and programs that help analyze sales in social networks, this problem is not resolved, since there are no metrics evaluating both the work of a lead manager and the quality of leads.

Let's consider how and with the help of what metrics it is possible to analyze the audience in a particular social network Vkontakte , which is the most popular social network according to Brand agency. Analytics (Br-analytics, nd.).

A feature of Vkontakte is to consider the effectiveness of the community by not simply counting the number of subscribers, but the dynamics of its growth. Subscribers should show constant interest, it is the stability of hits that is taken as the basis of the metric. You can view this parameter by going to the "Statistics" section, and then familiarize yourself with the contents of the "Attendance" and "Participants" tabs.

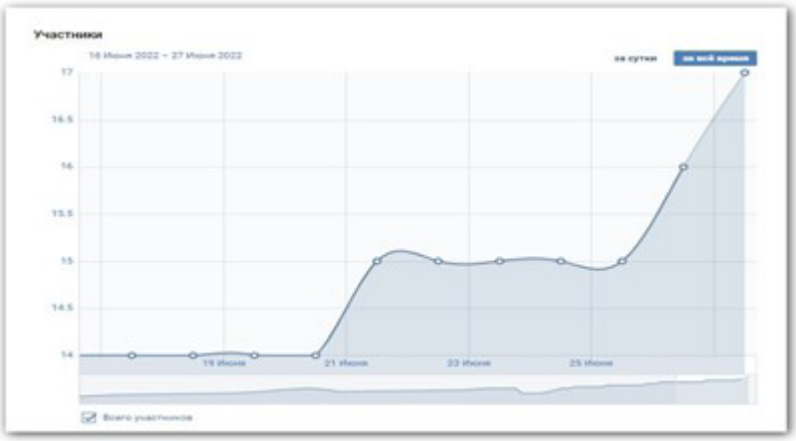


Fig. 1. Dynamics of attendance of the Vkontakte community

It can be noted that Vkontakte takes into account the “Seasonality” parameter, which changes during the holidays, which is especially important for the tourism business under study. You can also use the "Current User Activity" and "Audience Composition" tabs. These tabs allow you to see gender, age, geography and other parameters.

VKontakte provides a comprehensive analysis of user activities. The "Records" tab sorts ac-

tivities by various reactions, from ascending to descending and vice versa.

The most important indicator of a social network is the level of engagement. This indicator takes into account any activity of users in the group. This indicator is especially important for the advertising business. It should be noted that the search for Vkontakte gives communities in the first places according to the combined indicator of the number of subscribers and user activity.

The activity level is determined using several formulas. These formulas take into account a variety of actions in the group: likes, reposts, access to sections of the page, watching videos and listening to audio files. There are engagement rates per day (ERday), by posts (ERpost) and by views (ERview). The following figure shows how these indicators are calculated.

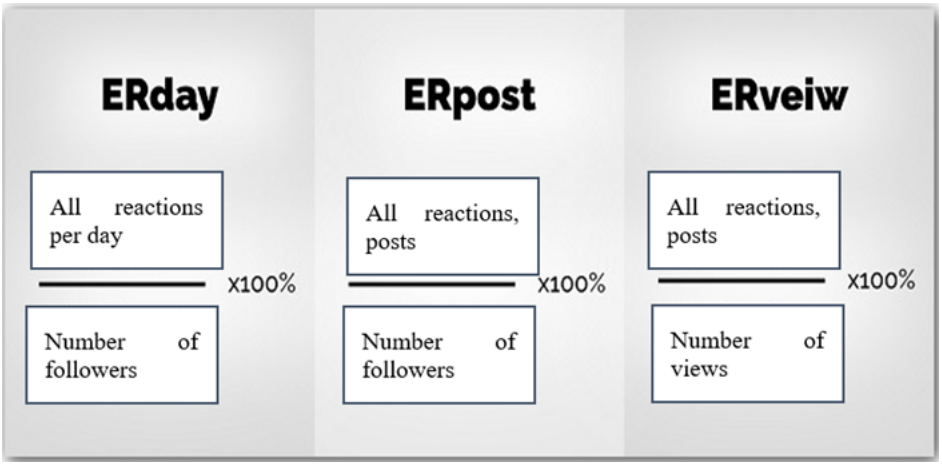


Fig. 2. Calculation of indicators ERday, ERpost, ERview

Vkontakte also allows you to take into account and calculate such important indicators as the reach of an advertisement, reactions to advertisements, the number of targeted actions, and so on.

It should be noted that a huge number of tabs does not allow you to visually and quickly systematize these numerous indicators. If you take into account the large number of social networks, then the software becomes essential.

Programs use average indicators, taking as a basis the methodology provided by the social network itself.

To track the main actions of users that a marketer needs to know, you can use the advertising account of a social network, where the indicators are presented: CTR, SRM and SRC - the number of hits to the number of impressions, the cost of a thousand impressions of an ad and the cost of one target action, respectively.

As can be seen from the above brief analysis, there is no separate lead quality indicator within the social network , which is not surprising, because the lead is the area of competence of the company that uses the social essence as a way of promotion and interest in creating such a metric should come from the business and be built into software products that are designed to analyze the audience of a social network and track lilas .

It should also be noted that despite direct communication with users, all of the listed indicators and metrics are designed to provide implicit information about users.

4. Tasks to be solved by building a simulation model

Having considered the theoretical aspects of lead generation and the features of marketing metrics in the social network Vkontakte , we found out two fundamental drawbacks that impede

effective lead generation:

1. focus exclusively on implicit methods;

2. lack of metrics for assessing lead quality .

Proposing to solve these problems by building a simulation model, we make the assumption that, firstly, it is possible to combine implicit and explicit methods in one technique, and secondly, to create an integral indicator for assessing the quality of leads. The practical implementation of this idea may face many difficulties, however, we can make an attempt to model this process in order to justify the very possibility of such a solution.

The tasks that the construction of the model solves:

1. Create a model of the integral indicator of the lead quality assessment process .

2. Create a model for automating the work of a lead manager.

The problem statement itself suggests a solution in this case. The fact is that in the process of work, the lead manager uses mainly explicit methods of working with information. Thus, our model will contain exactly explicit data, which includes information that the manager receives already when working with a client, which includes the nature of communication, the designation of the timing of the transaction and other data. Entering this data into a computer can be mechanical. However, an algorithm and a program will continue to work that can easily take into account a large amount of data obtained by implicit methods, standard methods of analytics in social networks, for example, content analysis widely used in social networks. In the model presented below, we will not introduce implicit data for the sake of simplicity of the experiment.

It was also proposed to reduce the time spent by smm-specialists and marketers when working with content.

Among the many factors that affect time costs, we have identified the following:

1. The difference in targeted advertising services in various social networks and the need for time spent on working with each service separately (targeted advertising on Vkontakte , Instagram and other social networks).

2. The need for time spent on reporting on advertising.

3. The need for timely tracking of stocks.

Factors 1 to 3 are measured by the amount of time an internet marketer spends on these features. The actual amount of time can be determined by interviewing the firm's employees.

When calculating the effectiveness of the proposed models, we used the figures for time costs provided by the employees of the travel company "Eclectica" on condition of anonymity.

Also, to give the model a scale of the level of socio-economic processes, we introduced an additional factor into the model: the index of digital literacy of Russian citizens (ROCIT, nd.). Numerous researchers have proven that this value directly affects the number of citizens involved in the Internet space, and therefore affects the total number of potential clients of the company, which can be reflected in the model.

4. Building a simulation model in the AnyLogic program

First, in order to show how a lead quality assessment automation system can be created, a model of the integral lead quality indicator was created. Table 2 shows the conventions of the elements used. Table 2 shows the relationship of elements. The following are formulas for calculating dynamic variables and accumulators, as well as the values of statistical variables.

Table 1. Symbols of model elements

Designation	Factor
X1	Understanding where to call
X2	Understanding where no one is calling
X3	Understanding where the bottom line is calling
X4	Transaction deadline within a month
X5	Deadline for a deal within a quarter
X6	Deadline for the transaction within a year
X7	Deal entry time total indicator
X8	Interest in buying
X9	No interest in buying
X10	Interest in buying total
X11	Form of payment in cash
X12	Form of payment non-cash
X13	Form of payment Total value
X14	Willingness to provide data
X15	No readiness to give data
X16	Willingness to give data a final value
X17	Communication is warm
X18	Communication is cold
X19	Final communication
X20	Purchase image is
X21	No purchase image
X22	Purchase image total value
Y1	Integral indicator of lead quality assessment

Table 2. Relationship of model variables

endogenous variables	exogenous variables									
Y1	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10
	X11	X12	X13	X14	X15	X16	X17	X18	X19	X20
	X21	X22								

The criterion for assigning a value to an indicator is the target action. Therefore, the units of measurement are called conditional in the model.

Table 3. Values of the statistical variables of the model

Designation	Factor	Factor
X1	1	Service
X2	0	Service
X3		Service
X4	1	Service
X5	2	Service
X6	3	Service
X7		Service
X8	1	Service
Variable	Meaning	Unit measurements
X9	0	Service
X10		Service
Variable	Meaning	Unit measurements
X11	0	Service
X12	1	Service
X13		Service
X14	1	Service
X15	0	Service
X16		Service
X17	1	Service
X18	0	Service
X19		Service
X20	1	Service
X21	0	Service
X22		Service
Y1		Service

Model designations: Y1 = X3 + X7 + X10 + X13 + X16 + X19 + X22

In the model below, X3 , X7, X10 , X13, X16, X19, X22 are dynamic quantities in the terminology of the Anylogic program.

Y1 Integral indicator - accumulator, other values - parameters with values specified by the manager. Next, a model was created to reduce the time spent by the lead manager. Table 1 shows the conventions of the elements used. Table 2 shows the relationship of elements. The following are formulas for calculating dynamic variables and accumulators, as well as the values of statistical variables. Since, on average, the implementation of a particular function (writing a report) takes 1 working hour, hours are taken as a unit of time.

Table 4. Symbols of model elements

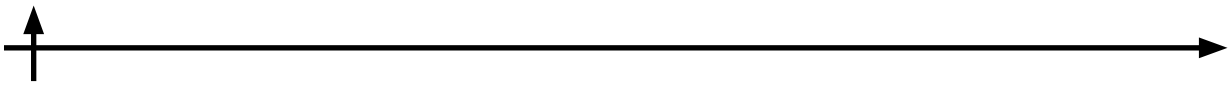
Designation	Factor
X1	Waste of time tracking the target before implementation
X2	Waste of time tracking the target after implementation
X3	Time reduction
X4	Waste of time reporting on ads before implementation
X5	Waste of time reporting on ads after implementation
X6	Time reduction
X7	Waste of time tracking the end of the promotion before implementation
X8	Waste of time tracking the end of the promotion after implementation
X9	Time reduction
X10	Number of target actions
X11	Number of leads
X13	Number of sales
X14	Number of visitors
X15	Digital Literacy Index
Y1	Time costs of an Internet marketer
Y2	LCR (Lead Conversion Rate)
Y3	Total sales conversion taking into account lead generation

Table 5. Relationship of model variables

endogenous variables	exogenous variables									
Y1	X1	X2	X3	X4	X5	X6				
Y2	X11	X10	X9	X8	X7					
Y3	X13	X14	X15							

Table 6. Values of the statistical variables of the model

Variable	Meaning	Unit measurements
X1	87.5	watch
X2	4.17	watch
X3	95.23	%
X4	16	watch
X5	0.25	watch
X6	98.44	%
X7	1	watch
X8	0.1	watch
X9	10	%
X10	100	Pieces per month
X11	50	PC. per month
X13	50	PC. per month
X14	100	PC. per month
X15	30	%
Y3	50	%
Y1 (X3, X6, X9)	95.23; 98.44; 10	%
Y2	100	%



The time spent by the marketer will be calculated using the formula:

Y1 = X3, X6, X9. X = 100% -100% / z, where z = X1 / X2, where X1 is the time that was spent before the implementation of automation, and X2 was the time spent after the implementation.

Y2 = LCR (Lead conversion Rate) = number of leads X12 / X14 number of website visitors x 100

Y3 = Total conversion taking into account lead generation CR = number of sales / number of leads x 100%

The number of potential customers (website visitors) increases depending on the digital literacy index:

$$X14 = 100\% - X15$$

From the data presented, it can be seen that the largest items of time spent by a lead manager are the costs of tracking advertising campaigns.

The time spent by the marketer will be calculated using the formula:

Y1 = X3, X6, X9. X = 100% -100% / z, where z = x1 / x 2, where x 1 is the time that was spent before the introduction of automation, and x 2 is the time that was spent after implementation.

Y2 = LCR (Lead conversion Rate) = number of leads X12 / X14 number of website visitors x 100

Y3 = Total conversion taking into account lead generation CR = number of sales / number of leads x 100%

The number of potential customers (website visitors) increases depending on the digital literacy index:

$$X14 = 100\% - X15$$

In the general table, the indicator of leads after optimization is deliberately omitted - X 12 . To date, there is no established methodology for assessing the quality of leads and the proposed model needs theoretical refinement and additional justification, we took an arbitrary value for further calculations. X12 will be 2 more than the number of leads before X 11 optimization , this will reflect the trend of increasing lead efficiency. X12 = 2 * X11.

Parameters were introduced into the model: time spent tracking the target before implementation, time spent tracking the target after implementation, time spent reporting on advertising before implementation, time spent reporting on advertising after implementation, time spent tracking the end of the promotion before implementation, wasting time tracking the end of the promotion after implementation, the number of leads before optimization, the number of leads after optimization, the number of sales, the number of visitors, the digital literacy index. LCR metrics , overall sales conversion, and reduced marketer time lead to an cumulative increase in marketing effectiveness.

And also the activity agent lead -manager was introduced into the model.

This step is due to the fact that there can be many agents and the method of agent- based modeling can establish relationships between similar agents.

This option is relevant for large teams and companies with a large number of agents. In our case, the agent is introduced to show the possibilities of modeling.

Also, a table of parameters for the effectiveness of implementing automation of the work of an Internet marketer and automation of lead assessment was created.

Table 7. Performance indicators for the implementation of process automation

Name	Before automation	After automation	%	Reduced / Result
Tracking the effectiveness of advertising	87.5	4.17	95.23	18,228.44
Making report	16	0.25	98.44	3445.31
End of promotion	2	1	50	50
LCR (Lead Conversion Rate)	50	100	50	
Overall sales conversion rate including lead generation	50	100	50	
Other effects of the introduction of automation				Monitoring the work of Internet marketers Increasing support Increasing customer loyalty

As a result of the simulation, it was revealed that the automation system for the work of the lead manager significantly reduces the time spent on tracking the effectiveness of advertising campaigns in targeted advertising, compiling reports, and informing specialists about the end of promotions for a particular client was added. A novelty for this kind of projects was the addition of a lead scoring automation system, which led to a significant increase in conversion rates.

Conclusion

As a result of this research two models were designed: a model of an integral indicator of the quality of a lead and a model for automating the evaluation of leads and the work of a lead manager. These models are presented below.

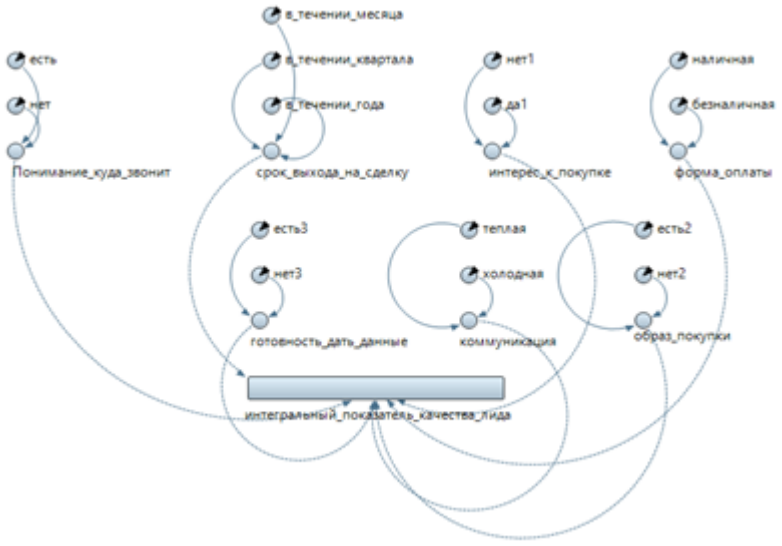


Fig. 3. Simulation model of the integral indicator of lead quality in the AnyLogic program

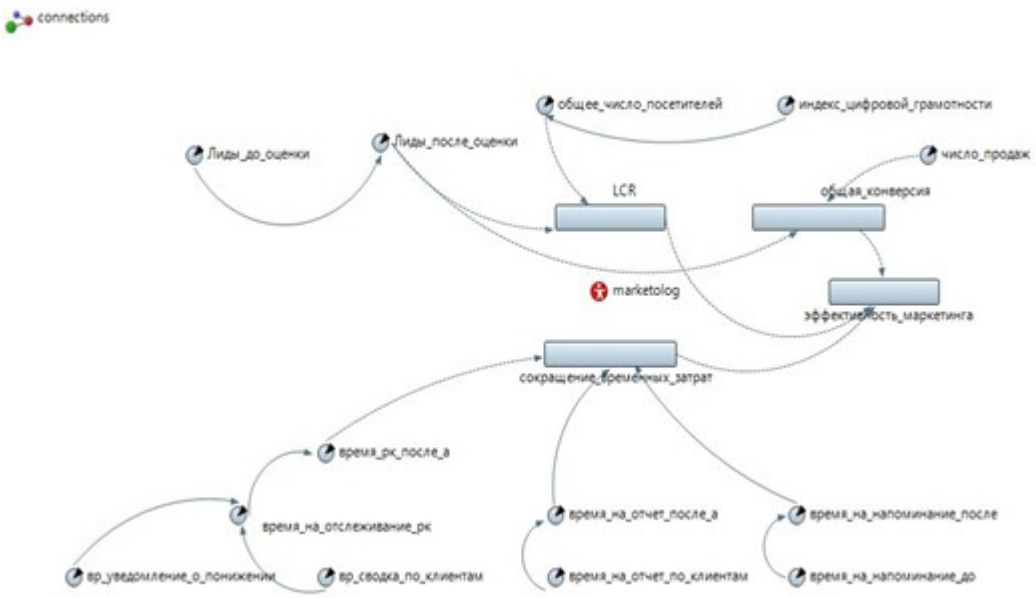


Fig. 4. Simulation model for automating the lead assessment process and reducing the time spent by a SMM specialist in the AnyLogic program

These models are simulation, which means that not all real parameters are taken into account. However, we took values close to real, obtained, among other things, thanks to a survey of smm specialists from the Eclectic company. The model was launched in the AnyLogic software environment and gave a positive result (AnyLogic, nd.). The data obtained as a result of the study can be used in real work to create a system for automating the assessment of lead quality. It should be especially noted that in the course of the analysis of market trends and the opinions of marketing experts given in this article, the need for such projects is steadily growing.

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