

## **Chapter 5**

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### **Automation of Forming Complex of Advertising Products**

The modern production and commercial activities of any entity can not be imagined without the use of advertising and promotional products. Advertising is a kind of engine economic activity of the enterprise. The creation of promotional products greatly facilitates the process of contacts with potential customers and clients, and creates the necessary prerequisites for expanding the target market segment. Automation of the process of creating an advertising product provides wide opportunities for distribution of advertisement in large editions, creation of high-quality and bright advertising and as a result of this achievement the enterprise of significant competitive positions in the market.

In the specialized literature [1-3] it offers techniques and technologies for the creation of various types of advertising 3D installations. Separately analyzed the general features and perspectives of 3D printing for the creation of advertising printed products.

In scientific articles [4, 5] there are methods and technologies that increased efficiency and persuasiveness of stereoscopic 3D advertising. These works offer the basic parameters to determine the effectiveness and potency of creating a 3D advertising product.

Visual advertising technologies that provide a positive effect to consumers in the form of persuasion, preferences and memorization of advertising posters are offered in studies [6-8]. The technology of digital advertising production is also analyzed in these studies.

Visual technologies for the creation of promotional products are proposed and systematized in the studies [9, 10]. These studies provide opportunities to determine the appropriate conditions for improving the quality of visual advertising products.

Methodical bases of color tints formation and optimization of color schemes are proposed in scientific articles [11, 12]. These articles offer factors that improve the image of advertising.

Modeling of the process of creation of effective advertising products is considered in the studies [13, 14].

However, specialized literature does not provide the ability to support the processes of creating a comprehensive technology for the automation of complex advertising products.

The purpose of this study is to develop an automation technology for advertising products formation.

No advertising subject can afford to use all advertising tools simultaneously and distribute it in an unlimited scale.

The success of an advertising message depends on where and when it was published. Before choosing one or another type of advertising, you need to determine the purpose of the advertising event. Goals can be very different, they depend on the submission of the advertiser himself.

Practice shows that in one advertising event, as a rule, goals intersect. In this regard, all advertising goals can be grouped into 3 groups.

The first group includes goals that form the company's image. The second group can include goals related to stimulating advertising. The third group consists of goals which allow using advertising tools to ensure stability in the sale of goods, as well as consumer to the firm.

The right choice of advertising means is to take away exactly those that allow to solve this advertising goal most effectively.

Advertising can not be effective if there is no market analysis (economic environment, competitors, etc.), the specifics of the advertised product (general characteristics of the product, life cycle, etc.) and consumer audience (demographic characteristics, motives and needs, consumer benefits from the use of the goods, etc.) without clear planning, the advertising campaign will not be able to segment the audience of consumers. Proceeding from the foreign and domestic experience of advertising, it can be argued that the complex and consistent conduct of promotional events gives a much greater effect than the individual, unrelated to each other common purpose and separated in time measures.

To efficiently select channels of advertising distribution, there is a special work that requires a lot of time. As a rule, this work is done by man. At the same time, the authors present their own developments based on their own experience. As a result, one question may have several different angles and very often they are false. That is why the theme "Automation of forming a complex of advertising products" is relevant to the present day.

Every enterprise sooner or later becomes a pre-choice of a means of advertising. It should take into account the criteria for the effectiveness of advertising, the function of one kind or another, as well as direct advertising goals, which seeks to reach the company. The solution of such a problem is quite complex and troublesome, because the question is rather unstructured. The probability of mistake is quite large. The problem should be considered from a scientific point of view.

To solve poorly structured and unstructured problems quite well suited method of analysis of hierarchies (MAI). The methodology for solving such problems is based

on a systematic approach, in which the problem is considered as a result of interaction and, moreover, the interdependence of many dissimilar objects, and not simply as their isolated and autonomous aggregate.

The complexity, as already noted, is characterized by a large number of interactions between many subjective and objective factors of different types and extent of importance, as well as groups of people with different purposes and contradictory interests. These factors determine the likelihood or inability to choose one of the alternatives that is acceptable to all with a certain degree of compromise.

To deal with this complexity, you need a systematic procedure for submitting groups, their goals, criteria and behavior, due to these objectives, alternative results and resources, distributed over these alternatives. At MAI, this procedure is reduced to building a hierarchy of problems.

The decisive advantage of MAI over most existing methods of evaluating alternatives is to contribute to the analysis of the structure of the problem and a clear expression of judgment.

Human inherent in two characteristic features of analytical thinking: one-the ability to observe and analyze observation, the other – the ability to establish relationships between observations, assessing the level (intensity) of relationships, and then synthesize these relations in the overall perception of the observable.

On the basis of these properties of human thinking three principles have been formulated:

- 1) The principle of identity and decomposition;
- 2) The principle of discrimination and comparative judgments;
- 3) The principle of synthesis.

Mathematical eligibility the decisive rule in MAI is transparent and is based on the method of own values and principle of the hierarchical composition, which have a clear mathematical justification.

Thus, MAI satisfies the basic criteria provides comprehensive scientific validity of the decision-making method.

So, at the first stage of solving the problem we will construct a hierarchy of problems. The overall objective (focus) of the problem is usually the highest level of hierarchy. Focus should be the level of the most important criteria. Each of the criteria may be divided into subcriteria. The subcriteria should be the level of alternatives, whose number can be very large. In some hierarchies, the level of active forces (actors) that is located below the level of common criteria may be included.

The hierarchy of advertising choice problem is shown in Fig. 1, Where:

- 1 – choice of advertising;

- 2 – coverage;
- 3 - availability;
- 4 – value;
- 5 – controllability;
- 6 – authority;
- 7 – server;
- 8 - informing;
- 9 - exhortations;
- 10 - reminders;
- 11 – report on the emergence of a new product/service;
- 12 – mark new ways of using the known product/service;
- 13 – to form the company image;
- 14 – to describe the goods or services provided by the company;
- 15 – to form advantages with respect to a certain brand;
- 16 – convince consumers to make a purchase immediately;
- 17 – recall that the product may take the nearest time;
- 18 – to support awareness consumer about goods;
- 19 – remind consumers where the goods are sold;
- 20 – advertising in the press;
- 21 – advertising on television;
- 22 – radio advertising;
- 23 – outdoor advertising;
- 24 – transit advertising;
- 25 – advertising in cinemas;
- 26 – exhibitions and fairs;
- 27 - printed (printing) advertising;
- 28 – advertising on the Internet;
- 29 – advertising souvenirs;
- 30 – direct postal advertising.

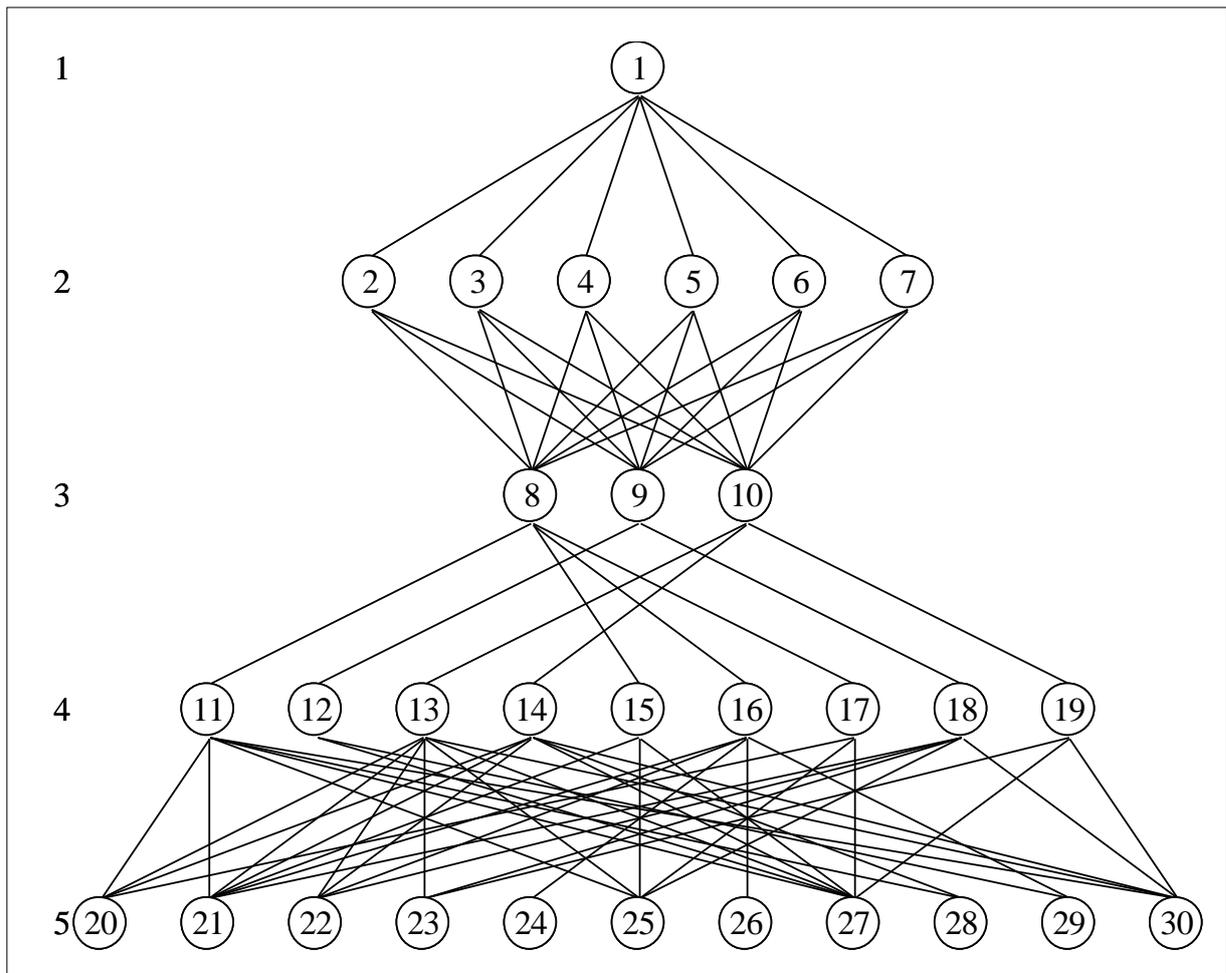


Figure 1. Hierarchy of advertising selection problems

Once hierarchical, the problem is set prioritize criteria, and evaluated each of the alternatives by criteria. In MAI the elements of the task are compared in pairs with respect to their influence on a common characteristic for them. The paired information system results in a result that can be presented as a back symmetrical matrix. An element of a matrix  $A(i, j)$  is the intensity of the manifestation of the hierarchy element  $i$  for the  $j$  hierarchy element monitored on the intensity scale from 1 to 9, proposed the author of the method where evaluations are the following meaning:

- 1 – equal importance;
- 3 – moderate advantage of one above the other;
- 5 – significant advantage of one above the other;
- 7 – significant advantage of one over another;
- 9 – a very strong advantage to one over another;
- 2, 4, 6, 8 are corresponding intermediate values.

Priorities are synthesized from the second level downwards. Local priorities are multiplied by the priority of the corresponding criterion at the highest level and summed up on each element according to the criteria affected by the element.

A highly useful byproduct of the theory is the so-called consistency index (CI) that gives information about the degree of disruption of consistency. Together with the matrix of paired comparisons, we have a measure of measuring the degree of deviation from consistency. If such deviations exceed the limits set, then the one who holds the judgment should be rechecked in the matrix. The consistency index is calculated according to Formula 1.

$$CI = (l_{max} - n)/(n - 1), \quad (1)$$

where  $l_{max}$  is the maximum eigenvalue of the matrix,  
 $n$  – number of elements (dimension) of the matrix.

If you divide CI by a number corresponding to the random consistency of the matrix of the same order, the ratio of consistency (RC). The value of RC should be the order of 10%, and no more than 30%, otherwise it is necessary to verify their judgment.

While constructing the hierarchy of relations and weight coefficients it was carried out taking into account the results of questionnaire. The questionnaire is presented in Annex A. 10 people have been delivered as experts, 60% of which are experts in the field of advertising and marketing in general and regard their knowledge in these areas as high and medium. The remaining 40% of experts regard the level of their knowledge in marketing as basic.

Since the first level of the hierarchy is the goal, the weight of this node take the unit. Further, for each factor set weight coefficient, constructed matrix of paired comparisons. The best task is to flatten the table. The table dimension is determined by the number of arcs that are included in this vertex.

Thus we can compile a report on a built hierarchy.

Level 1.

Node: The choice of advertising. Weight: 1.000.

Factors:

- 1) Coverage. Weight – 0.330.
- 2) Availability. Weight – 0.163.
- 3) Cost. Weight – 0.159.
- 4) Handling. Weight – 0.046.

5) Authoritative. Weight – 0.166.

6) Server. Weight – 0.135.

Matrix Paired Comparisons 2:

$$M = \begin{pmatrix} 1.000 & 5.000 & 1.000 & 3.000 & 1.000 & 5.000 \\ 0.200 & 1.000 & 3.003 & 4.000 & 1.000 & 0.500 \\ 1.000 & 0.333 & 1.000 & 5.000 & 1.000 & 0.000 \\ 0.333 & 0.250 & 0.200 & 1.000 & 0.000 & 0.333 \\ 1.000 & 1.000 & 1.000 & 0.000 & 1.000 & 0.000 \\ 0.200 & 2.000 & 0.000 & 3.000 & 0.000 & 1.000 \end{pmatrix} \quad (2)$$

$\lambda_{\max} = 6.919$ .  $CI = 0.184$ .  $RC = 0.148$ .

Level 2.

Node: Reach. Weight: 0.330.

Factors:

1) Informing. Weight – 0.430.

2) Exhortations. Weight – 0.311.

3) Reminder. Weight – 0.259.

Matrix Paired Comparisons 3:

$$M = \begin{pmatrix} 1.000 & 3.000 & 1.000 \\ 0.333 & 1.000 & 3.003 \\ 1.000 & 0.333 & 1.000 \end{pmatrix} \quad (3)$$

$\lambda_{\max} = 3.562$ .  $CI = 0.281$ .  $RC = 0.185$ .

Node: Accessibility. Weight: 0.163.

Matrix Paired Comparisons 4:

$$M = \begin{pmatrix} 1.000 & 1.000 & 1.000 \\ 1.000 & 1.000 & 1.000 \\ 1.000 & 1.000 & 1.000 \end{pmatrix} \quad (4)$$

$\lambda_{\max} = 3.000$ .  $CI = 0.000$ .  $RC = 0.000$ .

Node: Cost. Weight: 0.159.

Matrix Paired Comparisons 5:

$$M = \begin{pmatrix} 1.000 & 1.000 & 1.000 \\ 1.000 & 1.000 & 1.000 \\ 1.000 & 1.000 & 1.000 \end{pmatrix} \quad (5)$$

$\lambda_{\max} = 3.000$ .  $CI = 0.000$ .  $RC = 0.000$ .

Node: Steer. Weight: 0.046.

Matrix Paired Comparisons 6:

$$M = \begin{pmatrix} 1.000 & 9.000 & 7.000 \\ 0.111 & 1.000 & 0.200 \\ 0.143 & 5.000 & 1.000 \end{pmatrix} \quad (6)$$

$\lambda_{\max} = 3.210$ .  $CI = 0.105$ .  $RC = 0.181$ .

Node: Authoritancy.

Weight: 0.166.

Matrix Paired Comparisons 7:

$$M = \begin{pmatrix} 1.000 & 0.500 & 1.000 \\ 2.000 & 1.000 & 2.000 \\ 1.000 & 0.500 & 1.000 \end{pmatrix} \quad (7)$$

$\lambda_{\max} = 3.000$ .  $CI = 0.000$ .  $RC = 0.000$ .

Node: Server.

Weight: 0.135.

Matrix Paired Comparisons 8:

$$M = \begin{pmatrix} 1.000 & 6.000 & 4.000 \\ 0.167 & 1.000 & 0.333 \\ 0.250 & 3.000 & 1.000 \end{pmatrix} \quad (8)$$

$\lambda_{\max} = 3.054$ .  $CI = 0.027$ .  $RC = 0.047$ .

Level 3.

Node: Informative. Weight: 0.430.

Factors:

- 1) Report on the emergence of a new product/service. Weight – 0.108.
- 2) Mark new ways to use a known product. Weight – 0.108.
- 3) To form company image. Weight – 0.108.
- 4) Description provided by company services or sold goods. Weight – 0.108.

Assembly: Weight: 0.311.

Factors:

- 1) To form an advantage with respect to a particular brand. Weight – 0.155.
- 2) Convince consumers to make a purchase immediately. Weight – 0.155.

Node: Reminders. Weight: 0.259.

Factors:

- 1) Remind consumers that a product may need in the near future. Weight – 0.086.
- 2) Support Awareness consumer about the product. Weight – 0.086.
- 3) Remind consumers where the goods are sold. Weight – 0.086.

Level 4.

Node: Report on the emergence of a new product/service. Weight: 0.108.

Factors:

- 1) Advertising in the press. Weight – 0.059.
- 2) Advertising on television. Weight – 0.199.
- 3) Advertisement in cinemas. Weight – 0.069.
- 4) Printed (printing) advertising. Weight – 0.189.
- 5) Advertising on the Internet. Weight – 0.093.
- 6) Direct postal advertising. Weight – 0.060.

Matrix Paired Comparisons 9:

$$M = \begin{pmatrix} 1.000 & 0.000 & 0.000 & 0.000 & 0.111 & 0.000 \\ 0.000 & 1.000 & 0.000 & 0.000 & 0.000 & 0.000 \\ 0.000 & 0.000 & 1.000 & 0.000 & 0.111 & 0.000 \\ 0.000 & 0.000 & 0.000 & 1.000 & 0.200 & 0.000 \\ 9.000 & 0.000 & 9.000 & 5.000 & 1.000 & 0.000 \\ 0.000 & 0.000 & 0.000 & 0.000 & 0.000 & 1.000 \end{pmatrix} \quad (9)$$

$\lambda_{max} = 6.000$ .  $CI = 0.000$ .  $RC = 0.000$ .

Node: To form a preference in relation to a particular brand. Weight: 0.155.

Factors:

- 1) printing (printing) advertising. Weight – 0.189.

2) Advertising souvenirs. Weight – 0.199.

Matrix Paired Comparisons 10:

$$M = \begin{pmatrix} 1.000 & 0.000 \\ 0.000 & 1.000 \end{pmatrix} \quad (10)$$

$\lambda_{max} = 2.000$ .  $CI = 0.000$ .  $RC = 0.000$ .

Node: Remind consumers that goods may be needed in the near future. Weight: 0.086.

Factors:

- 1) Advertising in the press. Weight – 0.059.
- 2) Advertising on television. Weight – 0.199.
- 3) Advertising on the radio. Weight – 0.087.
- 4) Outdoor advertising. Weight – 0.102.
- 5) Advertisement in cinemas. Weight – 0.069.
- 6) Printed (printing) advertising. Weight – 0.189.
- 7) Direct postal advertising. Weight – 0.060.

Matrix Paired Comparisons 11:

$$M = \begin{pmatrix} 1.000 & 0.000 & 0.111 & 0.000 & 0.000 & 0.000 & 0.000 \\ 0.000 & 1.000 & 3.000 & 0.000 & 0.000 & 0.000 & 0.000 \\ 9.000 & 0.333 & 1.000 & 1.000 & 9.000 & 2.000 & 0.000 \\ 0.000 & 0.000 & 1.000 & 1.000 & 0.000 & 0.000 & 0.000 \\ 0.000 & 0.000 & 0.111 & 0.000 & 1.000 & 0.000 & 0.000 \\ 0.000 & 0.000 & 0.500 & 0.000 & 0.000 & 1.000 & 0.000 \\ 0.000 & 0.000 & 0.000 & 0.000 & 0.000 & 0.000 & 1.000 \end{pmatrix} \quad (11)$$

$\lambda_{max} = 7.009$ .  $CI = 0.002$ .  $RC = 0.001$ .

Node: Maintain consumer awareness about the product. Weight: 0.086.

Factors:

- 1) Advertising in the press. Weight – 0.059.
- 2) Advertising on television. Weight – 0.199.
- 3) Advertising on the radio. Weight – 0.087.
- 4) Printed (printing) advertising. Weight – 0.189.
- 5) Advertising on the Internet. Weight – 0.093.

6) Direct postal advertising. Weight – 0.060.

Matrix Paired Comparisons 12:

$$M = \begin{pmatrix} 1.000 & 0.000 & 0.143 & 2.000 & 0.111 & 0.000 \\ 0.000 & 1.000 & 0.000 & 5.000 & 1.000 & 0.000 \\ 7.000 & 0.000 & 1.000 & 5.000 & 0.500 & 0.000 \\ 0.500 & 0.200 & 0.200 & 1.000 & 0.111 & 0.000 \\ 9.000 & 1.000 & 2.000 & 9.000 & 1.000 & 9.000 \\ 0.000 & 0.000 & 0.000 & 0.000 & 0.111 & 1.000 \end{pmatrix} \quad (12)$$

$\lambda_{\max} = 6.121$ .  $CI = 0.024$ .  $RC = 0.019$ .

Node: Mark new ways of using a known product/service.

Weight: 0.108.

Factors:

- 1) Advertising on television. Weight – 0.199.
- 2) Advertisement in cinemas. Weight – 0.069.
- 3) Printed (printing) advertising. Weight – 0.189.

Matrix Paired Comparisons 13:

$$M = \begin{pmatrix} 1.000 & 5.000 & 0.000 \\ 0.200 & 1.000 & 0.000 \\ 0.000 & 0.000 & 1.000 \end{pmatrix} \quad (13)$$

$\lambda_{\max} = 3.002$ .  $CI = 0.001$ .  $RC = 0.001$ .

Node: to form company image. Weight: 0.108.

Factors:

- 1) Advertising on television. Weight – 0.199.
- 2) Advertising on the radio. Weight – 0.087.
- 3) Transit. Weight – 0.022.
- 4) Exhibitions and fairs. Weight – 0.022.
- 5) Advertising souvenirs. Weight – 0.099.

Matrix of paired comparisons 14:

$$M = \begin{pmatrix} 1.000 & 0.000 & 0.000 & 0.000 & 0.000 \\ 0.000 & 1.000 & 0.000 & 0.000 & 0.000 \\ 0.000 & 0.000 & 1.000 & 0.000 & 0.000 \\ 0.000 & 0.000 & 0.000 & 1.000 & 0.000 \\ 0.000 & 0.000 & 0.000 & 0.000 & 1.000 \end{pmatrix} \quad (14)$$

$\lambda_{\max} = 5.000$ .  $CI = 0.000$ .  $RC = 0.000$ .

Node: Describe the products or services provided by the company. Weight: 0.108.

Factors:

- 1) Advertising in the press. Weight – 0.059.
- 2) Advertisement in cinemas. Weight – 0.069.
- 3) Printed (printing) advertising. Weight – 0.189.

Matrix of paired Comparisons 15:

$$M = \begin{pmatrix} 1.000 & 3.000 & 1.000 \\ 0.333 & 1.000 & 0.000 \\ 1.000 & 0.000 & 1.000 \end{pmatrix} \quad (15)$$

$\lambda_{\max} = 3.001$ .  $CI = 0.001$ .  $RC = 0.001$ .

Node: Convince consumers to make a purchase immediately. Weight: 0.155.

Factors:

- 1) Advertising on television. Weight – 0.199.
- 2) Advertising on the radio. Weight – 0.087.
- 3) Outdoor advertising. Weight – 0.102.
- 4) Advertisement in cinemas. Weight – 0.069.
- 5) Direct postal advertising. Weight – 0.060.

Matrix of paired comparisons 16:

$$M = \begin{pmatrix} 1.000 & 0.000 & 0.000 & 0.000 & 0.000 \\ 0.000 & 1.000 & 0.000 & 0.000 & 0.000 \\ 0.000 & 0.000 & 1.000 & 0.000 & 0.000 \\ 0.000 & 0.000 & 0.000 & 1.000 & 0.000 \\ 0.000 & 0.000 & 0.000 & 0.000 & 1.000 \end{pmatrix} \quad (16)$$

$\lambda_{\max} = 5.000$ .  $CI = 0.000$ .  $RC = 0.000$ .

Node: Remind consumers where the product is sold. Weight: 0.086.

- 1) Outdoor advertising. Weight – 0.102.
- 2) Printed (printing) advertising. Weight – 0.189.
- 3) Direct postal advertising. Weight – 0.060.

Matrix of paired comparisons 17:

$$M = \begin{pmatrix} 1.000 & 0.000 & 5.000 \\ 0.000 & 1.000 & 0.000 \\ 0.200 & 0.000 & 1.000 \end{pmatrix} \quad (17)$$

$\lambda_{\max} = 3.002$ .  $CI = 0.001$ .  $RC = 0.001$ .

Level 5.

Node: Advertising in the press. Weight – 0.059.

Node: Advertising on television. Weight – 0.199.

Node: Advertising on the radio. Weight – 0.087.

Node: Outdoor advertising. Weight – 0.102.

Node: Transit advertising. Weight – 0.022.

Node: Advertising in cinemas. Weight – 0.069.

Node: Exhibitions and fairs. Weight – 0.022.

Node: Printed (printing) advertising. Weight – 0.189.

Node: Advertising on the internet. Weight – 0.093.

Node: Advertising souvenirs. Weight – 0.099.

Node: Direct mail. Weight – 0.060.

The resulting chart on the results of the research of goods advertisement is shown in Fig. 2.

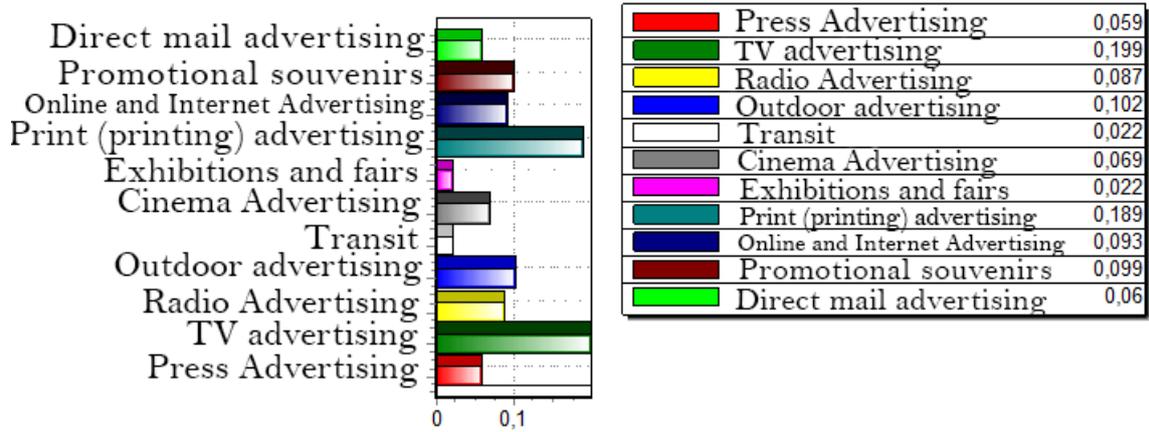


Figure 2. The resulting chart based on the product advertisement research results

The resulting chart based on the study of service advertising is shown in Fig. 3.

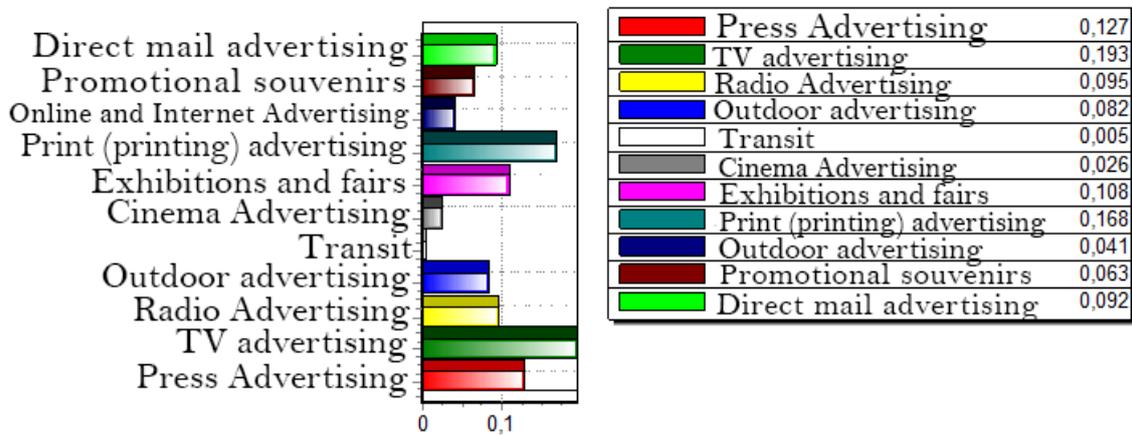


Figure 3. The resulting chart based on the study of service advertising

As you can see from the results of the study and the resulting diagrams, the TV and print (printing) advertising lead to much greater weight. Also, it should be noted that considering the ways of making all examined types of advertising it can be seen that most of it takes printing. In this case, the development of the automated system for the formation of complexes of advertising products should take into account the printing features of a particular type of advertising.

The peculiarity of the modern design is first of all connected with heavily developed design units, significantly weaker - methodical and science only began to develop. The relationship between theory and practice in the design can at best be called tense. However, we can say that the practice is considered to be a kind of research, as the product of the designer's work embodies the information, and therefore is actually a result of the study, and it means that it is possible to formulate his theoretical findings.

We use the comparison of the two models – the model of process of design development and model of the process of applied research (Fig. 4).

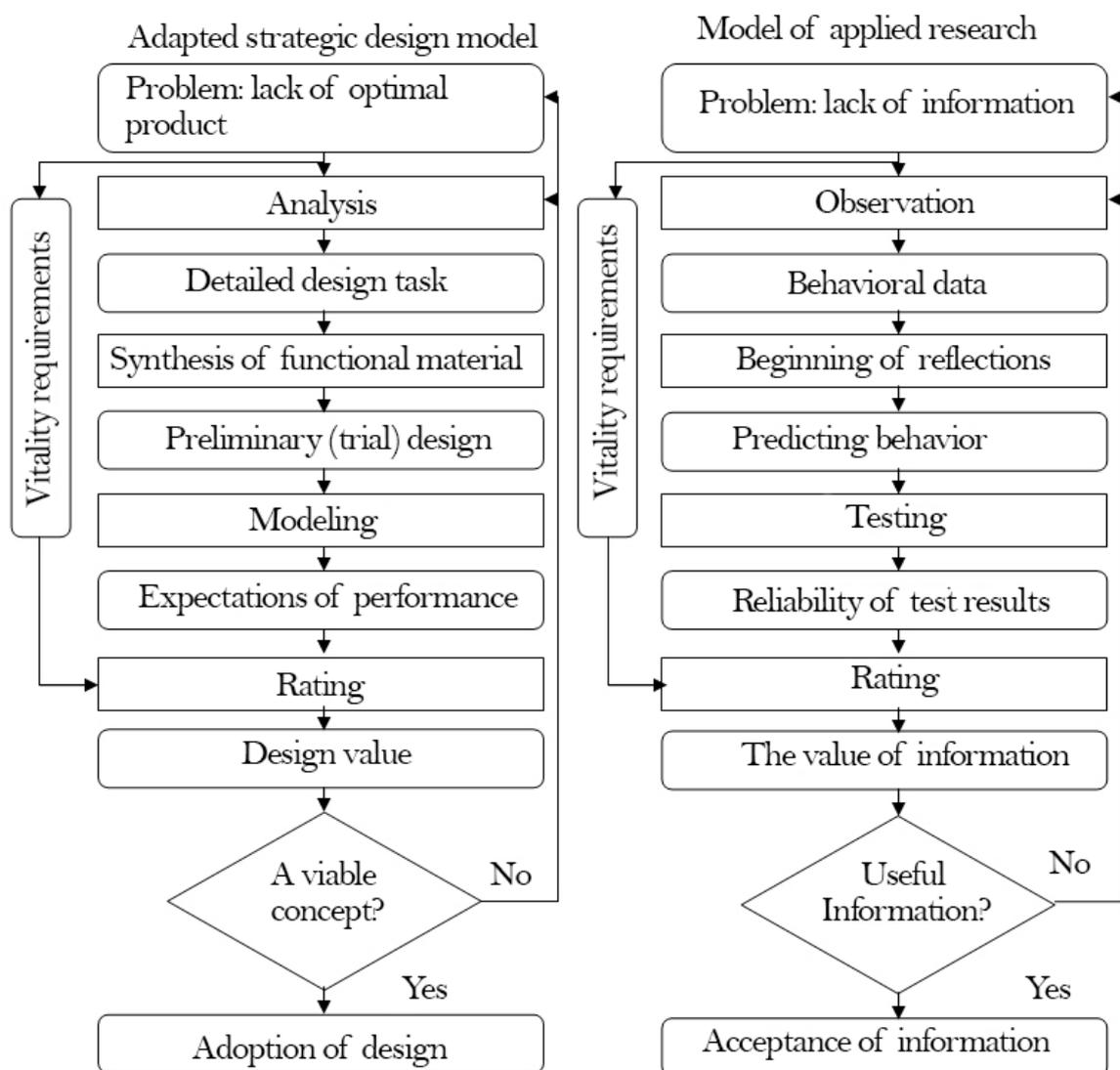


Figure 4. Comparison of processes of design development and research

The similarity is obvious: both design and research involve identifying the problem, exercising the intended sequence of steps to study this problem and finding the most suitable solution. Each step involves a study i.e. the process of finding information necessary as a basis for each stage of the product creation process. So, for practitioners of design research is a search process in three areas: search for insight, search ideas and search solutions.

Search for insight. For efficient design, the designer must have a deep understanding of the context in which it should work. But these researches are not necessarily and are not always conducted deliberately. Many designers tend to the innate ability to be on the same wavelength with the environment, people and their needs, with color, shape and material; this peculiar indentivity in the material world allows them to use the acquired knowledge in the design process. However, more often there is also the need to collect information about the markets and all sides interested in the appearance of the product (including customers, users, manufacturers), and for this there are special facilities, techniques and disciplines.

Search for ideas. During the design, the designer seeks ideas that can help him give the product a certain form, which includes the features of the product, the materials from which it should be manufactured, and its aesthetics. In this situation the designer once again uses his intuitive knowledge, but intuition tends to be in need of help from a conscious research endeavor. It all depends on the creative giftedness of the designer and his ability to use the available knowledge to expand your imagination. Having defined the context of the design-task, the designer begins to look for ideas. To stimulate the creative process are used some of the methods of procreation creative ideas. They are also called design methods.

Techniques for finding creative ideas:

- 1) Brainstorming.
- 2) The methodology of group participation in ideas generation to find a solution for a particular problem.
- 3) Tree goals.
- 4) The methodology is to enumerate the goals of design and project objectives and to build a diagram of hierarchical relations between them.
- 5) Counter-planning. This technique requires the analysis of the preconditions and substantiation of the problem, decision, plan or design through the process of the proposal and reviewing opposite preconditions, which results in the final, revised decision, plan or understanding.
- 6) Interaction matrix. Research and drawing up the interaction between several elements within the solved problem.

7) Network interaction. Transformation of a matrix of interaction into a representation of spatial or other links between elements of the problem.

8) Forced links. The way to spawn innovation is to find possible links, at the moment, clearly not existing between the components of a product or system.

9) New combinations. Search for new, previously nonexistent combinations from alternative components.

Search solutions. Finally, in the process of working directly on design concepts and solutions, the designer conducts (formally or informally) a study that implies not only the application of various creative techniques, but also a methodical search for processes, materials, technologies and ideas.

It is clear that all three categories of search are interdependent and mutually complementary. Understanding context, finding ideas and testing concepts intersect.

Design-process. The designer seldom conducts these searches consistently: first – understanding, then – ideas and at the end – decision. The design process resembles a constant alternation, which can be illustrated on the example of four main categories of the design process: formulation, development, migration and reaction.

The formulation is connected to identifying needs and planning the formulation of a task. Such a beginning of the design process and development of a new product often defines the term "fuzzy beginning": At this stage, the designer and other participants of the product development process are trying to understand the needs, requirements and wishes of all interested parties, and the result is a determination of incentives for further ideas.

In this process, you can select two parts. One of them is the study of the environment in general, when the designer and representatives of other functions of the company, such as sales and marketing, study trends, gather general information about the market, monitor the users and consumers, track the use of the product and feedback. Very often, the designer assumes only observation of trends and consumers, which is conducted formally or, which happens much more often, informally. He can go to exhibitions, attend retail outlets, watch TV and purposefully collect information on the market and users. The Market Research Department and the trade staff also collect such information, but at the official level. The purpose of the designer is to intuitively understand the world in which he is going to work to make it possible to spawn ideas and start a creative process. In other words, he is in search of understanding and ideas.

As soon as the task or concept is defined, the search becomes more focused, apply special methods of research, which is often called the process of presentation requirements (Fig. 5). In the procedure of collection and transformation of information

for the development of requirements, formal techniques are applied, usually borrowed from from the sphere of market research, but with the advent of ethnographic techniques, the the most important aspect was the fixation of the research results and control of their use and values throughout the development of the product, i.e. process of requirements management.

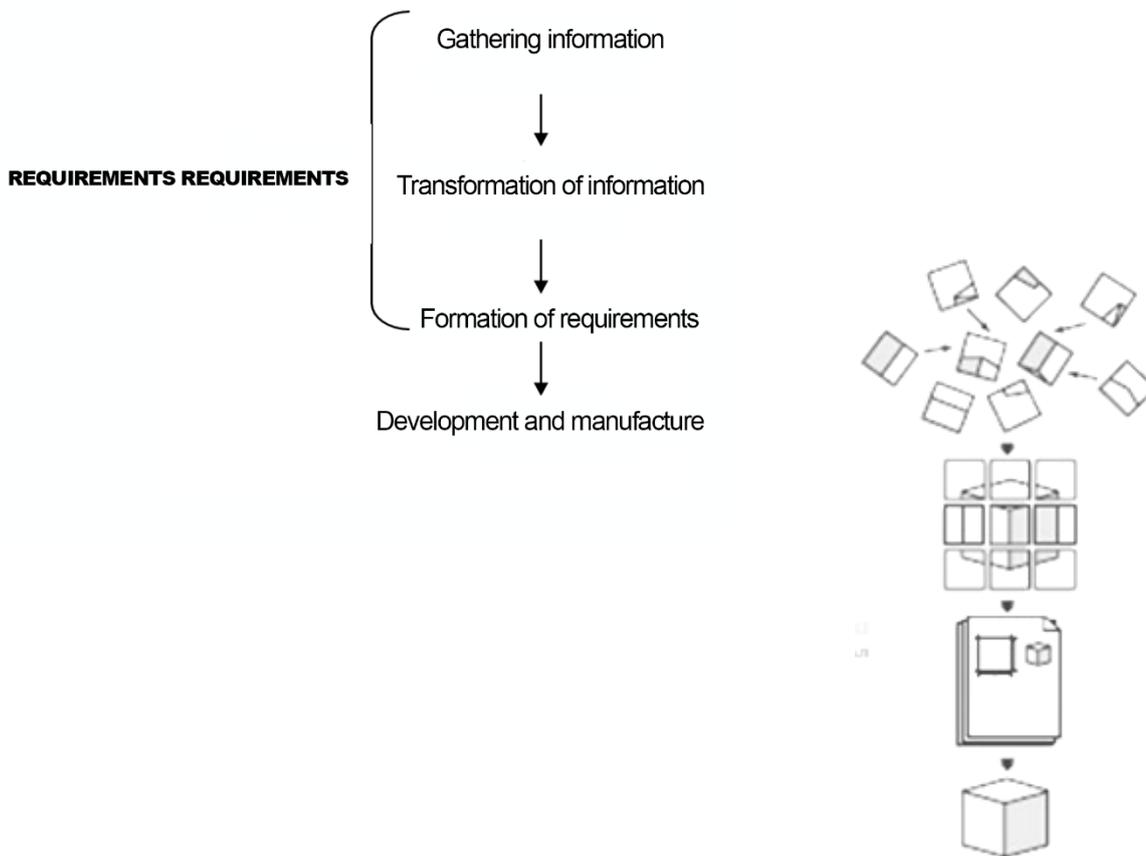


Figure 5. Process of presentation requirements

Stage "development" is connected with idea threshold, concept and detailed development of design. At this stage, the designer searches for ideas, using the available knowledge, information and creative techniques to develop concepts; decides which technologies, materials and processes will contribute to the rise of ideas and solutions; testing design concepts and reviewing designed design taking into account context and user reaction to this design.

The foldings covers the introduction of design into production and product release to the market or its delivery to the user or the consumer. Here the research is concerned solely with ensuring a smooth transfer of design to production – most part

of the researches has already been carried out in the previous stages of planning. But at this stage the designer receives some knowledge and experience in the field of understanding of production and implementation process. The information obtained is extremely useful in solving future design problems.

During the reaction stage the designer appeals to the results of his work, evaluating them in terms of reaction of users and other interested parties, and also gives an estimation to the whole process and the obtained knowledge. All this is part of the process of training the designer and the organization as a whole. The aggregate obtained as a result of knowledge and information collected will help in search of understanding the impression created by the design.

Thus, the research, design searches and design process itself are interconnected and repeatedly crossed. It is a constant learning and knowledge management process. Conducting research is mainly the field of designer, especially in the beginning of the design process.

The Automated System (AS) of forming of the promotional products complexes must meet the following functional requirements:

1) Data entry. AS must necessarily allow to set the default values for the data being entered, where it is desirable.

2) Transactions AS must be projected so that they can be completed in the smallest number of operations.

3) Direct transition to the tools of practical implementation of the system recommendations.

4) Computational operations. AS should contain modules for intermediate calculation of some indicators.

5) The automated system must provide operative assistance throughout the system.

6) Operational assistance in the AS must be contextual-dependent.

All error messages referenced by the system must necessarily be meaningful in order to get their users to do the proper actions.

At any stage in the development interface, the program can run the runtime. After compiling, a program form appears on the screen that behaves like a normal Windows tab. The form is usually hosted by components that make up the program interface, and the developer's task is to assign a response to them to specific user actions, such as pressing the button or selecting a switch. Such reactions and determine the functionality of the application.

To function the automated system of formation of complexes of advertising products will be as follows: Choose the type of enterprise and advertising budget, as

well as the necessary advertising goals. Then when you click on "Suggest Options" in the tab below will be shown the recommended types of advertising. Next, go to the second system unit. Choosing the age category of consumers, uniqueness of the goods and accent attention and press the button "Create recommendations". The following recommended options appear in the tab below: In Block 3 "Additional features", the user has the ability to click on the appropriate buttons to move to graphics programs, calculator, database managers, as well as view reports of marketing companies about the status of various industries.

Before you run the program, you must ensure that the program text contains no syntax errors. To detect syntax errors, the program is compiled and composed. In the Delphi stage compilation and layout are not separated and executed sequentially.

It is possible to compile the project at any stage of development. It is convenient to check the appearance and correctness of the individual function of the form, as well as to test fragments of the code.

When you compile a project, you create a ready-to-use file, which can be a dynamically loaded program or library. The name of the application after compiling matches the filename of the project, and the program itself is standalone and does not require additional Delphi files for its operation. However, if you use other files in the process of executing the program, such as images or help files, these files should be presented to the program.

Compiling an app can be in several ways. You are compiling a program with the main menu, such as Run/Run or F9, and then running the program. If the compilation was successful, an executive file (.exe) that runs on execution is created. If a project consists of several modules, only those that have been modified since the last compilation have been compiled, which saves time significantly.

Another way to compile a program is to run the Home menu command:

By the command Project/Compile < The project name, >, or Ctrl + F9. In this case, all project files are compiled, where changes occurred after the last compilation. Compile also files that depend on these changes. Additionally, the project program is always recompiled in this case.

Compiling all project files without exception is done by using the Project/Build command < the project name >. This compiles all files that are included in the project, regardless of whether the changes were made.

In addition to applying the above methods, you can use the Project/Compile and Project/Build All Projects commands to compile projects, which apply when working with project groups.

The tab of the automated system of forming a complex of advertising products, which is run for execution, but even with unfilled fields is shown in Fig. 6.

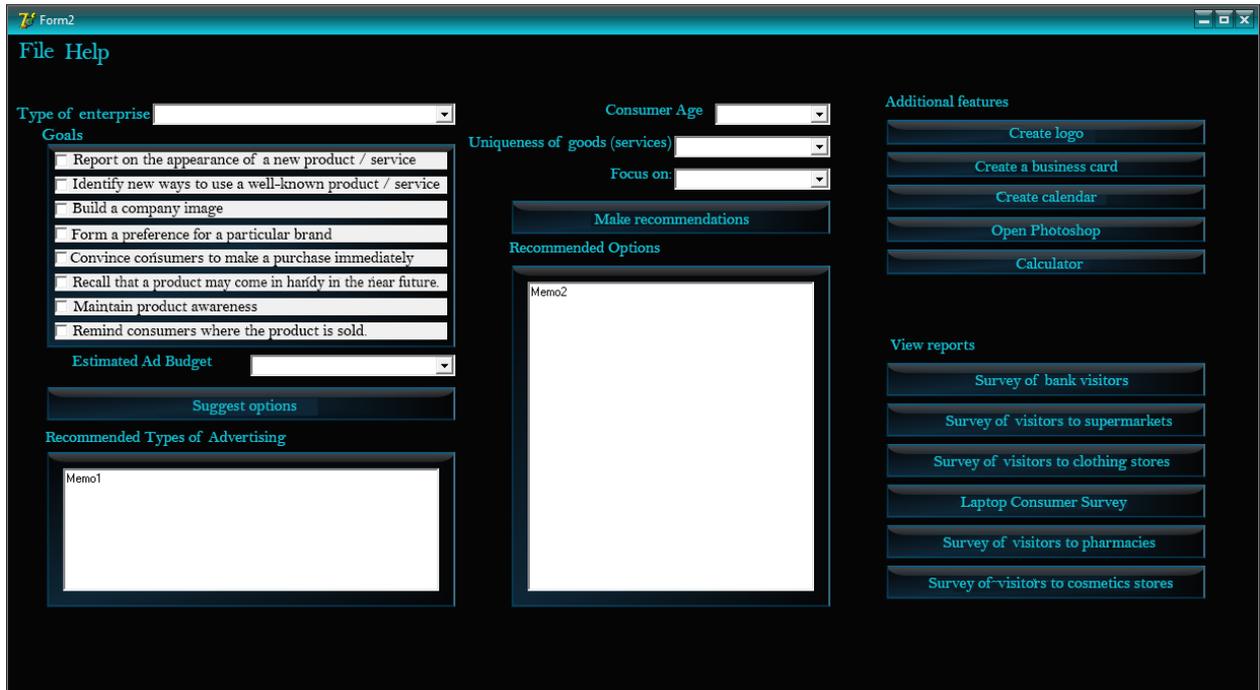


Figure 6. Window of automated formation system of advertising products

The interface and content of the automated system of advertising products formation are very simple and understandable, that is, it is available to understand almost every user. This is very important, because in this way the system can use both a regular user and a specialist. The system's content modules are not tied to one another.

Thus, in this study it is proposed the automation technology of forming advertising complexes and formed methodological bases of advertising complexes formation. A hierarchical model of advertising selection based on a defined number of indicators to evaluate the effectiveness of advertising is developed. The final product was received in the course of solving practical tasks – the automated system of formation of advertising production complexes.

The practical result of this study is also the recommendations of the developer of advertising, which can be used in the process of forming complexes of advertising products and their direct development.

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