

Formation of a Creative Environment for Decision-Making in Business Based on the Construction of Intelligence Maps Using Information Technology

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ABSTRACT

The study is devoted to the study of the possibilities of using smart cards in order to form a creative environment for decision-making in business. It has been proven that creative thinking is one of the most important skills that help to make innovative, non-standard decisions. This leads to the need not only to establish the requirement for creative thinking when hiring an employee, but also the formation of an environment that will realize the creative potential and constantly develop it. One of the techniques of forming a creative environment is the use of intelligence cards. The stages of construction of intelligence maps are established. Formalization of information in the form of intelligence maps with the help of special software will replenish the base of information and analytical support of the decision-making process. The analysis of the market of software applications that allow automating the process of creating smart cards. The directions of use of intelligence cards are systematized, the order is established application in accordance with the intended purpose, methods, which should be combined and Soft skills, are supported. It is concluded that intelligence cards, in addition to supporting creative thinking, allow you to practice the skills of creative thinking, teamwork, critical thinking, communication.

Keywords: *intelligence cards, software, creative environment, decision making, soft skills.*

1. INTRODUCTION

The growing level of competition requires new, innovative approaches to solving any problem in business. As a result, the requirements for the company's employees are changing. Studies show [1] that employers expect from workers not only professional knowledge, but also interpersonal skills.

Formation of the creative (creative) thinking is one of the most important parts of the soft skills of experts in marketing, management and entrepreneurship [2]. This leads to the need to develop creative skills of staff and the formation of a creative decision-making environment in the enterprise.

Creativity - the ability to introduce and develop new approaches to solving problems, answers to questions facing the subject or express ideas, apply, synthesize and secrete knowledge [3-7].

2. MATERIALS AND METHODS

The aim of research is to establish the possibility and expediency of using smart cards in order to form a creative environment for decision-making in business.

Based on the analysis of theoretical developments [8, 9] and recommendations from practitioners, the stages of construction of intelligence maps and the possibility of their application were identified.

In order to establish the possibilities of automating the process of creating smart cards, an analysis of the information provided on the official websites of special software developers was conducted. The main criteria for choosing software were its functionality and cost.

3. RESULTS AND DISCUSSION

Scott Belsky, CEO of Adobe products, argues that creativity will be a key competence and competitive

advantage for human competition in the future labor market [10]. Creativity is a unique human trait that no algorithm can replace.

The use of creativity leads to "non-standard thinking", which means that the generally accepted rules and restrictions are set aside in order to find innovative approaches to solving problems [11].

Thus, focusing on creativity and innovation is important, as most problems may require approaches that have never been developed or tested before.

A creative environment can be formed through the use of certain techniques. They help to get the right way of thinking of decision makers and provide a basic structure for achieving new ideas on demand. One such method is to build mental maps.

Intelligence or mind-maps are an effective way to memorize, think, remember, solve creative problems, as well as the ability to display and visualize the processes of information processing, change them and improve.

This is a schematic representation of the key ideas, the main points of the speaker's speech, the most important action plan. With their help it is convenient to structure information. These maps are also called "thinking maps", "thoughts map" or "connection diagram".

The idea of intelligence maps was formed in the 70s of the twentieth century by British psychologist Tony Busen, who was interested in the development of intellectual abilities, memory, creativity, reading speed.

Mental maps are a tool that allows convenient and simple [12]:

- work with information: understand, memorize, establish logic;
- apply for the presentation of ideas, projects and a clear explanation of their position in the communication process;
- develop projects, create plans, make decisions.

Thus, the ability to build mental cards will allow the employee to be more effective not only in the creative process, but also in the development and decision-making, improve communication skills using visual information, and allow you to organize teamwork.

You can create relationship diagrams by hand using paper, pencils, or felt-tip pens. You can also use special software. In both cases, the general rules of procedure will be approximately the same.

Figure 1 shows the sequence of steps to build a mental map.

The basic rules for building smart cards include the following [13]:

1. Adhere to the hierarchy of opinions.
2. The most important question is registered in the center. Graphic images (icons, drawings) will be appropriate.
3. Add volume to images, blocks, branches. This makes the card easier to perceive.
4. Leave the distance between the blocks.
5. If you want to focus on the relationship between the elements, it is advisable to use arrows, lines, the same color.
6. Express thoughts clearly and concisely. The font is clear, one keyword above the proper line, the main lines should be smooth and bold, the words are recommended to be placed horizontally.

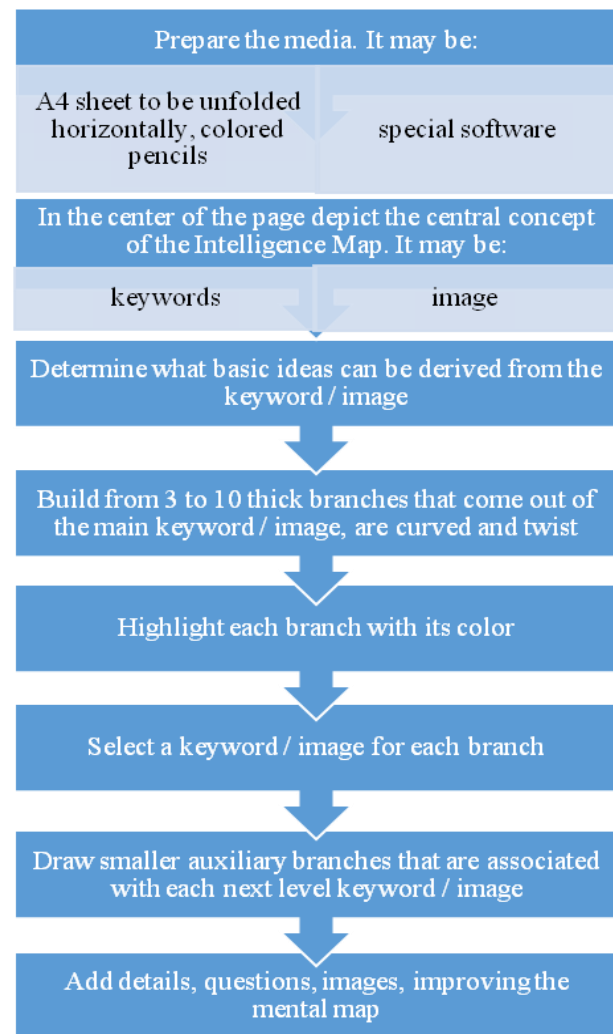


Figure 1 Stages of construction of the Intelligence map.

The use of smart cards has the following advantages:

- Information that is structured in such a scheme is easier for the brain to perceive and remember because it looks structured and is reflected as a real image.

- The map includes associative thinking, which is more natural for the human brain than linear, which works in the development of consistent, logical lists. That is why the use of smart cards makes it easier to organize large amounts of information.

- Working with an already drawn up map, the specialist first fixes attention on the key point, gradually moving to individual tasks / issues. This allows you to correctly set priority areas.

- Such connection diagrams help to clearly see all the details of the project down to the smallest detail, easily identify possible obstacles and inconsistencies.

- Items that have already been completed can be conveniently marked, new branches can be added at any time.

- Items that are inhomogeneous can be displayed side by side within a single map.

Developed intelligence maps become part of the information and analytical support of decision-making in the enterprise.

The Information Analytical Support implies the single data and knowledge base of the business organization whose algorithm and software complex is designed to solve functional problems of operating and dispatch management, marketing, financial arrangements, accounting, strategic planning, and organizing e-document flow between the sources and users of information [14].

In order to determine the feasibility of using software to create a creative decision-making environment, an analysis of the market of software applications that automate the process of creating smart cards.

Table 1 presents the software that was selected according to the criteria of price and functionality. It is concluded that all applications have free versions, which to some extent are functionally limited.

Among the paid applications, the MindMeister software has the greatest functionality. It should be used when many users are working in the process of creating ideas, discussing and making decisions.

If the company is just starting to work with smart cards, it is recommended to start with Coggle. The free version of Coggle has the basic features that are necessary for use in the first steps of working with smart cards. Key features of the full-featured version of Coggle:

- Collaborate in real time.
- Unlimited public charts.
- Unlimited image downloads.
- Complete history of changes

- Support for Markdown (a lightweight markup language that is a tool for converting code to HTML. The main feature of this language is the simplest syntax, which serves to simplify the writing and reading of markup code, which, in turn, allows you to easily correct it).

- Download in PDF and image formats.

Table 1. Brief description of Application

Application name	Brief description
Coggle	Allows you to work together on a project. The interface is simple and user-friendly. It has a lot of features. You can use images, custom color settings, view the history of the document and return to the previous version of the map. Provides access to the Coggle Gallery - the best charts created in this application. You can use these charts as templates and create your smart cards based on them.
Xmind	Works on Windows, Linux, Mac, iOS and Android. Compatible with Microsoft Office suite. In addition to Mental Maps, the functionality also includes the ability to build Gantt charts, herringbone charts, matrices, and organizational charts. You can change design themes, insert graphics, math formulas, import and export smart cards to or from other applications
Bubbl.us	Cloud application, works through the browser. Allows you to save, print, share the received images. Easy to use in the presentation process. In the paid version there is a possibility of teamwork
MindMeister	Cloud application. In addition to the standard functionality of building smart cards provides the ability to work in a team during brainstorming, has a built-in presentation mode, provides marketing templates (description of the target audience, building a marketing strategy, etc.), allows you to embed media files in each node, has a management manager tasks

- Export to text.
- Comments and chat.
- Embedding charts.

- Personal charts.
- Auto-organization of branches.
- Public folders.
- Presentation mode.
- Upload high resolution images.
- Variety of colors.
- User and data management.
- Company charts

As a result of the analysis of the theory and practice of application of intelligence cards [13, 15-17], the directions of their use for the purpose of formation of creative decision-making environment.

1. Purpose: generation of ideas.

Application procedure:

- In the center of the page is a keyword that reflects the topic on which the ideas are generated.

- From a keyword or image that creates a certain image, ideas are suggested that come to mind on this topic. A separate branch is created for each idea.

- New branches are recommended from each branch (at least three are recommended), smaller in size. They display ideas that come from the previous branch.

- Once the map is complete, you can analyze the options and select the ones you have. When you're done, review your final version of the map and decide which ideas are best.

Methods with which it is expedient to combine:

- Brainstorming method.
- The method of associations.

Examples of applications in marketing:

- Creating a new product.
- Formation of a marketing campaign.
- Development of measures to support corporate culture.

Soft skills that are supported:

- Creative thinking.
- Teamwork.
- Communications.

2. Purpose: memorizing information from books and articles.

The order of application:

- Mark the titles of the most important chapters on the branches.

- Write down the main ideas from each chapter.

- On the third level display quotes, examples of own comments read.

- On the fourth, write down the ideas that inspired the article or book.

Methods with which it is expedient to combine:

- The method of associations

Examples of applications in marketing:

- Search for new niches in the market
- Introduction of a new Internet marketing tool

Soft skills that are supported

- Creative thinking
- Critical thinking
- Social and cultural awareness

Purpose: problem solving

The order of application:

- Display the wording of the problem in the center of the page.

- For each direction using the method of "5W" Mark Sherrington to provide initial data: "What?" (What), "Who?" (Who), "Why?" (Why), "Where?" (Where), "When?" » (When).

- Give answers on the branches of the second level.

- Create free problem solving associations and write on the following branches.

Methods with which it is expedient to combine:

- Generation of ideas.
- The method of associations.

Examples of applications in marketing:

- Forming a portrait of a potential client.

Soft skills that are supported:

- Creative thinking
- Critical thinking
- Teamwork
- Communications

3. Purpose: goal setting

The order of application:

- Write a global (strategic) goal in the center of the page

- Write smaller goals (tactical) on the branches of the second level

- On the third - those that must be performed in the first place (operational).

Methods with which it is expedient to combine:

- Generating ideas
- Expert assessments.

Examples of applications in marketing:

- Marketing planning.

Soft skills that are supported:

- Creative thinking
- Self-management
- Purposefulness.

4. Purpose: project management

Application procedure:

- The name of the project is written in the center of the page
- The main tasks are displayed on the branches
- More detailed tasks are written on the following branches

- Mark already completed tasks on the map

Methods with which it is expedient to combine:

- Methods of Project Management

Examples of applications in marketing:

- Management of site creation.

Soft skills that are supported:

- Creative thinking
- Critical thinking

5. Purpose: content creation

The order of application:

- The name is displayed in the center.
- Branches can be beaten depending on the purpose of writing the following: characters; environment; theme, plot, conflict, scenes.
- Branches of the next level specify the previous one. For example, if you select "Characters", it can be: age, income, education, advantages, disadvantages.

Methods with which it is expedient to combine:

- Storytelling
- Generating ideas
- The method of associations

Examples of applications in marketing:

- Creating a commercial
- Writing an image article.

Soft skills that are supported:

- Creative thinking
- Communication

6. Purpose: writing a plan

The order of application:

- The central component can be a business idea (business name)
- The main branches are the main components of the plan
- Branches of the next level - components of the plan components
- Branches of the last level - results (indicators) of plan implementation

Methods with which it is expedient to combine:

- Generating ideas
- Brainstorming

Examples of applications in marketing:

- Marketing plan
- Content plan in social networks.

Soft skills that are supported:

- Creative thinking

- Communication
- Purposefulness

7. Purpose: training

Application procedure:

- In the center - the name of the meeting or lecture
- Each subsequent branch is a point that reveals the topic
- The next branch is the details of the topic / meeting

Methods with which it is expedient to combine:

- Sketching

Examples of applications in marketing:

- Summarizing important information.

Soft skills that are supported:

- Creative thinking.
- Curiosity

8. Purpose: presentation.

The order of application:

- Using the created intelligence card for a speech-presentation in order to give it more clarity, clarity. Audiences remember information better if it is structured and visualized

Methods with which it is expedient to combine:

- Schematic, graphic representation of information

Examples of applications in marketing:

- Presentation of a new product

Soft skills that are supported:

- Creative thinking
- Communication

9. Purpose: systematization of information

The order of application:

- Display what properties, advantages and disadvantages of a particular object, how it can be used, etc.

Methods with which it is expedient to combine:

- Generating ideas

Examples of applications in marketing:

- Segmentation
- Targeting

Soft skills that are supported:

- Creative thinking
- Communication

4. CONCLUSION

The use of intelligence cards will create a decision-making environment in the enterprise, which will promote not only the manifestation of creative potential of employees, but also the development of communication, abilities, teamwork, critical thinking. The use of special software when creating smart cards allows you to replenish the information and analytical

base of decision-making and minimize the risks of losing valuable information. As a result, we can expect an increase in the level of innovation of the decisions that will be made.

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