

## DEVELOPMENT AND IMPLEMENTATION OF DECISION SUPPORT SYSTEM IN ENTREPRENEURIAL ACTIVITY

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***Annotation.** This article concerns the problem of complexity in the decision-making relating to business and entrepreneurship. These systems were created in order to facilitate this process. The article also describes the popularity of this problem and its use in practice.*

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**Keywords:** Decision support system, management, decision-making.

Most often, what people do in their lives is to solve problems and make decisions.

In most cases, they are much stressed and have a shortage of time. So, when they faced a new problem or choose they must make, they react with a decision that they used before. It's easy with this drawing near to get stuck in a circle of solving of one and the same problem over and over again. Therefore, it's often useful to get some program that used to an organize the problem solving and decision making. Here comes DSS (Decision Support Systems) created to organize the information for further adoption of rational decision.

For all times, the decision-making is the hardest part of human being. Nowadays, that problem has not lost its popularity. Such systems are useable in medical, research, engineering, financial and other spheres of daily life. These programs can systematize and analyze such amount of data in short period that people cannot.

For almost five decades, researchers in judgment and decision making have explored human errors in judgment and

choice. We have documented instances in which people violate fundamental principles and axioms. We have discovered cases in which people disobey the most basic rules of statistics, probability, and logic. We have identified factors that should be irrelevant, but aren't, such as the response mode, the problem representation, and the decision frame [1].

In 1986 was formed «The Society for Judgment and Decision Making» one of the most famous societies about decision making that explored human behavior and was opened by scientific article written by Tversky & Kahneman and that still touches upon much of what is done today. Other society like Brunswick also investigate information about human decision-making. After its breakup some scientists such as Von Neumann and Morgenstern, Ward Edward released their articles about human behavior and decision-making. The aim of DSS is to improve decision-making process and to reduce time on the

data classification.

The term DSS (DSS-Decision Support System) emerged in 70-s and is owned by Gorri and Morton, though the first generation of DSS isn't differ from traditional management information systems, and therefore instead the DSS often used term «management decisions systems».

DSS is a computer information system used to support wide range of actions when making decisions in situations where it is impossible or undesirable to have an automatic system, which fully performed the entire process solutions.

Decision-making is the most difficult and crucial stage of the manager's activity. Nowadays, computer modeling of the decision-making processes becomes the central focus of automation during the activity of the person who makes the decision. The managers, taking decisions, faced with a difficult choice, with the need to consider a set of alternatives. For the variants, evaluation used professionals' knowledge, complex analytic calculations, scientific research, means of modern information technology.

It should be noted that, nowadays almost completely missing computer support of activity of top-level managers, who in their practice tend to solve unstructured problems. This means that the first computer designed DSS assist in the decision-making process of the first heads of enterprises, organizations, i.e. those categories who decide a weakly structured of unstructured problems.

Note that in the general case for decision support, in addition, used other types of modern information systems like: ex-

pert systems, executive information systems.

The most important objectives of the decision support systems include the following: improving decisions, increase productivity of solutions makers, i.e. their ability to create a better solution in a shorter period, help solution makers in solving the unstructured or semi-structured problems.

Today, the main components of DSS is a (fig 1): the user interface; database (DB) and the database management system (DBMS); base models (BM) and the database management system models (SUBM). Also here adds a new subsystem – messages system (mail services), which allows users to use e-mail and the Internet to obtain the necessary information for decision-making. There are the following types of DSS (classified by Daniel J. Power) [2]:

**Communication-driven DSS** Most communications-driven DSSs are targeted at internal teams, including partners. Its purpose are to help conduct a meeting, or for users to collaborate. The most common technology used to deploy the DSS is a web or client server. Examples: chats and instant messaging software, online collaboration and net-meeting systems.

**Data-driven DSS** Most data-driven DSSs are targeted at managers, staff and also product/service suppliers. It is used to query a database or data warehouse to seek specific answers for specific purposes. It is deployed via a main frame system, client/server link, or via the web. Examples: computer-based databases that have a query system to check (including the

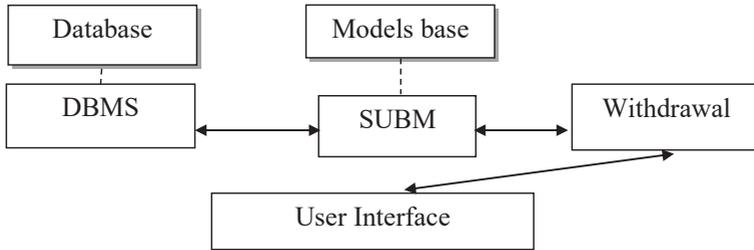


Fig. 1 Architecture of DSS

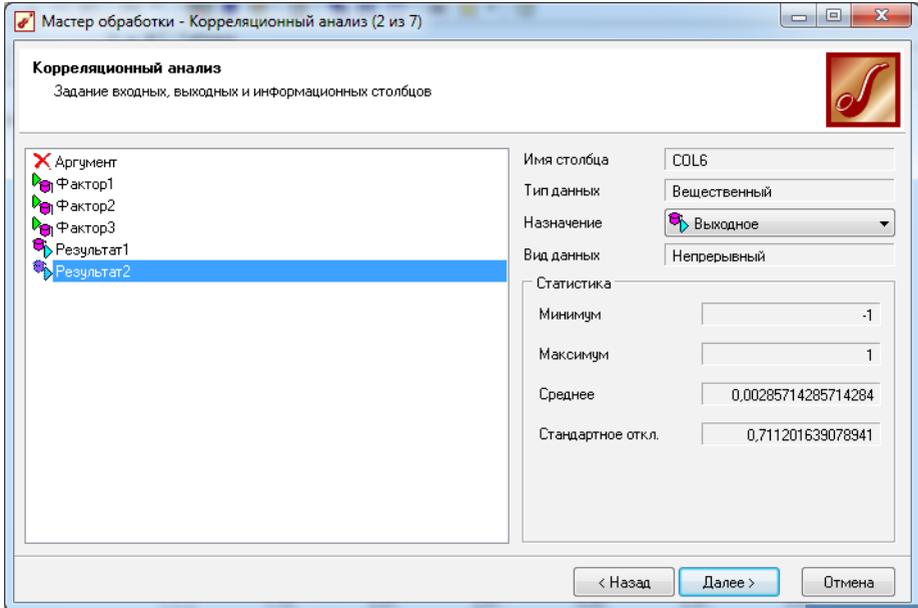


Fig. 2 The Processing Wizard dialog

incorporation of data to add value to existing databases.

**Document-driven DSS** Document-driven DSSs are more common, targeted at a broad base of user groups. The purpose of such a DSS is to search web pages and find documents on a specific set of keywords or search terms. The usual technologies used to set up such DSSs are via the web or a client/server system. Examples:

**Knowledge-driven DSS:** Knowledge-driven DSSs or 'knowledgebase' are they are known, are a catch-all category covering a broad range of systems covering users within the organization setting it up, but may also include others interacting with the organization – for example, consumers of a business. It is essentially used to provide management advice or to choose products/services. The typical deployment technology used to set up such

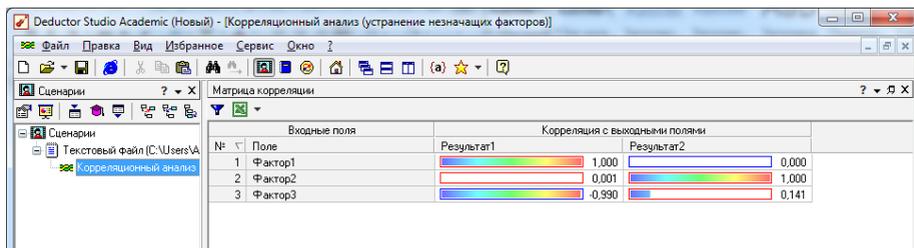


Fig. 3 Matrix of correlation of input fields with output parameters

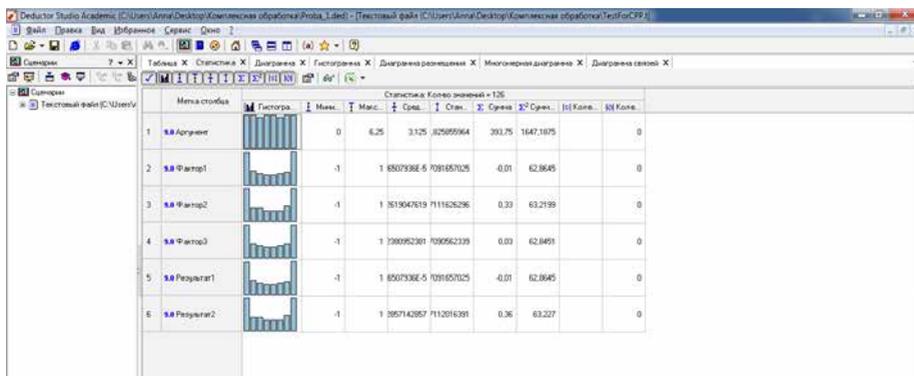


Fig. 4 Analysis of the results

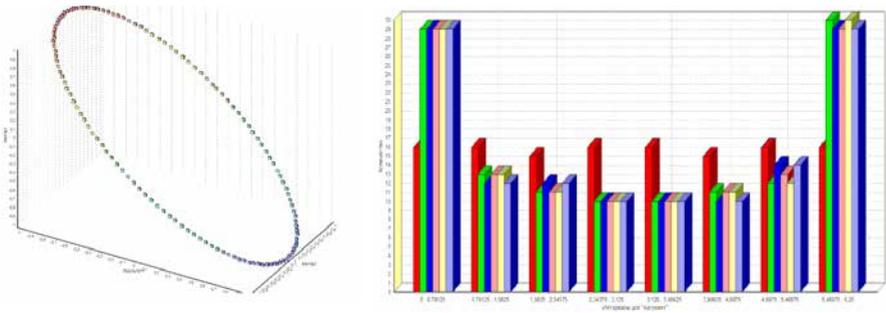
agers and staff members of a business, or people who interact with the organization, for a number of purposes depending on how the model is set up – scheduling, decision analyses etc. These DSSs can be deployed via software/hardware in stand-alone PCs, client/server systems, or the web.

In this article the tool «Correlation analysis» analytical package Deductor is considered. This analysis is used to evaluate the dependence of output data fields on input factors. The principle of correlation analysis is to find such values that are least correlated (interrelated) with the output. Such factors can be excluded from the resulting data set, practically without loss of useful information. The criterion

In the first step of working with the program, you must import the input file. Next you need to activate the Data Wizard and select the Correlation Analysis tool. After that, you need to check that Factor 1, Factor 2, Factor 3 are inputs, and Result 1 and Result 2 are output. Parameter Argument must have a destination – Unused. Next we choose the Pearson correlation coefficient and start the correlation process itself. The result of this tool is shown in Fig. 3.

After data processing, an analysis of the results is carried out.

The Data Visualization Wizard allows you to submit data in graphical form (Fig. 5).



**Fig. 5** Visualization of correlation analysis results

So, the Deductor analytics platform allows you to create an effective decision support system. Thanks to the import mechanism, it is possible to create a single analytical superstructure over all existing systems of data collection and storage in the enterprise. The set of different technologies of this program allows on the basis of a single architecture to carry out all stages of building an analytical system: from the creation of data warehouse to the automatic selection of models and visualization of the results.

**List of References**

1. Barbara Mellers From the president [Electronic resource] // H. Barbara Mellers – Access mode: <http://www.sjdm.org/newsletters/96-mar.html#2> 1996
2. Daniel J. Power Types of Decision Support Systems (DSS) [Electronic resource] // Daniel J. Power – Access mode: <https://www.gdrc.org/decision/dss-types.html>
3. Deductor – platform for creating complete analytical solutions [Electronic resource] – Access mode: <https://basegroup.ru/deductor/download>