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EFFECTIVE DECISION-MAKING: FROM THEORY AND METHODS TO STRATEGY AND LEADERSHIP

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Kramarenko A. O. Effective Decision-Making: From Theory and Methods to Strategy and Leadership

Since the decision-making process is becoming more multifactorial and multidimensional, determined by the type of problem being solved, leadership style, limiting factors, external and internal environment of the company, it is quite logical that the materials of the article are focused on identifying the most effective decision-making tools. In the course of the study, the basic theories of decision-making were classified into 3 groups: problem-oriented theories; solution-oriented theories; role-oriented theories. It is emphasized that the dominance of theoretical approaches to decision-making determines the choice of appropriate decision-making methods, which are divided into qualitative (evaluative, expert-analytical, mixed) and quantitative (methods in conditions of certainty and methods in conditions of uncertainty). The complex of approaches and methods used forms the basis for a key decision-making strategy – analytical, heuristic or expert. The carried out content analysis of the survey results of company executives organized by McKinsey allows to identify the most common leadership styles – Catalyst, Adapter and Guardian. The correspondence between such leadership styles as Adapter and Guardian, problem-oriented theories, analytical strategies and quantitative methods of decision-making has been established. The most popular methods are methods of game theory, scenario method, Delphi method, combining expert assessments, qualitative analysis and reasonable comparison of various alternatives. The most promising directions for improving the decision-making system for business are the scientific approach, the use of mathematical and statistical analytics, the establishment of clear criteria for decision-making and measuring the results, the maximum possible involvement of stakeholders in the discussion, high responsibility and attachment to financial results, as well as orientation to a high level of professionalism of managers and owners of companies.

Keywords: decision-making methods, leadership styles, analytical strategies, problem-oriented approach, effectiveness of decisions.

Fig.: 2. **Tabl.:** 4. **Bibl.:** 18.

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Крамаренко А. О. Ефективне прийняття рішень: від теорії та методів до стратегії та лідерства

Оскільки процес прийняття рішень стає все більш багатофакторним і багатоспектним, визначається типом розв'язуваної проблеми, стилем лідерства, обмежувачими факторами, зовнішнім і внутрішнім середовищем компанії, логічно, що матеріали статті орієнтовані на виявлення найбільш ефективних інструментів прийняття рішень. У ході дослідження базові теорії прийняття рішень були класифіковані в три групи: теорії, орієнтовані на проблему; теорії, орієнтовані на рішення; теорії, орієнтовані на ролі. Підкреслено, що домінування теоретичних підходів до прийняття рішень визначає вибір відповідних методів прийняття рішень, які поділяються на якісні (оцінні, експертно-аналітичні, змішані) та кількісні (методи в умовах визначеності та методи в умовах невизначеності). Комплекс використовуваних підходів і методів формує основи для ключової стратегії прийняття рішень – аналітичної, евристичної або експертної. Контент-аналіз результатів анкетування керівників компанії, організованого McKinsey, дозволяє виявити найбільш поширені стилі лідерства – Каталізатор, Адаптер і Хранитель. Встановлено відповідність між такими стилями лідерства, як Адаптер і Хранитель, проблемоорієнтованими теоріями, аналітичними стратегіями та кількісними методами прийняття рішень. Найбільш затребуваними методами є методи теорії ігор, метод сценаріїв, метод Дельфі, що поєднують в собі експертні оцінки, якісний аналіз і обґрунтоване зіставлення різних альтернатив. Найбільш перспективними напрямками вдосконалення системи прийняття рішень для бізнесу є науковий підхід, використання математичної та статистичної аналітики, встановлення чітких критеріїв при прийнятті рішень і вимірюванні результату, максимально можливе залучення стейкхолдерів в обговорення, висока відповідальність і прив'язка до фінансового результату, а також орієнтація на високий рівень професіоналізму управлінців і власників компаній.

Ключові слова: методи прийняття рішень, стилі лідерства, аналітичні стратегії, проблемоорієнтований підхід, результативність рішень.

Рис.: 2. **Табл.:** 4. **Бібл.:** 18.

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Doing business and managing a company is everywhere accompanied by constant decision-making. At the present stage, the decision-making process is becoming more complicated due to the growing saturation of entrepreneurial activity, the increase in information flows, the need to take into account many determinants in the formation of economic strategies and policies. The approach to decision-making is becoming more multifactorial and multidimensional, since the decisions made are determined by the type of problem being solved, the decision-maker, limiting factors, the external and internal environment of the company. In this regard, the decision-making system requires special attention from managers and business owners, since it is the qualitative adjustment of these processes that determines the success of the enterprise.

The issues of decision-making processes were studied in particular by such scientists as Dreier J., Epstein R., Hald A., Kelly A., Holsapple C., Mintzberg H., Westley F., Ishikawa K., Buzan T., De Bono E. and others. Buzan T., De Bono E., Ishikawa K. offer effective approaches to decision-making [1–3]. However, these approaches are not universal and applicable for enterprises of various sizes and types of activities. Brouthers K. et al., Gibcus P. and van Hoesel P. H. consider making strategic decisions for small businesses [4; 5], although, in our opinion, the problems of the organization of operational management and operational decisions are unfairly taken out of the framework. Epstein R. and Hald A. studied in detail quantitative decision-making methods [6; 7], leaving without attention qualitative methods that are becoming increasingly relevant in modern conditions.

The purpose of this study is to systematize existing approaches to decision-making, as well as to identify the most effective methods and tools for decision-making.

Research methods. As part of the work on the study, general scientific methods such as comparison, systematization, classification were used, which made it possible to generalize and present existing theories and methods of decision-making within a single approach. The results of statistical studies were analyzed and comprehended using the methods of deduction, induction and abduction. The use of these methods, along with content analysis and system analysis, made it possible to summarize strategies and types of leadership in decision-making, as well as to identify the most effective methods in decision-making.

The process of making a management decision is the process of converting initial information into output information. Management decisions can be formal and creative. It is believed that the solution obtained with the help of mathematical models will be formal, and if it appeared as a result of the work of human intelligence – creative.

At the first stage of developing a decision-making system, it is necessary to determine the basic theoretical approaches to decision-making, which in turn determine a set of the most commonly used methods, as well as the most frequently used strategies. We have divided all decision-making theories into 3 groups depending on the main orientation of the approaches (Fig. 1).

Below we will reveal the main essence of the presented theories.

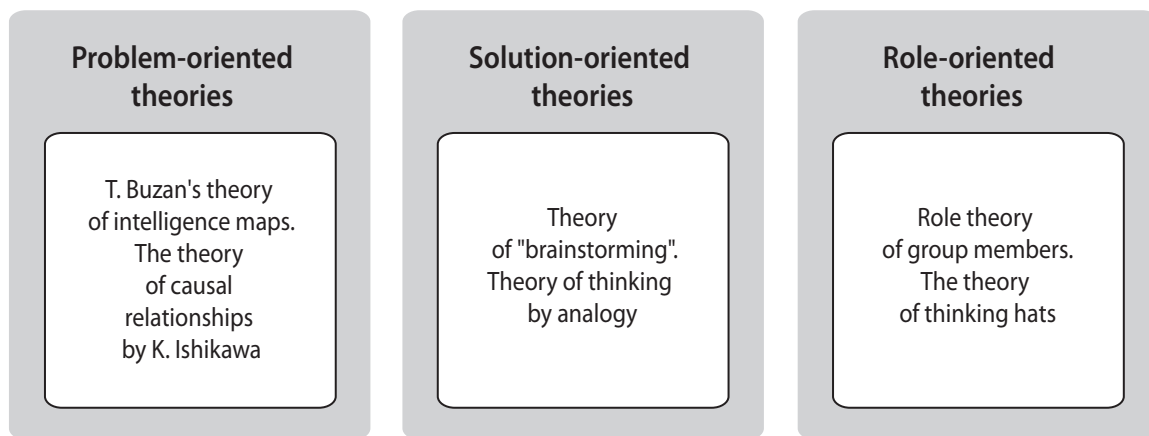


Fig. 1. Decision-making theories

Source: compiled by the author.

1) Problem-oriented theories are based on a deep analysis of the problem situation, its causes, factors, actors. This group of theories is represented by the theories of T. Buzan's intelligence maps and K. Ishikawa's theory of causal relationships.

- ✦ T. Buzan's theory of intelligence maps. The problem is placed in the center of the schematic image of the intelligence map, which is connected by branches with contextual theories, views, ideas, as well as their authors. The decision is made through promotion in the chosen directions [1].
- ✦ The theory of causal relationships by K. Ishikawa. According to this theory, any problem is associated with a range of factors, the significance of which is not the same. Attempts are being made to determine the relative strength of each factor [3].

2) Solution-oriented theories are based on the maximum simplification of the solution search path. The main thing is to get a result, i.e. to find a solution. This group of theories includes the theory of "brainstorming" and the theory of thinking by analogy.

- ✦ The theory of "brainstorming". The "brainstorming" is directed by an experienced specialist who strives to find points of resumption of sentence generation in each new idea. "Brainstorming" ends with the stage of creating a bank of ideas [8].
- ✦ The theory of thinking by analogy. It's about thinking through patterns. When faced with a problematic situation, the first thing to do is to turn to a similar situation that has already been encountered and successfully resolved [8].

3) Role-oriented theories focus on the psychology of the person making the decision. This group of theories includes the role theory of group members and the theory of thinking hats.

- ✦ The role theory of group members is based on the fact that the mental type and the role of people in the group are equal. Being part of a group, a person is certainly transformed. Taking into ac-

count the role predispositions of the group members makes it possible to successfully coordinate and control its activities [9].

- ✦ The theory of thinking hats. The main point of this concept is the presence of different types of thinking. In certain specific situations, the importance of certain styles of thinking increases [2].

The choice of the dominant theoretical approach depends on which of the guidelines is most significant for the enterprise – an in-depth analysis of the problem for making an informed decision, the speed of the solution and the availability of many alternatives, or the psychology of internal interaction. At the same time, the choice of the optimal theoretical approach indicates a set of methods that will most often be used in decision-making. All methods are divided into quantitative and qualitative (Fig. 2).

Below is a general description of each of these groups of methods.

1) *Quantitative methods (or methods of operations research)* are used when the factors influencing the choice of a solution can be quantified and evaluated. At the same time, all quantitative methods are divided into groups depending on the degree of certainty of the situation: methods of certainty and methods of uncertainty.

1.1) Methods under conditions of certainty include analytical methods, methods of mathematical programming, statistical methods.

1.1.1) Analytical methods establish analytical (functional) dependencies between the conditions of solving the problem (factors) and its results (the decision made). Analytical methods include a wide group of methods of economic analysis of the company's activities (for example, the construction of the break-even equation and finding the break-even point) [10].

1.1.2) Methods of mathematical programming. In mathematical programming problems, it is necessary to choose the value of variables (i.e. control parameters) so

QUANTITATIVE				
<i>Methods under certainty</i>			<i>Methods under uncertainty</i>	
Analytical methods	Methods of mathematical programming	Statistical methods	Methods of statistical decision theory	Methods of game theory
QUALITATIVE				
<i>Evaluation methods</i>		<i>Expert-analytical methods</i>		<i>Mixed methods</i>
Simple ranking method	The method of weighting coefficients	SWOT-analysis	The method of scenarios	Delphi method

Fig. 2. Decision-making methods

Source: compiled by the author.

as to ensure the maximum (or minimum) of the objective function under certain constraints [10].

1.1.3) Statistical methods of managerial decision-making are based on the collection and processing of statistical materials. A characteristic feature of these methods is the consideration of random impacts and deviations. Statistical methods include methods of probability theory and mathematical statistics [11].

1.2) Methods under uncertainty are based on methods such as methods of statistical decision theory and methods of game theory.

1.2.1) Methods of statistical decision theory are used when the uncertainty of the situation is due to objective circumstances that are either unknown or random [11].

1.2.2) Game theory is used in cases where the uncertainty of the situation is caused by the conscious actions of an intelligent opponent. Organizations usually have goals that contradict the goals of other competing organizations. Therefore, the work of managers often consists in choosing a solution taking into account the actions of competitors [12]. The main task of game theory can be formulated as follows: to determine which strategy a smart player should apply in a conflict with a smart opponent in order to guarantee each of them a win, and the deviation of any of the players from the optimal strategy can only reduce his winnings [13].

2) *Qualitative methods* are used when the factors determining decision-making cannot be quantified. Depending on the degree of use of quantitative assessments, all qualitative methods are divided into 3 groups: evaluative, expert-analytical and mixed. Evaluative methods use ranking and other types of assessments, expert-analytical methods rely on expert judgments, mixed methods include both the use of assessments and the work of experts.

2.1) Evaluative methods include the method of simple ranking and the method of weighting coefficients.

2.1.1) The method of simple ranking (or the method of providing an advantage) consists in the fact that each

expert indicates the order of preference. The number 1 denotes the most important feature, the number 2 — the next in importance, etc. [10]

2.1.2) The method of weighting coefficients consists in providing all the features of weighting coefficients. It can be carried out in two ways: the sum of assigned weight coefficients is equal to 1, or the most important feature is assigned a weight coefficient equal to a certain fixed number, and the remaining features are assigned coefficients equal to fractions of this number [10].

2.2) Expert analytical methods include SWOT analysis and the scenario method.

2.2.1) A special kind of expert methods, which is very popular in the strategic planning of the organization's activities, is SWOT analysis. It got its name from the first letters of four English words that mean Strengths and Weaknesses, Opportunities and Threats. This technique can be used as a universal one [14].

2.2.2) The scenario method allows to identify with a certain level of confidence possible trends in the development, the relationship between the acting factors, to form a map of states to which the situation may come under the influence of certain factors or adverse developments [15].

2.3) The most common in the group of mixed methods is the Delphi method.

2.3.1) The Delphi method is one of the main ones in conducting examinations and has various modifications. Unlike the traditional approach to achieving consistency of expert opinions through open discussion, the Delphi method involves a complete rejection of collective discussions. Direct debates in this method are replaced by a carefully developed program of consecutive individual surveys, usually conducted in the form of a questionnaire. The disadvantages of the Delphi method are the considerable time required to repeat a large number of iterations of the examination; the need for the expert to repeatedly revise answers, causing a negative reaction [15].

Expert assessment methods are used in the study of complex special issues at the decision-making stage by persons with special knowledge and experience in order to obtain conclusions, opinions, recommendations and assessments. The expert opinion is issued in the form of a document, which contain the results of the study.

Depending on the focus of the decisions being made, as well as the most popular decision-making methods, a strategic approach to managing the decisions is being developed. In management practice, there are 3 types of strategies: analytical, heuristic and expert (*Tbl. 1*). Each of these strategies is possible under certain restrictions, involves the use of certain groups of methods, has both advantages and disadvantages.

Based on the information in *Tbl. 1*, an analytical strategy requires experience, a heuristic strategy assumes a low level of responsibility and risks for the decisions taken, serious human resources are needed to implement an expert strategy. In this regard, it is important for every company developing an integrated approach to making effective decisions to assess the possibility and feasibility of overcoming these limitations. Similarly, as shown above, priority theories and methods of decision-making in the company are determined.

At the same time, the theories, methods and strategies of decision-making used are reflected in the style of decision-making. According to the results of the McKinsey Quarterly and Harvard Business Review survey, which included 1.021 respondents, 5 decision-making styles were identified (*Tbl. 2*).

The most common styles are Catalyst, Adapter and Guardian. Every decision-making style has both positive and negative sides. The presence of shortcomings suggests ways to adjust. However, corrective measures may not always be effective, especially if the type of behavior in decision-making does not correspond to current theoretical approaches, methods and optimal strategy. In this regard, it can be argued that the prevalence of certain decision-making styles determines the prevalence of relevant theories, methods and strategies in the formation of a decision-making system. *Tbl. 3* presents the results of the analysis of the correspondence of styles, theories, methods and strategies of decision-making.

As can be seen from *Tbl. 3*, the most common theories are problem-oriented, corresponding to the styles of Guardian (22% of leaders) and Adapter (25% of leaders), i.e. in total about half of all respondents. Analytical strategies based on clarity and consistency of decision-making correlate with these styles and theories

Table 1

Decision-making strategies

Strategy	Prerequisites	Possibilities	Threat
Analytical	Availability of complete objective information about the situation. The presence of clear and easily defined goals. Sufficient experience to know which information is relevant and which is not. Time to go through the entire analytical process	A universal and methodical strategy that is easy to convey to employees. The strategy works when variables and results can be represented as numbers. The strategy breaks down a complex solution into many smaller interconnected parts	It is useful only in cases where the circumstances are specific enough to meet all the requirements. The approach also requires experience to execute quickly
Heuristic	Lack of necessary information, but a presence of the combination of some information and experience. The right heuristics for a specific situation and having great confidence in them and their accuracy. No significant consequences for the error	A simple and fast strategy that can become subconscious with enough practice. Heuristics allows to make generalizations based on that little information	Heuristics can lull a sense of security, which can be dangerous in a new situation. It is possible to focus on incorrect signals when making decisions, which will lead to incorrect decisions
Expert	Decision-making depends on experience and competence in a particular field. There must be sufficient experience in any field and the ability to easily compare their decisions with the correct heuristic methods	Expert decision-making happens quite quickly and is the reason for many accurate decisions	Since most decisions are made on a subconscious level, such a strategy is difficult to teach

Source: compiled by the author on the basis [16].

Table 2

Five leadership styles in decision-making

Style	Advantages	Disadvantages	Corrective behavior
Visionary (14% of leaders)	A proponent of radical change with a natural gift to lead people in turbulent times	May be too fast and move in the wrong direction	Search for different points of view from a wider group of consultants
Guardian (22% of leaders)	A model of fairness that preserves the health, balance and values of the organization. The decision-making process is thought out, carefully planned and includes a lot of facts	May be blind to the desperate need for change	Appealing to outsiders to challenge deep-rooted beliefs about the company
Motivator (12% of leaders)	A leader of change with an excellent ability to build consistency	May believe in a vision to the detriment of facts	The study of alternative ways of interpreting facts. Creating a formal process for tracking the progress of the organization
Adapter (25% of leaders)	The most versatile of the leaders, who is comfortable with uncertainty, is open-minded in adapting to circumstances and is ready to involve a variety of people in decision-making	Studying too many potential solutions and the results of decision-making can lead to "analysis paralysis"	Setting a deadline for making a decision. Standardization of certain types of repetitive, one-time solutions based on simple rules
Catalyst (27% of leaders)	A true champion in group decision-making and implementation. The most balanced of decision-makers, relatively resistant to biases inherent in more extreme preferences in decision-making	An intermediate decision-making style can lead to average results	Attention to the obvious features of a high-stakes strategic decision

Source: compiled by the author on the basis [17].

Table 3

Styles, theories, methods and strategies of decision-making

Style	Theories	Methods	Strategies
Visionary (14% of leaders)	Solution-oriented theories	Simple ranking method SWOT analysis	Heuristic
Guardian (22% of leaders)	Problem-oriented theories	Methods of statistical decision theory Methods of game theory The method of scenarios Delphi method	Analytical
Motivator (12% of leaders)	Solution-oriented theories	Statistical methods The method of weighting coefficients SWOT analysis	Heuristic
Adapter (25% of leaders)	Problem-oriented theories	Methods of mathematical programming Methods of game theory The method of scenarios Delphi method	Analytical
Catalyst (27% of leaders)	Role-oriented theories	Analytical methods Statistical methods Simple ranking method	Expert

Source: compiled by the author.

of decision-making. Thus, the most popular methods are the methods of game theory, the scenario method, the Delphi method, combining expert assessments, qualitative analysis and reasonable comparison of various alternatives. As a result, the decision-making system in the modern world takes features of knowledge intensity, which simultaneously opens up both a lot of problems and a lot of prospects for entrepreneurial activity.

In addition to approaches to decision-making, McKinsey also conducted a survey on the prerequisites for the most effective solutions. The results of the analysis of the respondents' responses are presented in *Tbl. 4*.

managed only with the appropriate type of leadership attitude to decision-making: Visionary, Guardian, Motivator, Adapter, Catalyst. In the course of qualitative analysis, the following correspondences were identified:

- ✦ within the framework of problem-oriented theories, quantitative methods and analytical strategies are more often used;
- ✦ within the framework of solution-oriented theories, qualitative methods and heuristic strategies are more often used;
- ✦ within the framework of role-oriented theories, quantitative methods and expert strategies are more often used.

Table 4

Results of corporate decisions

Solutions with a positive (high) result	Solutions with a negative (low) result
Decisions based on clarity of who is responsible for implementation and person's participation in the decision-making process.	Decisions initiated and approved by the same person
Solutions based on a strong relationship with financial success	Decisions made in companies without any strategic planning process (more than 20% of decisions brought revenue 75% or more below expectations)

Source: compiled by the author on the basis [18].

According to *Tbl. 4*, it is possible to identify factors that determine the predominantly positive (high) result of the decisions made:

- ✦ Encouraging participation based on the skills or experience of individuals.
- ✦ Reliance on transparent decision approval criteria.
- ✦ Discussion of solution as part of the entire portfolio of solutions of the company.

Thus, effective solutions mainly correlate with a problem-oriented approach and analytical strategies based on consistent analysis, clear criteria, experience, professionalism and high responsibility for the result.

CONCLUSIONS

The main theoretical approaches to decision-making in the framework of entrepreneurial activity can be divided into 3 groups, according to the key guideline of most decisions: problem-oriented theories, solution-oriented theories, role-oriented theories. Each of the groups of theories assumes the dominant use of certain decision-making methods – qualitative with an emphasis on the substantive parameters of the issues being solved, or quantitative, appealing mainly to mathematical calculations and probabilistic analysis.

Theories and methods of decision-making are fundamental in the formation of analytical, heuristic or expert strategies in decision-making. The need for different prerequisites, as well as advantages and disadvantages in the strategies considered determines that each strategy is

The study of the McKinsey questionnaire on the effectiveness of decisions made allowed to draw conclusions that effective decisions are mainly supported by a scientific approach, consistent analysis, clear criteria, high professionalism and responsibility. ■

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