

Carrying Out the Steps of Decision Making Process in Concrete Organization

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Abstract—The decision-making process is theoretically clearly defined. Generally, it includes the problem identification and analysis, data gathering, goals and criteria setting, alternatives development and optimal alternative choice and its implementation. In practice however, various modifications of the theoretical decision-making process can occur. The managers can consider some of the phases to be too complicated or unfeasible and thus they do not carry them out and conversely some of the steps can be overestimated.

The aim of the paper is to reveal and characterize the perception of the individual phases of decision-making process by the managers. The research is concerned with managers in the military environment – commanders. Quantitative survey is focused cross-sectionally in the individual levels of management of the Ministry of Defence of the Czech Republic. On the total number of 135 respondents the analysis focuses on which of the decision-making process phases are problematic or not carried out in practice and which are again perceived to be the easiest. Then it is examined the reasons of the findings.

Keywords—Decision making, decision making process, decision problems.

I. INTRODUCTION

DECISION MAKING is an inseparable part of both personal and professional human lives. This involves a process, whose goal is to solve a certain problem by means of selecting from two or more solution variants. A decision-making problem means a difference between a required and real-life state, which is accompanied with dissatisfaction, tension or frustration. Problems that people deal with are of various levels of significance – from trivial to existential ones. The same is true about the decision making in organizations.

Managerial (organizational) decision making shares many traits with the personal decision-making. Apparently the procedural aspect (formal-logical) [1] is similar with both cases, in other words the decision-making procedure takes place through similar phases (steps) of the decision-making process. However, the difference is in a factual, subject aspect (substantial aspect) [1]. The key differences between managerial and personal decision making can be determined as follows.

Decision makers – managers decide to the benefit of their employers (for instance, owners), while their decisions are carried out by their subordinates, and when being carried out, the managers bear the responsibility for the success of the whole team or of the defined organization unit. On the

contrary, in terms of personal decision making, there are individuals who decide about themselves, on their own and carry their decisions out themselves [2].

The article deals with the decision-making process phases. First, theoretical solutions are mapped, concerning the individual steps of decision making. The paper then summarizes findings of the empirical research executed in a given organization – the Ministry of Defence of the Czech Republic. The research has examined which phases of the decision-making process are considered, by the employees of mentioned organization, to be the most problematic phases, which the simplest and which are not carried out at all. Then the reasons for the problematic aspect and for not carrying out the chosen phases are revealed.

II. THEORETICAL BACKGROUND

The decision-making process is a sequence of steps, which people constantly take – consciously or unconsciously – while making decisions.

Individual authors of managerial decision making deal with the determination of the steps of the decision-making process more or less thoroughly. According to Simon (1972, cited by [4]) the problem solving involves cooperation of processes understanding (problem representation, understanding its aspects, the result is the so-called “problem space”) and search (the solver attempts to find a solution within the problem space). According to [3] any decision making involves three fundamental steps – identifying the goals, identifying the options and choosing from among the options.

Generally speaking, we can take the decision-making process as a sequence of these steps – analysis, solution proposal, selection and implementation of optimal solution and result check [1]. Individual authors determine particular steps of decision making and problem solving differently. The summary of the individual approaches is presented, for instance, in [5].

Let us turn to the individual phases of the decision-making process in more details (according to [1], [5]).

A. Problem(s) Identification

The output of this step is revealing the problems, situations which require a solution, with the use of methods and techniques of a situational analysis of an internal and external organizational environment. Some authors modify this phase into identifying the objective, by means of which they want to express that every decision making and problem solving always reflect a goal focus (all decisions are goal-oriented) [3]. Regarding this step it is necessary to emphasize the

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necessity of working on the *appropriate, significant* decision-making problems [6].

B. Decision-Making Problem Analysis and Formulation

This step involves structuring, analysis and explicit definition of fundamental elements and causes of the defined problem and relations among them.

C. Determining the Solution Objectives and Evaluation Criteria

First, the output of the step is objectives determination, whose achievement shall lead to the solution of a problem situation. Next, evaluation criteria, or degrees of objectives attainment, are selected and formulated. Then, limit criteria (minimal requirements) can be determined as well as assessing criteria (a degree of objectives attainment by means of individual variants). Since a decision-maker usually formulates more criteria, it is appropriate to assign a significance degree to each criterion according to its significance in a given decision-making problem. Some authors even identify this step as a separate decision-making phase [7].

D. Creating the Solution Variants

The output here is a set of two and more possible variants (ways) of problem solving. The variants can be generated systematically (e.g. by morphologic analysis) or intuitively (brainstorming and its modifications).

E. Determining the Impacts of the Variants

The aim is identifying the estimated impacts of individual variants relating to the identified criteria.

F. Selecting the Optimal Variant

Based on the impacts evaluation of the individual variants, measured by means of the determined criteria, a decision-maker shall be able to identify an optimal variant (problem solution) or preferential variant formation.

G. Determining a Plan (Procedure) of Problem Solving

The aim of the phase is processing the implementation procedure of the selected variant.

H. Implementing The Selected Variant of Problem Solving

I. Checking the Results of the Selected Variant Implementation

A check of attaining the established objective through the selected variant implementation is performed in regular intervals.

In practice however, the various modifications of the theoretical decision-making process can occur. Managers can consider some of the phases to be too complicated or unfeasible and thus they do not realize them and conversely some of the stages can be overestimated.

The mentioned phases determine not only the steps carried out within every decision making, but also the fundamental elements of the decision-making process, in other words the key traits of every decision making. It is possible to basically determine these steps by declaring that even the most complex

decision can be analysed and solved by considering five elements – Problem, Objectives, Alternatives, Consequence and Tradeoffs - PrOACT. The mentioned elements are more or less accompanied by three aspects – uncertainty, risk tolerance and linked decisions [6]. Regarding this idea it is necessary to add to the determined steps of the decision-making process also the necessity of considering a risk and uncertainty degree with a given decision-making problem, as well as considering the impacts on other decision-making problems and situations.

The course of managerial decision making in organizations more or less corresponds to the mentioned executed steps. For effective decision making it is critical to observe a whole range of aspects related to individual phases of the decision-making process. The decision quality may be decreased by working on the wrong problem, failing to identify the key objectives or develop a range of alternatives, disregarding uncertainty, failing to account for the decision maker's risk tolerance etc. [6].

A certain role, in terms of the real-life managerial decision making, which means what phases and in what ways they carry them out, belongs to a whole range of other factors which can be divided into external and internal. They can be further divided into aspects relating to:

- *Decision makers' personality* – especially prior domain knowledge, prior experience in solving similar problems, cognitive skills [8], furthermore emotions, heuristics usage etc.
- *Conditions of decision making* (determined by organizational environment, providing the human resources, and so on) – using decision-making analysis tools, methodology or SW support existence, personnel participating in problem solving.
- *Specifics of the decision-making problem itself* – informational sufficiency, problem structuring [9], clear task (problem) assignment etc.

III. METHODOLOGY

The aim of the paper is to reveal the characteristics of individual decision-making steps in concrete organization. On the one hand, it is examined which phases of the decision-making process are considered, by the employees of the organization, to be the most problematic and on the other hand, which are the simplest, and which phases are not carried out in practice by the respondents at all.

The mentioned goal has been achieved by means of collection and evaluation of the data from the chosen questions of the extended questionnaire research, which dealt with decision-making characteristics of the personnel of the Ministry of Defence of the Czech Republic. This particular research was focused on finding out which types of decision-making problems are mostly dealt with in the resort. Then the research focused on the course of the decision-making process, the utilized decision-making methods and also the factors and barriers of effective decision making of commanders and other employees.

These are the decision making process phases that were to be evaluated by respondents:

- Problem identification and determination (its structuring, analysis and explicit definition).
- Collecting information.
- Establishing the solution objectives.
- Determining a procedure (plan) of problem solving.
- Determining the minimal requirements (limit criteria), which are to be met by the selected variant, and evaluation criteria, by means of which the acceptable variants are to be evaluated.
- Creating the solution variants.
- Determining the impacts of the variants.
- Sorting out (excluding) those variants that do not meet the minimal requirements for the problem solution result.
- Evaluating the solution variants with the use of evaluation criteria (assessment and comparison of variants) and selecting a variant.
- Implementing the selected variant.
- Monitoring and checking the implementation procedure of problem solving by the selected variant.

The respondents should answer the following question:

“Which steps of the problem-solving process do you consider to be the most problematic (A), the simplest (B) and which you do not usually carry out (C)? Use a cross to indicate minimally one and maximally three steps of the problem-solving process in a column (A) and the same in a column (B). In a column (C) you can cross more options or none (in case you carry out all the mentioned steps)”.

The another goal of the research carried out here is to find out the reasons why the respondents consider certain steps of the decision-making process problematic or do not carry them out at all. In terms of this partial step, the respondents answered the following questions:

“I consider the indicated step(s) the most problematic because (you can indicate more options, but maximally 3 options)”.

“I do not usually carry out the indicated step(s) because (you can indicate more options)”.

The respondents could select from the following factors of the problematic aspect / not carrying out the selected steps:

- I have a lack of experience.
- Absence of SW support.
- Absence of manuals (methodologies, procedures).
- I have a lack of theoretical knowledge.
- I have a lack of information.
- I have a lack of time.
- I have a lack of competent personnel participating in a

given step

- A given step is the competence (responsibility) of a different department or a different person.

The respondents of the research are the members (employees) of the Ministry of Defence of the Czech Republic. The survey sample was chosen by means of a method of purpose (deliberate) selection. Out of the total 137 acquired questionnaires two had to be excluded from the further evaluation due to missing data. Thus, the total of questionnaires for the further analysis, or data evaluation, is 135. Out of this number 38 respondents are the personnel of strategic level of the resort of defence, and 97 work on the tactical level of the Armed Forces of the Czech Republic.

The data was evaluated by means of the methods of primary statistical analysis, mainly by evaluation of frequency of the answers given by individual respondents.

IV. FINDINGS

The respondents could assess the individual phases of the decision-making process either as problematic or conversely as the simplest within the decision-making process. In case they do not carry out a certain phase in their work, they could also indicate that option in the questionnaire.

The respondents mostly indicated, to each of the assessments, “the most problematic”, and on the contrary “the simplest” always with more options, in other words more than one phase of the decision-making process. The respondents used 365 times the “simplest” option in total to indicate a particular step of the decision-making process. Similarly – 352 times – they indicated various decision-making phases as the most problematic. Significantly less frequently, 205 times in total, they declared not carrying out some of the offered phases of the decision-making problem. The abovementioned shows that, on average, approximately 2.5 times, every respondent indicates the option “the most problematic” and “the simplest” decision-making phase. Apparently, every respondent considers two or three phases of the decision-making process, and conversely, on average the same number of decision-making steps is perceived by the respondents as simple to be carried out. By contrast, the option of not carrying out some of the phases was indicated by every respondent only 1.5 times on average, in other words the respondents do not carry out 1-2 phases of the decision-making process on average.

The summary of the results relating to the respondents rating the individual phases of the decision making process is illustrated in Fig. 1.

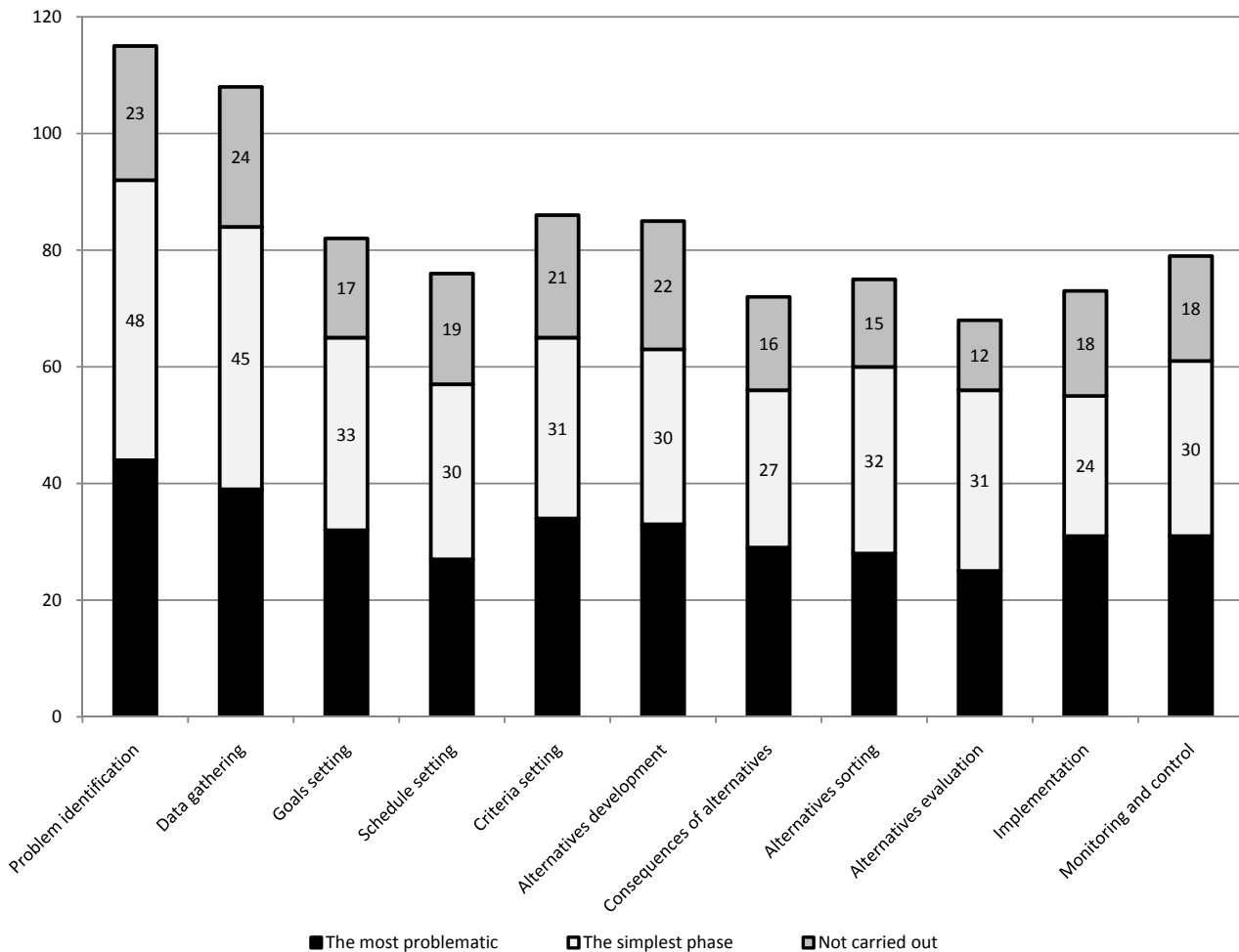


Fig. 1 Evaluation of the individual steps of decision making process

Fig. 1 illustrates the results of the researched problem. The columns illustrate the frequency of indicating the individual steps of the decision-making process as problematic or conversely simple, and then also the frequency of indicating the steps as not carried out. It is apparent that the respondents comment mainly on the phases of problem identification and determination, and then also the process of information collecting. The other steps are addressed by the respondents considerably less frequently, especially to the evaluation of variants and their impacts determination, optimal variant implementation or determination of solution plan (procedure). Even based on this imbalance it can be assumed that certain phases are perceived and felt in practice stronger than others.

When observing the graph it is quite apparent that the individual steps of the decision-making process cannot be unequivocally categorized, in other words divided into those that are in practice positively considered as problematic or on the contrary as simple. Assessing the individual steps as problematic or simple to be carried out is notably balanced within the researched sample. Therefore, it cannot be observed that the employees, who solve the decision-making problems in their everyday routines, would unanimously consider some

steps as demanding, while others positively indicating as unproblematic.

According to relatively low number of answers indicating the individual phases as not carried out, it can be assumed that the managers, in practice of the researched organization, really do carry out the majority of the steps of the decision-making process or when solving the established problem. Carrying out the individual steps of the decision-making process might be conscious or unconscious. However, if respondents are invited to assess the individual determined steps, it seems that they realize not only their existence but also their execution in their own decision making. A low representation the individual phases indicated as not carried out provides then a positive finding of this study (survey).

Another step of the research carried out here was to discover the reasons why the respondents find certain steps of the decision-making process problematic or why they do not carry them out at all. Therefore, the main factors for the problematic aspect and for not carrying out the selected steps of the problem solving were searched for. The results are shown in Fig. 2.

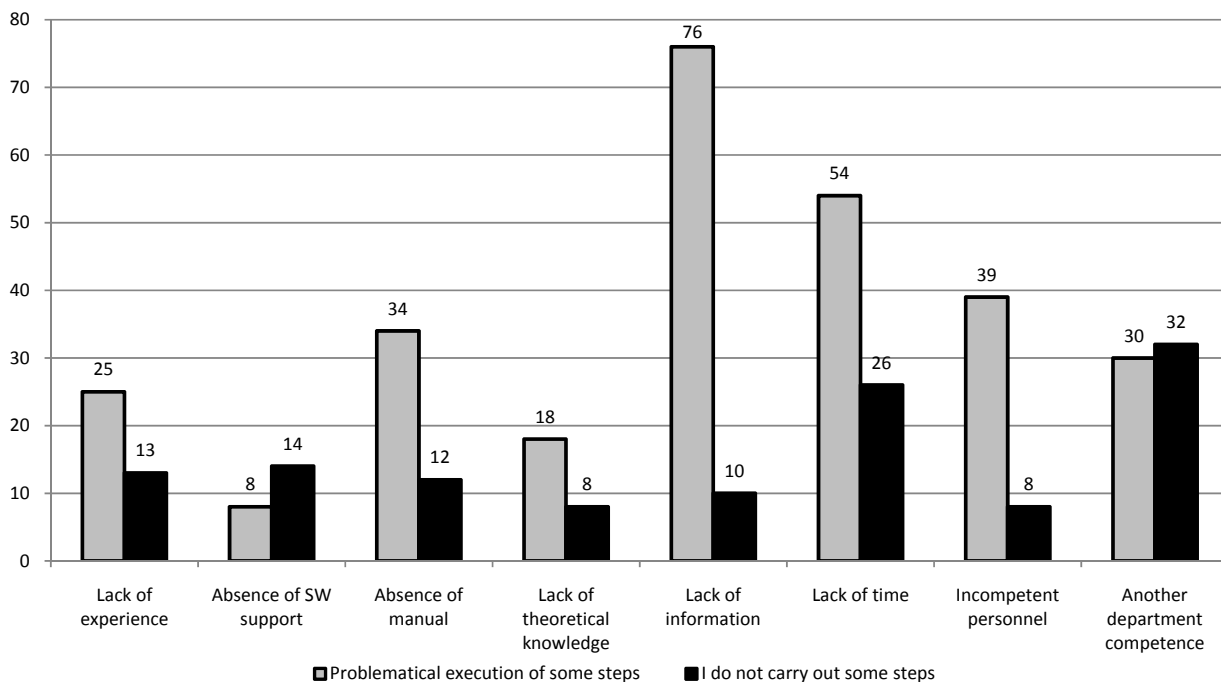


Fig. 2 The reasons of problematical execution and of omission of some steps of decision making

The results refer to the fact that the main reasons for indicating a step of the decision-making process as problematic, and the reasons for not carrying it out differ. A very distinctive reason of problematic execution of the indicated step of the decision-making process seems to be a lack of information, having been given by 76 respondents in total, which means more than a half of the addressed respondents. Among other problematic aspects of carrying out the individual steps of problem solving there is a lack of time, a lack of competent personnel and the absence of manual and procedure methodology.

On the contrary, the reason for not carrying out some steps of the decision-making process is primarily the fact that these are the competence of different departments, which certainly can be accepted as a logical and expectable argument. Another relatively significant aspect of omitting certain steps of the decision-making process is a lack of time. The other aspects are mentioned less frequently.

The greatest imbalance between the reasons of the problematic aspect of certain decision-making steps and the reasons for not carrying them out is identified in the area of information availability. While a lack of information is a distinctive aspect of perceiving certain decision-making steps as problematic, it is at the same time one of the least mentioned reasons for not carrying out certain problem-solving steps. A similar trend is apparent also with answers relating to incompetent personnel.

V.CONCLUSION

Decision making is a parallel managerial function. Thus it is

present in all sequential managerial functions, which includes planning, organizing, leading people and check. A manager carries out a whole range of decisions on everyday basis, which can be more or less critical for the success of an organization as a whole. When making decisions, managers carry out, consciously or unconsciously, certain universal steps, in other words they undergo identical steps of decision making regardless its content.

The aim of the partial empiric research, which is a part of a wider research of managerial decision making, is the identification of selected characteristics of individual steps in the decision-making process. The research focused on which phases of the decision-making process are perceived as problematic (accompanied by many difficulties), which are on the contrary considered by managers as unproblematic (the simplest), and which decision-making phases are not carried out in their practice at all. In addition, the reasons for difficulties with some decision-making steps were analysed, and also the reasons why some of the phases of the decision-making process are not carried out at all.

The data were collected by means of questionnaire research. The research respondents were the employees of the individual hierarchical levels of the Ministry of Defence. The data from 135 respondents were finally usable for evaluation.

The research has shown that the steps of the decision-making process cannot be unequivocally determined, so that their carrying out would be unequivocally and positively considered by the respondents as problematic or by contrast as simple. In brief, every phase is, by some respondents, considered as demanding, while a similar percentage of other respondents perceive the same phase as simple to carry out.

With each step of the decision-making problem there was always approximately a quarter of respondents, declaring not carrying out a given decision-making step.

The issue of the paper has not been elaborated in full details so far. The theoretical sources primarily determine the individual steps of the decision-making process in a way that they should be ideally carried out with every decision making or problem solving. However, the way the individual decision-making phases are really carried out is mentioned considerably less in those available sources. And so the benefit of the presented study is the view of an organizational environment, the view of the people in practice who do managerial jobs, thus being aware of practical and real carrying out of the individual steps in decision making.

Undoubtedly it would be useful to carry out comparison of the presented results with different organizations. For instance, comparing with entrepreneur sphere might bring interesting conclusions, which would enrich the results of the presented study and could reveal differences or similar traits of individual organizations. In a wider context then, a comparison can be carried out, focusing on a practical procedure of the decision-making process in the private and state sector.

REFERENCES

- [1] J. Fotr, J., Švecová, L., *Manažerské rozhodování: postupy, metody a nástroje*. Praha: Ekopress, 2010.
- [2] L. Blažek, *Management: organizování, rozhodování, ovlivňování*. Praha: Grada, 2011.
- [3] D. Welch, *Decisions, decisions: the art of effective decision making*. Amherst, N.Y.: Prometheus Books, 2002.
- [4] S. I. Robertson, *Problem solving*. Philadelphia, PA: Psychology Press, 2001.
- [5] M. Grasseová et al., *Efektivní rozhodování: analyzování - rozhodování - implementace a hodnocení*. Brno: Edika, 2013.
- [6] J. S. Hammond, R. L. Keeney, and H. Raiffa, *Smart choices: a practical guide to making better life decisions*. USA: Harvard Business Press, 1999.
- [7] M. H. Bazerman, D. A. Moore, *Judgment in managerial decision making*. New York: Wiley, 2013.
- [8] D. H. Jonassen, *Learning to solve problems: a handbook for designing problem-solving learning environments*. New York: Routledge, 2011.
- [9] M. D. Jones, *The thinker's toolkit: fourteen skills techniques for problem solving*. New York: Three Rivers Press, 1995.