



Maciej DUTKIEWICZ

PREMISES FOR DECISION MAKING IN THE PROCESS OF INVESTMENT

Abstract

The article presents the premises of decision-making resulting from the external and internal environment. The decision-making models and procedures by which the decision-making process takes place are indicated. The wider context of the conditions that shapes the circumstances of decision making is shown. An innovative approach of the problem is thesis related to the concept of consilience in decision making.

1. INTRODUCTION

Decision making process is related to discovering the knowledge of risks occurring in the business of construction and its elimination and the mutual dependencies and relationships between the fields of management, law, architecture and psychology. This wide ranging knowledge used in activities related to the implementation of investment brings positive results. Consilience in decision-making allows to use specific methods and tools, which are combined in a single system contribute to the creation of a new analytical tool in the form of a decision support system and management in selected areas of the investment process.

There are 3 key factors in the decision:

- the facts that we know,
- the facts that we think we know,
- the facts that we don't know.

Taking risks is speculating. We have to decide what to do. The more we discover about the real nature and extent of risks that we face, the better we are prepared for it. We calculate the chances, weigh all the facts, we use the experience, knowledge and guess. We need to deal with the risks, opportunities, uncertainty, probability, choice and decision. Knowledge includes both experimental data and analysis obtained through interpretation. We need to make a distinction between what we know and what we do not know. Confusion of known with the unknown can be disastrous. As important as determining what you know, is to realize what you do not know.

Decisions on the sources and consequences of risks are taken every day, in all aspects of the construction process in the form of investment decisions from the perspective of the investor, design decisions of architects or engineers or decision taken by the inspectors.

The aim of all techniques is to replicate the decision-making opportunities, implications and financial options in order to construct a kind of balance that will provide help for decision-maker.

There are several types of behavior in situations of risk:

- by ignoring them
- by expecting of further development of events
- by seeking of additional information,
- by making accurate predictions,
- by changing in the rate of profit risk-adjusted
- by transferring of risk,
- by seeking alternative options.

Decision-making takes place in a situation of incomplete information with the need to take into account future changes in human behavior and reaction. Most of the important decisions that we make, does not apply to problems that have a good or bad solution, but rather better or worse.

Before making a decision, the following elements have to be considered:

- identification of the clear and simple aim,
- specification of a range of choices,
- identification of the factors to be taken into account,
- choice of a range of strategies to assist in the analysis and relevant to pending cases
- choice of analytical techniques that can help you in deciding
- attitude to risk on the part of decision-maker
- considering the preferences of time (short or long-term perspective), and the time taken to decide
- recognizing tendencies of the decision-maker and ensuring consistency.

Decisions are rarely made in comfort. Normally decision maker regrets that there is no more information. The problems can be divided into two groups. The first group are simple to analyze problems with predictable solutions (A is a consequence of B). They occur routinely and are similar to those observed in previous designs. Problems in the second group are complex. Their solutions are unpredictable (A corollary may not be B). There are not routine and do not resemble anything familiar from previous projects.

Problems from the first group are rarely used in the construction industry, most of the decisions addresses issues from the other group. Decision-making, both rely on intuition and formal models for evaluation of alternative solutions. Many decision-makers put a lot of emphasis on intuitive reasoning [1], guided by feelings rather than thoughts. Isenberg [2] suggests that intuitive thinking does not stand in opposition to rational thought. It is based both on the accumulated experience that allows you to take any action soon learned, as well as mental shortcuts that allow the synthesis of seemingly separate information to give result, which is more than the sum of the individual components. Intuition suggests the best course of action. Although it is probably rooted in the experience, it is much more subtle and difficult to define. Decisions based on experience may be somewhat justified, explained, while those based on intuition are not subject to simple reasoning.

Experience is built over time by individuals who work and develop an understanding of some aspect of their work. Experience can apply to individuals or the whole company and the individuals who are its employees, share the experience. However, trusting in the good intuitions often lead to making bad decisions.

Basing a decision solely on professional experience, intuition, hunch does not guarantee a good selection of the best solution. This way you can solve the problem and skillfully made solution, but the same solution can be poor quality or incorrect.

2. THE IMPACT OF THE ATTITUDE AND THE INDIVIDUAL TENDENCY ON TAKING DECISIONS

Good decisions are based on sound analysis and intuition. Facts help to formulate the basis for decisions and intuition leads to a decision. There must be a balance between analysis and intuition. Sometimes it takes a little bit of luck. The human ability to judge is affected by a number of tendencies that distort the perception of reality. These tendencies affect the way we interpret the past, anticipate the future and make choices today. The following table provides a summary of dispositions and attitudes to situations requiring strategic decisions and related to managerial experience and their impact on the possible effect.

These tendencies make up the cognitive structure of the decision-maker that dictates how you receive your reality.

The tendency to rely on past experience is expressed in decision-taking trends to assess the likelihood of a future event as likely if he can easily recall the events of this past event. This can be a good tool for probability, as often occurring events are easier to recall, but the ability to recall is easier for the most recent events and those that appeared in dramatic circumstances. For example, we remember and we are inclined to assign a high probability of re-emergence of a "disaster" described live by the press. They are relatively rare and in no way can be compared to the dangers of traveling by car, which is so rare in media.

Conservative attitude may cause a reluctance to accept the existence and considering new strategies. The situation is particularly difficult in the implementation of innovative projects based on new technologies.

Illusion of control is the tendency of the decision-maker to overestimate their ability or their impact on the final result. This results in a tendency to express the expectation of success, which overstates the objective probability. This form of wishful thinking can have dramatic repercussions in the construction industry, the liability for technological innovation and energy conservation can blind decision-maker who takes the natural risk.

Formal models are primarily designed to reveal blind spots in an intuitive reasoning, especially when the complexity of the decision makes it opaque. Rarely are we able to base our decision on past experience, because the uniqueness of many problems in the field of modern construction industry requires a more analytical approach.

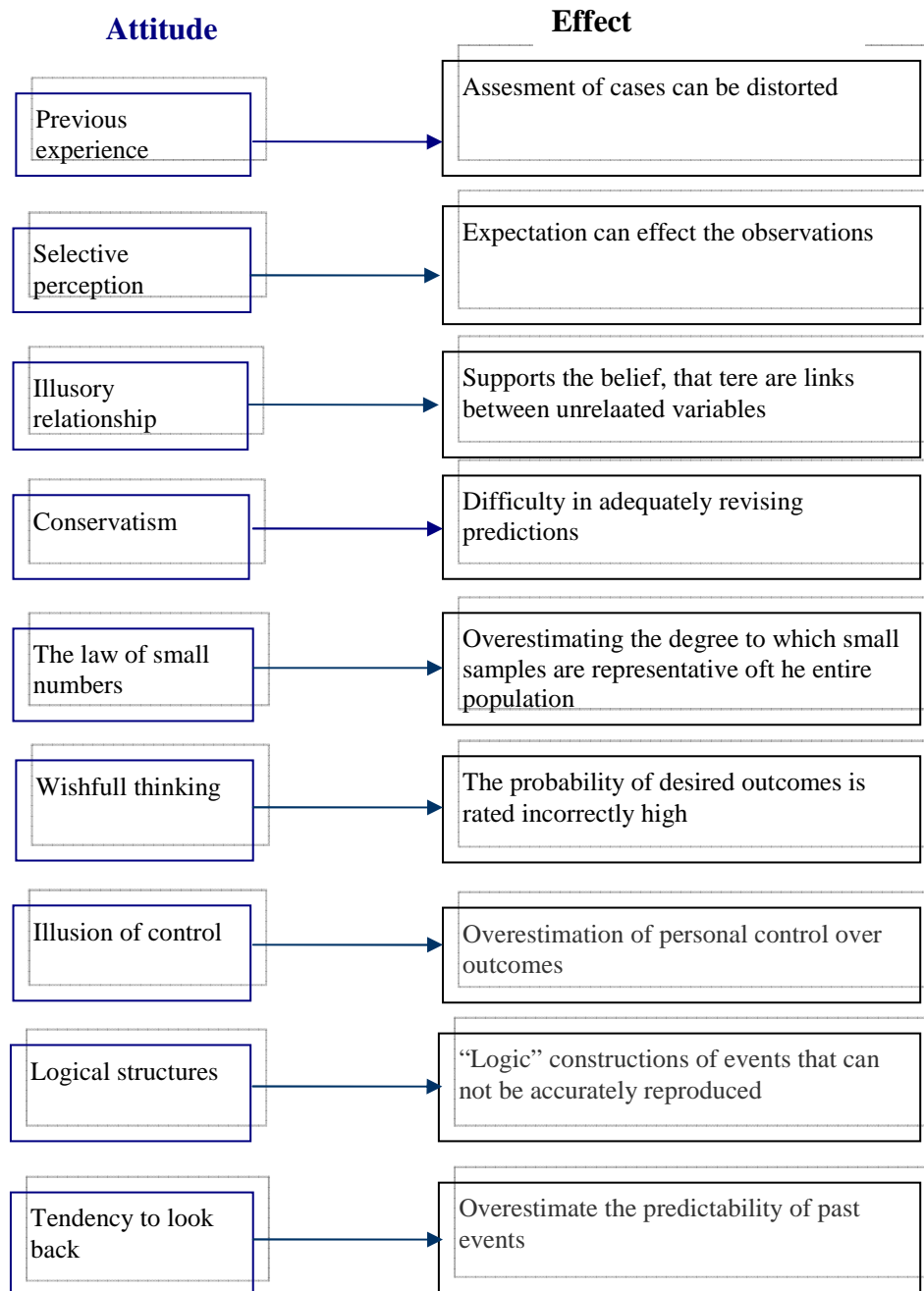


Fig. 1. Forecasting in the construction process

Source: own

3. EXPERIENCE

Experience plays an important role in the work of the expert. The experience serves as a database that can be used to fill gaps in the details of the unknown circumstances. The mind searches the database of experience almost immediately, on the unconscious level [3]. Over the years, the human mind develops categories, methods and systems for the collection of all experiences. It is the capital of past experience that helps the brain to separate the important from the unimportant things, without interfering with the course of conscious thought.

Experience can lead to deviations in the decision making process, such as the people who witnessed the accident will believe that it is more likely that they will meet an accident. Also, a specific event participant treats this event as a representative, which is often not correct. The

ability to solve the problems of today or the next year by moving past into the future is incentive. Great wisdom, ability and courage are necessary to take advantage of information that is inconsistent with past experience.

Experience is the greatest resource available to the decision-maker, it is also the most likely cause of blind approach. People feel comfortable when confronted with information that gives validity of their past experiences, but are reluctant to use data that are contrary to their point of view.

4. THE ROLE OF DECISION-MAKING MODELS

In the process of decision-making information is processed first, and only then a decision is made.

Models help to reduce reliance solely on inexperienced judgment and intuition and support our unreliable intuition.

The model can be seen as fulfilling two roles. It provides the answer and also acts as a communication tool, paying attention to the factors that would otherwise not have been seen and considered.

The risk management system provides a means for the identification, classification, analysis and response to risk.

The model has its origins in the psychology of perception and memory [4]. Stimulation of the human causes the determined amount of information is transmitted to the brain. During storage of the information the process of pattern recognition turns on, which allows for interaction between the accumulated information and previously acquired knowledge. Another process is using our attention. Attention is focused on the key information, filtering the rest.

Information can be stored in short-term memory, which stores information piecemeal. Sensory information is therefore stored as part of meaningful information. This information is subject to interpretation. Finally, information can be stored in long-term memory. This information can be searched in several ways, which results from a complex system based on a structured set of information contents. In addition, this process is sequential in nature.

Information processing theory contains the idea of bounded rationality, according to which the rational behavior occurs within the limits. Decision-maker has a limited knowledge of possible outcomes and their knowledge is fuzzy. Decision-maker classifies solutions acceptable and unacceptable. Then he subjects to further reflections only a subset of acceptable solutions. The link between actions and acceptable solutions is crucial for the selection of that action to be taken. Weigh the objectives are acceptable results. Activities are subject to the limitations set by the acceptable solutions. In addition, behavioral theory suggests that the company reaches for a satisfactory solution and does not continue to search for the optimum result.

Most of the decision-making process, whether an individual or an organization focuses on the discovery and selection of satisfactory alternatives. Only in exceptional cases optimal alternatives are looked for.

Simon [5] makes a distinction between programmed decisions and unprogrammed ones. Decisions, which are characterized by a high degree of repeatability and high degree of organization are programmed. Such decisions are increasingly subject to computerized modeling. For example, tendering procedures may be considered to be programmed in the course of decision-making procedures.

Previous considerations of forecasting as part of a decision support are summarized in Figure 2.

Forecasting is not a mechanical process, limited to purely mathematical evaluation of trends, such as the use of analysis recourse, Box-Jenkins [6] techniques or dynamic

programming. The use of these tools requires a broad perspective, experience, and competence in the use of forecasting methodology. It is based on understanding the major trends of the recent data.

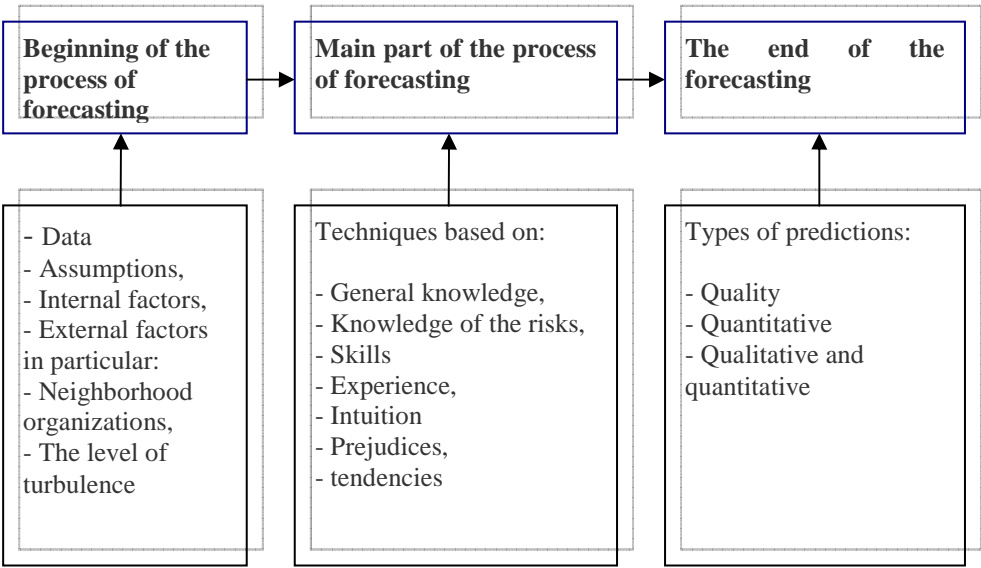


Fig.2. Forecasting in the construction process

Source: own

It is inferred from the past to the present and then the future. The rule that applies is "what was in the past will continue unless something happens that will change."

There are two stages in the process. First, you need to figure out how the future will look like prior to the proposed action. Second, we conclude the possible effects of this action. The future is obviously uncertain: our conclusions may be wrong. Any unexpected event may invalidate our assumptions, or we can draw incorrect conclusions for the future. This is a risk inherent in human actions. Forecasting tells us that one way to deal with this risk is to look at past experience. Just as we use the experience concluding about the future, we can also take advantage of the risk to conclude about riskiness of future decisions.

Each forecasting technique has strengths and weaknesses, each situation has limitations, such as time, funds or data. An important issue is the availability of data. Using highly sophisticated techniques does not make sense if there is no data available. Range, accuracy and representativeness of the data are important.

The integrity and diversity of data are also important. The time horizon of forecasts will affect the accuracy of the results. Forecast for the future two years is more likely correct than the forecast for 20 years. Furthermore, the time available for the creation of projections may also affect the accuracy and reliability of the forecast. Not without significance is the cost of a forecast and its accuracy and reliability. Risk analysis helps to determine the extent of possible forecasts, and most importantly allows you to ask questions in a series of "what if." It also allows you to examine the probabilities of events that are taking place. It is extremely important to keep an open view of the future. You can not expect that models based solely on the past, will be able to provide more and more complex and uncertain future. Complete reliance on the past can blind the thought process and reduce the side rails of thinking.

The objective of each decision-making model is the application of a sequence of transparent steps to ensure such a clarity of looking at a problem that decision - maker takes

the recommended action. The steps of such a model are generally consistent with those shown in Figure 3.

Stages of the identification and formulation of the problem are the processes of analysis, as related to the division of the problem into its component parts. The next stage is the analysis, evaluation and verification of knowledge-making, and then the synthesis, in which the parts are joined together in order to determine the value of each possible solution, carried out.

5. CONCLUSIONS

In the paper presents the thesis that the purpose of identification, as emphasize, is to avoid working on the wrong problem. Decision-maker is often not able to specify the exact nature of the problem and the objectives to be realized.

Analyst in this context can be an architect, engineer, surveyor or anyone wishing to interpret the client's needs. One of the problems is the fact that analysts from different professions often pay attention to different features or tips. Responsibility of the analyst is therefore a balanced pressure on the position expressed by the customer objectives.

Most problems can affect several purposes. With a choice of measures (employment, materials, finance), the designer has to construct a building at a maximum cost-effectiveness. This task has only one goal and is clearly technical. Assuming, however, that instead of that, the designer is expected to design the best building, as typically occurs, in this case, the term "best" carries a number of attributes such as cost, risk, maintenance, etc., which must be determined at stage of development.

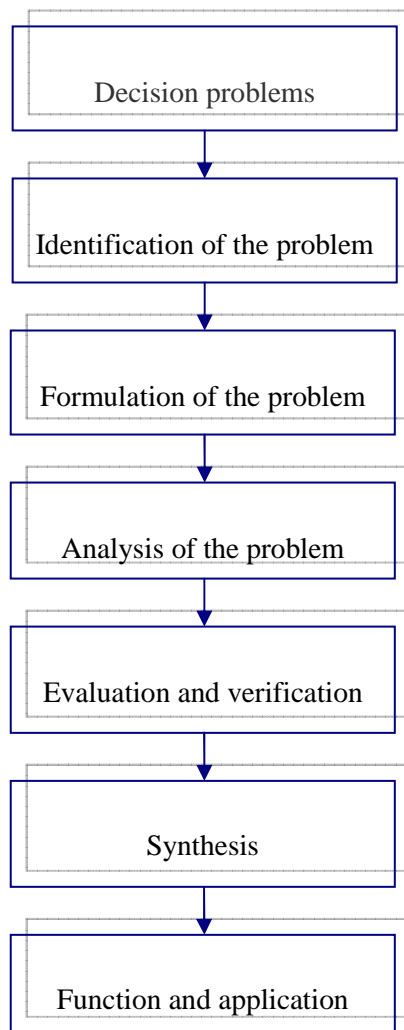


Fig. 3. Decision-making model and its stages

Source: own

PRZESŁANKI PODEJMOWANIA DECYZJI W PROCESIE INWESTYCYJNYM

Streszczenie

W artykule przedstawiono przesłanki podejmowania decyzji wynikające z otoczenia zewnętrznego oraz otoczenia wewnętrznego. Wskazano na modele decyzyjne i procedury wg których odbywa się proces decyzyjny. Przedstawiono szerszy kontekst przesłanek, które kształtują okoliczności podejmowania decyzji. Nowatorskie ujęcie problemu związane jest koncepcją konsultacji w podejmowaniu decyzji.

REFERENCES

1. Szwiec P., O roli intuicji w zarządzaniu, *Ekonomika i Organizacja Przedsiębiorstwa*, nr 3, 2005

2. Isenberg D., How senior managers think ?, Harvard Business Review, Dec/Jan, p. 81-90, 1984
3. Svantesson I., Mapy pamięci i techniki zapamiętywania, Helion, Gliwice, 2004
4. Jagodzińska M., Psychologia pamięci. Badania, teorie, zastosowania, Wyd. Helion, Gliwice, 2008
5. Simon H.A., Podejmowanie decyzji i zarządzanie ludźmi w biznesie i administracji, Wyd. Helion, Gliwice 2007
6. Carlberg C., Microsoft Excel 2007 PL. Analizy biznesowe. Rozwiązania w biznesie, Helion 2009

Author:

Maciej DUTKIEWICZ - University of Technology and Life Science, Faculty of Civil and Environmental Engineering, Kaliskiego 9, 85-796 Bydgoszcz, e-mail: macdut@utp.edu.pl