

# Modern approaches in strategic decision-making by the management in agriculture-oriented enterprises

*Moderní přístupy ve strategickém rozhodování managementu v podnicích  
s agrárním předmětem činnosti*

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**Abstract:** The goal of the contribution is to publish the results of the research EP 12/2001–2003 (Brno, 2001–2002) and of the research intention GA MSM 4300007 (Brno, 2000–2001) aiming at application of modern approaches and solving methods of decision-making processes with the utilization of the PC network and new information technologies, and namely in connection with the application of the results of the research EP 7260 (Brno, 1998–2000) defining the method and algorithm of formation, implementation and changes of business strategies. It results from the analysis performed that business subjects managed in a modern way cannot get along without a well elaborated process of strategic decision-making and the said processes are getting more and more significant owing to the growing turbulent management environment and to the need to respond to these changes by the company management.

**Key words:** strategic decision-making, algorithm, methods, approaches, analysis, business strategy

**Abstrakt:** Cílem vědeckého příspěvku je publikování výsledků výzkumu EP 12/2001–2003 (Brno, 2001–2002) a výzkumného záměru GA MSM 4300007 (Brno, 2000–2001) se zaměřením na využívání moderních přístupů a metod řešení rozhodovacích procesů s využíváním PC sítě a nových informačních technologií, a to v souvislosti s aplikací výsledků výzkumu EP 7260 (Brno, 1998–2000) formulující metodiku a algoritmus tvorby, implementace a změn podnikatelských strategií. Z provedené analýzy je patrné, že moderně řízené podnikatelské subjekty se bez dobře propracovaného procesu strategického rozhodování neobejdou a dále, že tyto procesy nabývají na významu, a to z důvodu stále narůstajícího turbulentního prostředí managementu a potřeby na tyto změny reagovat podnikovým managementem.

**Klíčová slova:** strategické rozhodování, algoritmus, metody, přístupy, analýza, podnikatelské strategie

## INTRODUCTION

The integration processes characterising the present state and the prospective of future changes both in Europe and world-wide have a significant impact on the behaviour of all economics including the economics of the Czech Republic that is now getting ready to enter the European Union. Another significant factor is globalisation of the market world that penetrates practically into all the spheres of the society. Behaviour of all the business subjects has a great impact on the development of new information technologies that are characterised by (1999) who states that the cause of the said changes is very simple, i.e. it is the digital flow of information that enables to convert all the kinds of information – i.e. numbers, texts, sound recording, video recording – into a uniform digital form and then to store them in any computer, process them in this computer and send them forth.

The above stated important circumstances have a great impact on the behaviour of all subjects – the State, households and business subjects. As defined by Hron (2001), the basic variable in the process of development of the business subjects is a change, the realisation of which is also the basic criterion of managers. Furthermore, the quoted author states that, within the framework of strategic management of enterprises, it is necessary to suit organisation and operation of the enterprise to the changes occurring in the external environment. Contribution to the solution of the said problems in the company management consists in the managerial decision-making that belongs to the key management fields as it concerns all the management stages, i.e. planning, organising, employees management, operative management and control, as well as all the continuous processes. Quality of the managerial decision-making is influenced by a number of factors, especially by knowledge, abili-

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ties and skills of the managers, type of the resolving decision issue, modern technology equipment with the means of steering and communication, time horizon of decision-making and required relationship hereof, changes occurring in the external and internal management environment and business risk accompanying any and all business activities in the market economy. It results from what was stated above that it is a number of processes that dynamically change and feature different information level of the managers as well as a certain logical sequence of the decision-making processes, starting from long-term processes up to the process management in real time.

## PURPOSES AND THE METHODS

The goal of this report is to publish the summary results of the researches EP 7260 (Brno, 1999–2000), GA MSM 431100007 (Brno, 2000–2001) and 12/EP/2001–2003 (Brno, 2001–2002) and 12/EP/2001–2003 (Brno, 2001–2002). The subject of analysis is the field of decision-making performed by the company management in selected enterprises. Analysis is realised in compliance with the methodology of formation, implementation and changes of business strategies having been defined and gradually verified by the research EP 7260 (Brno, 1998–2000) and the further related fields of analysis and their time horizons. A part of the defined algorithm are the vertical integration processes aimed at the customers as well as the processes of regressive integration, the field of the management of changes and methods of crisis management, the practical application of which is very topical.

To accomplish the defined goal, methodology comprising the following items was set up:

- characteristics of the present state of solving of decision-making defined in the literature and in the practical application of selected business subjects,
- formulation and gradual verification of the model of formation, implementation and changes of business strategies in practical application,
- formulation of recommendations for improvement of the field of decision-making in the company management.

The analysed enterprises are middle-sized enterprises with a more extensive scope of business, being equipped with modern technological means of management. The stated approaches and methods are globally applied in the company Bioveta, a.s., Ivanovice na Hané, where they are employed by the managers using the modern information technologies.

## RESULTS

The said researches contain formulations of methodology and methods for solving the processes of decision-making with application of modern technological means of management, particularly with the intra-company com-

puter network offering the modern information technologies and data and the managers on the individual positions are able to solve the necessary problems of decision-making with their information provision. All the processes of decision-making occurring in the company management may be characterised by a model that considers the essential relationships of the solved processes.

Namely:

- formulation of the necessary goal solution,
- formulation of the essential conditions that have impact on the processes to be solved ( $U_j$ ), i.e. the definition of the factors that have an impact on the given decision problems or will have an impact in the future. These conditions are decisive for the choice of admissible options of the problem solving while respecting a certain fundamental viewpoint,
- definition of options to solve the decision problem ( $V_i$ ), that are different in the size of economic benefit,
- consequences ( $D_{ij}$ ) that will come up when a certain option of solving the decision process is accepted,
- information level of the person that is charged with the decision, on solution feasibility of the given problem, expressed by a degree ranging from 0 to 1, i.e. from uncertainty of the data to certainty. In fact, it is an expression of the risk rate during solution of the said problem, i.e. decision-making under certainty (only theoretical option in management), uncertainty or risk. Basically, it is decision-making under risk in all the three options, the limits of information level being 1 = certainty or 0 = uncertainty.

If we write down the pieces of knowledge having been stated so far, we will get the following matrix:

$U_j$ $V_i$	$J = 1$	2	.	.	$n$
$I = 1$	$d_{11}$	$d_{12}$	.	.	$d_{1n}$
2	$d_{21}$	$d_{22}$	.	.	$d_{2n}$
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
$m$	$d_{m1}$	$d_{m2}$	.	.	$d_{mn}$

where:

$U_j$  ( $j = 1, 2, \dots, n$ ),  $V_i$  ( $i = 1, 2, \dots, m$ ).

We extend the said matrix with the probability rate of solution ( $p_j$ ) of which it results, what is the probability rate for each option to set in. It is logical that the uncertainty rate grows with the decrease of information level of the person charged with the decision upon the problems to be solved.

Definition of the algorithm of decision-making on the problems to be solved is also a factor of great significance. It definitely results from the research that the sequence of solution of the decision problems has to be

directed from strategic decision towards the operative decisions up to the management performed in real time. The following new methodologies and methods were formulated in the quoted researches and verified in practice:

- methodology of the process of formation, implementation and changes of business strategies,
- analyses of the structured files of company data in accordance with the determined number of viewpoints,
- layout of the vertical relations of the company towards its intra-company units,
- operative production management,
- monitoring of the work in process,
- management of input and output stocks and their limitation in the range between the maximum and minimum margin,
- marketing analyses of products, customers, markets etc.

The compiled methodologies give exact information to the TOP managers that are necessary for solution of the individual partial and more complex decision processes. They provide alternative solutions to the managers, saving thus their time.

Of the above stated methodologies, we will show in detail the methodology of formation, implementation and changes of business strategies resulting from and respecting the life cycle of the enterprise and also the life cycle of the individual products being produced or merchandised. The stated methodology is an open system and further necessary methods of data analysis may be applied herein. This methodology consists of an algorithm that consists of the following steps:

- determination of the present life cycle stage of the enterprise,
- definition of possibilities of further development from the viewpoint of selection of general strategic options,
- analysis of fundamental fields of the company management using the Ishikawa diagram,
- realisation of necessary financial and economic analyses by the individual positions,
- simulation of the expected state of changes occurred on the basis of development of the analysed factors,
- definition of the necessary basic changes to be made in the strategies being applied so far,
- assessment of the possibilities to apply vertical integration processes or changes hereof,
- implementation of strategies together with the management process of the desired changes.

During its continuance, the said algorithm accepts the desired expected changes in the nature of reaction to the changing management environment. These changes may be divided into two groups. The first group comprises the changes that occurred mostly in the external environment of the management and the enterprise only registers that such changes occurred. They often represent a threat to the business subject. They become opportunities only if they represent improvement of macroeconomic relations, such as decrease of the discount rate etc.

The second group comprises the changes occurred in the internal environment of the management. Such

changes have a character of a desirable or undesirable change, depending on meeting the long-term goals of the enterprise. Such changes are initiated by one of the internal in-groups, i.e. by owners, managers or employees. They may be split into:

- intentional changes, that can further be divided in compliance with the instruments of realisation into:
  - planned changes,
  - changes supported by indirect management instruments (motivation, etc.),
  - unintentional – mostly undesired and surprising changes.

The unintentional changes are initiated either with a purpose that is mostly in contradiction with the defined rules of company management or are caused by neglectful approaches in management and further by incapability of the managers to influence the course of the managed processes applying desirable changes. As the research shows, a number of these changes manifest themselves on a long-term basis and the company management responses to them behind schedule.

The company TOP management should be well acquainted with the management environment and should not be surprised by the changes occurring in the external environment or by unintentional changes occurred in the internal environment either. The changes in the internal environment are significantly influenced by the stochastic character of management relations, represented by interpersonal relations that reflect a number of psychological aspects of the management.

Among the key decision problems that are solved in Bioveta using the above mentioned methodologies, there are:

- assessment and determination of changes in company strategies of the enterprise,
- methodology of stock management of inputs and outputs, including the upper and the lower – limit that respect distribution and sale of medicaments and bio-preparations,
- methodology of management and perfection of marketing activities,
- gradual perfection of modern information technologies,
- motivation system for managers and other employees.

Considering the limited size of the contribution, the authors of this report will give concrete application of selected methods including data provision during their presentation.

## DISCUSSION

The conclusions stated in this report correspond with the conclusions stated in the works by a couple of authors, particularly by Gozora (2001), Hron (2000–2001), Kotler (1998), Svoboda P.(1999), Šima (2000–2001), Whiteley (1994). Gozora (2001) deals with the structural changes occurring in the agricultural and food complex in Slovakia and says that there are significant unbalanced states, namely in the fields of economic imbalance, tech-

nological imbalance, ecological imbalance, and imbalances in the social, knowledge and regional fields. Hron (1995) underlines importance of strategic management and states that strategic management comprises multidisciplinary approach, containing the theory of the organisation, microeconomics (enterprise theory) and industrial society theory. According to the quoted author, strategic management deals both with the behaviour of the organisation in the external environment and with internal roles, processes, structures and decision-making which enables the organisation to operate in the best possible way within the given environment.

The research results stated in this report comprise the synthetic conclusions made in the field of decision-making of business subjects in the company management. It results from the conclusion of the research that it is important for the enterprises to pay more attention to the managerial decision-making since it represents a field of great importance to which all the company activities are related. Systematically defined strategic decision-making and practical appliance hereof in the company practice as well as effective application of the management of changes represent a single-minded means of response to the rapidly changing conditions in the management environment. The said approach requires continuous application of the managerial environment analysis method and subsequent application of a number of methods intended for a more detailed analysis of the individual decision problems in the management process.

As Drucker (2000) states in the publication "Management Challenges for the Third Millennium", it is necessary to solve the problems before they become "fervent problems". The following pieces of knowledge result thereof for the management that have to be considered:

- changing position of the management,
- necessity to apply the new management methods,
- new requirements for the personal qualities of the manager facing the solution of necessary changes.

## CONCLUSION

The process of strategic decision-making and management of changes gains importance in the tested enterprises and it results from the application of the results that the enterprises managed in a modern way cannot get along without an efficient strategic management and therefore the enterprise has to respond well to the turbulent managerial environment using adequate means and methods and be able to solve crisis situations if they appear. The evaluation criterion of efficiency of the changes is the state that characterises the basic aspects

of enterprise development in given time and the rate of conformity, i.e. the so-called homeostasis with the external environment and particularly definition of the prerequisites that will enable to maintain this homeostasis in the future as well. The methods applied in this connection are the management environment analysis, the methods of strategic decision-making as well as the crisis matrix that enables to efficiently face the negative prerequisites and prevent from them.

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