

Theoretical Background for the Decision-Making Process Modelling under Controlled Intervention Conditions

This article is intended to theoretically justify the decision-making process model for the cases, when active participation of investing entities in controlling the activities of an organisation and their results is noticeable. Based on scientific literature analysis, a concept of controlled conditions is formulated, and using a rational approach to the decision-making process, a model of the 11-steps decision-making process under controlled intervention is presented. Also, there have been unified conditions, describing the case of controlled interventions thus providing preconditions to ensure the adequacy of the proposed decision-making process model.

Keywords: decision-making, decision-making process, controlled intervention.

Šiuo straipsniu siekiama teoriškai pagrįsti sprendimo priėmimo proceso modelį atvejams, kai pastebimas aktyvus investicijas skiriančių subjektų dalyvavimas kontroliuojant veiklas bei jų rezultatus organizacijose. Atlikus mokslinės literatūros analizę, suformuluota kontroliuojamosios intervencijos samprata, sumodeliuotas sprendimo priėmimo procesas kontroliuojamosios intervencijos sąlygomis. Jis parengtas, naudojantis racionalaus sprendimo priėmimo proceso seka, ir apima 11 etapų. Taip pat unifikuotos kontroliuojamosios intervencijos atvejį apibūdinančios sąlygos, sudarančios prielaidas užtikrinti siūlomo sprendimo priėmimo proceso modelio adekvatumą.

Raktiniai žodžiai: sprendimo priėmimas, sprendimo priėmimo procesas, kontroliuojamoji intervencija.

Introduction

Business organisations nowadays have more and more opportunities to develop activities using additional financial resources provided by banks, other credit institutions, private investors or even the state through the state aid schemes. By specifying the volume of investment, there are defined activities to be performed in

order to ensure the timely implementation of commitments (clear ways of reaching the goal), as well as there are fixed the deadlines for reaching these goals. The proposed investment solutions change the concept of uncertainty in the context of the decision-making process.

Regardless of the fact that in literature sources decision-making is often the object of research, attention is usually focused

Irena BAKANAUSKIENĖ – Doctor of social sciences, professor at the Faculty of Economics and Management, Vytautas Magnus University. Address: K. Donelaičio str. 58, 44248 Kaunas, Lithuania. Phone: + 370 686 07704. E-mail: irena.bakanauskiene@vdu.lt.

Laura BARONIENĖ – PhD student at the Faculty of Economics and Management, Vytautas Magnus University. Address: K. Donelaičio str. 58, 44248 Kaunas, Lithuania. Phone: +370 688 35432. E-mail: laura.baronienė@gmail.com

on other aspects. In other words, monographs, scientific articles usually deal with the issues of general decision-making, focusing on the decision-making environment or the choice and application of instruments (Secchi, 2011; Wan, 2013; Saaty, 2013; Wan, Li, 2014; Govindan, Rajendran, Sarkis, Murugesan, 2015; Mardani, Jusoh, Zavadsk, 2015; Larson, 2016; Zaleckienė, 2016), the properties of decision-makers and their implications for decision-making (Kahneman, Lovallo, Sibony, 2011; Zsambok, Klein, 2014; Lerner, Valdesolo, Kassam, 2014; Matzler, Uzelac, Bauer, 2014; Bachkirov, 2015; Lejarraga, Pachur, Frey, Hertwig, 2015), components of the decision-making process (Drucker, 2001; Blenko, Mankins, Rodgers, 2010), the problem of group decision-making (Barry, Edgman-Levitan, 2012; Palomares, Martinez, Herrera, 2014; Durand, Carpenter, Dolan, Bravo, Mann, Bunn, 2014), stakeholder expectations (Darškuvienė, Bendoraitienė, 2014; Hargraves, Montori, 2014; Hoffman et al., 2014), the context of environmental uncertainty (Makridakis et al., 2009; Kwakkel et al., 2010; Dimoka et al., 2012), methods of uncertainty management (Van Geenhuizen et al., 2007; Van Geenhuizen, Thissen, 2007; Marchau et al., 2009), planning methods (Lempert et al., 2003; de Neufville, 2003), which highlight the search for the uncertainty-based problem solving using simulation and analysis methods (Swanson et al., 2010). In scientific sources on uncertainty (Van Geenhuizen et al., 2007; Marchau et al., 2009; Goodwin, Wright, 2010; Swanson et al., 2010; Walker et al., 2010), attention is paid to the risk of failure to reach the target (Dumitrescu, Soare, 2014) and the effectiveness of support (Bähr, 2008). Meanwhile, the decision-making process is not sufficiently considered in cases

when there is active participation of investing entities in controlling particular activities and their outcomes in an organisation.

Despite many analytical works analysing the object of uncertainty and changes in uncertainty (De Neufville, 2003; Walker, Harremoes et al., 2003; McDaniel and Driebe, 2005; Van Geenhuizen, Thissen, 2007; Makridakis, Hogarth, Gaba, 2009; Gigerenzer, 2010; Goodwin, Wright, 2010; Kwakkel; Walker; Marchau; 2010; Walker; Marchau; Swanson; 2010; Dimoka; Hong; Pavlou; 2012; Kabak; 2012; Catalani; Clerico; 2012; Bloom; 2014; Mowles, 2015; Wang, 2016), there is no uniform definition of environmental conditions illustrating the possibilities of using additional financial resources in business development. Attention is drawn to the increasing use of the term “intervention” in identifying specific cases of attracting external financial resources or seeking to present the concept of intervention (French, Bell, 1999; Qi, 2009; Edmans, Manso, 2011; Vveinhardt, 2012).

The relevance of a decision-making process as an object of research, based on the continued attention of researchers, revealed the unresearched area: the decision-making process in cases when active participation of investing entities control activities of the organisation and their outcomes thus constituting preconditions for the organisation's development. The existence of practical cases leads to the need for theoretical and methodological background enabling to develop the decision-making process model in these conditions.

This suggests that there is a theoretical problem of the decision-making modelling process under the aforementioned conditions. Thus, it has determined the

object, goal and objectives of the presented research paper.

The object of research is the decision-making process in cases when active participation of investing entities in controlling activities and their results in organisations is noticeable.

The goal of research is to theoretically justify the modelling of the decision-making process, which is applicable to cases where active participation of investing entities is noticeable in controlling activities and their results of an organisation. To achieve the goal, the following research objectives were formulated: 1) to define a concept for the cases when active participation of investment entities in the control of activities and their results of an organisation, is noticeable; 2) to develop a model of the decision-making process under conditions of controlled intervention; 3) to identify the conditions describing the case of controlled intervention.

Research methods. The analysis of scientific literature and the inductive method were used to formulate the concept for cases where active participation of investment entities in the control of activities and their results of an organisation, is noticeable. Modelling is used to provide the decision-making process under controlled intervention. The method of systematic analysis allowed to formulate general conclusions.

Applying the concept of controlled intervention to the decision-making process

It can be noticed that the term “intervention” in scientific sources is increasingly used to identify specific cases of attracting external financial resources. For example,

W. L. French, C. H. Bell (1999) states that intervention is a set of structured activities that creates preconditions for organizational development and promotes the elements of the organization’s structure to perform tasks directly or indirectly related to organizational development. J. Qi (2009) defines shareholder intervention as shareholder actions to cancel their investment decisions, and A. Edmans, G. Manso (2011) equate investment with institutional investors’ management activities. J. Vveinhardt (2012) provides a definition of intervention, arguing that intervention is an active response to a problem that has arisen or is emerging / active prevention.

For the case of the object matter of this article, the definition of intervention proposed by W. L. French, C. H. Bell (1999) would be appropriate. Emphasizing the mechanism of the use of external financial resources (active actions in solving a problem that arises or emerges, a set of activities that creates preconditions for the development of an organization, which encourages the adoption and implementation of a decision that results in improvement of the organization), the possibilities of using external financial resources encouraging the adoption and implementation of the decision could be considered as intervention.

Taking into account the active participation of investment organizations in order to ensure the implementation of the planned activities under the predicted conditions (interim reports, indicators for the implementation of the activities), after the evaluation of the conditions for the use of additional financial resources (fixed deadlines, commitment indicators, ways of achieving commitments), and also taking into account that the function that ensures the fulfilment of the planned

activities under the foreseen conditions is defined as a control function (Fayol, 1949; Johnson, 1976), the intervention can be classified as a “controlled” intervention.

Considering the above assumptions, the following definition of controlled intervention applies for the object matter of this article: controlled intervention - the involvement of active investment entities in controlling structured activities and their results, which constitute preconditions for the development of an organization. Controlled intervention describes the conditions for deciding whether to use the proposed financial resources to implement specific activities by assuming responsibility for pre-defined performance outsourcing and giving the institution control over the implementation and outcome of the decision.

According to the literature review, the following decision evaluation criteria could be applied to the controlled intervention situation: compatibility with the environment, economic-financial criterion, compatibility with resources, risk, advantage. Controlled intervention conditions in the context of the decision-making process create preconditions for peculiarities of the decision-making process.

Modelling of the decision-making process under controlled intervention conditions

In modelling of the decision-making process under controlled intervention conditions, it is important, based on theoretical analysis, to define a set of decision-making models to be applied as a sequence of the decision-making process. The results of the theoretical analysis carried out in this study make it possible to identify particular types of the decision-making

process, on the basis of which different decision-making models can be visualised (see Figure 1).

As shown in Figure 1, different types of the decision-making process determine some peculiarities in the decision-making process structure:

- 1) Rational decision-making process, illustrating rational, bounded rationality, mixed scanning and algorithmic approach to decision-making models, represents unmodified 8 steps decision-making process: (1) problem/opportunity identification; (2) clarification of the decision evaluation criteria; (3) assessment of the criteria importance; (4) identification of the decision alternative; (5) alternatives evaluation based on criteria; (6) making a decision: choosing an alternative; (7) implementation of the decision; (8) assessment of the decision.
- 2) Mixed decision-making process, illustrating incremental, “muddling through”, mixed scanning and political decision-making models, represents 7 steps decision-making process: (1) problem/opportunity identification; (2) clarification of the decision evaluation criteria; (3) identification of the decision alternative; (4) alternatives evaluation based on criteria; (5) making a decision: choosing an alternative; (6) implementation of the decision; (7) assessment of the decision.
- 3) Intuitive decision-making process, illustrating intuitive and “garbage can” decision-making models, represents 4 steps decision-making process: (1) problem/opportunity identification; (2) making a decision: choosing an alternative; (3) implementation of the decision; (4) assessment of the decision.

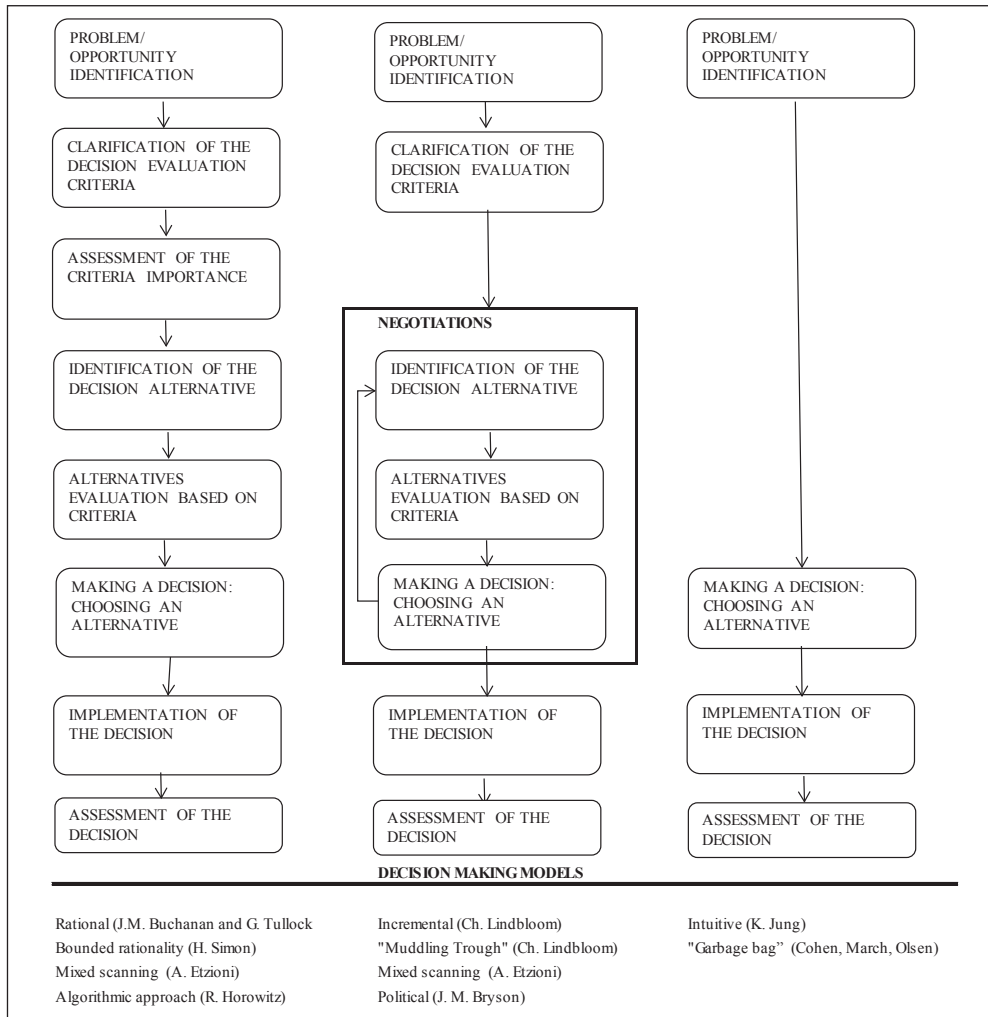


Fig. 1. Types of the decision-making process structure

Considering that in the application of the intuitive decision-making process, the selection of the best alternatives is ensured by factors which may differ for each of the decision-makers, and also given that the set of individual factors does not allow for systematizing the decision-making process until the decision-making stage, intuitive and "garbage can" decision models that represent the intuitive structure

of the decision-making process cannot be considered methodologically based on the conditions for an intervention controlled by an adequate decision-making model.

In order to decide on the structure of the process in control intervention case, an analysis of the decision-making models was made in the alternative selection context, in which it was observed that not only the "garbage can" but also the models

for “pull through” decision-making do not ensure systematic planning (the reason for the decision necessity – problem, not opportunities or ongoing changes), selection of the best alternative is ensured by factors that may vary in the case of each decision maker (subjective, intuitive, and alternatives assessment criteria based on alignment of opinions). These conditions make it impossible to systematize the alternative selection phase and therefore cannot be treated as a methodological basis for an adequate decision-making model under controlled intervention.

The rational decision-making model could be analysed only in the scope of the theoretical model since an unlimited set of alternatives cannot be evaluated on a practical level (all possible alternatives). For this reason, the rational decision-making model is also not considered appropriate under the conditions of controlled intervention.

Assuming that the combination of opinions is acceptable to all parties but is by no means the best alternative, the objective criteria are necessary for the search of the best alternative. This aspect further reduces the choice of possible decision-making models and therefore adequate decision-making models under the control of intervention mode of decision-making can cause limited rationality, algorithmic and mixed-scan decision-making models’ recognition.

To further reduce the number of choices for an adequate solution model, it is necessary to take into account the following objective – the goal of the decision-making process under the control of intervention is to quickly find an economically rational alternative. This goal should be achieved at minimum cost, which means avoiding interference in the

decision-making process. By adopting a mixed-scan decision-making model, the only solution to the decision-making process is the need to recruit experts / highly skilled professionals. Given that this disturbance is not directly related to the peculiarities of the decision-making process (as would be the case with the application of a progressive systematic model of decision-making model when identifying a disruption to the comparability of creative alternatives), in the context of disturbing the decision-making process, the mixed-scan model would be considered adequate.

Thus, the mixed-scan decision-making model, illustrated by the structure of the rational decision-making process or the mixed decision-making process, where without goals only limited rationality and algorithmic approaches to modelling the decision-making process could be considered, the right proposal is to choose a rational decision-making process illustrating the application of the mentioned decision-making models.

Identifying the conditions for controlled intervention in the context of the decision-making process, considering the circumstances of the decision-making and the additional evaluation criteria that it causes, it is possible to develop the structure of the decision-making process under controlled intervention presented in Figure 2.

Therefore, the decision-making process model under controlled conditions expands to the 11-steps decision-making process (see Figure 2): (1) identification of potential result; (2) identification of recommended actions; (3) clarification of the actions evaluation criteria; (4) problem/opportunity identification; (5) identification of the decision alternatives;

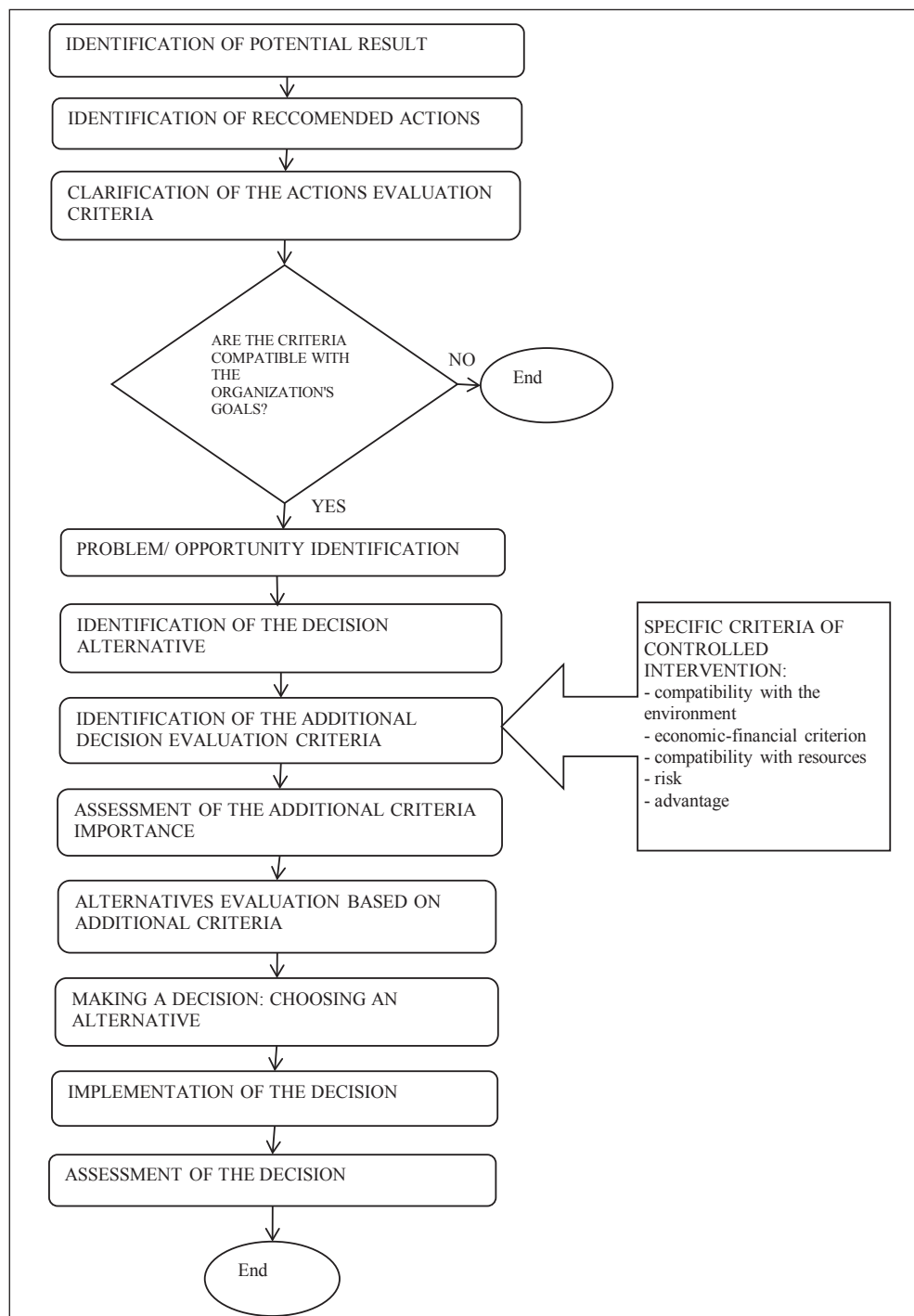


Fig. 2. The model of the decision-making process under controlled intervention conditions

(6) identification of the additional decision evaluation criteria; (7) assessment of the additional criteria importance; (8) alternatives evaluation based on additional criteria; (9) making a decision: choosing an alternative; (10) implementation of the decision; (11) assessment of the decision.

The specific criteria of controlled intervention (compatibility with the environment, economic-financial criterion, compatibility with resources, risk, advantage) lead to the need to develop the decision-making process by forming two stages evaluation. Controlled intervention circumstances lead to additional decision-making process steps (identification of potential result; identification of recommended actions; clarification of the actions evaluation criteria) integration.

Despite the fact that the theoretical context results in the choice of a mixed-scan decision-making model by modelling the decision-making process under controlled intervention, the mixed-scan decision-making model also has the following limitations:

- Not all aspects of the problem are investigated in a detailed way, so it is not clear which information should be limited;
- Criteria are expressed only in economic categories that enable identification of the cause-effect relationship with the objectives of the problem (which isolates from criteria that are difficult to express in economic terms, such as power or interests);
- The limited number of alternatives is evaluated; therefore, the expected result is the most suitable from all evaluated alternatives, but it will not necessarily be the best in the context of all possible alternatives;

- The most appropriate decision is based on economic indicators. In this case, intuition is completely eliminated.

The restrictions on the application of the decision-making process model are shaped by additional criteria for evaluating the decision that are relevant in the case of controlled intervention:

- A clear definition of the limited decision-making deadline;
- Necessity to assume commitments after the project implementation – alternatives suitable for a limited period are not considered;
- Implementation of the decision-making is a subject to high financial uncertainty (due to timely disturbances in the disbursement of financial investments, the risk level of the decision-making is growing).

The two-step evaluation of alternatives minimises the problem of applying a mixed-scanning solution model expressed by the need to identify the quantity of rational criteria, yet other identified restrictions for applying the mixed-scanning solution model remain.

Identification of the controlled intervention case conditions

When applying the concept of controlled intervention, the practical decision-making situation must take into account the compliance with the characteristics of the controlled intervention, the principles of legal regulation, which justify compliance with the characteristics of the controlled intervention, as well as the possibilities of the decision-making situation in the business organizations of the country.

When choosing a decision-making model, it is necessary to identify the

possibilities for applying such model and restrictions in the country of business organizations - the model must have the character of repeatability (the possibility of facing the situation in a similar situation in the long term) with least restrictions (the situation applies to as wide as possible a circle of business organizations).

A case of controlled intervention with a wider range of analogue data that is applicable to the decision-making process would allow the greater reliability of the research (without deviations from different information). Therefore, the following potential aspects of uniformity must be taken into account when selecting a model of controlled intervention:

- Primary data on the basis of which the decision will be made;
- A clear, quantifiable result is desirable;
- Identification of activities that should help to achieve the required results;
- Quantitative evaluation criteria for alternatives;
- Decision evaluation criteria.

In the case of controlled interventions, seeking to ensure comparability of the considered alternatives, there are important additional criteria for evaluation of the decision: environmental compatibility, economic-financial criteria, resource compatibility, risk, and advantage.

The conditions for choosing unified controlled intervention create a precondition to ensure the adequacy of the proposed decision-making model.

Conclusions and recommendations

The continued attention of researchers to the importance of the decision-making process as an object of research, revealed

the unresearched area: the decision-making process in cases when active participation of investing entities control activities of the organisation and their outcomes thus constituting preconditions for the organisation's development. The existence of practical cases leads to the need for methodological access, and therefore, the decision-making process model in these conditions is important both for theoretical and empirical research.

Literature analysis suggests a conclusion that in case of this research object the concept of controlled intervention is the most applicable. Therefore, it could be defined as active participation of investing entities in controlling the structured activities and their results, which constitute preconditions for the development of an organisation. Such understanding allows to describe the conditions when it should be decided whether to use proposed financial resources for implementation of specific activities in a company. Moreover, responsibility for the expected results should be assumed by the funding institution, giving it the control over the implementation of the decision and evaluation of the outcomes.

The controlled intervention conditions in the decision-making process context create preconditions to model a particular decision-making process. Comparative analysis of different types of decision-making process structures reveals that the mixed-scan decision-making model or the mixed decision-making process, where without goals only limited rationality and algorithmic approaches to modelling the decision-making process could be considered and rational decision-making process illustrating the application of the mentioned decision-making models is appropriate. Thus,

the decision-making process model under controlled conditions, prepared using the rational decision-making process could be expressed as a sequence of the 11-steps decision-making process: (1) identification of potential result; (2) identification of recommended actions; (3) clarification of the actions evaluation criteria; (4) problem/opportunity identification; (5) identification of the decision alternatives; (6) identification of the additional decision evaluation criteria; (7) assessment of the additional criteria importance; (8) alternatives evaluation based on additional criteria; (9) making a decision: choosing an alternative; (10) implementation of the decision; (11) assessment of the decision.

Also, it was disclosed that the mixed scanning decision-making model also has the same main limitations, which should be considered when applying the model: rejection criteria which are difficult to express in economic terms; evaluation of limited number of alternatives; the most appropriate decision is based only on economic indicators, where intuition is completely eliminated.

The following unified conditions of controlled interventions, which provide preconditions to ensure the adequacy of

the proposed decision-making process model, have been revealed: legal regulation principles; restrictions on business organizations in a particular country; equal primary data, based on which the decision will be made; a clear, quantifiable result; identification of activities that should help to achieve the required results; quantitative evaluation criteria for alternatives; decision evaluation criteria.

The research findings allow to recommend considering the possibility of developing activities using additional financial resources, when applying the decision-making process model. These resources can be provided by banks, other credit institutions, private investors or even the state aid schemes. The result of the decision-making process model – implementation of an organization-friendly solution – is closely linked to the calculation of economic indicators. Therefore, research analysing the indicators of implementation of goals could be developed in different activity sectors, in organizations of different size that have experienced different controlled interventions. Moreover, it is necessary to verify the decision-making process model under the controlled intervention conditions by empirical investigation.

References

1. Bachkirov, A. A. (2015). Managerial Decision Making Under Specific Emotions // *Journal of Management Psychology*. Vol. 30, No 7, pp. 861–874. doi: 10.1108/JMP-02-2013-0071.
2. Bähr, C. (2008). How does Sub-National Autonomy Affect the Effectiveness of Structural Funds? // *KYKLOS*. Vol. 61, No. 1, pp. 3–18. doi: 10.1111/j.1467-6435.2008.00389.x.
3. Barry, M. J., Edgman-Levitan, S. (2012). Shared Decision Making-Pinnacle of Patient-Centered Care // *Medical Journal*. Vol. 366, pp. 780–781. doi: 10.1056/NEJMp1109283.
4. Blenko, M. W., Mankins, M. C., Rogers, P. (2010). Spotlight on Strategies for a Changing World: The Decision-Driven Organization // *Harvard Business Review*. No. 88(6), pp. 54–62. doi: 10.1162/152417302762251291.

5. Bloom, N. (2014). Fluctuations in Uncertainty // *Journal of Economic Perspectives*. Vol. 28, No. 2, pp. 153–176. doi: 10.1257/jep.28.2.153.
6. Catalani, M. S., Clerico, G. F. (2012). Decision Making Structures: Dealing with Uncertainty within Organizations. - Springer Science & Business Media, p. 167.
7. Darškuvienė, V., Bendoraitienė, E. (2014). Stakeholder Expectations and Influence on Company Decisions // *Taikomoji ekonomika: sisteminiai tyrimai = Applied economics: systematic research*. T. 8, Nr. 2, pp. 83–96. doi: 10.7220/AESR.2335.8742.2014.8.2.5.
8. De Neufville, R. (2003). Real Options: Dealing with Uncertainty in Systems Planning and Design // *Integrated Assessment*. Vol. 4, No. 1, pp. 26–34. doi: 10.1076/iaij.4.1.26.16461.
9. Dimoka, A., Hong, Y., Pavlou, P. A. (2012). On Product Uncertainty in Online Markets: Theory and Evidence // *Quarterly journal*. No. 36.
10. Drucker, P. F. (2001). The Effective Decision. - Harvard Business Review on Decision Making.
11. Dumitrescu, D., I., Soare, D., V. (2014). Financial Engineering Instruments Financed from European Structural and Investment Funds and Financial Products issued by Financial Institutions Supporting European Project Implementation // *Revista Română de Statistică-Supliment*. No. 10/2014.
12. Durand, M.-A., Carpenter, L., Dolan, H., Bravo, P., Mann, M., Bunn, F., et al. (2014). Do Interventions Designed to Support Shared Decision-Making Reduce Health Inequalities? // *A Systematic Review and Meta-Analysis*. PLOS ONE. Vol. 9, No. 4, pp. 1–13. doi: 10.1371/journal.pone.0094670.
13. Edmans, A., Manso, G. (2011). Governance through Trading and Intervention: A Theory of Multiple Blockholders // *Review of Financial Studies*. No. 24, pp. 2395–2428. doi: 10.1093/rfs/hhq145.
14. Fayol, H. (1949). *General and Industrial Management*. - New York: Pitman publishing, pp. 107–109.
15. French, W. L., Bell, C. H. (1999). *Organizational Development: Behavioral Science Interventions for Organization Improvement*. 6th edition. doi: <https://trove.nla.gov.au/work/6066986>.
16. Gigerenzer, G. (2010) *Rationality for Mortals: How People Cope with Uncertainty*. - Oxford University Press, p. 256. doi:10.1146/annurev-psych-120709-145346 PMID:21126183.
17. Goodwin, P., Wright, G. (2010). The Limits of Forecasting Methods in Anticipating Rare Events. *Technological Forecasting and Social Change*. No. 77, pp. 355–368. doi: 10.1016/j.techfore.2009.10.008.
18. Govindan, K., Rajendran, S., Sarkis, J., Murugesan, P. (2015). Multi Criteria Decision Making Approaches for Green Supplier Evaluation and Selection: A Literature Review // *Journal of Cleaner Production*. Vol. 98, pp. 66–83. doi: 10.1016/j.jclepro.2013.06.046.
19. Hargraves, I., Montori, V. M. (2014). Decision Aids, Empowerment, And Shared Decision Making // *BMJ*. Vol. 349: g5811. doi: <http://dx.doi.org/10.1136/bmj.g5811>.
20. Hoffmann, T. C., Legare, F., Simmons, M. B., McNamara, K., McCaffery, K., Trevena, L. J., et al. (2014). Shared Decision Making: What do Clinicians Need to Know and Why Should They Bother? *Medical Journal*. Vol. 201, pp. 35–39. doi: 10.5694/mja14.00002.
21. Hoffmann, T. C., Montori, V. M., Del Mar, C. (2014). The Connection Between Evidence-Based Medicine and Shared Decision Making // *JAMA*. Vol. 312, pp. 1295–12956. doi: 10.1001/jama.2014.10186.
22. Johnson, R. A. (1976). *Management Systems and Society: An Introduction*. - Pacific Palisades, California: Goodyear publishing, pp. 148–152.
23. Kabak, O. (2012). Uncertainty Modelling in Supply Chain Management: The Trend in the Use of Fuzzy Set Theory. Uncertainty Modelling in Knowledge Management and Decision Making: Proceedings of the 10th international FLINS conference. pp. 541–546. doi: 10.1142/9789814417747_0087.
24. Kahneman, D., Lovallo, D., Sibony, O. (2011) Before You Make That Big Decision // *Harvard Business Review*. No 89(6), pp. 51–60.
25. Kwakkel, J. H., Walker, W. E., Marchau, V. A. W. J. (2010). Classifying and Communicating Uncertainties in Model-Based Policy Analysis // *International Journal of Technology, Policy and Management*. Vol. 10 (4), pp. 299–315. doi: 10.1504/IJTPM.2010.036918.
26. Larson, E. (2016). Faster, Better Decisions. - Harvard Business Review.
27. Lejarraga, T., Pachur, Th., Frey, R., Hertwig, R. (2015). Decisions from Experience: From Monetary to Medical Gambles // *Journal of Behavioral Decision Making*. Vol. 29, Issue 1, pp. 66–67. doi: 10.1002/bdm.1877.

28. Lempert, R. J., Popper, S., Banks, S. (2003). *Shaping the Next One Hundred Years: New Methods for Quantitative, Long Term Policy Analysis*. Santa Monica: RAND.
29. Lerner, J., Li, Y., Valdesolo, P., Kassam, K. S. (2014). Emotion and decision. *Annual review of psychology*. Vol. 66, pp. 799–823. doi: 10.1146/annurev-psych-010213-115043.
30. Makridakis, S., Hogarth, R. M., Gaba, A. (2009). Forecasting and Uncertainty in the Economic and Business World // *International Journal of Forecasting*. Vol. 25, pp. 794–812. doi: 10.1016/j.ijforecast.2009.05.012.
31. Marchau, V. A. W. J., Walker, W. E., Van Duin, R. (2009). An Adaptive Approach to Implementing Innovative Urban Transport Solutions // *Transport Policy*. No. 15, pp. 405–412. doi: 10.1016/j.tranpol.2008.12.002.
32. Mardani, A., Jusoh, A., Zavadskas, E. K. (2015). Fuzzy Multiple Criteria Decision-Making Techniques and Applications – Two Decades Review from 1994 to 2014 // *Expert Systems with Applications*. Vol. 42, Issue 8, pp. 4126–4148. doi: 10.1016/j.eswa.2015.01.003.
33. Matzler, K., Uzelac, B., Bauer, F. (2014). Intuition: The Missing Ingredient for Good Managerial Decision Making // *Journal of Business Strategy*. Vol. 35, No. 6, pp. 31–40. doi: 10.1108/JBS-12-2012-0077.
34. Mcdaniel, R. R., Driebe, D. J. (eds.) (2005). *Uncertainty and Surprise in Complex Systems: Questions on Working the Unexpected*. - Springer. doi: 10.1057/rm.2009.15.
35. Mowles, C. (2015). *Managing in Uncertainty: Complexity and the Paradoxes of Everyday Organizational Life*. Routledge. p. 188.
36. Palomares, I., Martínez, L., Herrera, F. (2014). MENTOR: A graphical monitoring tool of preferences evolution in large-scale group decision making // *Knowledge-Based Systems*. No. 58, pp. 66–74. doi: 10.1016/j.knsys.2013.07.003.
37. Qi, J. (2009). The Threat of Shareholder Intervention and Firm Innovation. - *New York Law Journal*.
38. Saaty, L. (2013). *Theory and Applications of the Analytic Network Process: Decision Making with Benefits, Opportunities, Cost and Risks*. ISBN 978-1-8886031-6-3 (e-book).
39. Secchi, D. (2011). *Extendable Rationality: Understanding Decision Making in Organizations*. - Springer Science & Business Media, p. 180. doi: 10.1007/978-1-4419-7542-3.
40. Stein, L. C. D., Wang, C. C. Y. (2016). *Economic Uncertainty and Earning Management*. - Harvard Business School: Business Research for Business Leaders. HBS working paper. No. 16-103.
41. Swanson, D., Barg, S., Tyler S., Venema, H., Tomar, S., Bhadwal, S., Nair, S., Roy, D., Drexhage, J. (2010). Seven Tools for Creating Adaptive Policies // *Technological Forecasting and Social Change*. No. 77, pp. 924–939. doi: 10.1016/j.techfore.2010.04.005.
42. Van Geenhuizen, M., Reggiani, A., Rietveld, P. (2007). New Trends in Policymaking for Transport and Regional Network Integration. In: Van Geenhuizen, M., Reggiani, A. & Rietveld, P. (eds.) *Policy Analysis of Transport Networks*. - Aldershot: Ashgate.
43. Van Geenhuizen, N. M., Thissen, W. A. H. (2007). A Framework for Identifying and Qualifying Uncertainty in Policy Making: The Case of Intelligent Transport Systems. In: Van Geenhuizen, M., Reggiani, A. & Rietveld, P. (eds.) *Policy Analysis of Transport Networks*. Aldershot: Ashgate.
44. Vveinhardt, J. (2012). Mobingo intervencija individo, organizacijos ir sociumo lygmenyse: kompleksinio modelio struktūra // *Organizacijų vadyba: sisteminiai tyrimai = Management of Organizations: Systematic Reseach*. Nr. 61, p. 129–142.
45. Walker, W. E., Harremoes, E., Rotmans, J., van der Sluijs, J. P., Asselt, M. B. A., Janssen, P., Krayer von Krauss, M. P. (2003). *Defining Uncertainty: A Conceptual Basis for Uncertainty Management in Model-Based Decision Support*. Integrated Assessment. Vol. 4, No. 1, pp. 5–17.
46. Walker, W. E., Marchau, V. A. W. J., Swanson, D. (2010). Addressing Deep Uncertainty Using Adaptive Policies: Introduction to Section 2. // *Technological Forecasting and Social Change*. No. 77, pp. 917–923. doi: 10.1016/j.techfore.2010.04.004.
47. Wan, S. P. (2013). 2-Tuple Linguistic Hybrid Arithmetic Aggregation Operators and Application to Multi-Attribute Group Decision Making // *Knowledge-Based Systems*. No. 45, pp. 31–40. doi: 10.1016/j.knsys.2013.02.002.
48. Wan, S. P., Li, D. F. (2014). Atanassov's Intuitionistic Fuzzy Programming Method for Heterogeneous Multiattribute Group Decision Making with Atanassov's Intuitionistic Fuzzy Truth Degrees // *IEEE Transactions on Fuzzy*

- Systems. Vol. 22, Issue 2, Publisher: IEEE Press. doi: 10.1109/TFUZZ.2013.2253107.
49. Zaleckienė, J. (2016). Ūkio diversifikavimo sprendimo priėmimas: Lietuvos atvejis // Management Theory and Studies for Rural Business and Infrastructure Development. Vol. 38. No. 2, pp. 168–177. doi: 10.15544/mts.2016.14.
50. Zsombok C. E., Klein, G. (2014). Naturalistic Decision Making (book). - New York: Psychology Press. doi: 10.1518/001872008X288385.

The paper submitted: October 27, 2017
Prepared for publication: December 10, 2017

Irena BAKANAUSKIENĖ, Laura BARONIENĖ

SPRENDIMO PRIĖMIMO PROCESO MODELIAVIMO KONTROLIUOJAMOSIOS INTERVENCIJOS SĄLYGOMIS TEORINIS PAGRINDIMAS

S a n t r a u k a

Verslo organizacijoms vis dažniau atsiranda galimybių vystyti veiklą naudojantis papildomais finansiniais ištekliais, kuriuos gali suteikti bankai, kitos kredito institucijos, privatūs investuotojai, netgi valstybė, panaudodama valstybės pagalbos schemas. Nepaisant mokslininkų susidomėjimo sprendimo priėmimo procesu, kaip tyrimų objektu, sprendimo priėmimo proceso adaptavimas atvejais, kai pastebimas aktyvus investicijas skiriančių subjektų dalyvavimas kontroliuojant struktūrizuotą veiklą bei jų rezultatus, sudarančius prielaidas organizacijos vystymuisi, nėra pakankamai išnagrinėtas. Todėl galima konstatuoti, kad egzistuoja teorinė ir metodologinė problema, siekiant parinkti tinkamą sprendimo priėmimo proceso modelį minėtomis sąlygomis.

Šiuo straipsniu siekiama teoriškai pagrįsti sprendimo priėmimo proceso modelį tiems atvejais, kai pastebimas aktyvus investicijas skiriančių subjektų dalyvavimas kontroliuojant struktūrizuotą veiklą bei jų rezultatus, sudarančius prielaidas organizacijos vystymuisi. Tikslui pasiekti buvo suformuluoti tokie tyrimo uždaviniai: 1) apibrėžti konceptualizuojančią sampratą atvejais, kai pastebimas aktyvus investicijas skiriančių subjektų dalyvavimas kontroliuojant veiklą bei jų rezultatus, sudarančius prielaidas organizacijos vystymuisi; 2) sumodeliuoti sprendimo priėmimo procesą kontroliuojamosios intervencijos sąlygomis; 3) identifikuoti kontroliuojamosios intervencijos atvejį apibūdinančias sąlygas.

Šiame straipsnyje suformuluota kontroliuojamosios intervencijos samprata traktuojama kaip

aktyvus investicijas skiriančių subjektų dalyvavimas kontroliuojant struktūrizuotą veiklą bei jų rezultatus, sudarančius prielaidas organizacijos vystymuisi. Lyginamoji įvairių teorinių sprendimų priėmimo proceso struktūrų tipų analizė atskleidė, kad kontroliuojamosios intervencijos sąlygomis labiausiai tinkamas būtų mišrus skenavimo sprendimo priėmimo modelis, kuris gali būti iliustruojamas kaip racionalaus šių 11 etapų sprendimo priėmimo proceso seka: 1) potencialaus rezultato apibrėžimas; 2) rekomenduojamų veiklų identifikavimas; 3) veiklų vertinimo kriterijų identifikavimas; 4) problemos / galimybės identifikavimas; 5) sprendimo alternatyvų numatymas; 6) papildomų sprendimo vertinimo kriterijų identifikavimas; 7) papildomų kriterijų svarbos įvertinimas; 8) alternatyvų įvertinimas pagal papildomus kriterijus; 9) sprendimo priėmimas: alternatyvos pasirinkimas; 10) sprendimo įgyvendinimas; 11) sprendimo įvertinimas.

Toks sprendimo priėmimo proceso modelis gali būti taikomas svarstant galimybę vystyti veiklą naudojantis papildomais finansiniais ištekliais, kuriuos gali suteikti bankai, kitos kredito institucijos, privatūs investuotojai, netgi valstybė, panaudodama valstybės pagalbos schemas. Šio sprendimo priėmimo proceso modelio rezultatas – organizacijai naudingo sprendimo įgyvendinimas yra glaudžiai susijęs su ekonominių rodiklių skaičiavimu, todėl moksliniai tyrimai galėtų būti plėtojami analizuojant įgyvendinimo rodiklius skirtingų veiklos šakų, skirtingų dydžių organizacijose, patyrusiose skirtingą kontroliuojamą intervenciją.