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THE ROLE OF MANAGEMENT METHODS IN ECONOMY 4.0

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Abstract: This article starts with a presentation of the conditions and a definition of the dimensions that affect the choice of management methods. Next, the author attempts the particularization of a method to solve the research problem through proposing a detailed procedure of selecting management methods for a specific stage of economic development. The next part of the paper tries to define the application of management methods for a specific stage of the development of the economy currently featuring economy 4.0. The thesis is assumed that for each stage of economic development it is vital to evaluate and prioritize management methods, and example solutions of the research problem for economy 4.0 are presented. The final part of the paper discusses the directions of perfecting management methods within the limits of the perspectives for further development of the economy, for example towards achieving the character of economy 5.0.

Keywords: management methods, economy 4.0, development stages, conditions, dimensions, evaluation.

1. Introduction

This short article only indicates the research problem which is the way of using management methods in economy 4.0 (not economics 4.0). One of its aims is to present a general research concept and the author's opinion regarding the topic. In order to talk in depth about a scientific work, one would need to write a book or a monograph to address the topic. Only a longer paper would be able to define and adopt the full research methodology, to conduct comprehensive study and to interpret the obtained results.

It must be observed that on the level of a scientific article it is necessary to define the aim and to form the research questions that will be discussed further.

The main aim of this article must be considered the presentation and analysis of the existing dependencies between the level of technological, economic and social development, and the management methods preferred for their application.

The research questions formulated in the article are:

1) What are the conditions and dimensions in selecting the management methods?

2) How far can one draw conclusions from economic history regarding the importance of the dimension?

3) How much should one comply with the procedure of selecting management methods and how flexible should it be due to the identified multidimensional development?

4) Is it possible to define the scope of the application of management methods for economy 4.0 and how to achieve this?

5) Are there possibilities to evaluate and prioritize management methods in the application process?

The article tries to answer each of the research questions. Due to difficulties in the research process the results were obtained to various degrees for various questions, therefore it must be emphasized that these are not the only research questions that may be asked in the adopted research area. However, they appear to be important and useful when solving the research problem connected with the application of management methods.

2. Conditions and dimensions of the selection of management methods

The main goal of economy 4.0 is to increase the level of economic innovation and, as a result, to achieve faster development. The effect of this phenomenon should be an increase in competitiveness and the effective functioning of its specific sectors. Taking into account the current level of development in adapting the economy to new conditions of functioning is not just about achieving efficiency in a classical sense as economic efficiency based on the relation between outlay and effect, as well as the efficiency in the broader understanding. This kind of efficiency in the evaluation process takes into account anticipated social and environmental changes. Then a question arises which is difficult to answer clearly, of how to achieve the right level of efficiency understood in a complex way that is characterized by the holistic approach¹.

¹ A holistic approach to the evaluation of economic processes was presented in the article by S. Marciniak (2019, p. 5).

In examining the topic of method selection one may find numerous premise which, when taken into account, contribute to achieving the goal of adopting and complying with the holistic approach. One of them is the application of the appropriate management methods in managing economic processes from the perspective of the covered field. The selection of the proper management methods for the specific real economic processes is not easy due to the fact that there are numerous determinants. Non-compliance with them may hinder and reduce a rational selection. They include the necessity to comply in the selection process with the following:

- 1) adopting the holistic approach,
- 2) understanding the character of the executed technical and organisational project,
- 3) taking into account the behaviour of the environment in the short and long term,
- 4) taking into account the premise and strategic goals defined for the future period.

Considering the above mentioned, one can observe that the preferred methods are mainly complex management methods such as Lean Management, Controlling or Reengineering². This is because of the necessity to cover an increasingly bigger impact area of the economic process, i.e. aiming at the adoption of the holistic principle in the management process. Equally, the main and specific goals that economy 4.0 is facing, such as aiming at sustainable development and complying with social and environmental principles, may also affect the selection and prioritizing of the applied management method. The presented procedure in the selection process should also take into account the level of social and economic development stage of the country. The stages may vary for each country.

In management theory one may find a number of principles of a universal character. One of them states that the practically applied management methods, regardless of the stage of economic development, should enable fulfilling a few basic goals. They include ensuring the following:

- efficiency of economic activity,
- optimization of economic activity,
- effectiveness of economic activity.

In order to meet the above mentioned goals, the basic functions of the management processes should be executed to best effect, such as planning, organizing, motivation and control. In the current stage of economic development both aims of operation as well as management functions should induce to a holistic approach that takes into account four dimensions: technical, economic, social and environmental. The role and character of understanding the above mentioned dimensions and their influence on the selection of the management method changes over time. The shift in importance

² The problem connected with the selection of management methods will be also raised in numerous papers listed in the article bibliography.

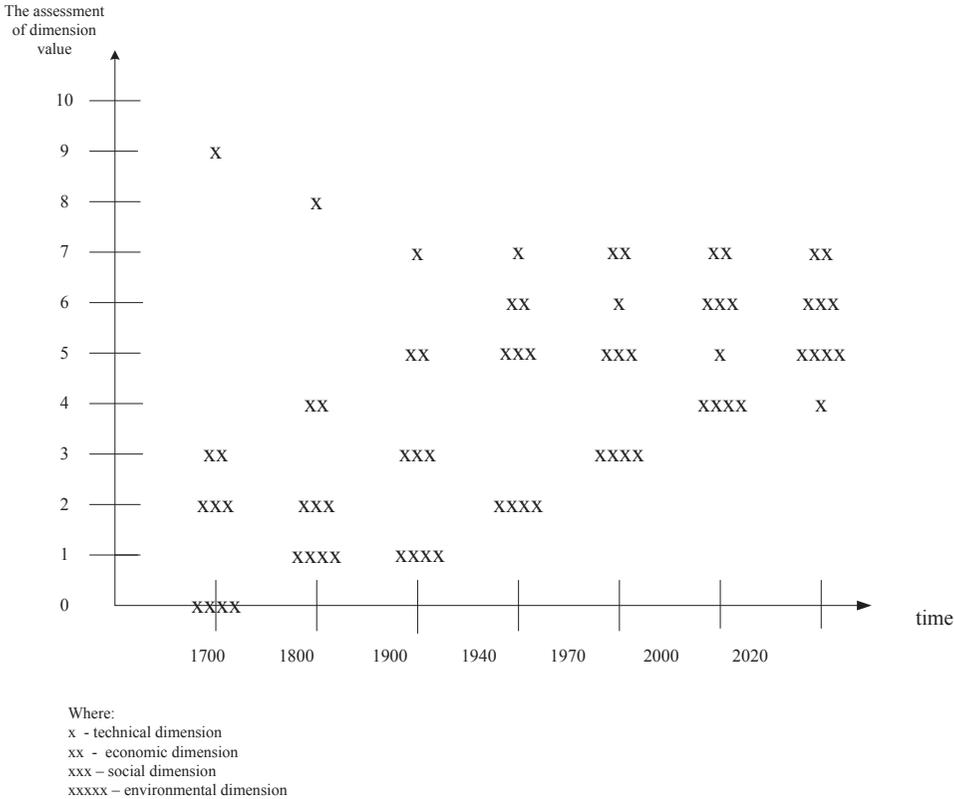


Fig. 1. An example of dependency of importance of the time dimensions in the process of managing economic activity taking into account the social aspect

Source: own study.

of specific dimensions and the force of influence on the selection of management methods is occurring particularly fast in this century. An example of the shift in importance of the dimensions in the selection of the method, and the area of the evaluated economic and social phenomenon in time, is presented in Figure 1.

3. Procedure of selecting management methods

When dealing with the problem of selecting the management methods for economic processes in the conditions of economy 4.0, it is necessary to present the selection procedure. It is required by the rationality of conduct proposed by the author of the article, that the procedure of selecting management methods follows that presented in Figure 2. It consists of six precisely defined stages of conduct that include the full decision-making process.

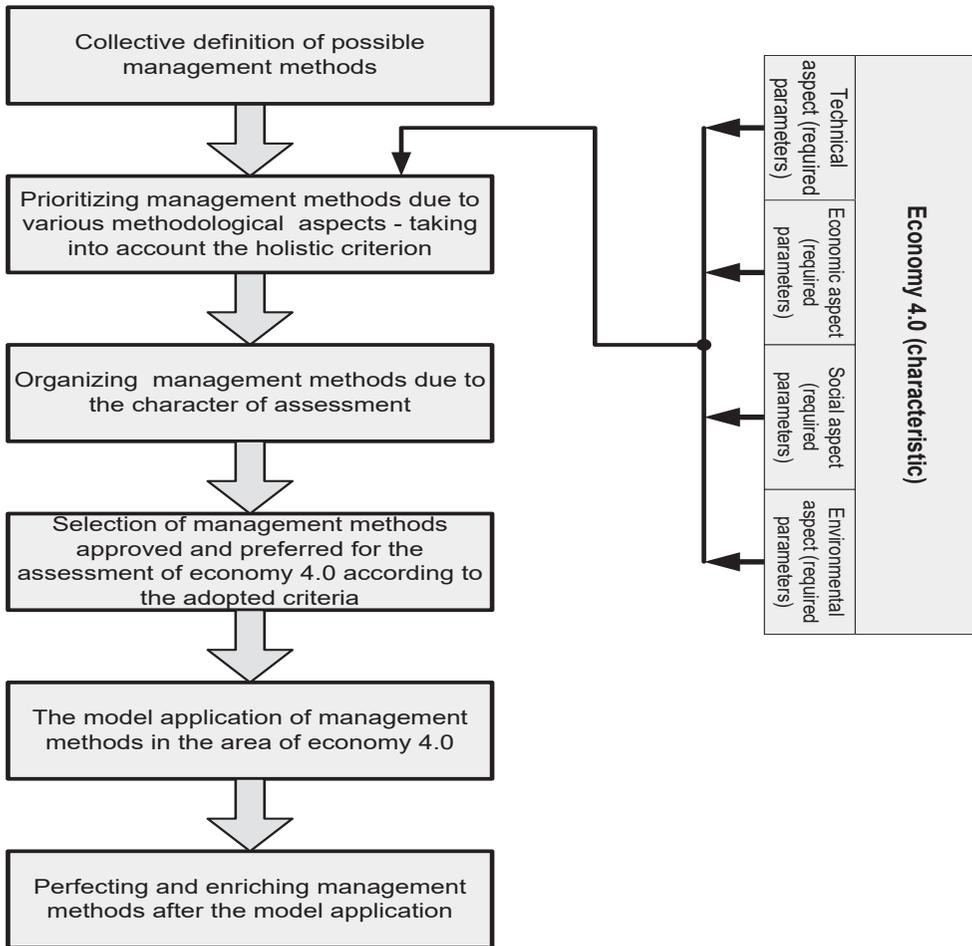


Fig. 2. The procedure of selecting management methods in economy 4.0

Source: own study.

With the application of these procedures better results may be obtained in the management process (higher level of rationality, effectiveness and/or efficiency). This also regards the selection of management methods for a specific stage of economic development, in this case economy 4.0. Then it is possible to:

- take into account in the management process the methods that reflect the character of the development,
- define the proper relations between the applied management methods and features of the economy,
- conduct theoretical and application rationalization of management methods from the point of view of the application aim,

- comply with the holistic principle in the decision-making,
- comply with the principle of adapting and dynamizing management methods in the process of economic development in real time.

The five above mentioned features that constitute the main advantages of the procedure presented in the figure, prompt towards a thesis that it is necessary to devise a theoretical framework and practical application of the procedure of selecting management methods due to the stage of economic development symbolized by 4.0, and in the future 5.0³.

4. The extension of applying management methods for economy 4.0

Defining the extension of applying particular management methods in the area of economy 4.0 is one of key application problems that allows for the effective and efficient use of technical and organizational projects connected with the implementation of economy 4.0. In order to achieve this it is vital to acknowledge:

- 1) adopting the holistic approach,
- 2) understanding the character of the executed technical and organizational project,
- 3) taking into account the behaviour of the environment in the long and short term,
- 4) taking into account the goals and strategic objectives defined for the future period.

The above mentioned may be called methodological and technical conditions.

In order to help in accomplishing the goal of economic activity, the applied management method should be in line with the previously adopted five principles. Then the classification of methods from the perspective of various criteria may prove useful.

The classification criteria preferred in the process of selecting management methods for the innovatively advanced economy, is above all the subject (range) criterion and time criterion⁴. Then, for the purposes of economic practice, the most useful ones may prove to be:

- complex methods characterized by the holistic approach, such as Lean Management, Controlling, and Reengineering (distinguished in line with the subject criterion),
- strategic methods, such as scenario methods, strategic gap methods, portfolio methods (distinguished in line with the time criterion).

³ An attempt to identify management methods from the level of economic development was undertaken in the article by S. Marciniak (2019, p. 5).

⁴ Cf. Article by P. Marzec (2017, pp. 79-90), which provides a relatively full overview of classification of management methods from the perspective of various dimensions. Whereas in the article by K. Pawlowski and E. Pawlowski (2018, pp. 213-221), provides a classification of management methods and their impact on the economic and organizational efficiency of Polish companies (based on empirical study).

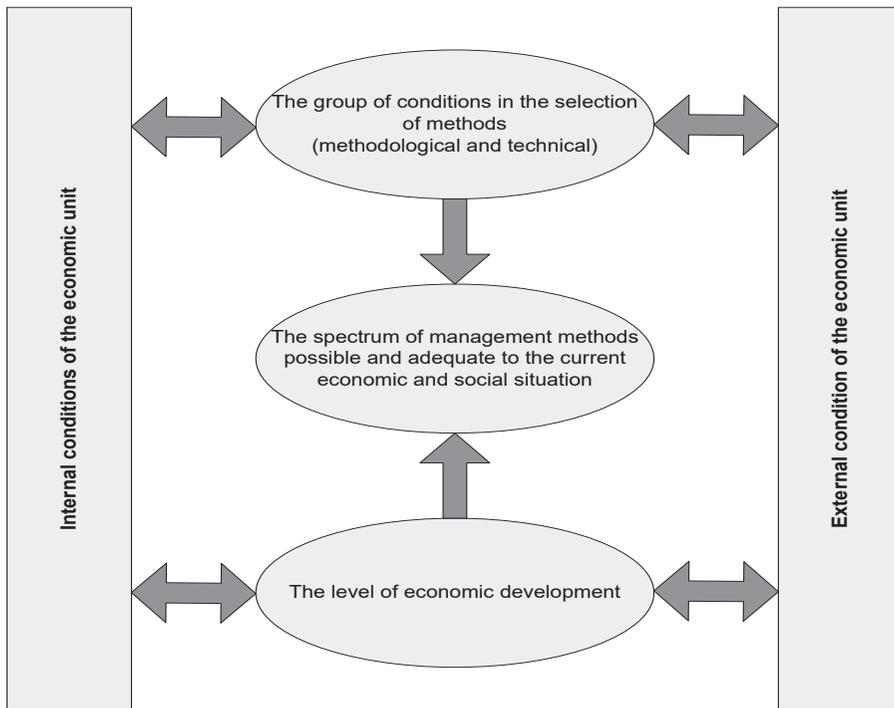


Fig. 3. Method of identifying the application range of management methods

Source: own study.

In order to select optimally the management methods, it is necessary to test in practice beforehand as many of them as possible in the real dimension. It should constitute one of the key research areas during the design period and during the implementation of specific technical and organizational measures within economy 4.0 and then 5.0.

Fulfilling the above mentioned conditions and the proper execution of method classification may facilitate establishing the extent of the application of management methods in each economy, of type 4.0 or 5.0. An example of the identification of the application range is presented in Figure 3.

5. Evaluation and prioritizing management methods for economy 4.0

The procedures of the prioritization and evaluation of management methods from the application perspective in a situation of intensive socio-economic development tend to be very difficult, mostly due to debatability in the selection of one criterion or a group that would play an important part in the implementation of the above mentioned procedures.

Considering the selection of the classification criterion, it appears that the most important aspects in prioritization of selecting the management methods are:

- 1) subject and object adequacy,
- 2) implementation possibility,
- 3) the possibility to intensify when taking into account the risk,

whereas in the evaluation of management methods the aspects are:

- 1) holism,
- 2) flexibility,
- 3) logical integrity (Marciniak, 2019).

Adopting the criteria is necessary but highly disputable in some individual cases. This is largely due to the subjectivity in developing procedures based on the above mentioned premise. The procedures in the next stage execute the real processes of prioritizing and evaluating the methods. Therefore, conducting such a research process requires the work of experts and specialists in numerous areas whose aim should be to objectivize the developed solutions.

An example of a way to evaluate and prioritize management methods is presented in Figure 4.

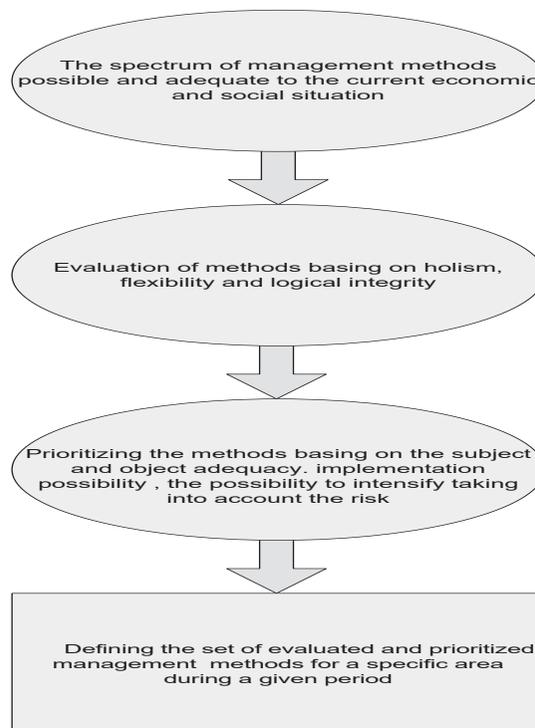


Fig. 4. An example of a way to evaluate and prioritize management methods

Source: own study.

6. Directions in perfecting management methods in conditions including the prospects for further economic development

In order to sum up the addressed research problem it is important to consider the way to perfect the functioning management methods due to the fast economic and social progress. In this context, a number of goals should be proposed which need to be achieved in the future. Therefore, it must be noted that perfecting the methods should enable above all:

- 1) the successful adaptation of methods to the shifting character of economy,
- 2) ensuring holism in management from the perspective of various dimensions (currently four key dimensions have been defined),
- 3) the flexibility of operations from the perspective of changing parameters that characterize each dimension in time.

Achieving the objective of increasing better fulfilment of the above mentioned conditions defines the directions in designing and implementing new management methods, as well as perfecting the existing ones such as Lean Management or Controlling.

In the current state of economic development and its transition to the level of economy 4.0 and 5.0, in order to achieve that it appears vital to:

- fully and adequately ensure information security from the perspective of the managed entity,
- comprehensively consider the environment behaviour,
- properly anticipate and consider the risk in numerous dimensions of the executed processes,
- remove any legal and organizational barriers that hinder the functioning of economy 4.0 and in the next stage, 5.0 (Kaz, Ilina, and Medvedev, 2019).

The fulfilment of the above mentioned conditions should enable the successful and efficient application of management methods in the new conditions and should stimulate the further fast development of the economy in the technical, economic, social and environmental dimensions.

7. Conclusion

In a short summary one can observe that the research aim – the presentation of dependencies between technological, economic and social development, and the management methods preferred for their application – has been realised to a large extent. This has been achieved mainly through the attempt to answer, in varying levels of detail, the five research questions formed in the introduction.

Such a way of responding is mostly the result of the limitations of the conducted research. Therefore, future directions of research should be more in-depth and present better the trends in the occurring phenomena, as well as provide account of

the behaviour of a close and distant environment. It must be also pointed out that the conducted research should have a relatively holistic character.

To sum up, it should be emphasized that the problem of research connected with the role of management methods in economy 4.0 seems vital. This results from the increasing importance of management in economy, characterized by the:

- a) increasing globalization;
- b) increase in competition that forces innovation;
- c) faster change in demand for the product due to a shift in consumer preferences;
- d) increase in risk.

When taking proper account of the importance of the research problem and the right solution, one may obtain significant practical results that are reflected mostly in strengthening the position on the domestic and international market, financial stability, better development perspectives etc. Therefore, one may assume that management in economy 4.0 in line with the adopted procedures is necessary with the application of the available management methods.

This may enable to facilitate the achievement of aims resulting from the future social and economic development.

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ROLA METOD ZARZĄDZANIA W GOSPODARCE 4.0

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Słowa kluczowe: metody zarządzania, gospodarka 4.0, fazy rozwoju, uwarunkowania, wymiary, wartościowanie.