



## EVOLUTION OF MANAGERIAL PROBLEMS FROM THE PERSPECTIVE OF MANAGEMENT SCIENCE

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*Received 22 March 2015; accepted 29 September 2015*

**Abstract.** Managerial problems and the process of their solving play an important role both in the theory of management science and practice of organisations' functioning. There is a gap in the literature related to the evolution of management problems in the context of the methodological approaches to solve them. The main goal of this paper was to analyse the evolution of the managerial problems from the perspective of management science and to present dominant methodological approaches for problem solving. Based on the extensive literature analysis in the discipline of management science, the evolution of the managerial problems was described with relation to the sixteen streams of management science. The author reviewed the selected classifications of the management theory as well as proposed his own perspective, which took into account managerial problems and their evolution over time. Moreover, there was presented an attempt to depict sources of management problems from the historical perspective within the methodological approaches of management science. Despite the broad view on management problems presented in this paper, such perspective gives a good ground for developing new more specific problem classifications, addressing different facets of managerial problems.

**Keywords:** managerial problems, evolution, management science, approaches of management science.

**JEL Classification:** M0, M00, M1, M10, M19.

### Introduction<sup>1</sup>

Managerial problems and the process of their solving play an important role both in the theory of management science and practice of organisations' functioning (Ghoshal 2005; Mesny, Mailhot 2012; Vicari 2013). Managerial problems perceived as these being observed on different levels of organisational hierarchy particularly in positions that have legal empowerment to give orders to their subordinates. Usually, in the management science literature, they are discussed from different organisational perspectives, e.g. human resources management, financial, marketing, production or particular methods' application for problem-solving. Some authors (Simon 1945; Beer 1959; Cyert, March 1963; Manganelli, Klein

1994; Czarniawska-Joerges 1997; Ginevičius *et al.* 2013; Stankevičienė, Rosov 2013; Ejdyš *et al.* 2015) explore the process of problem solving of this kind of problems with relation to different approaches of management science, although such type of research is scarce. There is little or no evidence of comprehensive scientific publications that deal with this issue from the perspective of the streams of management science (Kozłowski 1983; Lisiński 2013). Moreover there is a gap in the literature related to the evolution of management problems in the context of the methodological approaches to solve them.

The main aim of the paper is to analyse the evolution of the managerial problems from the perspective of management science as well as to present dominant methodological approaches for problem solving. This paper also attempts to systematise the vast knowledge on management problems and methodological approaches of management science.

<sup>1</sup> This paper was presented at the European Academy of Management conference (EURAM '15), June 17–19, 2015, in Warsaw, Poland.

Particularly, managerial problems will be investigated within the streams of management science, where stream is understood as general management concept, which could be examined in its theoretical and methodological aspects. In order to fulfil the goal, a critical review of the literature will be utilised as a research method.

### 1. Defining managerial problems

Usually, the term “problem” is referred to a state of difficulty that needs to be resolved, or is related to the dissimilarity between some existing and desired situation (Pounds 1969). Later, researchers enriched the traditional definition of a problem as a discrepancy or a gap, adding up the notion that a problem is a discrepancy, which is not easy to close and that guarantees a place on its perceiver’s agenda (Smith 1988). This definition eliminated issues that were unimportant and considered not possible to manage.

Nevertheless, problems can be differentiated by various criteria and attributes of such situations (Mackenzie *et al.* 2006). Generally problems could be divided into three groups: 1) puzzles, 2) problems and 3) messes. Problems belonging to the first group, are those situations with clear goals that need to be achieved as well as it is evident how this should be done. In such situations it is obvious what needs to be done and problems are well-structured. Thus, sometimes they are called puzzles. This kind of problems can be solved by using known methods, e.g. a particular mathematical or statistical method. Problems classified as belonging to the second group are situations perceived as well-structured, nevertheless their goals are unclear i.e. it is not obvious how to solve a problem. Thus, expertise may be needed in order to find an appropriate methodology to solve it. The last, third group of problems concerns unstructured situations where the needs to be achieved are not clear and problems are ill-defined. Such problems are called “messes” or “wicked problems” (Rittel, Webber 1984), and it is hardly possible to agree how to solve them.

Managerial problem is related to the difference defined by a manager comparing what is perceived to the desired output (Szarucki 2013: 169). These problematical gaps or disparities can moreover contain anything where a decision-maker might have preferences, including external environment, internal states-of-knowledge, and one’s own preferences. For the purpose of the paper, managerial problem is referred to as one that is perceived and must be resolved by a manager no matter of his or her position in the organisational hierarchy (will be used interchangeably in this paper with management problem).

Research to date has attempted to provide different dimensions and classification frameworks to help to shed light on the categorical relationships between managerial problems identified within organisations. For example, the

theory on problem solving pointed out that problems can be programmed and non-programmed (Simon 1973) or well-structured and ill-structured (Simon 1997). On the other hand, Blake and Mouton (1964) discovered problems related to human relations and technical matters. Other problems are pertained to strategic or operational matters of an organization (Drucker 1954). Going beyond defining particular dimensions, other authors have suggested problem classification frameworks (Taylor 1974; Nadler 1983; Smith 1988, 1995; Walsh 1988; Cowan 1991). For example, Cowan (1991) developed an understandable and empirically tested framework of managerial problems, introducing the following categories: human resources, strategy, operations, marketing, production, management, MIS-data processing, external-environmental, communications, customer, and accounting. This classification structure provides categorical expansion and development, the application of managers’ natural language, and the specification of structural relationships among the existing problem categories.

Typically managerial problems are related to organizations and their activity, in spite of the fact that management itself may be present in the absence of formal organisation (e.g. management of personal funds) in the meaning that some managerial actions such as planning may occur. The management problems can be perceived as internal and external to an organisation or including both attributes. Depending on the level of analysis and research objectives there can be added additional levels of problem attributes.

Some other possible classification criteria for problem attributes are: source of problem initiating, causal character of a problem, conditions under which a problem is solved, possibility to express a problem in numbers (to quantify), decision options, level of individual involvement within problem solving, management functions to which a problem could be related, problem complexity, and organizational level.

### 2. Review of the classifications of the streams of management science

Management science, as a relatively young academic discipline, has been developing since the beginning of the 20th century (Albach, Bloch 2000; van Baalen, Karsten 2012). With the beginning of the previous century the discipline has received greater interest from both practitioners and scientists. This resulted in growing body of theory and different approaches to practicing it. During one hundred years many less or more mature and comprehensive theories and concepts of management were built up. Very often this variety of theoretical approaches is confusing for both practitioners and theoreticians due to the “wide differences in findings and opinions among

academic experts writing and doing research in the field of management” (Koontz 1980: 175). Some even complain that a theory is impractical by definition, articulating this opinion by the phrase “That may be correct in theory, but it will never work in real life”. Such common view is rooted in the fact that some theories have been found unusable and generates doubts of the possible value of present theory.

Before starting the discussion on the relationships between management science and managerial problems it is important to make a brief review of the classifications of different streams of management theory that have evolved since its beginning. Usually, streams are associated with schools or approaches to management theory (also used interchangeably with management thought). Generally, in order to provide an exhaustive historical overview of the streams of management science various criteria for their classification may be used, namely: nature of contribution, main periods, functional development, institutional development, disciplinary contributions, top management philosophy or main emphasis of schools of thought (Du Toit *et al.* 1990: 66). Table 1 provides the key classifications of the streams of management science developed in the 20th century.

Now, let’s have a brief critical look at the selected classifications of the management theories (Koontz 1961, 1980; Scott 1961; Mayntz 1964; O’Shaughnessy 1966; Zieleniewski 1969; Hatch 1997) in order to point out some of their strengths and limitations. First of all, in spite of the fact that there are different more or less broad classifications of the management theory varying by the number of streams (Table 1), we can observe steadily growing number of approaches since 1960. Based on the analysis

of the classifications available, we may distinguish three common streams: classical, psycho-sociological and modern. It seems that the methodological propositions of theory classification of Scott (1961), Mayntz (1964) and O’Shaughnessy (1966) are characterised by the relatively highest level of synthesising the differentiated output of the management science. This tendency is typical for the classifications from the sixties and seventies of the 20th century. All three authors distinguish the classical stream (also known as the “traditional approach” or “universalist approach”), which includes the school of scientific management (F. W. Taylor as its main representative), the administrative approach (H. Fayol) and bureaucratic management (M. Weber) (see also Wren, Bedeian 2009). The main idea of the classical stream was to manage workers and organisations more efficiently. Due to its methodological contributions, Woolf (1965) called the classical stream as the organisation-centred approach, which is mainly concentrated on the issues of structure and processes, as well as the optimal utilisation of all available resources to reach organisation’s goals.

The second mentioned stream – psycho-sociological (Table 1) is the opposite to the classical one and concentrates on human relations (Mayo 1933, 1945; Roethlisberger 1941) and human behaviour in organisations. The main idea of the psycho-sociological stream was to understand human behaviour in order to raise productivity in organisations. In case of Scott (1961), he called this stream as neoclassical theory of organisation, which had to compensate for some deficiencies rooted in the classical or organisation-centred approach. According to Woolf (1965) the mentioned psycho-sociological stream is perceived as the person-centred approach, where organisations should

Table 1. Selected classifications of the streams of management science in the 20th century

Author (year of publication)	Classification
H. Koontz (1961)	1) Management process school, 2) Empirical (case approach) school, 3) Human behaviour school, 4) Social system school, 5) Decision theory school, 6) Mathematics school
W.G. Scott (1961)	1) Classical doctrine, 2) Neoclassical theory of organization, 3) Modern organization theory
R. Mayntz (1964)	1) Classical organization theory, 2) Organizational human relations, 3) Modern organization theory
J. O’Shaughnessy (1966)	1) Classical approach, 2) Sociological approach, 3) Systems approach
J. Zieleniewski (1969)	1) Technological-physiological approach, 2) Administrative approach, 3) Human relations approach, 4) Modern approach
H. Koontz (1980)	1) Empirical (case) approach, 2) Interpersonal behaviour approach, 3) Group behaviour approach, 4) Cooperative social systems approach, 5) Sociotechnical systems approach, 6) Decision theory approach, 7) Systems approach, 8) Mathematical (management science) approach, 9) Contingency (situational) approach, 10) Managerial roles approach, 11) Operational theory approach
M. J. Hatch (1997)	1) Classical perspective, 2) Modern perspective, 3) Symbolic perspective, 4) Postmodern perspective

Source: own elaboration.

express more attention towards workers as people instead of as barely treating them as factors of production, and this in turn will result in more contented workers as well as higher productivity. This also means that authority should originate at the bottom of the organisation instead of at the top.

The third mentioned in Table 1 common stream is modern one (new approach, modern organisation theory). In the early sixties of the 20th century this stream was just emerging, thus the authors did not discuss it in detail simply pointing out to the tools of analysis and own conceptual framework that would be needed to its development. Among some of its main representatives it is worth to mention K. Boulding, L. von Bertalanffy and J. E. Rosenzweig. As Mayntz (1964) pointed out, this theory and research grew on the basis of the persisting deficiencies of the previous two approaches to management theory. This stream was build on the developments of the previous two, and its main inspiration was perceived as one rooted in general system theory, although O'Shaughnessy (1966) named it as systems approach. It was perceived as of great importance for management, due to the potential and opportunity for unifying what is of value in classical theory with the social and natural sciences into a logical and integrated concept of human organisation (also defined as a social system). The modern stream opened new possibilities for incorporating into management science new areas of research such as information theory, decision theory or cybernetics.

It is important to stress that all main classifications were made in the 20th century (Table 1). Neither of them is comprehensive, and taking into account recent contributions to the management theory development it can be stated that management as an academic field of research and education is confronting growing specialisation and fragmentation (van Baalen, Karsten 2012: 232). It is worth noticing that management science during its evolution is spreading and widening its scope and research area into other theories what makes it more and more interdisciplinary (Albach, Bloch 2000). This tendency could be perceived as the answer to the growing number of new and more complicated problems of management within organisations and searching for better methodologies of problem-solving.

### 3. Contemporary perspective on the development of managerial problems in the streams of management science

Each stream of management thought attempts to develop its own methodological instruments in order to solve emerging problems both inside and outside organisations. Due to the main goal of the paper, lets have a look at the development

of management theory from the perspective of streams' evolution as a reaction to the emerging managerial problems within organisations. Thus, the analysis of the streams of management theory and identification of the main managerial problems belonging to those streams will be conducted from the methodological perspective of management science. Identifying managerial problems is a very important task to perform for the methodology in order to enable indicating the methods suitable for solving those problems.

Based on the exhaustive literature analysis and observations, it could be claimed that emerging problems of organisations are driving factors and stimulate the development of the methodological streams of management science. In this paper a methodological stream (sometimes called "methodological trend") is perceived as "as an internally consistent methodological attitude, based on theoretical assumptions, expressing specific research preferences, highlighting special insight into a problem area important for it" (Lisiński 2013: 121). Therefore, methodological streams of the management science provide methods to solve managerial problems.

Based on the comprehensive literature analysis and classifications provided in Table 1, an original classification of the streams of management theory with relation to the main management problems addressed by the stream is presented (Table 2). It is important to mention that the presented classification is not a chronological one, due to the fact that some streams acquired their dominance after many years since very early related publications were published. Main criteria for such kind of classification are as follows: name of the stream, key management problems addressed by the stream, main representatives of the stream and core publications underlying the stream (see also Lisiński 2013).

The development of each stream (Table 2) could be briefly described in terms of its genesis and basic ontological assumptions that are presented below:

1. *Scientific management stream* was under influence of the industrial revolution (numerous inventions and their application brought problems in manufacturing). Due to this there was growing need for increasing efficiency of work processes performed in the area of production.
2. *Universalistic (administrative) stream*, as previous one was rooted in the ongoing in the end of 19th and beginning of 20th century industrial revolution (numerous inventions and their utilisation caused problems in the area of management). Thus, the need for improvement in operating of organizations in the area of administration was noticed.
3. *Human relations stream* was preceded by a mechanistic look at employees, and was led by Great Depression of 1929–1933 (Bernstein 1989). Its main ideas are concentrating around the importance of

Table 2. Basic streams of management science and key managerial problems

Name of a stream	Key management problems	Main representatives	Core publications
1. Scientific management	Problems of improvement of work efficiency in an organisation by determining the best method for accomplishing every job task at individual level.	F. W. Taylor, K. Adamiecki, H. Le Chatelier, H. Gantt, H. Ford, L. M. Gilbreth and F. B. Gilbreth	Taylor 1911; Gilbreth, L. M., Gilbreth, F. B. 1911.
2. Universalistic (administrative)	Problems of administration and management principles on a general (organisation's) level.	H. Fayol, H. Emmerson, M. Weber, E. Hauswald	Fayol 1916; Weber 1914.
3. Human relations	Problems of diagnosing the human behaviour at work in order to raise work efficiency.	E. Mayo, F. J. Roethlisberger, T. Bata, R. Likert, M. P. Follett, A. Maslow, D. M. McGregor	Mayo 1933; Likert 1932.
4. Operational research	Problems of the operation and control of the production process, optimization of economic decision-making as well as management processes.	L. Kantorowicz, P. M. Blacket, F. L. Hitchcock, G. B. Dantzig, R. Gomory, H. W. Kuhn, A. W. Tucker, R.E. Bellman	Kantorowicz 1939; Dantzig 1947.
5. Social systems	Problems of maintaining a balance between the elements of an organization as a social system and exposing social and mental factors leading to improvement of efficiency of an organization.	C. I. Barnard, H. A. Simon, J. G. March, P. Selznick, A. W. Gouldner, A. Etzioni	Barnard 1938; Simon 1945; March 1962.
6. Empirical	Problems of application of previous managerial experience to solve current problems in organisations by applying case study approach.	P. Drucker, E. Dale, R. C. Davis, A. Sloan Jr., W. H. Newman, A.D. Chandler Jr., E. K. Warren, C. E. Summer	Drucker 1954; Chandler 1962.
7. Systems	Problems of an organization as an open system that transforms inputs into outputs. As well as allowing to relate various specialities and parts of the organisation to each other and to external environmental factors.	K. Boulding, L. von Bertalanffy, J. M. Forrester, G. Nadler, R.A. Johnson, F. E. Kast, J. E. Rosenzweig	Boulding 1956; Johnson, Kast, Rosenzweig 1963.
8. Organisational game	Problems of perceiving conflicts among actors within organisations and management process as organizational games.	M. Crozier, E. Friedberg, A. Rapoport, E. Goffman, I. Mangham, G. C. Homans, J. W. Thibaut, H. H. Kelley, G. Simmel	Crozier, Friedberg 1977; Rapoport 1974.
9. Situational approach	Problems of selection of the situational variables having the greatest impact on the examined phenomenon. Applying management principles depending on the uniqueness of each situation.	H. Sherman, W. Gombert, J. W. Lorsch, P. R. Lawrence, J. Woodward, F. E. Kast, J. E. Rosenzweig, F. Luthans, T. I. Stewart, T. Burns, G. M. Stalker	Sherman 1966; Luthans, Stewart 1977.
10. Praxeological	Problems of increasing organisational efficiency as well as of various kind of actions in organisations.	A. Espinas, E. Ślucki, A. Bogdanov, G. Hostelet, T. Kotarbiński, J. Pszczołowski, J. Zieleniewski	Ślucki 1926; Kotarbiński 1955.
11. Cybernetic	Problems of simplification of complex reality, information systems, data processing and management automation in an organisation perceived as machine.	N. Wiener, W.R. Ashby, S. Beer, O. Lange	Wiener 1948; Beer 1959.
12. Organisational psychology	Problems of management in terms of psychology and human behaviour in an organisation.	D. Katz, R.L. Kahn, E. Berne, R. R. Blacke, J. S. Mouton, D. C. McClelland, D. H. Barnham, F. Herzberg, V. H. Vroom, R. M. Cyert, J. G. March, H. A. Simon, F. E. Fiedler	McGregor 1964; Cyert, March 1963.
13. Sociological (social systems)	Problems of the organization perceived as a system of social macrostructure as well as human ways of creating and organising social life.	C. H. Saint-Simon, A. Comte, H. Spencer, T. Veblen, E. Durkheim, M. Weber, E. Mayo, K. Mannheim, R. M. Cyert, J. G. March	Mayo 1945.
14. Modernist	Problems of taking into account patterns, best practices, as well as "soft" elements of an organisation.	R. T. Pascale, A. G. Athos, T. J. Peters, F. H. Waterman, W. Ouchi	Pascale, Athos 1982; Peters, Waterman 1982.
15. Postmodernist	Problems of the necessity of redefining some management categories, e.g. culture, power, approach to changes.	G. Morgan, L. Smircich, B. Czarniawska-Joerges, J. Hassard, D. Pym, B. Sievers, Z. Bauman	Morgan 1986; Czarniawska-Joerges 1997.
16. Process	Problems of rapid changes in the external environment, concentrating on internal dynamics and processes in organisations.	M. Hammer, J. Champy, R. L. Manganelli, M. M. Klein, S. Stanton, H. J. Johansson, N. Venkatraman, T. H. Davenport, J. M. Short, V. D. Hunt	Hammer, Champy 1993; Manganelli, Klein 1994.

Source: own elaboration based on the publications included in the table.

- employees and their relations in the process of work improvement.
4. *Operational research stream* was influenced by developments that took place during the World War II especially in the area of quantitative methods for solving military problems. After the war the need for decisions optimization was recognised in the area of manufacturing.
  5. *Sociological (social systems) stream* was mainly impacted by the fact of ignoring employee ties in the organization perceived as a social system. Its main ontological considerations were based on the idea of perceiving organizations as systems towards the employee relations only.
  6. *Empirical stream* and its origins were under the pressure of increasing axiomatisation and quantification of theories, what led to disharmony between theory and practice of management. Thus, the need for further improvement of the organization's functioning and eliminating of the mentioned discrepancies by application of a pragmatic approach (case study) were observed.
  7. *Systems stream* was caused by the identification of drawbacks in management of large investment projects and programmes, accompanied with influence of a general theory of systems on the organization. Its main methodological feature is the systems approach application for organizational problem-solving.
  8. *Organizational game stream* was under influence of management problems related to growing complexity of organizational systems. Therefore, to deal with this sort of problems the concept of an organizational game was applied.
  9. *Situational approach stream* could be viewed as the reaction to the decreasing efficiency of universal and normative principles and patterns application for problem-solving in organizations and management. This stream is based on the use of the contingency concept for problem-solving in organizations.
  10. *Praxeological stream* was determined by the possibility of using the achievements of praxeology, in particular with regard to determining of the conditions for the most efficient functioning of teams. It uses praxeological approach in solving problems of an organization (dominate among Polish methodologists of management science).
  11. *Cybernetic stream* is rooted in the possibility of applying achievements of cybernetics (the theory of information, automation, IT tools) as effective methods of improvement in the organization's functioning. It is based on the utilisation of cybernetics in problem-solving processes in organizations.
  12. *Organisational psychology stream* is influenced by the development of psychological theory to organization's functioning. The stream provided an opportunity of using the theory and practice of psychology in business operations, by means of utilising psychological methods for solving problems in an organization.
  13. *Sociological stream* was based on the possibility of using a system of social macrostructure in terms of the organization's sociological variable. Moreover, the trend utilises sociological variables in order to solve problems of an organization.
  14. *Modernist stream* developed on the basis of the possibility of using modernism for rationalisation of the organization's functioning. In this stream prevails the need to apply models, good practices, as well as "soft" elements of an organization. Additionally, the achievements of a modernist concept are applied for solving problems of an organization.
  15. *Postmodernist stream* is rooted in the emerging opportunity of using the concept of postmodernism in rationalisation of the organization's functioning. Its emergence was based on the need for redefining some management categories (e.g. culture, authority, uncertainty or approach to changes). The stream utilises the achievements of the post-modernistic concept to solve problems of an organization.
  16. *Process stream* may be perceived as the reaction to the need for fast response to emerging changes in the external environment of an organization, since classical structural solutions focused on functions and tasks turned out to be of low efficiency. It applies the concept of an organization oriented towards processes in solving problems of an organization.
- Based on the presented classification of the streams of management science (Table 2), it should be mentioned that this proposition enriches the previous classifications in four aspects. First, it presents the evolution of management science from a more detailed perspective (including 16 streams) than the classification of streams of management theory presented before. Second, the streams are shown from the perspective of the evolution of managerial problems, which are developing together with growing environmental uncertainty as well as other changes in different areas of the external environment (e.g. technological advancements, socio-cultural changes, etc.) and internal (organisational) environment. Third, main representatives of different streams were presented, where some of them belong to more than one stream (e.g. H. Simon, F. E. Kast, M. Weber) due to the fact that their theoretical-methodological orientation was changing through their life. Last, fourth aspect is related to the main scientific publications underlying the origin of the stream and constituting its core theoretical and

methodological background. As it can be noted from the fourth column (Table 2), some streams evolved many years after the core publication was published (e.g. praxeological or sociological streams).

Next section deals with the evolution of managerial problems and their sources from the perspective of methodological approaches of management science.

**4. Evolution of the managerial problems in the methodological approaches of management science**

Based on the evolution of management science and development of the streams (Table 2), it could be argued that these developments were the result of the need to improve organisations' adjustment to changing environmental forces, especially those technological (product and process innovations) and social-economic (increasing level of life of the US and European society, especially after the Second World War). Rapidly changing situation in the external environment had fostered the need to create appropriate methods to solve increasing number of managerial problems.

Figure 1 below presents some basic developments of the management science by the mentioned earlier 16 streams that are grouped into methodological approaches from the perspective of the sources of managerial problems. Sources of managerial problems are mainly divided into external and internal to the organisation, and could be structured by other parameters. They are grouped into three oval-shaped areas emphasising the importance of the source of the

problems and their intensity (increasing size of the grey area). Generally, it could be stated that in the beginning of the development of management science most of the problems were identified within organisations while their environment was stable and predictable. Starting with 50ies of the 20th century, the external environment started to be less stable and together with organisations' environment caused managerial problems to be solved by emerging at this period methodological approaches. The last, most recent area covers managerial problems that are affected mainly by turbulent hardly predictable external environment and to some extent organisational determinants. The recent problems seem to be most acute and require developing appropriate methods for their solving. Below, the evolution of methodological approaches of management science and sources of managerial problems depicted in Figure 1 are analysed.

For the purposes of this paper, a methodological approach will be understood as one that "expresses a dominant, in a given period, methodological orientation" (Lisiński 2013: 127). It is worth to mention two specific attributes that differentiate a methodological approach. First one is its attitude towards the organization, perceived as an object of improvement, and the second one the attitude towards environment where the organization is operating. Usually, the approach consists of particular methodological streams (trends), typically novel, not known before as well as methodological concepts, constituting a specific mix of the already known methods grounded in the methodological achievements of the management science, as well as the diverse class of methods.

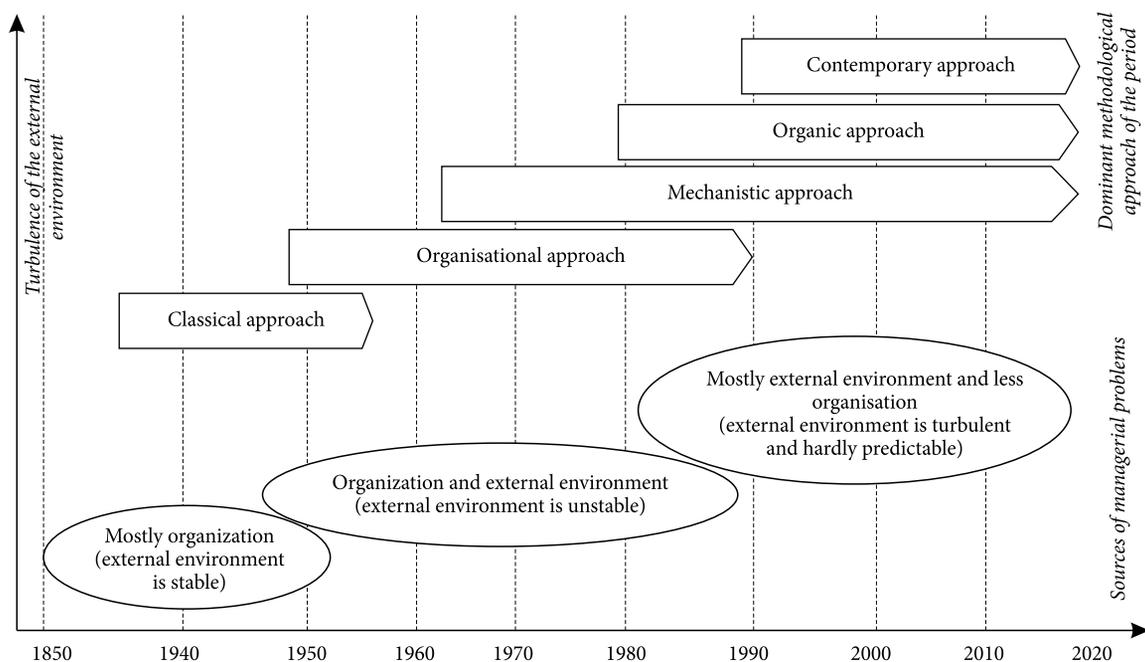


Fig. 1. Sources of managerial problems and methodological approaches of management science

According to Lisiński (2013) there can be distinguished five methodological approaches: classical, organisational, mechanistic, organic and contemporary. Further we examine their main characteristics as: main idea, methodological streams (Table 2) and sources of managerial problems underlying the development of the approaches (Fig. 1).

The classic approach covers methodological accomplishments related to establishment and the period of development of the management science methodology. The interval of its domination belongs to the first half of the 20th century. This approach includes the methodological achievements of the next streams: scientific management, universalistic, human relations, operational research and social systems. It is concentrated on an organization, in particular its components, especially work processes and their improvement. Typical methods utilised within this approach are: elementary analysis, experiment, observation, quantitative models (Lisiński 2013). Thus, an organisation (organisation's internal environment) is perceived as the main source of managerial problems covered by the mentioned approach, while the external environment tended to be rather stable.

The second approach that started in the end of 40ies of the former century, the organizational one alters the orientation, which was dominating in the period of the classic approach, is usual for the early period of development of the management science methodology. It concentrates on the application of new methodological achievements to improve operating of an entire organisation. The approach builds on its methodological foundation based on the previous methodological streams and includes new such as: empirical, systems, organisational game and situational. Typical to this approach methods are: observation, case study, system analysis, modelling, deduction, induction, comparative analysis (Lisiński 2013). The sources of the main managerial problems rest in the multifaceted view on an organization, while its external environment is changing (although very predictable and determined), it becomes to be an important part of the organisational analysis.

Third, the mechanistic approach and its main assumptions were recognised in the evolution of the management science methodology as early as in the 1960s of the twentieth century. Despite that, it became the principal methodological approach as late as in the 1980s. Establishment of this approach could be perceived as the response to significant achievements of other scientific fields. This approach includes the following streams of management science: praxeological, cybernetic, organizational psychology and sociological. Main methods of research developed and applied within this approach are: cybernetic modelling, deduction, observation, experiment, psychological and sociological methods (Lisiński 2013). Main sources of the emergence of this approach were those identified in the

internal (organisation's) and external environment (both macro and micro), which was turbulent although still predicable (e.g. growing competition, changing market demand).

The next one is the organic approach. Despite its beginnings could be noticed already at the end of the 1970s, this approach acquired full dominance as late as in the 1990s. One of its main methodological attributes is treating the time on continual basis, as well as various phenomena in a dynamic way i.e. taking into account passing time. The approach includes both the mechanistic approach streams, but also new ones such as modernist, postmodernist and process. Its key methods of research are: observation, induction, deduction, statistical and econometric methods, social research methods, metaphors, case study or process analysis (Lisiński 2013). Among the sources of managerial problems covered by this approach are: increasing turbulence of the external environment, especially macro environment. Thus, the importance of strategic aspects is also growing.

The last identified, contemporary approach is viewed as a methodological collection, a sort of a mix of methods, (starting with general management concepts, through principles, methods, to detailed techniques). This approach is influenced by specific context and various methodological paradigms, fundamental factors of external environment and internal environment of an organization. It covers most of the previous methodological trends, as well as main research areas and interconnections, taking place during the last two decades of development of the management science methodology. A kind of a starting point for this methodological approach is made from experience and principles typical for the mechanistic approach, and especially the organic one. Of special importance for the genesis and evolution of the contemporary approach is a rapidly growing multitude of the managerial problems, which roots could be traced since late 80ies of the 20th century. To mention some of the sources of current problems being investigated under the mentioned methodological approach are: high turbulence of the external environment, increasing global competition, rapid development of the Internet services and modern information and communication technologies, growing consumers' requirements towards products quality and safety as well as environmental awareness. It is difficult to point out all of them, nevertheless it is worth mentioning some of the considerations and studies in this area of other researchers.

Analysing the recent development of the management science, which is observed during the last twenty years, it is possible to notice a lot of formulas and tendencies to solve not only new problems but also old ones. Some authors (Atkinson, Coduri 2002; Gordon 2000) agree about

the importance of the emerging paradigms of new economy presented in a form of patterns – models taking into account such elements of the analysis as: globalisation, informatisation, effective and dynamic development of the capital markets, growing economic activity and dynamism of entrepreneurs, variability of labour markets, networking of all economic subjects and physical persons, consumers' sovereignty as value co-creators, key role of knowledge. These paradigms are of importance to formulating new streams of management science and managerial problems' solving. Moreover, management science as a scientific discipline has noticed the development of its own paradigms (Drucker 1998). Similarly, analysing the last societal developments, Albach and Bloch (2000) argue that five trends have recently exerted an important influence on management theory: globalisation of the economy, escalation of international competition, permeating impact of the social market economy, growing involvement of women in the labour force and ecological consciousness. It is important to add to the mentioned trends, two other such as impact of recent financial crisis and political instability in different regions of the world.

## Conclusions

The main goal of this paper was to analyse the evolution of the managerial problems from the perspective of management science as well as to present dominant methodological approaches for problem solving. Based on the extensive literature analysis in the discipline of management science, the evolution of the managerial problems was described with relation to the sixteen streams of management science. The author reviewed the selected classifications of the management theory as well as proposed his own perspective, which took into account managerial problems and their evolution over time. Moreover, there was presented an attempt to depict sources of management problems from the historical perspective within the methodological approaches of management science. In spite of the fact of development of such a detailed classification of the streams of management science, the proposal of the outlook on management problems' evolution should not be treated as a final one and needs to be further discussed and developed. From the perspective of contemporary management problem solving in organizations it is important to develop a methodological concept, which will allow to select and adapt an appropriate method to the specific problem. Despite the broad view on management problems presented in this paper, such perspective gives a good ground for developing new more specific problems' classifications, addressing different facets of managerial problems (e.g. issues of leadership, issues of developing new business models or maintaining sustainable development).

Based on the conducted research, several conclusions can be drawn that may address future research. First, it would be valuable to explore more insightfully the evolution of management problems from the perspective of the methodological streams of management science. It would help answering questions related to the methodology development on method selection to solve specific contemporary management problems. Second, developing a model to classify methods used for different managerial problems' solving would be beneficial for both management science methodologists and practitioners. Such methods' classification would strongly contribute to the management science methodology development.

## Funding

This work was supported by the National Science Centre, Poland [grant number 2014/13/B/HS4/03452].

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