A PRAXEOLOGICAL APPROACH TO CHANGE MANAGEMENT: A PROBLEM OF MEASURABILITY

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Abstract

Background. Change management is a demanding and complex concept, which has recently gained great popularity among organisations. Managers have become aware that change is an inevitable part of the business. Nevertheless, even if they are able to manage the change process properly, they often face a problem with the measurement of its results.

Research aims. The main goal of this paper is to propose a praxeological approach to the measurement of the effects of a change management process. We also try to discuss some statistical issues concerning the measurability of change management effects, perceiving a change as a distance in metric categories.

Methodology. The paper is of a theoretical and methodological nature. The research is mainly based on a literature review in the field of change management, praxeology, and statistics.

Key findings. The distinction between a change measurement and a measurement of change management performance on the background of praxeology in the evaluation of the change management process is substantive. The former refers to the effectiveness and the latter to the efficiency in the praxeological meaning. For the evaluation of the change management process, the perception of a change as a distance in metric terms and the inclusion of inputs in the analysis is also justified. This results from the fact that a planned and conscious change requires input, and therefore, it has to be managed.

Key words: change management, change process, performance measurement, praxeology

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INTRODUCTION

Both in private and professional life, change has been an integral part of human life since one can imagine, but recently, it has gained even more special significance. This is clearly visible mainly in the organisations operating in today's turbulent times, which have to constantly struggle to survive on the already saturated market. It is the result of constant changes taking place in the environment, which are caused by globalisation, high speed of technological development, and increased competitiveness. The market is overfilled with a number of business transformations, which result in changes of the organisational structures. All these external and internal sources of changes make the market a very dynamic place, which requires a great dose of flexibility from its participants. Thus, the organisations are forced to adapt to new environmental conditions or even overtake them, enhance their processes and increase the effectiveness of their activities. As W. Deming said, "It is not necessary to change. Survival is not mandatory" (Coburn, 2006). Nevertheless, those who want to survive need to keep changing, learn how to manage such a process and how to measure its results, including both changes as well as inputs to changes. This last aspect seems to be especially important, but it is still poorly explored and developed in the literature. Without measuring the results of the undertaken actions, organisations are not able to assess their effectiveness and efficiency, and thus they can fail in making the right decisions in the future. A measurement of change management performance allows the organisation to become more objective and rational. Therefore, the main goal of this paper is to propose a praxeological approach to the measurement of the effects of the change management process. We also try to discuss some statistical issues concerning the measurability of the change management effect, perceiving a change as a distance in metric categories.

This paper contributes to the literature on the general methodology of measurement in the change management process in two ways. Firstly, we try to propose a concept based on the separation of the effectiveness and efficiency of change management. The main premise to such an approach is an important difference, which we see between the change itself and the change management process. This justifies the employment of praxeology since, in our view, the evaluation of change

refers to effectiveness, whereas the evaluation of change management performance refers to efficiency. That is what distinguishes our approach from the one usually presented in the literature. Secondly, we perceive a change as a distance in metric terms and try to indicate some measurability problems referring to the scales on which the change is measured. Our intention is to indicate a different approach to change and change management in terms of measurement, and to initiate a discussion in this field.

The paper consists of four sections and conclusions. First, the concept of a change in management science is reviewed. Then, the measurability of the change management process is discussed. The next section includes the proposition of a praxeological approach to the change management process. Afterwards, the technical problems of the change management evaluation and the concept of a change as a distance are considered. Finally, concise conclusions concerning the recommendations and limitations of the paper are included.

THE CONCEPT OF A CHANGE: A LITERATURE REVIEW

The concept of a change looms large in the managers' minds, as it can be either the reason of organisational success or the factor contributing to its failure. As P. Drucker stated, in today's turbulent times, organisations cannot assume that the future will be an extension of the present. On the contrary, they have to be aware of the inevitable changes, which are both an opportunity and a threat (Drucker, 1995). Referring to the economic theory, organisations should form their predictions on the basis of rational expectations rather than adaptive or even naive ones (Samuelson & Nordhaus, 2003; Snowdon et al., 1998). As E. Masłyk-Musiał rightly observed, changes are not a new phenomenon, but the pace of their implementation is (Masłyk-Musiał, 1995). J. Penc broadens this thought by characterising today's changes not only as quicker, but also as more innovative, expensive, difficult to predict, and deviating from previous experience. Therefore, management becomes a more and more difficult task, as it has to create the conditions for a business to adapt to a turbulent environment and create success factors that allow it to work more effectively than its competition (Penc, 2008). Moreover, the implementation of changes is a big challenge, as it always involves people. Although most of the society declares to

be progressive, change is not something natural in the human nature when it takes place quickly and in excess (Nadziakiewicz, 2015). Most people prefer to use trusted methods and follow proven paths. Therefore, changes are often associated with uncertainty, threat, risk and fear. Consequently, they are also connected with the resistance of people involved who are afraid of losing the feeling of security and stability. As Machiavelli noted, the reformer has strong enemies in all those who reaped the benefits of the old order and some unenthusiastic supporters in all those who will reap the benefits of the new order (Clarke, 1997). Nevertheless, changes also have many positive aspects, as they can enable an organisation to meet the demands dictated by the competition and provide it with a safe position on the market, if only they are properly implemented and well managed. To make this possible, we have to understand what change is in the first run, why it is so important to face it properly and how to make sure that it brings the organisation the intended results.

According to T. Kotarbiński, a change takes place when the particular thing is different at the beginning of a particular period and at the end of that period (Kotarbiński, 1961). By interpreting a change in this way, we can define it as the transformation from one state to another, which is the new one. This approach suggests that a change may be perceived as a distance in terms of metric, which is important for our further considerations. Nevertheless, according to E. Masłyk-Musiał, not every transformation can be defined as a change. First, it has to meet three conditions, namely it must be perceived, empiric, and planned. This means that it can be observed and described; it should be feasible and possible to be tested and proven; and finally, its process has to be controllable, which means that it should be possible to monitor it, correct it if necessary and evaluate its results according to the initial plan (Masłyk-Musiał, 2003). Changes can take place at the individual, group, or organisational level. They can refer to the whole organisation or only to its selected areas (Żbikowski, 2004).

Referring to Z. Mikołajczyk's observations, the change concept should be investigated in two dimensions, which are the content and the process. The former one relates to human needs while the latter one focuses on the way of reaching the intended goals. These two elements are closely related to each other and neither of them can exist independently, as they are complementary in their nature (Mikołajczyk, 2012). These considerations correspond well with the

distinction of change dimensions made by A. Pettigrew and R. Whipp, who believe that there exists a strong interplay between the content, the process and the context of a change. The first one relates to the purpose of transformation and answers the question on what is supposed to be changed. The second one refers to the method of implementation. Finally, the third one focuses on the internal and external environment, which influence the direction of a change (Pettigrew & Whipp, 1991). According to the research team led by B. Kuipers, to understand the change process better, it should not only be analysed in detail by identifying its content, process, and context factors, but also outcomes and leadership ones. The outcomes describe all the results of the change (both intended or unintended and positive or negative) including human attitudes and behaviours. Leadership, on the other hand, focuses on progress monitoring and evaluation throughout the whole change process (Kuipers et al., 2014).

Furthermore, as L. Clarke observed, three fundamental facts concerning the change process have to be accepted if the implementation is to be completed successfully. The first one is that change always hurts; the second is that it is a predictable process, which can be managed; and the third one is that prior knowledge about the change process and some inevitable resistance sources may allow managers to turn undesirable negatives into positives (Clarke, 1997). Change is strongly associated with the human factor, as the process of transformation cannot exist without the immersion of people. The change process should not only involve the top management of the organisation, but also as many stakeholders as it is possible. If the employees are well acquainted with the benefits of the change (including, in particular, personal profits), the resistance towards the transformation will be reduced, and consequently, the change itself will have a greater chance of success. The ability to create an atmosphere, which is favourable to openness and involvement towards changes, can contribute to the creation of a special system in the organisation, which is called the Total Managing Change (Masłyk-Musiał, 2003). It is characteristic for developing and learning companies, which know how to build a competitive advantage and take care of their market position. Nevertheless, the research on the behaviour of enterprises during a crisis showed that, contrary to general expectations, the companies where the employees had a positive attitude to changes were less resistant to the crisis than the companies where people were

neutrally or even negatively oriented towards them. This could have been caused by a too large dose of the employees' optimism, which was the reason for making too risky decisions, many of which turned out not to be fully rational (Gregorczyk et al., 2016).

The sources of changes can be divided into internal and external ones. The former refer to the internal environment of the organisation and can relate to resource constraints, staff development, organisation's structure, declining profits or some internal conflicts. The latter ones, on the other hand, refer to the external environment and are connected with globalisation, development of technology, internationalisation of markets, evolving legal, political, and economic conditions or the increase in competitiveness on the already saturated market (Chemengich, 2013). One can imagine that the organisation, which cannot adapt to changing conditions of the environment, is also not able to meet the customer needs, and consequently, it loses the opportunity to gain a competitive advantage and maintain its market position. As the environment keeps changing all the time, no entity can feel secure unless it strives to keep up with or even be ahead of ongoing changes.

As J. Penc noted, one of the biggest threats of potentially stabilised and well prospering companies is their self-satisfaction. If the organisation has a tendency to act in accordance with some widespread patterns and, at the same time, it ignores external influences and new competitors, it can easily lose its market share and business viability (Penc, 2005). This problem of the ignorance of changes or their delayed perception was also observed by M. Romanowska who studied six Polish holding companies in terms of their strategic responses to a macroeconomic crisis. She concluded that, although the studied companies managed to face the crisis, their strategic behaviour included some mistakes and irrational decisions. Their reaction to the crisis was delayed, which was caused by an unjustified conviction that they had been well prepared for the crisis and they were able to follow the changes in the macroeconomic environment, if needed (Romanowska, 2014, pp. 14–19). D. Sull called this phenomenon an "active inertia" and he stated that it is characterised by four main symptoms. Firstly, the "strategic frames become blinders", making it very difficult for managers to notice new chances and threats in the developing environment. Secondly, the "processes harden into routines", which hold back the organisation from looking for new, better solutions. Thirdly,

the "relationships become shackles", which prevent the company from changing its stakeholders, even if it is advisable. Finally, the "values harden into dogmas" and they are becoming less flexible and inspirational (Sull, 1999, pp. 45–49). Considerations concerning the active inertia contradict, on the other hand, the well-known proverb: "If it ain't broke, don't fix it". This statement, which has been widely used for years, encouraging non-activists to maintain a status quo, nowadays, seems to be rather outdated and unprofitable.

Taking the presented definitions and approaches to the change concept into account, in this paper, we perceive it as an intended and planned process of transformation, which can relate to almost each aspect of the organisation's activity. It aims to improve the current and future situation of the entity, increase its effectiveness and enhance its flexibility towards the developing environment and resilience to the crisis. As it can be planned, it can be managed as well, since it requires specified inputs. The direction of a given change is well defined since an organisation knows where it wants to be after a given change. We do not focus on a particular type of change (remedial or developmental, incremental, or fundamental, caused by internal or external factors/determinants), but consider any planned and conscious change. When it comes to the management concept, we refer to elementary management functions. In such an approach, the change management is included in the cycle of activities that include planning, organising, motivating, and controlling (Jasińska, 2015). In further considerations, we focus on the last function of management, as it contains the measurement of the achieved results. The point is that we notice a significant difference between the result/effect of a change and the result/effect of a change management process. The first one refers only to the magnitude (or degree) of a change, whereas the other one accounts additionally for input to the change management process (time, money, people, other sources). As a result, a measurement referring to the change and a measurement referring to the change management process (change management performance) require a quite different approach that, in our view, refers directly to praxeology. This approach to change management results from the fact that two different organisations may achieve the same change, however, in a quite different manner (by different inputs).

MEASURABILITY OF A CHANGE MANAGEMENT PROCESS

Performance measurement is always associated with some difficulties. Generally, people do not like being observed and have their actions monitored. The same situation takes place when a change is implemented and the progress of the process is evaluated. People feel uncomfortable and they can even treat such observations as a personal attack. Consequently, the measurements can become a reason for increasing resistance towards change or for decreasing morale in the team. Moreover, the organisation can face a problem with a proper interpretation of measures, as they are not always clear and unambiguous. There may also exist a problem with the employees' attempt to smooth over the results in order to present the process in brighter colours than it actually is, so as to be perceived better, for example, by the top management of the organisation. Therefore, it is crucial to not only answer the question on how to measure the change management process, but also who should be responsible for measuring it. The next difficulty associated with the measurement accompanying change management relates to data accessibility. Organisations may have some problems with that due to the reluctance and lack of engagement of employees or because of a lack of appropriate systems or databases, which are used to store some meaningful information. Furthermore, the changes that take place in organisations differ in their source, character, range, and duration. That is why it is a real challenge to design a general measuring procedure for any change management process. According to the results of the National Change Management Study, about 30% of respondents (people who were involved in change processes within their organisations) were neither aware of the process results nor the impact of the introduced changes on the company's market position (Janigacz & Rubin, 2016). Many companies do not know how to measure the results, so they do not do it at all. This problem is not only faced by organisations, but also by the researchers who deal with this topic. This observation can be confirmed by the fact that we can find lots of information on the classification of changes, the methods of change implementation or the reasons for change failure in the change management literature. Nevertheless, there

still exists a deficiency in the information concerning the performance measurement subject.

According to the definition of change presented before, it is a complex process, which can be considered in many respects. We focus on the division of change aspects into "soft" and "hard" ones. The former ones concern the social, cultural, and psychological aspects, which are generally characterised by subjectivism, while the latter ones relate more to the technical and economic aspects, which are characterised by a greater dose of objectivism. The soft aspects seem to be rather unmeasurable, contrary to their opposites, which can be verified as measurable.

There already exist some change management concepts, which distinguish the soft and the hard side of changes, and differentiate the method of operation and choice of the applied tools depending on the approach. One of them relates to Theory E (the "E" stands for "Economic", which is a hard approach) and Theory O (the "O" stands for "Organisational", which relates to a soft approach). These theories were designed by M. Beer and N. Nohria who had been studying the nature of change for over forty years. Referring to their observations, the target of Theory E is to increase profits and to maximise the shareholder's value, while the goal of Theory O is to develop the organisational capability and increase the organisation's potential. The hard approach to change (Theory E) is characterised by top-down management and it is focused on the organisation's structures and systems. The process is thoroughly planned and the people involved are motivated by some financial incentives. Consultants are often hired to analyse existing problems and to develop some solutions. The soft approach to change (Theory O) is characterised by bottom up management and it is focused on building up the organisational culture by changing employees' attitudes, motivating them, and encouraging their participation. The process is based on experiments and continuous development. The people involved are motivated by commitment and consultants are hired only in case of an emergency in order to support the employees in creating solutions to existing problems (Beer & Nohria, 2000).

Another approach where division into soft and hard aspects of a change process can be noticeable is the integrated approach to individual and organisational change management developed by the Prosci organisation. The individual change management corresponds

to human factors of a change process, which can be identified as soft ones. The organisational change management relates more to the business aspects of a change process, which can be described as hard ones (Hiatt & Creasey, 2012). By taking both types of change factors into account, the organisation is able to develop change competency and to manage the change effectively and efficiently. According to Prosci, to achieve these goals, two special tools should be applied by the organisation. The first one, called the ADKAR model, refers to the individual change management, which can be defined as being outcome oriented. This tool identifies five stages that an individual has to go through during the change process:

1. A*wareness* of the need to change.
2. *Desire* to participate in and support the change.
3. *Knowledge* about how to change.
4. *Ability* to implement new skills and behaviours.
5. *Reinforcement* to keep the change in place.

As the ADKAR model relates to the human side of a change (soft aspects), we should be aware that the time of its implementation can differ among the employees and the pace of passing from one stage to another can vary depending on the prevailing conditions. The second tool designed by Prosci, called the 3-Phase process, corresponds to the organisational change management, which seems to be more action oriented. It consists of three phases:

1. *Preparing for change*, which includes developing a strategy and acquiring the resources.
2. *Managing change,* which consists of creating a change management plan and implementing this plan.
3. *Reinforcing change,* which is accessing the results by collecting and analysing feedback and making some corrective actions in case of some mistakes or gaps.

The next change management concept, which differentiates between the soft and hard aspects of change, is a method called "the change ladder" proposed by M. Cope. He distinguishes five elements, which should be taken into consideration while implementing a change. These are: asset, blueprint, capability, desire, and ethos (Cope, 2010). Although he defines them as the levels, which have to be reached by the organisation if it wants to achieve stable and long-term results, they should not be treated hierarchically. Therefore, we agree with J. Brdulak and P. Banasik who consider the term "ladder" a bit

confusing in this case (Brdulak & Banasik, 2015). The first two elements, which are the asset and the blueprint, relate to the hard aspects of change. The other three, namely capability, desire, and ethos, refer to the soft approach. The assets take into account all tools and equipment, which are in the possession of the organisation and which can be used while implementing the change. The blueprint relates to procedures, processes, systems, and strategies binding in the entity. The capability refers to the knowledge and skills, which have to be acquired by people engaged and influenced by the transformation. The desire concerns the motivation of individuals to develop and accept the change. Finally, the ethos relates to factors, which drive people's behaviour, including their attitudes and beliefs. The identification of these elements in the organisation should allow not only to diagnose its ability to change and manage the implementation process properly, but also to evaluate the potential results and access their convergence with previous assumptions.

Taking into account that all concepts that have just been described reached great popularity among different organisations and their usage brings the entities a lot of benefits, one can conclude that the distinction between soft and hard aspects of a change can be helpful for the choice of the approach to measurement accompanying the change management process.

CHANGE VS. CHANGE MANAGEMENT PERFORMANCE: A PRAXEOLOGICAL APPROACH

According to L. Lapide, we cannot manage what we do not measure (Lapide, 1999). This also applies to change management. Measuring accompanying the change management process (its soft and hard aspects) helps us to keep on the right track and to introduce some improvements whenever needed. That is why it is so important to control the results of change management through the entire length of the process. This problem is broadly discussed in the literature on change control (see e.g. Lewandowski, 2012; Burns & Vaivio, 2001; Ford & Greer, 2005; Chenhall & Euske, 2007). However, we find it worth emphasising the distinction between the control or the evaluation of a change and the control or the evaluation of change management performance. Such a distinction is rather disregarded in the literature.

The change management performance is a broader concept since it not only includes a difference between the initial and the final stage of a process (change), but also the way (input) in which a change is implemented. This difference is crucial for our further considerations, regardless of whether the soft or hard aspects of a change are controlled or evaluated. We recognise a significant difference between change measurement and the measurement of change management performance, as change is obviously not synonymous with change management. To distinguish between these two subjects of control or evaluation, we propose a praxeological approach since we see two dimensions of the change management process referring to the two crucial praxeological categories: effectiveness and efficiency. We refer to T. Kotarbiński, according to whom effectiveness is a measure of the convergence between a result and a goal. The efficiency is a broader concept, which refers the result (or the convergence between the result and the goal) to the input (Kotarbiński, 1982). The approach by T. Kotarbiński is very similar to that by P. Drucker who wrote: "Efficiency is doing things right. Effectiveness is doing right things" (Drucker, 1993). In our view, change measurement refers to effectiveness since it accounts mainly for the magnitude or degree of a change (disregarding any input). The measurement of change management performance touches more the concept of efficiency since it provides not only for the change, but also for the way (input) it is achieved. Below, we try to justify and develop such an approach.

The final goal of any change management process is obviously a change. However, the path to achieving this goal also matters. This means that an organisation runs a change management process, but under a given input (cost, resources, including time). If only a change perceived as a difference between an initial stage (before a change) and a given stage during or after transformation (during or after a change) is evaluated, the measurement actually refers only to the change. This means that the effectiveness of the change management process is only measured (according to Drucker: "Effectiveness is doing right things"). In such a case, two different organisations – A and B – similar at the initial stage of change management (starting point), are equal in terms of the change measure if, at the final stage, they are both equal in terms of the result. In such a case, the input to the change management process is disregarded, so both organisations are similar in terms of the effectiveness of the change management

(or simply, in terms of change). Only if the input is included in the evaluation, the efficiency of the change management process is taken into account. Then, in fact, the process of change management (or change management performance) is evaluated since the difference between the starting and final point is referred to the efforts incurred during the change implementation. In such a case, two organisations – A and B – may be equal in terms of the change; however, they may differ in terms of the input that contributed to making this change. Such an approach is based on the praxeological concept of efficiency (according to Drucker: "Efficiency is doing things right").

To summarise, the measure of change refers to the effectiveness, whereas the measure of change management performance refers to the efficiency. Actually, the efficiency is the measure of the change management process, whereas effectiveness only measures the change and does not refer to the manner in which the change is implemented, so it disregards an input at all. If we suppose that the main input to the change implementation is time, the evaluation of a sole change disregards this input and only includes the change, which means the difference between the initial stage and the final state (effectiveness). Meanwhile, the evaluation of change management performance is broader and includes not only the change, but also the time consumed to implement it (efficiency).

According to the praxeological approach presented above, the relation between the measure of change management performance (CMP) and the measure of a change (C) or an input (I) may be expressed by the following formula: CMP = f(C, I). If the measure of a change (C) increases by a constant level of input or by a decreasing input (I), the efficiency of the change management process (CMP) increases. If the measure of a change (C) decreases by a constant or increasing input (I), the efficiency of the change management process (CMP) decreases. If both the effect (C) as well as the input (I) remain constant, the efficiency (CMP) does not change. Decreasing the change measure (C) and decreasing the input (I) requires a more in-depth analysis in order to examine whether a decrease in the input (I) results in a greater or lower decrease in the change measure (C). The increasing change measure (C) and increasing input (I) should provoke to examine if the additional input (I) results in a greater or lower increase in the change measure (C). The above analysis is based on the assumption that changes do not have a negative direction (are not divergent

from the goal of the change management process). However, such a situation is also possible, at least theoretically, and results in the anti-effectiveness of the process.

HOW TO EVALUATE A CHANGE MANAGEMENT PROCESS? CHANGE AS A DISTANCE

As it has been already mentioned, the soft side of a change relates to human aspects, such as staff behaviour, relations, and emotions. It also includes employees' engagement and the level of satisfaction, organisational culture, and core values. Moreover, it concerns not only the internal communication, but also the external one, taking politics and relations with the organisation's stakeholders into account. To gather information on the soft aspects of changes, such techniques as an interview, questionnaire, focus group, documentation review, or stakeholders' analysis may be employed. Since the soft aspects are rather intangible and have a qualitative nature, they may seem difficult to measure directly. However, the question appears whether an organisation is able to transform this set of qualitative information into the quantitative score. According to W. Trochim, "all qualitative data can be coded quantitatively", as the meaningful numerical values can be assigned to any qualitative results (Trochim, 2006). In such a way, they can become a precious input for other measuring methods. We believe that it applies well in change management considerations. Data gathered in surveys, both during interviews and within questionnaires, can be used, for example, in cultural or skill assessments as well as in the design of a change commitment curve. These tools usually require granting the numerical values to particular characteristics, for example, in the form of ranks, so the transformation from qualitative measures to quantitative ones can be visible. Moreover, the questionnaires can be designed in such a way that the assignment of numerical values to individual responses is intuitive and not labour intensive, e.g. through the application of the Likert scale. Furthermore, data gathered from qualitative research methods can be used to design some indicators, e.g. speed of adoption. Such a measure can present the percentage of employees who adapt to a new situation and accept a change in a defined period of time.

The hard side of a change relates, on the other hand, to business aspects or the applied methods and tools. It takes organisational structures, strategies, and financial results into account. It corresponds more to the technical and economic aspects of change, which seem to be rather tangible and measurable. Therefore, quantitative measuring methods like Key Performance Indicators (KPIs), cost-benefit analysis, or the DICE model can be useful in this approach. KPIs enable the measurement of the results of activities undertaken by an organisation. They also allow tracking the change process and monitoring if the transformation heads in the right direction. By comparing current and past values of indicators referring to the effects of changes or the measures of input, the organisation is able to access the performance and introduce some corrections if needed. KPIs should be designed individually depending on both the type of a change and type of an organisation in which the change is implemented. They should be adjusted to the characteristics of the situation and they should have specified the norms constituting the reference point. The set of indicators should not be too numerous, as they ought to focus on the fundamental aspects of change and they should only provide the organisation with concise and meaningful data (Rydzewska-Włodarczyk & Sobieraj, 2015). The cost-benefit analysis refers directly to the concept of change management efficiency. Although this method is commonly used in order to check if the net impact of a particular change or project is positive or negative before the implementation, it can also be applied during the change process or even at its end to access the reform's results and check if it turned out to be worthwhile. The analysis carried out before the implementation may be treated as a baseline, so that the organisation will be able to compare the change results with its initial assumptions. Moreover, the cost-benefit analysis enables the organisation to calculate the payback period of a particular project. Having measured this, after the specified period of time, the entity is able to easily check if the change was efficient or not. Another method, which corresponds to the hard factors of a change, is the DICE model. It is a quantitative measuring method developed by the Boston Consulting Group, which gained great popularity among different organisations. To apply this tool, managers are supposed to thoroughly analyse four factors influencing the change process performance. These are: duration of the change implementation (D), team performance integrity (I), commitment of managers and employees (C),

and additional effort, which has to be made (E). One has to evaluate each factor and assign to it a numerical value from the four-point scale. After that, the special formula has to be applied and the result has to be verified according to a division proposed by the authors. It includes three spheres: win, doubt, and failure. The application of this method is very simple, as the authors provided the user with some auxiliary questions and special rules concerning point awarding (Sirkin et al., 2009). The DICE model, similarly to the cost-benefit analysis, can be applied before the change implementation, during or at the end of the change process. The interesting fact is that two out of four factors in this framework, namely commitment and effort, concern more the human side of a change, which is classified as the soft approach in our paper. The reason why the Boston Consulting Group representatives classified them as the hard factors may result from the fact that they "made" them measurable.

Regardless of what tools for data gathering or the methods of their analysis we employ, a change may usually be perceived as a distance between the initial and the final stage of a process. Therefore, we can express it with the following formula:

$$C_{t,n} = \mathbf{d}(X_n, X_t)$$

where $C_{t,n}$ stands for a change (measured as a distance d) of a given variable characterising a given process between moments t and n. This process may be simple (one-dimensional) and require only one variable for the description, or it may be multidimensional and require at least two variables for the description. Such a formula, referring to our praxeological approach to change management, expresses the effectiveness of this process. If we refer a distance ($C_{t,n}$) to an input to the change process (time, money, people, or other resources), the efficiency (change management performance) of the process is measured. A general formula expressing this efficiency is a function of two variables – distance and input:

$$CMP_{t,n} = f(C_{t,n}, I_{t-n})$$

where $CMP_{t,n}$ stands for the change management performance between moments t and n, and I_{t-n} stands for the input into the change process incurred in the period from t to n.

The crucial problem of the effectiveness or efficiency measurement of a change management process refers to the distance, since the choice of a metric depends on the scale on which a change is measured. The soft aspects of a change are usually expressed by qualitative data whereas the hard aspects of a change are usually represented by quantitative data. Referring to the measurement scales, nominal and ordinal are classified as qualitative ones, whereas interval and ratio scales are classified as quantitative ones. The nominal scale only allows for a differentiation between the measured objects or states of the same object (something is equal or not). To compare different objects or states, at least the ordinal scale has to be employed. However, it only allows for ranking, and a direct measurement of the distance between the objects or states of the same object is rather impossible. The distance may be additionally measured and expressed in the same unit as a given variable characterising an object in the case of the two other scales: interval and ratio. However, the percentage differences may only be used in the case of the latter one. Referring to the change measure perceived as a distance between the initial and the final stage of a change process, a nominal scale (e.g. there is a change or not, there is an improvement or not) enables only to answer the question whether a change appears or not. However, if two organisations are under a change process, the comparison between them in terms of this change is impossible on this scale. In the case of an ordinal scale, the changes in two different organisations may be compared in terms of their magnitude (Which organisation has changed more and which less? Which one has become more resistant to the crisis and which one quite the opposite?). In the case of an interval scale, one can additionally measure the difference in the change expressed in the same units as the variables characterising the change. For instance, one can measure a financial result in two organisations for two different periods and express the change in a direct manner. However, such a change cannot be expressed in percentages since this is only allowed for a ratio scale for which an absolute zero is characteristic (a variable does not take negative values). For instance, if a change is expressed by such variables as assets, liabilities, or employment, it can be compared across different organisations not only by the units of given variables, but also by percentages. Different distance measures (e.g. Euclidean, Manhattan or Chebychev metrics, Walesiak's proposal of the metric for ordinal scale) are reviewed e.g. by Walesiak

(1999), Perlibakas (2004), and Cha (2008). If the measurement of the distance is possible for a given change process (effectiveness) and the input to this process is known, the evaluation of change management performance (efficiency) is also possible.

Another problem concerning both the measurement of a change as well as the measurement of change management performance refers to the absoluteness or relativeness of the evaluation. The change measure may be positive ($C > 0$) or negative ($C < 0$). There may be either no change ($C = 0$). Input is always not lower than zero ($I \geq 0$). The efficiency of the process, similarly to the change measure, may be positive ($CMP > 0$), negative ($CMP < 0$), or may be equal to zero ($CMP = 0$). However, the questions on what is the desired level/degree of the change or what is the required level of the efficiency of the change management process remain. How to cope with this problem? The problem is easier to solve if we have a benchmark. The benchmark may be external or internal. In the former case, a very important assumption has to be met – selected organisations (at least two, but a greater number is desired) have to be comparable. Then, we can evaluate a change as well as change management performance in a relative manner. A given organisation is compared to other ones and if the measure of a change is greater for a given organisation than for others, one can say that the change result is better in this organisation. The same refers to the performance (efficiency) of the change management process. An internal benchmark may be applied if an organisation under a given change management process is able to compare this change (or process) to the change (or process) it underwent in the past. Obviously, an assumption that both of these changes (processes) are comparable is required. Regardless of the benchmark (external or internal one), the evaluation is of a relative nature. This relativeness means that a given organisation is "only" better (worse) than other organisations included in the set compared, or a given change is implemented more (less) effectively or more (less) efficiently than another change implemented in this organisation before. Simultaneously, this organisation may be weaker (better) than many other organisations outside the set. Therefore, the greater the set of organisations compared in terms of change management, the less relative the character of the evaluation.

The evaluation of a change management process in absolute terms is usually more challenging since, in many cases, it is very difficult to

set the objective measures of the effectiveness or efficiency of change management. However, if we suppose that a given organisation defines the goals of change management in a precise way, e.g. through the determination of the minimum performance indicators, which have to be obtained and have to express the borderline between ineffective (inefficient) and effective (efficient) change management process, an absolute evaluation is partly possible. Nevertheless, in such a case, the absolute evaluation is limited only to a given organisation. This means that, in another organisation (maybe very similar to that one), the requirements of the change management process can be quite different.

The last, but not least issue addressing the problem of change performance measurement is the multidimensionality of a change. It is usually difficult to express the change performance (both effectiveness and efficiency) only by one simple indicator. If we need two or more indicators to evaluate the change management process and we aim at comparing it in a few organisations, a multidimensional statistical analysis may be employed. Then, different organisations may be compared in terms of the same change performance indicators. In such an approach, for a given organisation, other entities may be perceived as some reference points from which some benchmarks may be identified. Such methods of multivariate statistical analysis as linear ordering, hierarchical clustering, or k-means clustering (see e.g. Johnson & Wichern, 2008; Jajuga, 1993; Panek, 2009) may be useful, although they are usually employed in economics or finance, and less in management science. Such an approach would be a combination of benchmarking and multivariate statistical analysis in the evaluation of change management performance.

CONCLUSIONS

As it has been already mentioned, the organisation, which strives to maintain its position on the market and gain a competitive advantage, has to be constantly changing in order to adapt to the new environment. Unfortunately, according to the research results, about 70% of all change initiatives fail (Beer & Nohria, 2000, p. 134). This means that it is not enough to introduce a change because it is also necessary to manage it properly. If the organisation wants to manage the change

process efficiently, it must put great effort to monitor it and to measure its results, including both changes and inputs to changes. Therefore, the distinction between change measurement and the measurement of change management performance is substantive in the approach presented in our paper.

The measurements enable the organisation to keep on track, celebrate early wins, which build team morale, and to constantly improve the process. Therefore, it is important to take measurements throughout the process, which means before, during, and after change implementation. The results obtained before the transformation can act as a baseline, which should be set for all metrics. It allows for the comparison between the past and the present. Another type of a reference point can be the results of some other comparable organisations operating in the market. This type of benchmarking helps the organisation not only to evaluate its own results, but also to assess its market position. Nevertheless, many important technical aspects concerning the choice of performance indicators or methods of measurement have to be taken into account since they determine the reliability of evaluation and control. These include the scale of measurement, one- and multidimensionality of the change as well as the metrics of a distance if applicable in a given situation. These problems refer to both the soft and the hard aspects of changes.

Our paper is of a theoretical and methodological nature. Although we tried to present a novel approach to the measurability of the change management process based on praxeology, we only emphasised the problem of the difference between a change and the process of change management, and indicated some general directions of how to cope with it. This issue is very interesting and requires more exploration, also by the inclusion of appropriate statistical methods, such as e.g. multivariate statistical analysis. However, this requires further empirical studies, which would allow the verification of our praxeological approach. We have also found an important limitation of treating a change as a multidimensional category, especially if the methods of multivariate statistical analysis are employed in the evaluation process. This is due to many benchmarks (comparable organisations characterised by the same set of variables), which are required in these methods.

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PRAKSEOLOGICZNE PODEJŚCIE DO ZARZĄDZANIA ZMIANĄ: PROBLEM POMIARU

Abstrakt

Tło badań. Zarządzanie zmianą jest wymagającą i złożoną koncepcją, która w ostatnim czasie zyskała dużą popularność. Menedżerowie zdają sobie sprawę z tego, że zmiany są nieuniknioną częścią biznesu. Niemniej jednak, nawet jeśli są oni w stanie zarządzać prawidłowo procesem zmian, to często stają w obliczu problemu związanego z pomiarem jego rezultatów.

Cel badań. Głównym celem niniejszego artykułu jest zaproponowanie prakse-ologicznego podejścia do pomiaru efektów procesu zarządzania zmianą. Podjęta została także próba omówienia kwestii statystycznych dotyczących mierzalności efektów zarządzania zmianami, kiedy zmianę postrzega się jako dystans w ujęciu metrycznym.

Metodologia. Praca ma charakter teoretyczny i metodologiczny. Badanie oparte zostało głównie na przeglądzie literatury z zakresu zarządzania zmianą, prakseologii i statystyki.

Kluczowe wnioski. Odróżnienie pomiaru zmiany od pomiaru rezultatów zarządzania zmianą jest istotne w ewaluacji procesu zarządzania zmianą. Pierwszy bowiem odnosi się do skuteczności, a drugi do efektywności rozumianych na gruncie teorii prakseologii. W celu oceny procesu zarządzania zmianą postrzeganie zmiany jako odległości w ujęciu metrycznym oraz uwzględnienie danych wejściowych w analizie jest również uzasadnione. Wynika to z faktu, że planowana i świadoma zmiana wymaga wkładu i dlatego musi być odpowiednio zarządzana.

Słowa kluczowe: zarządzanie zmianą, proces zmiany, pomiar sprawności, prak-seologia.