EVOLUTION OF CHANGE MANAGEMENT MODELS AND THEIR FUTURE IN THE CONTEXT OF ONA

EWOLUCJA MODELI ZARZĄDZANIA ZMIANĄ I ICH PRZYSZŁOŚĆ W KONTEKŚCIE ONA

Anna Szarek

Wrocław University of Economics, e-mail: anna.szarek@ue.wroc.pl

Summary: The aim of the article is to present evolution in change management models and the need of redesigning the current change management concepts with the use of organisational network analysis. Firstly, the article summarizes the evolution of change management approaches presenting the theoretical background of the need to revise change management models. Then the author underlines benefits of organisational network analysis enabling deep research on current change management trends. In addition, the article uncovers very introductory empirical research aimed at estimating the need for revitalising change management models. Finally, the author proposes further empirical research linking change management models and organisational network analysis.

Keywords: organisational network analysis, change management, organisational changes, project management.

Streszczenie: Celem artykułu jest prezentacja ewolucji modeli zarządzania zmianą i potrzeby przeprojektowania aktualnych koncepcji zarządzania zmianą z użyciem analizy sieci organizacyjnej. Na początku artykułu podsumowano ewolucję podejść zarządzania zmianą, prezentując teoretyczne tło potrzeby rewizji modeli zarządzania zmianą. Następnie określono korzyści analizy sieci organizacyjnej umożliwiającej głębokie badanie obserwowalnych trendów zarządzania zmianą. Dodatkowo opisano wstępne empiryczne badanie mające na celu oszacowanie potrzeby rewitalizacji modeli zarządzania zmianą.

Słowa kluczowe: analiza sieci społecznej, zarządzanie zmianą, zmiany organizacyjne, analiza sieci organizacyjnej.

1. Introduction

The external environment and its fast progress in the area of IT solutions, innovative technology and globalisation, constantly require from companies the introduction of changes. Changes, according to J. Skalik, are defined dually in the factual and in active meaning. In the factual meaning, they exhibit a state of something completely new. In the active meaning they are a process itself, which leads to the introduction of this new state [Skalik 1996, p. 158]. These two meanings are correlated with each other, therefore the new desirable state dictates in what way the change process should be held. The simplest typology of changes represents: strategic, structural, process-oriented and people-centered changes [Czerska 1996, pp. 55-56; Zarębska 2002, pp. 51-58]. Strategic changes usually involve the whole company as they demand changing their fundamental approach to doing business. Structural changes fall into the category of all the changes made in the hierarchy of authority, procedures or management systems and are related to the whole or part of the organisation. Process-oriented changes are related to production processes and its reengineering in order to optimize workflow and increase productivity. Finally, people-centered ones are modifying behaviours, skills or attitudes of employees.

Careful thought must be given to structural changes occurring continuously in currently very dynamic business. Depending on their size, changes can be managed either with the approach of change management models or the approach of project management methods. Researchers in both of these approaches started firstly with designing carefully planned in advance several steps or phases to be fulfilled to proceed with the change. But as the process of change is ongoing and its course is hardly predictable in advance, in time researchers started appreciating the more psychological perspectives of change rather than just fulfilling automatically planned actions. Then, the process of change was supposed to be provided by the range of various soft skills of employees participating in change and the soft skills possessed by managers, especially as those who decide about individual change strategy are the managers [Lichtarski 2003, pp. 9-12].

It is often the case that this ability of introducing change is the main feature of good leadership and at the same time it indicates the company's success. Introducing decisions of top managers requires high engagement of middle level management. This reflection leads to a searching analysis of management staff [Bełz 2015, p. 32]. Thus one should analyse deeper the soft side of change management.

Change has been lately popularized by politicians. Putting aside whether the change is good or bad, the designed aim of the change needs to be completed in order to consider the change as successful. The purpose of this article is to present the evolution of the change management models available in literature, the benefits of organisational network analysis and the scope for further research of the new approach to change management based not on the individual competencies of managers involved in change, but based on the *relations* existing among employees participating in the change, measured by organisational network analysis. Traditional research methods such as interviews and surveys were not able to identify multi-dimensional relations among employees. The newest concept of social network analysis is able not only to identify those relations but also to analyse them from both perspectives – quantitative and qualitative.

The new approach is to depict the importance of the interactions, underestimated in science, existing among the members participating in change which might substantially influence the change process. Untouchable and invisible social correlations become visible due to the organisational network concept which can revolutionize the change management approach. So far, ONA has been used to measure the change agents' competencies in order to better identify the allies of change in organisations. However, the ONA has a bigger potential in recognizing the relatively stable relations of organizational members which enables researchers to capture the emergent processes which occur during the change management process.

Firstly, the article depicts the historical methods of change models applied to changes covering whole organisations and parts of organisations. Presented evolution, or rather revolution, of change management models results in a focus on the psychological aspects of employees' relations. An additional encouraging reason for examining the area of social relations during the change process is the empirical benchmarking research conducted by the author in 72 companies in which structure changes have taken place in the last two years. Next, the definition of social network analysis will be presented and its main benefits for the area of the change management process. Finally, the conclusions are presented together with aspects for further research.

2. Theoretical approach to change management models

In the world literature there are many change management models depicting the phases of the shaping process of changes. Change in the article is understood according to Jon R. Katzenbach's definition as: changes are those situations in which corporate performance requires most people throughout the organisation to learn new behaviours and skills [Katzenbach 1997, p. 6]. Change management models are understood as a certain sentence of behaviours recommended by scientific researchers to top managers during change implementation in a certain approach of change definition. The models presented below are selectively chosen and do not represent a comprehensive literary collection.

2.1. Evolution of change management approach

While introducing changes with a broader organisational range, one can use the approach of *change management models*. The oldest models of such are presented in

Table 1. Out of all these, the simplest model is the one created by Lewin. He distinguished three phases of change: defrosting, main change, refreezing. Although this model is the simplest and the oldest one, created in 1951, it states the basis for further generated models which either expand the steps with details or broaden the steps with organisational context. Greiner [Greiner 1978] redesigned those three steps into seven phases highlighting the historical value of the organisation and the context of organisational maturity. In the four-step model of Bullock and Batten [Bullock, Batten 1985, pp. 383-412] organisation for the first time was considered as a whole and not as a set of elements which turn attention into interpersonal relations during change implementation.

Table 1. Change management models (1)

1951	1977	1985
K. Lewin	L.E.Greiner	H. Bullock, J. Batten
1. Unfreeze	1. Pressure on top management	1. Explorations – awareness of change process
2. Change	2. Intervention of top management	2. Planning – aim definition
3. Refreeze	3. Diagnosis of problem areas	3. Action – designing rules of change management
	4. Invention of new solutions	4. Integration – introducing new behaviours
	5. Experimentation of new solution	
	6. Reinforcement of positive result	
	7. Acceptance of new practises	

Source: own elaboration.

The change management models presented in Table 2 expand change management models with new aspects. Tichy together with A. Devanna [Nadler, Tushman 1997, pp. 159-171], sustained the number of three phases but also highlighted the dynamics of each step. In Carnall's [Carnall 2007] model the focus is on the more psychological, soft aspects of managers who are the key players of successful change. Similarly, Nadler and Tushman [Nadler, Tushman 1997, pp. 159-171] underlined the psychological dimension of change and additionally the dynamics of the change process.

Table 2. Change management models (2)

1990	1990	1991
N. Tichy, A. Devanna	C. Carnall	D.A. Nadler, M.L. Tushmann
1. Awakening	1. Internal & external pressures for change	1. Strategy, Resources, Environment
2. Mobilising	2a. Managing transitions effectively	2. Actions on work, structure, people, culture
3. Reinforcing	2b. Dealing with organisational cultures	3. Performance
	2c. Managing organisational politics	
	3a. Creativity, risk-taking and learning	
	3b. Rebuilding self-esteem	
	4. Acceptance of change	

Source: own elaboration.

Table 3. Change management models (3)

1991	1995	1999	2001
W. Bridges	J.P. Kotter	P. Senge	R. Stacey, P. Shaw
1. Ending old habits	1. Establish sense of urgency	1. Initiating small changes	Change is uncontrollable
2. The neutral zone	2. Create a guiding coalition	2. Sustaining small changes	
3. The new beginning	3. Develop vision and strategy	3. Redesigning organisation	
	4. Communicating change vision	4. Rethinking changes	
	5. Empower broad-based action		
	6. Generate short-term wins		
	7. Consolidate gains and produce more change		
	8. Anchor new approaches in the culture		

Source: own elaboration.

Bridges [Bridges 2009] (Table 3), likewise Nadler and Tushman, rests his theory on psychology. He distinguishes change from the process of transformation. According to him, change is planned while transformation is psychological and thus more a complicated phenomenon. His recipe for a successfully implemented change is to understand employees' emotions participating in change. Kotter [Kotter 2004, pp. 108-117; Kotter 1995, pp. 59-67; Kotter 2008] also focused on employees, but apart from the psychological aspects he invented eight steps of successful change. In his reflections he underlined that the success of change lies in the careful and meaningful preparation of the internal environment to change introduction. Senge [Senge et al. 1999], contrary to Kotter, claimed that more important than initiating of change is sustaining change after introduction. He focused on addressing issues after change introduction. According to him the key aspect of successful change is to create new habits in the team's behaviour.

Finally in 2001 Stacey and Shaw [Stacey 2001; Shaw 2002; Senge 2014] invented the complex-responsive-processes model. The most essential characteristics of this model is that it sees the change as complex and uncontrollable. Therefore the authors do not concentrate on answering how to manage the change but they insist on the managers participating in change process and in initiative. Cameron and Green [Cameron, Green, 2014] draw attention to certain behaviours of managers such as: developing among employees abilities of achieving goals, encouraging feedback and information flow, focusing employees attention on the differences between the current and desired state.

To sum up, over time the researchers did not try to offer specific steps as good recipes for change success but they underlined the psychological aspects of change.

Thus they suggested in their models the behaviours of expanding certain abilities and competencies among managers or employees. The change then itself can be defined as the state which is naturally occurring as a result of communication, conflict and tensions among employees, and managers cannot plan anything as they are part of the organisational environment and they should only support change introduction.

2.2. Evolution of project change management approach and conclusions

A similar evolution of turning to psychological nature of change can be observed in *project change management models.* These models are related to introducing changes in an organisation via projects which mean a temporary undertaking aimed at creating a unique product or service, where transience means that the undertaking is precisely marked by the beginning and end and the uniqueness of the product or service explicitly is different from all similar products or services [Project Management Institute 1998, p. 8]. Theoretically, it might be thought that such projects involve fewer steps, less workload and they are easier to introduce in comparison to changes defined by J. Katzenbach in the previous chapter. By contrast, such smaller projects are more challenging than one could suspect as usually for such projects no external resources are hired and one uses disposable human resources. In consequence, departments are taking the burden of the project and they simply gain more duties. Thus the project gets less attention as the regular daily tasks need to be completed by employees as well, so managing such projects is also very crucial.

The traditional approach to project management is reflected in linear waterfall steps of: project definition, project planning, project implementation and project closure. In this approach the projects do not overlap and they are easy to plan. The second, iterative spiral approach suggests using the four steps again and again until the satisfied project outcome is generated. Then it is possible for several projects to co-exist at the same time. In consequence, for direction, managing small projects gets even more complicated as several project teams must be on board simultaneously. Therefore managers must take into consideration possible additional challenges: a) tensions among change participants of different projects might appear as causing chaos and misleading about change phases b) change steps themselves become shorter and less planned due to business pressure of shortening cycles of change projects.

Finally, the third type of approach of project management, i.e. agile one, stopped concentrating on certain steps of projects at all [Highsmith 2005]. In this approach the goal in change project is known, the way of proceeding to this desired state is not known and needs to be invented during interactions among employees. The Change Manager then does not even have any steps of introducing the project but the change participants are responsible for that entirely, while manager only supports specialists creating an invention-friendly environment. The last evolution of the project management approach is that the project change does not even indicate the goal or the solution but only a problem of the project. While it is up to the team to decide how to solve it [Kerzner 2004]. In such projects, again, the manager's role is not to impose steps of change but to create a fruitful atmosphere of knowledge sharing, trust and beneficial communication in order to proceed with the change project.

Taking all the above, one might take the risk that change with its changeability is based on the optimal usage of human resources. Thus, the researcher might seek for revitalising change models in order to capture relations among managers and employees. Managers currently are leading highly qualified specialists and often are not able to invent solutions or steps of how to solve the problem simply because of the lack of sophisticated knowledge. Therefore all they are supposed to do is to support the team and use their knowledge and relations among them in order to generate the ideas for change solutions. The role of the change leader then, as the newest models of Stacey, Shaw or models of agile management suggest, is not to manage the individual competencies of the employees but to manage relations among employees in order to generate a knowledge sharing atmosphere and effective communication that support problem solving and change implementation.

3. Empirical approach to change management models

The theoretical approach to change management models delivers a changing perspective on change methods. All the models are still in practice in the real business world. Enriching the above theoretical statements, the author examined in a very introductory benchmark research the real problems during change management which managers need to deal with in order to estimate the necessity of revitalising change management models.

The research took place in 2015 in a company which operates in the B2B area and serves approximately 240 customers. A survey was conducted via face to face or phone conversations among 72 customers of this company. The branch of the company is in packaging production so the group of customers seem to represent a substantial variety of companies and industries: producers of milk, butter, doughnuts, televisions, ink and automotive parts. Customers were chosen randomly and represent a variety of sizes: spending on packaging purchasing from 30000 PLN up to 1 million PLN yearly. The whole procedure of choosing respondents was aimed to capture the biggest variety of companies with regard to industrial branch and size of the companies. Organisations were represented in the survey by customer service managers, logistics directors, production directors and purchasing directors. Questions were related to the structural changes which involved part of the organisations. All the companies do not possess a special project de-

partment and projects or changes (in light of the definitions presented in the previous chapters) are conducted by special project teams created for introducing specific change. The survey and its outcome are shown in Table 5.

Table 5. Results of survey (1)

Questions	YES	NO
1. Do you use in practice theoretical change management models?	56	16
2. Do you study area of change management in order to use it in your professional life?	61	11
3. Have you participated in unsuccesfully implemented change processes during last 2 years?	70	2

Source: own elaboration.

As discovered, 78% of respondents admitted using theoretical change management models. In 31 focus interviews, managers knew the existing many models, the most known and often recognized were the models of Kotter's, Lewin's steps and agile management. They were being used in their daily work. 85% of respondents take regular training courses in change management but a small part of them (7%) uses theoretical models. In the survey, 97% stated that in the last two years they were witnessing and participating in changes/projects which were unsuccessful.

Next, the survey was expanded into a social relations plot. Table 6 depicts further survey questions related to quality of resources choice, communication in project team and the general impression of changes ending with failure. Out of the respondents' group, two companies were disregarded due to the fact of not having any unsuccessful changes. According to the respondents, employees were chosen via a hierarchy diagram and their responsibilities. So one can take a risk of assumption that the competencies of lower level employees were not analysed. Change leadership was decided based on formal legitimacy coming from hierarchy. The real relations between employees were not judged.

Moreover 86% of the surveyed managers claimed that subgroups in teams were causing problems during the communication process during change introduction. Respondents were also asked of the general view of the project group/change team. There was a difference in opinion among the respondents. The respondents equally chose from the presence of visioners in the group, the variety of competencies, and the presence of leaders. These three aspects were linked to three managerial archetypes: managers, leaders and entrepreneurs proposed by Bełz in his managerial triumvirate [Bełz 2010, pp. 213-223]. In each organisation, there exists three different types of managerial roles: entrepreneurs seek new development opportunities, leaders lead teams and managers fulfil administrative duties. As a result of the research, none of the groups stood out during change introduction.

Table 6. Results of survey (2)

#	Question	Answers			
1	Employees to project teams are chosen according to…	hierarchy of organisation	intuition of managers	researched competencies	other-please indicate
		61	2	7	0
2	What was the main problem, if any, with communication in project group…	hidden subgroups	blockers of change within project group	lack of knowledge in project group	other-please indicate
		60	9	1	0
3	What is your general view regarding project group…	There was no visioner, author of change who would lead the change	Project members had often similar abilities and it was difficult to complete tasks	There were many leaders and it was not clear whom to listen	other-please indicate
		27	22	18	Noone cared as the salaries are low; Change caused lowering employment; There was no leader so it was not clear whom to listen to

Source: own elaboration.

The research, although limited in some aspects of the limited range of the survey, or not analysing the process of change implementation itself, formulates the empirical reasons for further research. Although managers were implementing change according to models, they were neglecting relations among employees and competencies hidden in a lower level of management or hidden real information flow which was not connected to the hierarchy. In project change management the certain steps cannot help but they can even be the obstacle in change process, as they stiffen the change process indisposing managers to listening and identifying good feedback from employees and in consequence adjust the change process.

If the change depended on the allocation of a higher budget or more time for the project, the matter would be trivial. However, often the problem lies in people's minds and in the relations between those minds. Those untouchable and invisible relations can be visible nowadays due to social analysis. The structure and cohesion of managerial archetypes and the profound analysis of the social network can be a key hint for optimal change management process. Social networks are defined with Mitchell's view: "a specific set of linkages among a defined set of persons, with the additional property that the characteristics of these linkages as a whole may be used to interpret the social behaviour of the persons involved" [1969, p. 2]. Such well recognized social relations can

enable managers to manage consciously social organisational capital in order to introduce the change successfully.

4. Benefits of ONA in change management context

During the change process, fulfilling certain planned steps or managing competencies of employees is probably much easier. As a matter of fact, it might be done just by introducing by top managers appropriate reports, memos and fiats, which consequently enforce obedience, while supporting the development of social relations and managing them is much more challenging. The traditional ways of gathering data for analysis are not able to obtain hidden relations among employees. But the current boom of social network analysis provides the possibility to uncover those multi-dimensional dependences between the organisational members.

As it was written: 'at the beginning there was chaos'. Who would have thought that social chaos will be sorted out by a broad range of social network analysis, and at the same time will enable the researcher to identify relations related to power, trust, communication etc. existing in society. The phenomenon of networking began in the 1930s in sociology by the genius psychologist and sociologist Jacob Moreno. He invented the so called sociometric research [Łobocki 2006, pp. 173-174] which consists of choosing positive or negative indications on group members based on certain defined criteria. The criteria are identified throughout the survey questions. In answering the respondents indicate certain names. Research enables the recognition of interpersonal relations of attraction or repulsion among group members and thus enables to clarify the position of the social group [Moreno 1937, pp. 206-219]. The theory of sociometry together with the mathematic theory of graphs illustrating network correlations gave birth to social network analysis (SNA), called in the management studies interchangeably as organisation network analysis (ONA).

This method is the modern tool enabling the recognition of the complicated multi-dimensional and multipart structure of relations among the subject in society. Let us specify precisely the definitions with regard to SNA and ONA. Social Network Analysis is an approach, process and set of tools that reveals networks and patterns of relationships between individuals or entities [Cross, Borgatti, Parker 2002]. With regard to the examination of organizational relationships and patterns, it is called Organizational Network Analysis. According to Castells it allows to identify the processes creating the so called network society [Castells 2013]. Lately this method has gained huge popularity in management science as the researchers started examining business units instead of societies [Borgatti, Foster 2003]. The attention of researchers was diverted into functional organisational areas which indicate the value of a company originating from the appropriately balanced relations inside it [Cross, Parker, Borgatti 2009, pp. 25-46].

The discriminant of network analysis is the fact that one can implicate not attributes (i.e. features, approaches) but relations existing between subjects [Scott 2011, p. 39]. In consequence, the research analyses not the individuals but the relations linking subjects (called also actors or nodes). As a result, one can create the structure of the network consisting of a variety of interpersonal, political, international or economic relations depending on the survey questions and the designed criteria.

The character of the relations among the subjects can be shaped symmetrically, i.e. reciprocal or unidirectional; binary, i.e. monovalent or multivalent. The theory of the graph serves to illustrate the network analysis outcome. The results present attributes of networks implicating the interpretation of nodes and their relations on three levels:
- on the level of the whole network (i.e. density, core identification, periphery networks),
- on the level of certain parts of the network (i.e. relations between subgroups),
- on the level of nodes (i.e. the identification of key nodes).

Organisation network research on all the levels corresponds with the answers on managers questions related to the influence on change leadership, as Table 7 shows. Often when appointing employees to the project team/change team, one makes choices based on formal hierarchy, while the real information or decision flow might be occurring within different decision sources or even on different levels of the organisation. Thus discovering the real informal structure of the organisation is indispensable for setting a proper change process.

Table 7. Benefits of ONA in the context of change management

#	Aspect	ONA analysis	ONA Benefit
1	Choosing members to project teams	Network structure on the level of whole network (i.e. density)	Discovering informal organisational structure: real information flow, decision flow
2	Hidden relations among employees participating i n change	Network structure on the level of part of organisations (i.e. small world effect)	Discovering hidden interpersonal relations: of trust, communication, creativity etc.
3	Knowledge of employees participating in change	Network structure on the level of node (i.e. egonetwork, closeness)	Discovering main nodes in organisation
4	Interpersonal abilities of emplyees participating in change	Network structure on all levels	Identification of managers, leaders, entrepreneuers

Source: own elaboration.

ONA also provides researchers with such information as hidden relations among nodes (employees). Those attributes enable to identify the position of each employee in the organisational structure and to calculate the value of each individual for the organisation via central in-degree or density. By identifying such phenomena with the help of the network theory, one can gain information on how to effectively manage the change management process via managing relations between the employees, and how to obtain a better influence on organisational society.

The crucial aspect for change management is also the information about change-oriented abilities hidden in an organisation. Examining ego-networks enables to better understand the knowledge sharing process and identify the key sources of certain competencies. This also delivers information about the sources of the main managerial, leadership and entrepreneurial roles in an organisation.

It is surprising that there is little written in management science about the linkage of networks with the change management process. There are, quoted earlier in the article, the papers of Bełz and some works of McGrath and Krackhardt [McGrath, Krackhardt, pp. 332-335]. The latter created three coexisting models of change management depending on the types of change and networks structure. The first model, the so called EI-index, states that when change is relatively small and positive, the change process needs to be started from the key and centrally placed nodes. In contrast, the second model appeals to change which is relatively big and is felt relatively negatively in some part of the organisation and positively in other parts. Then the information needs to be spread locally — firstly within subgroups (clusters) that feel positive about the change. Finally, when one deals with innovative change, the change process can start randomly. This model, called structural leverage, will then result in spreading information through diffusion via friendly contacts. In practice though, at the beginning of the change process it might be challenging to identify who presents a negative attitude towards the exact change. Another researcher in this area is Burt, who linked network structure with effectiveness of work. His research of social capital unveiled the importance of relations influencing work productivity [Burt 1992]. However, still within this matter, there is a space for further research, especially in the context of change management.

5. Conclusions

Science has formed many change management models applied in big changes covering whole organisation in the light of the Katzenbach definition, or applied in projects. Older models for both types of changes consisted of certain steps of the change process whose fulfilment was to guarantee change success. The newer models are stressing that the effectiveness of change depends on having managers with special abilities and competencies which ensure a creative and friendly atmosphere of change. The

author claims that the future models of change management are to be based neither on certain steps nor on certain management soft skills. Instead, the future of change management effectiveness lies in the importance of social relations existing among the group members. Management of those relations is to be decisive in the change introduction process. This subject matter is the aim of further, broadened and deeper research raised by the author as the following aspects appear:
- The observed, in the evolution of change management models, increase of interest in the psychological aspect of change management such as the soft skills of managers.
- Poor literary collection on linkage between ONA and social capital in change management context.
- Shorter cycles of change management imposing on companies more effective and faster change introduction.
- The need of the business world to rethink and redesign or enrich the existing change management models.
- Usage of newest social network analysis opening a new opportunity for the deep analysis of hidden social relations.

To sum up, further research is to be undertaken with the following research questions: how the structure of social network affects the effectiveness of change implementation conducted according to the existing change management models.

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