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Manager's decision-making in organizations – empirical analysis of bureaucratic vs. learning approach*

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Abstract

The paper is focused on the study of manager's decision-making with respect to the basic model of learning organization, presented by P. Senge as a system model of management. On one hand, the empirical research was conducted in connection with key dimensions of organizational learning such as: 1. system thinking, 2. personal mastery, 3. mental models, 4. team learning, 5. building shared vision and 6. dynamics causes. On the other hand, the research was connected with the analysis of the bureaucratic logic of decision-making process, characterized by non-functional stability, inflexibility, individualism, power, authority and hierarchy, centralization, vagueness, fragmentariness. The objective of the research was to analyse to what extent manager's decision-making is based on bureaucratic tools or organizational learning in either complex problem-solving or non-problem-solving decision-making. (MANOVA, method of the repeated measure, inter-subject factor – situation: 1. non-problematic, 2. problematic). The conclusion of analysis is that there are significant differences in character of solving of problem situation and non-problem situation decision-making: the bureaucratic attributes of decision-making are more intensive in problematic situations while learning approach is more actual in non-problematic situations. The results of our analysis have shown that managers who apply the learning organization attributes in their decision-making, are more successful in problem-solving.

Key words: *organizational learning, manager's decision making, bureaucracy*

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1. Introduction

Analysis of different types of decision-making within organizations (public administration and “business” sector) is a part of the great project VEGA 1/3589/06, aimed at studying the post - bureaucratic systems of an organization.

The organizational theory where organizational learning has its key position, applies a set of approaches that are opposite to bureaucratic mechanisms within organizations. Methodological base for the issues of organizational learning is the book of C. Argyris and D. Schön: “*Organizational Learning*” (1978), that is followed by many authors (Hahn, Doh and Bunyaratavej, 2009, Vendelø, 2009, Easterby-Smith, 2009, Cha, Pingry and Thatcher, 2008, Hult, et al. 2000, Barrados and Mayne, 1999, Daft and Huber, 1987, Dekker and Hansen, 2004, Dery, 1983, Fry and Griswold, 2003, Garvin, 1993, Huber, 1991, Levit and March, 1988, West 1994, Fiol and Lyles, 1985 ...).

Concept of learning organization is derived from systems theory. Study of dynamic systems as living systems (e.g. organizations) (Hickson III, 1973, Almaney, 1974, Peery, Jr., 1975, Vancouver, 1996, Tracy, 1993) leads to organizational theory orientation characterized by the ability of organization to process feedback effectively (need to learn) in order to close the gap between the current state and the desired state. “Organizations are expected to value information, to be able to learn from the past and to adapt to changing circumstances.” ... “*Learning in organizations relates to how the organization deliberately changes and adapt over time in terms of structures, functions, values, attitudes and behaviour.*” (Barrados and Mayne, 2003:88).

Organizational learning is studied as one of the most preferred concept of *post-bureaucracy* (Heckscher and Donnelon, 1994), that is often connected with other organizational attributes: research of supervisory span (Gittel, 2001, Josserand, 2006), innovation (Wolfe, 1994, Sta. Maria and Watkins, 2003), performance (Rahmandad, 2008), etc. It is also connected with organizational areas related to the organizational learning – for example Huber (1991) has elaborated four constructs integrally linked to organizational learning (and subconstructs): 1. knowledge acquisition, 2. information distribution, 3. information interpretation and 4. organizational memory.

The question “what is a learning organization” represents a challenge for researchers, but “general consensus in the learning organization literature is, that learning at the organizational level is a prerequisite for successful organizational change and performance” (Sta. Maria and Watkins, 2003:494, Wenbin and Hongyi, 2009). A number of theoretical and empirical approaches have been applied in the analyses of a learning organisation by many authors (Garvin, 1993, Lundberg, 1995, Watkins and Golembiewski, 1995, Hendry, 1996).

To summarise the literature on learning organizations is very difficult because of conceptual differences. However, there are four distinguished orientations that can be

identified: 1. *the behaviourist orientation* (the behaviourist movement in psychology applied experimental procedures to study behaviour in relation to the environment), 2. *the cognitive orientation* (where behaviourists studied environment, analysis of the Gestalt drawings applied to the individual's mental processes. In order words, they were concerned with cognition), 3. *the humanist orientation* (in this orientation the basic concern is human growth), 4. *the social/situational orientation* (it is not so much focused on learners acquiring structures or models for understanding the world, but on their participation in frameworks that have structures. Learning involves participation in a community practice).

Watkins and Marsick (1996), for example, suggest seven imperatives, that indicate design of a learning organization: 1. creating continuous learning opportunities, 2. promoting inquiry and dialogue, 3. encouraging collaboration and team learning, 4. establishing systems to capture and share learning, 5. empowering people towards a collective vision, 6. connecting the organization with its environment, 7. applying a leader's model and supporting learning. Lipshitz and Popper (2000:348) proposed the useful concept of organizational learning mechanisms (organizational learning values), using both a structural and cultural elements: 1. inquiry (persisting in a line of inquiry until a satisfactory understanding is achieved), 2. integrity (giving and receiving full and accurate feedback without defending oneself and others), 3. transparency (exposing one's thoughts and actions to others in order to receive feedback), 4. issue orientation (focusing on the relevancy of information to the issues regardless of the social standing of the recipient or source), 5. accountability (assuming responsibility both for learning and for implementing lessons learned). Senge's model (1990) of learning in organizations consists of five disciplines (dimensions): 1. system thinking, 2. mental models, 3. personal mastery, 4. team learning, 5. building shared vision.

In the last years, learning organizations literature has been focused on studying many vital problems: complexity of organizational learning (Rahmandad, 2008), innovation in organization (Tran, 2008, Zhao and de Pablos, 2009, Wu, Ma and Xu, 2009), characteristics of learning organizations (de Villiers, 2008), impact quality management system on organizational learning and process performances (Lambert and Ouedraogo, 2008), network perspective on organizational learning (Pahor, Škerlavaj and Dimovski, 2008), organizational learning and job satisfaction (Chiva and Alegre, 2008, Dirani, 2009), learning organization and organizational capacity to adapt to the task environment (Carmeli and Sheaffer, 2008), decision-making in learning organizations (Beauchamp-Akatova, 2009), new theoretical perspectives (Holmqvist, 2009), governance learning (Schout, 2009, Zito, 2009), organizational learning theory and research (Vendelø, 2009, Easterby, Li, and Bartunek, 2009, Schilling and Kluge, 2009) and others.

The comparison of bureaucratic and participative systems has been made by Dovey (1997:338). He considered the importance of influence of character of initial

situation to character of leadership. Bureaucracy was analysed in many monographs and articles (Adler and Borys, 1996, Aiken, Bacharach and French, 1980, Bozeman and McAlpine, 1977). Weber has characterized it as “purely technical superiority over any other forms of organization” (Weber, 1948:214).

Decision-making within organizations, showing parameters or attributes of learning, is characterized by distinctive effort to restrain the mechanisms of classical bureaucratic systems. From this point of view, especially, the organizations of public administration are known by high level of bureaucratization with all its negative impacts as analyzed by several authors – Merton (1952), Selznick (1943), Crozier (1964), Blau (1955) and others.

The main objective of our analysis is focused on *decision-making mechanisms or decision-making processes within organizations* aiming at monitoring the predominance of bureaucratic and learning attributes respectively, the structure of the analysis relying on P. Senge's model (1990). We could not find the relevant information and published results of the research or analysis of a similar orientation, although we believe they should exist.

The research problem in our analysis is connected with questioning to what measure is managers' decision-making process inclined either to classic bureaucratic, or dynamic learning system in solving situations (comparison of problematic situations and non-problematic ones).

Objectives of the research:

1. To identify *the measure of inclination* of managers in organizations to decision-making in line with bureaucratic attributes respectively with parameters of organizational learning.
2. To identify the measure and the character of differences in inclination of the managers in organizations in line with bureaucratic attributes respectively with parameters of organizational learning when solving a *problematic* and an *non-problematic* situation.

The formulation of our hypothesis is a result of being aware of the natural tendencies of employees in formal organizations to generally accepted processes or standard behavioural models limited by rules (which is under the control connected with using formal sanctions). Variability of “subordination” measure to these standards is connected with the character of the solved tasks, situations, and problems. Considering typical attributes of bureaucratic systems, characterized by non-functional stability, inflexibility, individualism, power, authority and hierarchy, centralization, vagueness, fragmentariness, we have assumed using of bureaucratic principles or processes mainly in connection with events, tasks, problems which are solved less successfully or unsuccessfully (problematic) that gain more precise features mainly

at determination of alternative model principles (defined by disciplines of learning in P. Senge's model) - learning system – with regard to its key attributes which we usually connect with very effective problem and task solution i.e. with “situations with happy ending” (non-problematic).

Central hypothesis:

We suppose that the attributes of the organizational learning in decision-making of managers will be more attractive in non-problematic situation solving than in the problematic situation solving.

2. Disciplines of organizational learning by P. Senge

1. System thinking – a shift in thinking: The essence of the discipline of system thinking consists of shifting the thinking, where we do not observe the linear chain of reason and effect any more, but we concentrate on the mutual context. We observe the processes of change, not the immediate status. System thinking is the headstone of all disciplines of a learning organization. All disciplines, as a matter of fact, relate to a shift in thinking. System thinking is a discipline of perceiving integral parts, where they appear as active participants directing the reality in which they exist, not as helpless reactive persons. (Senge, 1990)

2. Personal mastery: According to Senge (1990) personal mastery means to approach your own life as a creative work and to live creatively, not reactively. When personal mastery becomes a discipline – activity integrated into our life, it embodies two basic directions. First of them is a constant clearing of what is important to us, the second one consists of unceasing learning how to perceive today's reality in a clearer way. Comparing visions (what we want) and the clear picture of the actual reality (where we are with respect to what we want) creates what we call “the creative tension”. Creative tension is induced by natural human tendency to seek for solutions. (Senge, 1990)

3. Mental models: Mental models can be a simple generalization or they can be complex theories. The most important is to understand that they actively influence the way we act. They influence what we see and therefore two people with different mental models can describe the same situation in a different way, as they are focused on different details. Inability to realize the mental models thwarted lots of efforts spent on raising the system thinking. These models can hinder learning by conserving outworn practice in organizations. On the other hand, they can speed up learning as well. Recent research shows, that most mental models are systematically incorrect, they miss important feedback relations, misinterpret the time delays and often focus

on factors that are visible and obvious but not necessarily of a major importance. (Senge, 1990)

4. Building shared vision: Vision is not an idea. For a learning organization it has a vital importance. While adaptive learning is possible even without a vision (mission), creative learning occurs only if people try to achieve something that they really care for. Most visions are the visions of individuals or groups, imposed on organizations. Such missions lead to obedience and do not encourage anybody. Common mission is a mission a lot of people are devoted to. It is the reflection of their personal vision (mission). A learning organization cannot exist without a common mission, as without any impulse to go for a goal, forces conserving the status quo will prevail within the organization. A mission sets a goal that provokes respect. The eminence of the goal forces to find new ways of thinking and acting. With common mission we can easier detect our way of thinking. We are more ready to give up the established attitudes and we can sooner and more effectively identify the personal and organizational deficiency (Senge, 1990).

5. Team learning: Team achievements depend on excellence of the accomplished work of individuals and on their mutual cooperation, on mutual co-ordination of the team members who, then create one unit. Team learning is a process of tuning and developing the ability of the team to create results, which are valued by its members. Senge (1990) mentions three critical dimensions, which are inherent to the team learning within an organization. Firstly there is the need of deep thoughts about complex problems, when the teams have to learn how to use the potential of several minds in such a way, that they will be more intelligent as one mind. The second dimension is the need for innovative and coordinated activity. Excellent teams develop operative trust, thanks to which every member of the team is aware of the other ones and one can assume he/she will be acting in a way that complements their activity. The third dimension is the position of the team members in face of other teams. Most activities of the teams on higher positions are carried out by other teams. In this way, a learning team supports the learning process within other teams and instils them with the procedures and virtue of team learning (Senge, 1990).

3. Method and processing the data

Research methods – The Method UO-1 has been structured as a set of items in three parts. The first part contained demographic characteristics. The other two parts have been focused on monitoring the character of decision-making of the managers in inclination to bureaucratic or to learning attributes in Situation No. 1, when a solution of a problem had a positive conclusion (non-problematic) and in Situation No. 2, when a solution of a problem had a negative conclusion (problematic).

The task of the respondent was to follow the instructions and to describe freely one real situation, where he/she had to decide, with a successful conclusion (non-problematic situation) and one situation, where the result of the decision was negative or problematic (problematic situation). Referring to the described situations, the respondents evaluated their decision-making procedure through the proposed items, formulated as polar characteristics on a 7 degree scale, where the value 1 = procedures in learning organizations and the value 7 = bureaucratic procedures. A set of operationalized items was identical for self-assessment in both described situations.

Items intended for measuring the inclination of managers to learning or bureaucratic ways of decision-making were formulated with respect to basic disciplines of learning organizations: 1. system thinking, 2. personal mastery, 3. mental models, 4. building shared vision 5. team learning when the attributes of bureaucracy are for the purpose of this analysis perceived as contra-versions of learning attributes. For each of the dimension – discipline, that can be viewed as indicators of learning systems - 6 operationalized items had been prepared. Apart from this, the dimension of casual dynamics had been added to the original disciplines, aimed at observing some aspects of the dynamics of decision-making – altogether 37 items for each situation. The values of the Cronbach's Alpha are – for the set of items of unproblematic situation: 0.85 and for the set of items of a problematic situation: 0.92.

Measured items of the method of the research (Scheme 1 in the appendix) are presented also in the chapter of the results of analysis, in the tables, which show results of the statistical empirical data processing.

Empirical data were processed by the procedures of descriptive statistics and multidimensional analysis of variance (MANOVA) for repeated measures – intra-subject factor SITUATION (1. non-problematic, 2. problematic). The dependent variables were the items of the decision-making description, the independent variables were the intra-subject factors. The STATISTICA 5.5. was used in the processing of the empirical data.

4. Research sample

From the overall number of 138 respondents, 56.52% women and 43.48% men took part in research survey. Demographic characteristics of the observed sample was monitored through the identification marks: gender, age, education, working area (whether public administration or “business sphere“).

Table 1: Structure of research sample according to sex and age

- in percent of raw (%)

Gender	Age						Together
	21-25	26-30	31-40	41-50	51-60	over 60	
Men	1.67	5.00	25.00	38.33	28.33	1.67	100.00
Women	5.13	10.26	20.51	48.72	15.38	0.00	100.00
Together	3.62	7.97	22.46	44.20	21.01	0.72	100.00

Source: authors

The structure of the research sample according to gender and age (Table 1) points out to the fact, that by both genders the mostly represented category is the one from 41 to 50, by men it is 38.33% and by women even 48.72% (together 44.20%). By men the second mostly represented age category is from 51 to 60 (28.33%) and the third one is the age category from 31 to 40 (25%). By women it is the opposite, the second most numerous category is the one from 31 to 40 (20.51%) and the third most numerous is the category from 51 to 60 (15.38%). The least respondents by men belong equally to the age category from 21 to 25 and to age category over 60 (both groups 1.67%). By women the age category has no representation at all.

Table 2: Structure of research sample according to sex and working area

- in percent of raw (%)

Gender	Area		Together
	Public Administration	Business	
Men	30.00	70.00	100.00
Women	61.54	38.46	100.00
Together	47.83	52.17	100.00

Source: authors

The structure of the research sample according to gender and working area (Table 2) points out, that while in the area of public administration (in our case territorial self-government) there are “only” 30% men in leading positions, in the business sphere as much as 70% of the leading position are taken by men. In public administration, 61.54% of women occupy the position of a manager within the observed sample had been while in the business sphere the representation of women on leading position is much lower – it is 38.46%.

Table 3: Structure of the research sample according to age and working

- in percent of raw (%)

Age	Area		Together
	Public Administration	Business	
21-25	0.00	100.00	100.00
26-30	54.55	45.45	100.00
31-40	25.81	74.19	100.00
41-50	57.38	42.62	100.00
51-60	55.17	44.83	100.00
over 60	100.00	0.00	100.00
Together	47.83	52.17	100.00

Source: Authors

The structure of the research sample according to age and working area (Table 3) shows that within the observed sample in public administration (self-government) there is no manager at the age from 21 to 25, while in the “business sphere” there is no manager at the age over 60. The most distinctive differentiation is at the age category from 31 to 40. Whilst in the “business sphere” the position of a manager is occupied within the observed sample by up to 74.19% of the respondents, in self-government it is only 25.81%. The other age categories are not so much differentiated.

5. Results

The observation of differences in character of decision-making of managers in problematic situations (PS) and non-problematic (NPS) situations in individual disciplines - attributes – of a learning organization brought in some interesting findings. Mean score measured for individual dimensions of learning shows that the measure of inclination to learning or bureaucracy is not definite.

Managers are willing to respect most principles of system thinking ($F=8.87$, $p=0.00$) and team learning ($F=6.22$, $p=0.01$), rather in relation to solution NPS ($M=2.75$ and $M=2.70$), than on solution PS ($M=3.04$ and $M=2.95$). Conversely significantly most far to respondents are principles of mental models (M for NPS=4.13, M for PS=4.01) and consequences dynamic (M for NPS=3.91, M for PS=3.85).

From the overall view, it is not possible to consider significant inclination of managers to attributes of decision-making on the basis of learning principles. However, at most disciplines, it is obvious that there is a vital potential to learning, which leads to the assumption that the “bureaucratic spectrum” of decision-making character is not used more often than the “learning” one.

As we cannot specify the character of the situation in more detail, so we cannot specify the link between the mentioned attributes and the type of the situation. Thus, we do not have the answer to whether, for example, the non-problematic situation, i.e. a situation with “good endings” (solution) had been solved successfully thanks to applying a higher degree of the mechanisms of learning or this is only the context suggesting that in a relatively less problematic situations the managers tend to act less rigidly compared to situations that are problematic, more demanding in procedures of solving and process of decision-making. Room for answering the questions, connected to implicate the character of the link between situation and decision-making procedures can be developed in future research. The option where the way of decision-making marks the final effect is more likely.

Table 4: Summary evaluation of manager’s inclination to attributes of learning organization – differences between NPS and PS (MANOVA)

Attributes of a learning organization	F	p	Mean	
			NPS	PS
System Thinking	8.87	0.00**	2.75	3.04
Personal Mastery	0.00	0.98	3.22	3.21
Mental Models	1.65	0.20	4.13	4.01
Casual Dynamics	0.56	0.46	3.91	3.85
Building Shared Vision	1.26	0.26	3.46	3.55
Team Learning	6.22	0.01**	2.70	2.95
Significant if p<0.01**, if p<0.05*				

Source: authors

System thinking shows mainly the ability of a manager to respect dynamics of a problem in various relevant contexts with a possibility of solution variability. It assumes awareness of participation and activity of all participants, demand for complex solutions and also mutual impact of all involved employees during solution.

H1: *We suppose, that the attributes of the organizational learning in decision-making of managers in the discipline of the system thinking will be attractive in the non-problematic situation solving rather than in the problematic situation solving.*

According to the data stated in Table 5 inclination to learning processes is more significant at solution NPS (M for items = from 2.37 to 2.99) than at solution PS (M for items = from 2.73 to 3.36). The difference in inclination to attributes of learning at solution NPS and PS has been discovered at 4 items out of 6. Most significant

difference in inclination to learning or bureaucracy is at respect of mutual impact in solution process, $F=15.87$ and $p=0.00$ (M for NPS=2.47, M for PS=2.98).

Table 5: Assessment of inclination of managers to attribute of system thinking in solving unproblematic (NPS) and problematic (PS) situations with no regard to working area (MANOVA)

System thinking		F	p	Mean	
Learning organization	Bureaucracy			NPS	PS
It is important to monitor what is the relation of problem being solved to the rest of the environment, the whole organization.	It is important to stick intensively at solving the problem itself only.	0.38	0.54	2.80	2.91
It is at the best to seek for a solution that takes into account various relations, links and connections within the organization.	It is at the best to seek for a solution that applies solely to the problem itself.	4.51	0.04*	2.88	3.25
When solving a situation it is important to keep in mind that the people around it are active and vigorous.	When solving a situation it is important to keep in mind, that the people around are mostly helpless and can not handle the solution of the situation by themselves.	0.02	0.89	2.97	2.99
When solving a situation it is always inevitable to understand the problem in a complex way.	When solving a situation it is always inevitable to focus especially on the details.	4.14	0.04*	2.37	2.73
Each solution has to be the result of a mutual action of a manager on the employees and vice versa.	Each solution has to be directed unambiguously from the manager to the employees.	5.16	0.02*	2.99	3.36
Seeking for solution has to be the matter of mutual influence of all who participate in it.	Seeking for solution has to be the matter of one person, as only the one has the responsibility.	15.87	0.00**	2.47	2.98
<i>Significant if $p < 0.01$**, if $p < 0.05$*</i>					

Source: authors

More significant difference has also been discovered at the item which shows attitude of cooperation between a manager and employees ($F=5.16$ and $p=0.02$), while in PS or in the situation with “bad end” (unsuccessfully solved) is significantly lower measuring the inclination to learning ($M=3.36$) than in the situation which was successfully solved and stated as an example of problem-free cause ($M=2.99$).

Similar tendency in character of differences was discovered at the item which is focused on monitoring various links and relations or concentration only on the problem alone in bureaucratic version $F=4.51$ a $p=0.04$ (M for NPS=2.80, M for PS=3.25) and also at the item which describes inclination to complex solutions or emphasizing details in bureaucratic version $F=4.14$ and $p=0.04$ (M for NPS=2.37, M for PS=2.73).

Stated tendency of decision-making character at managers is obvious also at other two items but difference between NPS and PS solution is not significant.

The described findings – and directly data in Table 4 which offers overview of total score for disciplines – show that assumption stated in H1 can be accepted as acknowledged. It means that presented findings are overall in accordance with this assumption. From the point of operationalized items is found a tendency relevant for all items, in 4 out of 6 items there were differences at decision-making at NPS and PS solution statistically significant.

Table 6: Assessment of the inclination of managers to the attribute of personal mastery in solving unproblematic (NPS) and problematic situations (PS) not regarding the working area (MANOVA)

Personal mastery		F	p	Mean	
Learning organization	Bureaucracy			NPS	PS
Each decision has to have a positive impact also in more far future.	Each decision has primarily to bring about instant improvement of the situation.	0.90	0.35	2.89	3.04
Prime requisite of decision-making is to inquire into the real primary causes.	In decision-making, especially the visible effects and externally clear situations have to be taken into account.	1.50	0.22	2.90	3.10
The most effective decisions are the ones that count on delayed effects and implications.	The most effective solutions are the ones that count on immediate effects and implications.	1.20	0.27	3.94	3.76
Everybody, who makes decisions, has to seek for capability and expertise in the field.	Everybody, who makes decisions, has to have predominance over the other employees.	0.48	0.49	2.23	2.33
If somebody makes decisions he/she has to convince about what is important over and over again.	If somebody makes decisions, he/she immediately has to find out what is steadily the most important.	4.51	0.04*	3.50	3.14
Each decision-making is a creative process and inventing something new.	Each decision-making is firstly about quick reaction on the incurred problems and events.	0.16	0.69	3.84	3.92
<i>Significant if $p < 0.01$**, if $p < 0.05$*</i>					

Source: authors

The dimension of *personal mastery* is connected with the knowledge that each solution has not only momentary effect in individual situation but has also affects further processes, events in future development of system. It requires manager's ability to look "behind" the external display of a problem and understanding the situation or a problem nature that moderates manager's dominancy over other solution participants (employees) at solving. Natural is continuous control of procedure efficiency when problem solving is understood not as quick reaction on occurred events but as a process that brings something new.

H2: *We suppose, that the attributes of the organizational learning in decision-making of managers in the discipline of personal mastery will be attractive in the non-problematic situation solving rather than in the problematic situation solving.*

Table 7: Assessment of the inclination of managers to the attribute of mental models in solving unproblematic (NPS) and problematic situation (PS) with no regard to working area

Mental models		F	P	Mean	
Learning organization	Bureaucracy			NPS	PS
Each problem arisen is to be understood as an ally and an opportunity.	Each problem arisen means trouble for smooth workflow.	0.02	0.96	3.68	3.69
When making decisions it is inevitable to change the circumstances around oneself constantly.	When making decisions it is inevitable to preserve a stabile working environment.	0.67	0.41	4.72	4.58
Decision-making has to be focused on permanent change in routine order.	Decision-making has to be focused on active support to routine order.	0.98	0.32	4.20	4.05
When making decisions it is necessary to compare the goals set with the actual status constantly.	When making decisions it is inevitable to follow the goal set under any circumstances.	3.99	0.04*	3.28	3.58
Decision-making is about patience above all.	Decision-making is mainly about quick reaction to situations and problems arisen.	5.54	0.02*	4.51	4.14
To solve problems means to discover and to constantly change the way of functioning accepted by everybody.	To solve problems means to ensure efficient support and protection to the ways of functioning accepted by everybody.	6.09	0.01**	4.40	4.03

*Significant if $p < 0.01$ **, if $p < 0.05$ **

Source: authors

According to the data in Tab. 6 statistically significant differences were found only at one item – it shows the need for continuous correction of solution procedures ($F=4.51$, $p=0.04$), while the mean score shows the tendency which is opposite to the overall picture of the researched inclination to learning or bureaucratic decision-making procedures. Overall tendency shows higher measure of inclination to learning principles in managing NPS solution than in CS solution. In this case conversely NPS solution is less characterized by using of this attribute ($M=3.50$) than PS solution ($M=3.14$). Differences at other items are not statistically important but mostly copy the overall trend of decision-making of managers. Strong is connection of “bad end” situation solutions and understanding of problem solution as a quick reaction to the occurred situation ($M=3.92$) – with low sensitivity to innovative, creative and developing potential of each problem and its solution.

The stated findings are in accordance with the assumption stated in H2 as long as the tendency in the character of decision-making is concerned. Managers incline mostly to attributes of learning in situations that were successfully solved. Since the difference between the character of decision-making in NPS and PS situation is not statistically important (overall in Table 4), this hypothesis cannot be approved.

The dimension of *mental models* is characterized by understanding a problem as an opportunity (not annoyance) and decision-making as a process of actual conditions change. It also implies using procedures that contribute to changes of a routine, permanent control of dynamics of goal-setting and actual condition relations. It favours patient, calm, negotiation, not quick decisions, and it is oriented to changes of previous function procedures that used to be well-known to everyone.

H3: We suppose, that the attributes of the organizational learning in decision-making of managers in the discipline of mental models will be attractive in the non-problematic situation solving rather than in the problematic situation solving.

Mental models as attributes of the organizational teaching are being used even less than the mean ones according to the data in Table 7. The tendency of the monitored differences between the application of NPS and PS is not explicit. Overall direction of manager's decision-making character that shows higher measure to the inclination to learning attributes in the case of NPS solution was obvious in this dimension only in 1 case out of 6 items. In the case of mental model discipline, it can be considered that PS solution is more connected with using learning attributes (even when according to the mean score it is medial) than NPS solution.

In NPS, the less preferred are especially the procedures that enable quick reaction to adequate extent of patience ($M=4.51$), which means that the managers prefer such decision-making procedures that are indeed quick, but do not cause a disturbance of the stabilized models of behaviour ($F=5.54$, $p=0.02$). An effort to keep the generally accepted standard procedures is obvious in case of solving PS situations ($M=4.03$) or situations with unsuccessful effort for adequate solution ($F=6.09$, $p=0.01$). Significantly

at least acceptable for managers is possibility of working condition constant change as direct consequence of their decisions in case of NPS solution ($M=4.72$).

The stated findings are obviously not in accordance with the assumption described in H3. The converse trend is obvious. In the case of 2 out of 6 items, there is also a statistically important difference in the character of manager's decision-making.

The dimension which we have called “*cause dynamic*” originally was not included in Senge's discipline system. It was added in order to emphasize the extraordinary dynamic of learning system and also as a support to the key learning attributes. It shows that each decision-making has to inevitably respect possibility of external influences and activation of some changes. Manager has to perceptively watch events that have preceded the problem arising in case, when at first sight, they have nothing in common with the problem. In this way, it is also possible to diagnose hidden relations and unpredictable circumstances, and respect complexity of the solved problem. Cause dynamic warns of the possibility of further problems arising as a consequence of the character of decision-making and solution of original problem. Further important attribute of learning in this dimension is knowledge that “at least visible things are often the most important and everyone who participates in problem-solving knows well and understands all relations at workplace (as a source of problem origin). A “silence moment” is also important that often signals that real problems are usually “silent” and are seldom expressed dramatically. More dramatic are consequences of such problems.

H4: We suppose that the attributes of the organizational learning in managers' decision-making in the discipline of the casual dynamic will be attractive in the non-problematic situation solving rather than in the problematic situation solving.

Table 8 shows the data gathered and measured with regard to “cause dynamics“, which points to the mechanisms of distinct dynamics of the decision-making processes. The tendency of differences between NPS and PS in application of these mechanisms is ambiguous. In case of significant differences, the learning mechanisms show up rather in the case of PS – it is the effort to respect the variability of options for approaches and solutions. This effort is expressively less active in the case of PS.

Differences in character of decision-making according to the character of solved situation are not big; statistically important are in the case of 2 out of 7 variables. It is an attribute which shows possibility of further arising of problems as a consequence of manager's decisions when $F=9.40$ and $p=0.00$. According to the mean score, it is obvious that in case of a positive solution, course managers do not admit easily that further problems can occur (M for NPS=4.99 M for PS=4.55). Similarly very low inclination to learning (rather refusal) has been found at the attribute that requires that each responsible participant in problem solving is well acquainted with the character of all workplace relations (as a source of cause dynamic). In the case of NPS solution $M=4.25$ rather than in the case of PS solution start to consider (often hypocritically) providing of information about workplace relations for all responsible participants

(M for PS=3.78). In case of these two attributes – variables the tendency is converse in decision-making character of managers than central tendency.

Other items of this dimension do not show statistically important differences in character of decision-making at NPS and PS solution; however a view on mean score shows more closeness to central tendency.

The key for the results assessment of statistical processing at H4 verification is statistically significant results, and hence, the assumed trend of the character of decision -making in relation to the set hypothesis cannot be confirmed.

Table 8: Assessment of inclination of managers to the attribute of casual dynamics in solving unproblematic (NPS) and problematic situations (PS) with no regard to working area (MANOVA)

Casual dynamics		F	p	Mean	
Learning organization	Bureaucracy			NPS	PS
When making decisions it is necessary to be constantly open to influence from others.	When making decisions it is necessary to function independently and to lock out any external influence.	0.04	0.85	3.44	3.47
From a long-term perspective it is advisable to encourage situations which can bring about some changes.	From a long-term perspective it is advisable not to invoke any unnecessary changes.	2.39	0.12	2.98	3.19
Before making a decision it is necessary to search for events that seemingly do not have any relation to solving the problems.	Searching for events that do not have a direct relation to the problem being solved is a waste of time.	0.45	0.50	3.75	3.86
With each decision it is necessary to think about the possibility of problems emerging.	It is not advisable to burden the decision-making with thoughts about the possibility of problems emerging.	9.40	0.00**	4.99	4.55
It is true, that for a solution of a problem the least visible signs and events are usually the most important.	It is true, that for a solution of a problem the important events are the ones most visible and obvious.	0.11	0.74	4.01	4.06
It is of importance that each person participating knows and understands all links and relations on the workplace.	It is of importance that the one who makes decisions and has the responsibility knows all links and relations on the workplace.	7.72	0.01**	4.25	3.78
Real problems are usually hidden and silent and rarely come out.	Real problems always come out in their essence very dramatically.	0.24	0.63	3.96	4.04
<i>Significant if p<0,01**, if p<0.05*</i>					

Source: authors

Building shared vision discipline significantly affects the way of organization goals understanding and their reaching. We do not talk here about reaching goals but completing mission or following the accepted vision. Rhetoric of learning systems is in this way much gentler and in relation to goals more free. Goals are not inevitably reached point but characteristic of way connected with key values in organization. Building shared vision discipline shows that goals are important not only for managers and “responsible ones” but that they are open for all employees. So are goals and visions in organization understood as result of “searching and consent” of all employees, not as necessity which is stated and it is necessary to respect – necessity (obligation) is replaced here by choice possibility and contribution.

The way of reaching goals represents a path that works as a permanent creation of “new” while bureaucratic path favours using already tired standard procedures (regardless of specific situations). Important is permanent uncovering of personal and organizational deficiencies and respect to traditional procedures of goal creation recedes to more flexible missions, long-term planning recedes to fresh inspiration and ideas.

H5: We suppose, that the attributes of the organizational learning in decision-making of managers in the discipline of building the shared vision will be more attractive in the non-problematic situation solving rather than in the problematic situation solving.

The area of visions and goals (Table 9) is the key within an organization. Through their character they can distinctively direct the way of organization functioning – to post bureaucratic or bureaucratic direction. Tendency of differences between NPS and PS are in this case directed to a greater preference of learning procedures in case of solving NPS, in case of 3 mechanisms out of 6 they were significant. It means that in vision and goal dimension, similar tendencies in character of manager decision-making at problem solving were found indicating the overall picture of the inclination to learning or bureaucratic attributes of decision-making. Most significant differences in character of decision-making with regard to the solved problem were found at “searching of methods” for reaching of goals ($F=8.46$ and $p=0.00$). Inclination to learning attributes was in this case more significant at NPS solution ($M=2.86$) than at PS solution ($M=3.21$).

Table 9: Assessment of the inclination of managers to the attribute of building the shared vision in solving unproblematic (NPS) and problematic situation (PS) without regard to working area (MANOVA)

Building shared vision		F	p	Mean	
Learning organization	Bureaucracy			NPS	PS
Goals of the organization have always to be open equally to all employees.	Goals of the organization are clear, understandable and important only for those, who make the decisions within the organization.	1.96	0.16	2.46	2.69
Employees can accept decisions only on their own accord for the sake of reaching organizational goals.	Employees are obliged to respect the decisions for the sake of reaching the goals of the organization.	5.87	0.02*	5.22	4.89
It is essential always to search for new ways of reaching organizational goals.	It is important always to rely on proven methods and ways of thinking which already certified their efficiency.	8.46	0.04*	2.86	3.21
Solving of problems arisen needs a very quick detection of personal and organizational deficiencies.	Effectiveness of the solution of problems drops dramatically with constant detection of personal and organizational deficiencies.	0.73	0.39	3.07	3.20
Effective decision-making heads towards fully giving up the traditional notion of creating goals.	Effective decision-making has to be based on great respect to traditional notion of creating goals.	6.14	0.01*	3.22	3.52
The most suitable goals are always the result of a good idea and instant inspiration.	The most suitable goals are always the result of a long-term planning.	1.66	0.20	3.96	3.76
<i>Significant if $p < 0.01$**, if $p < 0.05$*</i>					

Source: authors

Distinctive exception is the question of accepting the goals of the organization, where the managers clearly incline more to “automatic” acceptance by the employees, what suppresses the possibilities to participate voluntarily (F=5.87 a p=0.02). However, according to mean score the rate of acceptance is average to very low (M= for NPS=5.22, M for PS=4.89); in case of voluntariness one could rather think of disapproval with this mechanism in the case of UPS.

Table 10: Assessment of inclination of the managers to attribute of team learning in solving unproblematic (NPS) and problematic situations (PS) without regard to working area (MANOVA)

Team learning		F	p	Mean	
Learning organization	Bureaucracy			NPS	PS
Constant mutual cooperation of all is inevitable for work and problem solving.	For work and problem solving it is important, that everybody is dedicated to his/her self-dependent work.	2.83	0.09	2.36	2.54
When solving problems it is suitable to use the potential of all employees equally.	When solving problems it is suitable to cooperate with employees who are constantly the best ones.	0.32	0.57	2.93	2.86
Employees have to complement each other constantly in fulfilling the tasks and solving the problems.	Fulfilling the tasks and solving the problems each employee has to function fully self-dependently.	5.21	0.02*	2.68	3.03
For problem solving it is inevitable to listen to co-workers very intensively.	Independent decision-making is inevitable for problem solving in any situation.	3.44	0.07	2.97	3.26
Problems arisen have to be analyzed deeply and in any case their true cause has to be disclosed.	Problems arisen have to be solved quickly and without indulging in useless analyses.	3.23	0.07	2.86	3.22
Integral part of the decision-making is acquisition of feedback from the employees and the ability to ask questions.	Useless questions only make the process of decision-making longer and more complicated.	2.52	0.11	2.42	2.75
<i>Significant if $p < 0.01$ **, if $p < 0.05$ *</i>					

Source: authors

According to the mean score managers responded very positively to goal-setting as a process open to participation of all employees – mainly in connection with successful problem solving (M=2.46).

According to the data stated in Table 9 it can be established that the found and described results are in accordance with assumption expressed in H5. Thus, in the dimension of visions and goals, the manager's decision-making character is closer to learning attributes in case of a "happy end" solution than in a solution of unsuccessful cases. In three out of 6 items this finding was in relation to researched differences statistically important.

Team learning discipline emphasizes importance of group (team) in conditions of organization when learning system is a permanent solution in relation organization

– team – individual. It enables to support cooperative mechanisms in organization and broaden the learning space for dynamism dimension of identification with group of co-workers. It shows importance of mutual cooperation at problem solution, necessity to respect the potential of all employees, conscience of mutual dependence of team members. A deep analysis of problem is important and careful searching of causes but also maintaining of feedback flow and permanent information saturation in team environment.

H6: We suppose, that the attributes of the organizational learning in managers' decision-making in the discipline of the team learning will be attractive in the non-problematic situation solving rather than in the problematic situation solving.

Team learning belongs to those attributes of organizational teaching, which shows a relatively high rate of acceptance (Table 10), evidently especially in situations that are being solved successfully at the end – the mean score of the items in this discipline is between 2.36 and 2.97. It means, that the inclination to the learning attributes in the problem solving is linked to the success end of the solving. Tendency of differences between character of decision-making at NPS solution or PS solution copies main trend when learning attributes are more attractive for managers in case of NPS solution than PS solution. Statistically important differences in the rate of inclination to team learning with regard to the character of the situation were found at level of 3 out of 6 items. Most attractive attribute of team learning in decision-making for managers was mutual cooperation moment. (M for NPS=2.36, M for PS=2.54). Conversely, at least used was attribute of mutual dependence of team members at using of “bas end” problems (M=3.26).

Found and presented results of data processing show that measure of manager inclination to using of learning attributes in decision-making regarding problem solving is higher in case of NPS solution than in case of PS solution. This finding is in three out of 6 cases statistically important and agrees with assumption expressed in H6.

6. Conclusion

The data on the character of decision-making in selected (challenged - problematic and unchallenged – non-problematic) situations acquired and presented, signify evident differences in the character of decision-making with respect to the measure of inclination of the managers to attributes of organizational teaching or to bureaucratic mechanisms. Tendencies in decision-making head towards using the tools of organizational learning especially when linked to non-problematic situations, and so solving such situations which have not been successful are usually connected to using the tools of a classic bureaucracy.

This finding is in accordance with central hypothesis and confirms the assumption that connects successful problem solutions with higher measure of inclination to organization learning attributes in decision-making process rather than to bureaucracy attributes. This tendency is not definite in all disciplines – it is most significant in disciplines of team learning and system thinking, at least it is exhibited in mental model discipline. According to the findings of our research, it can be said that the inclination of the manager's decision-making to the learning attributions is the highest on the dimension of team learning. Managers in decision-making process at problem solving don't have definite attitude to learning attributes and their using is not extremely attractive, rather average. In this sense the space of manager decision-making area has very dynamic potential for development to using of more effective tools characterizing operation of intelligent systems which respects high measure of complexity in organizations. Presented analyses and their results brought some interesting information that indicates several further possibilities for future analyses.

For further development of effectiveness of formal organizations in currently highly dynamic world, their analysing is not just expected but also required.

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Donošenje menadžerskih odluka u društvenim organizacijama – empirijska analiza birokratskog pristupa nasuprot pristupa učenja

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Sažetak

Rad je usmjeren prema procesu donošenja odluka menadžera u odnosu na osnovni model organizacijskog učenja prezentiranog od strane P. Sengea kao sistemski-model menadžmenta. Empirijsko istraživanje provedeno je povezivanjem s ključnim razinama organiziranog učenja: 1. sustavno razmišljanje, 2. osobno usavršavanje, 3. mentalni modeli, 4. grupno učenje, 5. ciljevi i zadaci i 6. dinamični uzroci s jedne strane a s druge strane birokratska logika donošenja odluka koju karakterizira nefunkcionalna stabilnost, nefleksibilnost, individualizam, snaga, autoritet i hijerarhija, centralizacija, fragmentacija i neodređenost. Cilj istraživanja bio je analizirati udio menadžereve orijentacije prema donošenju odluka s korištenjem birokratskih alata ili organizirano učenje uspoređujući problemsko i neproblemsko odlučivanje. (MANOVA, metoda ponovljene mjere, intersubjektivni faktor situacija: 1. neproblemska, 2. problemska). Zaključak analize jest da postoje značajne razlike između tipova problemskog i neproblemskog odlučivanja: birokratski atributi donošenja odluka mnogo su intenzivniji u problemskim situacijama, dok je pristup povezan s učenjem mnogo češći kod neproblemskih situacija. Rezultati našeg istraživanja ukazuju na činjenicu da su menadžeri mnogo uspješniji u rješavanju problema koristeći attribute organizacijskog učenja prilikom donošenja odluka.

Ključne riječi: organizacijsko učenje, menadžersko donošenje odluka, birokracija

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Appendix

Scheme 1: The attributes of the organizational learning, or bureaucracy in decision making of managers – Method – UO-1

Learning organization	Scale	Bureaucracy
It is important to monitor what is the relation of problem being solved to the rest of the environment, the whole organization.	1 2 3 4 5 6 7	It is important to stick intensively at solving the problem itself only.
It is at the best to seek for a solution that takes into account various relations, links and connections within the organization.	1 2 3 4 5 6 7	It is at the best to seek for a solution that applies solely to the problem itself.
When solving a situation it is important to keep in mind that the people around it are active and vigorous.	1 2 3 4 5 6 7	When solving a situation it is important to keep in mind, that the people around are mostly helpless and can not handle the solution of the situation by themselves.
When solving a situation it is always inevitable to understand the problem in a complex way.	1 2 3 4 5 6 7	When solving a situation it is always inevitable to focus especially on the details.
Each solution has to be the result of a mutual action of a manager on the employees and vice versa.	1 2 3 4 5 6 7	Each solution has to be directed unambiguously from the manager to the employees.
Seeking for solution has to be the matter of mutual influence of all who participate in it.	1 2 3 4 5 6 7	Seeking for solution has to be the matter of one person, as only the one has the responsibility.
Each decision has to have a positive impact also in more far future.	1 2 3 4 5 6 7	Each decision has primarily to bring about instant improvement of the situation.
Prime requisite of decision-making is to inquire into the real primary causes.	1 2 3 4 5 6 7	In decision-making, especially the visible effects and externally clear situations have to be taken into account.
The most effective decisions are the ones that count on delayed effects and implications.	1 2 3 4 5 6 7	The most effective solutions are the ones that count on immediate effects and implications.
Everybody, who makes decisions, has to seek for capability and expertise in the field.	1 2 3 4 5 6 7	Everybody, who makes decisions, has to have predominance over the other employees.
If somebody makes decisions he/she has to convince about what is important over and over again.	1 2 3 4 5 6 7	If somebody makes decisions, he/she immediately has to find out what is steadily the most important.

Learning organization	Scale	Bureaucracy
Each decision-making is a creative process and inventing something new.	1 2 3 4 5 6 7	Each decision-making is firstly about quick reaction on the incurred problems and events.
Each decision-making is a creative process and inventing something new.	1 2 3 4 5 6 7	Each decision-making is firstly about quick reaction on the incurred problems and events.
Each problem arisen is to be understood as an ally and an opportunity.	1 2 3 4 5 6 7	Each problem arisen means trouble for smooth workflow.
When making decisions it is inevitable to change the circumstances around oneself constantly.	1 2 3 4 5 6 7	When making decisions it is inevitable to preserve a stabile working environment.
Decision-making has to be focused on permanent change in routine order.	1 2 3 4 5 6 7	Decision-making has to be focused on active support to routine order.
When making decisions it is necessary to compare the goals set with the actual status constantly.	1 2 3 4 5 6 7	When making decisions it is inevitable to follow the goal set under any circumstances.
Decision-making is about patience above all.	1 2 3 4 5 6 7	Decision-making is mainly about quick reaction to situations and problems arisen.
To solve problems means to discover and to constantly change the way of functioning accepted by everybody.	1 2 3 4 5 6 7	To solve problems means to ensure efficient support and protection to the ways of functioning accepted by everybody.
When making-decisions it is necessary to be constantly open to influence from others.	1 2 3 4 5 6 7	When making-decisions it is necessary to function independently and to lock out any external influence.
From a long-term perspective it is advisable to encourage situations which can bring about some changes.	1 2 3 4 5 6 7	From a long-term perspective it is advisable not to invoke any unnecessary changes.
Before making a decision it is necessary to search for events that seemingly do not have any relation to solving the problems.	1 2 3 4 5 6 7	Searching for events that do not have a direct relation to the problem being solved is a waste of time.
With each decision it is necessary to thing about the possibility of problems emerging.	1 2 3 4 5 6 7	It is not advisable to burden the decision-making with thoughts about the possibility of problems emerging.
It is true, that for a solution of a problem the least visible signs and events are usually the most important.	1 2 3 4 5 6 7	It is true, that for a solution of a problem the important events are the ones most visible and obvious.
It is of importance that each person participating knows and understands all links and relations on the workplace.	1 2 3 4 5 6 7	It is of importance that the one who makes decisions and has the responsibility knows all links and relations on the workplace.

Learning organization	Scale	Bureaucracy
Real problems are usually hidden and silent and rarely come out.	1 2 3 4 5 6 7	Real problems always come out in their essence very dramatically.
Goals of the organization have always to be open equally to all employees.	1 2 3 4 5 6 7	Goals of the organization are clear, understandable and important only for those, who make the decisions within the organization.
Employees can accept decisions only on their own accord for the sake of reaching organizational goals.	1 2 3 4 5 6 7	Employees are obliged to respect the decisions for the sake of reaching the goals of the organization.
It is essential always to search for new ways of reaching organizational goals.	1 2 3 4 5 6 7	It is important always to rely on proven methods and ways of thinking which already certified their efficiency.
Solving of problems arisen needs a very quick detection of personal and organizational deficiencies.	1 2 3 4 5 6 7	Effectiveness of the solution of problems drops dramatically with constant detection of personal and organizational deficiencies.
Effective decision-making heads towards fully giving up the traditional notion of creating goals.	1 2 3 4 5 6 7	Effective decision-making has to be based on great respect to traditional notion of creating goals.
The most suitable goals are always the result of a good idea and instant inspiration.	1 2 3 4 5 6 7	The most suitable goals are always the result of a long-term planning.
Constant mutual cooperation of all is inevitable for work and problem solving.	1 2 3 4 5 6 7	For work and problem solving it is important, that everybody is dedicated to his/her self-dependent work.
When solving problems it is suitable to use the potential of all employees equally.	1 2 3 4 5 6 7	When solving problems it is suitable to cooperate with employees who are constantly the best ones.
Employees have to complement each other constantly in fulfilling the tasks and solving the problems.	1 2 3 4 5 6 7	Fulfilling the tasks and solving the problems each employee has to function fully self-dependently.
For problem solving it is inevitable to listen to co-workers very intensively.	1 2 3 4 5 6 7	Independent decision-making is inevitable for problem solving in any situation.
Problems arisen have to be analyzed deeply and in any case their true cause has to be disclosed.	1 2 3 4 5 6 7	Problems arisen have to be solved quickly and without indulging in useless analyses.
Integral part of the decision-making is acquisition of feedback from the employees and the ability to ask questions.	1 2 3 4 5 6 7	Useless questions only make the process of decision-making longer and more complicated.

Source: authors

