

## ORGANIZATIONAL CONDITIONING OF EFFECTIVENESS OF DEVELOPMENT PROJECTS

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**Purpose:** The subject of considerations are organizational determinants the effectiveness of the development projects. Special attention is paid to increasing activeness of members of the organization, whose informal knowledge on causes of problems may supplement the information processed in the development project. The objective is to identify factors dependent on organization, which influence the effectiveness of project initiated in the event of a development gap.

**Methodology:** System analysis is used to a set of alternative patterns of arrangement of selected aspects of the project. Examined is functional compatibility of patterns with the basic patterns of response to real or potential problems: prevention, correction and/or containment of the impact of the problem. In the analysis is used a general model "MSISI" development project and a model of problems cleaner.

**Findings:** A system of basic factors is distinguished, which determine the terms of cooperation with the project team. It is shown that the choice of a strategy for development based on prevention or correction predetermines the choice of patterns of arranging cooperation of people with the project team, if the project is to be effective.

**Originality/value:** The text enhances the understanding of the conditions that are shaping the readiness of people to cooperate actively in the implementation of development projects and creating an environment supportive for improvement.

**Paper type:** Research Paper

**Published online:** 30 April 2015

Vol. 5, No. 2, pp. 113-128

ISSN 2083-4942 (Print)

ISSN 2083-4950 (Online)

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**Keywords:** *wordsdevelopment, tactics, strategy, human potential, motivation*

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## 1. INTRODUCTION

„What does not kill us will make us stronger” (Was mich nicht umbringt, macht mich stärker.) (Nietzsche, 1888) correctly captures the duality of perceiving problems. Internal and external problems may threaten the existence of any organization. Overcoming them may contribute to the development of the organization – the overall improvement of efficiency and effectiveness. In the following discussion we refer to the concept of development as shown in (Myszewski, 2014). The basic concepts of this approach are the development gap and the development process.

Development gap represents a significant deviation of the current state of an organization from the expected one. It can express the distance to the intended state of the strategy as a target, or may result from unforeseen changes to the conditions inside and in its vicinity. In the latter case, the impact of gap is generally detrimental to the operation of the organization. In any case, the existence of the development gap is a challenge to be faced by an organizational management.

Development is the process of eliminating development gaps in the organization. It is implemented in a series of development projects - individual processes taken to eliminate the gap or its impact. In the following discussion we will focus on the case of development associated with unplanned gaps (hereinafter called exogenous).

The main factor determining the effectiveness of development is the availability of knowledge resources, necessary to enable the identification and analysis of development gaps and then to specify the method of eliminating the impact of the gap and its effective implementation. The effectiveness of the process of solving the problem depends on the support provided by the management of the organization and ensuring the involvement of people. Substantive and organizational activities constitute a complex system shown in the diagram MSISI (Myszewski, 2012). With limited resources, methods to selectively pursue selected development goals are of particular importance (Myszewski, 2014).

The literature on Lean Manufacturing is a rich source of knowledge on the subject. Lean methods include general schemes of planning stream of inventories and products such as value stream analysis (Rother & Shook, 2003), control them by using the kanban system or leveling inventory processes (IEPF I, 1989). Interference in their application may be a signal that shows an organizational gap. Its removal may require establishing a solution of the problem by using the general improvement schemes such as kaizen (Imai, 1986), SMED (Dave & Sohani, 2012), 5S or TPM (IEPF I, 1989). There can be used specific techniques and tools, such as the old and new sets of seven tools of quality control (Myszewski, 2009).

The richness of the descriptions is not accompanied by an plenty of effective applications. Development requires effort and willingness to take on challenges from all members of the organization. Ability to develop is an internal feature of organization, which is formed in a long-term process of continuous improvement.

The subject of the considerations are determinants of the effectiveness of the development process run to eliminate impact of exogenous development gaps. It is implemented in a sequence of projects launched by the appearance of particular gap. We analyze the composition of methods used in the arrangement of projects to ensure management support for project and participation of people from organization who are not formally involved in the project.

The aim of the discussion is to describe determinants of the choice of method (tactics) of using human resource in the development project. We will show that this choice is largely predefined by a more general method, resulting from the adopted vision to respond to gaps in development, which will be called the strategy of development.

Military terminology (strategy, tactics) used in the description of the development projects in the organization has a twofold meaning. First, it reflects the relationship with the overall strategy of the organization. Second, it emphasizes that the potential outcome in the project can be a defeat, eliminating an organization from the scene.

## 2. TACTICS AND STRATEGIES FOR DEVELOPMENT

Development project (ISO 9000, p 3.4.3) follows a certain pattern. It starts by identifying the presence of gaps and ends by execution of appropriate actions in the organization. The project involves a variety of standard methods. The subject of the discussion of this section is differentiation of patterns of development projects.

Development tactic we call a general method of resource utilization in a particular phase of a development project. In the various stages of implementation different organizational units may be involved and different tactics may be used.

Development strategy of the organization we call a vision of its development. It answers the question of what impact the organization may have on future development gaps.

Predicted state of the organization "after the gap" that is "not worse" than the state "before the gap", represents the vision of a proactive approach to gaps. With appropriate actions, adverse gap impacts will be eliminated. The state "worse" "after the gap" may arise from the implicit acceptance of nuisance related to gaps and confining activity to containing its impact. According to the presumed level of activity against gaps we distinguish active and passive development strategies.

We claim that from the classification follow certain directions concerning the allocation of resources and the choice of tactics of their use in development project.

**Statement 1.1.** Any tactic of resources use consistent with active strategy is a combination of the following tactics:

P. proactive tactics = use of available resources to eliminate potential mechanisms of gap impact before these mechanisms become active;

R. reactive tactics = use of available resources to eliminate the impact of the gap's mechanisms that have become active;

**Sketch of the proof:** Achieving a state "not worse" "after the gap", means to eliminate the impact of the gap on functions of the organization by removing gap or by removing important mechanisms of its impact. In order to achieve such a state one can use the actions anticipating interference (proactive tactic) or constituting a response to the interference (reactive tactic).

**Statement 1.2** In the passive strategy, the dominant tactic of use of available resources to contain the impact of gaps consists of:

- Recovering the disturbed function of the organization,
- Removing the effects of interference.

**Sketch of the proof:** The above actions cover what could be done, under the assumption that neither gap nor its effect cannot be permanently eliminated.

Said tactics will be called passive.

**Comment:** Passive strategy represents a specific vision of the organization without development. Each new development gap leaves a lasting trace that severely impairs functions of an organization. Regular standards are complemented by various procedures for containing impact of unresolved gaps and the resources used are complemented by extra ones to support these procedures.

**Statement 1.3.** The rationale for the use of the passive tactics can be:

- High difficulty of removing particular gaps or their impact,
- Easiness to carry out measures to contain the impact of gap.

### 3. CONDITIONING THE EFFECTIVENESS OF DEVELOPMENT TACTICS

The subject of the considerations of this section are determinants of the decision on choice of the overall (active or passive) tactic to deal with a gap in the project. Discussed are conditions necessary to ensure the effectiveness of particular tactics, the ability to meet the conditions and, consequently, feasibility of considered tactics.

We show that by the choice of the development strategy, conditions shall be settled, under which the tactics used in development projects can be effective.

#### **The effectiveness of the development tactics**

The project effectiveness can be assessed a priori based on the characteristics of the conditions, under which the project will be implemented.

**Statement 2.1.** (Myszewski, 2014) The effectiveness of a development project depends on:

- The amount of resources  $R$  available within the time  $h$  planned for implementation of each phase of the project,
- Number of tasks (problems)  $\Delta L$  assigned to one phase of the project,

- Number of outstanding tasks  $Q\Delta t$  when implementation of the project was started,
- Efficiency  $c$  of resource use,
- Workload  $x$  of project tasks,
- Bias in assessment of workload.

The project is effective if and only if  $(\Delta L + Q\Delta t) < c \cdot R / \{x \cdot (1+u)\}$ .

### Efficiency of development tactics

The cost of used resources is the primary component of the cost of the project. Different development tactics require different amounts of resources.

**Statement 2.2.** Under fixed conditions (similar: organization and its environment, development gap, the impact of the gap):

a. cost of ensuring the effectiveness of a passive tactic:

- Is a component of the cost to ensure effectiveness of the respective reactive tactic,
- Is a repetitive component of the cost of recovering operation of organizational processes in question.

b. cost of ensuring the effectiveness of a reactive tactic is higher than that of proactive one.

#### Sketch of the proof:

Ad a. Activities that belong to passive tactics are part of those that belong to the reactive one. Before proceeding to the elimination of gap impacts, one has to remove the effects produced by the gap (to restore function and eliminate physical effects of disturbance). Since the objective of passive tactics is not to remove the impact of the gap, so interference may occur repeatedly.

Ad b. Resource cost involved in the problem-solving phase in both active tactics can be considered comparable. Making changes in the implementation phase, when reactive tactics is used, requires not only changes in the documentation (also necessary in the proactive tactic) but also physical changes in the resources used in the process. Removing effects of the gap is an inherent component of the cost of reactive tactics.

### The effectiveness of the maintenance function

Objectives achievable by different tactics are not identical. Their usefulness depends on expectations regarding maintaining the particular function. The expectations may depend on the characteristics of impact of the gap on the function.

**Statement 2.3.** The following tactics of maintaining a function:

- p. to minimize the risk of unavailability of the function in advance,
  - r. to minimize the risk of unavailability of the function, provided that the gap occurred,
  - c. to minimize the break in access to the function, provided a gap has occurred,
- are equivalent to the following general tactics of development: proactive (P), reactive (R) and passive (C).

**Sketch of the proof:**

Ad p. Risk of unavailability of the function is an attribute of the probability distribution function of the length of the unavailability interval. The smaller the expected value, the smaller is the risk. Perfect condition represents a discrete distribution with mean zero. It corresponds to perfect prevention of disruptions, which is an objective of the proactive tactics.

Ad r. The ideal state in this case, is represented by the discrete distribution with the expected value of zero, provided that the gap occurred. It corresponds to a perfect identifying gaps and eliminating their impact, which is an objective of the reactive tactics.

Ad c. The ideal state corresponds to immediate recovery of functions, which is an objective of the passive tactics.

**Improvement of the system of development assurance**

Repeated ineffectiveness of development projects may indicate the gap in the development capacity of the organization. In the organization that pursues an active development strategy, a launch of special project can be expected to improve the effectiveness of development projects.

**Statement 2.4.** Any procedure to increase the effectiveness of a development project is a combination of the following measures:

- Extending the completion time  $h$  of the project,
- Increasing the amount  $R$  of resources available in the development project,
- Increasing resource productivity  $E$  by:
  - Increasing the efficiency of resources use  $c$ ,
  - Decreasing the workload  $\xi$  of tasks and the bias  $u$  of the workload assessment.

**Sketch of the proof:** Rules of improving the effectiveness can be derived directly from the statement 2.1.

**Comment:** Number  $R$  of resources available in the development project is a factor in the effectiveness, which can vary from project to project. Changes in productivity  $E = c / \{x \cdot (1+u)\}$  reflect the level of commitment of leadership of the organization. In the absence of commitment,  $E$  is a non-growing function. Low productivity of resources can be a barrier limiting the choice of development tactics.

**Statement 2.5.** The amount of resources insufficient to ensure the effectiveness of the active tactics may be sufficient when it is used in passive tactics.

**Sketch of the proof:** From the statement 2.2 it follows that the amount of resources necessary for effective implementation of the passive tactic is less than that for proactive one. By extending time  $h$  of restoring the function one can ensure that the latter will be effective.

**Comment:** This statement describes the dilemma faced by the leaders of development projects. When available resources are insufficient to eliminate the interference mechanism, the only effective tactic is passive.

**Conclusion 2.6.** The prerequisites of the effectiveness of development projects are a direct consequence of the choice of development strategy of the organization.

**Sketch of the proof:** If the choice of development strategy was preceded by a risk analysis, it can be assumed that it indicated the need for:

- One of active tactics (proactive or reactive), and the selection took into consideration comparison of overall cost related to implementation of development projects (statement 2.2),
- Involvement of the strategic management level, in order to ensure growth of the productivity  $E$  and consequently to reduce the amount of resources needed to ensure the effectiveness of (statement 2.4).

If the risk analysis has not been carried out, but the need to develop was recognized as important, it cannot be excluded that the reactive tactics was adopted with the consequences set out in the statement 2.5.

If there were no reflection on the development strategy, the default strategy was adopted passive.

#### 4. PARTICIPATION OF PEOPLE IN THE DEVELOPMENT

Development project is implemented in a team of people. The project team is a biased representation of the community of people in an organization. The team leader and members are selected on substantial criteria which include relationship of their work with the subject of the project. Among them are responsible for restoring the proper functioning. With the appointment of the team, they take formal responsibility for new tasks related to the project. The team can be isolated from the community or may communicate and benefit from the knowledge and experience of others.

The possibility to enlist the help of the community creates the potential that could be used, provided there are forms of cooperation established, which enable use of voluntary initiatives. Potential of activeness, voluntary activity are terms, which will be used below to denote work of people performed voluntarily, that involves tasks that do not belong to their duties.

We analyze circumstances of use of the potential activity of people in the organization. Some conditions are formulated for the effective use of the potential of the project.

##### **Tactics of use the activeness of people**

**Statement 3.1.** Any tactics to use human activeness is a combination of the following two:

A. Everyone has specified job and let's not change it,

B. If someone feels the need for extra activity, let's give the opportunity.

**Sketch of the proof:** "Central aspect of an organization is the coordination

of people and resources to collectively accomplish desired ends.” (Daft, 2013, p.12). A framework for implementing organizational functions is established by” organizational design as the structures of accountability and responsibility used to develop and implement strategies, and the human resource practices and information and business processes that activate those structures” (Miller & Friesen, 1984) cited in (Greenwood & Miller, 2010, p. 78).

Except for emergency incidents (facing a danger) or organizations based on coercion, tasks assigned to members of organization are subject to agreement between the individual and organization. Assigning an employee an extra task could be a violation of the contract. Tactics A and B represent extreme approaches to voluntary work.

**Comment:** In a perfect organization, each activity necessary to achieve objectives of the organization should be addressed by some task assigned in the organization. So the tactic A should be sufficient to ensure its effectiveness. However, there is no perfect organization. Incidental failure of organizational failure may cause that extra measures may be necessary, which are not addressed by regular tasks. If such failures are frequent, the extra work is to be set up in the organizational framework accepted by both parties. Promising perspective offer examples of different types of voluntary activities in which organization’s members perform tasks outside the scope of their duties. This activeness can be absorbed by use of tactic B.

A realization of tactic A can cause conflicts. Separating e.g. people who operate process from procedure of problem solving encourages blaming them for problems. They are represented by a branch of "man" on the Ishikawa diagram and their role seems to be a foregone conclusion.

On the one hand this facilitates the formulation of a diagnosis (human factor), but on the other hand, is not bringing closer to elimination of the problem. Man, even if made a mistake, to a large extent, was only a link in the chain of factors forming mechanism of the problem.

**Statement 3.2.** Tactics B is necessary to implement active development strategy of the organization.

**Sketch of the proof:** From the statement 2.1 it follows that the greater the knowledge resources available, the greater the effectiveness of the project. Development projects are vague: identifying gaps, causes, measures to eliminate the cause is based on schemes that cannot be very precise. The requirements on the necessary knowledge are also imprecise. Key factors may prove to be elements of tacit knowledge, which belong to people outside the project team, who operate processes associated with the function subject to the failure. Sharing it is not their responsibility.

The expected outcome of the development project is a change in an organization, associated with the elimination of the gap. The change affects the interests, responsibilities and habits. Contesting changes can lead to ineffectiveness of development project. The more people are involved in the preparation of change,

the easier it will be to accept them. A formulation of the project task initiates a phase of defrosting the old structure of the organization (Lewin, 1947). Effective course of development project depends on active participation of the people. They are expected to go beyond the framework of responsibilities and to be ready to share knowledge and participate in the change.

**Comment.** Tactics B does not eliminate an assignment of tasks to individuals by the organization. Neither allows arbitrary actions on their own. The organization defines the space, in which initiatives of employees can be implemented, for example: submitting suggestions or participating in task groups. Such activities can be performed e.g. during breaks caused by interferences. There is no certainty that the marked space will be used. Tactics B is not sufficient to ensure human activity in the development project.

#### **Tactics of directing people**

**Statement 3.3.** Any tactics to manage people (project development) is a combination of the following two.

X. to put the task and verify its execution; to punish or reward accordingly to the result,

Y to assist in defining the task and measuring the level implementation; to remove barriers to implementation; to show appreciation for the achievements.

**Sketch of the proof:** Directing is an action aimed at causing the action of others, consistent with the goals of who is directing them (Zieleniewski, 1965). From the viewpoint of control theory, the key elements of the control system are subsystems for collecting observations and for processing them into control signals. Thanks to them, it is possible to react to disturbances. Communication between superior and subordinate is the main way to transmit control signals.

Observations of behaviors and work outcomes of the employee and of the environment can be made in two modes. In the alternative testing mode, the compliance with the relevant requirements is verified, with the binary result Yes or No. In the measurement mode, the observation result may be one of three or more values which can be represented on the number line.

The higher the resolution of the system used to observe the progress of work, the more information about the current status and the more precise evaluation of the distance to the target. Consequently, the more precise guidance instruments has the superior in communication with the subordinate, which can facilitate adjustments to the course of actions. Analysis of monitoring records allows the identification of obstacles and establishing corrective action. Tactics Y uses all the opportunities that follow from a precise measurement of the work progress, for the efficient control of the course of the task. Enables to communicate between leader and employee of discussion on job specification and reliable assessment of its implementation, with expressions of appreciation for the correct execution of the works.

Image of progress based on the results of observation carried out in the alternative mode has low resolution. Available information is not enough to derive exact guidance to the current correction before the project phase is completed. Information is insufficient to determine the necessary improvements in the next project. The only instrument for controlling subordinates remains "motivating" by rewards and punishments granted somewhat by chance. Instead of providing assistance in achieving the goal, it only raises the level of emotion. This attitude represents tactics X.

Precise control is an option, which requires a greater commitment on the part of the supervisor. Not without significance for effective advising are the expertise and communication skills. Tactics refer to the theories X and Y by McGregor (McGregor, 1960).

**Comment:** In the discussion as a secondary (not to say that irrelevant) is considered a matter of internal organization of the team and autonomy in formulating objectives and selection of methods and tools necessary to accomplish the tasks.

## 5. MOTIVATING PEOPLE IN THE DEVELOPMENT PROJECT

We assume a model, in which the activity is expressed in participation in the project by people from outside a formal project team. The assigned task follows from the schedule of the project and is proposed by the organization.

We assume that the decision about the voluntary involvement in the task shall be taken, based on the evaluation of task values and its compatibility with personal needs. If the values of the offered tasks are evaluated positively and its implementation contributes to meet the essential needs of the employee, it is likely to awake significant interest in the involvement. We assume that the effectiveness of the voluntary participation depends on the conditions in which the activity is to be used.

### **Motivation to participate**

We assume that the assessment of task values and compatibility of the task with personal needs shall be based on a system of criteria, in which reference is made to a set of needs, e.g., according to the classification of Maslow (Maslow, 1943). They form a system of reference categories, to which respective characteristics of the task can be assigned. Indices  $i = 1, 2, \dots, p$  are assigned to the elements in a one-to one correspondence, i.e. no two different indices  $i, j$  are assigned the same category of needs.

Vector of task values:  $V = [v_1, v_2, \dots, v_p]$ .  $v_i \geq 0$  represents the degree, to which the  $i$ -th need can be met by accomplishing the task. The greater  $v_i$ , the more the  $i$ -th need can be met.

Length of the vector  $V$ , denoted by symbol  $\|V\|$ , is a measure of the absolute attractiveness of the job. The is greater  $\|V\|$ , the greater the likelihood that the task will be deemed attractive.

Vector of personal needs:  $N = [n_1, n_2, \dots, n_p]$ .  $n_i \geq 0$  represents the level of dissatisfaction about the  $i$ -th need. The greater  $n_i$ , the greater the dissatisfaction about  $i$ -th need. Length of the vector  $N$ , indicated  $\|N\|$ , is a measure of unmet needs. The greater the  $\|N\|$ , the more the needs of the people are unsatisfied.

**Remark:** The list of needs is finite, lengths of vectors  $V$  and  $N$  can be calculated from the formula:  $\|V\|^2 = V \cdot V$  and  $\|N\|^2 = N \cdot N$ , where the symbol  $N \cdot V$  represents the scalar product of two vector  $N$  and  $V$ . If  $N = [n_1, n_2, \dots, n_p]$  and  $V = [v_1, v_2, \dots, v_p]$  is the scalar product can be calculated for example. using the formula:  $N \cdot V = \sum n_i \cdot v_i = n_1 \cdot v_1 + n_2 \cdot v_2 + \dots + n_p \cdot v_p$ .

On the other hand,  $N \cdot V = \|N\| \cdot \|V\| \cdot \cos(N, V)$  and  $\cos(N, V) = N \cdot V / \{\|N\| \cdot \|V\|\}$  is a number in the interval  $[0, 1]$ .  $\cos(N, V) = 0$  means that if there are any significant needs, this task does not fulfils them:  $n_i \cdot v_i = 0$  for  $i = 1, 2, \dots, p$ . the bigger the  $\cos(N, V)$ , the more the values of the task are close to the unmet needs.  $\cos(V, N) = 1$  indicates that there is non-zero number of  $x$  such that:  $v_i = x \cdot n_i$ , for  $i = 1, 2, \dots, p$ .

**Statement 4.1.**  $\cos(V, N)$  can be taken as a measure of fit between tasks values and unmet needs of a potential task contractor.

The proof follows from the preceding argument.

**Conclusion 4.2.** If we assume that the decision to take a job solely due to the conformity assessment tasks and values of measurement needs of potential contractors, the likelihood of a person filing a voluntary task can be expressed by the following formula:

$$m(N \& V) = P(N \& V) = \cos(V, N).$$

**Comment:** The above assumption does not take into account the impact of expected benefits that can be expressed by the formula:  $\|V\| \cdot \cos(N, V)$ . The importance of this measure is bigger if the prospective contractor faces a choice among many different tasks with different levels of fit to the needs  $\cos(N, V)$  or different levels of attractiveness  $\|V\|$ . If there is no alternative offer and no minimum level established for the anticipated benefits, the amount of  $\cos(N, V)$  may be the primary measure.

#### **Adequacy of conditions for support of activeness**

We assume that the primary support factors for the activity of people in the organization are: a place in the organization for activity of people and method of directing the activity.

Place for activity ( $T$ ) is represented by process in the organization to implement specific tactic of engaging people.

The place forms an interface between the people offering their activeness and processes of the organization employing the activity. It includes: procedures to involve people, communicate with people, use their work.

Formally, it can be assumed that the place = ordered pair consisting of a "tactic to engage people" (i.e. fixed combination of tactics A and B) and a process (standards and organizational resources) established to implement the tactics.

**Example.** In the case of tactics A ("not engaging people beyond their duties"), a set of processes is empty. The procedures do not provide for the participation of the people from outside the projects.

Variety of places = set of possible places (tactic, process), corresponding to different tactics to engage people.

Method of directing activity (L) = ordered pair consisting of the "tactic of leadership" (i.e. fixed combination of tactics X and Y) and a process (standards and organizational resources) to implement a given tactic."

**Example.** In the case of tactics X, based on blind obedience, a set of standards includes the verification procedures and the rules for rewarding and punishing. Conditions for activeness = ordered pair (T, L), which consists of: place and method of directing activity.

Adequacy of conditions for activeness can be expressed as the probability that the initial motivation for voluntary action is maintained during the execution of the task. Symbolically, it can be written by the following formula uses the conditional probability:

$$m(T\&L) = P(T\&L|R),$$

where R represents the event "Voluntarily reported a motivated person for the job" and  $P(A|B)$  denotes probability of A under the condition B.

The phrase: "Conditions for support of voluntary activity are adequate" means that an employee, who has voluntarily reported willingness to participate, with high probability, will persevere until the task is completed (will not lose their motivation).

**Example.** The combination of tactics B and Y is expected to represent adequate conditions for support voluntary activity in organization.

**Comment:** In the above formulas that the adequacy of the conditions may vary depending on the characteristics of the offered task. The job may involve additional requirements, e.g. concerning the use of certain processes, or representing a exceptional, high level of difficulty.

$$D(T, L) = 1 - m(T\&L)$$

is a measure of demotivating impact of conditions in the organization's readiness to participate in the voluntary implementation of tasks for the organization.

### **Activeness of people**

We are concerned with the activity which is carried out through voluntary participation in tasks that do not belong to the scope of duties. Measure of the activity of people can be the probability of voluntary participation by people from outside of the project in achieving the tasks that belong to the project.

Environment of voluntary activity (T&L&N&V) = an ordered pair consisting of motivators N&V, forming an incentive to the activity and conditions T&L supporting the activity.

**Example:** A measure of the activity close to zero, means that no one in the organization does undertake voluntary tasks. Close to one, means that almost every member of the organization takes part voluntarily in the implementation of tasks on behalf of the organization.

**Statement 4.3.** Measure of the activity of people in the organization can be represented by the formula:

$$A(T\&L\&N\&V) = P(T\&L|N\&V) * P(N\&V) = (1 - D) * P(N\&V).$$

**Sketch of the proof:** We assume that the "person from outside the project has voluntarily reported willingness to participate in the task" & "perseveres until the task is completed". The corresponding probability measure of human activity can be expressed by the following formula

$$P(T\&L\&N\&V) = P((T\&L)\&(N\&V)) = P(T\&L|N\&V) * P(N\&V).$$

**Comment:** A measure of activity is the product of the fit of proposed task to human needs and the probability that the conditions for support do not discourage completing the task.

**Comment:** The activity A is not a measure of the task completion nor of the results achieved. These depend on the content and feasibility of the task. Each person can be assigned an individual measure of activity.

**Statement 4.4.** The tasks related to the implementation of the development project have a high potential of attractiveness.

**Sketch of the proof:** The task related to development project has many attractive qualities: is important (serves the interest of the organization), allows the use of personal knowledge (everyday observations), is unique (other than the daily routine work).

In addition, it enables the realization of a wide range of needs:

- Need for safety and belonging: teamwork in a respected organization structures,
- Need for respect and recognition: communication with the leader, receiving expressions of recognition, acting under own name in reports, performing task of high importance,
- Need for self-actualization: opportunity to demonstrate skills and knowledge, learning, pursue personal ambitions, meeting the challenges.

**Statement 4.5.** Using the potential of human activity can increase the effectiveness of any development tactics (non-passive or passive).

**Sketch of the proof:** Using the potential of people can increase the resource potential R/x, so that the effectiveness of the project using appropriate tactics may be higher.

**Statement 4.6.** Passive strategy may produce a gradual reduction of human activity.

**Sketch of the proof:** Inevitable feature of projects implemented under the passive strategy is a repeatability of circumstances. Not eliminated the gap results in the recurrence of the same problem. This affects the attractiveness of the task and the conditions in which human activity is used.

Values of task decrease in subsequent repetitions, so consequently decreases its attractiveness and expected benefit. If we assume that  $\cos(N, V)$  does not change, then the change of attractiveness will be noted and may adversely affect the readiness to participate in subsequent repetitions of the same task. The conditions in which replays are implemented can be marked by emotions resulting from recursive disturbances. They can be a source of increasing conflict and can cause reluctance to engage in a project doomed to failure.

**Comment.** Developing the activity of people in the organization means:

- Developing internal motivation of people to voluntarily take actions necessary for organization:
  - Taking care of the attractiveness of tasks and accurate clarification of their values
  - Identifying the individual needs of people and showing possibilities of satisfying them through implementation of the offered tasks.
- Improving conditions for the activity in the organization
  - Developing tactics of directing human activity, streaming towards the tactic B,
  - Improving standards of organizing human activity,
  - Developing non-passive growth strategy, streaming towards a proactive strategy.

## 6. CONCLUSION

The activeness of people allows to supplement resources (mainly knowledge) that is necessary to ensure effectiveness of development projects, especially in phases of identifying the mechanisms of gap and establishing action to eliminate its negative impact. Various tactics of resources use in development project enable to achieve selected targets.

A structure of expenditures related to proactive and reactive tactics are different. Implementation of proactive tactics is more expensive than that of reactive one. It involves extra resources devoted to monitor definite processes and to react promptly. Operation of reactive tactics is more expensive than that of proactive one. It involves cost of eliminating problem's effects and improving process in motion. The proper choice among proactive and reactive tactics requires a profound analysis of risk.

ISO 9001 systems are ready to support implementation of active tactics. Literature contains no evidence that they are extensively used outside the industries in which it is obligatory (e.g. Automotive). In MbO organizations managers are evaluated on effects, which can be seen in relatively short time horizon. Therefore, they avoid to define the objectives, which involve overcoming significant obstacles and provide positive effects with delay. Consequently, streamlining processes is not the primary reason for the implementation of ISO 9001.

## ACKNOWLEDGEMENTS

The text refers to part of the Research Project: „Improvement capability of organization, which is moderately error sensitive” financed by the National Science Centre, decision No DEC-2012/07/B/HS4/03070

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