

DIAGNOSE OF THE ORGANIZATION DEVELOPMENT - RESEARCH RESULTS

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Summary: This paper presents the original method of the diagnose of the organization development together with the empirical research results. Proposed method of diagnose is an example of using a quantitative approach to measure the developmental phenomena. It was developed with using the Map of Organization Development model, that assumed existing harmonious states of organization development, interpreted as the alignment of growth processes in two domains: information technology and management. The results of empirical analysis of the surveyed organizations consist of the diagnose, recommended changes and prognosis of the predicted state of the organization development, presented both in quantitative and descriptive form.

Keywords: organization development, diagnostic model, prognostics diagnosis, management information systems.

1. Introduction

Diagnosis is a term derived from Greek (*diagnosis*), which means to identify and describe the present status of a diagnosed object. This term derives from the school of Hippocrates, and has long been associated only with medicine as the process of determining health status and factors responsible for producing it. It was Mary Richmond, who used this term in social sciences: she believed in the relationship between people and their social environment as the major factor of their life situation or status (*Social Diagnosis, 1917*). She proposed the interview for gathering evidence and derived client's social difficulties from them in the act of interpretation and named it as the act of *diagnosis*. Currently, the concept of diagnosis is generalized and applies to reasoning related to many areas of activity, for instance a methods of diagnosis of technical devices and systems are widely presented in literature [3, 11]. In management sciences, diagnose of organization development is represented as a set of life-cycle models applied to mostly qualitative way of reasoning [1, 8, 10].

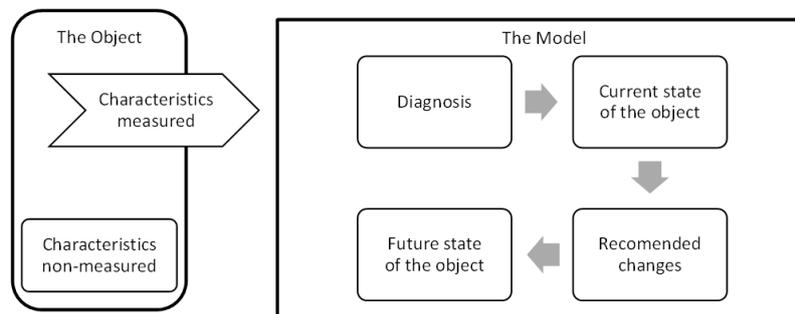


Fig. 1. Prognostics diagnosis

Contemporary interpretation of this term emphasizes two components: data collection and critical data development undertaken with reasoning. It is therefore to identify the nature and circumstances of a complex state of affairs on the basis of the measured characteristics of the object, and knowledge of general laws applicable in the concerned field. The need to reduce the number of measured features makes the practical activities are carried out only under partial diagnosis with considering links between selected characteristics. Helpful element in the process of diagnosis is the model (Figure 1), which in a simplified - but allowing the analysis to be made - manner, describes the mentioned regularity by indicating links between traits expressed as a function of measurable parameters.

The guidance on the recommended changes can be presented in the process of diagnosis, and actions conducive to the improvement of the analyzed state. In the next step it can be formulated by specifying putative forecast (probable) of the future state resulting from the introduction of the recommended action or in case of abandonment. So extensive process can be termed as *prognostics diagnosis*.

2. Diagnose of the Organization Development

T. Kotarbiński (1955) defined organization in the meaning of a thing as “certain kind of a wholeness due to relation to its own elements, namely such an wholeness, whose all its elements contribute together to the success of wholeness”. Fundamental goal of an organization is the survival and development, so prognostics diagnosis should point out activities for increasing ones opportunities.

The multitude of the factors influencing the development of the organization and the resulting multiplicity of characteristics that determine its condition make diagnosis can only be partial. Selection of characteristics taken into consideration in the diagnostic process is due to diagnosis purpose and measurability with using known methods and available tools. Figure 2 illustrates a diagram of proposed prognostics diagnosis of organization with using the Map of Organization Development (MOD) as the model [4].

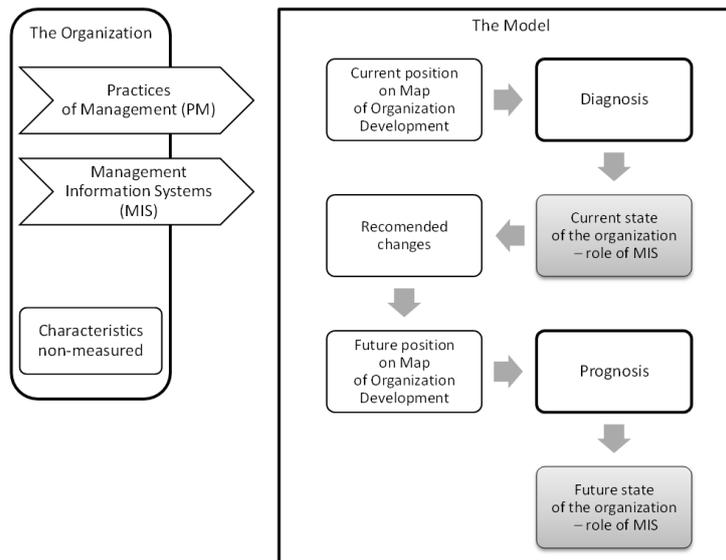


Fig. 2. Prognostics diagnosis of organization development

The MOD model is based on the interaction between the management domain and the information systems domain in organizations and proposes a model of interdependence between organization and management information systems (MIS) in the development processes. The structure of the model is based on the assumption of relationships between achieved maturity levels in growth processes in both domains. The two-dimensional phase space of the model is defined as an orthogonal superposition of two life-cycle models: L.E. Greiner's Growth Model of organization [2] and R.L. Nolan's Stage Model of IT evolution in organization [9]. The set of the harmonious development states was designated in the phase space of the model, which corresponds to the effective application of the information systems in management, which implied survival and development of organization. Those harmonious development states are linked with the trajectory of harmonious development, which corresponds to the life-cycle nature of organization, as it moves between locations in the proposed phase space of the model. This grid of development states together with the trajectory of harmonious development forms the Map of Organization Development as a frame of reference for prognostics diagnosis of any organization. Figure 3 presents visualization of the MOD model concept with axis scaled with using L.E. Greiner's levels of growth of organization and R.L. Nolan's stages of IT evolution, set of harmonious development states $\{S_1 \dots S_6\}$, and trajectory leading through them.

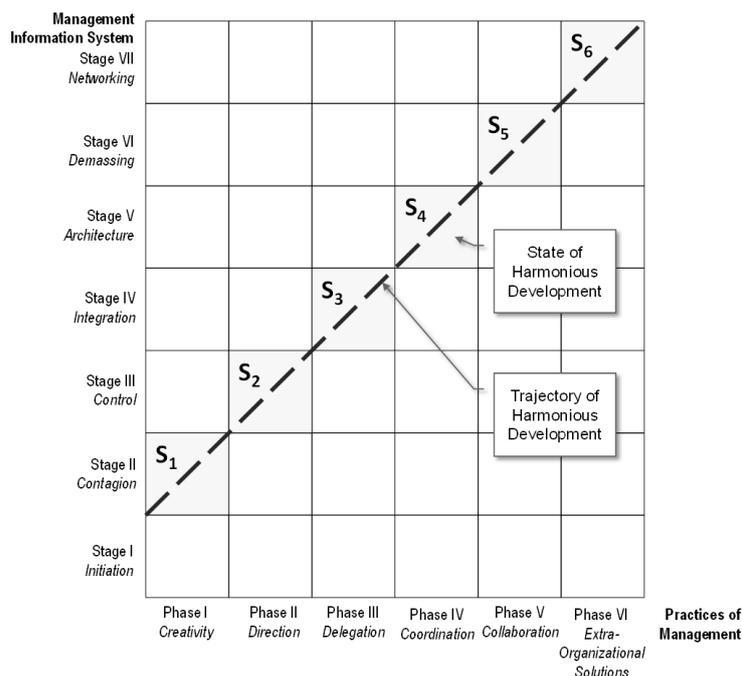


Fig. 3. Map of Development of Organization

Two measurable characteristics of development were stated: *Practices of Management* (PM) level due to X axis of the MOD, and *Management Information Systems* (MIS) level due to Y axis. Any organization could be presented on the MOD as a point with coordinates corresponding to a pair of measured values of stated characteristics.

X-axis representing a *Practices of Management* level, takes values from so-called Greiner Index (x_G), designed as a quantitative measure with six ranges of variation corresponding to six phases of organization growth in modified for research needs Greiner's model: (I) growth through *Creativity*; (II) growth through *Direction*; (III) growth through *Delegation*; (IV) growth through *Delegation*; (V) growth through *Collaboration*; (VI) growth through *Extra-Organizational Solutions*.

Y-axis representing a *Management Information Systems*, takes values from so-called Nolan Index (y_N), designed as a quantitative measure with seven ranges of variation corresponding to seven stages of IT evolution in modified for research needs Nolan's Stage model with: (I) *Initiation*; (II) *Contagion*; (III) *Integration*; (IV) *Integration*; (V) *Architecture*; (VI) *Demassing*; (VII) *Networking*.

Adoption of the indices in the form of continuous measurement named respectively to corresponding models as the Greiner Index and the Nolan Index, is not the only possible solution in the sense of applying particular models. It is possible to adopt other measures based on other life-cycle models to describe assumed characteristics of the MOD, and not disturb the essence of the developed model and its usefulness in prognostics diagnosis process.

The positions of given organizations on the map accordingly to coordinates corresponding to the pairs of measured values of Greiner and Nolan indexes (x_G, y_N) were classified due to configuration (below or upper) and distance to trajectory of harmonious development. Three *zones* were classified to characterize distance of given position to trajectory of harmonious development: *harmonious development zone* (HDZ, HD zone), *adjacent to HDZ*; and *far from HDZ*. Theoretically it is possible to obtain position precisely on the line of harmonious development, but it is an extremely rare situation in practice. Accordingly to recognized zones and configurations, three patterns of organization position on the map are introduced in order to classify the roles of MIS in organization development due to the degree of utilization in the management [7]:

- *stimulation role* – organization's position is above THD₇, so level of MIS is higher than required in a current phase of organization growth;
- *de-stimulation role* – organization's position is below THD₇, so level of MIS is lower than required in a current phase of organization growth;
- *support role* – organization is in HD zone, level of MIS is matching current phase of organization growth.

Considering possible position of organization on the MOD it is possible to use model in two modes characteristic for *prognostics diagnose*: both establish current role of MIS in management (diagnose mode) and recommend changes leading to the pointed future state (prognosis mode). There were six so-called *prognostics patterns of development* formulated due to the classification of possible positions of organizations on the MOD and role of the MIS (Figure 4).

Location (1) on Figure 4 illustrates *prognostics pattern* with de-stimulation role of MIS in conjunction with position adjacent to HD zone. It is recommended to develop MIS in order to achieve HD zone to match current practices of management; during this process growing MIS will cause the development of management practices, so that in the end of development cycle organization will be in position with de-stimulation role of MIS in conjunction with position adjacent to HD zone.

Location (2) illustrates *prognostics pattern* with stimulation role of MIS in conjunction with position adjacent to HD zone. It is recommended to develop practices of management to the level fully supported by current level of MIS in order to achieve HD zone; evolving management

practices will cause the development of MIS, so that in the end of development cycle organization will be in position with stimulation role of MIS in conjunction with position adjacent to HD zone.

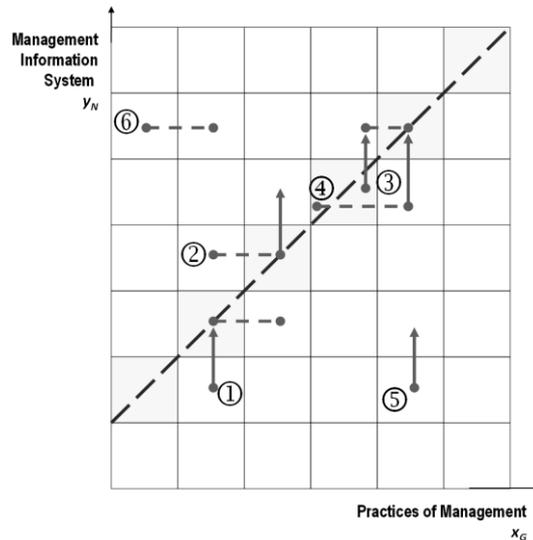


Fig. 4. Prognostics diagnosis patterns

Location (3) illustrates *prognostics pattern* with supporting role of MIS in conjunction with position in HD zone, but a little below HDT. It is recommended to develop MIS, which will cause the development of management practices and finally lead to achieve HD zone to match level of MIS with current practices of management.

Location (4) illustrates *prognostics pattern* with supporting role of MIS in conjunction with position in HD zone, but a little above HDT. It is recommended to develop PM, which will cause the development of MIS and finally lead to achieve HD zone to match level of MIS with current practices of management.

Location (5) illustrates *prognostics pattern* with de-stimulation role of MIS in conjunction with position far from HD zone. It is recommended to develop MIS, but only the disruptive growth made possible to achieve HD zone to match current practices of management; during this process growing MIS will not cause the development of management practices.

Location (6) illustrates *predictive pattern* with the stimulation role of MIS in conjunction with position far from HD zone. It is recommended to develop PM, but only the disruptive growth made possible to achieve HD zone to match current level of MIS; during this process growing PM will not cause the development of MIS.

3. Execution of research

The checklist method was employed to collect data in the structured interview as a quantitative research method to measure the degree of the organization's development and its MIS. Quantitative transformations techniques were developed for conversion of the interview data collected during the empirical research to the numerical form of the defined quantitative indexes (x_G, y_N) [5, 6]. Research questionnaires consist of series of multiple-

choice (with using Likert scale) detailed questions in order to identify individual phases of development.

Checklist for data collection to determine Greiner Index (x_G) consist of 24 questions grouped into four blocks, which are related to classification of basic management processes [6]:

- market strategy;
- organizational structure;
- decision style;
- control system.

In case of the Nolan Index (y_N), measurement is taken with three different points of view on the perception of MIS in the organization, which required development of three indexes [4, 5]:

- *technology index* (y_{NT}) – determines the level of MIS due to held application portfolio;
- *utilization index* (y_{NU}) – determines the level of MIS due to the current way of use of their information systems in managing the organization;
- *expectations index* (y_{NO}) – determines the level of MIS due to the currently desirable way of using information systems in managing the organization.

The introduction of three Nolan's indices allows to reasonably assess the level of development of information systems in organization through determined values (y_{NT} , y_{NU} , y_{NO}). Nolan's indices designed as a comparable measures, allow to diagnose possible non equable growth of MIS due to the adopted way of the perception of MIS in the organization. Three so-called *development gaps* were defined to measure differences between the levels of application portfolio, utilization and expectations, as follows:

- *utilization gap* $\Delta_{NU} = y_{NU} - y_{NT}$ - indicating a discrepancy between the current; and a potential way of using held MIS;
- *expectations gap* $\Delta_{NO} = y_{NO} - y_{NU}$ - indicating a discrepancy between the desired; and a potential way of using held MIS;
- *technology gap* $\Delta_{NT} = y_{NT} - y_{NO}$ - indicating a discrepancy between the potential; and a desired way of using held MIS.

Relevant checklists were designed for each of the Nolan's indices (y_{NT} , y_{NU} , y_{NO}) to enable determination of 17 features (properties) of MIS in organization through collecting answers to the following questions for each of the highlighted features:

- does the MIS existing in organization allow you to perform the given tasks? Concerns of *technology index* (y_{NT});
- are the given tasks done with employing MIS existing in organization? Concerns of *utilization index* (y_{NU});
- is there now a need for the tasks were implemented using MIS? Concerns of *expectations index* (y_{NO}).

Raw data collected with described questionnaires allows to calculate values of the adopted development indexes (x_G , y_{NT} , y_{NU} , y_{NO}) and determine localization of considered organization on the Map of Development. Each organization will be positioned through set of three points $\{(x_G, y_{NT}), (x_G, y_{NU}), (x_G, y_{NO})\}$. The initial validation of obtained values of calculated indexes is possible through examination of the *utilization gap* Δ_{NU} with employing rules as follows:

- if Δ_{NU} less than or equal to zero, than y_{NU} and y_{NT} are reliable;

- if Δ_{NU} greater than zero, than y_{NU} and y_{NT} are unreliable – it is not possible to use over and above held resources, so measurement have to be repeated or object data is not valid for prognostics diagnosis with using MOD.

In case of small positive value of utilization gap it is assumed, that because of the possible Measurement errors it could be reduced to zero.

In presented process of predictive diagnosing, *expectations index* (y_{NO}) plays dominant role because of the supplying (indirectly) knowledge about ratio of maturity of practices of management. Recommended changes and predictions are formulated with respect to *expectations index* (y_{NO}) and are followed with recommendation of closing relevant development gaps.

4. Research results

The presented study was conducted on a group of 16 companies located in the Świętokrzyskie Voivodeship between November 2009 and June 2010. The characteristics of the surveyed companies are provided in Table 1. The size of the organization was described in accordance with the GUS classification.

Tab. 1. The characteristics of the surveyed companies

Object number	Object symbol	Characteristic of organization	Age [yrs]	Size
1	O ₁	IT company, ISP, software developer, technology solutions and consulting services provider, IT products supplier and saler.	19	small
2	O ₂	University of technology	45	big
3	O ₃	The metallurgical industry production company associated with the international markets	17	big
4	O ₄	Food business – a bakery	11	medium
5	O ₅	Food business – wholesaler of bakery production components.	20	small
6	O ₆	Construction company	20	medium
7	O ₇	IT company, PC assembler, IT products supplier and saler	13	small
8	O ₈	Manufacturing and trading company	17	medium
9	O ₉	World-wide manufacturing and trading company	14	medium
10	O ₁₀	Construction company	20	medium
11	O ₁₁	Construction branch company	15	big
12	O ₁₂	Logistic transport company	17	small
13	O ₁₃	Food business, production and wholesaling packages, machines and various add-ons components for meat processing.	17	small
14	O ₁₄	Energy branch company	21	medium
15	O ₁₅	Wholesaler of teletechnic products	19	small
16	O ₁₆	Machinery industry company	13	medium

The values of adopted development indexes (x_G , y_{NT} , y_{NU} , y_{NO}) were calculated with the use of data collected in research, and respectively development gaps (Δ_{NU} , Δ_{NT} , Δ_{NO}). The organizations were located on the Map of Organization Development, and phases

of development in regard to a model dimensions were determined. Table 2 provides detailed results of quantitative transformations developed for conversion of the interview data collected during empirical research to the numerical form of the defined quantitative development indices.

Tab. 2. The characteristics of the surveyed companies

Object	Practices of management		Management Information System								
			Technology		Utilization		Expectations		Development gap		
	Index x_G	Phase	Index y_{NT}	Stage	Index y_{NU}	Stage	Index y_{NO}	Stage	Δ_{NU}	Δ_{NO}	Δ_{NT}
O ₁	2,35	III	2,25	III	1,89	II	2,26	III	-0,36	0,37	-0,01
O ₂	3,56	IV	3,12	IV	2,51	III	3,84	IV	-0,61	1,34	-0,73
O ₃	4,47	V	4,09	V	4,04	V	5,47	VI	-0,05	1,43	-1,38
O ₄	0,75	I	2,65	III	2,54	III	3,63	IV	-0,11	1,09	-0,98
O ₅	1,94	II	2,71	III	2,93	III	3,58	IV	0,22	0,64	-0,87
O ₆	4,26	V	5,13	VI	5,16	VI	6,11	VII	0,03	0,95	-0,98
O ₇	2,24	III	3,82	IV	1,83	II	2,32	III	-1,98	0,48	1,50
O ₈	1,10	II	2,00	III	4,04	V	4,17	V	2,04	0,13	-2,16
O ₉	2,28	III	2,58	III	0,85	I	2,16	III	-1,72	1,30	0,42
O ₁₀	1,65	II	1,93	II	2,08	III	2,15	III	0,15	0,07	-0,22
O ₁₁	4,31	V	5,65	VI	3,98	IV	6,38	VII	-1,67	2,39	-0,73
O ₁₂	3,43	IV	5,65	VI	3,98	IV	6,38	VII	-1,67	2,39	-0,73
O ₁₃	4,76	V	3,32	IV	3,43	IV	3,72	IV	0,11	0,29	-0,41
O ₁₄	5,52	VI	3,56	IV	2,97	III	4,54	V	-0,59	1,58	-0,99
O ₁₅	4,53	V	3,75	IV	4,61	V	4,73	V	0,85	0,12	-0,97
O ₁₆	1,09	II	1,96	II	1,96	II	3,05	IV	0,00	1,09	-1,09

The utilization gap Δ_{NU} value appeared to be greater than zero in case of six objects (O₅, O₆, O₈, O₁₀, O₁₃, O₁₅), but only for the object O₈ value was considered as significantly big to the extent that caused rule out of the object from further considerations.

Figure 5 shows locations of each of surveyed organizations on map with set of three points $\{(x_G, y_{NT}), (x_G, y_{NU}), (x_G, y_{NO})\}$, which presents actual state of organization from perspectives of ratio of MIS expectations, technology and utilization with connection to ratio of the development of practices of management.

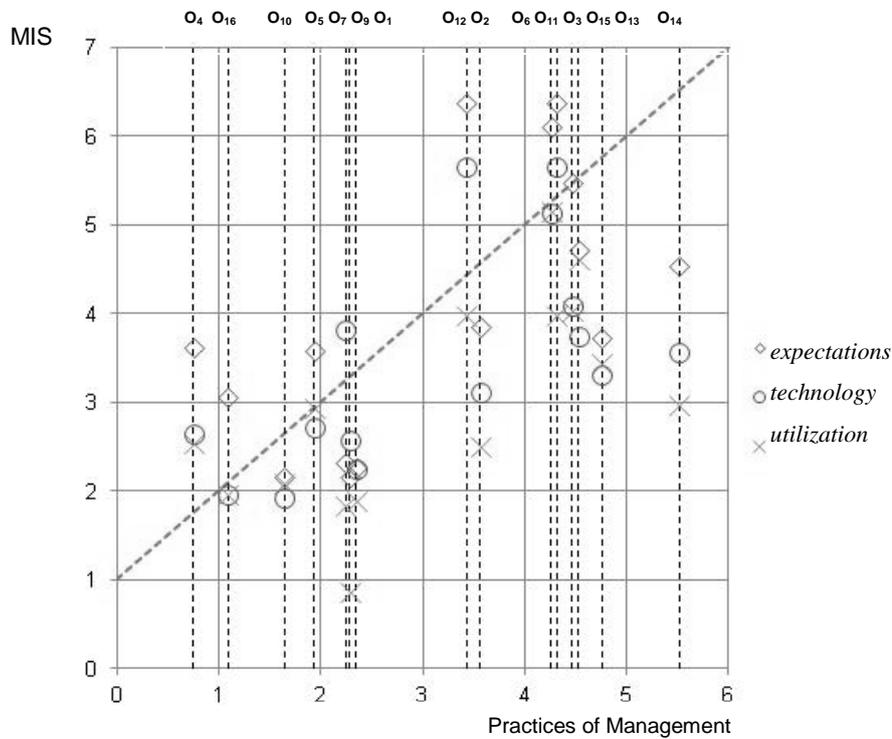
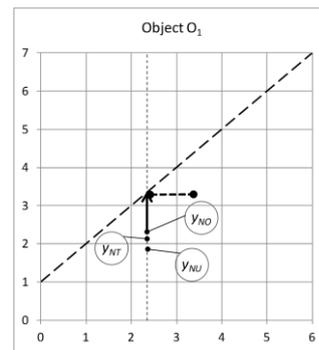


Fig. 5. Map of Organization Development for surveyed organizations

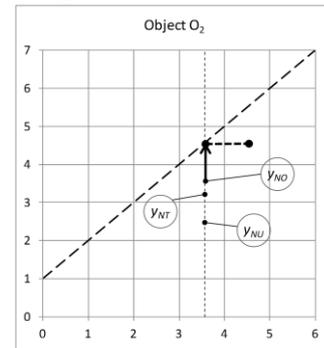
Following prognostics diagnosis for each of the surveyed organizations were done with use of the Map of organizations Development, which provides identification of current role of MIS in organization, recommended changes and prognosis of the future state of organization.

Object O₁. Practices of managements corresponds to phase III. MIS characteristics: expectations – stage III; technology – stage III; utilization – stage II; all three development gaps of MIS are small; de-stimulation role of MIS because of expectations that localizes organization in state adjacent below to HD zone. Recommended changes (based on prognostics patterns of the MOD) in following steps: (1) closing development gaps, which requires small changes of technology and way of utilization of MIS; (2) – increasing of expectations, transition in MIS domain to stage IV with closing gaps occurring during transition, supportive role of MIS as a result; (3) – freezing expectations about MIS, developing the practices of management with using supportive role of MIS and transition to phase IV. The recommended changes leads to

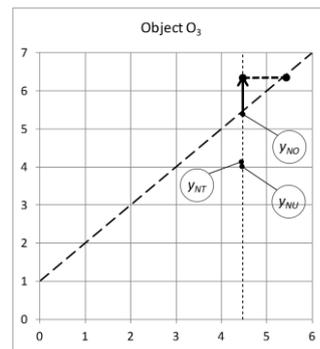


growth both in MIS domain and in PM domain, with de-stimulation role of MIS in the end, because of the position on the map, that will be adjacent below to the HD zone.

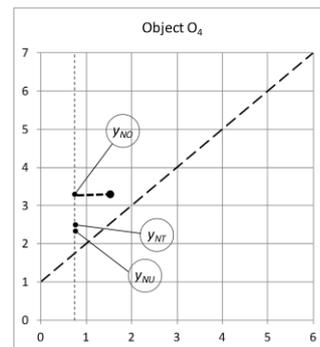
Object O₂. Practices of managements – phase IV. MIS characteristics: expectations – stage IV; technology – stage IV; utilization – stage III; both expectations gap and utilization gap are significantly big; de-stimulation role of MIS because of expectations that localizes organization in state adjacent below to HD zone. Recommended changes: (1) – closing development gaps, which requires small changes of technology (IT investments) and big changes in a way of utilization of MIS; (2) – increasing of expectations, transition to stage V with closing gaps occurring during transition, supportive role of MIS as a result; (3) – freezing expectations about MIS, developing the practices of management with using supportive role of MIS and transition in PM domain to phase V. The recommended changes leads to growth both in MIS domain and in PM domain with de-stimulation role of MIS in the end, because of the position on the map, which will be adjacent below to the HD zone.



Object O₃. Practices of managements – phase V. MIS characteristics: expectations – stage VI; technology – stage V; utilization – stage V; both technology gap and expectations gap are significantly big; supportive role of MIS because of expectations that localizes organization in the HD zone. Recommended changes: (1) - closing development gaps, which requires big changes of technology (IT investments) and big changes in a way of utilization of MIS; (2) – increasing of expectations, transition to stage VII with closing gaps occurring during transition, stimulation role of MIS as a result; (3) – freezing expectations about MIS, developing the practices of management with using supportive role of MIS and transition in PM domain to phase VI. The recommended changes leads to growth both in MIS domain and in PM domain with supportive role of MIS in the end, because of the position on the map, which will be in the HD zone. The MOD with adopted models is limited and for this border state future changes are not predictable.

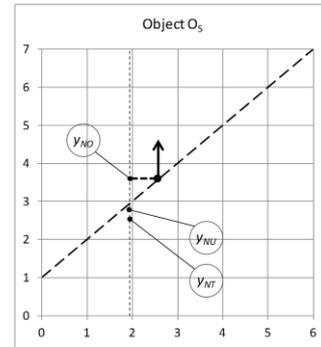


Object O₄. Practices of managements – phase I. MIS characteristics: expectations – stage IV; technology – stage III; utilization – stage III; both technology gap and expectations gap are significantly big; stimulation role of MIS because of expectations that localizes organization adjacent above the HD zone. Recommended changes: (1) – closing development gaps, which requires big changes of technology (IT investments) and big changes in a way of utilization of MIS; (2) – increasing of expectations, transition to stage VII with closing gaps occurring during transition, stimulation role of MIS as a result; (3) – freezing expectations about MIS, developing the practices of management with using supportive role of MIS and transition in PM domain to

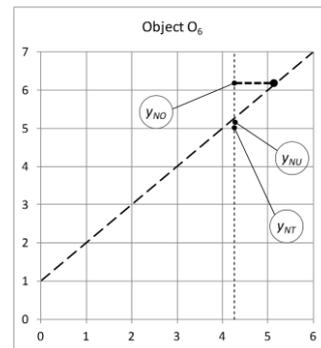


phase II. The recommended changes leads to growth both in MIS domain and in PM domain with stimulation role of MIS in the end, because of the position on the map, which will be adjacent above the HD zone.

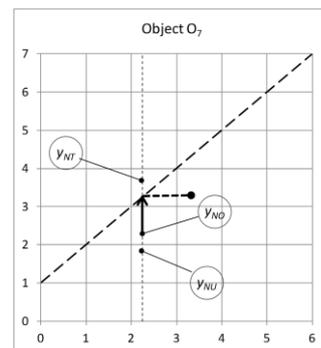
Object O₅. Practices of managements – phase II. MIS characteristics: expectations – stage IV; technology – stage III; utilization – stage III; both technology gap and expectations gap are significantly big; utilization gap is positive but negligibly small; stimulation role of MIS because of expectations that localizes organization adjacent above the HD zone. Recommended changes: (1) – closing development gaps, which requires big changes of technology (IT investments) and big changes in a way of utilization of MIS; (2) – freezing expectations about MIS, developing the practices of management with using supportive role of MIS, and transition in PM domain to phase II; (3) – increasing of expectations, transition to stage V. The recommended changes leads to growth both in MIS domain and in PM domain with stimulation role of MIS in the end, because of the position on the map, which will be adjacent above the HD zone.



Object O₆. Practices of managements – phase V. MIS characteristics: expectations - stage VII; technology – stage VI; utilization – stage VI; both technology gap and expectations gap are significantly big; utilization gap is positive but negligibly small; stimulation role of MIS because of expectations that localizes organization adjacent above the HD zone. Recommended changes: (1) – closing development gaps, which requires big changes of technology (IT investments) and big changes in a way of utilization of MIS; (2) – freezing expectations about MIS, developing the practices of management with using supportive role of MIS, and transition in PM domain to phase VI. The recommended changes leads to growth both in MIS domain and in PM domain with supportive role of MIS in the end, because of the position on the map, which will be in the HD zone. The MOD with adopted models is limited and for this border state future changes are not predictable.

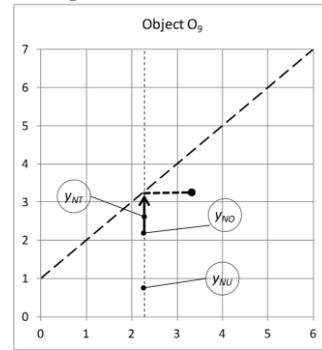


Object O₇. Practices of managements – phase III. MIS characteristics: expectations – stage III; technology – stage IV (large surplus); utilization – stage II; big expectations gap; de-stimulation role of MIS because of expectations that localizes organization in state adjacent below to HD zone. Recommended changes: (1) – closing development gaps, which requires big changes in a way of utilization of MIS; (2) – increasing of expectations, transition to stage IV with closing gaps occurring during transition, supportive role of MIS as a result; (3) – freezing expectations about MIS, developing the practices of management with using supportive role of MIS and transition in PM domain to to phase IV. The recommended changes leads to growth both in MIS domain and in PM

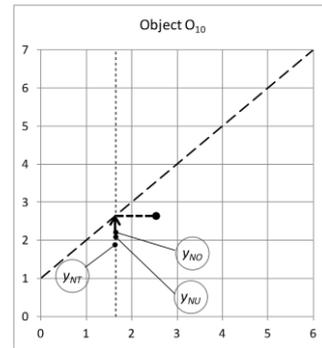


domain with de-stimulation role of MIS in the end, because of the position on the map, which will be adjacent below to the HD zone.

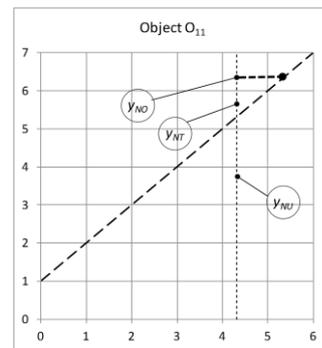
Object O₉. Practices of managements – phase III. MIS characteristics: expectations – stage III; technology – stage III; utilization – stage I; both technology gap and expectations gap are significantly big; de-stimulation role of MIS because of expectations that localizes organization in state adjacent below to HD zone. Recommended changes: (1) – closing development gaps, which requires big changes in a way of utilization of MIS; (2) – increasing of expectations, transition to stage IV with closing gaps occurring during transition, supportive role of MIS as a result; (3) – freezing expectations about MIS, developing the practices of management with using supportive role of MIS and transition in PM domain to to phase IV. The recommended changes leads to growth both in MIS domain and in PM domain with de-stimulation role of MIS in the end, because of the position on the map, which will be adjacent below to the HD zone.



Object O₁₀. Practices of managements – phase II. MIS characteristics: expectations – stage III; technology – stage II; utilization – stage III; both technology gap and expectations gap are small, utilization gap is positive but negligibly small; supportive role of MIS because of expectations that localizes organization in HD zone. Recommended changes: (1) – closing development gaps, which requires small changes both in technology (IT investments) and in a way of utilization of MIS; (2) – increasing of expectations limited to stage III with closing gaps occurring during transition, supportive role of MIS as a result; (3) – freezing expectations about MIS, developing the practices of management with using supportive role of MIS and transition in PM domain to phase III. The recommended changes leads to growth both in MIS domain and in PM domain with de-stimulation role of MIS in the end, because of the position on the map, which will be adjacent below to the HD zone.

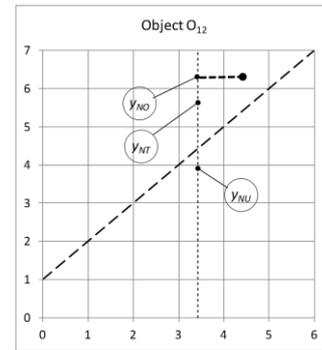


Object O₁₁. Practices of managements – phase V. MIS characteristics: expectations – stage VII; technology – stage VI; utilization – stage IV; both expectations gap and utilization gap are significantly big; technology gap is small; stimulation role of MIS because of expectations that localizes organization adjacent above the HD zone. Recommended changes: (1) – closing development gaps, which requires big changes of technology (IT investments) and big changes in a way of utilization of MIS; (2) – freezing expectations about MIS, developing the practices of management with using supportive role of MIS, and transition in PM domain to phase VI. The recommended changes leads to growth both in MIS domain and in PM domain with supportive role of MIS in the end, because of the position on the map, which will be in the HD zone.

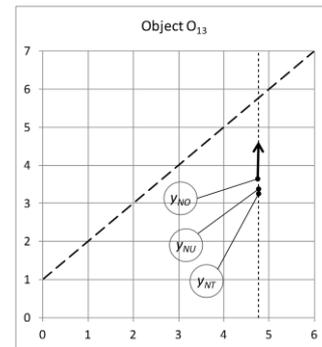


The MOD with adopted models is limited and for this border state future changes are not predictable.

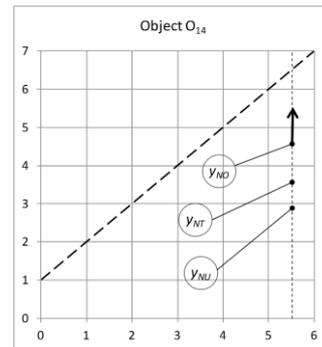
Object O₁₂. Practices of managements – phase IV. MIS characteristics: expectations – stage VII; technology – stage VI; utilization – stage IV; both expectations gap and utilization gap are significantly big; technology gap is relatively small, stimulation role of MIS because of expectations that localizes organization far above the HD zone. Recommended changes: (1) – closing development gaps, which requires relatively small changes of technology (IT investments) and big changes in a way of utilization of MIS; (2) – freezing expectations about MIS, developing the practices of management with using supportive role of MIS and transition in PM domain to phase V. The recommended changes leads to growth both in MIS domain and in PM domain with stimulation role of MIS in the end, because of the position on the map, which will be adjacent above the HD zone.



Object O₁₃. Practices of managements – phase V. MIS characteristics: expectations – stage IV; technology – stage IV; utilization – stage IV; both technology gap and expectations gap are small, utilization gap is positive but negligibly small; de-supportive role of MIS because of expectations that localizes organization far from HD zone. Recommended changes: (1) – closing development gaps, which requires relatively small changes both in technology and in a way of utilization of MIS; (2) – increasing of expectations and transition to stage V with closing gaps occurring during transition (IT investments). The recommended changes leads to growth in MIS domain with maintaining de-stimulation role of MIS in the end, because of the position on the map, which will be adjacent below to the HD zone.

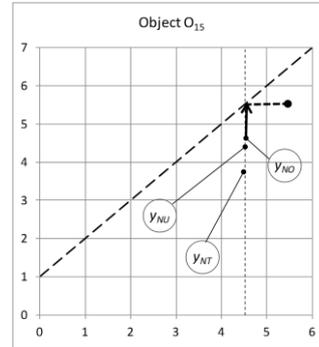


Object O₁₄. Practices of managements – phase VI. MIS characteristics: expectations – stage V; technology – stage IV; utilization – stage III; both technology gap and expectations gap are big, utilization gap is small; de-supportive role of MIS because of expectations that localizes organization far from HD zone. Recommended changes: (1) – closing development gaps, which requires big changes both in technology (IT investments) and in a way of utilization of MIS; (2) – increasing of expectations and transition to stage VI in MIS domain with closing gaps occurring during transition (IT investments). The recommended changes leads to growth in MIS domain with maintaining de-stimulation role of MIS in the end, because of the position on the map, which will be adjacent below to the HD zone.

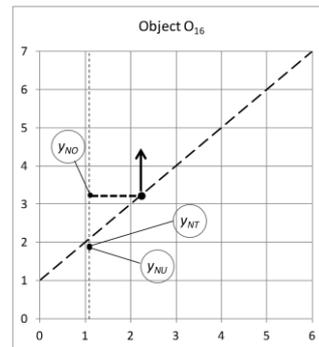


Object O₁₅. Practices of managements – phase V. MIS characteristics: expectations – stage V; technology – stage IV; utilization – stage V; both technology gap and expectations

gap are small, utilization gap is positive but negligibly small; de-stimulation role of MIS because of expectations that localizes organization adjacent below HD zone. Recommended changes: (1) – closing development gaps, which requires changes both in technology (IT investments) and in a way of utilization of MIS; (2) – increasing of expectations and transition to stage VI in MIS domain with closing gaps occurring during transition, supportive role of MIS as a result; (3) – freezing expectations about MIS, developing the practices of management with using supportive role of MIS and transition to phase VI in PM domain. The recommended changes leads to growth both in MIS domain and in PM domain with de-stimulation role of MIS in the end, because of the position on the map, which will be adjacent below to the HD zone.



Object O₁₆. Practices of managements – phase II. MIS characteristics: expectations – stage IV; technology – stage II; utilization – stage II; both technology gap and expectations gap are significantly big; utilization gap is small; stimulation role of MIS because of expectations that localizes organization adjacent above the HD zone. Recommended changes: (1) – closing development gaps, which requires big changes of technology (IT investments) and big changes in a way of utilization of MIS; (2) – freezing expectations about MIS, developing the practices of management with using supportive role of MIS, and transition to phase III in PM domain; (3) – increasing of expectations, transition to stage VI in MIS domain. The recommended changes leads to growth both in MIS domain and in PM domain with maintaining stimulation role of MIS in the end, because of the position on the map, which will be adjacent above the HD zone.



The recommendations of changes were developed on base of model of the Map of Organization Development, so they naturally inherit the simplifying way of describing reality, which applies in modeling as a general principle. Recommended changes are presented as the alternating sequence of growth processes in considered domains of management information systems and practices of management, while in real processes of organization development changes are synchronous. In addition, the model presented does not assign time periods to subsequent stages of change. There is also a lack of assumption of the impact that changes (or omission of changes) may have on the viability of the organization.

5. Summary

Presented approach to diagnosis of organization development is based on the concept of the analysis of the impact of information systems on organization development in terms of their effective use in the organization management, interpreted as the alignment of growth processes in two domains: information technology and management. Formulated model named as the Map of Organization Development enables both diagnose of development state and prognosis of changes in considered domains, with employing defined quantitative indices in order to parameterize those domains and information feedbacks between them.

Empirical studies conducted on the group of 16 companies presented in this paper, confirmed the suitability of the developed method of prognostics diagnosis to support managerial development decisions. It was also found that the designed research tool with the use of checklists (in the form of series of questionnaires) is applicable in collecting primary data.

Unfortunately at present it is not possible to verify the effectiveness of the method in sense of ratio of relevance of predictions with changes occurring in the surveyed organizations. Given the fact that these changes are being made over long periods of time, such verification will be possible only after sufficiently long period of time.

Considering the rapid development of information technologies and the continued development of new management practices, our model of organization development will require adaptive expansion and should be modified to reflect the issues and research problems that are currently impossible to predict.

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