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Human resources management in a project type tasks

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ABSTRACT

Purpose: The paper describes theoretical issues concerning the scope of human resources management, as well as the pertinent advisory systems. Another main of the paper is to investigate work effect of the advisory system, which helps the operator to make a decision concerning an adjustment of structure and structure project team to a certain project, which was selected by operator.
Design/methodology/approach: In this article the advisory system was created in Exsys Professional program. What is more, the system was upgraded with a help tool – a database, because it makes possible to collect and keep data. The database as such was created with the use of Microsoft Access 2000, an integral part of Microsoft Office for Windows.
Findings: Based on comprehensive literature, the article reviewed the implementation of the advisory system in some small enterprises, because a system operator can very quickly adjust the structures (organizational and project teams) to a project. On the basis of the system the operator can both ask questions and get answers quickly. Moreover, an advisory system shows graphic presentation of the results.
Research limitations/implications: In this paper an advisory system has been used. This exact advisory system could be used in bigger number of enterprises, but on one condition - it must be developed according to their needs.
Originality/value: The advisory system was supplemented with a help tool – a database. The database is a source and a concise help tool, perfect completion during the use of advisory system. It allows the user to adjust into more detailed structures to a selected project.
Keywords: Project management; Human resources management; Advisory system

1. Introduction

The following paper presents issues concerning the scope of human resources management, as well as the advisory systems.

Firstly, 'human resources management' is viewed as an approach to employment management, heading for getting competitive advantage by strategic assignment of highly committed and qualified workers with the help of many cultural, structural and personal techniques [1].

Secondly, 'advisory system' is a system, which presents solutions for the user, who is able to estimate its quality. The user can turn down the solution offered by the system and demand other solutions. Moreover, the advisory system is a kind of 'expert system', which can be applied to all kinds of applications (e.g. diagnosis of diseases, identification of chemical structures, machinery designing) being able to draw conclusions and take decisions, acting closely to the way human beings reason [2].

The main idea of this paper is to investigate the advisory system operating effects and the way it can help the user to take a

decision concerning the adjustment of structure and structure project team to a certain project selected by the user [3].

2. Adjusting structure to project

The inspiration to create an advisory system was the difficulty in finding detailed information determining the ways of adjusting to an appropriate structure to the project. After an in depth analysis the information can depend on, as follows [4, 5]:

- type of project: internal/external (tab. 1), process/object (tab. 2), low/high (tab. 3), small/medium/large (tab. 4),
- number of staff working on a project full-time,
- role of project manager and his/her authorities, since it depends on him/her how the project is to be carried out,
- environment (encoding data coming from the environment in order to process the data into information which, as a result, serve to make decisions influencing the environment),
- names of jobs, especially in those projects which require cooperation of several managers,
- number/of administrative staff needed in the realization of the project.
- project team: educating (ex. data assembly), standardization (ex. experimenting), conflicts (ex. lost ideas).

Table 1.
Examples of projects according to their origin – external/ internal

External	Internal
Production of complex technical objects such as huge machines and tools.	Introduction of new technologies on the market.

Table 2.
Examples of projects according to the way they are oriented on – process/object

Process	Object
Construction and modernization of production departments.	Designing and introducing a new system of management.

Table 3.
Examples of projects according to their innovation degree – high/ low

High	Low
Technical projects concerning complex tools.	Organization of conferences.

Table 4.
Examples of projects according to their size - small/medium/large

Kinds of project	Size of project team	Cost of project
Small projects	<6	<20 000 PLN
Medium projects	6-50	20 000 – 2 000 000 PLN
Large projects	>50	>2 000 000 PLN

In the created advisory system appropriate structures were adjusted to the project on the basis of characteristic features of the project and features of the project team.

3. The structure of advisory system

In the structure of advisory system, based on a detailed analysis and available data, variables, qualifiers and choices have been defined [6-8]. Chosen variables are presented in table 5.

Table 5.
Selected variables, which are used in advisory system

	Names of variables
1	Linear
2	Clean project

In order to enter data into the advisory system sixteen qualifiers – questions have been defined and they should be answered by system operator [9]. Example answers have been shown in table 6.

Table 6.
Qualifiers used in advisory system

Qualifiers	Qualifiers value
What is the origin of the project?	External
	Internal

In the advisory system predictable solutions were presumed. In order to do so organizational structure is applied (simple, operational, project, matrix, task, classic, flexible, global, stable) and four example models of project teams of isomorphic, expert, collective, surgical (figs. 1-4) [10,11].

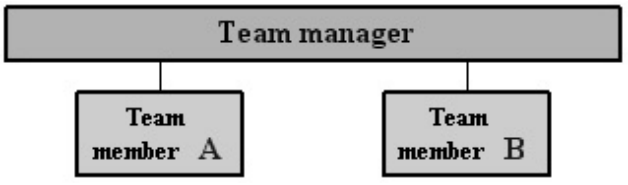

Fig. 1. Isomorphic project team structure

Isomorphic team structure was based on assumption that team members do few tasks independently. These tasks are parts of a bigger project. There are two important factors in this structure: integration and control of the team (fig. 1).

An expert project team structure requires, an independent work of experts, according to their specialization, cooperating at the same time with the project chief. This model requires independence of each staff member, although it can effectively use the abilities of experts. Moreover, it can give rise to danger in the form of lack of cohesion and inequality in division of work. The work in this kind of team structure depends on the fact that all members of the team are involved in different actions, at the same time cooperate with the team manger (fig. 2).

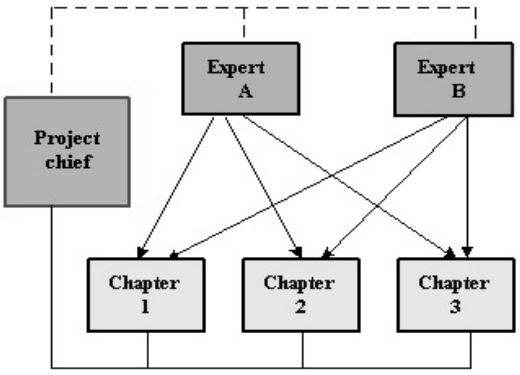

Fig. 2. Expert project team structure

The essence of collective project team structure is a common work of team members. They are all equally committed, but they do not work under their manager's guidance. Although, this model persuades to co-operate and it makes communication easier, it does not work in big teams, because of a lack chief can cause insufficient co-ordination of actions (fig. 3).

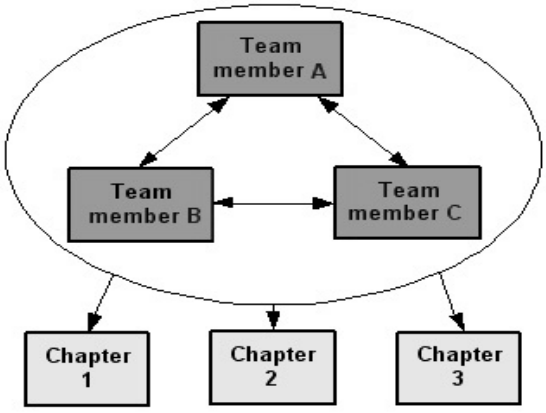

Fig. 3. Collective project team structure

In the surgical project team structure chief is responsible for carrying out the project. He has helping staff at his disposal, especially supporting his actions. This model works with projects, concerning drawing up technical documentation. Nevertheless, it requires of employing people with high qualifications and clear separation of managerial functions (Fig. 4).

In order to do so organizational structure is applied and project teams taking into consideration all demands in 2 stages[12].

Stage – I. Right number of points in the range from 1 to 5, is added to input data of advisory system depending on the weight criterion on the solution (tab. 7). The next stage is a choice of the highest score of points variable and the adoption of proper organizational structure. As a solution the system chooses the optimum organizational structure. The score of points has an influence on the importance of individual criterions. A conclusion has been carried on the basis of stage count of points.

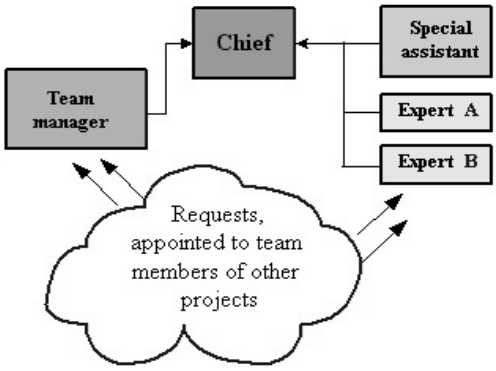

Fig.4. Surgical project team structure

Stage – II. The assignment to the suitable team project has followed to selected organizational structure. The project team had been fit according to the basis on database, which helps the user to adjust four example models of team project into earlier selected company organizational structure. Fitting the suitable structure into the project can depend on many factors such as: type of project, number of staff on the project full-time, and role of the project manager his/her authorities [13].

Table 7.
Influence of the individually selected criterions for the choice of the organizational structure; where: 1 - very small, 2 - small, 3 - medium, 4 - large, 5 - extra large

No	Criterion	Weight
1	Origin of order	2
2	Level of novelty	3
3	Time of duration	5
4	Number of team members	4
5	Way of employment	1

4. Carrying out experiments

There were carried some experiments with the help of advisory system and assessment of results correctness was done. The system always asks some questions in the same sequence Questions asked by advisory system were answered [14]. The final list of questions with some selected answers is presented below:

Experiment 1 and 2

The answers to experiment 1, are underlined , but in case of the second experiment are made bold.

1. What is the origin of the commission project?
   - External
   - internal
   - external/internal
2. Will the project be well-wrested?
   - Process
   - object
   - process/object
3. What will the degree of project innovation be like?
   - Low
   - high
   - low/high
4. Choose the predicable time of project duration:
   - several -dozen days
   - several - dozen weeks
   - a year - several years
5. What will the cost of intended project be roughly?
   - 0 – 20 000 PLN
   - 20 000 - 2 000 000 PLN
   - > 2 000 000 PLN

6. Give the number of project team, members necessary to do project tasks:
   - 0 - 6
   - 6 - 50
   - > 50
7. Will you need a unit responsible for a team?
   - yes
   - no
8. Will the carried out project be (importance for organization):
   - main carried out project
   - project, carried out additionally on commission realize extra on order
   - one of many carried out projects
9. Will you need a unit responsible for a team?
   - yes
   - no
10. What will the lineup of managerial staff, responsible for project team be like?
    1. a task manager
    2. a function manager
    3. a operation manager
    4. a production manager
    5. a project manager
    6. a director
    7. none
    8.
    9.
11. What way will the members of the team do tasks?
    - depending on themselves
    - independently
12. Will all members of the team be directly responsible to the director?
    - Yes
    - No
13. Who will be responsible for carrying out the project?
    1. a director
    2. subordinates
    3. a manager
14. In what way will the workers to a project team be employed?
    - outside contacts be necessary
    - own workers
15. Will a helping staff be necessary to carry out the project?
    - yes
    - no
16. Will a group of experts be necessary to carry out the project?
    - yes
    - no
17. Will they create special centers to carry the project ?
    - yes
    - no

On the basis of some presented requirements the system has chosen as a solution-project organizational mixed structure (48 points) and isomorphic project team structure. The structure meets all the required criteria, so it has achieved maximum amount of points. Criteria of the above experiment were chosen on purpose, because the main aim was to achieve a specific solution.

On the basis of some presented requirements the system has chosen as a solution-project organizational center classical structure (38 points) and surgical project team structure. The organizational structure did not meet all chosen requirements, but it has achieved maximum score of points from among the others. This structure fits structure the specifics project best, although it is not an ideal solution. As it was mentioned before, it is very hard to fit the structure entirely. In this situation it is necessary to consider the solution with the highest score of points. However, it does not always meet all criteria. It is the best solution for specific project. Moreover, it must be stressed that the importance of individual criteria strongly influences the score of points. The best solution meets criteria of the highest importance. The solutions given by the system are not optimal. The advisory system is only a tool supporting making decisions All data to the second experiment were chosen at random [14].

5. Conclusions

The paper presents a problem of development of the advisory system, which helps the operator to make a decision concerning an adjustment of structure and structure project team to a certain project, which was selected by operator. Created advisory system is a simple and flexible computer tool, which instantly suggested a solution or solutions, after getting answers on the questions. Moreover, an advisory system shows graphic presentation of the results and the report generator can be used in it to document analysis and to make a proof [15].

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