



Global Journal on Technology

Vol 5 (2014) 59-65



Selected Paper of 4th World Conference on Information Technology (WCIT-2013)

Impacts of Human Resources on Project Planning

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Suggested Citation:

Kosztyán, Zs.T. & Kurbucz M.T., Impacts of Human Resources on Project Planning, *Global Journal on Technology* [Online]. 2014, 05, pp 59-65. Available from: www.awer-center.org/pitcs

Received March 17, 2013; revised July 16, 2013; accepted September 24, 2013.

Selection and peer review under responsibility of Prof. Dr. Hafize Keser.

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Abstract

The inadequate use of HR selection methods or the lack of them during project management can easily cause the failure of the project. Beyond the use of methods, we can still find problems for example in the approach: the makers of the methodology disregarded the fact that humans cannot be known only from databases and statistics. The aim of the research was to create a method which is capable of proper human resources selection, which can give suitable proposals and solutions with the help of anthropocentric and mathematical approaches during the selection process of the members of the project team. The creating the suitable selection method needed a new theoretical approach, which based on the selecting methods which are applied in a daily practice for examination and grouping. There are more methods for HR selections of template using projects, but these methods aren't suitable perfectly for the projects with more new content, because you cannot use the same tools and techniques for organizational HR selection. During the creation of my new selection method, I wanted to expand the template using selection techniques for the projects with more new content. Which principles are used during the composition of a project team? Who are the competent people for teamwork? Why is it worth differentiating the selections periods in project management? The readers can get the answer for questions like these.

Keywords: selection, comparing, human resources, project management.

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1. Introduction

The lack of human resources selection methods used in everyday practice – in many cases simple intuition –, their disorder, or their incorrect usage makes the frame conditions of time, cost and quality impossible to fulfil, and with this, it makes the success of the project impossible. Besides the validation of methods we can find mistakes in the point of view itself, because the makers of methodology often fail to notice the fact that humans can never be fully found out only by numbers gained from databases.

During my research my goal was to create a generalizable selection method that can give a satisfying result in case of any team member in any project or industry.

What is a good basis for putting together a team for a project, and who are the competent people to execute a given task working in a team? What are the differences between the methods used when selecting members for a project team, and the methods used in case of corporate selections? How can a selection method be objective and straightforward regardless of the fact that the required task isn't definable beforehand? In my work I'm attempting to answer these questions using a method I created, which has a people-oriented approach, even though it's based on mathematics.

In my manuscript I'm going to first introduce the basis of grouping the selection methods, and then I'll describe the selection technique I created.

2. Examination of selection methods

In this chapter I grouped and analyzed the human resources selection methods used in practice when planning a project according to my own categories. The four groups I divided the methods in are the groups of methods using selection based on personality types (or non fixed team roles), the level of knowledge, the fixed team roles, or a mixture of these selection techniques, which can result in selection based on the level of knowledge and personality type, or on the level of knowledge and fixed team role. In our case the word "fixed" means the team roles are defined in patterns that depend on industry (for example the role of a software developer during a software development project). We can only form these kind of roles in projects that don't have much novelty in them (for example, in case of repeated projects – [10]). In my manuscript I call the roles that can be used in any kind of industry non-fixed team roles.

In my opinion, among the aforementioned selection techniques only the last one, using mixed strategy, are expedient, because during a project, while a convergence between team members is needed, it's also necessary to have the required amount of knowledge available. The selection methods I find expedient are illustrated in the 1st figure as the methods believed to be satisfactory.

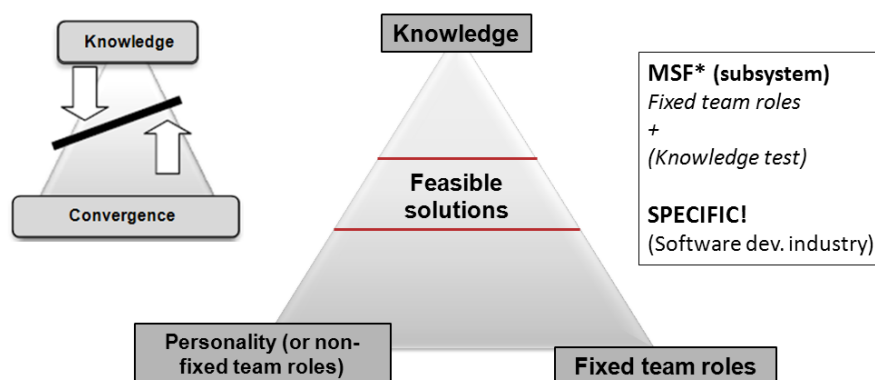


Figure 1. The grouping of the selection methods applied in everyday practice

The selection method marked on the figure 1 with "MSF" refers to the selection subsystem developed by Microsoft under the name Microsoft Solutions Framework. It's a collection of information technological solutions, principles, models, directives and processes [6-4] I feel the need to mention the MSF selection subsystem, because in my opinion this is the closest to my ideas of satisfactory solution techniques, even though its indisputable advantages stem from the fact that it only offers a solution to the software developing industry (in my manuscript: specific), so it can use

the patterns [3] used in this industry. Nevertheless, the examination of the level of knowledge and the fixed team roles performed by this technique offers a complex and suitable solution when choosing human resources in case of a software developing project.

As we know, a project is defined as something that means a “single and complex task for the organization” [5], and this leaves only the question of preserving the field-proven effectiveness of MSF in projects with higher novelty content that absolutely ignore patterns.

The answer can be found in Belbin’s (2003) work, who created the team roles making up the model of the high-performing. In Belbin’s (2003) method he highlights that we can create satisfyingly functioning and self-managing teams if we consciously pick them according to heterogenic personality types and levels of knowledge, so they won’t want to take on each other’s roles (for example, the presence of more members with leading tendencies will lead to continuous conflicts, and can make the team’s work impossible) [1]. In the next chapter I will introduce among others the way I used the aforementioned knowledge and experiences in the creation of a suitable selection method.

3. Description of own method

During my research I was astonished to see that the car part production and assembly plants I examined often don’t build their project teams consciously, even though they invest huge amounts of money in these projects. This mistake can easily lead to the failure of the project, or can significantly increase the costs. I addressed this problem when I created the Integrated Human Evaluating Selection Method (iHRES), which points out the flaws and deficiencies of the company’s human resources system, and this way helps the decision-making process of the management level.

I think that the creation of iHRES is the main result of my work, which is a human resources selection system based on theoretical assumptions. During the creation process I reinterpreted proven methods and built up my independent train of thoughts.

The goal of iHRES is to recommend individuals to the project manager that are matching and able to work in team while being able to accumulate enough knowledge inside the group – abolishing the possibly occurring indecisiveness and improving the rate of faulty decisions.

In projects called specific or stereotypical by me regarding the novelty content, such as projects in the construction industry or software development, roles are often definable beforehand, and from these roles responsibilities and authorities. Knowing these, it’s easy to create a suitable selection method for the given industry, or the given company, because it will be similar to the corporate selection methods well known by them (the MSF subsystem uses similar additional information). In my method I assume complete uniqueness of each project, and I aim to realize selection without knowing this additional information, using the non-fixed team roles.

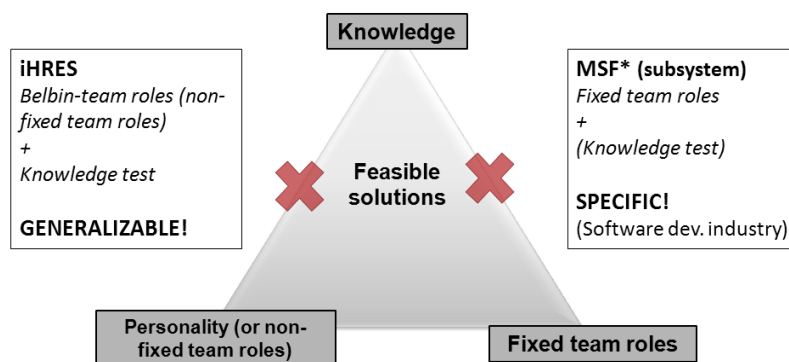


Figure 2. Principle of operation of iHRES

The suitable solution phase on the 2nd figure uses the HR tools used during the iHRES interview, the knowledge of the experts, and mathematical tools.

In my opinion, during the selection process, the convergence between team members and the existence of the required level of knowledge conflicts with each other. If we aim to achieve perfect convergence – for example, by using the complete Belbin’s Team Roles -, then we have a small chance to fulfill the knowledge criteria, and if the level of knowledge dominates, it results in an Apollo team

(2nd figure). According to the complete Belbin method, we would get a self-managing team, which we don't need, because the regulation of the functioning of the project team is the project-manager's task. We can turn this to our advantage, using it to reach the required level of knowledge. From Belbin's method we only need the heterogenic personality types, because the heterogenic level of knowledge would make even the most general project management techniques impossible. Reaching the heterogenic level of knowledge is also unnecessary because during projects we don't need perfect cooperation between team members, or independent work (self-management).

Of course, among the goals of the selection there is the reaching of convergence between team members, so we can avoid the problems stemming from Apollo teams [1]. We can do this by selecting individuals capable of working in teams, and picking members with heterogenic personalities. The conflicts arising from the incomplete Belbin method are handled by the project manager (in projects, the project leader has full overview and hierarchical authority over the members of the team).

While in the selection of members for simple teamwork (corporate selection) we have the opportunity to examine – and insert - team roles, authorities and conflicts of interest, we don't have to give up the suitable selection methods lacking these, because, during the projects, single person leadership and full supervision makes it possible.

My method offers a possibility for handling informal relationships (see the phase IV. of the 1st table). According to work psychology, employees are capable of better performance if they are able to pick who they want to work with [8].

In my opinion, this statement is incorrect, because employees would pick their teammates based on outstanding relationships and friendships, which can improve the short-term performance, but if a conflict arises, the unity of the team can disrupt, and the employees separate into different groups. Friendships can also lead to distraction and laziness in the teamwork. In my model I support the relationships up to a point, and above it – level of friendship – I reduce them.

I consider the algorithm I created another achievement. It is a maximal comparing algorithm for supporting the selection, which makes the maximal and orderly pairing of differentiated peaks possible.

Another advantage of iHRES is that it can provide quick and presumably reliable recommendations for the project leaders using computer tools. It's important to emphasize once more that iHRES only uses computers to make recommendations for summarizing data and making up a hierarchy, so it doesn't mean a hasty and computer based mining for data. The method worked out by me doesn't ignore either the human factor or the examination of levels of knowledge (5. Summary of the functioning of the method, 4th figure).

The method was developed to report the deficiencies of the sum of the employees working for the company to the management level, which way iHRES generates information of the composition and deficiencies of the human resources system. The selection method can be adjusted prior usage to such company needs as, for example, cost sensitivity.

4. The construction of the method

The method can be resolved to six phases with different time consumptions. The following table gives a short overview of the goals of each phase.

Table 1. The overview of iHRES's structure

No.	Name	Goals
I.	Interview and data analyses	Filtrating, define <i>global value</i> and non-fixed team roles
II.	Resource planning	Define priority of the projects, expectations, number of the workplaces and work needs.
III.	Knowledge level evaluation	Define <i>local value</i>
IV.	Assignment process	Selecting the suitable workers
V.	Sociometric correction	Correction of the results with the informal connections between the team members
VI.	Recommendation	Make a proposal for the project manager

Phase I: During interview and data analysis we examine and evaluate the employees doing intellectual work for the company (they get a „global value”). Personal conversation is an essential tool of selection [7], and because of this, it's useful to have interviewing, testing and data analysis – maybe with added work psychological examinations - regularly, for example, semiannually. During these we can uncover which employees are able to cooperate and take on a role in a project team. The interviews have to follow a rigid pattern, so the data can be quantified (structured interview). The data gained this way has to be compared to the data found in databases, and we have to find out who are the employees that didn't reach satisfying results during the examinations. These individuals cannot participate in project work as team members until the next interview. In addition, we have to analyze the Belbin group role of each employee, and, if the IT support allows it, we have to map the informal relationships between employees.

Phase II: During resource planning we have to plan the prioritizing of the project tasks we want to realize, the workplaces assigned to the project, the requirements for these work places (for example, in case of an economical project, it can be SAP knowledge), and in case of companies with a multi-project viewpoint, it can be useful to define the labor demand to each workplace.

Phase III: During the knowledge level evaluation we examine the extent to which the level of knowledge the employees possess fulfill the requirements for the workplaces. This suitability is defined by an index number, the raw local value. During this chapter I correct the raw local value by the experience value of the employees, and their costs, which will result in the final local value. An employee has different local values for each workplace he's qualified to hold.

Phase V: During sociometric correction we correct the results of raw selection using sociometry, which results in the (supposedly suitable) result of selection. We use sociograms [12] for correction, which gives us visual depiction of the extent of relationships between group members, and the social distance between them (own translation) [13] On figure 3 you can see an example for the multiple viewpoint relationship net's [11] single, paired graph based depiction, in which the top points represent the labor force, and the bottom points the workplaces divided by projects. The edges represent which employees can fill which workplace. The values written on the edges, or the competency-compliance, show the expected efficiency of the given employee in the given workplace.

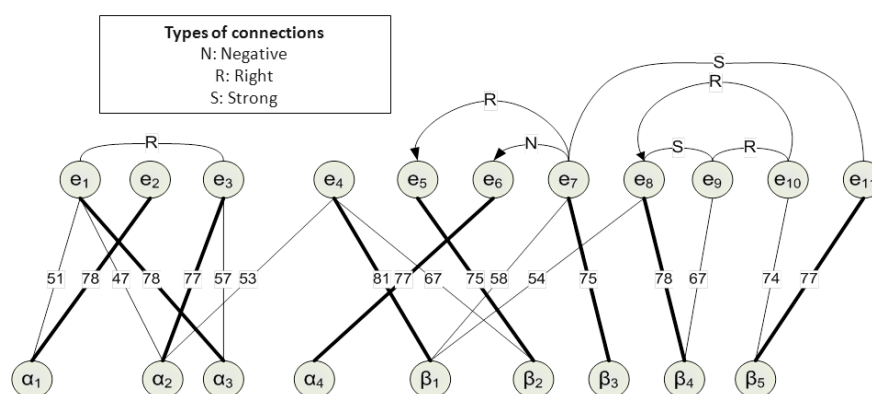


Figure 3. Unique representation of the informal connections

As I mentioned in manuscript, I find that strong relationships (friendships) as well as negative relationships are to be avoided, so I only support the “appropriate” (M), formal and respect-based relationships during the selection. During the sociometric correction I used the algorithm “Hungarian method” [9], which aims for maximal comparing.

Phase VI: The aim of recommendation is the recommendation of labor for the project managers and finalization. In reflection of the trust level functioning in the corporation I offer two possible alternatives for realizing this. In case of high trust level the project manager has freedom of decision, and in case of low trust level he/she has the right to appeal. In the latter case, the final decision is made by the human resources department of the company, but before the decision is made, the project manager can apply for modifying the group. The decision makers assess the application and can change the project manager as well as the employees.

5. Summary of the functioning of the method

You can gain even more insight into the functioning of my method if you study figure 4, on which I illustrate the difference of human and mathematical tasks. In the first step we have to create data through getting to know the employees. In this phase, so for creating data, we use human method (for example, tests and interviews). We have to methodize the accessible data using mathematical tools, and after performing the necessary calculations we have to handle the results as recommendations, this way giving back the right of decision to the project manager, or possibly the HP department (the method only gives a recommendation to the project leader, because he's the one who has to cooperate with the team in the future).

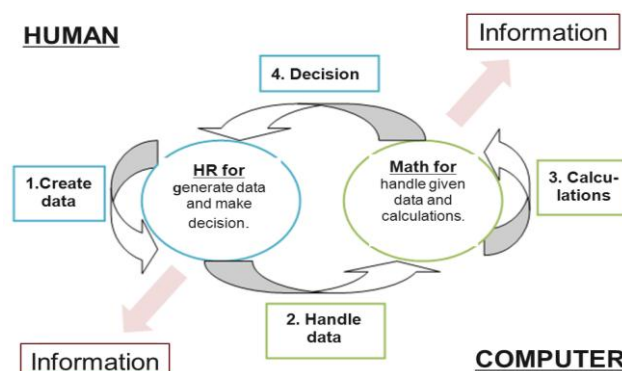


Figure 4. Summary of iHRES's operation

Summarizing the results of my research:

- Creating a new theoretical point of view
- Unique grouping of selection method
- Working out a new selection method
 - Generalizable
 - Flexible
 - Complex
 - Informative
 - Quick
- Working out a new mathematical algorithm

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