

# COMPETENCE MANAGEMENT AND ROTATION OF HUMAN RESOURCES AT PROJECT-ORIENTED ENTERPRISES

(abstract)

Alexey Arefiev, Alexey Bazhenov

## 1. INTRODUCTION

### **Keeping a tab on and analysis of projects' needs in human resources.**

The problem of untimely achievement of goals in project portfolio management is associated, primarily, with resource constraints, i.e. in case of human resources (personnel), the impossibility to assign a specialist with required competence on the project when such necessity arises. The company's staff may lack appropriate competence or all the employees who do have such competence may happen to be busy on other projects.

Methods of both the operational and the strategic resource planning allow to determine which resources the organization needs at the moment and which would be needed in the future. However in case of human resources, these methods, due to their particular features (specifically, their instability), tend to be ineffective.

From the standpoint of **competence model**, description of project needs in human resources allows not only to plan assignments of available personnel on the projects but also to determine the most cost-effective ways of replenishing skills and knowledge lacking in the company

In the course of development of both the organization and the range of its projects, certain skills and knowledge that form the basis of competences may become no longer necessary. In such cases the company has to make a decision concerning the fate of its staff members who are the bearers of such competences. These people should be either retrained (reeducated) in the competences that are currently lacking in the company in accordance with the company's development plans or dismissed.

### **Management of highly-qualified key-specialists' competences**

Multiproject management practice demonstrates that theories neatly explaining how to increase resource utilization efficiency through resource leveling across the projects fail in cases of highly-qualified human resources which cannot be easily reassigned from one project to another like other resources, such as project equipment, raw materials, or other personnel (such as technical personnel).

The higher the qualification and the wider the range of professional knowledge and skills, the higher is the risk associated with withdrawal of such specialist from the project and the more problematic is fast integration of this person's skills and knowledge into another project. However in most cases it is such specialists who comprise projects' critical resources located on resource critical paths, which only increases their value for the company.

Managing key-specialists is the most acute problem for the companies offering various business services (primarily, complex consulting, e.g. system integrating, auditing, organizational consulting) as well as project-oriented companies with narrow specialization, design offices, major advertising and PR-agencies, major recruiters, etc.

This presentation explores specific features of human resources (primarily, of key specialists) due to which their rotation for the purpose of multiproject resource leveling becomes problematic, and offers an approach and a set of organizational development tools that allow to find solution to this problem. Our theses will be illustrated with the examples of industries and services for which projects comprise the main source of profiting. At the same time, our main conclusions are also true for the majority of internal projects implemented by process-oriented companies.

### **Terms and definitions**

Key specialist is a staff member who possesses profound knowledge and experience in particular professional areas that are employed in much (or in most) of the company's projects. Without such specialist, project cannot be successful. Examples: specialist in server configuring and tuning, leading engineer, staffing consultant, manager of client's projects (e.g., promotional campaign projects).

Competence – a set of knowledge, skills and personal qualities that allow address certain task (or a set of tasks). Competences are described as sets of requirements for the staff member's knowledge, skills and qualities appropriate for a function, position or role in the project. If the specialist's professional skills, knowledge and personal qualities are consistent with the requirements for a certain competence necessary for a certain position or tasks, then this task can be implemented by this specialist efficiently and with the good quality of performance. The more various skills and knowledge are required for a specific task, the more complex is the competence appropriate for this task.

Qualification (synonymous to expertise) – the extent to which the specialist's competences are developed (this primarily concerns the aspects of knowledge and skills). The higher the specialist's qualification, the more quickly and efficiently the specialist performs his or her tasks within the framework of his or her competences.

## **2. MANAGING KEY SPECIALISTS IN PROJECT-ORIENTED COMPANIES**

### **Presence of key specialists in the companies is inevitable**

In most projects there are several key specialists whose qualification and performance determine the success of these projects. For the reasons described below, key specialists are difficult to manage, especially in multiproject environment. Nevertheless in most cases, complexity of project subject areas does not allow to assign several specialists of comparatively low qualification or with more limited competences instead of a single highly-qualified specialist. Examples are the same as before: staffing manager, the expert in the adjustment of particular types of applications or devices, etc.

Key specialist's qualification grows with time, with the range of his or her competences expanding, and the organization, yielding to temptation to charge the person capable of performing tasks with as many such tasks as possible, allows its projects to be dependent on such specialists, assigning them to do all the work. This results in more dependence and higher risks (see below).

### **Demand for qualification exceeds supply.**

The higher the complexity of a product or service to be delivered, the more the company is dependent on its key specialists' qualification and on how efficiently their main competences are used.

The share of these specialists' labor costs in product or service prime cost may be used, with certain adjustments, as an indicator of such dependence. Thus, in consulting companies this share approaches 100% (excluding overhead expenses).

At the same time there exist companies that can be even more dependent on their key specialists than consulting companies while the share of these specialists' labor costs in product unit prime cost is not so high. Example: planemaker enterprises and design offices.

Accordingly, the stronger is such dependency, the higher is demand for highly-qualified specialists with complex competences (as described above) and the greater is the reward offered to them. The situation with their supply can be graphically presented as a non-linear inverse relationship chart (fig. 1).



Fig.1. Relationship between the number of specialists available on the labor market and their average cost and qualification.

The more specific are the employers' businesses and projects, the less professionals in each narrow speciality can be provided by the labor market. This, in turn, is directly connected with the level of product and service complexity. With the steadily growing demand for such services, growth of the companies providing such services is often limited by the fact that it is impossible to hire and to keep hired sufficient number of key specialists with complex and often unique competences.

### Specific features of key specialists

What are the people with rare and complex competences? Below are a few general trends the examples of which one may often find in one's own practice.

1. For such people, money is not the main motivation. They are rather motivated by the prospect of achieving the goal or, more often, the process of work itself, by constant improvement of their own professional capabilities, by their acknowledgement and professional status, etc. Good working conditions (e.g., personal office, powerful computer, access to information, etc.) may greatly enhance the feeling of comfort for such individuals. Naturally, money matters a lot, but money in a form of guaranteed salary rather than bonuses for project results. With such people, the desire to "do a job well" is not directly associated with the reward.
2. The fact that they are often indispensable aggravates their behavior directed at retaining this indispensability, this status of "unique specialist". This allows them to insist on their own terms, financial and other, that are may not be quite fair. And the more important and expensive the project, the harder they push for their point, even to the point of blackmailing their company. In order to retain their status of uniqueness and indispensability they try to avoid sharing their knowledge or explaining the rationale for their professional decisions.

3. Specialists who are highly qualified in some narrow professional area (particularly, in technology) are often the people with low motivation for communication and poorly developed communication and social skills. Being dedicated people, they often feel uncomfortable when they have to perform their duties together with someone other than the representatives of the same profession, not to mention customers.

### **3. PROBLEMS ASSOCIATED WITH MANAGING KEY SPECIALISTS IN PROJECT-ORIENTED COMPANIES**

Due to these characteristic features of highly-qualified specialists and requirements for the complexity of competences in the projects, project-oriented companies encounter difficulties in multiproject management situations. Let's consider the most common problems.

#### **Key specialists become increasingly more difficult to obtain in multiprojects**

As the organization implements more kindred projects, it needs more staff with kindred qualifications for these projects. As we have already reviewed, the organizations are only very seldom able to hire for all their current projects as many specialists, as necessary, at short notice. The companies try to compensate this deficiency using the same resource leveling methods in multiproject management. However this leads to the following problem.

#### **Difficulties associated with the leveling of human resources such as key specialists in multiprojects**

In project prioritizing and resource leveling, companies have to address their key specialists in the same manner they address their other resources - to reallocate them from one project to another and to assign tasks for simultaneous implementation (including those to be implemented simultaneously for several different projects) by the same specialist. At scheduled intervals for plan readjustment, the order of the implementation of tasks assigned to each specialist is redefined depending on project priorities and the progress in their implementation.

As we have already reviewed, the more complicated is the task, the more rigorous are requirements for the set of competences of the specialist assigned to implement this task and the more this specialist is "integrated" into this task. Sometimes such tasks simply may not be reassigned to another specialist. And in most cases it would be extremely undesirable to remove the specialist from these tasks even temporarily or to interrupt its implementation. I.e., the specialist's workload that approaches 100% is often predesignated for the whole period of project implementation. Examples of this are preproject survey, server adjustment, a stage of the implementation of certain system at an organizational division, etc.

When a key specialist is transferred to another project, his performance may become significantly impaired as a result of necessity to abandon unfinished job, difficulties associated with familiarizing himself with the details of the new task and integrating himself into a new project team, ruined expectations, high degree of uncertainty and overall demotivation. Goldrett's resource critical path method provides partial solution to a problem of indispensable resources (including key specialists) planning and accounting. However the core problem of their deficiency and inflexibility remains unsolved.

#### **High costs of key specialists' salaries and upkeep**

We have already mentioned in Section 2 that highly-qualified key specialists with a wide range of competences are expensive. Besides, if they leave, the organization has to bear heavy expenses of lost profit due to disruption of plans and failure of projects in which they were to participate. In many cases, investments in additional training of such specialists are never returned, too.

Besides, losing its key specialists, the company may also lose their knowledge and experience that have never been documented and exist only in their minds.

#### **4. KEY COMPETENCES MANAGEMENT MODEL**

In this presentation we offer systemic solution to the problems associated with management of key specialists and human resource rotation in the projects - solution that implies changes in the company's overall management system. The authors of this presentation believe that no local measures may cardinaly improve the situation while simultaneous changes in several management subsystems (stimulation system, training system, corporate business planning, multiproject management, knowledge management, and corporate culture) may prove to be effective, dramatically increasing efficiency of human resource management in multiprojects.

The key to these problems lies in management technologies that allow to:

1. Substitute for key specialists in the projects when possible, leaving them on the projects and tasks only when absolutely necessary, i.e. minimize situations in which key specialist becomes the project's critical resource.
2. Provide accumulation, storage and utilization of key specialists' knowledge and experience in a special knowledge base.
3. Provide an ongoing mechanism allowing to transfer knowledge and experience to the promising young specialists directly from key specialists as well as from this knowledge base.

This approach is based on the concept of Competence Centers created around the most sought-after competences and their bearers, key specialists.

Below is the concept of Competence Centers-based competence management system functioning in project-oriented organization. Procedure (the order of actions) for the implementation of this approach is a topic worth of a separate study and will not be reviewed in this presentation.

The concept of Competence Centers embraces organizational tools, procedures and technologies that allow to address these problems. The interactions between main processes and participants are reflected in Fig. 2.

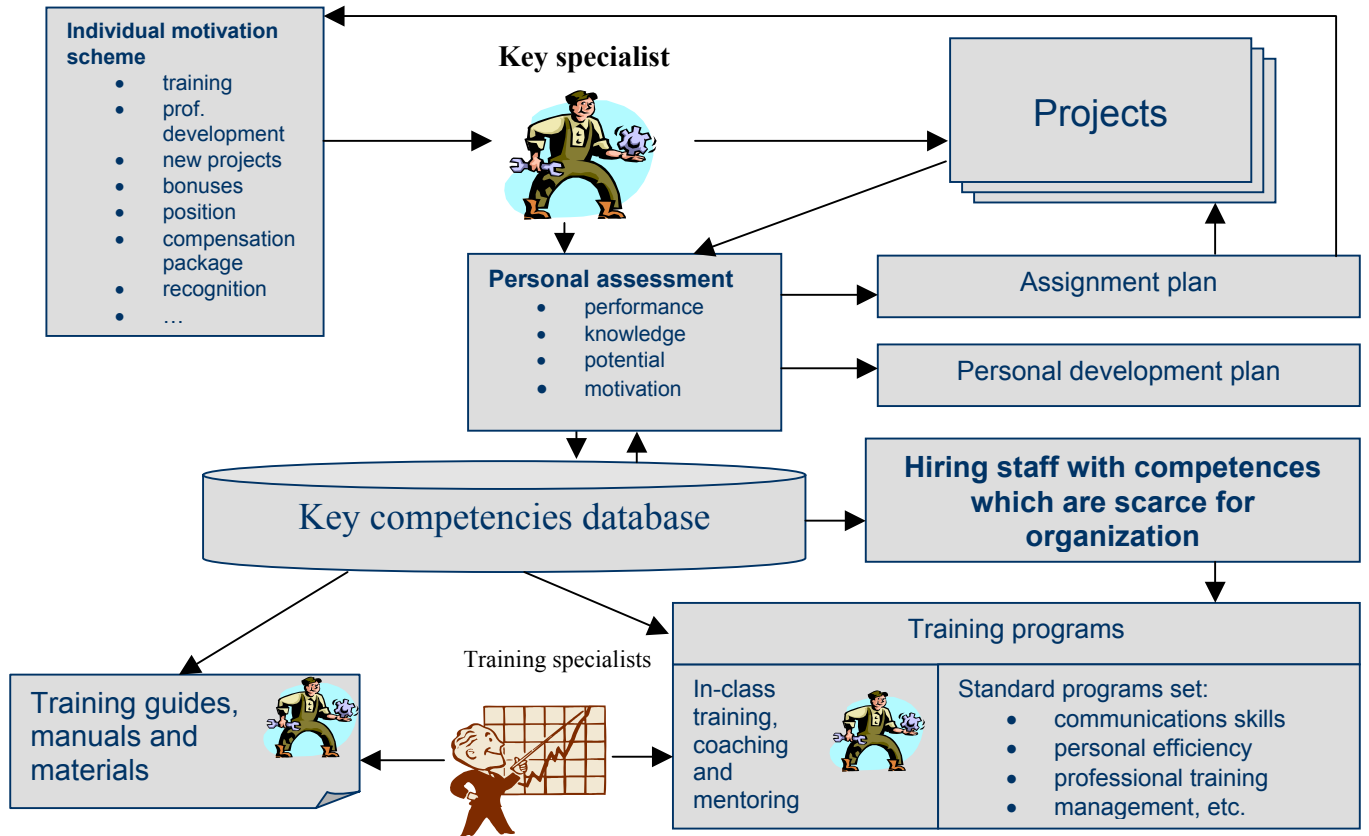


Fig. 2. Competence management system.

### Key specialists' competence management: assessment, transfer and development; formation of resource pool of specialists

Let's describe the logic of the iterative process.

1. When human resources are assigned on project tasks during project planning, the needs in human resources are formulated, expressed as description of competences required for project implementation.

This activity is performed using Competence Database which comprises the basic element of the whole system and of which personnel management department is in charge. The process of Competence Database creation becomes each company's know-how, although there exist basic principles of competence description and accounting based on the Competence Model developed more than 10 years ago. Competences are individual for each company and may be described as follows (see table 1).

Table 1. Description of competences and requirements for the staff

Element of competence	<i>what does it mean</i>	Requirements	Position 1		Position 2	
			Level 1	Level 2	Level 1	Level 2

Knowledge	<i>what he or she knows</i>	1. ...	+	+	-	+
		2. ...	-	+	+	+
		3. ...	+	+	-	-
Skills	<i>what he or she can do</i>	1. ...				
		2. ...				
		3. ...				
Personal qualities	<i>he or she is like that</i>					
Motivation	<i>his or her goals and values</i>					
Potential	<i>what he or she is capable of</i>					

For each competence, several levels of person's maturity can be distinguished, characterized by requirement for the presence of certain positions in the description of the person's specific competence.

Assessment of person's conformability with concrete competences is performed as part of the regular appraisal. Use of concrete procedures is individual for each company although there exist certain general rules for this process, too. Thus, assessment of knowledge is carried out using professional tests developed with the participation of both the external experts and the heads of appropriate divisions. Assessment of skills is carried out using the methods of workplace observation, with the manager's opinion and performance appraisal taken into consideration. Personal qualities are assessed using psychological tests, interviews, etc.

With regard to management of concrete projects, human resources planning is then performed basing on defined requirements for competences and availability of appropriate specialists (according to the above-mentioned database and the plans of other projects).

2. Competences *lacking in the company* are identified basing on project results (intermediate and final) and the results of regular staff appraisals. In other words, situations in which there had been a need in a staff member with particular set of skills and knowledge and such person could not be allocated to the project are being identified and analyzed. Analysis of causes of the specialists' deficiency is very important in such cases (it should be noted that planning errors should not be included in this analysis).

Staff members highly-qualified in thus identified areas usually are the *key specialists*.

3. Competences which are regularly in deficiency form the basis of Competence Centers. It is very important to note that Competence Centers are created basing not on the description of competence as such but rather around the staff members with the best-developed, strongest competence (or, more often, set of competences), i.e. around the most qualified and sought-after staff members – key specialists.

Thus, Competence Centers include:

1. Description (reference to Competence Database) of competences that are critical for the company's projects (with these projects specified).
2. Key specialist or key specialists - bearers of these competences.
3. Individual file on each key specialist from a particular Competence Center which contains:

- information about this staff member
  - description of his or her key competences
  - system of personal motivation
  - results of regular appraisal
  - development plans
  - workload plans (assignments on projects)
  - plans for participation in personnel training and development of training programs and materials.
4. References to the database containing description and results of projects and tasks in which this particular specialist participated.
4. Staff member which is a part of a Competence Center performs the following tasks in cooperation with personnel management service and his or her direct supervisor:
- conducting training seminars for the company's young specialists who, according to the results of appraisal, have sufficient potential and motivation to develop professionally in particular direction;
  - mentoring and coaching young specialists;
  - participating in projects not only as its implementer performing within his or her own area of technical expertise but also as a tutor of other specialists who received internal training under his or her guidance, including the control over the results of their work and professional consultancy
  - together with professionals in the sphere of training, creating tutorials and teaching aids dedicated to particulars of the use of professional knowledge and technologies in the company's projects
  - documenting and placing on the database the results of project, its phases and activities and descriptions of approaches used and decisions made, both by themselves and the young specialists they mentor.
5. These measures help the organization to overcome the bottlenecks in the necessary sets of competences through partial transfer of knowledge and skills from key specialists to other promising staff members. At the same time this provides at least partial solution to the problem of complicated competences' indivisibility since the process of training young trainees is combined with their work under the guidance of (or receiving consultancy from) key specialist from the Competence Center. Accordingly, complicated knowledge and skills that cannot be learned through traditional approaches (e.g., at the seminar) are transferred in the course of joint work.

This also helps to solve the problem of reassigning key specialists to another projects (rotation in course of resource leveling in multiproject management). When such unexpected need arises in one of the projects, this project gets the trainee with the guaranteed support from his or her tutor - key specialist who delivered basic training for this trainee.

The logic of processes that allow such system for key specialists' competence management to function in an ongoing manner, correcting the actions concerning the staff members with existing or potential competences in accordance with project needs, is shown in fig. 3.

At the same time, functioning of such system is contradictory to the factors described in the first section of this presentation – specific features of key specialists who are usually uninterested in sharing information, knowledge or experience with the company staff.

The authors believe that such conflict can be resolved through appropriately designed system for motivating the staff. The following important issues should be considered.

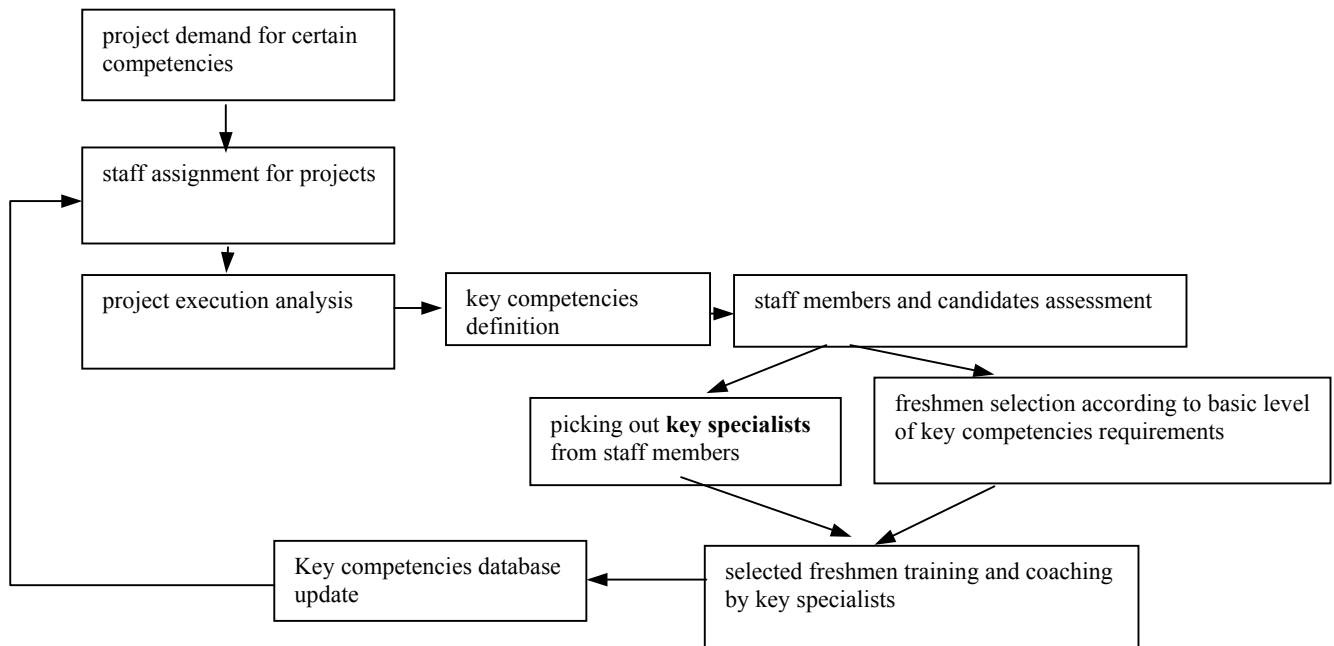


Fig. 3. Iterative process for addressing the problem of increasing key competences accessibility in project-oriented company.

### Changes in motivation system

1. For each key specialist, a system for *individual* motivations should be developed and implemented into practice. Key specialist's direct supervisor should participate in the creation of such system. Such individual motivation program should be regularly updated depending on various factors such as the company's plans, the specialist's own desires, labor market situation, etc.

2. The system for individual motivation of key specialist should envisage reward (moral or material - that should be defined individually) for documenting their knowledge and teaching others. Payment for one hour of conducting a seminar cannot be lower than payment for one hour of this person's conventional work and, probably, should even exceed that. Additional compensation should be stipulated for mentoring and coaching, it may include bonuses for the good results their trainees achieve on other projects to which they were assigned according to the plan or as part of resource leveling.

3. The company's corporate motivation system and corporate culture should enhance the attractiveness of "key specialist" status from the standpoint of both the material rewards and the prestige it implies. This will help to stimulate the young specialists towards their further development within this company and to motivate them to participate in training programs and to be trained and coached by key specialists at the Competence Centers.

### Requirements for the company and its management system implied by the concept of Competence Centers

Management systems do not exist in vacuum. Consequently, key-competence management system implies certain requirements for other organizational systems and elements. Let's review the most important conditions and prerequisites of this approach's success.

1. The degree to which business is project-oriented and business specificity.

If the projects are few, low-budget, short-termed, and low-priority compared with the company's main activities or if they are typical, this model would be economically ineffective. Besides, if labor market supplies enough key specialists for the organization's projects, this model would be inexpedient, too.

2. Multiproject management maturity.

According to some experts' estimates, only the organizations that have reached the stable PM Maturity Level III can save considerable money employing key-competence management model. In any case, the organization should regularly level its resources in multiprojects and be able to evaluate economic consequences of making decisions concerning operational resource reallocation. Then one may say that there is the economic base in place for the assessment of expediency of key-competence management system implementation.

3. Availability of knowledge base for the projects that are currently being implemented and have been completed in the past.

This factor is also directly connected with the company's PM maturity level. Without a system for collecting, storing and analyzing information on project results, project participants, decisions made and their consequences, technologies used, etc., both the objective appraisal of the team members' performance and the identification of key competences as well as the evaluation of degree of their criticality will be impossible.

4. Maturity of personnel management system.

Although the authors do not believe that the use of the Competence Model as a basis for personnel management system design is absolutely necessary, this model allows to reduce costs of key-competence management system creation and maintenance through the use of common database of corporate competences. Moreover, if this is the case, it would mean that personnel appraisal system complies with the needs of key-competence management and does not have to be changed.

However if the company decides to implement key-competence management system in multiproject management, the system for regular personnel appraisal in place, closely connected to stimulation system, would be absolutely necessary as described above. It should be noted that such dramatic changes always have a great impact on corporate culture, which is a major factor of destabilization.

The company should also have a well-functioning system of intracorporate training in place because, in the absence of such system, it would be very difficult and expensive to organize training for promising specialists relying on internal resources only. The same is true for the system of staff members' career planning and development. This system provides choice and positiveness of future for the staff members who envisage their future development connected with the company. This, in turn, implies certain requirements for the company's personnel management strategy, with the long-term relationships with key specialists being the number one priority.

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## 5. AUTHORS

Alexey A. Arefiev, certified project manager, expert in personnel management and organizational development, PMI member.

Company “p.m.Office”, partner.

3-21 Obolensky per., Moscow 119021, Russia.

Tel/Fax (095) 502-3193, 502-3194. E-mail: arefiev@pmo.ru

Alexey D. Bazhenov, Vice President of Moscow PMI Chapter, expert in PM management processes development, PMI Member

Company “p.m.Office”, partner.

3-21 Obolensky per., Moscow 119021, Russia.

Tel/Fax (095) 502-3194, 502-3193. E-mail: bazhenov@pmo.ru