



6th International Conference on Applied Human Factors and Ergonomics (AHFE 2015) and the  
Affiliated Conferences, AHFE 2015

## Developing a project manager's competencies: A collective view of the most important competencies

Kirsi Liikamaa

*University of Turku, Pohjoisranta 11P.O. Box xx, FI-28101, Finland*

---

### Abstract

The project management literature often presents many different recommendable requirements, skills, characteristics and roles for a successful project manager. The purpose of this article is to contribute to the discussion by reporting the results of project managers' self-evaluations regarding personal and social competencies. The requirements of project managers' working life skills and competency theories affect, at least in the background, their competencies. The web-based self-evaluation was performed by a large group (N = 750) of project managers, but also students, whose studies were considered as their "projects." This paper introduces a self-evaluation method to collect and analyze the data of a project manager's work-role based competencies. It is worth noting that the competency self-evaluation does not evaluate competencies directly but statements related to a project manager's work. As a valuable result, it shows a collective view of the most important competencies in a project manager's work, which should be considered when recruiting and developing project managers.

© 2015 The Authors. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Peer-review under responsibility of AHFE Conference

*Keywords:* Competencies; Project manager; Self-evaluation

---

### 1. Introduction

A project is independent, unique and phased, in which content, duration and costs are limited (e.g., [1, 2]). Additionally, a project has always clear content-related and qualitative purposes, which have to connect directly to the strategic purposes of the organization [3]. Furthermore, Cleland and Kerzner [4] define a project as a combination of human and non-human resources together in a temporary organization trying to achieve a specified purpose. Crawford [5] states that the title of a project manager is used in different organizations and in different industry sectors with a wide range of meanings. In many organizations, changes are usually carried out as projects. In such projects, as well as project-based organizations, the efficiency of project managers is tremendously

important. Therefore, project managers have to develop themselves in order to be able to respond to the increasing requirements of their jobs.

Flannes & Levin [6] emphasize that a project manager must simultaneously be the leader, the manager, the facilitator and the mentor. Effective project managers should be good communicators. Project leaders must possess the flexibility to respond to uncertain or ambiguous situations with minimum stress. They have to work with and through their project teams and be skilled at various influence tactics [1]. Lock [2] states that project managers must be able to select the silent facts and be able to use them in the best way by taking needed action, while filtering out the unimportant and irrelevant materials. To sum up, project management is a dynamic process of leading, coordinating, planning and controlling a diverse and complex set of processes and people in the pursuit of achieving project objectives (cf. [1]). These tasks require both management and leadership skills, and culminate in a project manager's interaction with all the stakeholders and his/her ability to make decisions. A project manager has to be able to work with very different kinds of people and utilize the diversity of his/her project team. Müller and Turner [7] concluded that the project manager's leadership style influences process success. Additionally, according to El-Sabaa [8], human skills have a greater influence on project management practices than technical skills.

A project manager's success is based on the achievement of his or her project goals within the defined limitations, in terms of time, budget and resources; on the completion of the project within explicit criteria, standards and specifications; and on understanding the change in priorities that may occur [9, 2, 1]. In different projects, one of the factors that may cause the project management to fail would be recruiting the wrong project manager. Therefore, successful project management requires the careful appointment of a skilled project manager [10]. The concept of competency is not new, but it is useful when researching how different project managers' skills fit the challenges of the everyday work. Müller and Turner [7] contend that, while managerial competencies are sometimes significant, emotional competencies always make a significant contribution to project success.

## **2. Self-evaluation as a means to increase shared understanding about the development of competencies**

### *2.1. Competencies*

Competencies are useful concepts when we try to explain why some people perform better than others [11, 12, 13, 14, 15]. A competency is an individual's underlying characteristic that is causally related to effective performance in a job or situation. Competency can predict behavior in a wide variety of situations and job tasks. A person needs competencies, which are abilities to use knowledge and to make things happen. They reveal what a person is capable of doing and why he/she acts in a certain way. Furthermore, competencies always include intent, in other words, motives, traits, self-concept, social roles and knowledge. Behavior without intent does not define competency [12, 17, 18].

Competencies have been grouped in the International Competence Baseline into three categories: technical, behavioral and contextual competencies [19]. A competency is defined as a capability or ability; it consists of a set of alternate behaviors organized around an underlying construct. Competencies require both action and intent. There are three clusters of competencies differentiating outstanding from average performers [13, 17]. The clusters are cognitive competencies, such as system thinking and pattern recognition; emotional intelligence competencies, including self-awareness and emotional self-control; and social intelligence competencies, including social awareness and relationship management competencies. Thus, competencies are a behavioral approach to emotional, social and cognitive intelligence. [13] Project managers have to develop themselves in order to be able to respond to the increasing requirements of their comprehensive and interactive jobs. The requirements of the job can be regarded as the job's demands on the person in the context of the organization, with its physical, financial and technical resources, as well as its traditions and culture [11, 12, 17].

### *2.2. Creative tension*

Creative tension is the gap between vision and current reality and is an individual's source of energy. There are only two possible ways for the tension to resolve itself: to pull the reality toward the vision or pull the vision toward the reality [28]. By determining a project manager's creative tension, the exact groups of competencies in which

he/she has the need to develop can be found. If no gap exists, there will be no need for any action to move toward the vision. Creative tension can be kept under control through one's vision. If a person moves the goal closer to the current reality, he/she abandons what he/she really wants. When creative tension is allowed to operate by not lowering the vision, it becomes an active force. When creative tension is mastered, the motivation process begins to move toward the vision. Mastery of creative tension leads to a fundamental shift in the whole posture toward reality. [28] The self-evaluation tool of this research consists of 120 statements that are evaluated linguistically in the current level and in the target level. The differences indicate the need of developing competencies.

### 2.3. Cycloid: competency self-evaluation application

Competency modeling is an important method used to examine job-related information and employee skills in the management of employees [20, 21]. The principle of competency evaluation is that competencies have to fit the required characteristics and the job [17]. Because a competency as a concept is based on behavior to research competencies, and because a project manager is the best evaluator of his/her own behavior, it was necessary to build a self-evaluation application. When the web-based application, called Cycloid, was started to build the first task was to find a relevant project manager's competencies [22]. There are many competencies that are the same within several professional groups, but each of these groups also has very special characteristics that have to be determined based on the requirements of each task in an organization [23, 22]. Therefore, when starting to research competencies, it is necessary first to determine all the characteristics of the professional group. In this research with the literature review, the characteristics of a project manager were identified. Then, all the identified characteristics were thematized and grouped. After that, the competencies were formed so that they fulfilled the definition of competency and, in all 30 competencies, a project manager's competencies were formed. The next important phase was to separately define the formed competencies with words based on the project managers' individual competencies. Subsequently, the next step was to define linguistic statements of behavior for all the formed competencies. All the competencies of our application consisted of four linguistic statements. Thus, the application includes, altogether, 30 competencies and 120 statements that can be evaluated in a flexible way. In order to be sure that the selected competencies were customized to fit the requirements of a project manager's job, some project managers were interviewed. It is essential to understand that using self-evaluation is not to evaluate competencies but the statements that describe behavior of understandable and everyday work activities. The developed instrument [22] turned out to be functional and was made available to the other researchers in order to collect a large group of respondents (e.g., [24, 25, 26]). All the project manager competencies of the self-evaluation application and their definitions are presented in Table 1.

Table 1. Definition of competencies.

Competencies	Definition of competencies
1. Emotional awareness	Ability to recognize, realize and specify one's feelings
2. Self-confidence	A strong belief in one's capability, competency and self-esteem
3. Self-assessment	Knowing one's limits and strengths
4. Trustworthiness	Behaving honestly and ethically
5. Maintaining order	Concern for order, quality and accuracy
6. Flexibility	Ability to adapt to changes
7. Innovation	Being comfortable and open with new ideas, approaches and data
8. Responsibility	Being conscientious and responsible for one's own personal performance
9. Seeking information	Satisfying one's curiosity and desire for knowledge
10. Production efficiency	Performing work quickly and with a high quality
11. Decision quality	Making decisions based on principles, purposes and values
12. Stress management	The ability to handle adverse, tiring and stressful issues and situations

Competencies	Definition of competencies
13. Analytical thinking	Breaking down problems into sub-problems and their systematical diagnosing by rational principles
14. Conceptual thinking	Identifying, applying and defining concepts
15. Language proficiency	Ability and courage to use foreign languages
16. Achievement drive	Willingness to aim at more effective performances
17. Commitment	Adopting the goals of the group or organization
18. Initiative	Recognizing and acting on opportunities and possessing an ability to create opportunities
19. Optimism	Pursuing goals in spite of obstacles and setbacks
20. Understanding others	Perceiving, considering and understanding the feelings and viewpoints of others
21. Developing other people	Perceiving the development needs of others and reinforcing their abilities
22. Leveraging diversity	Creating opportunities for cooperation with different kinds of people
23. Organisational savvy	Understanding and utilizing organisational dynamics in order to achieve objectives
24. Communications	Listening openly and conveying clearly
25. Conflict management	Arbitrating and resolving differences
26. Management	Concentrating on things
27. Leadership	Concentrating on people
28. Relationship building	Building, cultivating and developing useful relationships and informal networks
29. Collaboration	Working with others toward common goals

Goleman [27] presented the ontology of the five components of emotional intelligence at work. They are personal competencies, including self-awareness, self-management and motivation; and social competencies, including social awareness and relationship management. This research utilized Goleman's view to divide competencies into two main groups and five subgroups. Personal competencies are self-awareness (competencies 1–3), self-regulation (competencies 4–12), cognitive skills (competencies 13–15), motivation (competencies 16–19) and social competencies are empathy (competencies 20–23) and social skills (competencies 24–30) [22].

### 3. Results

This article presents the group results of 750 people's self-evaluations. These people are appointed or have been appointed as project managers in different organizations. A part of the evaluations were made by a group of university students whose projects involved completing their academic studies and finishing their degrees. With the Cycloid self-evaluation tool, statements' current stages and target stages were evaluated on a scale: never/seldom/often/always. The results presented in this article have been obtained by analyzing the numeric values of the current and target stages of the self-evaluation results (Figure 1). The results of the evaluation are presented in four different viewpoints (groups 1–4) based on the results of the current stage and the target stage of the competencies and the creative tension. It is worth noting that the competencies results have been counted based on the 750 people's 120 statements and the average values of the current and target stages.

Group 1 presents the competencies, obtained by the analysis of the self-evaluation results, which the respondents have evaluated as *the highest* in their current stage based on the statements. This analysis does not yet regard the target stage or the creative tension. *Leadership* competency was evaluated as the highest, with the statements concerning the competency concentrating on evaluating the capability to engage group members as well as the project managers' ability to motivate others and to act fair toward them. The second highest evaluated competency was *Achievement drive*, which analyzes the intensification and development of one's own work and evaluates one's own performance in reaching the desired results. The third highest evaluated competency was *Optimism*, in which

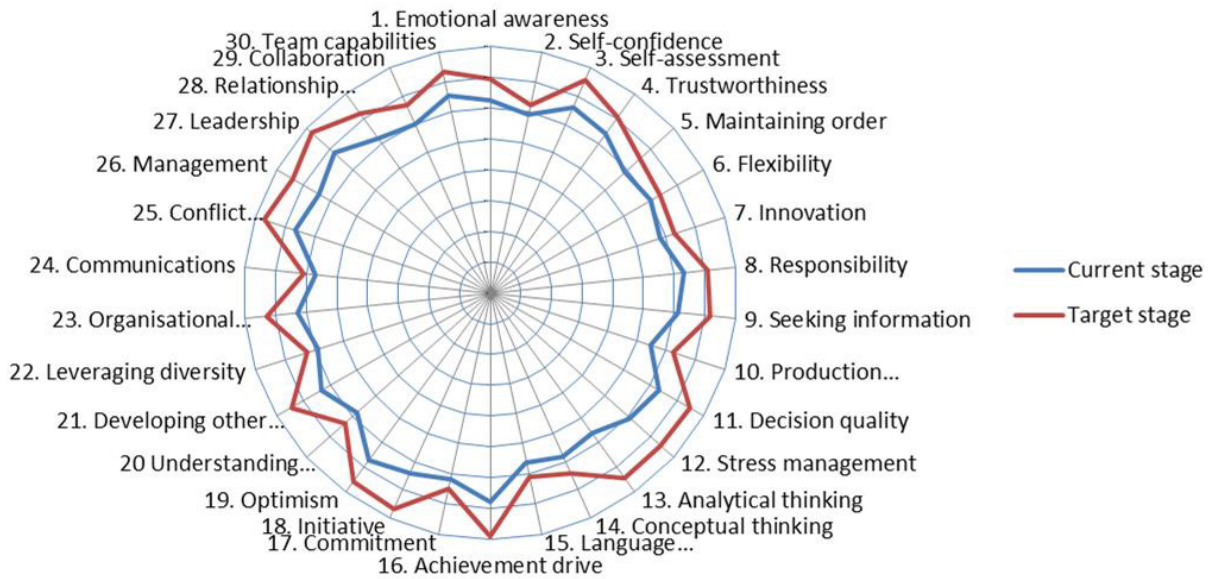


Fig. 1. Result of self-evaluation presented as statements of current and target stage (N = 750).

one's own motivational factors during successes and failures are analyzed. The fourth highest evaluated competency was *Conflict management*, of which statements concentrate on one's own action in finding results and creating constructive dialog in conflict situations.

Group 2 presents the competencies that the respondents have evaluated as *the lowest* in their current stage, based on the statements. This evaluation does not yet pay attention to the target stage nor the creative tension. The lowest evaluated competency was *Production efficiency*, of which statements concentrated on the distribution of tasks, the effective utilization of resources and the organization of tasks. The second lowest evaluated competency was *Analytical thinking*, in which the utilizing of different solution options in problematic situations are examined. The third lowest evaluated competency was *Language proficiency*, which rates the sufficiency of language skills in managing one's job tasks. The fourth lowest competency in its current stage was *Communication*, of which statements evaluate the ability to express one's own opinions and the ability to listen.

Group 3 presents the competencies to which *the greatest creative tension* was formed, regardless of the current stage or the target stage. This means that the respondents have expressed, while answering the statements, their willingness to improve these competencies the most. Participants were most willing to improve their *Analytical thinking*, which also was evaluated in its current stage in the previous group results (group 2) as the second lowest competency. The second competency respondents wanted to improve was the *Stress management* competency, of which statements concentrated on handling problematic situations regardless of one's current stress level. The third greatest creative tension was formed for the competency *Decision quality*, in which the recognition of contradictions before decision making is evaluated. The fourth greatest creative tension was formed for the *Achievement drive* competency, which also was evaluated as the second highest competency in group 1.

Group 4 presents the competencies that have gained *the highest target values* based on the statements. In other words, these competencies are those that, in the respondent group, were valued the most important and the most desirable competencies in a project manager's job. The highest target stage was evaluated for the *Achievement drive* competency, which also rose in its current stage (group 1) as the second highest competency. The second highest evaluated competency was *Leadership*, which was also evaluated as the highest in its current stage (group 1). The third important competency was *Conflict management*, which was evaluated as the fourth highest in its

current stage (group 1). The fourth highest target value was *Initiative*, which evaluates one's actions in a situation where new opportunities appear.

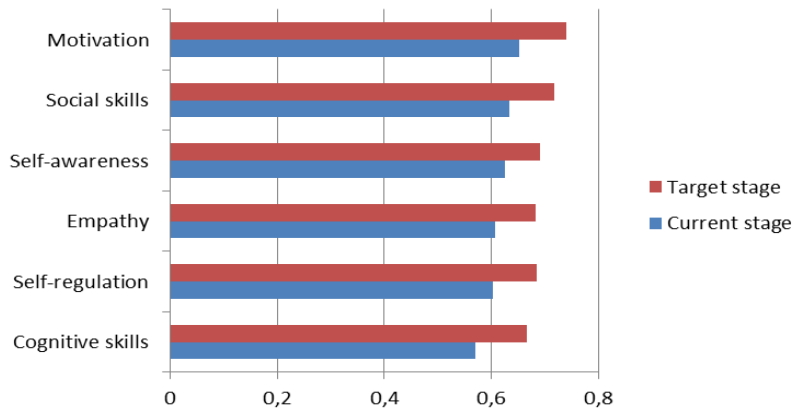


Fig. 2. The competency group result of self-evaluation (N = 750).

Figure 2 shows all the results of the self-evaluations according to the earlier-presented competency groups. The largest creative tension and need to develop seems to be in the competency groups of cognitive skills, motivation and social skills. At the same time, motivation and social skills groups have also been evaluated as the highest, both in their current stages and target stages based on the statements. Instead of that the competency group of cognitive skills has been evaluated as the lowest current stage.

#### 4. Conclusion

Self-evaluation is an effective tool because it is based on a person's subjective view of the world. The objectivity of the interpretation is influenced by a person's own intentions, motivations, experiences and personality [23]. The successful project is created by individuals but also by many-sided, cross-functional teams. It is important that a project manager is able to motivate his or her own project team to work effectively despite any possible scheduling and resource challenges. Thus, it is to be noted that project managers improve not only their technical skills but also their competencies, which are in direct connection with their own behavior in their everyday tasks.

Based on the results of this analysis, the most important competencies among the 750 self-evaluations were *Achievement drive* and *Leadership*, as well as *Conflict management* and *Initiative*. It is to be noted that the first three of these competencies were also among the four highest competencies in the current stage. In other words, even if an individual already possessed these competencies in practice, there was still a willingness to develop them even further. Additionally, the respondents felt the need to develop the *Analytical thinking*, *Stress management*, *Decision quality* and *Achievement drive* competencies most of all. Because competencies can be improved [18, 17, 28, 15], organizations should determine the most important competencies for their own projects; however, they should also take into consideration the results of this research. It is important that organizations encourage project managers to improve their competencies and, in this way, add success and positive results to the projects and the whole organization [29,18].

In conclusion, it can be stated that the result of this research expresses a large group of project managers' wishes and views regarding the competencies that are important for a project to succeed. The results can be utilized in decision making, recruitment, selection, education, training and awarding [17] and can be integrated into the strategy of human resource management [30].

## References

- [1] Pinto J.K., Kharbanda O.P. *Successful Project Managers. Leading your Team to Success.* Van Nostrand Reinhold, New York. 1995.
- [2] Lock D. *Project Management.* Sixth edition. Grower Publishing Limited, Hampshire, England.1998.
- [3] Kenny J. *Effective Project Management for Strategic Innovation and Change in an Organisational Context.* *Project Management Journal* 2003: 3, 43-53.
- [4] Cleland D.I., Kerzner H. *A project management dictionary of terms.* New York. Van Nostrand Reinhold. 1985.
- [5] Crawford L. *Project management competence for the new millennium.* In *Proceedings of 15th World Congress on Project Management,* London, England. 2000.
- [6] Flannes S.W., Levin G. *People skills for project managers. Management concepts.* The United of America. 2001.
- [7] Müller R., Turner J.R. *Matching the project manager's leadership style to project type.* *International Journal of Project management* 2007: 25, 21-32.
- [8] El-Sabaa, S. *The skills and career path of an effective project manager.* *International Journal of Project Management* 2000: 19, 1-7.
- [9] Ljung L. *To assess the Organisation's Ability to Use the Project Work Form – a New Approach.* *Managing Business by Projects.* Edited by: Arto K. A., Kähkönen K., Koskinen K. *Project Management Association Finland and NORDNET,* Helsinki. 1999.
- [10] Munns A.K., Bjeirmi B.F. *The role of project management in achieving project success.* *International Journal of Project Management* 1996: Vol. 14, No. 2, 81-87.
- [11] Kets De Vries M. *The leadership mystiques: A user's manual for the human enterprise.* Biddles Ltd, Guildford & King's Lynn. Great Britain. 2001.
- [12] Boyatzis R. *The competent manager. A model for effective performance.* John Wiley & Sons Inc. New York. 1982.
- [13] Boyatzis R. *Competencies in the 21th century.* *Journal of Management Development* 2008: Vol. 27 No. 1.
- [14] Hopkins M.M. *Social and emotional competencies predicting success for male and female executives.* *Journal of Management Development* 2008: Vol. 27, No.1, 13–35.
- [15] McClelland D. C. *Identifying competencies with behavioral – event interviews.* *Psychological Science* 1998: Vol.9, No. 5, 185-211.
- [16] Boyatzis R., Saatioglu A. *A 20-year view of trying to develop emotional, social and cognitive intelligence competencies in graduate management education.* *Journal of Management Development* 2008: Vol. 27, No. 1, 92-108.
- [17] Spencer L.M., Spencer, S.M. *Competence at work – Models for Superior Performance.* John Wiley & Sons, New York.1993.
- [18] Zwell M. *Creating a Culture of competence.* John Wiley & Sons, New York. 2000.
- [19] *Project Management Institute. A Guide to the Project Management Body of Knowledge (PMBOK® guide),* Newtown Square, PA: Project Management Institute. 2000.
- [20] Campion M.A., Fink, A.A., Ruggenberg, B. J., Carr, L., Phillips, G.M., Odman R.B. *Doing competencies well: Best practices in competency modelling.* *Personnel Psychology* 2011: 64, 225-262.
- [21] Wood R., Payne T. *Competency based recruitment and selection. A practical guide.* John Wiley & Sons, England. 2000.
- [22] Liikamaa K. *Piilevä tieto ja projektipäällikön kompetenssit [Tacit Knowledge and Project Manager's Competences],* PhD Thesis, Tampere University of Technology, Publication 628. 2006 .
- [23] Liikamaa K., Vanharanta, H. *The identification of employees' personal and social competencies connected to the transfer of tacit knowledge in an organization.* In: Bagnara, S., Rizzo, A., Pozzi, S., Rizzo, F. & Save, L. (Eds.) *HAAMAHA 8th International conference on human aspects of advanced manufacturing: Agility & hybrid automation conference proceedings.* 2003 565-566.
- [24] Bikfalvi A., Pages, J.L., Gou P.M., Kantola J., Vanharanta H. *Testing a new tool for competence self-evaluation and development: students as project managers.* *International Conference on Cognition and Exploratory Learning In Digital Age.* 2006.
- [25] Chang Y., Eklund T., Kantola J.I., Vanharanta, H. *International Creative Tension study of university students in South Korea and Finland.*2009.
- [26] Bikfalvi A., Rafart A., Mancebo N. *The assessment of competence in University adult education: a dynamic approach.* *International Journal of Management, Knowledge and Learning* 2013: 2(1), 3-23.
- [27] Goleman D. *Working with emotional intelligence.* New York. Bantam Books. 1998.
- [28] Senge P.M. *The fifth discipline. The art practice of the learning organization.* Doubleday, New York. 1994.
- [29] Ford M.E. *Motivating humans. Goals, emotions and personal agency beliefs.* Sage Publications, Inc. California. 1992.
- [30] Wood R., Payne T. *Competency based recruitment and selection. A practical guide.* John Wiley& Sons, England. 2000.