

Developing a Novel Approach for Evaluation Performance of the Engineering Departments Managers Using 360° Technique

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Abstract: This paper deals with creating evaluation criteria for the planning, design, execution managers in Housing Directorate, which is very important for the service quality in work. Results of the study proved the possibility of the use of 360° technique in evaluating the performance of managers in the Housing Directorate, which means the possibility of circulation in the construction sector. Moreover, the study showed in general of gaps between self-evaluation and individual evaluation process, which indicates the need for an organizational culture that encourages objectivity in passing judgments and accepts the views of others. The existence of negative gaps in responses between the parties of the evaluation process appears the manager's overstatement in the existence of the evaluation criteria in them. Therefore, the final degree of evaluation was (4.28) v. Good for planning manager, (4.56) excellent for design manager and (3.84) v. Good for execution manager.

Keywords: Performance of Individuals, 360 Techniques, Residential Complexes Projects

1. Introduction

Performance evaluation (PE) is necessary to measure performance of the employees and the organization to check the progress towards the desired goals and aims. (PE) includes all formal procedures used to evaluate personalities, contributions potentials of group members in a working organization. PE helps to develop individuals, improve organizational performance and feed into business planning. PE in organization is considered as a key human resource management practices for measuring effectiveness and efficiency (Cinar & Vardarlier, 2014).

Building a performance evaluation system which aims at constant improvement, provides appropriate feedback and directs to the career targets will enable organizations to work more efficiently, that's why; (PE) will have great contributions in construction sector for bringing the construction services to the desired level (Rani et al., 2014). In order to evaluate and measure the performance should be clarified clearly and be shared with engineers. Also, to evaluate manager's performance, managers should specify this performance's qualifications and terms.

2. Methods of Performance Individual Evaluation

There are two types of measures are used in performance Individual evaluation:

- a. Objective measures which are directly quantifiable.

- b. Subjective measures which are not directly quantifiable.

Figure (1) shows the method of performance evaluation that can be broadly classified into two categories: Traditional methods and modern methods (Espinilla, 2013), the propose method in this study was 360° technique to evaluate the performance of planning manager, design manager and execution manager.

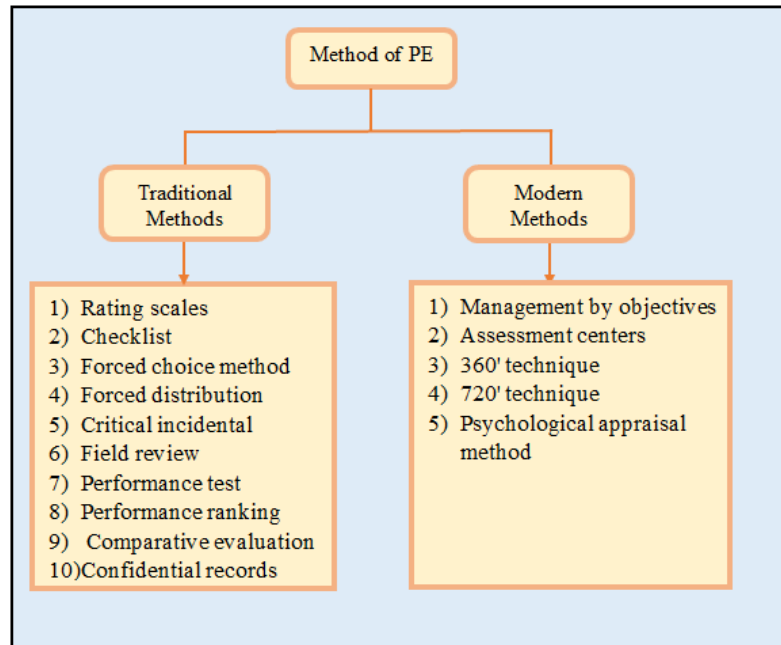


Figure 1: Method of Performance Evaluation ⁽³⁾

3. Concept of 360° Technique

One of the newest and most popular approaches to performance evaluation is the usage of multisource performance and feedback. What has made 360° performance evaluation system obligatory are that many personnel in organizations start work together with a great number of people, and emergence of the necessity for receiving more comprehensive and correct feedback about the workers from different perspectives (Tarus, 2014), 360° review, also referred to as 360° performance assessments or multi-rater feedback, is a method and a tool to provide employees feedback from their peers, co-workers, clients, those who are direct reports, and direct supervisors, thereby offering multiple perspectives of the employee's overall job performance, this type of evaluation helps the employee gain a better understanding of her/his skills and behaviors as they relate to the organization's mission, values, goals and vision, Additionally, this feedback is geared to assist each employee in understanding her or his strengths and weaknesses, and can contribute insights into areas of work that may need professional development (Kaur, 2013).

4. Benefits of 360° Technique

360° evaluation gives chance to all levels of employees to give their input and contributes towards achievement of the organization goal, the 360-degree evaluation also can help the employees or managers discover their own strengths and weaknesses (Kaur, 2013). A number of distinct benefits can be realized from this type of evaluation, and this tool has been gaining widespread popularity

among small businesses. Moreover, some benefits as follows (“performance management”).

- a. Individuals get a broader perspective as to how they are perceived by others.
- b. Can also see where the person needs to improve.
- c. Enhanced awareness and relevance of competencies
- d. Awareness for senior management too, as they will get to know their need for development
- e. The 360° performance evaluation system has the potential to positively effect on the performance and productivity of managers and supervisors.

5. Components of 360° Technique

The 360° technique has five integral components, Figure 2 shows summarized of components



Figure 2: Components of 360° Technique

- a. Self – Evaluation: This form of performance information is actually quite common but usually used only as an informal part of the supervisor-employee appraisal feedback session (Rasheed, 2011). This type of evaluation makes the individual thinks of his strengths and weaknesses so as to overcome the barriers that prevent reach to the effective performance and this becomes effective source when supervisor and subordinates participates in set future goals for performance and formulating development plans (“performance management”).
- b. Peer – Evaluation: Peers have a unique perspective on a co-worker’s job performance and employees are generally very receptive to the concept of rating each other, Peer ratings can be used when the employee’s expertise is known or the performance and results can be observed. And this evaluation contributes in 360-degree feedback as follow (Basu, 2015).
 1. Peer assessment has proven to be excellent predictors of future performance.
 2. Peer assessment are remarkably valid and reliable in assessment behaviors and manner of performance, but may be limited in assessment outcomes that often require the perspective of the supervisor.
 3. The addition of peer feedback can help move the supervisor into a coaching role rather

- than a purely judging role.
- c. Subordinates – Evaluation: Use the evaluation of subordinates by large and small organizations in order to give managers feedback from the perspective view their subordinates. Moreover, subordinates in the best position to evaluate their managers because they are in direct contact with them and have best position where they can observe many of the related behaviors performance (Basu, 2015).
 - d. Customer – Evaluation: There are two key to use evaluate of customers in judging the performance of individuals, the first key relates to the work requirements when the work was required to provide service directly to the customer whenever possible to judge the performance of the individual through the customer evaluate , The second key relates to the organization goal when it collecting information about the product or service desired by customers, contribute customers evaluate in determining the requirements of human resources, which require a change such as training and reward system towards improving customer service (McCarthy, 2012).
 - e. Supervisor – Evaluation: Evaluations by superiors are the most traditional source of employee feedback. This form of evaluation is conduct by supervisors to evaluating the performance of manager by senior managers. And this evaluation contributes in 360-degree feedback as follow (Rasheed et al., 2011).
 - 1. The first-line supervisor is often in the best position to effectively carry out the full cycle of performance management: Planning, Monitoring, Developing, Appraising, and Rewarding.
 - 2. The superiors have the authority to redesign and reassign an employee’s work based on their assessment of individual and team performance.
 - 3. Most Federal employees feel that the greatest contribution to their performance feedback should come from their first level supervisors

6. Applications of 360° Technique In Management

During the last few years, the use of 360° technique has increased in human resources and has demonstrated some degree of success. The following literature review provides the importance of 360° technique and reveals that 360° technique has been used successfully in building of individual performance evaluation system.

Fadime and Pelin (as cited in Cinar & Vardarlier, 2014), in a study on 360° performance evaluation, which is one of the current and problematic subjects of the human resources applications, is analyzed and supported by an empirical research. At this study, in which the theoretical information is discussed, briefly includes the necessity of the performance evaluation in classical terms and its benefits to the organizations, 360° performance evaluation and feedback system; there is an empirical practice including the discussion of the views for creating a 360° performance evaluation criteria and feedback system to evaluate the performances of the nurses working in a training research hospital

Kipchumba (as cited in Tarus, 2014), the study findings revealed that the 360° affects organization performance, which suggests that there is a significant relationship between the organizational use of 360° appraisal tool and its performance. The study recommends that the organizations evaluate the outcomes of 360° appraisal tool and compare with the past tools. It would be beneficial to incorporate 360° feedbacks into a larger performance management process, but only with clear communication on how the 360° feedback will be used. The study contributes largely to the improvement of performance in local authorities by ensuring that the activities identified take into consideration the needs of the authorities and individuals. Its findings and recommendations are

also important to the management when planning for performance appraisal sessions as well as in reviewing individual performance. The study also sheds light on the strengths, weaknesses and opportunities of the 360° feedback system.

Savneet (as cited in Kaur, 2013), through this study, an attempt had been made to understand and present the methodology behind the 360° performance appraisal and how it can be implemented in organizations. Various benefits and disadvantages of introducing this method into organizations have also been listed down. The available literature provides an overview regarding how this method is beneficial for increasing the overall efficiency of the employee as an individual and the firm as a whole, and as a result performance improves and training and development leads to real opportunities for promotion within the company. Employees are also motivated and can have a positive knock-on effect in areas like customer service.

Tamanna (as cited in Basu, 2015), stated that 360° feedback is considered to be one of the method of performance Appraisal system which reduces the subjectivity of a traditional supervisor appraisal. In a 360° appraisal system, the employee's performance is evaluated by his supervisors, his peers, his internal/external suppliers and his subordinate managers and leaders within organizations use 360° feedback surveys to get a better understanding of their strengths and weaknesses. 360° feedbacks can be considered as one of the attribute of performance management system which is goal oriented and focused on present as well as future performance

Salah et al. (as cited in McCarthy, 2012) in a study focused on using feedback 360° in appraisal of performance of heads scientific departments in college of Economics and Administration, which adopted on questionnaire to realize target of study. After the distribution of the questionnaire, the results were conducted to analyze and calculate averages. The study reached a negative gap between the responses of the parties in evaluation process of individuals which shows gave their evaluation in the view of the others parties it higher than it is in fact the field from their perspective.

Based on the results of the studies reviewed in the literature, 360° technique has a good performance in many studies in performance evaluation of individuals and there is no study about this technique in the specialization of project management in Iraq and outside Iraq. So, consider this study is the first and a novel approach in project management.

7. Methodology of 360° Technique

In order to realize the target of this study, methodology of 360° technique consists of five steps: In this study, in order to serve as a model for evaluate the performance of managers in a construction sector, what is intended is to create evaluation criteria from previous studies and literature, this survey in past studies has led to finalize the list of criteria of performance evaluation included in the questionnaire, this criterion as follows:

- a. **Intelligence:** In this criteria included the characteristics to provide the capacity to accommodate the sensitive information and perform the required analyzes to draw the right results and make good decisions.
- b. **Leadership:** It is the ability to see the overall aspect of the project at all times so that takes it upon itself to ensure that there will be no ambiguity about his work as a project manager.
- c. **Productivity:** It is the ability to optimum utilization of resources and the ability to ensure the success of projects.

- d. Communication: It is the personal relations and communications and its relevance to the entire project?
- e. Ethics: They are the determinants that put by the organization on its decisions so that these determinants are ethical determinants.

Based on professional experience of researcher in the construction sector has been selected these five criteria for being most impact in the construction sector.

8. Sample and Collecting Data

This study was conducted by a methodology which is based on questionnaire. This study covers three managers who have served in different departments in Housing Directorate (planning, design and execution) to evaluate their performance. Data were collected through an evaluation workshop in two stages by researcher, the first stage (Individuals) includes a head of Housing Directorate, department engineer., site engineer., planning engineer., design engineer, and senior manager in department to evaluate the performance of managers who were selected in the study, the second stage (Self) includes only managers who were selected to conduct self-evaluation for them. Table (1) shows the qualification of research sample.

Table 1: Qualification of Research Sample

No.	Functional grade	Function position	Type of evaluation	Experience years
1	Expert	Company manager	Supervisor	35
2	Chief Eng.	Senior manager	Peer	30
3	Engineer	Site Eng.	Subordinates	5
4	Engineer	Planning Eng.	Subordinates	8
5	Engineer	Design Eng.	Subordinates	7
6	Engineer	Quality Eng.	Customer	14
7	Senior Eng.	Planning manager	Self	25
8	Chief Eng.	Design manager	Self	32
9	Senior chief Eng.	Execution manager	Self	22

9. Evaluate Scale

Questionnaire that was prepared for collecting data includes a set of five questions for each criterion to give a description of the behaviors and capacities required to work (as shows in appendix A), where used the Likert scale (five scale) for each question in criterion.

- a. Unsatisfactory (poor)
- b. Marginal (mediam)
- c. Meets Requirements (good)
- d. Exceeds Requirements (very good)
- e. Outstanding (excellent)

10. Data Analysis

After collecting the responses, the process of analysis and evaluation data are beginning and can

follow the traditional methods in the analysis process, particularly use the process of calculating the arithmetic average of the self-evaluation and individual's evaluation in preparation to see how much the gap by subtracting the average of the self-evaluation than the average of individual's evaluation to know the evaluation degree of individuals to assess the self-evaluation response (7). Moreover, the researcher used the radar figure in analysis to shows how much the gap at each criteria. Table (2) shows summary of the final degree of individual evaluation in this study.

Table 2: Evaluation Degree

scale	1	2	3	4	5
Average interval	0.5 - 1.5	1.5 - 2.5	2.5 - 3.5	3.5 - 4.5	4.5 - 5
Evaluation degree	poor	mediam	good	Very good	excellent

11. Research Result

The results of models were divided into three parts:

11.1 Planning Manager

Table (3) shows the result of evaluation performance model of planning manager that it gets by researcher from evaluation workshop that was included in the first stage planning manager (self-evaluation) and in the second stage a head of Directorate, senior manager, department Eng. and planning Eng. (individual's evaluation). Where the final degree of evaluation individual average for assess self-evaluation was very good (4.28), this refers to the agreement of evaluation workshop on the absence of the weaknesses in any of the evaluation criteria in performance of planning manager because exceeding half the rang of the study scale at the level of single criteria or average.

Table 3: Result of Performance Evaluation of Planning Manager

Criteria	(A)	(B)	(C)	Average interval	Evaluation degree
	Self-evaluation	Individual's evaluation	Evaluation different B-A	5- C	
Intelligence	4.4	3.2	-1.2	3.8	V. good
Leadership	5	4.2	-0.8	4.2	V. good
Productivity	5	4.6	-0.4	4.6	Excellent
Communication	4.6	4.2	-0.4	4.6	Excellent
Ethics	4.6	3.8	-0.8	4.2	V. good
Average	4.72	4	-0.72	4.28	V. good

Figure (3) shows the radar shape to see how much the gap in each criteria between self-evaluation and individual evaluation, where notes that all the differences in the evaluation criteria were negative, this meaning that the planning manager gave himself an evaluation in the view of the

individuals higher than it is in fact in the field from their perspective.

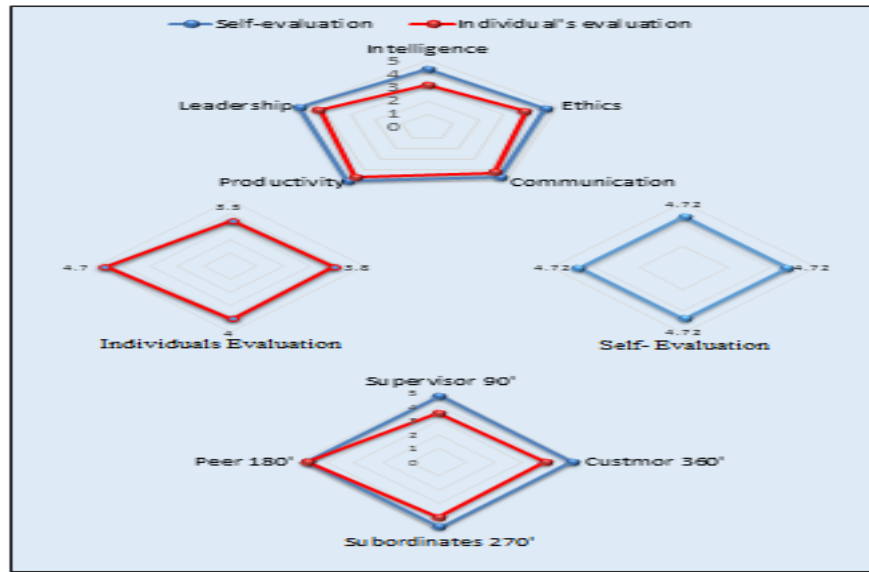


Figure 3: Different in Evaluation of Planning Manager

11.2 Design Manager

Table (4) shows the result of evaluation performance model of design manager that it gets by the method previous same but the first stage in evaluation workshop included the design manager (self-evaluation) and in the second stage included a head of Directorate, senior manager, department Eng. and design Eng. (individual's evaluation). Where the final degree of evaluation individual average for assess self-evaluation was excellent, as indicated in table a pact both stages of the evaluation workshop on absence of weaknesses in the performance of design manager

Table 4: Result of Performance Evaluation of Design Manager

Criteria	(A)	(B)	(C)	Average interval 5- C	Evaluation degree
	Self-evaluation	Individual's evaluation	Evaluation different B-A		
Intelligence	4	4.8	0.8	4.2	V. good
Leadership	5	4.6	-0.4	4.6	Excellent
Productivity	4.4	4.8	0.4	4.6	Excellent
Communication	4.6	4.2	-0.4	4.4	V. good
Ethics	4.6	4.4	-0.2	4.8	Excellent
Average	4.52	4.56	0.04	4.56	Excellent

Figure (4) shows the radar shape for evaluation of design manager, where notes that the differences in the evaluation criteria were three negative and two positive, this meaning that the design manager gave himself an evaluation in the view of the individuals that it is reasonable in fact from their perspective.

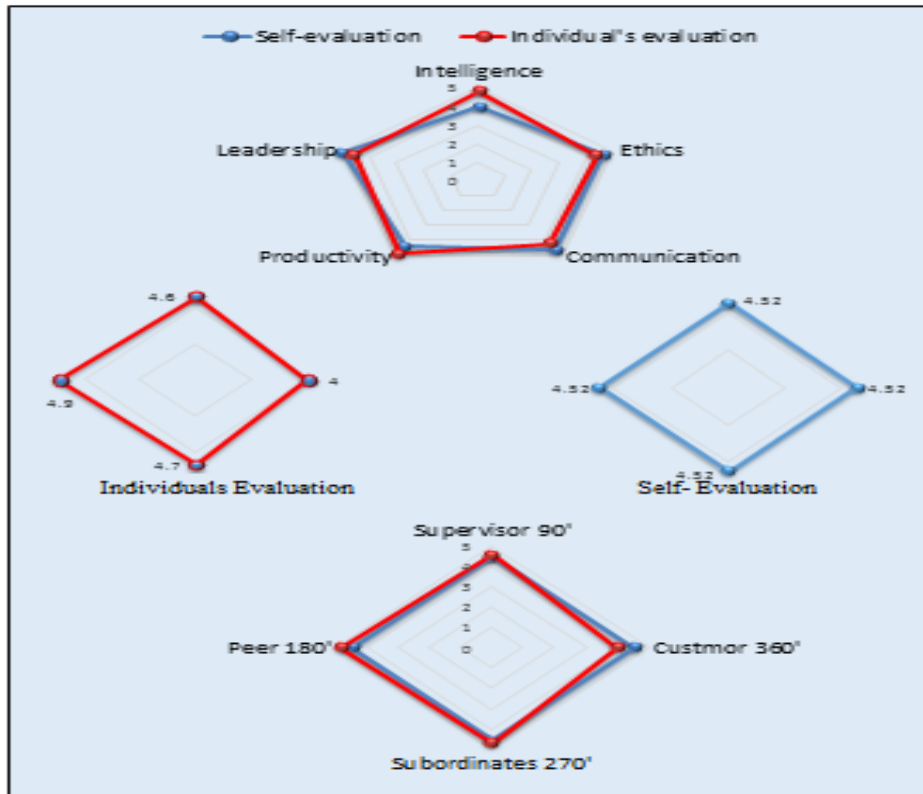


Figure 4: Different in Evaluation of Design Manager

11.3 Execution Manager

Table (5) shows the result of evaluation performance model of execution manager that it gets by the method pervious same but the first stage in evaluation workshop included the execution manager (self-evaluation) and in the second stage included a head of Directorate, senior manager, department Eng. and site Eng. (individual's evaluation). Where the final degree of evaluation individual average for assess self-evaluation was very good, as indicated in table a pact both stages of the evaluation workshop on absence of weaknesses in the performance of execution manager.

Table 5: The Result of Performance Evaluation of Execution Manager

Criteria	(A)	(B)	(C)	Average interval 5- C	Evaluation degree
	Self-evaluation	Individual's evaluation	Evaluation different B-A		
Intelligence	4.6	3.4	-1.2	3.8	V. good
Leadership	4.8	3.2	-1.6	3.4	good
Productivity	4.6	3.6	-1	4	V. good
Communication	5	3.2	-1.8	3.2	good
Ethics	4.6	4.8	0.2	4.8	Excellent
Average	4.72	3.64	-1.08	3.84	V. good

Figure (5) shows the radar shape for evaluation of the execution manager, where notes that often the differences in the evaluation criteria were negative, this meaning that the execution manager

gave himself an evaluation in the view of the individuals higher than it is in fact in the field from their perspective.

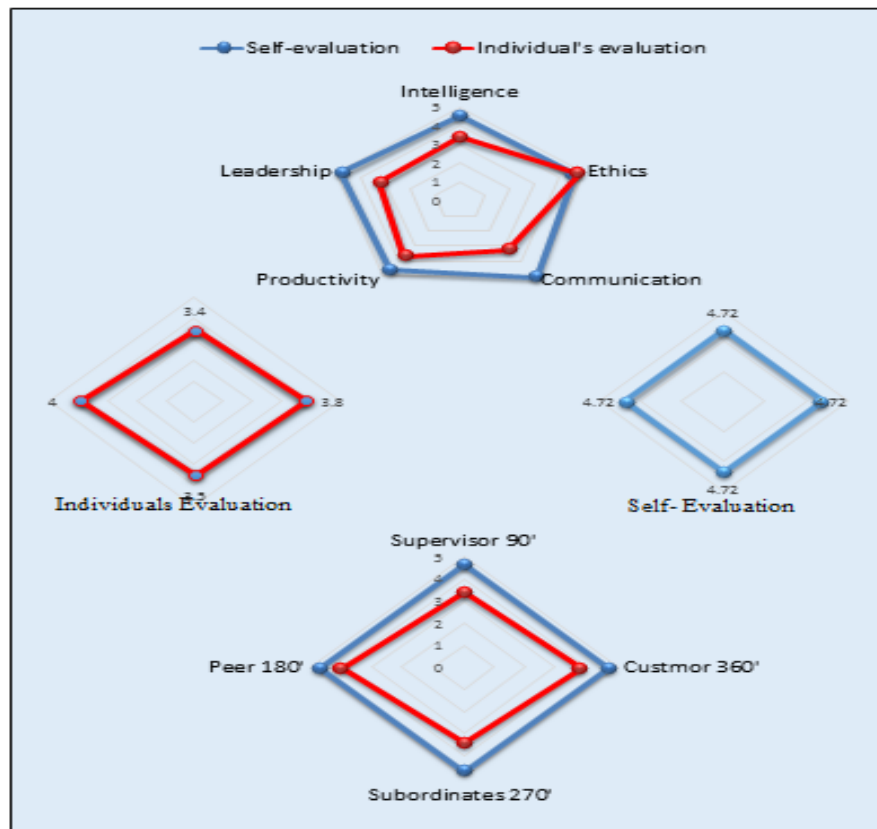


Figure 5: The Different in Evaluation of Execution Manager

12. Conclusion

Results of the study proved the possibility of the use of 360° technique in evaluating the performance of managers in the Housing Directorate, which means the possibility of circulation in the construction sector. Moreover, the study showed in general of gaps between self-evaluation and individual evaluation process, which indicates the need for an organizational culture that encourages objectivity in passing judgments and accepts the views of others. The existence of negative gaps in responses between the parties of the evaluation process appears the manager's overstatement in the existence of the evaluation criteria in them. Therefore, the final degree of evaluation was (4.28) v. good for planning manager, (4.56) excellent for design manager and (3.84) v. good for execution manager

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Appendix –A- (Questionnaire of 360-Degree Performance Evaluation)

1 = Unsatisfying, 2= Marginal, 3 = Meets Requirements, 4 = Exceeds Requirements, 5= Outstanding

Intelligence	1	2	3	4	5
Ability to anticipate project performance within the near future					
Distinguished by his ability to make fast and accurate decisions to facilitate works flow and project closure					
Learns from former mistakes and never repeats them					
Ability to put acquired knowledge into application					
Has the ability for creativity and innovation in a way that achieves the maximum use of resources					
Leadership	1	2	3	4	5
Never affected by side talks and rumors					
Has a unique ability to find solutions for day to day work problems					
Delegates authorities to colleagues					
Has and effective extrovert personality that leaves a positive impact on the rest of the team					
Shows a strong commitment to the company					
Productive efficiency	1	2	3	4	5
Distributes tasks to individuals according to their qualifications					

Carefully manages financial resources					
Has the ability to train a team in terms of projects management					
Follows up the training skills the his team have received					
Makes sure to keep an eye even on the smallest details in the project					
Connectivity and communication	1	2	3	4	5
Ability to communicate with team members					
Ability to encourage and motivate his co-workers					
Good listener to his co-workers					
Shares work related information with colleagues by himself without the need to tell him to do so, and feels ok with that attitude					
Characterized by tact and smooth behavior within his work environment					
Work ethics	1	2	3	4	5
Characterized by professional work ethics and ability to preserve work sensitive details					
Makes sure to ask for manpower dues and rights					
Treats the staff with equality and equity without any biased behavior					
Commitment to dates and deadlines					
Does not abuse taking advantage of his powers and authorities					