# Strategic Performance Measurement of Employees based on Project Efficiency and Effectiveness

**Tayebe Abbasnejad[1], Mohammadreza Behboudi[1], Foroozan Sahelizadegan[1], Javad Mahmoodi[2]***

*1. Faculty of Management, Hormozgan University, Bandarabbas, Iran*
*2. Faculty of Management, Hormozgan University and Hormozgan Cement Company, Bandar-Khamir, Iran*

## Abstract

One of the most important issues in strategic management is enhancing employees' motivation to contribute in the implementation of strategies; because they usually do not pay necessary attention to strategies. Accordingly, it is required to consider and calculate their roles in implementing strategies. In terms of employees' role in the organization, they have managerial (goal setter) and/or non-managerial (non-goal setter) role. We are looking for a strategic performance measurement method to involve both roles. Since there was not a pervasive method in the literature to cover both roles properly, this research introduces a method that measures and calculates the strategic performance of employees based on two main parts: Project effectiveness (for managerial roles) and project efficiency (for non-managerial roles). This method tested on a sample of employees in Hormozgan Cement Company. Results show a significant difference between employees who participated and those who did not participate in implementation of strategies in their performance value. Achieved values are tangible and traceable; therefore, employees can have a proper sense and reaction to outputs of this method.

## Keywords

---

∗ **Corresponding Author, Email**: javadmhm@hormozgancement.com

## Introduction

Employees and their performance have the essential role in the success of any organization; and employee performance management is also one of the most important issues in the management of organizations (Foot & Hook, 2011; Lussier & Hendon, 2012). Many organizations use employee performance management for the selection, preservation, promotion, dismissal, compensation, human resource planning and training employees (Haines & St-Onge, 2012; Sepehrirad et al., 2012). Therefore, measuring employee performance is a critical issue. There are many methods to measure employee performance with different ways and approaches; such as Management by Objectives (MBO), narrative method, graphic rating scale form, ranking method, 360-degree evaluation, results-based system, goal setting theory, critical incident method, essay method, work standards method and so forth (Foot & Hook, 2011; Itika, 2011; Lussier & Hendon, 2011).

However, each method has been invented for specific purposes and has control on certain employees' performance aspects. Those aspects might be traits (attributes of personal character), behaviors or work results (Foot & Hook, 2011; Lussier & Hendon, 2012; Osmani & Maliqi, 2012). Ishizaka and Pereira (2016), based on the literature, categorize main used characteristics and criteria of performance appraisal in four categories such as position, organizational, personal, and task and target characteristics.

With the advent of the strategic management, some researchers tried to create the connection between the performance of staff and strategy implementation. It is important to develop employee performance plans that support organizational goals and strategies. It is necessary to ensure that the performance management process guides our employees toward achievement of organizational strategies and objectives over time and it aligns individual objectives to organizational objectives (Aguinis, 2005; Armstrong, 2006; Foot & Hook, 2011; Lussier & Hendon, 2012; Itika, 2011). Aguinis (2005) in the definition of performance management states 'performance

management is a continuous process of identifying, measuring and developing performance in organizations by linking each individual's performance and objectives to the organization's overall mission and goals'.

Most of those methods have a top-down perspective and start from organizational goals to annual and short targets and then department objectives (Itika, 2011). Mone and London (2002) describe goal setting process and how employees find a relationship between their job descriptions and current goals and strategies of the organization. Zigon (2002) explains how organization's goals are converted to managers' goals and how managers define the role of employees in achieving those goals.

This research intends to find a method to increase contribution rate of employees in the strategic plans by considering it in performance measurement system; therefore, the purpose of this study is introducing a method that represents simple and understandable framework to measure employees' performance based on their contribution to strategies.

A common property of the existing methods is that their main focus is on goals and objectives. Most of them intend to reach ultimate measurable goals for departments or individuals and calculate performance based on achieved goals. In goal setting for performance management, there are several types of goals like job description goals, project goals or behavioral goals (American National Standard, 2012). With regard to the purpose of this research, the concentration is on project goals, where they may be based on achievement of a project objective. In goal setting process, managers have a responsibility to develop goals and employees have a responsibility to participate in this process (American National Standard, 2012; Hartog et al., 2004); this is the most highlighted process in the goal setting of the project.

It is noticeable that most of the employees usually try to achieve indicated goals with certain projects that have been determined and approved by managers. This means that most of the employees have minimal interference in setting strategies, goals and projects;

accordingly, they have the least responsibility for *project effectiveness*. Project effectiveness can be defined as a level and quality of the achievement of projects' goals and objectives (American National Standard, 2012; Amini et al., 2016).

However, *project efficiency* is the challenge and at the same time the responsibly of non-managerial employees. Project efficiency is the optimal transformation (activities) of inputs into outputs (Salem, 2003). They are responsible for applying planned projects, but they are not responsible for wrong projects. However, the majority of employees in an organization are non-managerial. Therefore, in measuring employee performance, there is a need to consider project efficiency and project effectiveness simultaneously. This is the core concept of this research. In this paper, first, the suggested method will be introduced, then the result of testing the method in practice will be described, and finally in the last section we discuss the findings, draw conclusions, and make recommendations.

## Methodology

### Introducing the suggested method

The suggested method which is based on the researcher's experiences in practice and the literature review includes two main parts. The first part of the method is based on project efficiency and the second part is based on project effectiveness. The second one is especially for managerial employees and does not include non-managerial employees. Figure 1 represents main steps of this method. It includes two parts namely performance based on project efficiency and performance based on project effectiveness. The former part consists of seven steps and the latter part encompasses four steps. Finlay, steps eight and nine standardize SP1 and SP2 and combine them and as a result of the method to calculate the periodic strategic performance of employees (SP).

### Part 1. Performance based on project efficiency

The main idea of this part is weighting projects (strategic actions) based on their size and indicating an acceptable connection between

them and employees' performance. The strategic planning model that has been used for this purpose is 'basic strategic planning model'. In summary, in this model, there are some main elements that should be determined respectively: Vision, mission, goals (long-time), strategies, objectives (short-time), and finally action plans (programs or projects) (David, 2011; Hill & Jones, 2008; Olsen, 2006; Wheelen & Hunger, 2012).

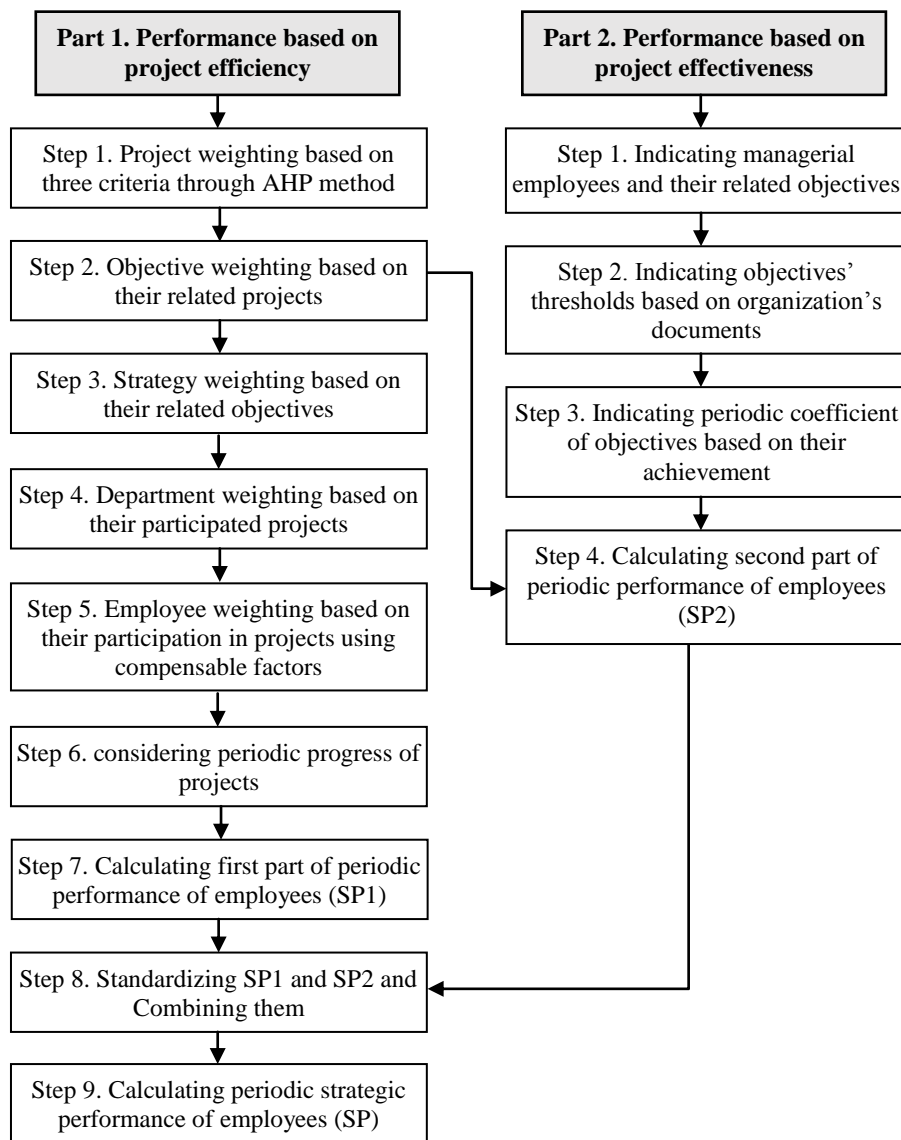| **Part 1. Performance based on project efficiency** | **Part 2. Performance based on project effectiveness** |
|---|---|
| Step 1. Project weighting based on three criteria through AHP method | Step 1. Indicating managerial employees and their related objectives |
| Step 2. Objective weighting based on their related projects | Step 2. Indicating objectives' thresholds based on organization's documents |
| Step 3. Strategy weighting based on their related objectives | Step 3. Indicating periodic coefficient of objectives based on their achievement |
| Step 4. Department weighting based on their participated projects | Step 4. Calculating second part of periodic performance of employees (SP2) |
| Step 5. Employee weighting based on their participation in projects using compensable factors | |
| Step 6. considering periodic progress of projects | |
| Step 7. Calculating first part of periodic performance of employees (SP1) | |
| Step 8. Standardizing SP1 and SP2 and Combining them | |
| Step 9. Calculating periodic strategic performance of employees (SP) | |

**Fig. 1. Main steps of suggested method for strategic performance measurement Employees**

We are not going to deal with those concepts in detail but a short definition can be helpful. Those definitions come from Gates' notes (2010, p. 5):

- **Vision:** A vision is an ideal that an organization intends to pursue
- **Mission:** An organization's mission is its primary business or purpose
- **Long-time goals:** Goals are broad, measurable aims that support the accomplishment of a mission.
- **Strategies:** A strategy is a derived approach to achieve the mission, goals, and objectives of an organization.
- **Short-time objectives:** Objectives are specific, quantifiable, lower-level targets that indicate an accomplishment of a goal.
- **Actions:** Actions are specific steps to achieve a goal or objective.

In this method, there is no intention for planning strategies, but it only uses the results of strategic planning. Thus, for implementing the suggested method, strategic planning should be done beforehand. This method gets defined strategies, short-time objectives and projects as inputs and then weights strategies, objectives, departments, and employees based on the project weights ($w_p$). Figure 2 illustrates how relationships and weights are created among the method's elements.
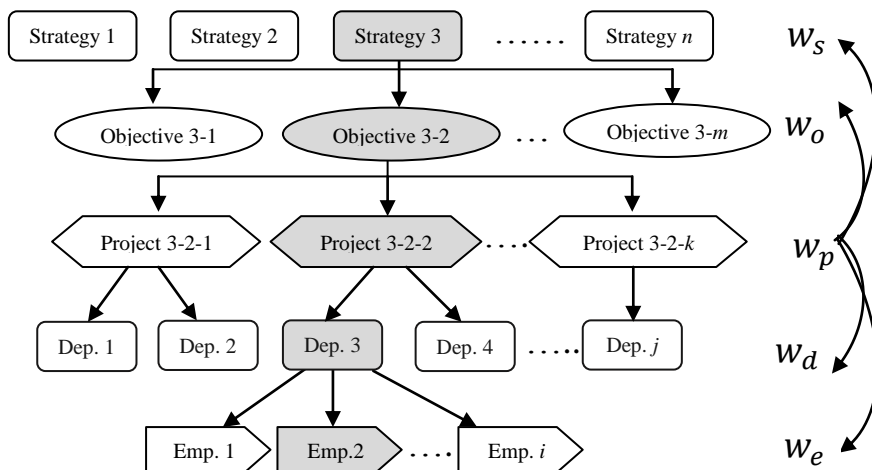


**Fig. 2. Hierarchical weighting of the method's elements**

**Weighting projects**

Projects are core elements of this method because those are the most actual and practical element that employees are dealing with directly. Hence, to have real weights, all other elements of the method, whether its upper (strategies and objectives) or its lower elements (departments and employees) should be weighted based on the project weights.

In this research, the method has been used to weight projects is AHP which was introduced by Saaty (Behushan & Rai, 2004; Saaty, 1987). AHP is a MCDA (Multi Criteria Decision Analysis) method. It is based on pairwise comparison (Ishizaka & Pereira, 2016). In the first step of AHP, the problem is divided into a hierarchy of *goal*, *criteria*, sub-*criteria*, and *alternatives* (Behushan & Rai, 2004). In our case, the items can be defined as:

- **Goal:** finding the largest project (the biggest in size);
- **Alternatives:** projects;
- **Criteria:** a) number of departments, b) duration of project and c) project budget; these criteria have been suggested in different resources for sizing projects (Hill, 2013; Project Sizing, 2015).

In the second step of AHP, the pairwise comparison of alternatives based on criteria should be conducted. In this case, all three criteria have quantitative values and the comparison matrices are formed automatically, without any human interference. For example, if durations of Project 1 and Project 2 are 12 and 6 months respectively, the comparison value between Project 1 and Project 2 is 12/6 or 2 and the value of diagonal elements of the matrices will be always 1. Table 1 shows comparison matrix of the projects based on the projects' duration.

**Table 1. Comparison matrix of projects based on the duration**

| Duration | Project 1 | Project 2 | …. | Project *i* |
|---|---|---|---|---|
| **Project 1** | 1 | | | |
| **Project 2** | | 1 | | |
| **…...** | | | 1 | |
| **Project *i*** | | | | 1 |

In the next step, the pairwise comparisons of criteria are organized into a square matrix, which is shown in Table 2. A group should do this qualitative comparison.

**Table 2. Comparison matrix of criteria**

|             | Duration | Team number | Budget |
|-------------|----------|-------------|--------|
| **Duration**    | 1        |             |        |
| **Team number** |          | 1           |        |
| **Budget**      |          |             | 1      |

For this purpose and the other future needs to make the decision, a participatory group that is called *the Expert Group* should be formed. This group can include top managers and specialists of the organization. The members of Expert Group use fundamental and gradation scale for quantitative comparison of criteria (Behushan & Rai, 2004; Saaty, 1987). This scale is shown in Table 3.

**Table 3. Scale for quantitative comparison**

| Numeric value(s) | Options             |
|------------------|---------------------|
| 1                | Equal               |
| 3                | Marginally strong   |
| 5                | Strong              |
| 7                | Very strong         |
| 9                | Extremely strong    |
| 2,4,6,8          | Intermediate values |

Finally, AHP produces weight values for projects that are called $w_p$.

**Weighting objectives**

The weight of an objective depends on its related projects. Projects, based on their outcomes, affect one or more related objectives (Zewo, n.d.). Therefore, it is necessary to indicate the impact amount of a project on each related objective. To simplify the method, impact amount can be assumed as qualitative data. If the impact ratio of project *i* on objective *j* is $e_{ij}$, then we should have: $\Sigma_{ij}=1$. It means that the impact of a project is distributed between its objectives. Consequently, objective weight equals to:

$$\sum_i w_{p_i} \times e_{ij} = w_{o_j} \qquad (1)$$

Each Expert Group member indicates $e_{ij}$ in the equation. Finally, the project-objective matrix is completed as shown in Table 4.

**Table 4. Project-objective matrix**

|  | **Project 1** | **Project 2** | **Project 3** | **….** | **Project $j$** |
|---|---|---|---|---|---|
| **Objective 1** | $w_{p_1}.e_{11}$ | $w_{p_2}.e_{12}$ | $w_{p_3}.e_{13}$ | … | $w_{p_j}.e_{1j}$ |
| **Objective 2** | $w_{p_1}.e_{21}$ | $w_{p_2}.e_{22}$ | $w_{p_3}.e_{23}$ | … | $w_{p_j}.e_{2j}$ |
| **Objective 3** | $w_{p_1}.e_{31}$ | $w_{p_2}.e_{32}$ | $w_{p_3}.e_{33}$ | … | $w_{p_j}.e_{3j}$ |
| **…** | … | … | … | … | … |
| **Objective $i$** | $w_{p_1}.e_{i1}$ | $w_{p_2}.e_{i2}$ | $w_{p_3}.e_{i3}$ | … | $w_{p_j}.e_{ij}$ |

**Weighting strategies**

In the strategic planning process, strategies are defined, prioritized and weighted based on their importance using some techniques like Quantitative Strategic Planning Matrix (David, 2011). It can be called the *importance weight* of strategies. But it is noticeable that how much of this importance and prioritization are put into action and implemented in real. When weights of strategies are calculated from their project and objective weights, it is the *actual weight* of strategies that has happened in reality. Therefore, with the comparison between these two weights, the differences and distances between planned strategies and implemented strategies are revealed.

In this method, the actual weight of strategies has been used. It is achieved by summing their objective weights. Equation (2) and objective-strategy matrix (Table 5) show this relationship. Here, $w_{si}$ is the weight of strategy $i$ and $w_{oij}$ is the weight of objective $j$ that is related to strategy $i$.

$$\sum_j w_{o_{ij}} = w_{s_i} \qquad (2)$$

**Table 5. Objective-strategy matrix**

|  | **Objective 1** | **Objective 2** | **Objective 3** | **….** | **Objective $j$** |
|---|---|---|---|---|---|
| **Strategy 1** | $w_{o_{11}}$ | $w_{o_{12}}$ | $w_{o_{13}}$ | … | $w_{o_{1j}}$ |
| **Strategy 2** | $w_{o_{21}}$ | $w_{o_{22}}$ | $w_{o_{23}}$ | … | $w_{o_{2j}}$ |
| **Strategy 3** | $w_{o_{31}}$ | $w_{o_{32}}$ | $w_{o_{33}}$ | … | $w_{o_{3j}}$ |
| **…** | … | … | … | … | … |
| **Strategy $i$** | $w_{o_{i1}}$ | $w_{o_{i2}}$ | $w_{o_{i3}}$ | … | $w_{o_{ij}}$ |

**Weighting departments**

Each project is implemented with the participation of one or more departments or work units. Before defining people weights in projects, it is better to define their department weight ($w_d$) in projects and then indicating people weights based on their department portion in project implementation. In this case, department manager is responsible for indicating people weights in the certain project.

To define department weight, the Work Breakdown Structure (WBS) tool in the project management can be used. Project Management Institute (2013, p. 105) describes WBS creation as the 'process of subdividing project deliverables and project work into smaller, more manageable components'. In WBS, work packages represent the list of tasks or 'to-dos' to produce the specific unit of work. For each work package, the weight and the responsibility are defined. As a result, it is possible to indicate all work packages of a department and then with summing the work packages weights, department weight is calculated.

However, using WBS usually requires the effective project management process in the organization. If the organization can access to projects' WBS data, it will be able to use its output to define department weights; otherwise, a meeting with participation of all department managers can solve the problem and department weights are defined by managers directly.

According to Table 6, the department weight matrix should be formed. In this matrix, department weights ($w_d$) in each project are determined.

**Table 6. Department weight matrix**

|           | Dep. 1      | Dep. 2      | ….  | Dep. $j$    |
|-----------|-------------|-------------|-----|-------------|
| **Project 1** | $w_{d_{11}}$ | $w_{d_{12}}$ |     | $w_{d_{1j}}$ |
| **Project 2** | $w_{d_{21}}$ | $w_{d_{22}}$ |     | $w_{d_{2j}}$ |
| **….**    |             |             |     |             |
| **Project i** | $w_{d_{i1}}$ | $w_{d_{i2}}$ |     | $w_{d_{ij}}$ |

**Weighting employees**

Finally, each department manager should indicate the role and weight of each employee in the department projects. The weight of employee

*i* in project *j* is $w_{eij}$. But how managers can determine the weight of an employee in a project? If there are some criteria or factors to determine the weight of an employee in each project, it will be more useful, acceptable and accurate. *Compensable Factors* in the job evaluation are proper factors to use for weighting employee's role in a project.

A compensable factor is any particular skill, responsibility, effort, or physical demand for which an employer is willing to pay an employee. Those are used to measure job worth (Milkovich & Newman, 1999). Typically, an employer's compensable factors are (Milkovich & Newman, 1999):

- Experience
- Education
- Complexity
- Knowledge
- Physical effort
- Mental effort
- Working location and surrounding
- Working hazards
- Responsibility
- Degree of supervisory.

From the list above, only six factors have been chosen as criteria to weight employees in projects owing to the availability of their information in the company and being easier than others to be evaluated. Due to the activities that each employee is responsible for and the compensable factors of those activities, it is possible to define employee weight in a project. These six criteria are compared with each other with AHP method and by Expert Group to achieve their weights ($w_{ci}$) The values of these criteria ($c_i$) are expressed with typical five-level Likert items that are a number between 1 (*minimum value*) and 5 (*maximum value*). Most performance management processes use a rating scale to indicate performance levels like Likert scales (American National Standards, 2012). Accordingly, the final value of criteria is $w_{ci} \times c_i$ (Table 7) and an employee weight in a project is:

$$w_e = \sum w_{c_i} \times c_i \qquad (3)$$

**Table 7. Six criteria for weighting employees in a project**

| Criteria | Weight | Likert value | Final value |
|---|---|---|---|
| Experience | $w_{c_1}$ | $c_1$ | $w_{c_1} \times c_1$ |
| Education | $w_{c_2}$ | $c_2$ | $w_{c_2} \times c_2$ |
| Complexity | $w_{c_3}$ | $c_3$ | $w_{c_3} \times c_3$ |
| Work conditions | $w_{c_4}$ | $c_4$ | $w_4 \times c_4$ |
| Degree of supervisory | $w_{c_5}$ | $c_5$ | $w_{c_5} \times c_5$ |
| Physical effort | $w_{c_6}$ | $c_6$ | $w_{c_6} \times c_6$ |

**Considering the progress of projects**

To achieve periodic performance value of employees, in addition to defining weights of employees and their shares in projects implementation, it is necessary to apply and consider the periodic progress of projects in the method. The basis of any progress tracking method comes down to compare planned progress to the actual progress (Brienza & Hildreth, 2007). The progress rate ($p_i$) is calculated with the division of the actual progress by the planned progress. Equation (4) indicates this calculation.

$$p_i = \frac{\% \ actual \ progress}{\% \ planned \ progress} \qquad (4)$$

**Calculating periodic performance of employees**

Now, there are all needed data to calculate final performance values of employees for first part of the model. Periodic performance value of an employee is obtained by multiplying the project weight ($w_p$), department weight ($w_d$), employee weight ($w_e$), and progress rate ($p_i$). Consequently, total performance value of employee $i$ ($SP1_i$) is equal to the sum of multiplying the above variables for all projects which is shown in Equation (5).

$$SP1_i = \sum_j w_{p_j} . w_{d_j} . w_{e_j} . p_j \qquad (5)$$

**Part 2. Performance based on project effectiveness**

There is an additional aspect of strategic performance for managerial employees, who are responsible for indicating projects and plans for

specified strategic objectives. The effectiveness of the defined projects is very important because usually projects require great efforts and cost in implementation and achieving objectives is the main concern (Sundqvist et al., 2014). It is necessary to have a metric to ensure that the right projects are in progress and they are aligned with the strategic objectives (Pennypacker, 2005; Sharma et al., 2012). Thus, for defining strategic performance of managerial employees, in addition to project efficiency, the effectiveness of projects and achievement of objectives should be considered.

Therefore, in this method, at the end of each objective's time period, the achievement of objective is controlled. According to achieved value of an objective, several places around the objective's limits are formed and certain coefficients are assigned to them. Those coefficients are agreed upon by the Expert Group members. Figure 3 shows this issue. It has been formed based on RAG (or traffic light) model. RAG model uses three colors: Red, Amber and Green and there are two threshold points: 1) when the objective turns green and 2) when the objective turns red (Intrafocus, 2014). Therefore, there are two thresholds for any objectives. In suggested method, one threshold is *the current value* and another is *the target value* of the objective. Another important point to note is there are two types of objectives:

- Increasing objective: Its value should be increased.
- Decreasing objective: Its value should be decreased.

In Figure 3, for example, the situation of increasing objectives has been shown. For decreasing objectives, this figure should be reversed. Accordingly, the target value will be placed in the left threshold and the current value in the right; and the rest of the contents will not change. Figure 3 shows how coefficients are dedicated in the three zones based on two threshold values: *Acceptable, reward and penalty zone*. In the acceptable zone, there are three equal sections based on the difference between the target value and the current value. In the reward zone, positions are defined with a certain increasing ratio of the target value. For the penalty zone, positions are based on the decrease ratio of the current value. If the achieved value of an objective is placed in a position of Figure 3, a coefficient is dedicated

to that objective which is called $C_{oi}$. For the reward zone, coefficients are greater than 1; it means the reward to excellent results. On the other hand, in the penalty zone, there are negative coefficients that mean the penalty for bad and non-satisfactory results.

| The current value (First threshold) | | | | The target value (Second threshold) | | | | |
|---|---|---|---|---|---|---|---|---|
| **Penalty zone (based on the current value)** | | | **Acceptable zone** | | | **Reward zone (based on the target value)** | | |
| More than %20 decrease | To %20 decrease | To %10 decrease | First 33% | Second 33% | Third 33% | To %10 increase | To %20 increase | More than %20 increase |
| **-1.5** | **-1** | **-0.5** | **0.5** | **0.75** | **1** | **1.5** | **2** | **3** |

**Fig. 3. Defined coefficient for different situation of objectives achievements**

In the next step, a relationship between managers and objectives should be indicated. Table 8 shows manager-objective matrix. Elements of this matrix ($b_{ij}$) are Boolean. If manager $j$ is responsible for objective $i$, $b_{ij}$ is 1, otherwise 0.

The performance based on the project efficiency or in other words based on the achievement of objectives (SP2) for managers is equal to the multiplication of the three variables including $w_0$ (objective weight), $C_0$ (achievement coefficient), $b_i$ (related objective):

$$SP2_j = \sum_i w_{o_{ij}} \times C_{o_i} \times b_{ij} \qquad (6)$$

**Table 8. Manager-objective matrix**

|  | **Manager 1** | **Manager 2** | **....** | **Manager $j$** |
|---|---|---|---|---|
| **Objective 1** | $b_{11}$ | $b_{12}$ | … | $b_{1j}$ |
| **Objective 2** | $b_{21}$ | $b_{22}$ | … | $b_{11}$ |
| **....** | … | … | … | … |
| **Objective $i$** | $b_{i1}$ | $b_{i2}$ | … | $b_{ij}$ |

## Combining SP1 and SP2

To achieve total strategic performance of employees, obtained values from two parts (SP1 and SP2) should be combined. SP1 and SP2 are

not the same data type and before combination, it is needed to perform data standardization by means of the Z-score method. The Z-score is a form of standardization used for transforming normal variants to standard score form (Bin Mohamad & Usman, 2013). The Z-score standardization formula is defined as:

$$Z_x = \frac{x_i - x_{min}}{x_{max} - x_{min}}$$     (7)

After data standardization and calculation of $Z_{SP1}$ and $Z_{SP2}$, the final and total strategic performance of employees (SP) are calculated through:

$$SP = \frac{Z_{SP1} + Z_{SP2}}{2} \text{ (for managerial employees)}$$

$$SP = Z_{SP1} \text{ (for non-managerial employees)}$$     (8)

**Testing the method in practice**

This method has been implemented in Hormozgan Cement Company. This company produces different kinds of cement such as Portland and Pozzolan cement[1]. The number of its staff is more than 500 and its production capacity is 6000 tons per day. It has two independent and divided production lines. Now, this company, which has many projects, tries to evaluate employees' performance based on their participation in the implementation of strategic plans.

**Research method and sampling**

To analyze and focus on the results, employees of kiln department from two separate production lines are selected as sample. Kiln department is a major part of cement production line and produces 'Clinker' as the main material of final production.

Choosing the sample group from the same departments of two production lines with very close duties and activities makes an opportunity to compare their performance value and analyze their differences. The sample group includes all organization levels from

---

1. www.hormozgancement.com

manager (as highest level) to operator assistant (as lower level) in a department; because it is necessary to compare employees at all levels to make the more comprehensive comparison.

This type of sampling called *quota sampling* is a branch of the nonprobability sampling method. Battaglia (2008, p. 523) states 'the basic idea of quota sampling is to set a target number of completed interviews with specific subgroups of the population of interest. Ideally, the target size of the subgroups is based on known information about the target population'.

The sample group members are shown in Table 9. As it can be seen in this table, 23 employees from kiln department are selected.

**Table 9. Sample group**

| Personnel ID* | Level (responsibility) | Personnel ID | Level (responsibility) |
|---|---|---|---|
| 02 | Production manager | 016 | Kiln operator assistant (line 1) |
| 058 | Head of operation (line 1) | 170 | Kiln operator assistant (line 2) |
| 30 | Head of operation (line 2) | 026 | Preheater operator (line 1-shift A) |
| 06 | Kiln supervisor (line 1) | 028 | Preheater operator (line 1-shift B) |
| 70 | Kiln supervisor (line 2) | 030 | Preheater operator (line 1-shift C) |
| 024 | Kiln observer (line 1-shift A) | 270 | Preheater operator (line 2-shift A) |
| 022 | Kiln observer (line 1-shift B) | 290 | Preheater operator (line 2-shift B) |
| 020 | Kiln observer (line 1-shiftC) | 310 | Preheater operator (line 2-shift C) |
| 250 | Kiln observer (line 2-shift A) | 018 | Production worker (line 1) |
| 230 | Kiln observer (line 2-shift B) | 190 | Production worker (line 2) |
| 210 | Kiln observer (line 2-shift C) | | |
| 014 | Kiln operator (line 1) | | |
| 150 | Kiln operator (line 2) | | |

**\*** Personnel IDs are not real

## Implementation and Results

In the first step, according to the projects that kiln department is involved in, it is possible to indicate its related objectives and strategies. Table 10 shows the relationship between the strategies, objectives and projects of kiln department.

**Table 10. The relationships between the strategies, objectives, and projects for Kiln department**

| Project No. | Project title | Objective | Strategy |
|---|---|---|---|
| 38 | Elevator installation to eliminate kiln airlift | | |
| 37 | Implantation of KIDS plan in cooler (line 2) | **Objective 1.** Increasing production from 2 million ton to 2.2 million ton | **Strategy 1.** Stabilizing and increasing the production |
| 2 | Installation of chalk crasher in the new cement mill department | | |
| 39 | Installation of distributer plate in preheater cyclones 4 and 5 | **Objective 25.** Decreasing fossil energy consumption from 845 kcal/kg to 800 kcal/kg | **Strategy 7.** Managing costs and prime cost and decreasing energy and material consumption |
| 35 | Installation of rotary weigh feeder for weighing kiln feeds (line 2) | **Objective 4.** Decreasing non-conforming products percentage from 0.8 to 0.6 | **Strategy 5.** Stabilizing products quality and decreasing quality fluctuations |

According to the method, real weights of strategies and objectives depend on their project weights. So firstly, project weights should be determined. To define weights of the projects mentioned above, all the projects that are related to Strategies 1, 7 and 5 should be determined and considered. Table 11 shows all these projects and related objectives.

In the next step, project weights are calculated by AHP method and based on the three criteria: duration, involved departments and budget. Table 11 shows the criteria values for each project. With these values, pair comparison between projects can be done. But before that, it is necessary to indicate weights of the criteria by pair comparison between them. Data from pair comparison of the criteria that have been conducted by Expert Group entered into Expert Choice software and the results have been shown in Table 12.

**Table 11. All Objectives and Projects Under Strategies Related to the Kiln Department**

| Project No. | Project title | Objective | Strategy |
|---|---|---|---|
| 38 | Elevator installation to eliminate kiln airlift | **Objective 1.** Increasing production | **Strategy 1.** Stabilizing and increasing the production |
| 37 | Implantation of KIDS plan in cooler (line 2) | | |
| 2 | Installation of chalk crusher in the new cement mill department | | |
| 39 | Installation of distributer plate in preheater cyclones 4 and 5 | **Objective 25.** Decreasing fossil energy consumption | **Strategy 7.** Managing costs and prime cost and decreasing energy and material consumption |
| 49 | Changing and installing 2 meters of kiln shells 2 | **Objective 3.** Decreasing total stop time of kilns | |
| 66 | Installation of CCTV cameras | | |
| 44 | Headwall replacement of cement grinding 1 | **Objective 10.** Decreasing total stop time of cement grindings | |
| 54 | Air-slides connection between cement siloes 1-2 and 3-4 | | |
| 14 | Piping GA250 compressor | | |
| 35 | Installing rotary weigh feeder for weighing kiln feeds (line 2) | **Objective 4.** Decreasing non-conforming products percentage from 0.8 to 0.6 | **Strategy 5.** Stabilizing products quality and decreasing quality fluctuations |
| 69 | 6Sigma for decreasing quality fluctuation of materials. | | |
| 70 | ISO 17025 standard deployment. | | |

**Table 12. Criteria weights (Expert choice outputs)**

| Criteria | Weight |
|---|---|
| Duration | 0.2 |
| Departments involved | 0.6 |
| Budget | 0.2 |

Finally, project weights are calculated with AHP method and using the Expert Choice software. The result weights have been represented in the last column of Table 13.

**Table 13. Criteria values for projects**

| Project No. | Project title | Duration (month) | Involved departments | Budget (million IRR) | Weight ($w_{p_i}$) |
|---|---|---|---|---|---|
| 38 | Elevator installation to eliminate kiln airlift | 12 | 7 | 18000 | 0.364 |
| 37 | Implantation of KIDS plan in cooler (line 2) | 12 | 7 | 16000 | 0.324 |
| 2 | Installation of chalk crusher in the new cement mill department | 5 | 7 | 2500 | 0.051 |
| 39 | Installation of distributer plate in preheater cyclones 4 and 5 | 6 | 5 | 500 | 0.010 |
| 49 | Changing and installing 2 meters of kiln shells 2 | 12 | 5 | 2000 | 0.039 |
| 66 | Installation of CCTV cameras | 12 | 5 | 1000 | 0.020 |
| 44 | Headwall replacement of cement grinding 1 | 6 | 1 | 200 | 0.004 |
| 54 | Air-slides connection between cement siloes 1-2 and 3-4 | 6 | 4 | 1000 | 0.022 |
| 14 | Piping GA250 compressor | 5 | 5 | 3000 | 0.061 |
| 35 | Installing rotary weigh feeder for weighing kiln feeds (line 2) | 6 | 5 | 4500 | 0.091 |
| 69 | 6Sigma for decreasing quality fluctuation of materials. | 12 | 4 | 600 | 0.012 |
| 70 | ISO 17025 standard deployment. | 12 | 3 | 100 | 0.002 |

In this sample, there is no project that affects more than one objective. Therefore all impact ratios ($e_{ij}$) are equal to 1 and are not included in the calculation. Now, the project-objective matrix can be completed. According to Equation (1) weights of objectives are calculated. Table 14 shows this matrix and achieved objective weights.

Similarly, weights of strategies are calculated by Equation (2) and the objective-strategy matrix is completed. Table 15 includes this matrix and strategy weights.

In the next step, department weights are indicated. For each project, involved departments and their weights should be determined. As

mentioned before, it is possible to use WBS data to indicate weights of departments in each project or to arange a meeting with all managers to reach an agreement on weights of departments in projects. In this case, meeting agreement has been used. Resulted weights are shown in Table 16 as department weight matrix. Five projects of kiln departments (based on Table 10) have been considered in this table.

Now, in each department, weights of employees in their projects can be calculated. AHP method has been used to identify criteria weights. Results are shown in Table 17.

**Table 14. Project-objective matrix and achieved objective weights**

|  | Prj.38 | Prj.37 | Prj.2 | Prj.39 | Prj.49 | Prj.66 | Prj.44 | Prj.54 | Prj.14 | Prj.35 | Prj.69 | Prj.70 | weight |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Objective 1 | 0.364 | 0.324 | 0.051 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.739 |
| Objective 25 | 0 | 0 | 0 | 0.010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.01 |
| Objective 3 | 0 | 0 | 0 | 0 | 0.039 | 0.020 | 0 | 0 | 0 | 0 | 0 | 0 | 0.059 |
| Objective 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0.004 | 0.022 | 0.061 | 0 | 0 | 0 | 0.087 |
| Objective 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.091 | 0.012 | 0.002 | 0.105 |

**Table 15. Objective-strategy matrix and achieved strategy weights**

|  | Objective 1 | Objective 25 | Objective 3 | Objective 10 | Objective 4 | Weight |
|---|---|---|---|---|---|---|
| **Strategy 1** | 0.739 | 0 | 0 | 0 | 0 | 0.739 |
| **Strategy 5** | 0 | 0 | 0 | 0 | 0.105 | 0.105 |
| **Strategy 7** | 0 | 0.01 | 0.059 | 0.087 | 0 | 0.156 |

**Table 16. Completed department's weight matrix**

|  | Production | Mechanical | Electrical | Engineering | Purchase | Financial | Administrative | Project management |
|---|---|---|---|---|---|---|---|---|
| **Project 38** | 0.15 | 0.1 | 0.1 | 0 | 0.3 | 0.1 | 0.1 | 0.15 |
| **Project 37** | 0.15 | 0.1 | 0.1 | 0 | 0.3 | 0.1 | 0.1 | 0.15 |
| **Project 2** | 0.15 | 0.15 | 0.15 | 0.1 | 0.1 | 0.1 | 0.1 | 0.15 |
| **Project 39** | 0.15 | 0.3 | 0.25 | 0.1 | 0 | 0 | 0.2 | 0 |
| **Project 35** | 0.2 | 0.25 | 0.25 | 0.1 | 0 | 0 | 0.2 | 0 |

**Table 17. Criteria weights for employee weighting**

| Criteria | Weight |
|---|---|
| Experience | 0.177 |
| Education | 0.185 |
| Complexity | 0.134 |
| Work conditions | 0.165 |
| Degree of supervisory | 0.245 |
| Physical effort | 0.093 |

After that, production department manager should determine scores of criteria for each employee. Table 18 shows employee weighting for project 35. The production manager should complete this table for all five projects.

**Table 18. Employee weights in project 35**

| Personnel No. | Score between 1 to 5 | | | | | | Total score | Weight |
|---|---|---|---|---|---|---|---|---|
|  | Experience (0.177) | Education (0.185) | Complexity (0.134) | Work conditions (0.165) | Degree of supervisory (0.245) | Physical effort (0.093) |  |  |
| 30 | 3 | 4 | 4 | 3 | 4 | 2 | 3.468 | 0.071 |
| 70 | 3 | 4 | 4 | 3 | 4 | 2 | 3.468 | 0.071 |
| 032 | 3 | 4 | 4 | 3 | 4 | 2 | 3.468 | 0.071 |
| 330 | 3 | 4 | 4 | 3 | 4 | 2 | 3.468 | 0.071 |
| 034 | 3 | 4 | 4 | 3 | 4 | 2 | 3.468 | 0.071 |
| 250 | 4 | 2 | 4 | 4 | 1 | 1 | 2.612 | 0.054 |
| 350 | 4 | 2 | 4 | 4 | 1 | 1 | 2.612 | 0.054 |
| 036 | 4 | 2 | 4 | 4 | 1 | 1 | 2.612 | 0.054 |
| 230 | 4 | 2 | 4 | 4 | 1 | 1 | 2.612 | 0.054 |
| 210 | 4 | 2 | 4 | 4 | 1 | 1 | 2.612 | 0.054 |
| 370 | 4 | 2 | 4 | 4 | 1 | 1 | 2.612 | 0.054 |

**Continue Table 18. Employee weights in project 35**

| Personnel No. | Score between 1 to 5 | | | | | | Total score | Weight |
|---|---|---|---|---|---|---|---|---|
| | Experience (0.177) | Education (0.185) | Complexity (0.134) | Work conditions (0.165) | Degree of supervisory (0.245) | Physical effort (0.093) | | |
| 310 | 3 | 2 | 4 | 4 | 1 | 4 | 2.714 | 0.056 |
| 038 | 3 | 2 | 3 | 4 | 1 | 4 | 2.58 | 0.053 |
| 270 | 3 | 2 | 3 | 4 | 1 | 4 | 2.58 | 0.053 |
| 390 | 3 | 2 | 3 | 4 | 1 | 4 | 2.58 | 0.053 |
| 290 | 3 | 2 | 3 | 4 | 1 | 4 | 2.58 | 0.053 |
| 040 | 3 | 2 | 3 | 4 | 1 | 4 | 2.58 | 0.053 |

Now, all weights that are needed in this method are calculated and it is possible to achieve the strategic performance of employees in a period of time. But as the last step, it is necessary to monitor and report progress of those projects in the certain time period. According to Equation (4), the progress of projects for a three-month period (autumn 2014) is calculated shown in Table 19.

**Table 19. Progress rates of projects**

| | Planned progress | Actual progress | Progress rate |
|---|---|---|---|
| Project 39 | %64 | %55 | 0.86 |
| Project 37 | %40 | %10 | 0.25 |
| Project 2 | %20 | %0 | 0 |
| Project 39 | %80 | %80 | 1 |
| Project 35 | %70 | %50 | 0.71 |

Finally, according to Equation (5), the first part of strategic performance of employees (SP1) is calculated. Table 20 represents those values.

For calculating second part of strategic performance for managerial employees, firstly, managerial employees in the sample group and their related objectives should be indicated via the manager-objective matrix (Table 21).

Secondly, it is needed to indicate the thresholds, achieved values and position coefficients of these objectives. These data have been extracted from organization's documents. Table 22 shows all

parameters needed to calculate SP2. Calculations of SP2 and its Z-score have been shown in Table 23.

For combining SP1 and SP2, both of them should be standardized as $Z_{SP1}$ and $Z_{SP2}$ respectively. Finally, strategic performance values of employees in the certain period (SP) are achieved and shown in Table 24. Data have been sorted based on SP in a descending mode.

**Table 20. First part of strategic performance of employee values**

| Project No. | Project weight | Dep. weight | Progress rate | 02 | 058 | 30 | 06 | 70 | 14 | 150 | 016 | 170 | 018 | 190 | 020 | 210 | 022 | 230 | 024 | 250 | 026 | 270 | 028 | 290 | 030 | 310 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 0.051 | 0.15 | 0 | 0.088 | 0.079 | | | | | | | | | | | | | | | | | | | | | |
| 35 | 0.091 | 0.20 | 0.71 | 0.073 | 0.066 | | 0.066 | | | | | | | | | 0.05 | | 0.05 | | 0.05 | | 0.049 | | 0.049 | | 0.052 |
| 37 | 0.324 | 0.15 | 0.25 | 0.076 | 0.069 | | 0.063 | | | 0.41 | | 0.41 | | 0.41 | | 0.045 | | 0.045 | | 0.045 | | | | | | |
| 38 | 0.364 | 0.15 | 0.86 | 0.075 | 0.067 | | 0.062 | | | | | | | | | 0.05 | | 0.05 | | 0.05 | | 0.052 | | 0.052 | | 0.052 |
| 39 | 0.01 | 0.15 | 1 | 0.084 | 0.076 | 0.076 | 0.076 | | | | | | | | | | | | | 0.051 | 0.051 | 0.051 | 0.051 | 0.051 | 0.051 | 0.051 |
| **SP1** | | | | 0.00260945 | 0.0004788 | 0.00234987 | 0.0004788 | 0.00224736 | | -0.00022386 | | -0.00022386 | | -0.00022386 | | -0.0013672 | | -0.0013672 | | -0.0013672 | 0.0003213 | 0.00146222 | 0.00032313 | 0.00146222 | 0.0003213 | 0.00148766 |

**Table 21. Manager-objective matrix for the sample group**

| | Production manager (02) | Head of operation (line 1) (058) | Head of operation (line 2) (30) |
|---|---|---|---|
| **Objective 1.** Increasing production (million ton/year) | 1 | 0 | 1 |
| **Objective 25.** Decreasing fossil energy consumption (kcal/kg) | 1 | 1 | 1 |
| **Objective 4.** Decreasing non-conforming products percentage | 1 | 0 | 1 |

**Table 22. Objective thresholds and achieved values**

| objectives | Current | Target | Achieved | Coefficient | Weight |
|---|---|---|---|---|---|
| **Objective 1.** Increasing production (million ton/year) | 2 | 2.2 | 1.82 | -0.5 | 0.739 |
| **Objective 25.** Decreasing fossil energy consumption (kcal/kg) | 845 | 800 | 810 | 1 | 0.01 |
| **Objective 4.** Decreasing non-conforming products percentage | 0.8 | 0.6 | 0.78 | 0.5 | 0.105 |

**Table 23. SP2 and its Z-score for managerial employees**

| Personnel ID | SP2 |
|---|---|
| 02 | $(0.739 \times (-0.5) \times 1) + (0.01 \times 1 \times 1) + (0.105 \times 0.5 \times 1) = -0.307$ |
| 058 | $(0.739 \times (-0.5) \times 0) + (0.01 \times 1 \times 1) + (0.105 \times 0.5 \times 0) = 0.01$ |
| 30 | $(0.739 \times (-0.5) \times 1) + (0.01 \times 1 \times 0) + (0.105 \times 0.5 \times 1) = -0.317$ |

**Table 24. Achieved strategic performance values for employees**

| Personnel ID | Level (responsibility) | sp1 | Zsp1 | sp2 | Zsp2 | SP |
|---|---|---|---|---|---|---|
| 70 | Kiln supervisor (line 2) | 0.00224736 | 0.861 | 0 | - | 0.861 |
| 058 | Head of operation (line 1) | 0.0004788 | 0.183 | 0.01 | 1 | 0.592 |
| 310 | Preheater operator (line 2-shift C) | 0.00148766 | 0.57 | 0 | - | 0.570 |
| 270 | Preheater operator (line 2-shift A) | 0.00146222 | 0.56 | 0 | - | 0.560 |
| 290 | Preheater operator (line 2-shift B) | 0.00146222 | 0.56 | 0 | - | 0.560 |
| 210 | Kiln observer (line 2-shift C) | 0.0013672 | 0.524 | 0 | - | 0.524 |
| 230 | Kiln observer (line 2-shift B) | 0.0013672 | 0.524 | 0 | - | 0.524 |
| 250 | Kiln observer (line 2-shift A) | 0.0013672 | 0.524 | 0 | - | 0.524 |
| 02 | Production manager | 0.00260945 | 1 | -0.307 | 0.0306 | 0.515 |
| 30 | Head of operation (line 2) | 0.00234987 | 0.901 | -0.317 | 0 | 0.451 |
| 06 | Kiln supervisor (line 1) | 0.0004788 | 0.183 | 0 | - | 0.183 |
| 026 | Preheater operator (line 1-shift A) | 0.0003213 | 0.123 | 0 | - | 0.123 |
| 028 | Preheater operator (line 1-shift B) | 0.0003213 | 0.123 | 0 | - | 0.123 |
| 30 | Preheater operator (line 1-shift C) | 0.00036213 | 0.123 | 0 | - | 0.123 |

**Continue Table 24. Achieved strategic performance values for employees**

| Personnel ID | Level (responsibility) | sp1 | Zsp1 | sp2 | Zsp2 | SP |
|---|---|---|---|---|---|---|
| 150 | Kiln operator (line 2) | 0.00022386 | 0.086 | 0 | - | 0.086 |
| 170 | Kiln operator assistant (line 2) | 0.00022386 | 0.086 | 0 | - | 0.086 |
| 190 | production worker (line 2) | 0.00022386 | 0.086 | 0 | - | 0.086 |
| 014 | Kiln operator (line 1) | 0 | 0 | 0 | - | 0 |
| 016 | Kiln operator assistant (line 1) | 0 | 0 | 0 | - | 0 |
| 018 | Production worker (line 1) | 0 | 0 | 0 | - | 0 |
| 020 | Kiln observer (line 1-shift C) | 0 | 0 | 0 | - | 0 |
| 022 | Kiln observer (line 1-shift B) | 0 | 0 | 0 | - | 0 |
| 024 | Kiln observer (line 1-shift A) | 0 | 0 | 0 | - | 0 |

## Discussion and Conclusion

Promoting employees' motivation to contribute in implementation of organizational strategies is one the main concerns in strategic management. This study, as a contribution to the current literature in employee performance appraisal, developed and introduced a method which includes employees' role and contribution to strategies. The method considers both managerial (goal setter) and/or non-managerial (non-goal setter) roles and measures and calculates strategic performance of employees based on both 'project effectiveness' and 'project efficiency'. With attention to the results, some highlight points can be understood:

**Performance of managerial employees:** Managerial employees are affected by project efficiency and project effectiveness simultaneously. Employees (02) and (30) have the highest performance in project efficiency section because they have contributed to more projects than others have. However, the failure to achieve their related objectives has reduced their final score (SP). Consequently, managerial employees should pay more attention to project effectiveness when they try to propose or approve projects.

**Eight employees from 10 top score employees are from production line 2:** Most of the projects are implemented in

production line 2. Therefore, its employees have more chances to participate in projects and boost their strategic performance value. This point is a double-edged sword. On the one hand, it causes to motivate employees to put pressure on their managers for defining projects and action plans for their section and consequently, the atmosphere of motion and cooperation grows in the organization. However, on the other hand, because most of the employees do not have enough authority to define projects and also they lose their strategic performance values without defining projects in their departments, this may seem kind of injustice. As can be seen in Table 21, about half of the employees in line 1 have no strategic performance value.

**Same job, same performance:** The results show people with same job or responsibility have same strategic performance value. Because criteria weighting is based on job properties (compensable factors). Inability to more detailed determination of strategic performance for same job employees might be a weakness of this method.

**Do not use it independently:** It is important to know, this method is not a comprehensive model and does not cover all aspects of employees' performance. Therefore, it should be used as a supplement in addition to other methods. This method has been designed to motivate employees to contribute into projects and only considers this aspect.

**Low accuracy for employees in staff departments:** All projects have staff functions and it is possible to allocate certain weight of any projects to different staff departments like financial, human resource management, and administration. But the problem will accrue when you want to determine employee weight of staff departments in projects. Usually, employees' duties in all projects are the same, and there is just variation in the amount of work. Consequently, many staff employees have same weights in all projects and it is not accurate.

As a conclusion, it should be mentioned that we have introduced a method that considers participation ratio of employees in projects (as strategic plans) to conduct their performance measurement and called it *strategic performance of employees*. Based on the results, everyone

at any level (even a simple worker) can have and know his/her strategic performance value by participating in any project. These clear and traceable values motivate the employees and make them competitive; this is the main aim of this research.

The suggested method can be used as a supplement in addition to other methods and can help to achieve more realistic performance evaluation; because projects as the core elements of this method, are the most tangible issues for employees in their performance evaluation. This also leads to a better understanding of the actual implementation of strategies and comparison with planned strategies and objectives.

This research adds new effective criteria for measuring employee performance and combines the three performance aspects creatively.

However, further studies are needed to improve some limitation or weaknesses of the suggested method mentioned in the last section; some of weaknesses are lack of project definition in a department, same job employees, and staff employees' performance similarity. Single and a certain kind of organization as the case of study is one of the limitations of the study.

# References

Aguinis, H. (2005). *Performance management*. London: Edinburgh Business School.

American National Standard for Human Resource Management. (2012). *Performance management standard*. New York: American National Standards Institute.

Amini, M., Keshavarz, E., Keshavarz, A., & Bagheri, S. (2016). Prioritisation and performance evaluation of employees at strategic human resource management process using fuzzy AHP and fuzzy TOPSIS methods. *International Journal of Productivity and Quality Management*, *17*(1), 61-81.

Armstrong, M. (2006). *Performance management: Key strategies and practical guidelines*. London: Kogan Page.

Bin Mohamad, I., & Usman, D. (2013). Standardization and its effects on K-means clustering algorithm. *Research Journal of Applied Sciences, Engineering and Technology*, *6*(17), 3299-3303.

Behushan, N., & Rai, K. (2004). *Strategic decision making applying the analytic hierarchy process*. New York City, NY: Springer Publishing Company.

Brienza, R. M., & Hildreth, J. C. (2007). *Tracking project commodities for progress control*. Virginia: Polytechnic Institute and State University.

David, F. R. (2011). *Strategic management: Concepts and cases*. Upper Saddle River, NJ: Prentice Hall.

Foot, M., & Hook, C. (2011). *Introducing human resource management*. Harlow, England: Pearson Financial Times/Prentice Hall.

Gates, L. P. (2010). *Strategic planning with critical success factors and future scenarios: An integrated strategic planning framework*. Pittsburgh, PA: Carnegie Mellon University.

Haines, V. Y., & St-Onge, S. (2012). Performance management effectiveness: Practices or context?. *The International Journal of Human Resource Management, 23*(6), 1158-1175.

Hartog, D. N., Boselie, P., & Paauwe, J. (2004). Performance management: A model and research agenda. *Applied Psychology: An International Review*, *53*(4), 556 -569.

Hill, C. W. L., & Jones, G. R. (2008). *Essentials of strategic management*. Mason, OH: South-Western.

Hill, G. M. (2013). *The complete project management office handbook*. Boca Raton, FL: Auerbach Publications.

Intrafocus. (2014). *Key performance indicators: Developing meaningful*

*KPIs.* Retrieved from https://www.intrafocus.com/wp-content/uploads/2014/08/developing-meaningful-key-performance-indicators-V5.pdf.

Ishizaka, A., & Pereira, V. (2016). Portraying an employee performance management system based on multi-criteria decision analysis and visual techniques. *International Journal of Manpower*, *37*(4), 628-659.

Itika, J. S. (2011). *Fundamentals of human resource management: Emerging experiences from Africa*. Leiden: African Studies Centre.

Project Sizing: Estimating Needs and Allocating Resources. (2015). Retrieved from http://www.ittoolkit.com/how-to-it/projects/project-sizing.html.

Lussier, R. N., & Hendon, J. R. (2012). *Human Resource management: Functions, applications, skill development*. Thousand Oaks, CA: Sage Publications.

Milkovich, G. T., & Newman, J. M. (1999). *Compensation*. Boston, MA: Irwin/McGraw-Hill.

Mone, E. M., & London, M. (2002). *Fundamentals of performance management*. London: Spiro.

Olsen, E. (2006). *Strategic planning kit for dummies*. Hoboken, NJ: For Dummies.

Osmani, F., & Maliqi, G. (2012). Performance management, its assessment and importance. *Original Research Article, 41*, 434-441.

Pennypacker, J. S. (2005). *Measures of project management: Performance and value*. Center for Business Practices.

Project Management Institute. (2013). *A guide to the project management body of knowledge: PMBOK guide*. Newtown Square, PA: Project Management Institute.

Saaty, R. W. (1987). The Analytic Hierarchy Process-What it is. *Mathematical Modelling*, *9*(3-5), 161-176.

Salem, H. (2003). *Organizational performance management and measurement*. New York: United Nations Economic and Social Council. Retrieved from E/ESCWA/SDPD/2003/WG.5/16.

Sepehrirad, R., Azar, A., & Sadeghi, A. (2012). Developing a hybrid mathematical model for 360-degree performance appraisal: A case study. *Procedia - Social and Behavioral Sciences*, *62*, 844- 848.

Sharma, A., Remy, B., & Koenemann, K. (2012). Get more out of your business improvement initiative: Align projects with strategic objectives. *Management Briefing*, 800.438.5535. Retrieved from www.tbmcg.com

Sundqvist, E., Backlund, F., & Chronéer, D. (2014). What is project efficiency and effectiveness?. *Procedia - Social and Behavioral Sciences*, *119*, 278- 287.

Wheelen, T. L., & Hunger, J. D. (2012). *Strategic management and business policy: Toward global sustainability*. Upper Saddle River, NJ: Pearson Prentice Hall.

Zewo (n.d.). *Outcome and impact assessment in international development: zewo guidelines for projects and programming.* Retrieved in 2016 from http://impact.zewo.ch/en /impact/step1_define_objectives.

Zigon, J. (2002). *How to measure employee performance*. Crum Creek Road Media, PA: Zigon Performance Group.