# Chapter 16
# An Analytical Employee Performance Evaluation Approach in Office Automation and Information Systems

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## ABSTRACT

*With the extension of information technology, human resource management has experienced fundamental changes. One of the most important issues in human resource management is performance evaluation. Unlike number of studies in employee performance evaluation, there is a lack for systematic and quantitative approaches. Issues such as incomplete information, subjective and qualitative metrics, and also the difficulty of evaluating the performance are the main problems of this field. Hence, the current study exploits the capabilities of information systems and presents an approach for quantitative and automatic evaluation of employee performance in office automation systems. The results reveal the automatic employee performance evaluation system is a discrete dimension for employee performance evaluation systems.*

## INTRODUCTION

Human resources are the key assets in assisting organizations to maintain their competitive advantage (Ahmed, Sultana, Paul, & Azeem, 2013). Generally, in the studies that have been done in the field of human resource management, employee performance evaluation is seen as one of the most critical tools in this area (Fukui, 2015; Manoharan, Muralidharan, & Deshmukh, 2011). Hence, using efficient tools with high accuracy in the process of employee performance evaluation is welcomed by the managers.

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There are abundant studies in the field of evaluation employee performance. The main issue highlighted by these studies, is the accuracy of evaluation systems (Ahmed, et al., 2013; Manoharan, Muralidharan, & Deshmukh, 2012). Considering the fact that evaluation process is faced with problems such as subjective, incomplete Information, qualitative metrics, it leads to these systems are not readily accepted by users (Avazpour, Ebrahimi, & Fathi, 2013).

In recent years, with the advent of information technology, E-HRM (Yusliza & Ramayah, 2012) has become one of interesting subjects among researchers. In this regard, the computer systems that administer the evaluation are recently developed. However little attention has been paid to the relation between information systems and performance measurement systems (Dulebohn & Johnson, 2013; Garengo, Nudurupati, & Bititci, 2007; Nudurupati, Bititci, Kumar, & Chan, 2011). Generally evaluation systems are focused on recording the data, and there is no deep and meaningful outlook on data (Aqel & Vadera, 2010). While in web based office automatic systems, useful information is recorded automatically about individual's working procedure and they can be used for evaluating working performance.

Therefore, this chapter exploits the capabilities of information systems and proposes an appropriate approach for quantitative and automatic evaluation of employee performance in web base office automation systems. The chapter is organized as follows. In the next section, the review of the related literature is presented about assessment and ranking of employee performance. Then, in the next section the proposed approach is presented. In the last, we'll review the results of the system tests and will have the conclusion.

## BACKGROUND

In general, recent researches attempt to remove the drawbacks of traditional evaluation methods (Deming, 1986; Manoharan, Muralidharan, & Deshmukh, 2009; Nudurupati, et al., 2011; Waldman, 1994) by implementing TOPSIS (Yue, 2014a), VIKOR (Park, Cho, & Kwun, 2013), non-parametric methods (Manoharan, et al., 2009), fuzzy neural network (Macwan & Sajja, 2013) and other ranking methods. Given that, evaluating and ranking performance evaluation systems are concerned with individual and personal factors, behavioral factors or the results; One of the difficulties of performance evaluation process is related to subjective judgment of the evaluators (Avazpour, et al., 2013) that is based on the past presuppositions. In this way some part of the data is always ignored either inadvertently or sometimes deliberately.

In this regard, present literatures can be classified into two groups: systematic and non-systematic methods. Non-systematic methods evaluate relying on evaluators' opinions and calculating individuals' absolute performance score (Espinilla, Andrés, Mart´ınez, & Mart´ınez, 2013) based on the mean of all opinions of evaluators or based on a proportion of input and output parameters (Manoharan, et al., 2009).Considering the role of evaluators in evaluation process in non-systematic methods, choosing who is going to do the evaluation process by itself has become a major challenge in evaluating individual's performance. Moon, Lee, and Lim (2010) believe in order for the evaluation to be fair, there should be no assumed segregation among evaluators. However, generally in ranking methods, the effect and importance of different evaluators' roles are considered differently ( Andrés, Espinila, & Martínez, 2010; Espinilla, et al., 2013; Espinilla, Mart´ınez, & Mart´ınez, 2010; Park, et al., 2013) and (Xu, 2004). In such a way that in some studies like ( Andrés, García-Lapresta, & González-Pachón, 2010; Espinilla, et al., 2010) and (Yue, 2014a) the opinion and effect of each evaluator on each criterion are not assumed equal. It