Intelligent Decision Support System (IDSS) for Talent Management using Data Mining Techniques

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Abstract – *Intelligent Decision Support System (IDSS) has been developed to assist decision makers in high level phases of decision making by integrating human knowledge with modeling tools. In Human Resource Management (HRM), among the challenges of HR professionals is on how to manage the organization's talents, especially to ensure the right person for the right job at the right time. In this study, we attempt to describe the potential for implementing an IDSS approach for talent management tasks. This implementation can help decision makers to improve the effectiveness of decision making processes and to provide fair and consistent decisions. At the end, this study proposes the HR IDSS framework using Data mining techniques for the suitable talent management tasks.*

Keywords: Intelligent Decision Support System (IDSS), Data Mining, Talent Management.

1 Introduction

Nowadays, the advancement of information technology applications makes it an absolute obligation on behalf of the decision makers to continuously make the best decisions in the shortest possible time. Decision Support System (DSS) is an application that assists managerial decision makers by utilizing data and models to solve semi-structured and unstructured problems [2]. Artificial Intelligent (AI) technologies such as Knowledge-Based System, Data Mining, Artificial Neural Network and many others can be embedded with DSS applications. It is known as Intelligent Decision Support System (IDSS), IDSS will incorporate with specific domain knowledge to perform some type of intelligent behaviors such as explaining, learning, reasoning and predicting. Data mining technique is one of AI technology which has been developed for exploration and analysis in large quantities of data to discover meaningful patterns and rules. In HRM, HR data can provide a rich resource for knowledge discovery and decision support tools. So far, the IDSS applications and Data Mining techniques have not attracted much attention in Human Resource Management field [3].

In any organizations, they need to compete effectively in term of cost, quality, service or innovation. All these are depending on having enough people, with the right skills, deployed in the appropriate locations at appropriate points in time. Recently, among the challenges of Human Resource (HR) professionals are managing talent, especially to ensure the right person for the right job at the right time. The current HR decision practices are depends on various factors such as human experience, knowledge, preference and judgment. These factors can cause inconsistent, inaccurate, inequality and unexpected decisions. As a result, especially in promoting individual growth and development, this situation can often make people sense injustice. Recently, a new way to think about talent management is forecasting product demand in comparable to forecasting talent needs[4]. In fact, identifying the existing talent is one of the top talent management challenges [5], and to handle this issue, it can be done by predicting talent of employee based on their performance using Data Mining technique. For that reason, this study aims to suggest the possibility to used Data Mining techniques in talent management tasks and embedded it with DSS applications in order to produce a system that can help managers decide and propose the right employee for the right job.

The next section discusses the IDSS's overview, applications and techniques used. The third section discusses the talent management aspects in HRM. The fourth section discusses Data mining and HR. Then, section 5 describes about the suggested HR IDSS framework. Finally, the paper ends with Section 6 where the concluding remarks and future research directions are identified.