International Journal of Communication & Information Technology (CommIT) http://msi.binus.ac.id/commit/
Vol. 8 No. 1 Mei 2014, pp. 1-4

SKILLS MANAGEMENT SYSTEM AS A TOOL FOR STRATEGIC WORKFORCE PLANNING

Ardhianiswari Diah Ekawati
School of Information System, Bina Nusantara University
email: aekawati@binus.edu

Abstract: Finding and retaining the right talent is an important issue for organizations worldwide. The definition of what is the right talent for the organization should be created first to make sure we recruit the right people and then the next question is what should be done after the right talent has been recruited? Skills Management Systems try to answer these questions by providing skills library and skills inventory for the organizations, thus the gap analysis between the available skills and 'missing' skills for the organization can be produced. This analysis accompanied with the prediction of skills demands in the future is a good base to develop a hiring policy and also development plans for the current employees. This paper describes the implementation of Skills Management System in a world-class research and development organization.

Keywords: Skills management system, skills inventory, skills library, talent management, strategic workforce planning

INTRODUCTION

Globalization, the rapid changes of global economy, and the shortage of talents led to the importance of strategic workforce planning in an organization. Strategic Workforce Planning is a proactive approach which plans to provide the right number of people with the right skill sets, in the right location, at the right time and the right cost [1]. Hay Group [2] further mentioned that having the correct workforce in place, as above definition, is the critical gap between success and failure for an organization, thus a strategic plan should be delivered to address these external challenges.

This situation is even worse in Europe and some developed countries like Japan, where aging workforce is one of the concerns of the governments and organizations. According to the US Census Bureau [2], the retirement of "baby boomers" in Europe and the low birth rate mean that the active workforce will decline by 29 per cent by 2050. Retirement of these employees means that the company has to deal with the depletion of corporate memory, knowledge base, and supply of mentors. Furthermore, the critical loss of experienced people also negatively affects the skills network, in which individuals identify experts, provide referrals for those seeking answers and facilitate knowledge transfer among groups [3].

The knowledge and the competence of employees of an organization are substantial success factors in the world-wide competition. A new method is needed to identify and document the unique knowledge of the organization. Employees also need easy access to this knowledge and have the visibility of his or her own colleague's knowledge by what is called the organization's "Yellow Pages" [4].

Skills Management is defined as the management of the qualifications, experiences and knowledge of the employees. The objective is to allocate the appropriate skills at the correct place, at the right time, at optimal cost [5].

Skills Management Systems (SMS) is a web-based and dynamic system to identify, maintain, and utilize the knowledge of employees' skills. Skills management deals with identification, maintenance, and utilization of knowledge of employees' skills [6]. The basic component of a Skills Management System is a skills inventory. The main benefit of the skills inventory implementation is to locate the knowledge/ skills carriers faster. It also provides the company information about the critical skills required. Skills grading is also provided by this skills inventory system to quantify the level of skills possessed by the employees [7].

There are several case studies on Skill Management Systems, including Swiss Life's content-driven knowledge management tools [6], and a software consultancy company's skills management system [8].

METHOD

Literature study and intensive interview sessions to management and employees were conducted before the development of the skills management system in this research intensive

organization. The initial study was followed by the development of the so-called 'skills tree' – which is where the skills classification is constructed. The skills tree consists of an ordered list of skills and competencies that can be broken down into sub-skills and sub-competencies until a certain level of detail is reached. It is basically a skills library to capture all skills required and available in the organization. After a skills tree is agreed and approved by the subject matter experts in the organization, a skills inventory for employees is developed. Skills inventory is a collections of skills profiles of each of employees of the organization.

RESULTS AND DISCUSSION

Skills Management Systems

The first step to build a skills management system is to build the skills tree. From the skills tree, a skills inventory for all employees is collected. There are three parameters used to profile the skills possessed by an individual, see Figure 1:

1. Current Skills Level
   A grade is used to quantify the level of skills possessed by the employees. The system might use different grading systems for competency and skill. Dingsøyr and Røyrvik [8] use seven levels of competence in each skill: not available, cursory knowledge, basic knowledge, can use, experienced, masters fully, and expert.
2. Frequency in Use
   This parameter specifies how frequent the particular skills have been used recently (i.e., in the last two years) by one individual. For example, there are three levels can be provided: low, medium, and high.
3. Employee's Intention
   The employee development plan accommodates the skills profile from the employees' point of view on their intention to master a particular skill or set of skills for future growth. There are two levels available, for example: maintain and develop. The skills level, in which a particular skill is going to be developed, can be also indicated.

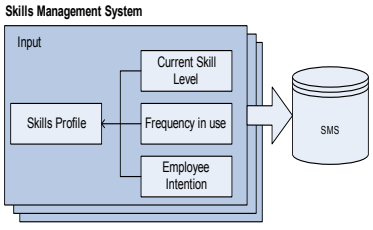

Fig. 1: Parameters of Skills Profile as Input of Skills Management Systems

These three parameters of current skills level, frequency in use, and employee's intention, give a thorough picture of the skills profile of a particular employee.

To make sure the objectivity of skills profiles, the assessments are performed both by the employees and their supervisor(s). This assessment is ideally conducted during the annual performance review together with the creation of Employee Development Plan.

Output of Skills Management System

The basic model of Skills Management System covers the Skills Library, Input process, and Output of Skills Management System. The output of Skills Management System is divided into two parts. The first part is output that can be obtained directly by the user from the website. The second part is the intermediate output, which requires further analysis.

- Direct output
  The direct output of Skills Management System is the output that can be retrieved automatically from the website: the finding expert feature and skills review. The users also have the ability to print or save the forms they have completed on the system.

- Intermediate output
  The intermediate output requires additional tools, such as cluster analysis of the skills set, and prediction of future skills review.

The Extensions of A Basic Skills Management System

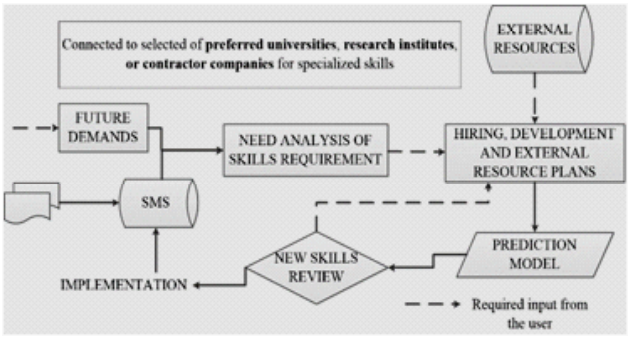

Fig. 2: Skills Management System as Decision Support Tool for Hiring, Development and External Sourcing Plan

In Figure 2, we display the extension of Skills Management System, focuses on the business level where the main objective is to obtain a hiring, development, and external sourcing plan. We regard Skills Management System as a tool to assist management to determine hiring plans for new employees, a development plan for current employees and external source plan with third parties.

The output of the Skills Management System tool is a skills review, i.e., a list of competencies or skills for individuals or for a particular group of people that highlights a potential imbalance of skills at a particular moment in time. Regarding future demands as predictable function of time, proper plans can be made to neutralize imbalance.

From the imbalance status list, the user gets the skills requirements, and might decide on the number of new people (with certain skills profile) to be hired, the number of existing employees to be trained, and the number of tasks to be sourced out externally.
The hiring, development, and external sourcing plans are input to a "what-if" analysis tool to get the new skills review.

The prediction model (implemented as a simulation tool) is installed to deal with the stochastic nature (e.g., learning curve, turnover rate). It computes a new skills review. If satisfied with the result, the user might implement the hiring, development, and external sourcing plan as proposed by the tool. As the implementation occurs, the Skills Management System will be updated in the next cycle, and the cycle continues. If the proposal of the tool is not accepted, the user might return to another input of hiring, development, and external sourcing plan, until the complete satisfaction is reached.

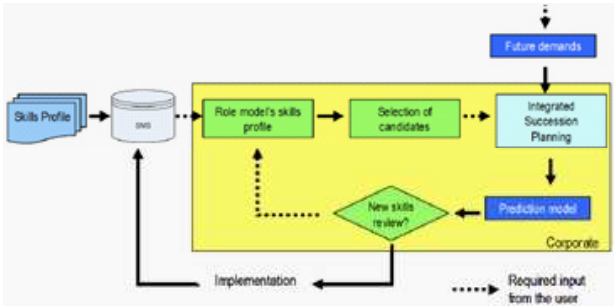

Fig. 3: Skills Management System
as Decision Support Tool in Succession Plan

Skills Management System also can be extended as decision support tool for succession planning, see Figure 3. The database provides skills profiles of the employees. Based on this database, role model's skills profile of a leader or a specialist (in a particular group) is established. From these profiles, employees (candidates) with skills profiles close to the role model can be identified and selected.

An advanced development plan, which leads to integrated succession planning, is the result of integrating the future demand, anticipated departures, and general development plan with the selected candidates list. With a simulation to accommodate the stochastic nature (e.g., learning curve, turnover rate), we obtain an overall skills review, which predicts which employees are expected to reach a certain level of skills at a certain point in time.

This succession planning area also includes a "what-if" analysis tool to get the new skills review based on a certain integrated succession plan.

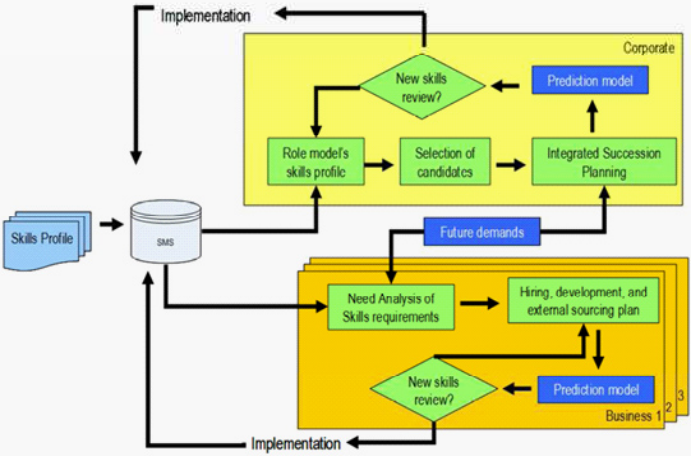

Fig. 4: Integrated Skills Management System

Figure 4 presents one scenario of integrated Skills Management System. The area indicated by the orange rectangle represents Skills Management System extension on the hiring-, development-, and external sourcing plan area. The rectangle area indicated by the yellow color is the succession plan area as it was explained previously.

The development of Skills Management System serves two major purposes.

The first purpose is to assist the management with a tool to determine hiring and development needs and to source work to third parties (in this case, universities, contractors or research institutes). A hiring and development plan is related to the number of people that should be hired and the number of employees that should be developed in the future (e.g., by training or a next job). An external sourcing plan is related to the decision to get particular skills or skills set leveraged in from third parties. It also serves to assist the management in succession planning in a department or in corporate level.

The second purpose of Skills Management System is to assist the employees to develop their career plan.

There are several other advantages of Skills Management System, such as the identification of an expert with a certain skill by employees who need an expert for their project, or a manager that looks for a person with a particular skill. The same holds for identifying the best people to form a team addressing a particular challenge.

CONCLUSION

There are several conclusions that we can provide:

1. Skills Management System is a tool to identify, maintain, and utilize the knowledge of employees' skills. In the implementation, Skills Management System also gives additional functionality as a base of an integrated tool for performance review system. Thus, all the performance review tools used at the company (e.g. employee's intention form) are centralized in one system.
2. Skills Management System is capable to identify the strong points of human resources in the organization, but also the areas that need further attention.
3. The implementation of the basic Skills Management System with its skills inventory shows skills that are available within the organizations and the skills required by the organization. The gap analysis is used as a

REFERENCES

[1] T. Smith, *Strategic Workforce Planning: Guidance & Back-Up Plans*, Scotts Valley, CA: CreateSpace, 2012.

[2] Hay Group. *Tomorrow's Workforce – Delivering Strategy to People*, Retrieved from https://www.haygroup.com/uk/downloads/details.aspx?id=34738, 2012.

[3] E. Lesser, and L. Prusak, "Preserving Knowledge in an Uncertain World", *MIT Sloan Management Review*, vol.43, pp. 101, 2001.

[4] S. Beck, Skill and Competence Management as a Base of an Integrated Personnel Development, *Proceedings of I-Know '03*,Austria, 2003.

[5] B. Rady, I. Kreitmeier, and M. Krauter, "Potenzial von Skill-Management- Systemen", Notes Domino effektivnutzen - Groupware in Fallstudien, pp. 72 – 86, 2000.

[6] B. Novotny, and T. Lau, *Organizational Memory Evaluation of Case Study Prototypes*, Swiss Life, On-To-Knowledge Project, 2002.

[7] A. D. Ekawati, "Skills Management System, a Management Tool to Assess and Analyze Competencies and Skills", A Final Report for Postmasters Study Program in TU Eindhoven, the Netherlands, 2007.

[8] E. Røyrvik and T. Dingsøyr, *LSO '01 Proceedings*, Third International Workshop on Advances in Learning Software Organizations, Germany, vol. 2176, pp. 96-107.