Skill Management

Abstract

Today's competitive and enterprising industry requires that all organizations must utilize all of their resources optimally and do that while embracing creating and adopting lean processes. To deliver more business value, technology must support the HR and executive management for real-time data of available resources skill sets. This enables the HR team to spend less time on traditional administrative activities and more time on strategic planning for optimal utilization of its human capital. This paper addresses this abstract objective from the specific perspective of skill management.

1   Introduction

The last decade has witnessed multiple fold increase in automation, the implications of which are also multifold. One of these implications is that there is a change in the competency sets required for the workforce. HR of such organizations is facing a very unique challenge of managing and upskilling its existing workforce to fill in the talent gap. In some cases, skills required are not easily available, hence the only available option is to train the current workforce.

A key challenge is that many organizations do not have the proper knowledge of the skills possessed within the organization or the skills required within the organization. In the cases where this knowledge is available, it is often costly and time consuming to acquire and maintain, and hence is often outdated.

Organizations well informed of the skills and the knowledge of their employees can fulfill the following items:
- find the right single employee for a specific task or project
- retrieve and assemble flexible project teams
- develop and update employees' skills
- explore the employees future career path

Thus, the employment of skill management systems can prove to be very efficient for modern organizations. This is especially true when changing projects and the flexible roles of the employees necessitate short reaction times in time-critical projects. Such short-term projects (also called "gigs" within organizations) allow the short-term deployment of people and allow them to experiment with new roles and acquire/enhance skills.

2   Skill Management and Assessment Process

In many organizations, skill management systems are driven, developed and managed by the human resource department. Skill Matrix is a well-accepted technique to record and view the skills of all the employees of an organization.

While the exact process can vary, the broad outline shown in the following schematic is a good representation of the process that can be followed by many organizations.
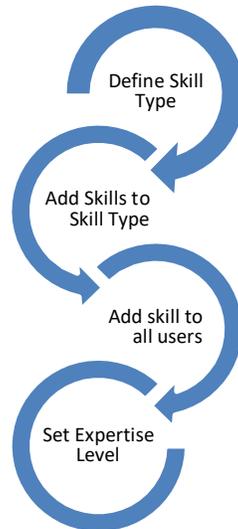
Figure 1: Overall Process for Skill Management in an Organization

Skill types consists of a set of experiences and qualifications that are divided into hard skills (databases like DB2, SQL-Server, Progress, Oracle; programming languages like COBOL, PL/1, ICS, JAVA, C++, SmalTalk, XML; computer systems like MVS, Microsoft, Linux, etc.) and soft skills (leadership, motivation, teamwork).

The function that is listed above is to find the chunk of employees with a group of skill sets required for a project in a very fast and flexible manner.

Some of the smart human capital management systems have established skills as a factor in the training courses required by the workforce and the skills get automatically assigned after successful completion of the training and the assessment. In some cases, AI has fully penetrated the HR systems and as such modern HR systems, such as BizMerlinHR, are able to automatically compute the skill levels, and recommend training courses offered to the workforce. The examples can vary from obvious ones, to less obvious recommendations. For example, if a manager has already successfully finished a training, then the sequel training of the first training may be recommended to the manager. Similarly, the system may be able to infer that many other managers with similar years of experience have taken a certain training course, and hence recommend that to a new manager, who may have otherwise been unaware of the course.
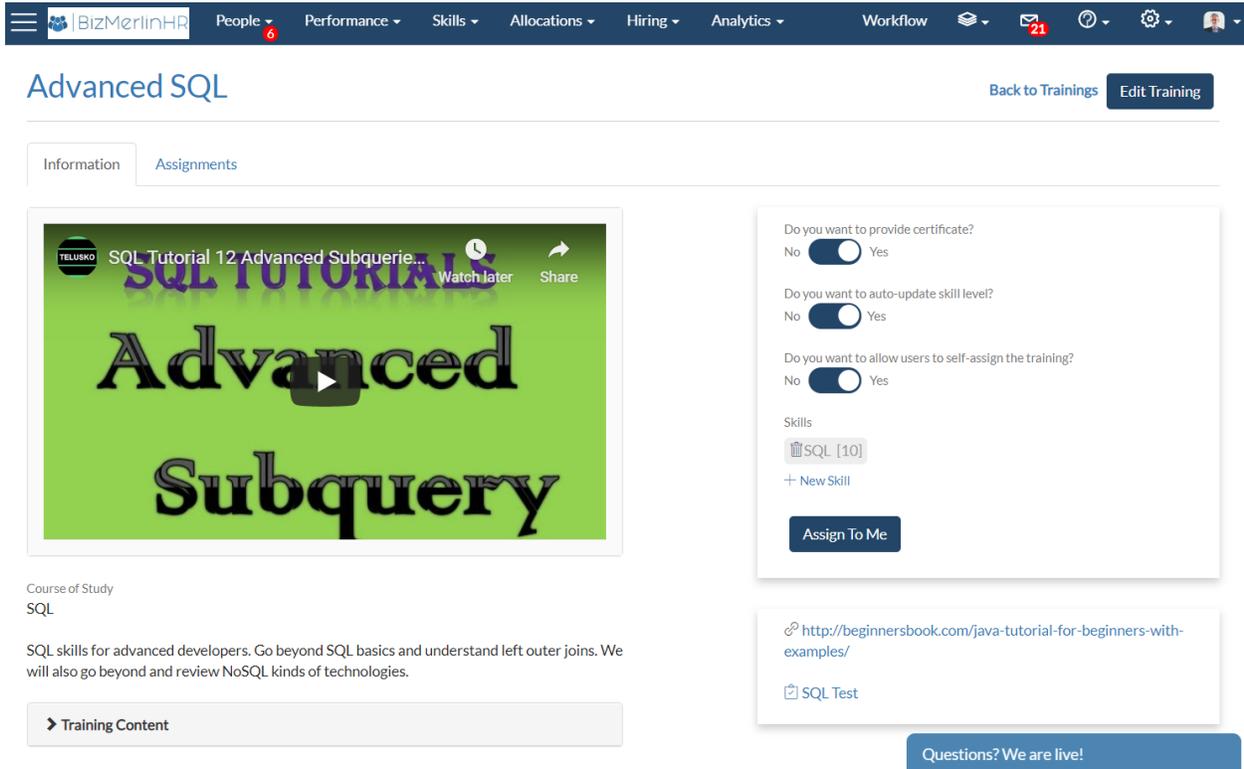
2.1 Storing User Skill Attributes

The storage of various skill attribute is important for getting good search results:

- name: Unique name for a skill in the database e.g. JAVA, PHP
- type: Group in which this skill is used e.g. Development, Quality Analysis
- description: Description about the skill
- level: Scale of expertise (Beginner, Intermediate, Advanced)

2.2 Associating Training Courses with Relevant Skills

For maximizing the automation available with today's software, it is extremely helpful if the training courses are tied to relevant skills, and also outline the skill level that can be said to be achieved by the

learner when the corresponding training and the assessment test are completed. As an example in the attached snapshot, the training is associated with skill "SQL" with a level 10.

3 Skill Assessment

3.1 Ongoing Skill Assessment (Hire to Retire Journey)

The association of the skill with the individual can begin as early as the candidate is created and the resume is parsed for the required skills. If the said candidate is selected and hired by the company, those skills information need not be lost, but are rather "brought over" to the corresponding user record. Skill assessments can be done during the time of performance reviews, dedicated sessions can be conducted on a periodic (annual or semi-annual) basis or with the training courses assigned. When the employee applies for promotion or is promoted, the skill levels can be reviewed and updated, and finally when the person retires, the skill levels can again be used in effective succession planning. This is often referred to as the "hire to retire" tracking of employee skills.

3.2 Automatic Updates

The power of automation in organizations comes in when skill levels can be automatically computed using performance reviews, trainings and feedback/praise. These automations can be enabled in modern skill management software applications, and often provide many configurable choices where the operator the system can exercise due diligence while enabling the automations.

3.3 Specific Use of Skills in Effective Succession Planning

A comprehensive skill assessment also feeds the candidature proposals at the time of succession planning.

4 Supporting Technology Components

As outlined in the preceding sections, many technology components are available today to guide the skill management process. In this section, we review a couple of key components.

4.1 Visualization of Skill Matrix

A common visualization of skill matrix is in the form of a two-dimensional matrix (Employees and Skills). Depending on the specific needs, sub filters for skill types, and employees can be provided.

Filter users by selecting Department, Project Group and Projects.   Filter skills by using Skill Type.

Department: All   **Project Group:** All   **Project:** All   **Skill Type:** Development   ← Previous | Next →

Skills → / Users ↓	Java	PHP	Spring MVC	jQuery	RoR	AngularJS	CSS3	Node.js	AWS	jMock
Aaron Blash	9 (Perfect)	10 (Perfect)		6 (Average)		10 (Perfect)	6 (Average)		6 (Average)	5 (Average)
Alistair James	10 (Perfect)			2 (Poor)	10 (Perfect)		10 (Perfect)			7 (Average)
Anita Williams		7 (Average)		10 (Perfect)				10 (Perfect)		5 (Average)
Bob Cofod									10 (Perfect)	
David Balash	10 (Perfect)		10 (Perfect)	7 (Average)		10 (Perfect)			10 (Perfect)	8 (Perfect)
Kevin Kelly		9 (Perfect)								
Kusti Franti	10 (Perfect)		10 (Perfect)			8 (Perfect)				

4.2 Filtering and Searching

The primary functionality of skill matrix is to find the employees with a particular skill type required for a project.

Your organization's summary
14 skill defined in 5 skill type.
13 user with skills defined.
6 do not have any skills defined.

Next steps
Search for users by skills
See skills for Project All
See skills for All
View your skills.
View the skill matrix for entire organization.

Top skills
jQuery (6)
PHP Programming (6)
French (6)
Amazon Web Services (EC2/RD, etc) (5)
Spanish/Espanol (5)

5   Key Takeaways

Organizations that invest in having a robust skill management process stand to gain from improved employee utilization and satisfaction. Many tools and processes exist in today's market to aid you with a comprehensive skill management program for your organization. More information on skill management process can be found at https://www.bizmerlin.com/skill-management/.

References

1. A Practical Knowledge-based Approach to Skill Management and Personal Development by Wolfgang Hiermann, Max Hofferer – Journal of Universal Computer Science, 2003
2. Skill and Competence Management as a Base of an Integrated Personnel Development (IPD) – A (2003) by S Beck, Journal of Universal Computer Science.