Embedded Self Organizing Systems

Using Talent Management to Train and Develop Employees in the Mining Industry

Narantsatsral Yura
Graduate School of Business
Mongolian University of Science and Technology
Ulaanbaatar, Mongolia
narantsatsral.hr@gmail.com

Ayush Andryei
School of Business administration and Humanities
Mongolian University of Science and Technology
Ulaanbaatar, Mongolia
ayush@must.edu.mn

Abstract*—The business environment is rapidly changing and in order to create a competitive advantage in the market, organizations are facing the problems of attracting highly skilled employees, hiring and training the right people for specialized jobs, and effectively managing the talent pool and succession pool. In the 21st century, when advanced technologies such as artificial intelligence, big data, robots, and automation are exploding in the labor market, some jobs are disappearing and new careers are being created, organizations need to prepare employees for these changes. Therefore, by studying the experiences of foreign and domestic organizations that implement talent management in conjunction with learning and development in large organizations of the Mining industry in Mongolia, the goal was to study the importance of retaining and engaging employees with special skills, properly evaluating and developing their capabilities, and the possibility of productive work. In the report, "9 grid boxes for talent management and identifying talented employees", CIPD (Chartered Institute of Personnel and Development) Professional Map, Professional Standards V2.4 skills mirror, "Skill matrix" model (2020), Mercer CED (Cullen Egan Dell), skill matrix job-functional analysis, DACUM, SCID, ISO TS 30428:2021 Skills and capability metrics, ISO DIS 30422:2021 Learning and Development, Competency standards, etc, it is concluded that Learning and development of employees with special skills should be implemented effectively in accordance with the business characteristics of each organization and the position, diversity, and generation characteristics of the employees.

***Keywords*—skill matrix, competency standard, learning and development, 9 box grid, talent management**

I. INTRODUCTION

One of the indicators that shows the competitiveness of the organization is the main resource, talent and potential employees. The third and fourth industrial revolutions, with the widespread introduction of automation, required employees with special skills [1].

Attracting, developing and retaining exceptionally skilled people is the foundation for an organization to have happy, human resources that serve the public good at their best. In order to continuously improve operations in this competitive AI and technology century, organizations need to develop unique skills that can support new leadership, skill development, and succession planning [2].

The training and development programs that are implemented to increase the skills are aimed at improving the special skills of the employee, and the employer can use it to increase the attractiveness of the organization [3].

It is necessary to develop and implement a talent management policy document that is compatible with the organization's vision, mission, values, and business plan, as well as reflect it in the human resource standard policy document. A competency matrix based on Competency Standards has been developed due to the need to properly assess and determine the potential of talented employees in the implementation of talent management.

The main purpose of the report is to develop a methodology for assessing the competencies required for the introduction of talent management in the selected organization, and to develop a training and development model for evaluating and empowering the skills of supervisor and managers.

It should have been “AI is being used to identify and identify employees with exceptional skills, making it more effective than ever before”. In Mongolia, AI recognition and development activities are just beginning.

II. TALENT MANAGEMENT

Modern technology must be incorporated into the training and development of our ever-changing workforce. For this reason, artificial intelligence technology has become one of the most important tools for implementing exceptional talent management. Artificial intelligence is playing a huge role in empowering and transforming the way companies operate around the world today. According to a Semrush blog survey, 54 percent of executives said that implementing AI in employee training and development has increased productivity. AI makes it easier to take advantage of technology for reskilling and bridging the skills gap. Companies can use learning management systems (LMS software), learning platforms (LXP), and other tools to address the skills gap. Such systems offer in-depth content and MOOCs (massive open online courses) to help employees develop specific skills [4]. Therefore, the process of developing skills, providing training information, and nurturing characteristics has become important to help employees become more productive and efficient at work [5].

The need for organizations to be as competitive internationally as possible has increased dramatically,

creating many strategic opportunities for human resource management. This opportunity began to develop in the late 1990s with the emergence of the challenge of "global talent management" [3].

Talent management is an integrated set of processes, programs, and cultural norms implemented to attract, train, develop, place, and retain talent to meet an organization's strategic goals and meet future business needs [6].

Large multinational companies and companies with international branches have begun to face the need to properly organize their skilled and talented employees and human resources like other resources. As defined by McKinsey & Company, TALENT is: The sum of human abilities repetition which is an internal gift that a person is born with, as well as skills, knowledge, experience, intellectual ability, analytical ability, attitude, character and inner energy is defined as the sum of forces [7].

As a result of the rapid development and expansion of many companies due to the rapid development of the global economy, organizations continue to fight for talented employees to attract, select, train, develop and retain talented employees. Although this appears to be a global problem, the war for talent in Mongolia has become one of the most important issues in the Mining industry.

III. METHODS

Competency matrix and competency standards were used to develop a version of the talent management model and evaluate the skills of employees.

The skills matrix is a comprehensive evaluation matrix table that summarizes the basic indicators of the skills required for employees to work in a certain position and to perform the work at the level of technical and non-technical-soft skills, and is one of the important tools of human resource management.

When evaluating employees according to the skills matrix, the requirements are defined in advance, and the employee evaluates himself according to those requirements and presents them to the management. The management can also conduct the evaluation and discuss it with the employee to make a final result.

A well-designed and implemented skill matrix or competency standard will provide a clear picture of how employees can develop themselves, in addition to being used by HR functions. There will also be opportunities for training and development activities based on real needs.

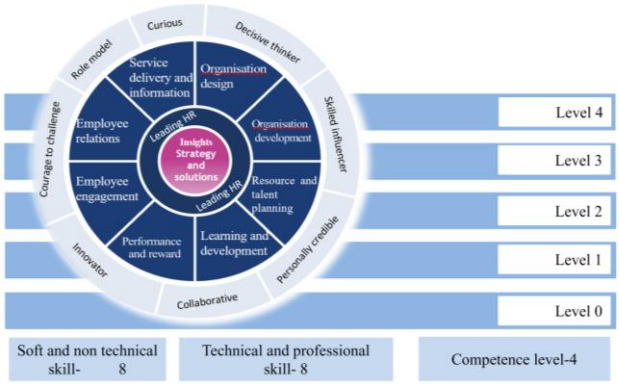
The SCID methodology for developing competency standards, or Job Responsibilities and Performance Analysis, is the most effective method for developing programs, learning guidelines, and training materials for determining competency standards and skill matrix data for each profession.

The main goal of the Talent Management policy is to ensure the continuous, stable and efficient operation of the organization, to protect against future human resource risks, to detect, evaluate, identify and train talented employees. Organizations mostly use the 9-box grid method to identify talent. This methodology is designed not only to evaluate the employee, but also to train, develop and prepare him for the appropriate position.

The large Mining industry in Mongolia, selected for the study has been in operation for more than 40 years and starting from 2021, a generation of the workforce will be changed due to the beginning of the next generation of development history. Many things needed to change. Realizing the requirements of this time, we set a goal to scientifically develop many new management options based on real research in order to harmonize them with traditional human resource policies.

This research work was taken from the supervisor and managers of a large organization operating in the Mining sector in Mongolia. A survey was conducted based on the Human Resource Skills or Competencies Index issued by the London Institute of Human Resources and Development, among front-line managers.

Fig. 1. Competency dictionary model (HRD)



Source: CIPD (Chartered Institute of Personnel and Development) Professional Map, Professional Standards V2.4, competency dictionary, competency standards

Based on the competency dictionary, the skills required to work in that position and to perform that job are assessed by the basic managers at the level of technical and non-technical skills. The assessment is divided into the following 4 levels.

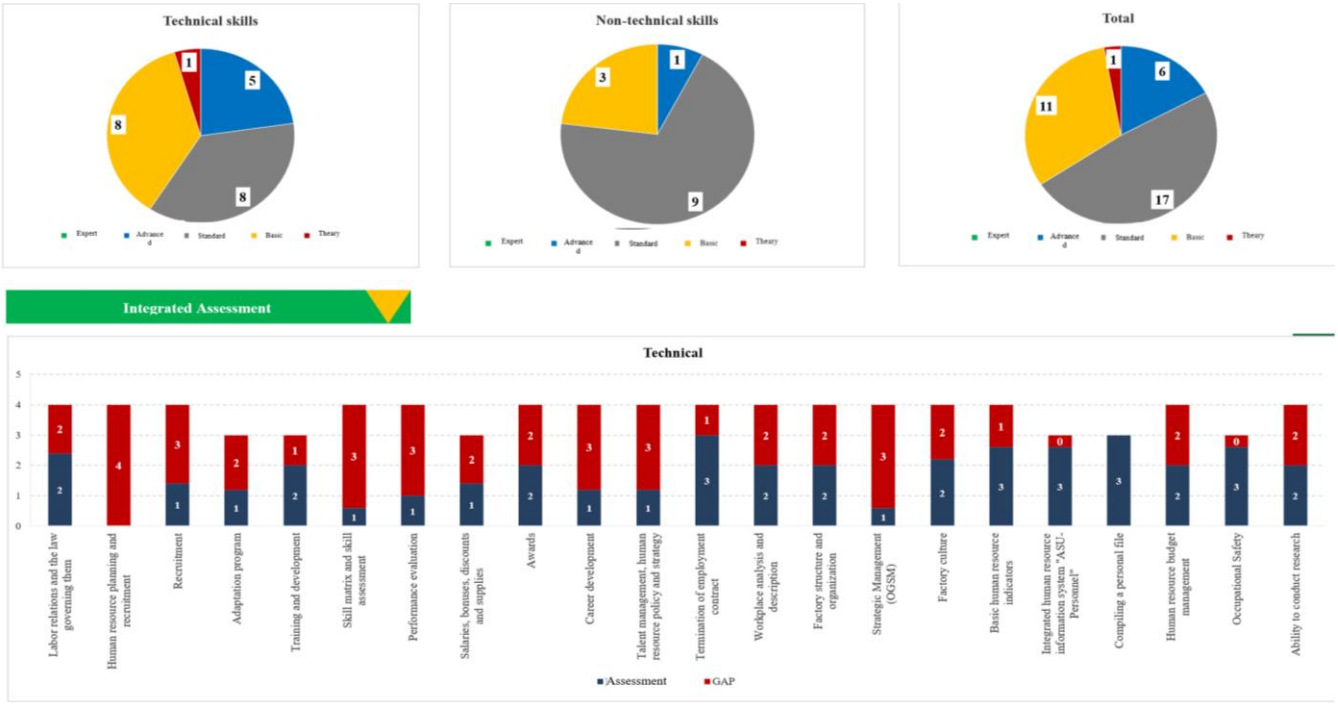
TABLE I. ASSESSMENT LEVELS

Evaluation	Level	Explanation
0	Theoretical	Only theoretical knowledge, no work experience.
1	Basic	Learner or have little work experience and basic theoretical knowledge.
2	Standard	Experienced and able to work independently.
3	Advanced	Able to work at a developer or advanced level.
4	Expert	Able to teach and train others in that skill.

A model has been developed that graphically reflects the general and professional skills requirements for each primary management official, comparing them with their current skills, and making it easy to see the summation of the skill evaluation by 4 levels. The next figure shows the level at which each skill is present and the gap (GAP) of each skill. With this summative assessment, the employee reviewed the skills and how to develop them, and included them in the personal development plan.

By clearly displaying each assessment, the goal is to make it easier for the employee to compare the skill gaps and work together. The graph is designed so that it changes with each assessment.

Fig. 2. Skill level assessment



Source: Developed by the researcher

By developing a competency matrix for each supervisor and managers of a large organization in the Mining industry, the technical and non-technical skills were classified and the level and difference of each employee's competency was determined. 19 types of general skills were defined and integrated in accordance with the Vision, Mission and Values of the selected organization.

Therefore, in order to improve the systematic development of these skills, a personal development plan template is being developed and implemented.

Competency-based development program based on the development plan of each entry-level executive should be implemented and phased actions should be taken to measure competencies

9 box grid to discover the special skills of the employee

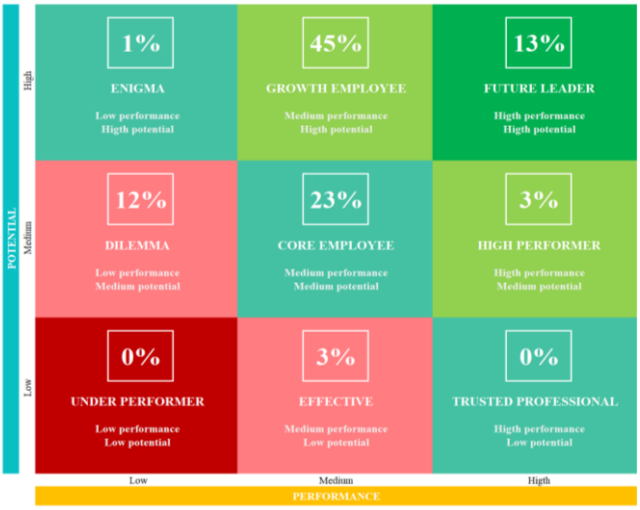
The skill level was determined using the skill matrix, and further steps were determined by assessing the potential and performance of the supervisor and managers of the Mining organization using the 9-box grid method to detect the special skills of the employee.

The employee evaluation box grid is divided into 3 groups, and depending on which group the talent employee is placed in, the time for further training and development and promotion to the next position is different.

100% of the matrix of skills or competences suitable for the occupations and positions of the supervisor and managers of the Mining organization was developed, and 99% of them were evaluated.

The evaluation of the skills, potential, and performance of the evaluated employees is shown separately. 59 percent of all participants were assessed as having high potential, 38 percent as having average potential, and 3 percent as having low potential.

Fig. 3. Total number and percentage of the participants in the 9-box grid



Source: Developed by the researcher

Considering the average performance evaluation of all participants in 2021, 16 percent of employees were evaluated as high performers, 71 percent as average performers, and 13 percent as low performers. The following summative results were obtained by evaluating the potential and performance by the 9-box grid method.

From the summary above, 61 percent of the TOP TALENT group, or GREEN color, are registered talented employees who need to be identified as a priority, offer special training and development programs, provide health programs, work-life balance, and prepare the next successors.

24% of the FUTURE TALENT group are future talented employees, so it is necessary to focus on the direction of training and development, as well as the right management leadership.

FOCUSING TALENT GROUP or 15 percent employees located in Red, it seems necessary to pay more attention to whether they are properly evaluated, assigned to the right position, and the satisfaction of the employee. It was concluded that it is necessary to pay attention to the characteristics of employees who are located in each of the 9 box grid when managing improvement by taking psychological research. There was a need to develop lateral and out-of-the-box thinking to change employee mindsets.

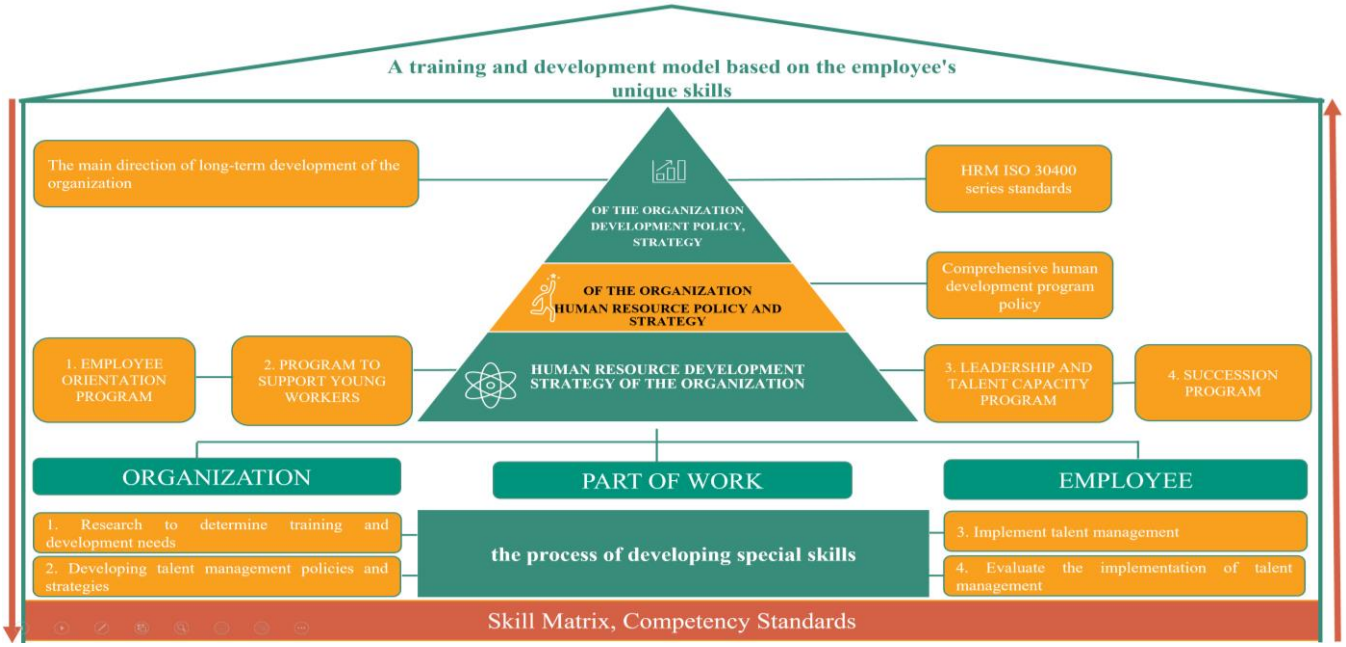
IV. RESULTS

Based on the evaluation of the skills of the supervisor and managers personnel of the Mining organization, the training and development needs based on the respective competencies were defined for each cell.

It was concluded that the training and development needs of the supervisor and managers located in the 9 box grid are different, so it is necessary to develop them in a different way according to their characteristics.

Based on the 9 box grid research to evaluate the skills matrix, level of competence, and special skills of the supervisor and managers, the following model was developed that integrates the comprehensive Human Resource training and development program with talent management, which is reflected in the organization's policy and strategy (Figure 4).

Fig. 4. Training and development model based on talent management



Source: Developed by the researcher

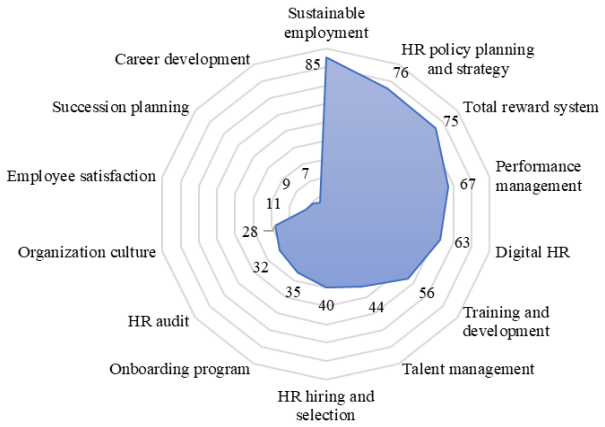
Training and development model based on talent management

The training and development model of the Mining organization based on the talent employee was determined within the development strategy of the organization. First of all, when deterMining the policy and strategy of the organization, the main direction of the selected Mining organization until 2031 and the international HRM ISO 30400 series standard were coordinated.

There is a need to change and update the human resource policy in line with the development and goals of the organization. After defining the policy and strategy of the organization, when deterMining the policy and strategy of Human Resources, a survey was conducted from the supervisor and managers of the Mining organization, and based on the psychological and behavioral survey of all employees, it was decided to implement a comprehensive Human Resources program.

The duties and responsibilities of 71 supervisor and managers of the Mining organization were studied in 14 directions, and a total of 455 questionnaires were obtained, and the overall rating was 45 percent. Of these, the lowest rated are Training and Development, Talent Management, Training, Adaptation, Organizational Culture, Employee Satisfaction, Succession, and Career Development (Figure 5).

Fig. 5. Research on the implementation of talent management



Source: Developed by the researcher

Based on the research, it was concluded that the organization's capabilities will be improved if the organization's human resources development strategy is developed. These 4 programs are successfully implemented as the first in the Mining industry.

- **New employee orientation and onboarding program.** It aims to quickly adapt to the organization, increase productivity in a short period of time, and integrate into the organizational culture.
- **Program to support young workers**. Due to the generational difference and age structure, young employees are increasingly employed, so there is a need for psychological preparation, knowledge and skills improvement. 39.4 percent of all employees are young employees aged 18-35. The number of employees retiring is expected to increase by 30 percent in the next 5 years.
- **Leadership and Talent capacity program**. 40 percent of Mining executives lacked leadership skills, and 72 percent of respondents believed that they needed to participate in leadership programs. In the future, there was a need to identify and systematically develop talented employees.
- **Succession program.** According to a psychological survey of employees aged 43-60 years of Mining organizations, 68.2 percent of employees believed that a program for employees close to retirement is necessary, and 84.2 percent believed that psychological preparation for retirement is important. Due to the increase in the number of employees retiring due to the age structure, there is a risk that the organization will be short of talented employees if they do not prepare the succession of other talented employees.

Thus, in order to implement all the programs, it was considered optimal if employees work in 3 areas in an organizational manner.

- **Organization**-Increase the support, involvement and understanding of Organizations-Managements team
- **Part of working group**- appointed each task force to lead the task force and evaluate skills, leadership, experience and interests.
- **Employee**-all potential, talent employees of the organization will evaluate the results by setting open the opportunity and criteria for participating in the program.

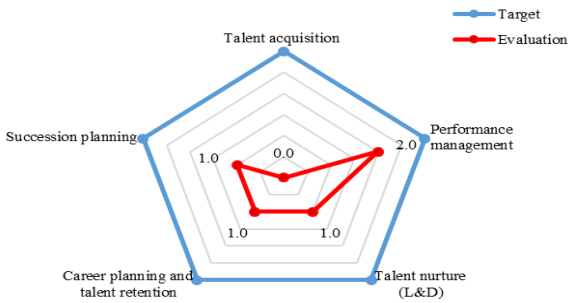
The next important part of this model is the process of implementing talent management. It includes:

1) Competence standard, SCID DACUM, skill matrix, and 9 box grid methods were used for research to determine training and development needs.

2) In order to align the talent management policy and strategy with the organization's human resources policy and strategy, we conducted a Talent management audit, the experience of implementing talent management internationally, the problems and difficulties in implementing it in Mongolia, and how to implement it as an organization, and the Talent Management policy of the Mining organization, the strategy is defined.

In the audit of talent management, it was concluded that talent and potential employees are not attracted from the labor market, internal training and selection is not done, there is no system for identifying skilled employees, training and development is not uniform, career development is not optimized, and the succession plan is implemented at the initial level (Figure 6).

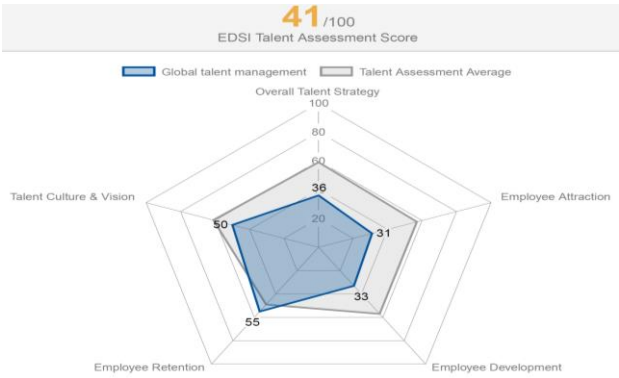
Fig. 6. Talent management audit evaluation



Source: Developed by the researcher

Also, the following results were obtained when evaluating the 31 questions to determine the implementation of talent management developed by the International EDSI. The gray area shows the average performance of talent management in general organizations. The blue part was evaluated with 41 points out of 100 points in the talent management indicator of the primary management of the Mining organization (Figure 7).

Fig. 7. Evaluation of Talent management implementation



According to the above research, the lowest parameters are Employee attraction, Employee Development, and Talent strategy. This highlights the need for policies and actions to attract talented employees and promote your employer brand. The most important basis for the implementation of policies, strategies, processes and development programs of the Mining organization was competence (knowledge, skills, attitude - Skill, knowledge, attitude SKA). developed a systematic development model with the help of By conducting research on training and development, optimal training and development needs based on the needs of each employee will be obtained. In this way, the organization will have the opportunity to spend efficient training and development costs, save time, and increase productivity.

As the downward arrow considered in the talent management model, the organization's policy and strategy are

implemented in the human resource policy, strategy and human resource development strategy, so that the contribution, value, skills, and development direction of each employee can be clearly seen.

The upward arrow considered in the talent management model suggests that the organization's human development strategy, human resource policy, strategy, and organizational policy strategy can be fully implemented by forming and developing the organization's team with employees with special skills that meet the needs of the organization.

V. DISCUSSION

The talent management model is about having the right people in the right places in the organization and being responsible for developing leadership talent as an executive. This is one of the best legacies any income can have [8].

The proposed talent management model for the Mining organization will help to successfully implement the organization's policies and strategies with the employees required to meet the new business challenges. By implementing the talent management model, the Mining organization will have the following opportunities. It includes:

- Linking the quantity and quality of leadership required to implement organizational policies and strategies.
- To identify employees with the highest leadership potential in the organization.
- Evaluating the skills of employees.
- To intensify the development of special skills and improve the quality of executive management.
- Focus on training and development of personnel with exceptional skills.

In the development of the version of the talent management model, skills matrix and competency standards were used to assess the skills of employees, as well as methods such as 9 grid boxes, talent audits, work function and talent management implementation research.

In 2022, the researched Mining organization continues to implement the development model based on the special skills of employees. During the research to develop the model, for the first time in Mongolia, competency standards and skills matrix were developed for 584 workplaces, training and development needs were optimally identified and implemented. Also, due to the orderly selection of participants in 4 comprehensive human resource development programs, the need for staff development and participation in the program has increased 3 times from the previous year and became more competitive. The Mining organization has a policy document for evaluating and training talent employees.

The special skills management model developed by us comprehensively reflects the possibility of solving the problems faced by all organizations operating in Mongolia, so it can be used by organizations of any industry.

CONCLUSIONS

This research is characterized by the systematic development of international research and trends in talent management, the organizations implementing talent management in Mongolia, the challenges they face, and the necessary skills and development needs.

By having a competency or skill matrix model suitable for each position of each primary management employee of the Mining organization, it became possible to develop a training and development program based on the competencies of each primary management, systematically develop employees and measure the results of the development process. Also, the Mining organization has created an employee skill pool.

With the possibility of developing a training program based on special skills to systematically and optimally develop the skills that arise from the differences in the competencies of the primary management staff of the Mining organization, wasteful costs will be reduced in the organization, it will be possible to calculate the ROI of the training, and the employees will be able to develop systematically.

It is believed that the development of a version of the Talent management model, which integrates the policy and strategy of the Mining organization with the comprehensive human resource training and development program with talent management, can be used by organizations of any industry operating in Mongolia.

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