

Training Mode for Professional and Technical Talents in Oil Enterprises—Taking Well Engineering Talents as an Example

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Abstract: The reform of state-owned enterprises has put forward higher requirements for well-engineering production, and there is an urgent need to achieve its own progress and development by adopting corresponding institutional and mechanism reforms, management model innovations and technological advances. The construction of a professional and technical personnel training model for petroleum enterprises can enable the comprehensive quality of internal professionals to be quickly enhanced and fully utilised, thereby improving the economic benefits and technological innovation capabilities of the enterprise. In this paper, we take the actual situation of domestic oil companies as an example and propose a triple ladder talent training model as well as a diversified talent training model to solve the problem of "technical discontinuity" within the enterprise and better adapt to the domestic reality. It has become a major focus of the institutional reform of the "oil companies".

Keywords: Well engineering talent; talent training; triple ladder talent development; diversified talent training

1. Introduction

Since June 2020, when the Central Development and Reform Commission considered and adopted the "Three-Year Action Plan for the Reform of State-owned Enterprises", the reform of state-owned enterprises has been carried out step by step from point to point, gradually expanding in scope and accelerating in depth, with the oil and gas industry bearing the brunt of this reform, and the top-level design has put forward higher requirements for the solution of well engineering production^[1]. China's oil and gas industry is facing multiple challenges such as the "double carbon" target, energy substitution, energy conservation and emission reduction, as well as dramatic fluctuations in the international oil and gas industry, and urgently needs to achieve its own progress and development by adopting corresponding institutional and mechanism reform, management model innovation and technological progress^[2].

As an important state-owned key enterprise, oil companies have been comprehensively implementing the Party's organisational line in the new era since the 13th Five-Year Plan, solidly promoting the construction of leadership teams, cadres and talent teams, and continuously deepening the reform of the three systems, which has achieved obvious results. In addition, professional and technical personnel play a vital role in research and development, technological innovation and the promotion of industry development. Therefore, for the long-term development of enterprises, it is necessary to continuously explore ways of training and upgrading internal professional and technical personnel in order to maintain the long-term vitality of enterprises and promote their long-term development. Therefore, based on the actual situation of state-owned petroleum enterprises, this paper takes well engineering talents as an example and analyses and plans the progression of well engineering talents from two aspects: triple ladder talent training mode and diversified talent training mode, so as to provide ideas for the cultivation of professional and technical talents in domestic petroleum enterprises.

2. Theories Related to Talent Training

Modern corporate training refers to the theory of continuous improvement of job performance training through the training of employees in various areas such as knowledge, skills and attitudes to improve their personal capabilities and match them with the requirements of their jobs [3]. As management theory evolved, traditional corporate training gradually evolved into behavioural science theory until the 1960s, when training entered the period of systems theory. The aim of training in the traditional theory period was to improve the individual skills of employees, but in the behavioural science theory and system theory period, in addition to focusing on the training of individual skills of employees, it was more important to focus on the relationship between the individual and the team, and to consider the organisation as an open system, raising training to a strategic level training system, emphasising the systemic nature of the training system [4].

Training systems have evolved as HR training theory has been enriched and improved. A training system refers to the process of arranging trainers, training courses and trained employees to achieve corporate training objectives, ensuring that employees can improve their personal capabilities and skills and enhance their job suitability through training [5]. Generally speaking, a perfect training system is usually composed of four parts: "needs analysis", "plan formulation", "training plan implementation" and "effect evaluation". "The four components are shown in Figure 1.

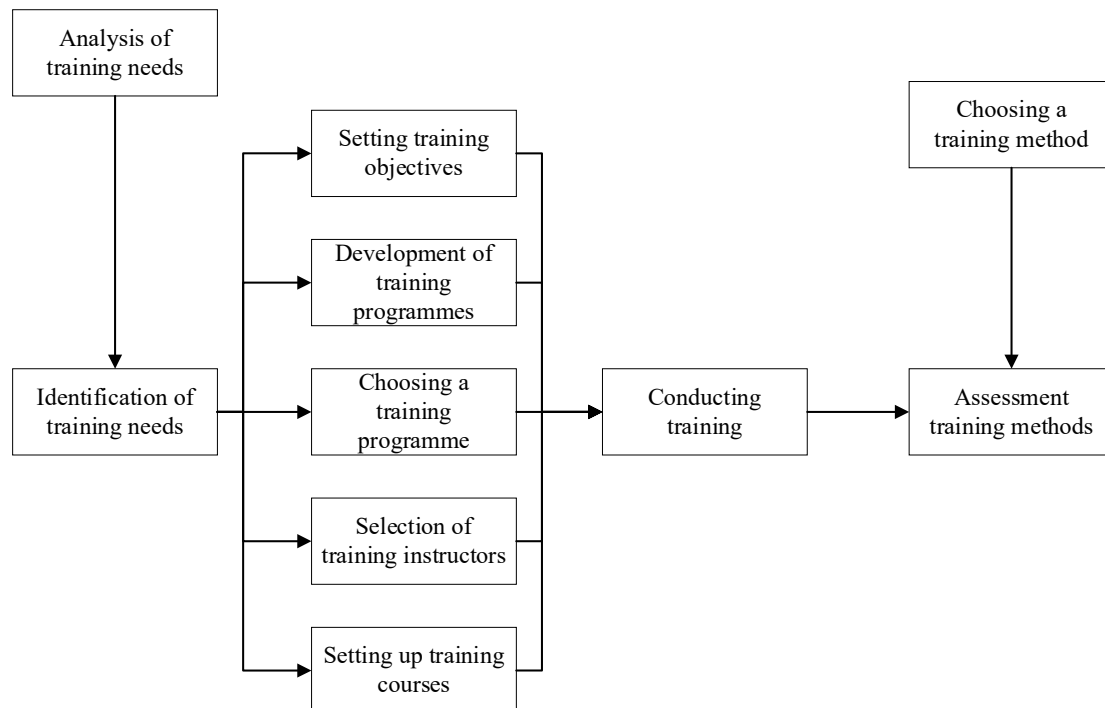


Figure 1: Training system composition

Modern society is in a state of rapid development, and the development of corporate strategy and corporate training is necessarily in a dynamic process [6]. A review of the development of training in the world reveals the following trends:

(1) Continuous corporate training. Lifelong learning has become an important concept for the development of employees and the development of the enterprise itself, emphasising the continuity of learning.

(2) Combining training with corporate strategy. Combine the development strategy and characteristics of the enterprise to develop a reasonable and effective training model to meet the development needs of the enterprise.

(3) Diversification of training forms. From E-learning to experiential training, it makes the personnel structure and training forms of modern enterprises more diversified.

(4) The effectiveness of training methods. Talent competition has become an important factor affecting the competition of enterprises, and as one of the important means of talent training, training has become an important prerequisite for enriching enterprise talent resources and strengthening

enterprise human resource management. Only effective training system construction and implementation can help enterprises stand out in the fierce competition and achieve the strategic goal of sustainable development.

(5) Focus on the sense of participation of employees. Training in modern enterprises has become an important factor affecting the performance of enterprises and employees, and the career planning of employees. Training in modern enterprises is no longer a kind of welfare, emphasising the participation of all employees in the enterprise.

3. Exploring Well Engineering Talent Training for Oil Companies

As an indispensable factor of production, professional and technical personnel are also the core resources of an enterprise. In order to achieve rapid improvement in economic efficiency, enterprises must pay attention to the training of professional and technical personnel. As the main force of professional and technical talents in oil companies, the problem of "technical discontinuity" is worthy of attention. Oil companies need to give full play to the role of technical experts to "pass on, help and lead", train their own well engineering management talents for the long-term development of the company and build up Oil companies need to give full play to the role of technical experts to "pass on, help and lead", cultivate their own well engineering management talents for the long-term development of the company and establish their own well engineering management ladder, so as to improve management efficiency and enhance the scientific nature of technical decisions, thereby establishing a triple ladder talent training mechanism and diversified training mode for state-owned oil companies.

3.1 Three-tier Ladder Talent Development Model

The three-tier ladder talent training model divides the talent within the enterprise into three categories, and provides targeted training and exercise for these three categories of talent in the form of ladder training and progressive advancement. According to the "leadership ladder model", there is a natural hierarchy in an enterprise due to the different age, length of service and skill level of employees^[7]. Managers at different levels of the hierarchy have the leadership qualities, competencies, professional skills and organisational skills corresponding to their respective positions and responsibilities. The Group's triple ladder is therefore divided and categorised according to its natural state within the company, and Table 1 shows the division of the triple talent ladder.

Table 1: The three-tier talent ladder

Ladder division	Length of service restrictions	Title restrictions	Project requirements
Youth reserve	3 years or more in a subordinate position	Staff title and above	--
Mid-level reserve	5 years (2 years for Masters) or more in well engineering and 3 years or more in a subordinate job	Intermediate title or above	Participate in the completion of provincial and ministerial level scientific research and production projects, or participate as a technical core member in more than 2 scientific research and production projects at bureau level
Elite reserve	More than 8 years in professional and technical work (more than 2 years for PhD, more than 5 years for Master), 3 years or more in subordinate positions	Associate senior title, intermediate title for at least 5 years	Presided over or participated in more than 2 provincial and ministerial level projects, key projects, major technical programmes or 3 bureau level research and production projects

This triple talent ladder are: "Youth reserve ", the main composition is to have the title of staff level or above, the lower level of work for 3 years or more related personnel; "Middle reserve ", the main composition is to have the title of middle level or above, engaged in well engineering work for 5 years (2 years for master's degree) or more, and work in the lower level work position for 3 years or more, and participate in the completion of provincial and ministerial level scientific research and production projects, or as a technical core member to participate in the bureau level scientific research and production projects more than 2 related personnel; "Elite reserve", the main composition is to have a deputy senior title, intermediate title for more than 5 years, engaged in professional and technical work for more than 8 years (more than 2 years for doctorate, more than 5 years for master's degree), working

for 3 years or more in subordinate positions, and having presided over or participated in more than 2 provincial and ministerial level projects, key projects, major technical programs or 3 bureau-level scientific research and production projects related personnel. The three-fold ladder training programme conducts a comprehensive assessment and re-selection every year, and continues to train if the assessment meets the conditions, and eliminates from the ladder if the relevant training requirements are not met after the assessment and evaluation. The three-tier ladder training mode, from the objective reality of the Group's internal talent development path to make a clearer planning, not only for the staff's personal career development to point out the direction, but also for the enterprise to achieve the best talent, the basis for matching people and jobs.

3.2 Diversified Talent Training Model

Table 2: Training methods for well engineering personnel

Training methods	Applicable persons	Advantages	Disadvantages
Master with pupil	<ol style="list-style-type: none"> college graduates in the last 3 years. people who have changed jobs in the last 2 years. core members of the capacity development target. 	<ol style="list-style-type: none"> apprentice can enrich his/her practical experience The apprentice's ability can be quickly improved and he/she can be familiar with difficult problems in well engineering projects Avoiding the risk of a break in generation keep the well engineering talent alive 	—
Related Well Engineering Training Manual	<ol style="list-style-type: none"> college graduates in the last 3 years. Transferred staff in the last 2 years. 	<ol style="list-style-type: none"> More systematic training of well engineering personnel Avoiding reduced efficiency due to repetitive questioning of basic issues by junior staff 	<ol style="list-style-type: none"> Slow resolution of difficult and rare problems Little communication between professional and technical staff
Grassroots training	<ol style="list-style-type: none"> college graduates in the last 3 years. Transferred staff in the last 2 years. 	<ol style="list-style-type: none"> Extensive practical experience Quickly understand the whole process of well engineering projects 	The people involved may have no one to guide them when they encounter problems
Internal training	<ol style="list-style-type: none"> college graduates in the last 3 years. people who have changed jobs in the last 2 years. elite competence training targets. middle and high level technical personnel 	<ol style="list-style-type: none"> Enrich theoretical knowledge Learning from previous experience and accumulating for follow-up projects Facilitate internal members to communicate with each other and make progress together To achieve rapid promotion in rank 	Insufficient knowledge of the site

Practice has shown that training methods are closely related to training effectiveness. Different talents prefer different training methods, and if companies always adopt a single training method in the process of training activities, it will not only discourage the trainers, but also not conducive to the achievement of training objectives [8]. For well engineering-related personnel, oil companies can develop a variety of training modes and choose appropriate training methods based on training objectives, training target requirements, training budgets and other factors. Table 2 shows a comparison of training methods for well engineering personnel.

The most effective way to train technical staff is through mentoring, as well engineering is a highly practical project with diverse problems. In order to avoid repetitive questions and ensure high work efficiency, we can organise the compilation of relevant training manuals, and compile the basic and repetitive questions generated in the previous mentor-apprentice system to form a systematic training model for new recruits. The personnel section will assess each training, and if any technical staff excel in the assessment, they will be recommended to the Southwest Oil and Gas Branch's specialised talent training channel for focused training and rapid development.

Overall, teacher-apprentice, preparation of talent training manual, grassroots training and internal

training have become the main training methods for oil companies.

4. Conclusion

Under the "oil company" reform, well engineering talent training has achieved initial results, basically solving the problem of generation break, but still need to continue to improve the mechanisms and systems, improve the talent training cycle, so that all aspects of talent training complement each other, to fully match people and jobs, to play the effectiveness and effect of well engineering talent training system.

This paper takes well engineering talents as an example, combining the actual situation of the three major domestic oil enterprises to explore the professional and technical personnel training mode of oil enterprises, from the triple ladder talent training mode and diversified talent training mode in two aspects, forming a set of domestic oil enterprises in line with their own characteristics, and has certain characteristics of well engineering talent training mode. On the one hand, the comprehensive quality of in-house personnel can be fully utilised, while combining the experience of previous senior technical experts, to help well engineering management to judge risks and deal with complex failures in advance, improving management efficiency and the scientific nature of technical decisions. On the other hand, it can give full play to the role of technical experts to "pass on, help and lead", study and judge the effect of talent training, avoiding the problem of talent gap and providing ideas for the long-term development of domestic oil companies and avoiding the gap of skilled personnel.

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