Research on the Construction of Post Competency Model of Informatization Talents Based on Bimodal IT Mode Under the Background of Digital Transformation——Take a Power Grid Company as an Example

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Abstract. Under the background of digital transformation, the rapid development of information technology promotes the transformation of business model of power grid enterprises. The demand difference between traditional business and new business for information construction is gradually significant, which puts forward new requirements and challenges for the ability of information talents. Based on the theory of Bimodal IT and the theory of post competency model, combined with the current situation and characteristics of the informatization development of a power grid company, this paper uses literature research, workflow analysis, expert interview, questionnaire survey and other methods to build the traditional mode and the new mode of Bimodal IT talent post competency quality model, and analyzes the application of the model in the power grid enterprise, so as to it will lay a foundation for the construction and training of information professionals in the future power grid enterprises.

Keywords: Information talents, dual model it, post competency model

1. Introduction
At present, the development of power grid enterprises is facing a new situation. On the one hand, the rapid rise of information technology, such as "Cloud Computing, Big Data, Internet of Things, Mobile Internet, Smart City", and the acceleration of the introduction of digital ideas; on the other hand, the reform of power system has changed the traditional profit model of power grid enterprises to collect the purchase and sale price difference. Therefore, to continuously adapt to the development needs of the power industry and further improve market competitiveness, power grid enterprises need to actively explore the way of "digital transformation".

The trend of digital transformation is that "data" leads the business transformation. At present, in
the power grid industry, the traditional business involves the national economy and the people's livelihood, and the requirement of information system focuses on security, stability and reliability; the emerging business requires rapid response to market demand, and the information system needs to be more agile and fast. To meet the needs of the common development of the two businesses, we can learn from the Bimodal IT theory. However, it should be noted that different IT works modes have different requirements on the quality and ability of talents. Therefore, enterprises must resort out the ability and quality requirements of Bimodal IT informatization talents, to better support and lead the business development [1-4].

2. Theoretical basis

2.1 Connotation of digital transformation

According to the literature research, different countries, enterprises or institutions have different definitions and different emphases on digitalization and digital transformation, but the core contents are basically the same for details. The author believes that digital transformation is to use the new generation of information technology to build a closed loop of data collection, transmission, storage, processing and feedback, break through the data barriers between different levels and industries, improve the overall operation efficiency of the industry, and build a new digital economic system.

According to the research on digital change conducted by Deloitte touché Tohmatsu and MIT, nearly 90% of the more than 1000 CEOs interviewed believe that their enterprises are suffering from the destruction or transformation of digital business models, and nearly 70% believe that their enterprises do not have the appropriate skills, leaders or operational structures to cope with the changes [5]. The biggest challenge for enterprises to transform to digitalization is that there are not enough digitalized talents to support the future strategic development of the company. Therefore, it is necessary to re-examine the competency of digitalized talents and adopt new personnel training methods to meet the requirements of digitalized transformation of enterprises.

2.2 Bimodal IT theory

In 2014, Gartner Group, an American IT research and consulting firm, first proposed the concept of bimodal IT, which means that enterprises will have two different and coexisting working modes and scenarios, both of which are designed to develop and deliver information and technology intensive services.

The application degree of Bimodal IT at home and abroad is different, and the resistance of corporate culture is significant. According to Gartner research results, nearly 65% of enterprises in the world have implemented Bimodal IT, 23% of enterprises are uncertain whether to use it, only 12% of enterprises explicitly say they will not implement Bimodal IT; domestic Bimodal IT is in its infancy, most of traditional enterprises are using traditional IT mode, and nearly 40% of Chinese enterprises are uncertain whether to establish Bimodal IT.

2.3 Post competency model

The post competency model is a combination of the characteristics needed to be competent for a specific post or job, including behavioral motivation, ideology, personality, comprehensive ability, professional knowledge and technical skills, etc. at present; the iceberg model is more commonly used. The iceberg model compares explicit and implicit competencies such as behavior and quality to icebergs floating on the ocean. The iceberg model is divided into "above the iceberg" and "below the iceberg". The "above the iceberg" includes professional knowledge and technical skills, which are external and easy to understand and measure. The "below the iceberg" includes behavioral motivation, ideology, comprehensive ability, etc., which are internal and difficult to measure.

3. Current situation analysis
3.1 Current situation of IT working mode
This paper takes a provincial power grid company as an example to understand the current situation of its IT work mode. In the process of realizing digital transformation, the company has set up Bimodal IT in line with its own development, as shown in Figure 1. The traditional IT work mode is to realize the enterprise application demand, which is more stable and sustainable. It adopts the stable production line for development and design. The new IT work mode is to meet the innovation needs of enterprises. It mainly includes two centers, namely innovation center and regional center. The innovation center is responsible for the collection, analysis and distribution of needs; the regional center is responsible for the design, development, testing, deployment, release and operation and maintenance of needs, corresponding to the sensitive production line. Although a power grid company has set up a Bimodal IT working mode, the original talent system cannot match the business requirements of the new IT mode, and it still needs to be improved and improved.

![Figure 1 Schematic diagram of Bimodal IT mode](image)

3.2 Current situation of competency model of information posts
The competency model of informatization post of the company is composed of five parts, which are dimension, module, element name, ability definition and ability requirement. The dimension consists of three parts: knowledge, skills and potential. Knowledge includes basic knowledge, professional knowledge and related knowledge. Skills include basic skills, professional skills and related skills. Potential consists of general ability and identification ability. Each module is composed of multiple elements, and each capability element is defined, and then it is clear whether the capability element is required at all levels. However, there are two major defects in this model: first, the ability elements are not graded, which only indicates whether the relevant positions need the corresponding ability elements, and does not indicate whether there are differences in the corresponding ability of each level; second, it does not match the dual IT work mode, and the ability definition does not involve the information talent ability under the new IT work mode[6, 7].

3.3 Current situation of informatization talents development
At present, the company's informatization talent team has three major human resource advantages, such as high proportion of certificates, high education background and sufficient reserve of backbone strength. However, there are still two deficiencies. One is the relative lack of composite talents. Due to the complexity of grid enterprise informatization itself and the demand of digital transformation for cross field talents, informatization personnel should have both technical and business advantages
Knowledge, but at present, the company's informatization personnel are relatively lack of knowledge about power grid business, management, digital application technology and application, such as "Cloud Computing, Big Data, Internet of Things, Mobile Internet, Smart City"; secondly, the informatization personnel training is insufficient, and the new IT mode makes the demand for informatization personnel explosive growth, but the company's current post competency quality requirements are vague, which is difficult to identify and introduce to meet the company's digital transformation needs Talents seeking.

4. Model building

4.1 Model classification and stratification
According to the company's information Bimodal IT settings, and combined with practical application, the competency models of different working modes are classified and layered. See Table 1 for details.

| Function type       | Example                                                                 | Hierarchy                        |
|---------------------|------------------------------------------------------------------------|----------------------------------|
| Traditional IT model| Planning management post, enterprise management post, technology management post, contract management post, file management post, safety production management post, material management post | Special responsibilities of staff and assistant |
| Technology category | R & D construction post, operation and maintenance post, information security technology post, evaluation technology post, customer service post |                                    |
| New IT model        | Project manager                                                         |                                  |
| Technology category | Business analysis post, data operation post, development and construction post, operation and test post |                                  |

4.2 Competency model structure
According to the traditional IT model and the new IT model, the post competency model is constructed respectively.

4.2.1 Traditional IT model structure
In terms of the construction of traditional IT mode, considering that the company has always adopted the traditional working mode, the requirements of talent ability and workflow have not changed much. The author uses the method of workflow analysis to sort out the existing work responsibilities, decompose the process content, clarify the key points of each task, extract the competency elements, and build the traditional IT model.

A. Analysis task
Analyze and clarify the work nature and tasks of each responsibility one by one according to the post responsibilities, and form a work summary table from all work task lists.

B. Extract capability elements
Based on summarizing and classifying the work tasks of the post, divide the work fields.

C. Building competency model
Finally, on the basis of post analysis and ability factor extraction for all IT traditional mode posts of a power grid company, the competency model structure of it traditional mode posts is constructed by
4.2.2 New IT model structure

There are great differences between the new IT model and the traditional IT model. In order to build a new model of post competency under the new IT mode which is suitable for business practice, this paper, based on expert discussion and questionnaire survey, confirms the elements and models of post competency through factor analysis.

A. Expert discussion

By adopting the method of expert discussion, 15 members including company leaders, post skill experts, human resource managers and external experts are organized to discuss the knowledge and skills required by the new IT staff through face-to-face communication, to form the preliminary post competency factor, which is used to construct the new IT model questionnaire.

B. Questionnaire survey

According to the results of expert discussion, Likert 5-point scale was used in the preparation of the questionnaire. According to the description of the competency project, the respondents judged the impact on the employees' excellent performance, which was divided into very unimportant, unimportant, general, important and very important. 1 means "very unimportant", 5 means very important. The respondents of the questionnaire are information workers. 258 questionnaires were distributed and 216 were recovered, with a recovery rate of 84%.

C. Exploratory factor analysis

The results showed that KMO value was 0.82, the chi square value of Bartlett spherical test was 3172.2, P < 0.01. It shows that there are common factors among correlation matrices, which is suitable for factor analysis.

Secondly, principal component analysis is used to extract the factors. Through the maximum orthogonal rotation, five factors with more than one characteristic root are extracted, and the standardized factor load is significantly higher than the minimum critical level of 0.60 proposed by relevant research. The total variance interpretation rate is 85.262%.

D. Building competency model

Based on this, the five factors are named as knowledge, basic skills, digital skills, identification ability and general ability, to build a post competency model suitable for the new IT model.

4.3 Competency level description structure

4.3.1 Competency behavior description

The evaluation content of evaluation elements can be divided into four grades, which are expressed by ABCD. A stands for fully mastering and using corresponding tools, technologies and knowledge, making, planning and monitoring strategies, systems and projects, continuously innovating and improving, and influencing and cultivating others; B stands for mastering relevant tools, skills and knowledge, actively guiding others, and promoting process improvement and result optimization; C stands for being familiar with relevant tools and methods, basic operation and matching Complete the work independently according to the work plan; D representative understands the basic work requirements and knowledge and skills, but can't make judgment on sudden or abnormal conditions, and needs to complete the work under the guidance of others[8-10].

4.3.2 Determine evaluation level requirements

According to the results of literature research and interviews, and referring to the suggestions of relevant experts, determine the evaluation requirements of different levels on competency elements.

4.3.3 Determine the evaluation method

The main evaluation methods of competency elements in this study include: written test, interview, work case defense, official document test, on-site demonstration, management game, etc.
Taking the traditional mode technical posts and the new mode regional posts as examples, this paper presents the talent competency model of the dual mode IT work mode. See table 2 and table 3 for details.

**Table 2** Example of competency model of technical talents in traditional IT mode

| First-order dimension | Second level dimension | Three level dimensions | Assessment element | Evaluation content | Knowledge points/Skill point | Interpretation of evaluation content | Member | Assistant Specialist | Specific duty | Evaluation method |
|----------------------|------------------------|------------------------|--------------------|--------------------|-----------------------------|--------------------------------------|--------|-------------------|---------------|-----------------|
| Major                | Professional skills    | Basic skills           | Conference organizat ion and implementation capability | Evaluation content 1: meeting organization and implementation | Meeting organization and planning ability and implementation ability | Understanding (d) | C          |                    | C             | Work case defense / on-site demonstration |
|                      |                        |                        | Depth and implementation of work knowledge | Depth and implementation of work knowledge | Depth and implementation of work knowledge | Familiarity (c) | C          |                    | C             | Work case defense / on-site demonstration |
|                      |                        |                        | Be able to recognize the objectives and tasks of the work, and the implementation of the work often resides in the representation and process | Be able to recognize the objectives and tasks of the work, and the implementation of the work often resides in the representation and process | Be able to recognize the objectives and tasks of the work, and the implementation of the work often resides in the representation and process | Mastery (b) | C          |                    | C             | Work case defense / on-site demonstration |
|                      |                        |                        | Be able to analyze the tasks and objectives of the work, make plans and predict the existing problems | Be able to carefully analyze work tasks, grasp key points and take evasive measures for predicted problems | Be able to carefully analyze work tasks, grasp key points and take evasive measures for predicted problems | Proficient (a) | C          |                    | C             | Work case defense / on-site demonstration |

**Table 3** Example of competency model of regional talents in new IT mode

| First-order dimension | Second level dimension | Three level dimensions | Assessment element | Evaluation content | Knowledge points/Skill point | Interpretation of evaluation content | Member | Assistant Specialist | Specific duty | Evaluation method |
|----------------------|------------------------|------------------------|--------------------|--------------------|-----------------------------|--------------------------------------|--------|-------------------|---------------|-----------------|
| Major                | Digital skills         |                        | Operation capability of digital IT | Operation and maintenance of big data platform | Evaluation content 1: big data | Warning information analysis, fault | Understanding (d) | C          |                    | C             | Written test / work case defense / |
|                      |                        |                        |                       |                       |                             | Understanding the general scope of emergency | Familiar with general and typical emergency | Master the method of determining the | Proficient in the scope of emergence | |
5. Model application
The post competency model of Bimodal IT talents plays an important role in the selection, training, post allocation, performance evaluation and evaluation of informatization talents in a power grid. First, in the aspect of talent selection, through the construction of the post competency model of Bimodal IT talents, we can quickly identify the informatization talents suitable for the company; second, in the aspect of talent training, according to the knowledge and ability in the model, the power grid company can add competency courses based on the existing

| Potential | Discrimination power | Strain capacity | Strain capacity | Be decisive in dealing with problems; Be good at summing up experiences and lessons, and constantly improve the ability to respond to changes and solve problems |
|---|---|---|---|---|

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training platform, and make appropriate training materials and training plans. Third, in terms of post allocation, different posts need different competency and level requirements. Through competency model, corresponding posts can be matched according to different informatization talents' competency and ability. Fourth, in terms of performance appraisal and evaluation, the setting and scoring of performance appraisal indicators can refer to relevant elements and level requirements in the model, making performance appraisal more scientific and efficient Rationality.

6. Conclusion
Based on the theory of Bimodal IT and the theory of post competency, this paper constructs the post competency model of traditional IT model and new IT model through literature research, questionnaire survey, expert discussion, workflow analysis and other methods. Under the background of digital transformation, it meets the talent demand of traditional business and new business of information technology, promotes enterprises to establish a more reasonable and up-to-date talent system of information technology, which is of great significance for the construction, training and development of information technology talents in state-owned enterprises.

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