An Analysis on Intelligence Innovation with Spirit of Artisans Under Ubiquitous Network in Grid Enterprises

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Abstract. The paper discusses the relationship of spirit of artisans and intelligence Innovation. The survey shows that Intelligence Innovation has great contribution to organizational performance in an intelligent era. The survey from local state grid corporations shows that the interaction between the Artisan spirit and refinement process innovation under Ubiquitous Network in Grid Enterprises and organizational psychological empowerment acts as a significant moderator. This research provides useful tools for organizational intelligence innovation through the exertion of enterprise’ craftsmen examples.

1. Introduction
In 2013, “Industry 4.0” was put forward at the Hannover Messe. Since then, developed countries such as the United States and the United Kingdom have put forward intelligent manufacturing strategies. Made in China 2025, issued by the State Council in 2015, indicates that China is marching towards an intelligent era. Under this new background, craftsman spirit will play an important role different from the past.

This paper cites Space software to analysis the relevant literature published in the past and summarize the research overview of artisan spirit. Taking State Grid Corporation of China as an example, the paper attempts to build the dimension of artisan spirit, and study the influence of craftsman spirit on Intelligence Innovation, then to reveal the interaction between the Artisan spirit and refinement process innovation under Ubiquitous Network in Grid Enterprises, and to find out the way to improve organizational innovations.

2. Literature Review and Statement of Hypothesis
Domestic and foreign scholars have made a lot of explorations on the influencing factors of enterprise performance. Hu Jun et al., and Wu Dejun et al. pointed that hometown identity, characteristics of senior executives and environmental control standards all had affect corporate environmental performance. However, existing literature studies have shown that these factors do not affect the environmental performance of enterprises alone, but that multiple factors "interact" and jointly affect the environmental performance of enterprises. As an excellent traditional Culture of China, the spirit of craftsman has been highly valued and recognized by both theoretical and practical circles in recent years. Guo Huibin et al. believed that “craftsman spirit” was a common practice at the enterprise level and the employee level, and Zhang Peipei also believed that these practices were multi-level. In other words, the enterprise level and the employee level respectively practiced the “craftsman spirit” and played their respective roles,
while playing a joint role. The “craftsman spirit” can influence enterprise performance and its influence path is the “craftsman spirit”, that is, the “craftsman spirit” is manifested in external focus and excellence. So, we assume:

H1: The connotation of Spirit of Artisans has six dimensions: professional focused, keep improving, collaboration, stereobreak, shown in Fig.1.

![Fig.1 the times connotation of craftsman spirit](image)

Enterprise employees have the characteristics of hierarchy and diversification, so the innovation of these different levels of main body also reflects diversification. March pointed that Employee innovation also falls into two categories: one category is exploratory innovation. For example, senior skilled employees and knowledge employees obtain patent rights for inventions. The other type is mining innovation, such as operation staff and primary skilled staff after learning skills, master the technical resolution or secret resolution, simple improvement of technology, progressive, grassroots micro innovation. These innovations are of great significance, can promote the technological progress, and are the outward manifestation of the "craftsman spirit" of focus and excellence. This shows that innovations with the spirit of craftsman, regardless of size or type, require employees to never be satisfied and dare to deny themselves, learn during doing, digest and absorb cutting-edge technologies, and drive the sustainability of innovation with craftsman spirit. So, we assume:

H2: Spirit of Artisans has positive effects on organization intelligence innovation in the intelligence era.

H21: Professional focused has positive effects on organizational intelligence innovation.
H22: Keep improving has positive effects on organizational intelligence innovation.
H23: Collaboration has positive effects on organizational intelligence innovation.
H24: Stereobreak has positive effects on organizational intelligence innovation.

With the passage of time, in personal and level is gradually coupled and refined and upgraded. The craftsman spirit in enterprise’s level provides material supporting, in return, craftsman spirit in employee’s level plays a role of improving and extending the latter to the former, namely employee digests the existing technology and innovative technology to the limit, to jointly promote development ability. In view of this, this paper proposes the following hypotheses:

H3: Interaction of organizational psychological empowerment and organization craftsman spirit on organizational performance.
March believed that enterprise innovation can be divided into two types: mining innovation and exploratory innovation. No matter what kind of innovation, it is the spark of employees' own innovation ideas and measures. It should be noted that technological innovation, has externalities, and cannot bring direct economic benefits in a short time. Therefore, enterprises are less willing to support employees to practice the “craftsman spirit”, when the environmental performance is good. At the same time, according to the three-stage theory of environmental governance structure evolution proposed by Zhang Tongbin et al., the “craftsman spirit” will increase the cost of enterprises, which is bound to affect the integrity of enterprises, and "promote enterprises with high activity intensity of “craftsman spirit” and enterprises with low intensity of activities to promote “craftsman spirit”.

3. Questionnaire Design and Data Collection
Sample data acquires through the following way: “craftsman spirit” and the enterprise performance variable data from the corporate social responsibility report, sustainable development report, annual report, the disclosure of information from these reports through manual collection, and from official website; Data of other research variables are obtained from interior database. In this paper, the variable of “craftsman spirit” at the enterprise level is dealt with in advance. The other variable is the current year data from 2011 to 2018, and there are a total of 1510 pieces of observed data.

The test of psychological empowerment is from Spreitzer’s classic scale [9]. More than 10 problems from staffs’ perception of work value, work ability, independent decision-making power and influence in enterprise to test psychological empowerment were set. The internal consistency coefficient of psychological empowerment is 0.936. We refer to previous scholars’ discussion about management innovation and technological innovation, combine with the specificity of service, measure service innovation from idea innovation, methods innovation and process innovation. The internal consistency coefficient of service innovation is 0.94. In this study, we use Likert seven evaluation criteria to test the variables.

4. Reliability and Validity
Firstly, the internal consistency reliability of each scale was calculated, and the reliability coefficient of each variable was greater than the critical value of 0.7, indicating that the reliability of the scale in this study was relatively high. LISREL8.70 software was then used to conduct confirmatory factor analysis of each variable, and the results showed that the measurement scale had good convergent validity and discriminant validity. Then the comprehensive score of each variable is calculated by taking the factor load of each variable as the weight.

5. Hypothesis Testing
The paper uses the LISREL 8.70 software for data analysis. We can read the results in table 1 and table 2.

| Variable                        | Assumption          | Standard value | T value | Results |
|--------------------------------|---------------------|----------------|---------|---------|
| H1 Intelligence Innovation ← Craftsman spirit |                      | 0.74           | 0.90    | yes     |

Table 1. Reliability and Validity Analysis

| Variable                        | 1  | 2   | 3   |
|--------------------------------|----|-----|-----|
| Spirit of Artisans              | 0.79|     |     |
| psychological empowerment       | 0.34| 0.86|     |
| Organizational Intelligence Innovation | 0.31| 0.19| 0.73|
| Cronch(α)                       | 0.89| 0.94| 0.93|

Table 2. The Results of Assumptions
6. Conclusion and Discussion
The research of this paper deepens the understanding of the excellent traditional culture of “craftsman spirit” and sustainable innovation of enterprises. The practice of “craftsman spirit” at the enterprise level and the focus is the basic guarantee for pay more attention on organizational psychological empowerment and improving performance of the enterprise. The practice of “craftsman spirit” at the employee level can better release “craftsman spirit” to achieve innovations, and achieve performance. The result is that organizational psychological empowerment exerts a partly mediating effect on organization organizational intelligence innovation through organization craftsman spirit under Ubiquitous Network in Grid Enterprises.

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