Structural Analysis on Extra-High Voltage Engineering’s Pressure Factors

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Abstract. From viewpoint of building Extra-High Voltage Engineering, the paper discusses the key pressure factors on carry out engineers. The field research from grid enterprises shows that craftsmen, artisans and mechanics all can significantly affect project quality and project delivery time. This research provides useful tools for Extra-High Voltage Engineering’s implement and management through the power of the key pressure factors by enterprise’ examples of craftsmen.

1. Introduction

The ‘craftsman’ has been written to the government work report for three years since 2016 and has appeared in the nineteen major reports of the party. ‘The quality of the soul, in originality.’ From manufacturing power to manufacturing powerhouse and building more world-famous ‘Chinese brands’, pushing China's economic development to enter the quality era, we need to cultivate many ‘Chinese artisans’, and we need to vigorously carry forward the craftsman spirit. Taking State Grid Corporation of China as an example, this paper attempts to study the impacts of craftsman spirit on organizational performance, then to reveal the relationship among craftsman spirit and organizational performance, organizational culture, and to find out the way to improve organizational performance [1–2].

2. Literature Review and Statement of Hypothesis

The traditional craftsman spirit sense contains a way of moral quality and behaviour is good, excellence, persevering, and honour the teacher. With the development of the times, the spirit of the craftsmen is endowed with more connotation, including the dedication spirit of selfless work, the spirit of focusing on impetuous, the practice spirit of knowing and doing and the spirit of innovation that keeps pace with the times. In essence, artisan spirit is a professional spirit, with which craftsman to refine their products, keep improving, and pursue perfection with extreme attitude. It is cultural essence of continuous innovation [3–4]. Based on literature review of craftsman spirit, its specific expression can be summarized as follows. So, we assume:
H1: Craftsman spirit the connotation of craftsman spirit is composed of six dimensions: dedication, excellence, professional focus, innovation and breakthrough, and responsibility, shown in Fig.1.

![Craftsman Spirit Diagram]

**Figure 1 Craftsman’s connotation**

According to ERG’s theoretical analysis, Craftsman spirit expresses dominance to work, Contemporary craftsman spirit is the need of work autonomy, and it is a kind of excellent professionalism cognition and performance ability. It is also branding or embodiment of social values and organizational culture on individuals. In order to give full play to positive effect of branding effect and enhance individual adaptability and organizational effectiveness, should be designed and arranged on the basis of mentoring system. Kram (1985) proposed that mentoring system refers to organizational learning basing on senior (mentors) in an organization providing career guidance and social psychological support to junior (apprentices), so as to establish an in-depth interactive learning relationship. Many scholars have found from theoretical and empirical studies that organizational learning basing on mentoring system has significant positive effects on knowledge management, career success, dissemination of organizational values, and improvement of organizational productivity. So, we assume:

- **H2**: Craftsman spirit has positive effects on organization performance.
- **H21**: Dedication has positive effects on organization performance.
- **H22**: Excellence has positive effects on organization performance.
- **H23**: Professional focus has positive effects on organization performance.
- **H24**: Innovation and breakthrough has positive effects on organization performance.
- **H25**: Responsibility has positive effects on organization performance.

Organization Craftsman spirit is of great importance to improve organization atmosphere, to form a satisfied corporate cultural. Anderson and Narus found that the firm's belief that another side will perform actions that will result in positive outcomes for the firm, as well as not take unexpected actions that would result in negative outcomes for the firm. The strength of this belief may lead the firm to make a trusting response or action, and further share their learning knowledge. Otherwise,
Anderson and Narus’s account indicates that obstacles on organizational craftsman spirit would deepen cultural differences [5]. So, we assume:

H3: Interaction of organizational culture and organization craftsman spirit on organization performance.

After individual with craftsman spirit, the influence of craftsman will evolve and transform with organizational environment, and then show a dynamic change. Barkema and Vermeulen pointed to issues about cultural differences [7]. Beamish showed that there was significant dissatisfaction with their performance, which may be attributable to these cultural differences [8]. Culture is a difficult concept to grasp and measure. Madhok suggested that literature has tended to overlook human relations core concepts such as integrity, trust, reciprocity and forbearance in business. These concepts, which are interrelated, encompass behavioral variables at the heart [9].

3. Questionnaire Design and Data Collection

To ensure reliability and validity of research tools, this study adopts scale as used in the existing literature, and carries through appropriate modification in aim of present study.

Organizational culture is the common core beliefs, values, behaviour patterns, norms, etc, rooted in the enterprise organization, process, system, daily work. It affects organization strategy, arrangement of organizational structure, process, and system specification. The formation and evolution of Organizational culture, can be divided into the following four spiral phase of interaction and mutual influence ascension: unconscious cultural creativity, consciousness of cultural refinement and summary, culture implementation and conflict management, culture remodelling [9]. Chen Hongwei put forward what makes up the culture of your organization [10-11]. Lu argued that unconscious as covert culture had more influence than ever on organizational development. Kotter studied the relationship between organizational culture and organizational performance, further pointed out that organizational culture had a great impact on its long organizational performance. Based on these literatures, this study divides organizational culture into cultural compatibility, cultural assimilation and cultural update. a coefficient of internal consistency is 0.94.

Organization performance scale mainly uses for reference of WangHui Tsui ’ research in domestic enterprises and designs items, such as “addition to net profits”, “addition to sales”, “addition to asset”, “employee morale” and “market share” etc. Respondents fill out questionnaire after comparing their own enterprise and competitive enterprise. The all item uses Likert7 scale except for enterprise basic situation. The internal consistency coefficient is 0.93. In this study, we use Likert seven evaluation criteria to test the variables.

4. Reliability and Validity

The standardized coefficients of each observed variable are more than 0.70, the AVE value of each variable is than 0.5, and the square root of AVE variables are greater than the correlation coefficient of the variable with other variables, which indicates the variables have good introverted validity and discriminate validity.

5. Hypothesis Testing

The paper uses the LISREL 8.70 software for data analysis. We can read the results in table1 and table 2.

| Variable                  | 1  | 2  | 3  |
|--------------------------|----|----|----|
| Craftsman spirit         | 0.79|    |    |
| Organizational Culture   | 0.34| 0.86|    |
| Organizational Performance | 0.31| 0.19| 0.73|
| Cronch(α)                | 0.89| 0.94| 0.93|
Table 2. The Results of Assumptions

| Variable | Assumption | Standard value | T value | Results |
|----------|------------|---------------|---------|---------|
| H1       | Organizational performance ← Craftsman spirit | 0.72 | 0.91 | yes |
| H2       | Organizational performance ← Organizational culture | 0.68 | 1.83 | yes |
| H3       | Organizational performance ← Organizational culture* Craftsman spirit | 0.86 | 2.78 | yes |
| Cronch(α) | 0.89 | 0.94 | 0.93 |

Chi-Square=132.45, df=81, RMSEA=0.052, NFI = 0.92, NNFI = 0.97, CFI = 0.96, IFI = 0.96, GFI= 0.90, AGFI = 0.85

6. Conclusion and Discussion
Organizational Craftsman has significant positive effects on pushing Extra-High Voltage Engineering in grid Enterprises. Organizational culture has significant positive effects on pushing Extra-High Voltage Engineering. Organizational culture from state grid enterprise can not only effectively increase their knowledge share, but also promote culture identity and universal among employees. Further this research examines the relationships between organizational Craftsman spirit and the moderator impact of organizational culture on craftsman. Creating three hypotheses, the result is organizational culture exerts a partly mediating effect on on pushing Extra-High Voltage Engineering through organization craftsman.

References
[1] Van der Geer, J., Hanraads, J.A.J., Lupton, R.A. (2010) The art of writing a scientific article. J. Sci. Commun., 163: 51–59.
[2] Stinchcombe, A. L.. Social Structure and Organizations, in March, J. G. (Ed.). Handbook of Organizations. Chicago: Rand McNally, 1965: pp.142 ~ 193.
[3] Christopher Marquis, András Tilesik. Imprinting: Toward a Multilevel Theory. Academy of Management Annals, 2013, 7(1): pp.195~245.
[4] Chen Hongwei, The theory and empirical research of the enterprise culture management on enterprise performance, Nanchang: Nanchang University, 2008.
[5] Simsek Z., Fox B. C., Heavey C.. What’s Past Is Prologue: A Framework, Review, and Future Directions for Organizational Research on Imprinting. Journal of Management: Official Journal of the Southern Management Association, 2015, 41(1): pp. 288~317.
[6] Ahlstrom D., Bruton G. D. Rapid Institutional Shifts and the Coevolution of Entrepreneurial Firms in Transition Economies. Entrepreneurship Theory and Practice, 2010, 34(3): pp. 531~554.
[7] Ghosh R. Antecedents of Mentoring Support: a Meta -analysis of Individual, Relational, and Structural or Organizational Factors. Journal of Vocational Behaviour, 2014, 84(3): pp. 367~384.
[8] [Kram, K. E. Mentoring at Work: Developmental Relationships in Organizational Life. Glenview, IL: Scott, Foresman and Company. 1985(2): pp. 26-31.
[9] Beamish, P.W. 1988. Multinational Joint Ventures in Developing Countries, Routledge: New York
[10] Schunk, D. H. (2000). Learning Theories: An Educational Perspective (3rd Ed.). Upper Saddle River, NJ: Prentice-Hall.
[11] Chen Hongwei, The theory and empirical research of the enterprise culture management on enterprise performance, D. Nanchang: Nanchang University, 2008.
[12] Teece, D. J. Explicating dynamic capabilities: The nature and micro foundations of (sustainable) enterprise performance [J]. Strategic Management Journal, 2007; 28:1319–1350.