

The Impact of the Talent Environment of Small and Medium-Sized Enterprises on the Willingness of Scientific and Technological Talents to Stay

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Abstract: Scientific and technological talents are high-level, high-complexity talents, their psychological assessment of the environment is not the same, in the face of the frequent flow of scientific and technological talents in small and medium-sized enterprises and the problem of unstable talent team, enterprise managers and human resources departments should pay attention to identifying and meeting the development environment needs of scientific and technological talents when building a management system. This study will explore the loss and retention of scientific and technological talents of small and medium-sized enterprises from the perspective of the psychology of scientific and technological talents, provide theoretical support for small and medium-sized enterprises to shape the development environment needed by scientific and technological talents, and provide theoretical basis for small and medium-sized enterprises to better formulate management strategies to enhance organizational commitments and formulate incentive and management measures for scientific and technological talents.

Keywords: Talent environment, Turnover intention.

1. Research background and significance

In the era of knowledge economy, science and technology are changing with each passing day, economic globalization is further accelerating, and high and new technologies focusing on energy science, information science, life science, material science, and environmental science are developing rapidly and rapidly. Human resources are replacing material resources as the first element supporting development, and playing an increasingly important role in the strategic development and core competitiveness of a country and region [1]. The report of the 19th National Congress of the Communist Party of China emphasized that promoting innovation-driven and industrial structure upgrading is crucial to China's stable economic growth, and this must rely on the support of high-quality human capital[2]. As the most abundant human capital accumulated by scientific and technological talents as wisdom, scientific and technological talents have become a decisive force in economic development [3]. Scientific and technological innovation is the driving force for economic development, and scientific and technological talents are the first driving force for promoting scientific and technological innovation. For manufacturing enterprises, scientific and technological talents are the carrier of innovative technology and a resource that needs to be competed for.

Scientific and technological talents are high-level, high-complexity talents, their psychological assessment of the environment is not the same, in the face of the frequent flow of scientific and technological talents in small and medium-sized enterprises and the problem of unstable talent team, enterprise managers and human resources departments should pay attention to identifying and meeting the development environment needs of scientific and technological talents when building a management system. This study will explore the loss and retention of scientific and technological talents of small and medium-sized enterprises from the perspective of the psychology of scientific and technological talents, provide theoretical support for small and medium-sized enterprises to shape the development environment needed by scientific and technological talents, and provide theoretical basis for small and medium-sized enterprises to better formulate management strategies to enhance organizational commitments and formulate incentive and management measures for scientific and technological talents.

2. Review of Talent Environment Research

2.1 The concept and dimension of talent environment

Talents refer to people who have certain knowledge or skills, can carry out creative labor, and contribute to the promotion of social development [4]. People always choose the environment of work and life according to their own needs, and the flow and agglomeration of talents are affected by many factors such as economy, culture, system, material, personal development, etc., which are centered on talents, interact with each other, and restrict each other, constituting a sustainable and complete system environment, that is, talent environment [5]. Weng Qingxiong (2014) believes that the talent environment refers to the macro or micro environment that can directly or indirectly meet people's different needs[6][7]. Li Yuxiang and Liu Jun (2009) believe that the talent environment refers to the synthesis of social and material conditions for the survival and development of talents, including the sum of various external factors that affect the growth and function of talents [8]. Yang Heqing and Liu Li (2007) defined the talent environment in their research, from the perspective of spatial scope, the talent environment is composed of different spatial scope environments such as cities, regions, countries and the world; From the perspective of the composition of the talent environment, including the political environment, economic environment, social environment and scientific and technological environment; From the perspective of the composition level of the talent environment, it includes the natural geographical environment, the social and cultural environment and the talent policy environment [9]. Wu Degui (2004) proposed that the talent environment includes both a hard environment and a soft environment; Includes both the physical environment and the human environment; Include both the working environment and the living environment; It includes both the macro environment and the micro environment [10]. Wen Kui and Wu Dongmei (2003) divided the talent environment into a macro talent environment and a micro talent environment. Macro talent environment includes policy environment, economic environment and legal environment; The micro talent environment includes organizational structure, management system, corporate culture, and the development, use, and incentive mechanism of enterprise talents[11]. In the study of Cao Weilin and Wang Yijie (2016), they divided the talent environment into two levels: the regional environment for talent development and the organizational environment for talent development, of which the regional environment for talent development includes the economic environment, living environment and policy environment[12].

2.2 Review of related research

The research on the talent environment is mainly carried out from the macro and mesoscopic levels.

(1) Macro regional level

Scholars mostly discuss the composition dimensions of the regional talent environment from the perspective of evaluation, such as Zhang Lixin et al. (2016) to construct a talent ecological environment evaluation index system from the five dimensions of economic basic environment, scientific and technological innovation environment, growth incentive environment, location environment and living environment, and take Shandong Province as an example to evaluate [13]; Huang Mei et al. (2009) believe that the ecological environment of talents can be divided into natural ecological environment, cultural ecological environment and social ecological environment[14]; Gu Ran et al. (2017) took a different approach and built a talent ecological environment evaluation system that includes multi-level indicators such as talent development environment, economic environment, living environment, institutional environment, cultural environment, and employee quality according to ecosystem theory[15][16].

Some scholars have also studied the organizational environment from the perspective of talent agglomeration and talent attraction, such as Hu Bei et al. (2009) divided the environmental factors of industrial clusters to attract talents into five aspects: economic characteristics, cultural characteristics, talent policies, living environment and enterprise human resource management [17]. Weng Qingxiong, Yang Shuchun, and Cao Weilin (2014) Divide the regional environment into an economic

environment, a living environment, a human environment, and a policy environment in order to explore the influence of the regional environment on the willingness of talents to take root[18]. Their study shows that the regional living environment and human environment are significantly positively correlated with the willingness to root talents, while the impact of the talent policy environment on the willingness to root is not significant. Cao Weilin, Wang Yijie and Liu Zhiying (2016) explore the willingness to gather talents from three dimensions: economic environment, living environment and policy environment[19].

(2) Mesoscopic organizational level

The high-frequency flow of talents occurs frequently between enterprises, especially among small and medium-sized enterprises. If analyzed based on the transaction cost theory, the preference for talent retention depends on the trade-off between the cost and benefits generated by the flow, and exerts its influence mechanism through asset specificity, uncertainty, transaction frequency, etc. (Wang Zhitao et al., 2010) [20]. In the knowledge-intensive high-tech enterprises, R&D personnel are more concentrated in enterprises with good reputation, in addition, the salary, R&D culture, R&D atmosphere, and training status provided by enterprises are also the focus of attention in the flow of R&D personnel in high-tech enterprises (Meng Lingxi, 2011) [21]. In addition, organizational factors are the most important factors in the flow of talents, mainly reflected in salary and treatment, employment mechanism, promotion mechanism, leadership ability and quality, sense of achievement in work, etc. (Zhang Jiamei, 2013) [22]. Qiu Zhaodong (2017) The five sub-environments of the ecological environment of microscopic talents are the physical environment, the institutional and cultural environment, the performance environment, the personnel environment, and the innovation and research and development environment[23].

Foreign scholars divide the composition dimensions of the talent organization environment from different perspectives. Duncan (1972) made a distinction between internal and external environment, and he believed that the internal environment of the organization refers to the sum of natural and social factors directly related to the decision-making behavior and results of individual members within the organization, such as organizational tasks, organizational goals, organizational operating systems and processes, and the academic qualifications of organizational members [24]. Claire Kepon (2011) divides the organizational environment into an internal organizational environment and an external organizational environment. Among them, the internal environment includes: marketing, operations management, financial management, human resource management, organizational structure, organizational behavior, organizational resources, and internal relations. This is somewhat similar to Duncan's dimension division, which is divided into two dimensions, internal and external environments, although Duncan's dimension division can be more convenient to study the relationship between the organization and the environment and its interaction, but Claire Kepone's division is more extensive and more detailed.

The domestic scholar Wang Yaodong (2005) also divided the organizational environment into two dimensions: the external environment and the internal environment, but he also divided the internal environment into two aspects: the internal hard environment and the internal soft environment [26]. Li Xiaoming (2005) also divides the organizational environment into two dimensions: the internal environment and the external environment, and he believes that the internal environment of the organization should include two aspects: organizational culture and organizational operating conditions [27]. Wang Ning (2007) pointed out from the perspective of the organizational level that the organizational environment is composed of internal and external environments, and he believes that the internal environment of the organization includes six elements of organizational culture, organizational atmosphere, leadership, organizational structure, core competitiveness and resources [28]. Different from the above scholars, Zhang Xuehe (2012) believes that the organizational environment refers to the external environment in which individuals engage in innovative activities, and he divides the organizational environment into two dimensions: the social organization working environment and the physical working environment. Among them, the social organization working environment refers to a series of incentive and guarantee factors related to their own work, such as

material rewards or spiritual incentives for employees' innovative ideas and innovative methods, training employees in innovative ideas and innovative spirits, and establishing a relaxed atmosphere for employees to be bold and truth-seeking and strive to explore new problems and new methods. The physical work environment mainly refers to a series of physical environmental factors related to work, such as work location, studio layout, food and drink, office decoration style, etc. [29].

3. Prospects for future research

The talent development environment is divided into macro regional environment and micro organizational environment, and a large number of studies have shown that the regional environment and organizational environment have a significant impact on the willingness of scientific and technological talents to stay. However, the regional environment and the organizational environment are a system of mutual influence and mutual penetration, so in future research, it is possible to study whether the regional environment not only directly affects the willingness of talents to root, but also affects the willingness of scientific and technological talents through the organizational environment.

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