

Career Management of R&D Employees on Organizational Competence: A Perspective from Chinese High-Tech Manufacturing Enterprises

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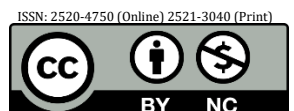
Abstract

Past studies have shown that employee career management in Chinese high-tech manufacturing companies can affect the individual performance of employees, and then affect the overall performance of the company; Qualification management is an important means for corporate human resources to intervene in employee career management and has a certain impact on employee variable career; And employee variable career has certain influence on organizational competence. This purpose of this study is to further explore the influencing factors of the organizational competence of Chinese high-tech manufacturing enterprises in the field of talent capability management. This study used the quantitative design and selects more than 60 high-tech manufacturing enterprises in Shenzhen, Guangzhou, Chongqing, Suzhou, Jiangsu, and Xi'an, Shaanxi, and collects survey questionnaires through the Internet platform, and uses factor analysis to analyze the influencing factors in organizational competence, qualification management, employee career management and variable career, seek the internal relationship among different variables; Put forward dimensions for reference in terms of employee capability management and organizational competence of Chinese high-tech manufacturing enterprises. The results of this study have certain theoretical and practical implications and significance for Chinese high-tech manufacturing enterprises to reduce the turnover rate of knowledge-based employees in the R&D system and continuously improve organizational competence in the era of knowledge economy. At the same time, it concluded and provides an innovative perspective for theorists who study the relationship between employee capability management and organizational ability.



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Keywords: *Career management, Qualification management, Variable career, Organizational competence.*

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Introduction

With the advent of the era of knowledge economy, high-tech has become a key driver of social progress and the changes of the times, and high-tech enterprises carrying high-tech research and development and evolution have become the mainstay of promoting technological change and leading economic development. Especially in China, high-tech Enterprises have ushered in huge opportunities for development in the past ten years, and more and more enterprises have transformed into high-tech enterprises. The data shows (as shown in Figure 1-1) that in the past ten years, the high-tech enterprises included in China's National Bureau of Statistics. The number of enterprises maintains an annual growth rate of more than 15%. By 2021, the number of high-tech enterprises included in China's National Bureau of Statistics has reached 330,000. (Chen 2020; Chen 2021; Cory 2021; Cui et al. 2019; Feiler & Breuer 2021)

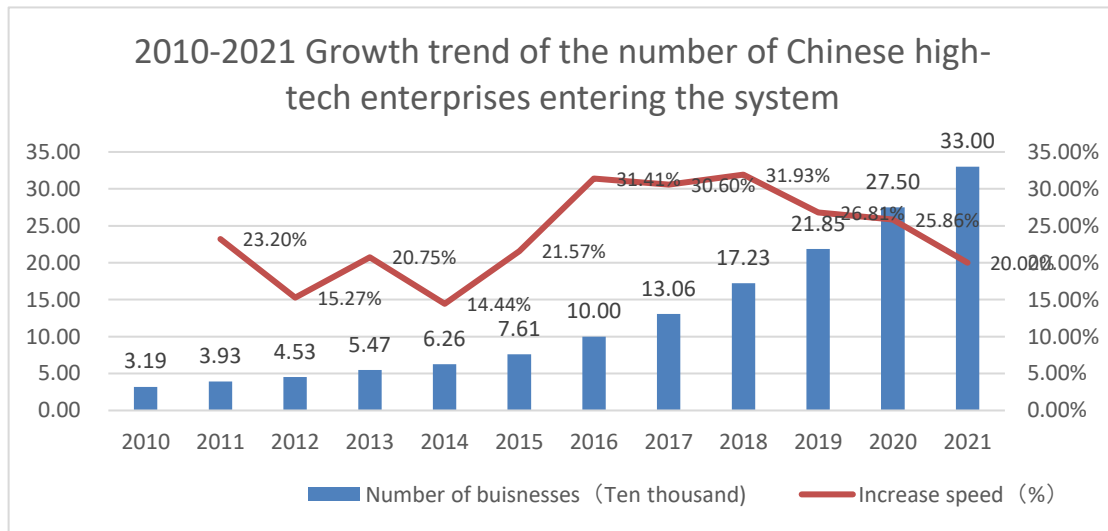


Figure1- 1The growth trend of the number of high-tech enterprises in China from 2010 to 2021 (data source: State Taxation Bureau)

The emergence of more and more high-tech enterprises means that the era of technology-driven social progress has come. Chinese high-tech enterprises are playing an increasingly important role and value in China's economic development. The operating income, total industrial output value and net profit realized by Chinese high-enterprises are in the past ten years represent that Chinese high-tech enterprises are gradually maturing and taking on a more important role in the economy and society. In the process of China's rapid economic development, the value created by high-tech enterprises is increasing and it plays an increasingly important role in the rapid development of China's economy. An important subject of industrial transformation and technological innovation. The data shows (as shown in Figure 1-2), from 2010 to 2019, the operating income and industrial output value created by Chinese high-tech enterprises have increased year by year, and the profits created by the enterprises themselves have also increased steadily. (Huang & Huang 2020; Marie et al. 2021; Peng 2023; Rong & Li 2023; Shan et al. 2022; Wang 2021; Ye 2023; Zhang et al. 2022)

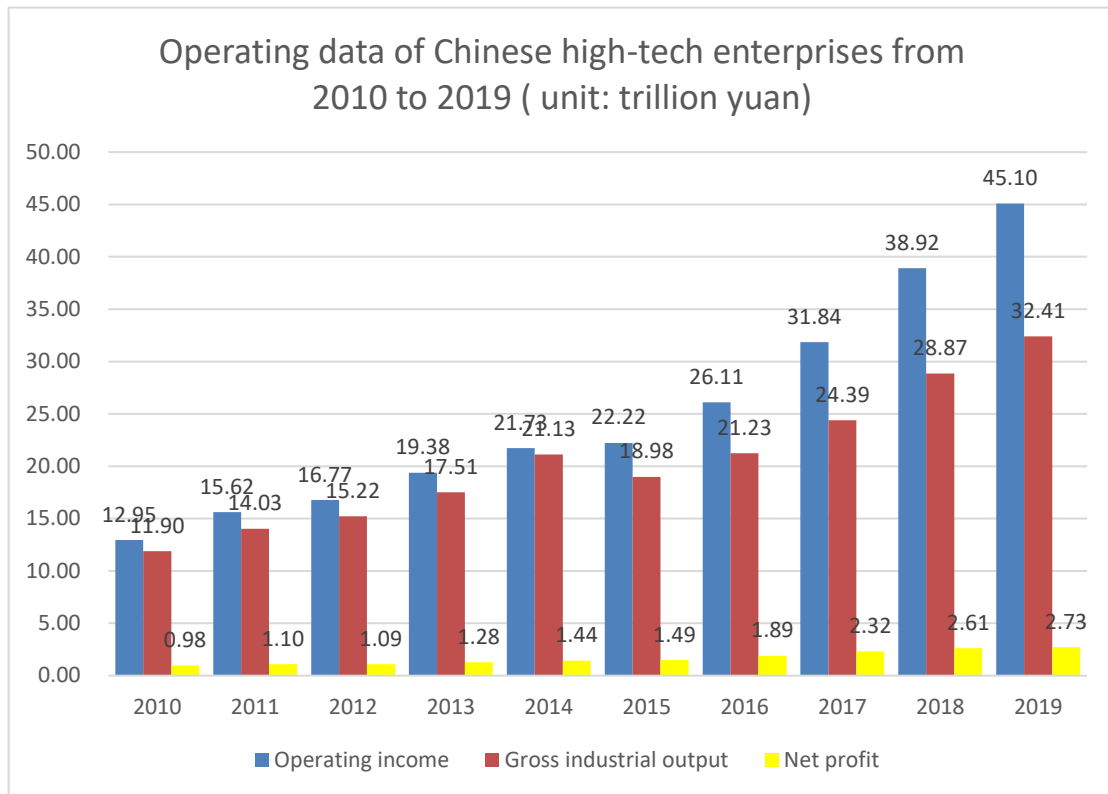


Figure1- 2 Operating data of Chinese high-tech enterprises from 2010 to 2019 (data source: State Taxation Bureau)

On the other hand, more and more Chinese high-tech enterprises are included in the National Bureau of Statistics, and they have also made a huge contribution to employment. The employment threshold of China's high-tech enterprises is relatively different from that of ordinary enterprises, and the requirements for the quality and education level of employees are higher. The data shows (as shown in Figure 1-3), since 2013, the number of employees in Chinese high-tech enterprises has been increasing year by year. Although the growth rate of employees in Chinese high-tech enterprises has reached 34.37 million people,

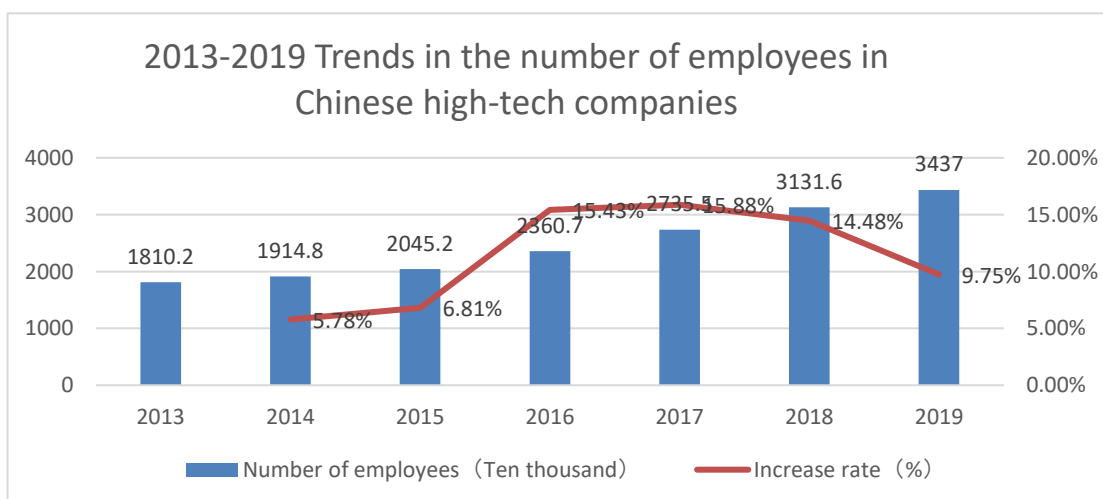


Figure1- 3 2013-2019 Trends in the number of employees in Chinese high-tech companies (data source: State Taxation Bureau)

(2) The cornerstone of the organizational competence of a high-tech enterprise is the individual ability of employees. With the end of the extensive development stage of Chinese high-tech enterprises, the key to the future competition of Chinese high-tech enterprises lies in organizational competence, and personal ability is one of the important manifestations of organizational competence. In the past, the research on high-tech enterprises mainly focused on the operational results of high-tech enterprises, such as operating data and organizational performance, and rarely focused on the organizational competence of Chinese high-tech enterprises in response to changes in the external environment. (Rong & Li 2023; Shan et al. 2022; Wang 2021; Ye 2023; Zhang et al. 2022)

Problem statement

In China's " 14th Five-Year Plan ", the " innovation strategy " has been raised to the core position, and technological self-reliance and self-improvement have been regarded as strategic support for national development. Especially in the field of bottleneck technology, technological innovation has become the focus of national attention. As the main force of technological innovation, high-tech enterprises assume more important social responsibilities in China's 14 th Five-Year Plan. However, data from recent years show that the voluntary turnover rate remains high and shows signs of rising. (Huang & Huang 2020; Marie et al. 2021; Peng 2023; Rong & Li 2023; Shan et al. 2022; Wang 2021; Ye 2023; Zhang et al. 2022)

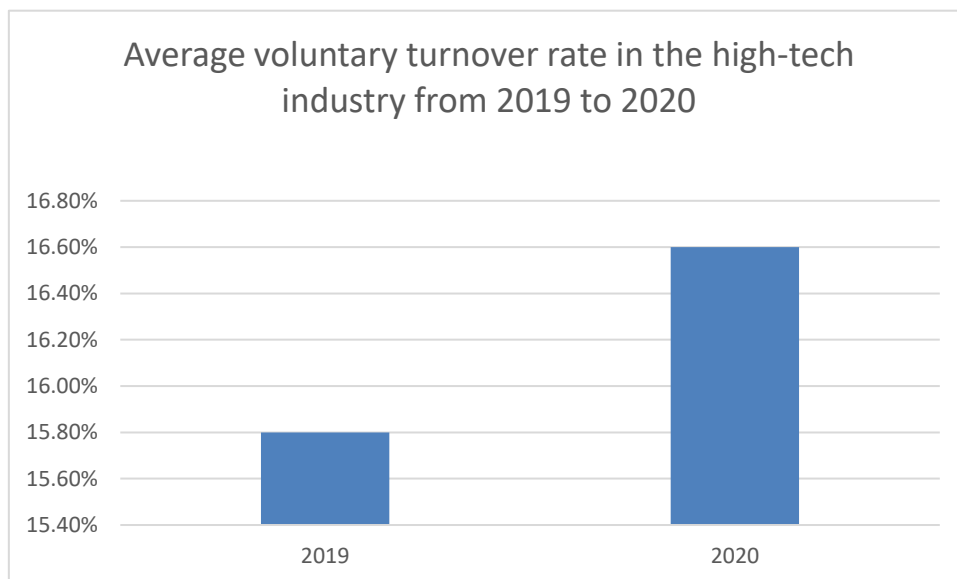


Figure1- 4 Average voluntary turnover rate in the high-tech industry from 2019 to 2020

(Data source: "CIIC Consulting 2020-2021 Interannual Research Report on Key Indicators of Human Resources")

Employees in the R&D system of Chinese high-tech manufacturing companies are even higher than the average voluntary turnover rate in the high-tech industry. There are many reasons for this phenomenon. Liu and Yan (2021) deeply interpreted the relationship between the two factors of career adaptability and job embeddedness and employees' willingness to leave and start a business and analyzed the reasons for the voluntary resignation of knowledge workers. But the focus of this paper is the relationship between leaving and starting a business. It has a certain reference value, but the voluntary resignation of employees in the R&D system of Chinese high-tech manufacturing companies is not a complete entrepreneurship, but more of a career change; Luo et al. (2019) took the employee turnover problem of a communication technology company as an entry point, analyzing the reasons for the loss of knowledge-based employees in the company has great reference significance for the resigned employees of

knowledge-based employees. However, this research started with a communication technology company, and all conclusions are only logical deduction conclusions, which will inevitably appear biased. Zhan (2020) used another high-tech company as an entry point to analyze the impact of labor relations and organizational commitment on the loss of knowledge workers. His views are relatively new, but the basis for the conclusion is still only one company. There are still many articles on employee turnover in high-tech companies, and even in the research and development system of Chinese high-tech manufacturing companies, but there are few studies that analyze the turnover of knowledge workers from the perspective of employee capability management. Based on the identification of the research gap/s, this paper studies the employees in the R & D system of Chinese high-tech manufacturing enterprises, who are essentially knowledge-based employees. Their career management and qualification management will affect their variable career, and thus affect the organizational competence of Chinese high-tech manufacturing enterprises. (Chen 2020; Chen 2021; Cory 2021; Cui et al. 2019; Feiler & Breuer 2021).

Research question

In the Internet era, high-tech enterprises have become the core pillars of the development of the times and social progress. However, there is not much literature that studies the relationship between the impact of employees' careers and organizational ability in high-tech companies. In terms of management practice, the development trend of high-tech enterprises in China is improving and the scale is increasing day by day, but the organizational efficiency of high-tech enterprises is still not high, and there is a relatively large room for improvement in organizational competence. The research question at the core of this paper is as below: What is the status of the organizational competence of high-tech enterprises?

Research objective

The research objective of this paper is explained as below: To evaluate the current situation of organizational competence of Chinese high-tech manufacturing enterprises. After more than 40 years of reform and opening in China, China's high-tech manufacturing companies that have experienced rough and brutal growth will face more and more challenges from domestic and foreign companies, and the competition between companies is becoming more and more fierce. An enterprise that can remain undefeated in the competition for a long time must have some advantages in its organizational competence.

Research scope

The research of this paper takes Chinese high-tech manufacturing enterprises as the research object. By sorting out the research results of past scholars, designing questionnaires, obtaining the number of samples, and then conducting statistical analysis, the assumptions of this paper are verified. The era of knowledge economy is an era of competition and cooperation, an era of shared, co-created, and win-win technological updates and iterative acceleration. The development of an enterprise cannot be separated from its core advantages and the efforts and talents of high-quality core talents. In this context, the research on China's high-tech manufacturing enterprises, which are at the core of the era of knowledge economy, has a relatively large degree of representativeness. Although there are a lot of research on organizational competence, career management and qualification management, the focus of this paper is the career management and qualification management of employees in the R&D system of Chinese high-tech manufacturing enterprises, other influencing factors of organizational competence are not included in the scope of this study. The research of this paper mainly focuses on the two independent variables of career management and qualification management, career management as the mediator variable, and their influence on

the dependent variable of organizational competence as the content of theoretical research. On this basis, this paper introduces theories and research paths such as personal ability and organizational competence cycle development theory, qualification management self-driven, etc.

Literature review

This chapter mainly collects and sorts out the literature related to the four key variables of organizational competence, qualification management, career management, variable career and organizational competence, and discusses and summarizes the literature (Chen 2021; Cory 2021). In terms of specific operations, the core concepts involved in this study are mainly studied from the definition, research, and measurement methods of variables, so as to summarize the mechanism of action between variables and design a research model. (Chen 2020; Chen 2021; Cory 2021; Cui et al. 2019; Feiler & Breuer 2021)

Organizational Competence

High-tech technology in the information age is the core factor affecting the progress and change of the times. Therefore, in the information age, the improvement of organizational competence of high-tech manufacturing enterprises is characterized by uncertainty and variability. Most of the existing research shows that the core of organizational competence lies in the allocation efficiency of resources and the unique competitive advantage of the enterprise. Ke et al. (2020) believe that the concept of organizational competence is not only applicable to enterprises, but also applicable to the entire industry, city, region and even the country. The stronger the organizational competence, the stronger the organization's ability to cope with dynamic changes and complex environments, and the stronger organizational competence is, the optimization of organizational competitiveness is achieved through the design, optimization, and reconstruction of organizational processes. Resource restructuring and more efficient organizational operating processes are organizational competence. When Zhou and Jiang (2022) constructed the evaluation system of enterprise organizational competence, they proposed that organizational competence is the organizational innovation achieved by optimizing resource allocation, and then the accumulation of enterprise competitive advantage through organizational innovation. Zhang et al. (2022) believe that organizational competence is mainly the ability to transform the resources owned by the organization into a differentiated advantage in the competition. Specifically, organizational competence is reflected in the ability of the system and coordination to absorb various aspects of the business environment, like information and resources, the ability of managers to make effective decisions, and the ability of enterprises to quickly adapt to environmental changes. (Huang & Huang 2020; Marie et al. 2021; Peng 2023; Rong & Li 2023; Shan et al. 2022; Wang 2021; Ye 2023; Zhang et al. 2022). Therefore, this study believes that organizational competence is the comprehensive ability of an enterprise's operation. Any enterprise is in fierce market competition, and it can be understood in this way. When an enterprise has the same resource endowment as other enterprises in the same industry, then in the case of enterprises with the same level of resources, enterprises that can transform resources into products or services faster, more efficiently, more, and with higher quality will have stronger organizational competence. Organizational competence reflects the ability of an enterprise to apply and transform resources, so organizational competence will be reflected in any production and operation link of the enterprise. (Chen 2021; Cory 2021). The research of organizational competence is relatively rich, and there are many research results on the antecedents, influences, and characteristics of organizational competence. Organizational competence conducts research and analysis, looking for the influencing factors of organizational competence, and the influence relationship between organizational competence influencing factors and

organizational competence. Few studies have explored the specific performance indicators of organizational competence and the way of influencing organizational competence through human resource means.

The Impact of Organizational Competence

In terms of the impact of organizational competence, most studies focus on the impact of organizational competence on government and public sector organizations, and the impact of organizational competence on the more popular digital transformation issues in recent years. Bao and Chai (2023) pointed out that the improvement of organizational competence is very important in grassroots government organizations through the research methods of field research and interviews, and it is helpful to improve the grassroots governance capabilities of grassroots government units. Li and Li (2022) studied the improvement path of social organization's governance ability from the perspective of organizational learning, and believed that the organizational competence of social organizations gradually improved in the process of participating in social governance, which promoted the improvement of governance ability and formed a virtuous circle. Shan et al. (2022) studied the development performance of enterprise innovative products under the background of digital transformation. Organizational competence centered on operational capability and dynamic capability can promote enterprise's product development. When organizational competence is matched with an organization's digital transformation strategy, the company's innovative product development performance will be greatly improved. Zhang et al. (2022) divided organizational competence into dimensions such as system capability, coordination capability, and perception capability. Through empirical research on enterprise managers, they concluded that organizational competence could promote the process of enterprise digital transformation and resolve the difficulties of enterprises in digital transformation.

Career Management

Career management is one of the important contents of human resources management in modern enterprises, and it is a series of activities for enterprises to help employees formulate career planning and help their career development. Career is a series of activities that enterprises try their best to satisfy the dynamic balance among managers, employees and enterprises. Lu et al. (2023) believe that career management is an active career development behavior, and career management is a series of comprehensive activities in which employees actively explore careers to determine career development goals, formulate career development plans, and regulate their own behavior and professional activity. Peng (2023) pointed out that career management is enterprise-led behavior. Its purpose is to promote the personal development of employees and meet the development needs of the enterprise. Therefore, enterprises will help employees with career development planning, help employees find their positions, balance employees' interests, abilities and development, and enhance the human resource management capability of the enterprise. This research thinks that the fundamental meaning of career management can be realized only when personal career management is combined with organizational goals. Career management includes not only individual employees' career planning, life goals, and expectations of key influences, but not just individual employees' hobbies and career planning. Factors that affect employee career management include employees' personal career interests, relatives and friends' expectations of employees' occupations, the degree of respect of employees' occupations in society, the completeness of the career growth path, etc. (Chen 2021; Cory 2021).

Qualification Management

Qualification management can be traced back to Taylor's scientific management theory. The scientific management theory points out that qualification management can improve work efficiency by stimulating the production vitality of employees. This is also an important symbol of the development from the experience management model to scientific management. Kossek et al. (2017) pointed out that in order to efficiently develop human resources in enterprises and improve the quality of talents in enterprises, it is necessary to combine the qualification system of enterprises with the development wishes of employees to manage the careers of employees in enterprises. To help employees with plans to achieve personal development, using qualification management, companies can find suitable substitutes in important positions, so as to meet the needs of employees' career development, so that more employees have better self-awareness and self-development capabilities. Xiao and Zhou (2023) believe that qualification management is a management system that is oriented by the business of the enterprise, in order to promote the standardized career development of employees and establish qualification standards to systematically manage the work of employees. Qualification standards are the core of qualification management. Qualification criteria are the qualifications required for a job position, such as employee education, skills, work experience, skills, etc. Wang et al. (2021) believed that qualification management is oriented to the development goals of the enterprise, and the core essence of qualification management work is to achieve the best match between employees and jobs, so that each employee can play his best role, and make Every position can play its due role in the operation of the enterprise. (Huang & Huang 2020; Marie et al. 2021; Peng 2023; Rong & Li 2023; Shan et al. 2022; Wang 2021; Ye 2023; Zhang et al. 2022)

Methodology

Research Design

In this paper, first, the method of document research is used to sort out the related documents of organizational competence, career management and qualification management of high-tech enterprises. Then according to the existing research results, the research content and purpose are proposed, and the research object is determined, and the research hypotheses are put forward. Methods Collect the data needed for hypothesis verification, and finally use empirical research to test the research hypothesis and draw the research conclusion. First, the literature research method. The research process of organizational competence of high-tech enterprises, career management and variable career of employees of high-tech enterprises requires reading many relevant documents, and also requires investigation and research on the practical activities of organizational competence of high-tech enterprises. By investigating the actual situation of high-tech enterprises, combined with data collection and analysis, the goal of research on the organizational competence of high-tech enterprises in China is realized. Second, the questionnaire method. Based on literature review, this paper establishes a relationship model between organizational competence and employee career management in high-tech enterprises. Based on mature scales at home and abroad, this questionnaire is designed in combination with the characteristics of Chinese high-tech manufacturing enterprises and employees of Chinese high-tech manufacturing enterprises. The first-hand data of variables, in the specific measurement, first clearly adopts the 5-level Likert scale for measurement. The questionnaire requires the respondents to evaluate the degree of recognition of each influencing factor. Through literature review, this paper divides the questionnaire into five parts, basic information of the enterprise, qualification management, career management, organizational competence and variable career. Qualification management is divided into three dimensions of qualification standard, qualification certification and qualification system operation. Career management is divided into three

dimensions of environmental factors, self-factors and professional factors Dimensions. Variable careers are divided into three dimensions of occupational identity, occupational social status and occupational balance. And organizational competence is divided into two dimensions of industry status and corporate atmosphere. In terms of the way of distributing questionnaires, this study sends questionnaires to target companies through online distribution, and then the target objects fill in the answers according to the questionnaire items and submit feedback directly through the APP. Using SPSS software to build a relationship model between organizational competence and employee career management in high-tech enterprises, and objectively evaluate the path relationship.

Population/Sampling/Unit of Analysis

The research scope of this paper is the technical research and development employees of high-tech enterprises in China. The data of the questionnaire mainly come from cities where high-tech enterprises in China are relatively concentrated, such as Shenzhen, Guangdong, Guangzhou, Chongqing and other cities. These areas belong to the development of high-tech enterprises. Cities with higher levels can better reflect the organizational competence of R&D personnel in high-tech manufacturing enterprises. Although the creation and improvement of organizational competence is often not affected by a single business field or management method, organizational competence is affected by three aspects: the value orientation of entrepreneurs, the management and process level of enterprises, and the demands of individual employees. But the research scope of this paper focuses on the impact of career management of employees in high-tech enterprises on organizational competence. The research scope of this paper includes the career management of employees, the impact of enterprises on career management through qualification management, and the intermediary effect of variable career on the relationship between career management and organizational relationship. At the same time, it studies the impact of the enterprise's incentive mechanism on qualification management and employee career management, and the impact of the incentive mechanism on variable careers from the subconscious level. Finally, find out the specific influence degree of these factors on the organizational competence of Chinese high-tech manufacturing enterprises.

Career management questionnaire design

Career is a series of activities that enterprises try their best to meet the dynamic balance between managers, employees and enterprises. Therefore, this paper measures career management from environmental factors, self-factors and professional factors. Career management includes not only individual employees' career planning, life goals, and expectations of key influences, but not just individual employees' hobbies and career planning. Factors that affect employee career management include employees' personal career interests, relatives and friends' expectations of employees' occupations, the degree of respect of employees' occupations in society, the completeness of the career growth path, etc. Environmental factors refer to the impact of the expectations of employees' relatives, friends, colleagues, etc. On employees' personal careers, Self-factors refer to employees' own education, experience, personal career interests, and personal career expectations; The completeness of its own development path, etc. This paper refers to the scales of NEO (1996), Long (2002) and Weng (2010), and sets environmental factors (2 items, $\alpha=0.825$), self-factors (2 items, $\alpha=0.799$) and Occupational factors (2 items, $\alpha=0.757$) measure career management with a scale of 8 items. As shown in Table 3-1.

Table3- 1Career management scale design

variable	Question number	Measurement items
career management	EF-1	Your family is very supportive of your current career
	EF-2	Your friends are very envious of your current career
	PF-1	You have a clear idea of your future career direction
	PF-2	Are you considering a career change
	OF-1	If the position cannot be promoted for a long time, you will not consider changing careers
	OF-2	Between job promotion and salary increase, you prefer job promotion
	OF-3	Between job promotion and salary increase, you are more inclined to raise salary
	OF-4	Changing careers means changing companies for you

Source: Compiled by this study

Organizational competence questionnaire design

Organizational competence refers to the ability to carry out and organize work and refers to the ability of a company to transform its various elements into products or services with higher production efficiency or higher quality under the same investment as competitors. In this study, organizational competence is visualized from the two dimensions of the enterprise's industry status and corporate atmosphere. Industry status refers to the company's operating performance and status in the industry. Organizational atmosphere, and the degree to which the organization attracts talents, etc. Organizational competence mainly refers to the scale of Gold et al. (2001) and the scale of Teece et al. (1997), setting industry status (5 items, $\alpha=0.951$), corporate atmosphere (3 items, $\alpha=0.927$) in total Eight items are used to measure organizational competence, as shown in Table 3-4.

Table3- 2 Organizational competence scale design

variable	Question number	Measurement items
organizational competence	IP-1	Your company is in a leading position in the industry
	IP-2	Do you think your company's development is very stable
	IP-3	Do you believe that your company will become the industry leader in the future
	IP-4	You think your company is more efficient overall than your peers
	IP-5	You believe that your company can meet all challenges in the industry
	EA-1	Do you think your colleagues are experts in the professional field
	EA-2	Do you think your company's organizational culture is exactly what you want
	EA-3	Do you feel that the atmosphere and interpersonal relationship of your company are very in line with your expectations

Source: Compiled by this study

Reliability and Validity Testing

According to the needs of the research model and hypo paper testing, this study uses statistical software SPSS 26 for data analysis and empirical testing. It mainly includes two aspects: one is the reliability and validity test of the scale, which uses reliability analysis and confirmatory factor analysis to test the reliability and validity of the scale. Reliability reflects the internal consistency and stability of test results, and reliability analysis is an effective analysis method to measure the stability and reliability of the comprehensive evaluation system. The reliability analysis of this study is mainly to test the internal consistency coefficient of the scale. The most used internal reliability coefficient is Cronbach's Alpha coefficient (Cronbach' α). If the α coefficient is above 0.7, it is considered that the scale has high internal consistency. If the α

coefficient is 0.5, the reliability is acceptable. The α coefficient is 0.35, which is the low reliability level. It is generally believed that the Alpha coefficient is above 0.7, which is the ideal level. In this study, the alpha coefficient was used to test the reliability of the scale. Validity refers to the degree of validity of the measurement item, that is, the degree to which the measurement tool can measure all the characteristics of its variables. The measurement tools used in this study are adapted or borrowed from existing mature scales, so the content validity of the measurement can be guaranteed. We use exploratory factor analysis (EFA), through the KMO and Bartlett sphere test methods, the purpose of exploratory factor analysis EFA analysis is to confirm the scale factor structure or a model of a group of variables. It is necessary to consider and determine the number of the selection of factors or constructs, and the group type of the factor loading; the EFA analysis aims to achieve the construct validity of the scale or questionnaire. According to the scale design, qualification management is represented by QM, and qualification management is further divided into three dimensions: qualification standard (QS), qualification certification (QC) and qualification system operation (OQ). This section analyzes the reliability of qualification management And validity analysis, KMO test results of qualification management, as shown in Table 3-5.

Table3- 3KMO test results of qualification management

measurement standard	KMO	Approximate chi-square value for Bartlett's spheroid test	degrees of freedom	of significant
Measurements	0.945	4184.971	28	0.000

Source: Compiled by this study

As shown in Table 3-5, the KMO test result of qualification management is 0.945 (greater than 0.7), the approximate chi-square value of the Bartlett sphere test is 4184.971, the degree of freedom is 28, and the significance probability value reaches a significant level ($P=0.000 < 0.05$), which indicates that the data of qualification management can be factor analyzed.

Findings

Profile of Respondents

Respondents to this questionnaire survey are mainly managers at all levels of high-tech manufacturing enterprises in China. When selecting sample enterprises, the main targets are enterprises in areas with relatively high-level development of high-tech manufacturing industries such as Guangdong, Shandong, and Chongqing. In addition, indicators such as income levels, positions, years of service in the current company and the relationship between the job position and the university major are used as reference elements. First, from the perspective of sample structure, this survey received a total of 465 valid questionnaires from 23 provinces (municipalities directly under the central government and special administrative regions) where the survey objects are mainly located in Guangdong, Shandong, and Chongqing, accounting for 84.73% of the total., these regions are all regions with relatively developed high-tech manufacturing in China (as shown in 4-1).

Table4- 1 Sources of Survey Respondents

Province of origin	Subtotal	Proportion
Guangdong	244	52.47%
chongqing	81	17.42%
Shandong	69	14.84%
Shanxi	13	2.79%
sichuan	12	2.58%
Hunan	12	2.58%
other	34	7.32%
total	465	100%

Source: Compiled by this study

Research Objective: The relationship model test between career management and variable career

This study subdivides career management into three dimensions: environmental factors, personal factors, and occupational factors. Through 465 valid sample data of questionnaires, the relationship between career management and variable career is empirically studied, and at the same time, the role of career management on variable career is clarified. According to the relevant analysis results shown in Table 4-6, it can be known that: There are significant correlations between career management CM and variable career VC, occupational identity PI, occupational social status PS, and occupational balance PE. There are significant correlations between environmental factors EF and variable career VC, occupational identity PI, occupational social status PS, and occupational balance PE. There are significant correlations between self-factor PF and variable career VC, occupational identity PI, occupational social status PS, occupational balance PE. Occupational factor OF has a significant correlation with variable career VC, occupational identity PI, occupational social status PS, and occupational balance PE. Multiple regression analysis is needed to verify the relationship between career management and variable careers and the relationship between them.

Table4- 2 Correlation analysis results between career management and variable career

	CM	EF	PF	OF	VC	P.I.	P.S.	PE
CM	1							
EF	0.817**	1						
PF	0.883**	0.625**	1					
OF	0.955**	0.667**	0.736**	1				
VC	0.866**	0.736**	0.757**	0.638**	1			
P.I.	0.807**	0.831**	0.638**	0.725**	0.878**	1		
P.S.	0.792**	0.652**	0.685**	0.762**	0.936**	0.764**	1	
PE	0.649**	0.395**	0.661**	0.642**	0.789**	0.478**	0.654**	1

Note: ***means P<0.001; **means P<0.01; *means P<0.05; data source: compiled by this study
 Career management and variable career is shown in Table 4-7, where the model R²=0.753, the adjusted R²=0.751, F=468.414, the significance level P=000 (<0.001).

The regression of EF to VC is significant, P=0.000 (<0.001), the regression coefficient is 0.301, assuming that H1a is established,

The regression of PF to VC is significant, P=0.000 (<0.001), and the regression coefficient is 0.222, assuming that H1b is established

The regression of EF to VC is significant, P=0.000 (<0.001), and the regression coefficient is 0.444, assuming that H1c is established

Table4- 3 Multiple regression analysis results of career management and variable career

	unstandardized coefficient B	regression standard error	standardized regression coefficient	t	Sig.
constant	2.121	0.765		2.773	0.006
EF	1.167	0.123	0.301	9.450	0.000
PF	0.842	0.144	0.222	5.856	0.000
OF	0.839	0.075	0.444	11.151	0.000

Source: Compiled by this study

Results

Through the multiple regression analysis of career management and variable career, the following conclusions can be obtained: The career management factor environmental factors (β=0.301, P<0.001) showed a significant positive correlation with variable career, and environmental factors can promote the improvement of variable career. The career

management factor itself ($\beta=0.222$, $P<0.001$) has a significant positive correlation with variable career, and its own factor can promote the improvement of variable career. Career management factor Occupational factors ($\beta=0.444$, $P<0.001$) showed a significant positive correlation with variable career, and occupational factors can promote the promotion of variable career.

Conclusion

This research takes the R & D personnel of high - tech manufacturing enterprises as the research object, based on the literature review, takes the data obtained from 465 effective questionnaires as the research sample, and analyzes career management, qualification management, variable career by using factor analysis and multiple regression. The interactive relationship and mechanism between career management and organizational competence help to identify the antecedent variables and outcome variables of variable career and provide a theoretical basis for the design of innovation paths for high-tech manufacturing companies to improve organizational competence. Based on the above literature analysis and empirical analysis results, the research conclusions are as follows: First, it analyzes the current situation of organizational competence of high-tech manufacturing enterprises in our country. This study collects questionnaire data from high-tech manufacturing enterprises in 23 provinces (municipalities directly under the central government and special administrative regions). Have a relatively clear understanding of the status quo of the organizational competence of enterprises, and objectively evaluate the organizational competence of enterprises from the two dimensions of industry status and corporate atmosphere. Data analysis shows that most of the interviewed high-tech enterprises have a relatively low level of organizational competence development. Well, this is determined by the nature of the enterprise industry. The high-tech manufacturing industry has fierce market competition and rapid updates and iterations. Therefore, if this type of enterprise wants to survive in the market, it must have strong organizational competence. However, the differentiation of organizational competence among different enterprises is also quite significant, and the level of organizational competence of enterprises in different regions is different. The organizational competence of high-tech manufacturing enterprises in the Pearl River Delta region and the Yangtze River Delta region with a higher level of economic development is higher than that of other enterprise regions. However, the organizational competence of some enterprises in the western region and the central region still needs to be improved. The differences in organizational competence of different enterprises make the discussion on the antecedent mechanism of organizational competence meaningful. The antecedent mechanism of organizational competence is studied. Career management and its factors environmental factors, self-factors and occupational factors, qualification management and its factors qualification standards, qualification certification, qualification system operation and organizational competence are all significantly positively correlated. Employees strengthen career management to improve their personal work ability and thus drive the improvement of the overall performance of the organization, while enterprises strengthen qualification management, which is conducive to standardizing employees' personal behavior, optimizing the corporate atmosphere, and using qualifications as their own work motivation. Variable career and its factor's occupational identity, occupational balance and organizational competence are all significantly positively correlated, but the relationship between variable career factor occupational social status and organizational competence is not significant. The variable career activities are positively promoting the improvement of organizational competence. The reason is that variable careers can encourage employees to be better at integrating surrounding resources to improve their career development capabilities. Variable careers make employees rely on and identify with the company, but this role is not related to the nature of the profession itself. Regardless,

occupational identity and occupational balance can improve organizational competence. (Chen 2020; Chen 2021; Cory 2021; Cui et al. 2019; Feiler & Breuer 2021; Huang & Huang 2020; Marie et al. 2021; Peng 2023; Rong & Li 2023; Shan et al. 2022; Wang 2021; Ye 2023; Zhang et al. 2022).

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