



**CAREER MANAGEMENT PERFORMANCE OF KNOWLEDGE-  
BASED EMPLOYEES IN CENTURYLINK SOFTWARE  
DEVELOPMENT COMPANY**

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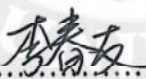
**AN INDEPENDENT STUDY SUBMITTED IN PARTIAL FULFILLMENT OF  
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This Independent Study has been Approved as a Partial Fulfillment of the Requirement of an International Master of Business Administration


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### ABSTRACT

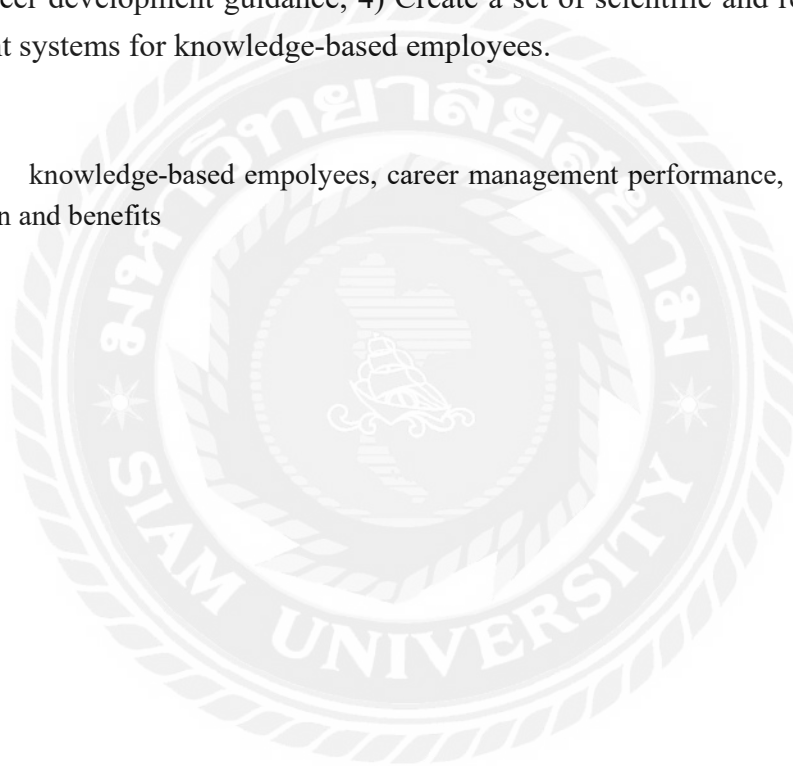
Under the new economic development environment, the development of high-tech enterprises depends on the professionalism, initiative and creativity of knowledge-based employees. These knowledge-based employees have become the core power elements for the long-term stable operation of enterprises. CenturyLink Software Development Company is a high-tech enterprise specializing in water conservancy information construction and flood mitigation services. The focus of this study was to explore the career management performance of knowledge-based employees in CenturyLink Software Development Company. This paper aimed to study the influencing factors of career management performance of knowledge-based employees and took CenturyLink Software Development Company as a case study.

The objectives of the study were 1) to explore the influencing factors that affect the career management performance of knowledge-based employees in CenturyLink Software Development Company, and 2) to verify that career self-knowledge, fair promotion, provision of career information, career guidance and training affect the career management performance of knowledge-based employees in CenturyLink Software Development Company.

This study adopted the quantitative research method, collected 393 questionnaires from knowledge-based employees in CenturyLink Software Development Company. By analyzing Career Anchor Theory and Career Interest Theory, this paper found that: 1) Career self-knowledge, fair promotion, provision of career information, career guidance

and training were the factors influencing the career management performance of knowledge-based employees in CenturyLink Software Development Company. 2) career self-knowledge, fair promotion, provision of career information, career guidance and training have a positive effect on the career management performance of knowledge-based employees. The following recommendations for CenturyLink Software Development Company are made based on the findings: 1) Enhance the professional self-awareness of its knowledge-based employees in various ways; 2) Provide knowledge-based employees with fair opportunities for advancement and diversified approaches; 3) Establish a career development guidance and counseling system for knowledge-based employees to provide targeted career development guidance; 4) Create a set of scientific and reasonable career management systems for knowledge-based employees.

**Keywords:** knowledge-based employees, career management performance, employee quality, compensation and benefits



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## DECLARATION

I, *Wang Zhifeng*, hereby certify that the work embodied in this independent study entitled “*Career management performance of knowledge-based employees in CenturyLink software development company*” is result of original research and has not been submitted for a higher degree to any other university or institution.

*Wang Zhifeng*

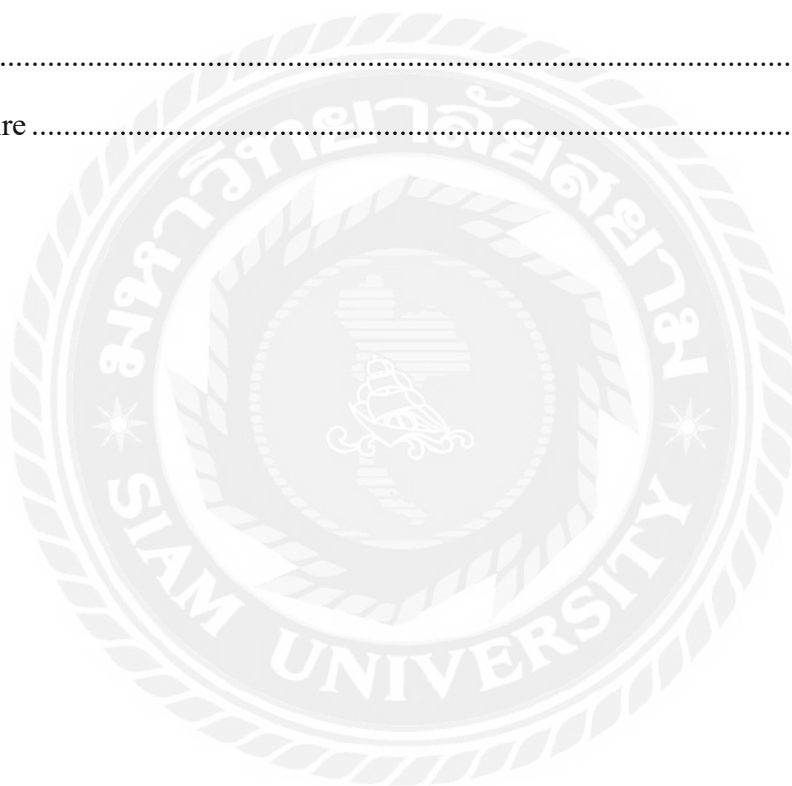
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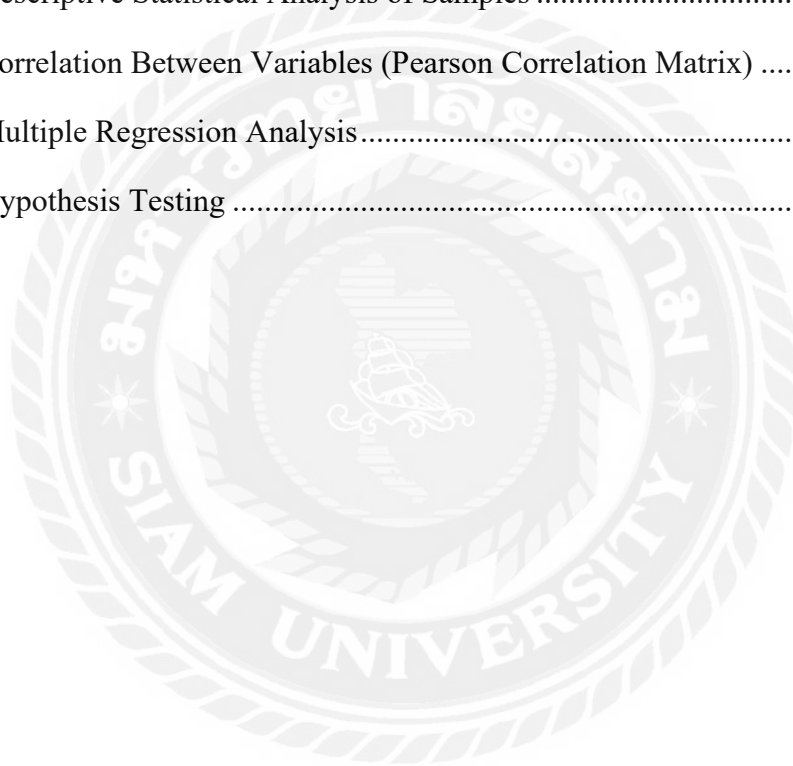
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# Chapter 1 Introduction

## 1.1 Background of the Study

In the development process of high-tech enterprises, talent is one of the most essential and important factors in building the core competitiveness of enterprises. High-tech enterprises are faced with rapidly changing internal and external environments and fierce market competition, and only by fully tapping and utilizing the valuable resource of talents can they continue to succeed in the competitive market and achieve sustainable development (Simon, 2023). Talents are the core driving force of high-tech enterprises, they have specialized knowledge and skills, can create and apply new scientific and technological achievements, and promote the continuous innovation and development of enterprises (Xie et al., 2018). At the same time, high-tech enterprises need to have high-quality management personnel, who can effectively organize and coordinate the work of various departments to improve the operational efficiency and competitiveness of enterprises. Therefore, high-tech enterprises should pay attention to the training and introduction of talents, establish a sound talent incentive mechanism, provide a good development platform and opportunities to attract and retain excellent talents, and provide continuous power and support for the development of the enterprise (van de Vrande et al., 2019).

Under the new economic development environment, the development of high-tech enterprises depends on the professionalism, initiative and creativity of knowledge-based employees. These knowledge-based employees have become the core power elements for the long-term stable operation of enterprises (Ge et al., 2022). However, this talent group tends to have stronger bargaining power and higher mobility, and once there is a loss of talent, the operation of the enterprise will be subject to a major impact. In order to effectively reduce the loss of knowledge-based employees and give full play to their potential, enterprises need to strengthen internal management and establish a career management performance system that meets the needs of knowledge-based employees. This can be achieved by matching the talent management of the enterprise with the personal career planning of knowledge-based employees, thus increasing the loyalty of knowledge-based talents to the organization, stimulating their work motivation and creativity, enabling them to play their due role and value, and making greater contributions to the high-quality development of the enterprise (Ge et al., 2022).

The focus of this study is to explore the career management performance of knowledge-based employees in CenturyLink Software Development Company. Founded in 2000, CenturyLink Software Development Company is a high-tech

enterprise specializing in water conservancy information construction and flood mitigation services. The company has accumulated rich experience in the field of flood forecasting and optimal scheduling, and a number of core technology products have reached the domestic advanced or leading level. Therefore, the company's knowledge-based employees have excellent technical research and development capabilities, and they are valuable intellectual capital for the development of CenturyLink Software Development Company. The loyalty and stability of these employees will profoundly affect the future direction of the enterprise.

In order to ensure the long-term retention and development of these knowledge-based employees (Simon, 2023), the company needs to establish a set of effective career management performance system to meet their specific needs. This will help enhance employee loyalty to the company, stimulate their creativity and innovation potential, and drive the company to achieve greater success. The future of high-tech enterprises such as CenturyLink Software Development Company will continue to write a brilliant chapter based on giving full play to the role of knowledge-based employees.

## **1.2 Questions of the Study**

As markets and technologies change, knowledge-based employees need to adapt to new challenges, and performance management can help them stay competitive. Career management Performance for knowledge-based employees is of great significance to the development of enterprises. Effective career management performance can motivate knowledge-based employees to utilize their creativity and promote innovation. This helps organizations to stay ahead in the competitive market. Knowledge-based employees are usually the key talents in the organization, and through effective performance management (Albino et al., 2015), their loyalty to the organization can be increased and the turnover rate can be reduced. The current lack of career management performance for knowledge-based employees, what are the factors influencing the career development of knowledge-based employees, and how to realize the career planning of knowledge-based employees are the focus of current enterprises. Therefore, this study raises the following questions:

1. What are the factors influencing the career management performance of knowledge-based employees in CenturyLink Software Development Company?

2. Do career self-knowledge, fair promotion, provision of career information, career guidance and training affect the career management performance of knowledge-

based employees in CenturyLink Software Development Company?

### **1.3 Objectives of the Study**

The purpose of this paper is to study the career management performance of knowledge-based employees in CenturyLink Software Development Company and to propose improvement suggestions to enhance employee performance and productivity. The specific research includes analyzing the factors affecting career management performance, understanding employees' needs and satisfaction, exploring the impact of existing measures on employees' career development and problems (Simon, 2023; Xie et al., 2018), and proposing optimization measures, such as improving the quality of employees, optimizing the corporate culture, strengthening leadership, and improving compensation and benefits. The research results can provide references and suggestions for the career management performance of employees in CenturyLink Software Development Company, and provide experience and inspiration for the career management performance of employees in other knowledge-based enterprises.

1. To explore the influencing factors that affect the career management performance of knowledge-based employees in CenturyLink Software Development Company.

2. To verify that career self-knowledge, fair promotion, provision of career information, career guidance and training affect career management performance of knowledge-based employees in CenturyLink Software Development Company.

### **1.4 Significance of Study**

In terms of theoretical significance, this study applies the existing theories of knowledge-based employees and career management performance and validates and tests the applicability of these theories from the perspective of empirical research. Through actual cases (Ge et al., 2022), this paper further complements and improves the existing theories, provides new empirical support for the research in the field of knowledge-based employees and career management performance, and enriches and deepens the research content of related theories (Simon, 2023; Xie et al., 2018). In addition, the theoretical results of this study can also provide valuable case study materials for other scholars and related enterprises, which promotes further research and practical application in this field.

In terms of practical significance, this study combines the actual situation of CenturyLink Software Development Company, and analyzes in depth the real problems existing in the field of career management performance of knowledge-based employees as well as the root causes of the problems. This study provides a reference basis for scientific and reasonable decision-making on the introduction of knowledge-based talents and human resource management (Ge et al., 2022). This study helps to promote the enterprise's human resource management system to be more perfect and comprehensive, which is conducive to the enterprise's continuous enhancement of its own Core competitiveness.

### **1.5 Scope of the Study**

The total population of this study was a total of 1000 employees of CenturyLink Software Development Company. Among them, a total of 200 people were obtained from the designated sample by means of whole cluster random sampling. Meanwhile, the research focused on the career management performance of employees in high-tech enterprises as the main content of the research. The research will be carried out within this scope in order to explore the related topics in depth and provide valuable research results. Through the sampling method of whole cluster random sampling, 200 employees with different backgrounds such as age, position, and years of working experience were selected as the designated samples for this study in CenturyLink Software Development Company. The purpose of this sampling method is to ensure that the sample for the study is diverse and representative of the different characteristics of employees in high-tech companies.

Through in-depth investigation and research on this designated sample, this study aims to provide valuable insights about the career management performance of employees in high-tech enterprises, in order to help enterprises better understand and respond to the needs of their employees, and to improve employee loyalty and productivity, thus contributing more to the sustainable development of the enterprises. The questionnaire was administered from Nov 1, 2023 to Jan 1, 2024.

## **1.6 Definition of Key Terms**

### **Career Self-knowledge**

By investigating the extent to which employees understand their career goals, interests, and values, as well as their perceptions of their personal skills and development needs, and collecting relevant data using questionnaires or interviews.

### **Fair Promotion**

Measure the extent to which employees perceive opportunities for promotion within the organization, taking into account whether factors such as gender, ethnicity, and seniority have an impact on promotion opportunities, and collect data using questionnaires or observation, etc.

### **Provision of Career Information**

Assesses the extent to which the organization provides employees with information on internal and external career opportunities, development paths, and industry trends, etc., which can be measured using employee surveys, file analysis, etc.

### **Career Guidance and Training**

Observe whether the organization provides career guidance and training opportunities and the level of employee engagement. Data can be collected through training records, feedback surveys, etc.

### **Career Management Performance**

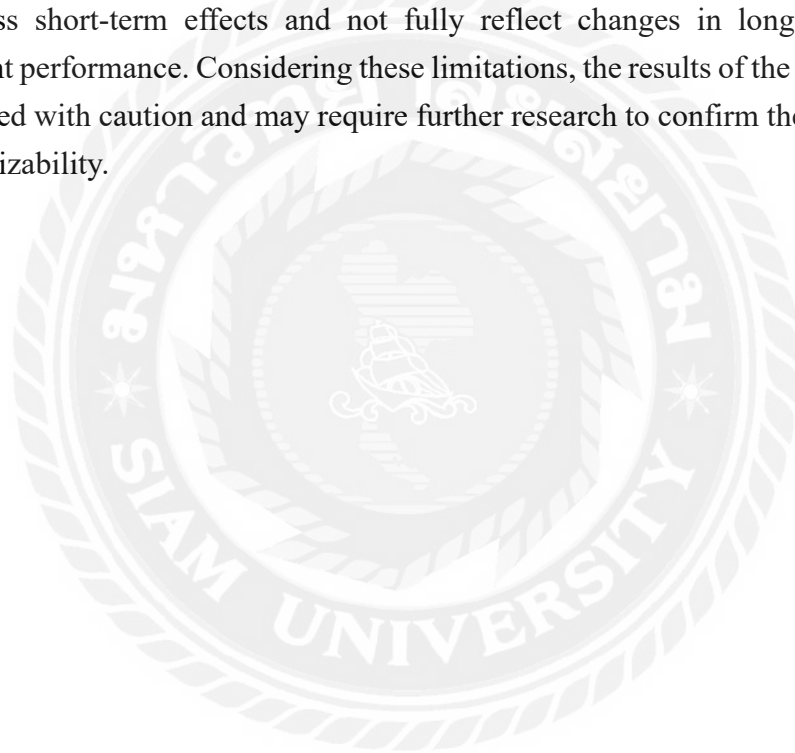
Data can be collected using 360-degree feedback, performance appraisal records, etc. by examining factors such as the level of communication between employees and management, the completion of personal development plans formulated, and whether or not career development is taken into account in performance appraisals.

### **Knowledge-Based Employees**

Knowledge-based employees, this can be measured by investigating their performance in terms of their level of professional knowledge, their ability to innovate, and their willingness to share knowledge, using performance appraisals, professional tests, and so on.

## **1.7 Limitations of the Study**

The purpose of this study is to explore the career management performance of knowledge-based employees in CenturyLink Software Development Company and to propose improvement suggestions to enhance employee performance and work efficiency. There are some limitations of this study. First, the study may be affected by sample limitations and may only cover employees in a specific time period or region, so the generalizability of the results may be limited. Second, the study may have focused on only some of the influencing factors and ignored other factors that may have an impact on career management performance, such as individual traits and work environment. In addition, the survey methods and instruments used may be biased, which may affect the accuracy and credibility of the findings. Finally, the study may only address short-term effects and not fully reflect changes in long-term career management performance. Considering these limitations, the results of the study should be interpreted with caution and may require further research to confirm their reliability and generalizability.





## **Chapter 2 Literature Review**

### **2.1 Introduction**

The literature review of this study is to analyze the factors influencing the career management performance of knowledge-based employees in CenturyLink Software Development Company based on career interest theory and career anchor theory. The literature review is used to clarify the factors influencing the career management performance of knowledge-based employees. The conceptual model of this study is constructed based on the analysis and findings of related studies to determine the relationship between the influence of career self-knowledge, fair promotion, provision of career information, career guidance and training, and career management performance.

### **2.2 Literature Review**

#### **2.2.1 Knowledge-Based Employees**

The concept of "knowledge-based employees" was first proposed by the famous American management guru Peter Drucker in his book "Practice of management". Drucker in his book "Practice of management" in the book, he believes that the knowledge-based employee refers to: those who are innovative, not by engaging in manual labor to obtain wages for the employee group. He defined them as "people who master, use symbols and concepts, work with knowledge or information, and are continuous learners" (Drucker, 1954). Francis Hurley, in his book *Managing the Knowledge Worker*. Hurley in the "management of knowledge-based employees" book, "knowledge-based employees" put forward more clear and more in line with the public perception of the definition (Hurley, 2005), he believes that through the brain to create wealth is called "knowledge-based employees". From the recognition conditions of high-tech enterprises, scientific and technological personnel engaged in research and development and related technological innovation activities accounted for no less than 10% of the total number of employees of the enterprise in the current year (Fama & Jensen, 2019), so high-tech enterprises have a greater demand for knowledge-based employees, and knowledge-based employees are also more concentrated in high-tech enterprises, more emphasis on innovation and research and development of the industry, as well as the financial industry and other modern service industries, mainly in the

relevant industry sectors. Knowledge-based employees can better utilize their own technology and knowledge to create higher value for their enterprises or units (Dariusz Jemielniak, 2012), and play a more important role in enterprise innovation and development. This paper studies CenturyLink Software Development Company, knowledge-based employees can use their own reserves of knowledge and skills to complete the work tasks, and through continuous learning and mastery of new knowledge and skills, to better solve all kinds of problems encountered in the work (Layna Fischer & Miers, 2014), in the practice of the work of the courage to think and innovate, and can create higher value for the enterprise, and promote the rapid development of the enterprise. They can create higher value for the enterprise and promote the rapid development of the enterprise.

Knowledge-based employees are characterized by strong creativity, high autonomy, strong desire for self-realization, etc. They are the concrete bearers of enterprise innovation work and have a positive role in enhancing the enterprise innovation performance (Davenport, 2005). Knowledge-based employee means, relying on specialized knowledge to carry out innovative work of employees, which not only includes employees engaged in scientific and technological research and development within the enterprise (Kuhn & Mcausland, 2006), but also includes the use of knowledge and information to carry out the work of employees in all departments and at all levels. Knowledge-based employees are employees with innovative qualities, and motivation can make them show innovative behavior. In terms of job content, they are intellectual workers who possess and utilize intellectual capital and creativity to create wealth and value for the enterprise. From the point of view of the type of talent, professional and technical personnel and managers in the enterprise belong to the category of knowledge-based employees (Ge et al., 2022). From the point of view of the workplace, most of the employees working in high-tech information technology enterprises, management and consulting enterprises, financial and securities institutions, accounting and law firms, etc. belong to knowledge-based employees. Compared with ordinary employees, knowledge-based employees generally have higher education, and are a group with innovative spirit, valuing autonomy and diversity, and pursuing a sense of happiness and meaning at work.

### **2.2.2 Career**

Career, according to Shartle (1957), "Career should be viewed as a general term for the occupations and positions that a person experiences and plays throughout his or her life" (Carroll Leonard Shartle, 1957). Webster (1980) argues that "Career refers to an individual's life-long occupational, social and interpersonal relationships as a The

general term" (Webster, 1980); American organizational behavior expert Douglas. Hall defined as: career refers to all the activities and behaviors of a person in his or her lifetime work experience, which is the whole process of career, position change and work ideal realization (Hall, 2002). There is a difference between a career in the broad and narrow sense. Career in the broad sense is the continuum of all work-related behaviors and activities carried out by an individual throughout his or her life course, and the attitudes, values, and expectations formed in the meantime. Therefore, a broad career can start from birth until incapacity to work. A career in the narrow sense is the period of employment in the company or organization where a specific job is held. The concept of career in the broad and narrow sense is different in perspective, but also has the same law and common content: firstly, career is the experience of individual behavior, not group behavior experience (Jawahar & Shabeer, 2019). Secondly, career is the experience of carrying out paid labor during an individual's life. Third, career is a time concept, specifically refers to the career stage, cycle. Finally, career is a concept that includes specific occupational content and develops dynamically. In the time level reflects the length of individual participation in the work, in the content level also includes the individual career development, change of the specific experience and process. At the same time, individuals will experience different life cycles during their lifetime, such as biological life cycle, family life cycle and occupational life cycle (Dedmond & Hufziger, 2019). Occupational life cycle is also the dominant condition for one's survival and development.

### **2.2.3 Career Anchor Theory**

#### **(1) The Concept of Career Anchor Theory**

The theory of career anchor is the American Edgar. Prof. Schein put forward. Prof. Schein took the group formed by 44 graduates of the college as the research object, carried out career research on its members for 12 years, and analyzed and researched the theory of career anchor (also known as career orientation). Career anchors are also known as career attachment points. Career anchor is actually the center around which people choose and develop their careers, which refers to the work experience and values that a person forms through continuous practice at work (Schein & John Van Maanen, 2013), and which he will not give up in any case when faced with having to make a choice, the kind of vital things or values in the career, which is an acquired part of self-intention. Through continuous analysis and summarization, from the initial 5 types of career anchors, the development of the 8 types identified as commonly used now, respectively, autonomous, entrepreneurial, management, functional, security, stability,

service, life career anchors can effectively help employees in the choice of industry and position, as well as whether or not to truly achieve success in their personal careers and other aspects of a very significant impact and role (Jared Ray Chapman, 2009). Therefore, to do a good job in managing employees' career, it is crucial to help employees find career anchors that meet their own characteristics and personality traits.

## (2) Career Self-knowledge

Career self-awareness is closely related to Career Anchor Theory, which emphasizes the core values and motivations that individuals develop over the course of their careers, which in turn influences their career choices, development, and adaptation (Portnoi et al., 2004). Career anchor theory suggests that individuals have a set of core career values over the course of their careers, including but not limited to security/stability, creativity, and independence. Research could focus on how individuals uncover and perceive these core values and incorporate them into their self-knowledge. In terms of career anchor types and self-perceptions, research could explore the relationship between an individual's categorization in career anchor theory, e.g., technologist, career-oriented, entrepreneur, etc., and their self-perceptions (Coetzee & Engelbrecht, 2019). Different career anchor types may reflect individuals' different preferences and motivations for their careers.

Matching career anchors to individual competencies in research, career anchor theory emphasizes individuals' perceptions of their own competencies and skills. Research can provide insight into how individuals match their abilities with their chosen career anchors in order to achieve career goals (Gubler et al., 2015) and increase career satisfaction. Career anchor theory takes into account changes that may occur during a career. Research could focus on how individuals adjust their career anchors in the face of career change and how this adjustment is reflected in their career self-perceptions. In the study of the interaction between organizational culture and self-perception, career anchor theory emphasizes the interaction between the individual and the organization. Research can explore how organizational culture shapes individuals' career anchors and how this shaping affects individuals' self-perceptions and adaptations to organizations. By combining research with career anchor theory, it can provide a more comprehensive understanding of the process of self-knowledge formation in an individual's career and provide more targeted career development support for the organization (Abessolo et al., 2019).

## (3) Fair Promotion

Research on fair promotion combined with career anchor theory can help provide insight into individuals' perceptions of promotion opportunities, the formation of promotion decisions, and how this relates to career anchors. Matching career anchors to promotion opportunities research has focused on the extent to which there is a match between an individual's type of career anchor (e.g., technologist, career-oriented, entrepreneur, etc.) and the promotion opportunities offered by the organization (Rubel & Kee, 2015). Individuals with different career anchors may be more interested in different types of promotions, and studies can explore the impact of this match on individuals' perceptions of fair promotions. In research on the relationship between career anchors and promotion decisions (Long, 2015), career anchor theory emphasizes the importance individuals place on career goals and motivation. Research could examine how individuals consider their career anchors in promotion decisions and the impact of this consideration on the decision of whether to accept or seek a promotion.

The moderating role of organizational culture on the relationship between career anchors and equitable promotion in research, organizational culture has a significant impact on the distribution of promotion opportunities and individuals' promotion decisions. The study can analyze how organizational culture moderates the relationship between career anchors and fair promotion, thus revealing the shaping and influence of promotion mechanisms on career anchors in different cultures (Long, 2015). Transparency of promotion mechanisms and career anchors research can examine the impact of transparency of promotion mechanisms on individual career anchors and perceptions of fairness. Mechanisms that are more transparent may be more likely to satisfy an individual's career anchor, thereby affecting his or her perception of fairness in promotion. Long-term adaptation of individuals' career anchors and promotion opportunities in the study of long-term adaptation of individuals' career anchors and promotion opportunities, it is important to understand how individuals' expectations and needs for promotion opportunities change in the face of changes in their career anchors and whether this affects their perceptions of fairness (Rubel & Kee, 2015). By synthesizing career anchor theory and fair promotion research, a more comprehensive understanding of the complex relationship between promotion decisions, organizational culture, and career anchors can be developed to provide organizations with more targeted promotion management strategies.

### **2.2.3 Career Interest Theory**

#### **(1) The Concept of Career Interest Theory**

Occupational interest theory, which was put forward by John Holland, an American psychology professor and a famous career guidance expert, in 1973, Hollander believes that the type of occupation an individual engages in has a very close connection with his own personality and interests (Holland, 1973). When an individual makes a career choice, his interest plays a key role in the decision, and at the same time, his interest is determined by his own personality. When individuals are able to engage in industries and positions that match their own interests, they will be able to maintain a high degree of enthusiasm and initiative, enthusiasm to participate in the work, and maintain a high degree of stability. According to the individual's personality interest and career choice tendency, the career interest is divided into 6 types, which are reality type, research type, art type, social type, enterprise type, and routine type, and these 6 types are also interrelated, so each individual's early experience and his/her later work experience will have some influence on the personality development as well as the career choice (Holland, 1973), and the reality of each individual's career interest and career choice tendency is a mixture of the 6 types. In reality, each individual's career interest and career choice tendency is a mixture of the 6 types (Holland, 1973).

## (2) Provision of Career Information

Combining research on the provision of career information with career interest theory can deepen our understanding of individual career decision-making and career development (Lopez et al., 1997). Career Information Needs Matching Research Career interest theory emphasizes that an individual's career interest is a key factor that influences his or her career choice and satisfaction. The study can explore how individuals' career interests affect their needs for different types of career information in order to match career interests with career information. The shaping of career interest by career information sources (LaForce et al., 2017). The role of different information sources in shaping individuals' career interests. Information sources such as social networks, media, and schools play different roles in shaping an individual's interest in a particular career, which in turn affects the need for relevant career information.

Diversity of career information and career interest expansion. The effect of diverse career information on the expansion of an individual's interests. Learn how information about different occupational fields can stimulate an individual's interest in a new field, thereby influencing his or her career path. Occupational interest theory suggests that individuals are more likely to engage in occupations that are consistent with their interests (Schorr, 2019). To investigate how receptive individuals are when they receive information about careers that align with their interests and how this affects their decision making about career choices. Matching Information Delivery Methods and

Interests The study proposes the effect of different information delivery methods (e.g., text, image, video, etc.) on the stimulation of an individual's interests. By using a variety of information delivery methods, the study can provide insights into how to more effectively meet individuals' interest needs for career information. Dynamic change of interest and information updating (LaForce et al., 2017; Rubel & Kee, 2015), how the individual's need for career information is updated with the change of interest. By combining the study of career information with the theory of career interest, it helps to discover more comprehensive factors that can better satisfy the individual's need for information in the process of career decision-making and development, and provides a theoretical basis for providing personalized career information support (Abessolo et al., 2019; Schorr, 2019).

### (3) Career Guidance and Training

Combining the study of career guidance and training with career interest theory provides insight into what motivates individuals' interests in career development and how their interest needs can be met through guidance and training. The study investigates how individuals' career interests influence their needs for different training content (Hodkinson & Sparkes, 1993). To understand the degree of match between individuals' interests and training content so that training programs can be designed in a more targeted manner. In the study on the application of vocational interest assessment in guidance, using the assessment tools of vocational interest theory, the study can assess the types of vocational interests of individuals and incorporate them into vocational guidance. This helps individuals to better understand their interests so that they can choose a career direction that better matches their interests (Okolie et al., 2020). Career interest theory emphasizes the individual's quest for consistency of interest. Research could focus on how to guide individuals to interest-oriented career planning in career guidance in order to increase their satisfaction with their chosen careers.

Research in the area of career interest matching and career guidance effectiveness. How the extent of interest matching in career guidance affects individuals' career decisions and development (Modiba & Sefotho, 2019)? Understanding the relationship between interest matching and the effectiveness of guidance provides directions for improving the quality of guidance. How career guidance affects individuals' perceptions and development of career interests. By tracking changes in individuals' interests during the mentoring process, the study can reveal the role of mentoring in interest shaping and development. The application of interest theory in the design of training courses (Hodkinson & Sparkes, 1993; Modiba & Sefotho, 2019). The vocational interest theory is incorporated into the design of training courses in order to

improve the attractiveness and practicality of training, and to make the training closer to the interest needs of individuals. By incorporating vocational interest theory, career guidance and training research can better understand the motivational and interest-driven factors of individuals in career development, providing a strong theoretical basis for implementing more effective career development support and training strategies (Okolie et al., 2020).

### 2.3 Conceptual Framework

In order to analyze the influencing factors of career management performance of knowledge-based employees in CenturyLink Software Development Company, a model was constructed based on the career interest theory and career anchor theory, with career self-knowledge, fair promotion, provision of career information, career guidance and training as independent variables and career management performance as dependent variables. As shown in figure 2.1.

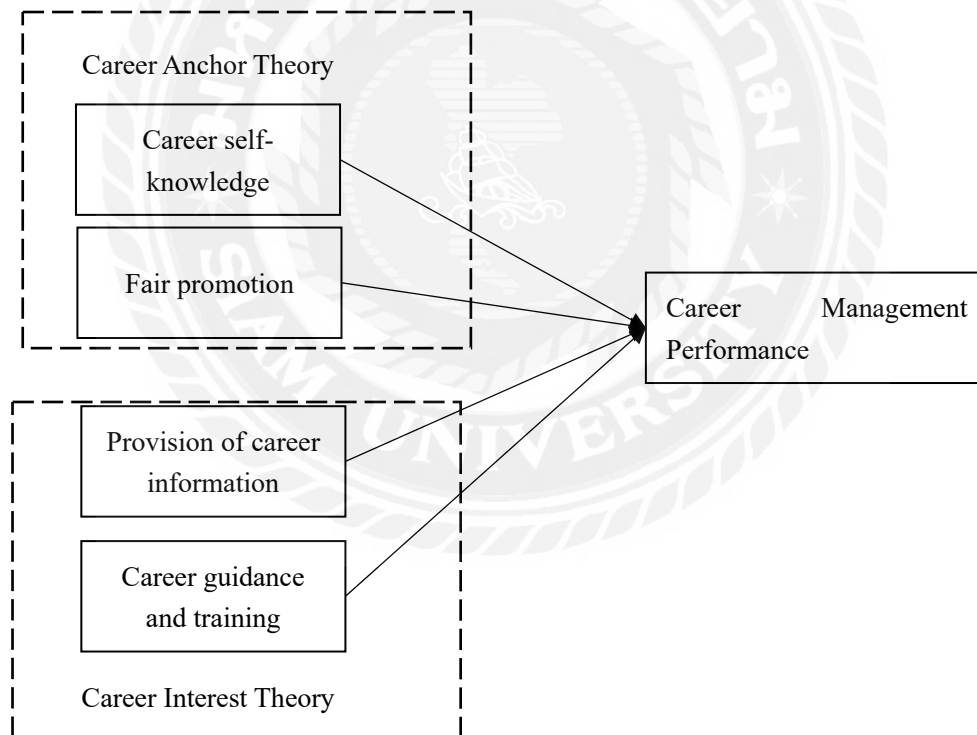


Figure 2.1 Conceptual Framework



## **Chapter 3 Research Methodology**

### **3.1 Introduction**

The main content of this study is the career management performance of knowledge-based employees in CenturyLink Software Development Company. This study takes knowledge-based employees in CenturyLink Software Development Company as a research case. In the model, the independent variables include career self-knowledge, fair promotion, provision of career information, career guidance and training, and the dependent variable is career management performance. This study incorporates a questionnaire to collect data and uses quantitative methods. The questionnaire was based on a five-point Likert scale. The first part of the questionnaire was to collect the basic characteristics of the survey sample. The second part focuses on the data related to career self-knowledge, fair promotion, provision of career information, career guidance and training, and career management performance of the survey sample. There are 8 items for career self-knowledge. And 6 items for fair promotion. There are 4 items for provision of career information. There are 4 items for career guidance and training. There are 4 items for each variable, totaling 26 items.

### **3.2 Research Design**

With the continuous development of the company's business, the company's emphasis on technology research and development of human resource management is also more and more prominent. In order to accurately understand the current situation of the company's knowledge-based employee career management performance work, analyze the problems of knowledge-based employee career management performance, and effectively develop and improve the company's knowledge-based employee career management performance system and system, this paper combines the company's business development and human resource management, and designs a survey questionnaire on the current situation of career management performance from four aspects: career self-knowledge, fair promotion, provision of career information, guidance and training. management status quo questionnaire.

The quantitative research method was used in this study. A questionnaire was used for data collection during the study. The career management performance of knowledge-based employees in CenturyLink Software Development Company is the main content of the study. A five-point Likert scale was used, with scores ranging from 1-5, representing strongly disagree, disagree, generally agree, agree and strongly agree,

with higher scores representing greater agreement with the item. Corresponding question items were designed for each variable and the item coding is shown in Table 3.1.

Table 3.1 The Risk Management Measurement Item

Variable	Measurement item	NO.
Career Self-knowledge	1. Do you know your own working ability and core competitiveness?	Q1
	2. Have you designed a clear career plan for yourself?	Q2
	3. Is your current position consistent with your career plan?	Q3
	4. Do you understand the company's strategic objectives?	Q4
	5. Is your personal career plan consistent with the company's strategic objectives?	Q5
	6. Are you satisfied with your current job?	Q6
	7. Do you think your current job matches your career interests?	Q7
	8. Do you think your current job is in line with your career specialty?	Q8
Fair promotion	9. Your superiors are very concerned about your growth at work?	Q9
	10. Do you think the company's career promotion channels are diversified and very realistic?	Q10
	11. Do you think the company promotes employees according to their ability and achievements?	Q11
	12. Do you think that your ability and contribution can be quantified by the current salary assessment system?	Q12
	13. Do you think the company has a set of perfect performance appraisal and evaluation system?	Q13
	14. Do you think the company's career promotion system is reasonable?	Q14
Provision of career information	15. Do you think the company's promotion channels and evaluation mechanism are favorable to the career development of employees?	Q15
	16. Do you think the company provides opportunities for transfer and multi-position training?	Q16
	17. Do you think the company has a perfect mechanism for releasing job promotion information?	Q17
	18. Do you know the qualification required for the target position of promotion very well?	Q18
Career guidance and training	19. Do you think the training provided by the company is very useful for career development?	Q19
	20. Do you think the company's training mechanism is very reasonable?	Q20

	21. Does the company encourage training and provide training conditions and materials?	Q21
	22. Does the company make career plans or provide related counseling for employees?	Q22
Career management performance	23. Do you think that the company's career management performance is conducive to the development of your potential?	Q23
	24. Do you think that the company's career management performance is conducive to stimulating your career interest?	Q24
	25. Do you think that the company's career management performance is conducive to increasing your satisfaction with your current job?	Q25
	26. Do you think that the company's career management performance improves the matching of jobs?	Q26

### 3.3 Hypothesis

The topic of the study is career management performance for knowledge-based employees at CenturyLink Software Development Company, while the aim is to understand how different factors affect career management performance. Firstly, a literature review was conducted to understand the existing research and theories. In this process, key variables and theoretical frameworks related to the research topic were identified, as well as patterns and relationships found in previous studies. Based on the literature review and the purpose of the study, the independent variables (career self-knowledge, fair promotion, provision of career information, career guidance and training) and dependent variables (career management performance). Based on the research and logical reasoning of Career Anchor Theory and Career Interest Theory, an attempt is made to understand the correlations between these variables. Formulate specific research hypotheses based on the established correlations. Propose hypotheses about the relationship between career self-knowledge, fair promotion, provision of career information, career guidance and training and career management performance.

H1: Career self-knowledge has a positive effect on the career management performance of knowledge-based employees in CenturyLink Software Development Company.

At CenturyLink Software Development Company, knowledge-based employees are abler to develop clear career development plans and succeed in their careers if they have a clearer understanding of their career goals, interests, and abilities. Therefore, it is hypothesized that the higher the level of career self-awareness, the better their career

management performance.

H2: Fair promotion has a positive effect on the career management performance of knowledge-based employees in CenturyLink Software Development Company.

At CenturyLink Software Development Company, perceived fair promotion mechanisms will be associated with higher career management performance. If knowledge-based employees perceive promotion mechanisms to be fair, knowledge-based employees feel that they are treated fairly, which will affect their motivation and commitment to their work. Therefore, it is hypothesized that perceived fair promotion is positively related to career management performance.

H3: Provision of career information has a positive effect on the career management performance of knowledge-based employees in CenturyLink Software Development Company.

Proactive provision of comprehensive career information will be associated with better career management performance in CenturyLink Software Development Company. When companies provide rich and transparent career information, employees are more likely to be aware of career opportunities within the organization, which helps knowledge-based employees make informed career decisions. Therefore, it is hypothesized that the level of providing career information is positively related to career management performance.

H4: Career guidance and training has a positive effect on the career management performance of knowledge-based employees in CenturyLink Software Development Company.

Career guidance and training in CenturyLink Software Development Company can help employees better understand their interests, abilities, and career goals, and thus better plan and manage their careers. Therefore, it is hypothesized that employees who receive effective career guidance and training will perform better in terms of career management performance. See figure3.1.

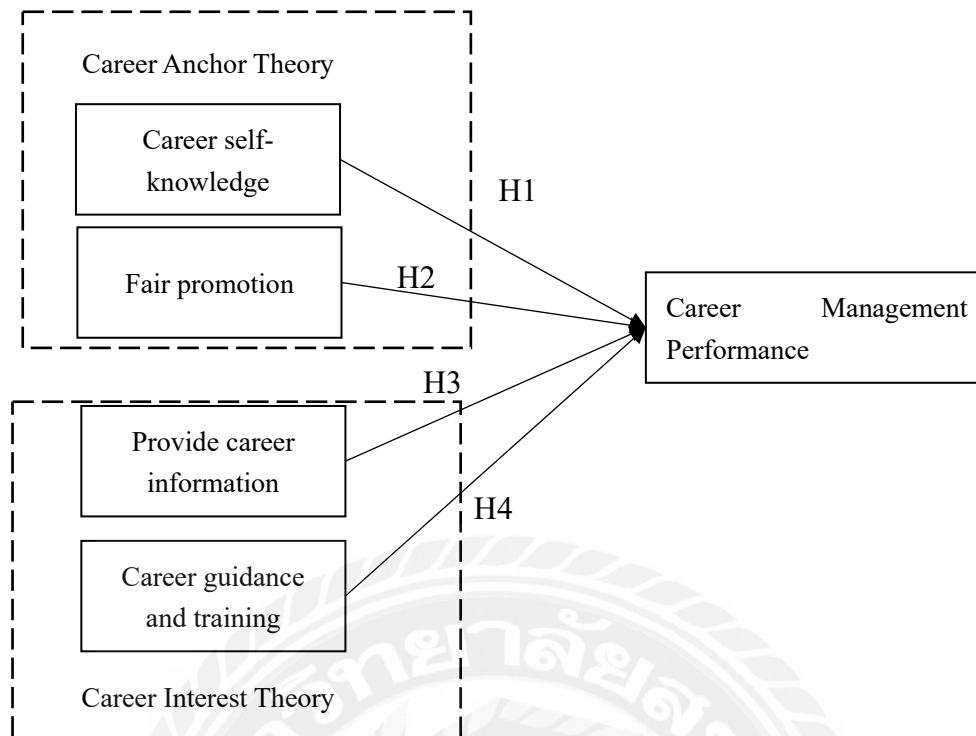


Figure 3.1 Hypotheses

### 3.4 Population and Sampling

With the continuous expansion of the company's business, it is realized that the company invests more in technology research and development, while there are some problems in human resource management. In order to more accurately understand the current status of career management performance of knowledge-based employees in this paper, analyze potential problems, and develop effective improvement measures, this research to design a questionnaire on the current status of career management performance. This questionnaire focuses on four key aspects, i.e., career self-perception, fair promotion, provision of career information, mentoring and training. This paper believes that these aspects are crucial for employees' career development. By collecting feedback from employees, this paper will better understand their needs and expectations in order to develop a career management performance system and system that is more in line with the company's strategic goals.

The study population was knowledge-based employees in CenturyLink Software Development Company. Knowledge-based employees from other companies are not included in the study. The survey includes employees' grade, gender, major, career self-knowledge, fair promotion, provision of career information, career guidance and training, career management performance and so on. The CenturyLink Software

Development Company has an enrollment of nearly 2000 knowledge-based employees. For this study the main research method is random sampling method.

Calculated by the sample formula, collect data values for the quartile of the standard normal distribution, for the confidence level generally take the value of 95%.  $q$  is the sample standard deviation, the sample standard deviation of the estimated value of the standard deviation of the sample is generally used 0.5, to determine the margin of error  $e$  (i.e., the maximum permissible value of the difference between the sample mean and the overall mean),  $e = 0.05$ . Calculated results yielded a sample of 390. For the random sampling method, an online survey will be conducted using Questionnaire Star for questionnaire distribution, and the sample will be drawn randomly from the overall population.

### **3.5 Data Collection**

Data collection is a key aspect of the study, which is essential to obtain useful information about the career management performance of knowledge-based employees in CenturyLink Software Development Company. To ensure the accuracy and reliability of the data, questionnaire is one of the main data collection methods in this study. By designing a questionnaire, this paper was able to collect large-scale data in order to obtain knowledge-based employees' perceptions and experiences about the company's career management performance. The questionnaire included questions about career planning, training needs, promotion opportunities, and performance appraisal. For data analysis, the paper will use statistical software to quantitatively analyze the questionnaire data in order to reveal the relationships and trends among the variables. The data collection process will be carried out after the study has been approved. The questionnaires will be distributed electronically to the sampled employees and certain deadlines will be set to ensure timely data collection. The five levels of satisfaction, relatively satisfied, average, less satisfied, and dissatisfied were assigned values of 5, 4, 3, 2, and 1 points respectively. A total of 420 questionnaires were distributed during the survey, 400 questionnaires were recovered, 393 questionnaires were valid, and the validity rate was 93.57%.

## 3.6 Data Analysis

### 3.6.1 Reliability

By using SPSS, the reliability validity of the questionnaire from the four dimensions of career self-perception, fair promotion, providing career information, and conducting guidance and training. The reliability of the dimension of career I perception was analyzed, and the overall standardized reliability coefficient was 0.805, and the value of the reliability coefficient ranges from 0 to 1, and the closer it is to 1, the higher the reliability is. The results of this analysis show relatively high reliability. According to the research analysis Cronbach's Alpha was calculated for each variable and finally it was found that the Cronbach's Alpha for fair promotion was 0.708. The Cronbach's Alpha for provision of career information was 0.822. The Cronbach's Alpha for career guidance and training has a Cronbach's Alpha value of 0.867. Career management performance has a Cronbach's Alpha value of 0.849. The reliability of each variable is relatively high and meets the reliability requirements. This indicates that the reliability of the questionnaire of this survey study is very good, as shown in Table 3.2.

Table 3.2 Variable Reliability Test

Variable	Cronbach's Alpha	N of Items
Career self-knowledge	0.805	8
Fair promotion	0.708	6
Provision of career information	0.822	4
Career guidance and training	0.867	4
Career management performance	0.849	4

### 3.6.2 Validity

According to the results of Confirmatory factor analysis (CFA) above, it can be seen that the result of the coefficient of KMO test is 0.876, and the coefficient of KMO test takes the value between 0-1, when it is greater than 0.7, it means that the questionnaire can be Confirmatory factor analysis (CFA); according to the significance of the spherical test, it can also be seen that the significance of this test is infinitely close to 0 and is significant. The significance of the spherical test can also be seen that the significance of this test is infinitely close to 0 and is significant. total variance explained in the Confirmatory factor analysis (CFA) analysis, Rotation Sums of

Squared Loadings Cumulative %, the Career Self-knowledge is 53.86%, the Fair promotion is 51.296%, the Provision of career information is 65.191%, the Career guidance and training is 71.478%, which are all greater than 0.5. As shown in Table 3.3. It indicates that the overall validity of the questionnaire is good.

Table 3.3 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		Career self-knowledge	Fair promotion	Provision of career information	Career guidance and training
		0.876	0.788	0.800	0.829
Bartlett's Test of Sphericity	Approx. Chi-Square	842.116	378.484	536.112	726.313
	df	28	15	6	6
	Sig.	0.000	0.000	0.000	0.000





## Chapter 4 Findings

### 4.1 Introduction

Factors and relevant theories affecting the career management performance of knowledge-based employees in CenturyLink Software Development Company were sorted out through literature review. The data reliability and validity of the collected questionnaires were analyzed using quantitative research methods to determine the validity of the collected data. To further understand the relationship between the variables, the study analyzed the data through descriptive statistics, correlation analysis and regression analysis. Through the analysis, the hypotheses were verified and the interaction of the variables in the model of the career management performance of knowledge-based employees in CenturyLink Software Development Company influencing factors was clarified.

### 4.2 Description of Statistical Variables

In the study, the sample was 208 males, which is 52.9% of all samples, and 185 females, which is 47.1% of all samples. In the survey about the age of the sample, the age of the sample is 18-25 is 167, which is 42.5% of all the samples, 26-35 is 77, which is 19.6% of all the samples, 36-45 is 108, which is 27.5% of all the samples, and 46-55 is 24, which is 6.1% of all the samples. Regarding the survey on the academic qualifications of the samples, the number of Undergraduates is 182, accounting for 46.3% of all samples, and the number of Master's degree is 146, accounting for 37.2% of all samples. Regarding the survey on the working experience of the samples, the number of Within 1 year is 132, accounting for 33.6% of all the samples, 1-2years is 66, accounting for 16.8% of all the samples, 3-4years is 87, accounting for 22.1% of all the samples, 5-7years is 29, accounting for 7.4% of all the samples, 8-10years is 50, accounting for 7.4% of all the samples, and 8-10years is 50, accounting for 7.4% of all the samples. 10years is 50, which is 12.7% of all samples, and More than 10 years is 29, which is 7.4% of all samples. In the survey on job positions, Technical post is 108, accounting for 27.5 percent of all samples, Administration post is 139, accounting for 35.4 percent of all samples, Middle and senior managers is 78, accounting for 19.8 percent of all samples, Marketing post is 26, accounting for 7.4 percent of all samples. The sample as a whole met the statistical requirements.

Table 4.1 Distribution of Basic Characteristics of Samples (N = 393)

Item	Options	Frequency	Percent
GEN	Male	208	52.9
	Female	185	47.1
AGE	18-25years	167	42.5
	26-35years	77	19.6
	36-45years	108	27.5
	46-55years	24	6.1
	more than 55 years	17	4.3
EDU	Junior high school	9	2.3
	Senior high school	4	1.0
	Undergraduate	182	46.3
	Master's degree	146	37.2
	Others	52	13.2
EXP	Within 1 year	132	33.6
	1-2years	66	16.8
	3-4years	87	22.1
	5-7years	29	7.4
	8-10years	50	12.7
	More than 10 years	29	7.4
POS	Technical post	108	27.5
	Administration post	139	35.4
	Middle and senior managers	78	19.8
	Marketing Post	26	6.6
	Others	42	10.7
Total		393	100.0

According to the analysis of the research data can be obtained from the sample in terms of gender, age, education, work experience, and job position the results show that the Std. Deviation of the survey data is between 0.137 and 0.3, and the Skewness is between 0.118 and 0.727, and not more than 3 meets the basic requirements. Meanwhile, the results of the study show that Kurtosis is between 0.292 and 1.996 meets the requirements as shown in Table 4.2. The descriptive statistical analysis can determine that the collected data basically meets the requirements of normal distribution.

Table 4.2 Descriptive Statistical Analysis of Samples

Item	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis
GEN	0.300	0.118	0.123	1.996	0.246
AGE	0.152	0.727	0.123	0.332	0.246
EDU	0.217	0.217	0.123	0.814	0.246
EXP	0.137	0.592	0.123	0.861	0.246
POS	0.250	0.787	0.123	0.292	0.246

(1) Career Self-knowledge

Through the investigation of the company's knowledge-based employees' career self-knowledge, it is found that more than half of the knowledge-based employees have an understanding of their own work ability and core competitiveness; more than half of the knowledge-based employees do not have a clear enough career plan for themselves, and one-third of them think that the current job positions match with their own career plan in general; 68.9% of the knowledge-based employees think that they understand the company's Strategic objectives, more than half of the knowledge-based employees that their own career planning and the company's strategic objectives are not consistent enough; that their own job satisfaction, work and career interests and career strengths in line with the knowledge-based employees accounted for more than 70%.

(2) Fair Promotion

Through the survey on the company's fair promotion, it is found that more than 72% of the knowledge-based employees think that the superior leaders will pay attention to their work growth performance; more than 63% of the knowledge-based employees think that the company has not set up diversified career promotion channels for the knowledge-based employees that are in line with the actual needs; one-third of the knowledge-based employees think that the company has not promoted employees according to the ability and performance, and they think that their own ability and contribution are not quantified through the salary assessment; more than 60% of the knowledge-based employees think that their job positions are satisfied with their work, and their jobs are in line with their career interests and career specialties. One-third of the knowledge-based employees think that the company does not promote employees according to their ability and performance, and that the degree of their ability and contribution is not quantified through salary assessment; more than 60% of the knowledge-based employees think that the company does not have a perfect performance appraisal and evaluation system; and nearly half of the employees think

that the company's career promotion system is not reasonable.

### (3) Provision of Career Information

Through the survey on the company's provision of career information, nearly half of the knowledge-based employees think that the company's promotion channels and evaluation mechanisms are not conducive to the development of individual careers; more than half of them think that the company does not provide opportunities for transferring to other positions and exercising in multiple positions; more than half of them think that the company does not have a perfect mechanism for releasing information on job promotion; more than half of them think that they do not know much about the qualifications of the promoted positions. More than half of the knowledge-based employees think that they do not know much about the qualifications for promotion positions.

### (4) Career Guidance and Training

Through the survey on the company's guidance and training, more than 84% of the employees think that the training provided by the company is beneficial to career development; however, 50% of the knowledge-based employees think that the training mechanism is not very reasonable; more than 60% of the knowledge-based employees think that the company encourages the training and provides the corresponding training conditions and materials; however, 65% of the knowledge-based employees think that the company does not carry out the corresponding career planning or guidance counseling. However, 65% of knowledge-based employees believe that the company does not provide appropriate career planning or guidance counseling.

## **4.3 Results of the Study**

### **4.3.1 Correlation Analysis**

After collecting the relevant data through the reliability and validity analysis, the data is correlated and analyzed. Correlation analysis is mainly used to understand the interrelationship between the variables. This study illustrates the linear relationship between the variables through Pearson correlation analysis. Pearson's coefficient is generally between -1 breaking 1. When the absolute value of Pearson's coefficient is closer to 1, it means that the relationship between two variables is closer and the

correlation is higher. When the correlation is positive, it is positive and when it is negative, it is negative. According to Table 4.3, the Pearson correlation coefficients between the variables career self-knowledge, fair promotion, provision of career information, career guidance and training, and career management performance are all between 0 and 1. Pearson correlation coefficients between each variable are between 0.230 and 0.542 and less than 0.9, while  $P < 0.01$  between each variable indicates that there is a correlation between each variable and it is positive.

Table 4.3 Correlation Between Variables (Pearson Correlation Matrix)

Variables	Career self-knowledge	Fair promotion	Provision of career information	Career guidance and training	Career management performance
Career self-knowledge	1				
Fair promotion	0.230**	1			
Provision of career information	0.357**	0.500**	1		
Career guidance and training	0.214**	0.542**	0.483**	1	
Career management performance	0.473**	0.447**	0.503**	0.369**	1

NOTE: \* $P < 0.05$ , \*\* $P < 0.01$ , \*\*\* $P < 0.001$

The Pearson correlation coefficient between career self-knowledge and fair promotion is 0.230, and  $p < 0.01$ , indicating that there is a correlation between career self-knowledge and fair promotion, and it is a general correlation.

The Pearson correlation coefficient between career self-knowledge and provision of career information is 0.357, and  $p < 0.01$ , indicating that there is a correlation between career self-knowledge and provision of career information, and it is a general correlation.

The Pearson correlation coefficient between career self-knowledge and career guidance and training is 0.214, and  $p < 0.01$ , indicating that there is a correlation between career self-knowledge and career guidance and training, and it is a general correlation.

The Pearson correlation coefficient between career self-knowledge and career

management performance is 0.473, and  $p < 0.01$ , indicating that there is a correlation between career self-knowledge and career management performance, and it is a general correlation.

The Pearson correlation coefficient between fair promotion and provision of career information is 0.500, and  $p < 0.01$ , indicating that there is a correlation between fair promotion and provision of career information, and it is a general correlation.

The Pearson correlation coefficient between fair promotion and career guidance and training is 0.542, and  $p < 0.01$ , indicating that there is a correlation between fair promotion and career guidance and training, and it is a general correlation.

The Pearson correlation coefficient between fair promotion and career management performance is 0.447, and  $p < 0.01$ , indicating that there is a correlation between fair promotion and career management performance, and it is a general correlation.

The Pearson correlation coefficient between career guidance and training and provision of career information is 0.483, and  $p < 0.01$ , indicating that there is a correlation between career guidance and training and provision of career information, and it is a general correlation.

The Pearson correlation coefficient between provision of career information and career management performance is 0.503, and  $p < 0.01$ , indicating that there is a correlation between provision of career information and career management performance, and it is a general correlation.

The Pearson correlation coefficient between career guidance and training and career management performance is 0.369, and  $p < 0.01$ , indicating that there is a correlation between career guidance and training and career management performance, and it is a general correlation.

Through the analysis of the above research, the factors influencing the career management performance of knowledge-based employees in centurylink software development company include career self-knowledge, fair promotion, provision of career information, career guidance and training.

### 4.3.2 Multiple Regression Analysis

Multiple regression analysis was used on the data to determine the relationship between the dependent variable career management performance and the independent variables career self-knowledge, fair promotion, provision of career information, career guidance and training. The regression equation was significant,  $F=37.045$ ,  $p<0.001$ . the Durbin-Watson test value was 1.906, between 1.8 and 2.2. the data were independent and met the linear regression requirements. In the covariance diagnostic results career self-knowledge, fair promotion, provision of career information, career guidance and training VIF values are all close to 1, the meet the requirements, VIF values indicating that there is no covariance in the data. Career self-knowledge ( $\beta=0.582$ ,  $p<0.05$ ), fair promotion ( $\beta=0.318$ ,  $p<0.05$ ), provision of career information ( $\beta=0.441$ ,  $p<0.05$ ), career guidance and training ( $\beta=0.246$ ,  $p<0.05$ ) significantly and positively affect the career management performance of knowledge-based employees in CenturyLink Software Development Company. The variables together explain the classroom participation weight of 52.6%, which is in line with the requirement.

Table 4.3 Multiple Regression Analysis

Item	Unstd. B	Std. Beta	t	Sig.	VIF	F	Durbin-Watson
C	1.862	-	4.189	0.000		37.045***	1.906
Career Self-Knowledge	0.582	0.475	2.176	0.000	1.058		
Fair Promotion	0.318	0.262	3.327	0.000	1.074		
Provision of Career Information	0.441	0.330	8.416	0.006	1.133		
Career Guidance And Training	0.246	0.120	3.366	0.000	1.019		
R Square	0.526						
Adjusted R Square	0.513						

NOTE: \* $P<0.05$ , \*\* $P<0.01$ , \*\*\* $P<0.001$

According to the multiple regression analysis, the influential relationship between each variable was obtained. Career self-knowledge has a positive effect on the career management performance of knowledge-based employees in CenturyLink Software Development Company. Hypothesis 1 is established. Fair promotion has a positive effect on the career management performance of knowledge-based employees in CenturyLink Software Development Company. Hypothesis 2 is established. Provision of career information has a positive effect on the career management performance of knowledge-based employees in CenturyLink Software Development Company.

Hypothesis 3 is established. Career guidance and training has a positive effect on the career management performance of knowledge-based employees in CenturyLink Software Development Company. Hypothesis 4 is established.





## **Chapter 5 Conclusion and Recommendation**

### **5.1 Conclusion**

This paper presented literature review of the career management performance of knowledge-based employees and related theories by analyzing Career Anchor Theory and Career Interest Theory. There were 420 questionnaires were distributed and 393 valid questionnaires were returned. The factors influencing the career management performance of knowledge-based employees and the relationship between the factors were found through SPSS analysis.

#### **5.1.1 Factors Influencing the Career Management Performance of Knowledge-Based Employees**

By analyzing Career Anchor Theory and Career Interest Theory, the paper found that career self-knowledge, fair promotion, provision of career information, career guidance and training were the factors influencing the career management performance of knowledge-based employees in CenturyLink Software Development Company. Pearson correlation coefficients of career self-knowledge, fair promotion, provision of career information, career guidance and training, and the career management performance were obtained through correlation and regression analyses. The Pearson correlation coefficient is 0.473,0.447,0.503,0.369. All of which were greater than 0.3, less than 0.9 and  $P < 0.01$ , indicating that there is a correlation between the variables. The regression analysis model was constructed in the regression analysis and Career Self-knowledge coefficient was 0.582, Fair promotion coefficient was 0.318, Provision of career information coefficient was 0.441, Career guidance and training coefficient was 0.246, indicating that each variable is related to student management satisfaction is positively related.

#### **5.1.2 Career Self-Knowledge, Fair Promotion, Provision of career information, Career Guidance and Training Have a Positive Effect on the Career Management Performance of Knowledge-Based Employees**

The results of the study showed that, the factors of career self-knowledge, fair promotion, provision of career information, career guidance and training influence the career management performance of knowledge-based employees. Career self-knowledge ( $\beta=0.582$ ,  $p < 0.05$ ), fair promotion ( $\beta=0.318$ ,  $p < 0.05$ ), provision of career

information ( $\beta=0.441$ ,  $p<0.05$ ), career guidance and training ( $\beta=0.246$ ,  $p<0.05$ ) have positive effects on the career management performance of knowledge-based employees. Career self-knowledge has a positive effect on the career management performance of knowledge-based employees in CenturyLink Software Development Company. Hypothesis 1 is established. Fair promotion has a positive effect on the career management performance of knowledge-based employees in CenturyLink Software Development Company. Hypothesis 2 is established. Provision of career information has a positive effect on the career management performance of knowledge-based employees in CenturyLink Software Development Company. Hypothesis 3 is established. Career guidance and training has a positive effect on the career management performance of knowledge-based employees in CenturyLink Software Development Company. Hypothesis 4 is established.

Table 5.1 Hypothesis Testing

NO.	Hypothesis	Result
H1	Career self-knowledge has a positive effect on the career management performance of knowledge-based employees in CenturyLink Software Development Company.	Established
H2	Fair promotion has a positive effect on the career management performance of knowledge-based employees in CenturyLink Software Development Company.	Established
H3	Provision of career information has a positive effect on the career management performance of knowledge-based employees in CenturyLink Software Development Company.	Established
H4	Career guidance and training has a positive effect on the career management performance of knowledge-based employees in CenturyLink Software Development Company.	Established

## 5.2 Recommendations

### 5.2.1 Enhance Career Self-Knowledge

For knowledge-based employees with insufficient self-knowledge or low job satisfaction at this stage, CenturyLink Software Development Company can guide knowledge-based employees to understand their basic ability, work style, professional strengths, values, personality traits, strengths and weaknesses through questionnaires, on-site interviews, etc., which are organized by the Human Resources Department and departmental managers. CenturyLink Software Development Company can guide the knowledge-based employees to understand their basic ability, working style,

professional expertise, values, personality traits, strengths and weaknesses, and so on. For the career interest of knowledge-based employees, we can learn from Hollander's career interest measurement table, design the relevant measurement form and interview content, and take the form of quiz or one-on-one interview to test and master the career interest of knowledge-based employees, for example, we can design: what kinds of work they like most, their own hobbies and interests, their own expertise, the significance of the existing work for them, their own core competitiveness and so on, and then through the categorization of the results of the relevant questions (Abessolo et al., 2019), the results of the on-site interview, and the results of the interview. Through the categorization of the results of the relevant issues, options arrangement, can be suitable for knowledge-based employees for a position or a certain job for the initial judgment, to guide knowledge-based employees to carry out in-depth self-knowledge, to help knowledge-based employees to understand their own more suitable for engaging in the position, so as to develop a clearer career planning and goals.

The prerequisite of career management is not only the mastery of one's own internal factors, but also the comprehensive mastery of all kinds of career information, CenturyLink Software Development Company should make extensive use of online and offline platforms to regularly and timely release and update important information about the industry, the company's dynamics, and job information, etc. Regularly organize trainings to provide knowledge-based employees with information about the company. Regularly organizing training for knowledge-based employees to promote the company's strategic objectives and annual plans can effectively enable knowledge-based employees to formulate and adjust their personal career plans (Rubel & Kee, 2015) in accordance with the company's development needs, so as to make their own development in line with the company's development and meet the needs of the existing positions. Comprehensive career awareness allows knowledge-based employees to understand the job content and requirements of each position, helping them to find positions that are more suitable for their abilities in accordance with their own career interests and professional strengths.

### **5.2.2 Achieve Fair Promotion**

For knowledge-based employees, they are more adept at accepting challenging work, and they have strong learning ability and more initiative. In the career of knowledge-based employees, if only a single vertical career path is constructed, it is easy for knowledge-based employees to get burned out, which is not conducive to the development of the company to make due contributions. For this reason, it is especially

important to design diversified career development channels for CenturyLink Software Development Company's knowledge-based employees.

In accordance with the actual work of functional, marketing and technical sequences, the company has established a mechanism for the rotation and exchange of knowledge-based employees of the same grade, and regular job rotation for knowledge-based employees who meet the specific conditions of service, which can create new development paths for the knowledge-based employees who have stagnated in the process of career development, and also enable employees in different positions to comprehensively understand the company's overall management, technology research and development, product marketing, and other business development processes (Schorr, 2019). It also enables employees in different positions to fully understand the company's overall management, technology development, product marketing and other business development processes. It is beneficial for the company to utilize lower cost to cultivate compound talents and establish talent ladder, and also helps to lay the foundation for diversified development paths in the later stage.

Combined with CenturyLink Software Development Company's job setup needs, on the basis of unidirectional channel promotion for each serial position in the previous period, we have opened up the barriers between each job category, and constructed horizontal development channels between management, functional, technical and marketing categories, so that the four occupational categories can be directly interoperable on the basis of certain conditions, providing more development paths for knowledge-based employees. Provide more development space for knowledge-based employees. To set up a feasible diversified career development channel, attention must be paid to the following three aspects: firstly, the promotion of cross-occupational categories must meet the requirements of each post, and the transfer of posts across occupational categories can only be carried out under the premise of passing the qualification certification; secondly, it is necessary to base on the perfect and fair remuneration system, to ensure that the remuneration and treatment between the same ranks are equivalent, and that there should not be a big gap between the posts of parallel ranks (Coetzee & Engelbrecht, 2019). Otherwise, it will form the phenomenon that most personnel will move to the positions with higher remuneration packages, which is not conducive to the stability of the overall team of knowledge-based employees; thirdly, the promotion process should be fair, just and open, and in particular, for the mobilization of positions across job categories, it is necessary to strictly accept the supervision of all the employees to avoid the arbitrariness of diversified career development channels.

### **5.2.3 Provide Diversified Career Information**

A system of career development guidance counseling should be explored. According to the length of time knowledge-based employees work in the company, position category, etc., targeted career development guidance. For example, for new knowledge-based employees, you can carry out self-awareness tests, department managers one-on-one interviews and other forms of knowledge-based employees in the initial period of employment to give specific guidance; for the old employees in the development of their careers in the problem can be taken by the understanding of the specific situation of the staff of the direct leadership of the conversation, feedback to the Department of Human Resources and the relevant division of the vice president of the form of diagnosis together for knowledge-based employees to provide specific, actionable recommendations for improvement. Specific, actionable recommendations for improvement. At the same time, a detailed record of each employee's counseling situation, for the next counseling guidance to provide reference.

Career management is a long-term, continuous work, both individual career management and organizational career management, will change with the influence of internal and external environment. Therefore, the career management of knowledge-based employees must be supervised throughout the process, and an effective evaluation and feedback mechanism should be established to facilitate timely adjustments according to the specific conditions of the company and the employees. For knowledge-based employee career management assessment feedback mechanism, can be combined with the qualification assessment, annual assessment and other synchronized (Ge et al., 2022), timely understanding of the latest thinking of the staff dynamics and mastery of knowledge and skills, can play a reminder of the management of knowledge-based employee career, guidance, adjustment and other aspects of the role of knowledge-based employees to promote the better realization of knowledge-based employees to achieve their career goals, and faster to achieve success in their careers.

### **5.2.4 Improve Career Guidance and Training**

Combined with the specific needs of knowledge-based employees, in each year to develop a scientific, systematic and perfect training program. The training program can be prepared by the Human Resources Department of the first draft, and in the company to fight for the opinions and suggestions of all knowledge-based employees, a

comprehensive grasp of the training needs of knowledge-based employees in all job categories for modification, by the department manager and above the company's leadership research and review, in the company for release. Before carrying out the career management of knowledge-based employees, we need to focus on the company's development strategy, combined with the specific needs of knowledge-based employees, based on the successful cases of career management of relevant enterprises, for the company's knowledge-based employee career management system, the mechanism to make clear provisions (Xie et al., 2018). Determine the relevant information dissemination mechanism, relevant job requirements, various types of grade recognition process, career development channel promotion mechanism and other aspects of specific programs, plans and systems, while improving the supporting performance appraisal and salary allocation program, to ensure that knowledge-based employees to create a set of scientific and reasonable career management system.

Individual knowledge-based employees are the main target of career management, and the smooth start of the related work depends on the active cooperation and participation of knowledge-based employees. In the process of management work, it is necessary to carry out regular career management theory guidance, training, and constantly cohesion of knowledge-based employees' ideological consensus, and enhance organizational identity. By regularly conducting career interest and skill tests according to different career development stages and positions (Simon, 2023), we can guide knowledge-based employees to form a correct career cognition, instruct them to clearly formulate their own career plans and career development goals at various stages from their own career interests and abilities in accordance with the company's strategic objectives, and realize a high degree of unity between the individual career development of knowledge-based employees and the development of the enterprise.

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# Appendix

## Questionnaire

Career Management Questionnaire for Knowledge-based Employees at CenturyLink  
Software Development Company

Dear Madam/Mr.:

In order to better understand and improve the company's knowledge-based employee career management, this paper especially carried out this survey. Your comments and feedback on this paper is very important, will help to help the company better meet the career development needs of employees. Please rest assured that this questionnaire does not require you to fill in your real name, and your answers will be treated confidentially.

Fill in the instructions:

Please put a tick in front of the option that best matches your honest opinion. All questions can only be answered in one way if not otherwise specified. Thank you again for your assistance and cooperation!

### Part I. Basic Information

1. Gender?  Male  Female

2. Age?  18-25years  26-35years  36-45years  46-55years  more than 55

3. Highest level of education  
 Junior high school  Senior high school  Undergraduate  Master's degree  Others

4. What is your length of service with the Company?  
 Within 1 year  1-2years  3-4years  5-7years  8-10years  More than 10 years

5. Your position category in the company?  
 Technical post  Administration post  Middle and senior managers  Marketing Post  Others

## Part II. Career development-related surveys

Please indicate your agreement with each of the following descriptions based on your actual. Please put a tick on the corresponding number representing your level of agreement, with "1" indicating total disagreement, "5" indicating total agreement, and the specific meaning of each number indicating your level of agreement.

The specific meaning of each number is shown in the table below:

Totally Disagree	Disagree	General	Agree	Agree completely
1	2	3	4	5

Measuring item	1	2	3	4	5
<b>Career Self-knowledge</b>					
1. Do you know your own working ability and core competitiveness?					
2. Have you designed a clear career plan for yourself?					
3. Is your current position consistent with your career plan?					
4. Do you understand the company's strategic objectives?					
5. Is your personal career plan consistent with the company's strategic objectives?					
6. Are you satisfied with your current job?					
7. Do you think your current job matches your career interests?					
8. Do you think your current job is in line with your career specialty?					
<b>Fair promotion</b>					
9. Your superiors are very concerned about your growth at work?					
10. Do you think the company's career promotion channels are diversified and very realistic?					
11. Do you think the company promotes employees according to their ability and achievements?					
12. Do you think that your ability and contribution can be quantified by the current salary assessment system?					
13. Do you think the company has a set of perfect performance appraisal and evaluation system?					
14. Do you think the company's career promotion system is reasonable?					
<b>Provision of career information</b>					
15. Do you think the company's promotion channels and evaluation mechanism are favorable to the career development of employees?					

16. Do you think the company provides opportunities for transfer and multi-position training?					
17. Do you think the company has a perfect mechanism for releasing job promotion information?					
18. Do you know the qualification required for the target position of promotion very well?					
<b>Career guidance and training</b>					
19. Do you think the training provided by the company is very useful for career development?					
20. Do you think the company's training mechanism is very reasonable?					
21. Does the company encourage training and provide training conditions and materials?					
22. Does the company make career plans or provide related counseling for employees?					
<b>Career Management Performance</b>					
23. Do you think that the company's career management performance is conducive to the development of your potential?					
24. Do you think that the company's career management performance is conducive to stimulating your career interest?					
25. Do you think that the company's career management performance is conducive to increasing your satisfaction with your current job?					
26. Do you think that the company's career management performance improves the matching of jobs?					