THE RESEARCH ABOUT THE CORRELATION BETWEEN HUMAN RESOURCE CAPITAL AND ORGANIZATIONAL PERFORMANCE: THE INTERMEDIARY EFFECT OF STRUCTURAL CAPITAL AND RELATIONAL CAPITAL

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ABSTRACT

Title: The Research about the Correlation Between Human Resource Capital and Organizational Performance: the Intermediary Effect of Structural Capital and Relational Capital

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In a time after COVID-19, the global economic environment will change more rapidly. Companies face the impact of global competitors, especially high-tech companies, and profit margins continue to decline. For high-tech companies, how to improve the company's operating performance to obtain more profits and build core competitiveness is a key that CEOs urgently need to understand.

In the face of competitive pressure in the era of globalization and meager profits, it is increasingly difficult for companies in the high-tech industry to operate. The question of how to improve the company's overall operation and financial performance, and create organizational value, is essential issues that have managers concerned.

China's economic growth model has gradually shifted from relying on traditional capital, such as labor and land, to being knowledge-oriented. Intangible assets such as knowledge and intellectual capital will become indispensable resources for the company. Therefore, companies should focus on investing in intellectual capital that can create higher value, and this research divides intellectual capital into three

categories: Human resource capital, structural capital, and relational capital based on literature reviews.

This thesis focused on high-tech companies and explored the impact of human resource capital, structural capital, and relationship capital on organizational performance. This paper selected structural capital and relational capital as intermediary variables. It explored whether the structural capital and relational capital had an intermediary effect on human resource capital and organizational performance. For data analysis, the study adopted random sampling and collected 100 valid samples.

Through description, reliability and validity analysis, factor analysis, and regression analysis, the following research conclusioned: (1) Human resource capital, structural capital and relational capital have a positive impact on organizational performance; (2) Human resource capital on structural capital and relational capital has a positive effect; (3) Structural capital and relational capital have a positive intermediary impact on human resource capital and organizational performance equations.

Keywords: Human resource capital, relational capital, organizational performance

摘要

标题: 人力资本对组织绩效的影响研究——以结构资本和关系资本为中介变量

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后非冠时期全球经济环境变化将会更为迅速，面对全球化与微利时代的竞争压力，高科技产业的公司经营更显困难，如何提升公司的整体经营与财务绩效，进而创造组织价值，是经营管理者关注的重要议题。中国深圳地区的经济型态已由过去着重于资本、劳力与土地等传统资本中，渐转为知识导向，所以知识与智慧资本等无形资产将成为公司不可或缺的资源。因此，公司应着重于投资能够创造更高价值的智慧资本，而本研究则根据过去文献将智慧资本分为人力资本、结构资本与关系资本三部分。

本研究将以深圳市的高科技产业为主要的研究范围，就智慧资本中的人力资本、结构资本与关系资本对组织绩效的影响进行相关分析，并选择结构与关系资本为中介变量，探讨它们是否对于人力资本及组织绩效间存在中介效果。本研究选用深圳市的高科技厂商为研究样本，以网络问卷方式发放，采取随机抽样形式，收取有效样本一百份，并使用描述统计、信度及效度分析、因素分析与回归分析四种分析方法。主要研究结论为：（1）智慧资本中的三项资本对组织绩效影响皆为正向显著；（2）人力资本对结构资本与关系资本影响均为正向显著；（3）结构与关系资本皆对于人力资本及组织绩效间存在显著的中介效果影响。

关键词： 人力资本，关系资本，组织绩效

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The MBA study career is coming to an end, and I look back at the two years, and I am full of gratitude. The joy and sorrow in my study and life have given me a precious life experience and experience, and I am fortunate that I can choose to study for a master's degree in the past two years to enrich my life.

Thanks to all the teachers who taught me, the students who studied together, and the support and help from my parents. Thank you!

CONTENT

CHAPTER 1 INTRODUCTION

R & D and technology investment, intellectual property rights have become a new strategic direction for enterprise development. The source of corporate profits is no longer dependent on tangible assets. Still, it is focusing on whether it can create its core capabilities for the company, and integrate all skills and knowledge.

The high-tech industry is a technology-intensive and capital-intensive industry. Still, in today's globalized operating environment, capital, raw materials, machinery, and equipment are all resources that can flow rapidly internationally. Therefore, for high-tech industrial companies located in Shenzhen, only effective management of intangible assets can survive and even grow in such a competitive environment. This chapter will divide into four sections, the first section is the research background, the second section is the research purpose, and the third section is the research process.

1.1 Research background

The knowledge-based theory (KBT) is a theory that regards knowledge as an essential resource of an enterprise. KBT comes from Resource-Based View (RBV). Compared with the previous approach, RBV emphasizes that the traditional product view should be replaced by the company's "core competence" as the direction of formulating corporate strategy. Enterprises must create and grasp resource superiority situations, strengthen resource efficiency in management, so that the accumulated and cultivated resource advantages cannot be obtained directly or indirectly by competitors, and form long-term and sustainable competitive benefits. Although RBV regards knowledge as an essential resource for an organization to gain competitive advantage, strictly speaking, RBV treats knowledge as a general resource, does not describe the characteristics of knowledge, and does not distinguish the types of knowledge. KBT strengthens the importance of knowledge and regards knowledge as the most critical resource within the enterprise (Grant and Spender, 1996).

Classical economists advocate that the main wealth of the country can divide into three critical sources: land, labor, and capital. This option influenced the subsequent

development of various industries around the world, and many companies regarded it as an essential criterion. Therefore, the capital of an enterprise includes land, factory buildings, machinery and equipment, and other tangible assets. With the advancement of the times and knowledge, the overall economic situation has changed from the traditional asset economy of the past to the knowledge economy of today, making knowledge and wisdom replace fixed tangible assets and become a resource with high power and influence.

In the current economic system, the number and technical level of talents will seriously affect whether an organization can expand or shrink with the development of the knowledge economy. Also, under the trend of globalization, the source of power for organizational development will be diversified, not limited to tangible assets.

1.2 Objectives for the research

In the era of the knowledge economy, the organizational productivity of high-tech industries depends on information and increasing intellectual property rights.

Information technology is the most effective tool for companies to form an innovative atmosphere. For example, through the group cooperation system to achieve the purpose of sharing knowledge, and through the automation of the working environment and computerized system to transmit information, and through virtual reality and investment analysis and other intelligence, workstation systems to further create knowledge. Therefore, under the changes of the times and the industrial environment, the degree of information technology and intangible assets held by the organization will have a significant influence on itself.

Shenzhen's high-tech industry has had a breakthrough performance in the past few years. According to Shenzhen's statistics, Shenzhen's output value in the optoelectronics industry, semiconductor industry, information industry, and consumer electronics industry in 2018 has ranked among the top global rankings Behind these outstanding performances are the support of excellent technical talents and the efforts of the manufacturers themselves. However, in recent years, other emerging countries

have opened up one after another, making Shenzhen's primary cost advantage gradually disappear, causing many companies to survive and then running away. The remaining companies that have not left can only find new competitive advantages to survive. Most companies invest their resources in intangible assets, which is the cost of intelligence.

OECD (Organization for Economic Cooperation and Development) pointed out that the knowledge economy will change the development model of global industries. Technology patents have become an essential source for companies to create wealth, and the continuous accumulation of knowledge into intellectual capital will become a vital factor for the performance of growing companies.

Knowledge and intellectual property will replace machinery, equipment, capital, and labor, and become the basis of company competition. Stewart (1997) believes that intangible assets such as information, technology, employee professionalism and experience, customer relationships, reputation, and brand are all part of intellectual capital.

Intellectual capital is the sum of all knowledge and capabilities that each member and team can bring the organization a competitive advantage. In the early days, intellectual capital was considered to be one of the sources for creating organizational differences (Galbraith, 1969). Therefore, the conclusion of the thesis can be drawn from the above narrative: Today's organizations already have a deep understanding of intellectual capital, and high cultivation is inevitable and urgent.

By reviewing the literature, intellectual capital was roughly divided into three critical items: "Human resource capital," "structural capital," and "relational capital." Among these three elemental capitals, Human resource capital is the most critical. It can be found from the literature review that both structure and relational capital are affected by Human resource capital to a certain extent. The thesis believes that when an organization develops Human resource capital highly, it will jointly improve the effectiveness of structure and relational capital.

Therefore, the thesis hopes to find Human resource capital as an independent variable and attempts to explore the intermediary effect of structure and relational capital to explore the impact on the firm's organizational performance.

In recent years, “intellectual capital” has been a hot topic. Scholars also have a lot of research on this. The high-tech industry has always been essential in Shenzhen. Therefore, the performance of its manufacturers will also affect the overall economic situation. However, due to the intangible nature of intellectual capital, although it is easy to understand in concept, it has encountered many bottlenecks in practical applications. Therefore, many scholars and experts have researched related topics, including what is intellectual capital, the meaning and constituent elements of intellectual capital, and how intellectual capital is included in equity issues, and construct measurement indicators for intellectual capital.

Given this, the thesis establishes a model for Shenzhen’s high-tech industry, and attempts to achieve the purpose of improving organizational performance based on the development of human resource capital, and then through structural and relational capital. This research hopes that this research result can provide an apparent reference for manufacturers interested in developing intellectual capital.

The objectives of this research include:

(1) Analyze whether Human resource capital affects organizational performance.

(2) Analyze whether structural capital affects organizational performance.

(3) Analyze whether relational capital affects organizational performance.

(4) Analyze whether Human resource capital affects structural capital.

(5) Analyze whether Human resource capital affects relational capital.

(6) Analyze whether structural capital has intermediary effects between Human resource capital and organizational performance.

(7) Analyze the influence of relationship capital on the intermediary effects between Human resource capital and organizational performance.

The research process mainly divides into nine stages, and the framework is as follows:

Step 1: Research motivation and background	Formulate research topics.
Step 2: Research Purpose	Formulate research topics.
Step 3: Literature reviews	Collect relevant literature on intellectual capital and organizational performance.
Step 4: Establish a theoretical model	Establish this research model and the research hypothesis. Designing questionnaires and conduct pre-tests.
Step 5: Discussion and research hypothesis	Establish this research model and the research hypothesis. Designing questionnaires and conduct pre-tests.
Step6: Establish a questionnaire and modify	Establish this research model and the research hypothesis. Designing questionnaires and conduct pre-tests.
Step 7: Collect sample data	Select suitable manufacturers in the high-tech industry and issue questionnaires on a large scale.
Step 8: Statistical analysis of data	Perform data analysis and interpretation and summarize the results.
Step 9: Conclusion	Make conclusions and suggestions based on research results.

CHAPTER 2 LITERATURE REVIEWS

This chapter will discuss the high-tech industry, intellectual capital, organizational performance, etc. from several parts, and use the past research topics and related literature to infer the results of this research.

The first part is an overview of the high-tech industry, mainly introducing the current status of Shenzhen's high-tech sector.

The second part is the definition and development of intellectual capital and summarizes and summarizes the research of other scholars.

The third part is the constituent elements of intellectual capital, explaining the connotation of Human resource capital, structural capital, and relational capital.

The fourth part is the interactive relationship between intellectual capital, which explains the influence of the three types of capital of human resources, structure, and link.

The fifth part is about the relationship between intellectual capital and organizational performance. It discusses the relevant literature on the impact of three types of capital in intellectual capital on organizational performance.

2.1 Literature Reviews about the High-Tech Industry

Murphy (1997): High-tech refers to investing a lot of R & D funds to promote the rapid update of products. R & D is an important indicator to determine whether a company belongs to the high-tech industry.

Wu Mingying (1999): The high-tech industry needs new technologies and maintains international competition. The company's R & D expenditure accounts for an essential part of the total output value. The criterion of whether a company is a high-tech company is the proportion of R & D expenditure and technical staff.

Generally speaking, we judge from four angles: the proportion of high-tech labor, the high growth rate and the ratio of R & D expenditure to sales, the scope of product sales, and the industry's threshold for technology.

2.1.1 The high-tech industry can summarize in the following five characteristics

(1) Capital-intensive: The cost of technology authorization and R & D investment is high, and the scarcity of the plant also causes expensive capital and increased investment risk and makes the barriers to entry of this industry quite high.

(2) Technology-intensive: The high-tech industry has high technical demand, and the development of new technologies is the source of the company's competitiveness.

(3) Assets are intangible: High-tech manufacturers often develop new technologies to increase their competitiveness. Due to the intangibility of technology, company assets are more difficult to measure than traditional companies.

(4) The life cycle of the product is short. Due to the fast technology update and high competitiveness of the industry, the product update rate is faster than that of the traditional industry.

(5) High market demand changes: Due to the variety of products and the quick update speed, the market demand is quite unstable (Aydogan, 2002).

2.1.2 Development of China's high-tech industry

Among China's manufacturing industries, the only one with significant growth in recent years is the high-tech industry. Since the local government focuses its economic development on high-tech industries, it is naturally not conducive to the survival and transformation of other non-high-tech industries. In addition to government policy factors, the high-tech sector dominates the overall economy, and it has a more energetic attracting effect on technical talents and related resources. That is also the reason why non-high-tech manufacturing companies have fled to Southeast Asia under various circumstances survive.

2.2 Literature Reviews about the Intelligent Capital

The term “intellectual capital” first appeared in the concept proposed by the economist Galbraith (1969) to explain the gap between the market value and book value of the company. Later, many scholars believe that the primary source of companies to create competitive advantages. It is intellectual capital, so it is also a set of management methods. Stewart (1997) defined intellectual capital as original material (such as knowledge, information, intellectual property, or experience) and can be used to create wealth. Masalas (1998) believes that the combination of intangible assets is intellectual capital and can provide added value to the organization to achieve excellence. Ross(1998) believes that intellectual capital is developed from knowledge management, and advocates that the company’s intellectual capital is the sum of all employees’ knowledge. Miller (1999) believes that in addition to patents, copyrights, and other forms of intellectual property rights, intellectual capital also includes the sum of knowledge, experience, relationships, processes, innovative inventions, and market position within the enterprise.

Galbraith (1969) believes that intellectual capital used to explain the gap between the market value and book value of an enterprise.

Basis (1996) Intellectual capital is the gap between the value of an enterprise in the market and the cost of existing assets.

Stewart (1997) intellectual capital refers to the sum of all knowledge and capabilities that everyone can bring to the company’s competitive advantage.

Evenson and Malone (1997) Intellectual capital is an enterprise’s mastery of knowledge, practical experience, organizational technology, customer relations, and professional skills. With these capital enterprises, they can enjoy a competitive advantage in the market.

Basis and McMorran (1997) Intelligent capital is a source of organizational competitive advantage, which includes the sum of employees’ intelligence, Know-How, knowledge, and processes.

Ross, Ross, Evenson, and Dragonette (1998) According to their nature, intellectual capital divide into Human resource capital and structural capital.

The former refers to employees' competitiveness, work attitude, and response to help companies create wealth.

The latter is dividing into the outer part and the internal part. The outer part is like a relationship with customers, suppliers, shareholders, and partners.

The internal components are internal assets such as organizational processes, infrastructure, and corporate culture, which also include innovation and development capital.

Masalas (1998) Intellectual capital is the sum of intangible assets, which can increase the value of the organization and help complete the organization's goals.

Ulrich (1998) Intellectual capital is the product of employees' ability and commitment to the organization, which is attached to employees' ideas and work attitudes so that employees have an excellent interactive relationship with each other.

Miller (1999) Intellectual capital includes not only patents, copyrights, and other forms of intellectual property but also the sum of the company's knowledge, experience, relationships, processes, innovation, inventions, and market position.

Johnson (1999) intellectual capital is an intangible asset that is difficult to describe in words, attached to the goodwill of traditional accounting subjects.

Szarkowski (2000) advocates that intellectual capital is an intangible asset owned by the company or a project based on the knowledge that can create cash flows for the company in the future.

The thesis integrates the views of most scholars to define intellectual capital as follows:

intellectual capital regard as "a type based on knowledge and covering and combining all intangible assets and creating value for the organization," which includes employees' knowledge and skills, the ability of employees to work in teams, the

establishment of long-term cooperative relations between the company and suppliers, the company's comprehensive information system, the company's trademark rights, patent rights, internal operating procedures and the efficiency of administrative procedures, etc.

Because of the existence of intellectual capital, the company's total value and financial value are very different, and these differences should also attribute to intellectual capital (Roost et al., 1997).

In the 1990s, the argument of intellectual capital was gradually familiar and recognized by the public, and Galbraith (1969) was the first scholar to call on society to pay attention to intellectual capital. Stewart (1991) first used the term "intelligent capital" and proposed the concept of measuring intellectual capital, which made intellectual capital a significant breakthrough. After this, the management and development of intellectual capital?

During the boom, many scholars and experts devote to this field, and many research reports and books related to intellectual capital have also published. Stewart (1997) believes that the definition of intellectual capital is roughly similar to Intellectual Material, including knowledge, information, intellectual property rights, and experience. If these elements can be used appropriately and play a synergistic effect, wealth can create. Stewart (1997) also proposed a classification framework for intellectual capital to organize further and manage. At this point, the subsequent research mostly follows the classification framework provided by Stewart (1997), and then further elaborate, adjust, and study.

There are no absolute conclusions about the exact connotation of intellectual capital. It will vary with the nature of the enterprise. The thesis presents four critical scholars' views.

First, Stewart (1997) believes that intellectual capital refers to the sum of all knowledge and capabilities that everyone can bring to the company's competitive advantage, and distinguishes intellectual capital into Human resource capital, structure capital, and customer capital three categories, which describe as follows.

2.2.1 Human resource capital

Contains the knowledge, technology, ability, experience, and hidden interaction between all employees in the enterprise. It can divide into as follows:

(1) Innovation: The output side of Human resource capital is innovation, and its measured index is new products or the sales of new services, and the higher the proportion of new products or services in sales, the more the company's innovative products meet the needs of the market.

(2) Employee's mentality or satisfaction: The morale of employees is closely related to financial performance, and employees with high confidence will be devoted to their work, which is of great help to build a good corporate culture.

(3) Seniority, turnover rate, experience, learning: The indicators measured include the average priority of employees, turnover rate, and employee added value.

(4) Contents of enterprise talent pool: If the company has talent pools for research, skills, customer directory, business secrets, etc., and allows employees to find the required information quickly, it has obvious benefits for knowledge accumulation and transfer.

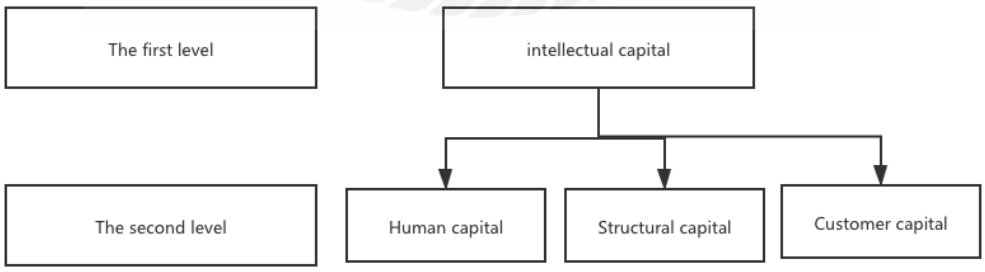
2.2.2 Structural capital

Structural capital is the internal capital of an enterprise. Structural capital is different from Human resource capital, but it will create value for the enterprise's capital, such as the production process, company-internal data, etc. Structural capital comes from two directions, namely the proportion of the company's internal knowledge documentation and the company's proprietary knowledge base value. Among them, the amount of knowledge base refers to the market of skills (exclusive underwriting), marketing tools (copyright, brand, license, advertising, packaging design, registered trademark), technical knowledge value (database, manual, quality control standards, information system), etc.

2.2.3 Customer capital

Customer capital refers to the degree of relationship between the company and customers and suppliers. It believes that customer capital comes from five dimensions, namely: customer satisfaction, the ability to innovate with customers, the degree of customer participation in the business operation process, and the ability to provide customer service and the value of aligning with customers.

Furthermore, Bontis (1998) conceptualized intellectual capital, as shown in Figure 2-1, and used three significant elements to explain intellectual capital: Human resource capital, structural capital, and customer capital. The essence of human resource capital is the intelligence and thinking ability of employees. The scope is in the work content of employees, which may be simple decision making, creation of innovative ideas or improvisation, etc. The evaluation method is quantitative. The essence of structured capital is the routine operating procedures within an enterprise, and the scope is within the organization's internal connection ability. The stronger the organization's connection ability, the more employees can realize their potential. The evaluation method calculates in terms of efficiency. Customer capital focuses on the connection with external organizations, which implies the knowledge of suppliers, customers, and channels, or the relationship capital with other enterprises. The evaluation method is the life of this relationship.



essence	Employee intelligence	Organizational routine	Market relations

range	Internal staff work	Links to internal organizations	Links to external organizations
Evaluation parameters	Quantity	effectiveness	the term
Explain the difficulty of culture	high	medium	highest

Besides, in the study of Johnson (1999), intellectual capital is divided into Human resource capital, structural capital, and relational capital. Human resource capital divide into Idea Capital and Leadership Capital.

Ideal capital refers to knowledge-based employee capabilities, including employees' work attitudes, qualifications, etc.

Leadership capital refers to the capabilities of experts and managers. Structural capital can divide into innovation capital and process capital. Innovation capital relates to patent rights, trademarks, copyrights, knowledge bases, etc., and process capital refers to work processes, business secrets, etc. Relational capital is the relationship with customers and suppliers, organizational cultural capital, etc.

Finally, Dzinkowski (2000) distinguishes intellectual capital into three categories: Human resource capital, customer (relationship) capital, and organizational capital, of which corporate (structural) capital can subdivide into intellectual property and structural assets.

Human resource capital	Intellectual property	Structured assets	Customer (relationship) capital
1. Know-How	1. Patent	1. Management philosophy	1. Brand
2. Education	2. Copyright	2. Company culture	2. Customers
3. Professional license	3. Design rights	3. Process management	3. Customer loyalty
4. Work-related knowledge	4. Business secret	4. Information System	4. Company name

Human resource capital	Intellectual property	Structured assets	Customer (relationship) capital
5. Career assessment	5. Trademark	5. Network system	5. Inventory management
6. Psychological assessment	6. Service standards	6. Financial relations	6. Distribution channels
7. Work-related abilities			7. Corporate partners
8. Enterprise vitality, innovation, and responsiveness			8. Dealership Agreement

According to the past literature reviews, there is no unified explanation for the classification of intellectual capital, but it can roughly divide into three elements according to its connotation. Human resource capital is the source of growth and innovation for enterprises. The purpose is to cultivate employees and give full play to intangible knowledge, skills, and experience.

Structural capital represents the mechanism and structure of the organization's operation and integrates strategies and culture to help and support employees and pursue their best work performance. Relational capital means a good relationship between the organization and market channels, partners, suppliers, and customers, and a sound understanding of the government and industry. And this research also divides the intellectual capital from this viewpoint.

The basic definitions of the three major elements of intellectual capital define as Human resource capital in the thesis as the sum of the skills, experience, professional knowledge, educational level, etc. of all members of the organization. Structural capital is an overall construction for organizations to solve problems, respond to the environment, and create value.

Relational capital refers to the establishment and maintenance of customers, partners, and their brand image.

There are many pieces of literature that name relational capital as customer capital.

This research believes that customer capital should be one of relational capital;

therefore, the thesis still names relational capital.

2.3 Literature Reviews about Interactive relationship of intellectual capital

The interaction between the elements of intellectual capital is more capable of creating more and lasting organizational value for the organization than the individual operations. Stewart (1997) believes that only when each element supports each other can, intellectual capital plays a higher role. Many works of literature regard Human resource capital as the beginning of all capital. Whether it is the knowledge, skills, and experience of company employees and supervisors, they all belong to the category of human resource capital. Usually, it must go through the process of human resources accumulation, consensus building, and professional use. And cooperate with the other two types of capital to produce results. Bontis and Girardi (2000) stated that in non-service industries, Human resource capital significantly affects the structure and relational capital. Therefore, the thesis will also focus on the impact of Human resource capital on structural and relational capital.

2.3.1 The relationship between human resource capital and structural capital

Stewart (1997) proposed a method of accumulating Human resource capital. By upgrading positions, providing required resources, and establishing inter-organizational group systems to enhance human resource capital. Accumulating Human resource capital also needs to mobilize employees to make them understand the various business departments, and encourage employees to understand further people related to work to show the integral interactive relationship between Human resource capital and structural capital.

Structured capital is a kind of knowledge and ability that can transform Human resource capital into structured assets. It belongs to the entire organization and can be copied and shared, such as innovative technologies, inventions, information, works, processes, trade secrets, and trade secrets. Its purpose is: rapid knowledge sharing,

collective knowledge growth, shorten the lead time of learning and improve the productivity of Human resource capital (Stewart, 1997).

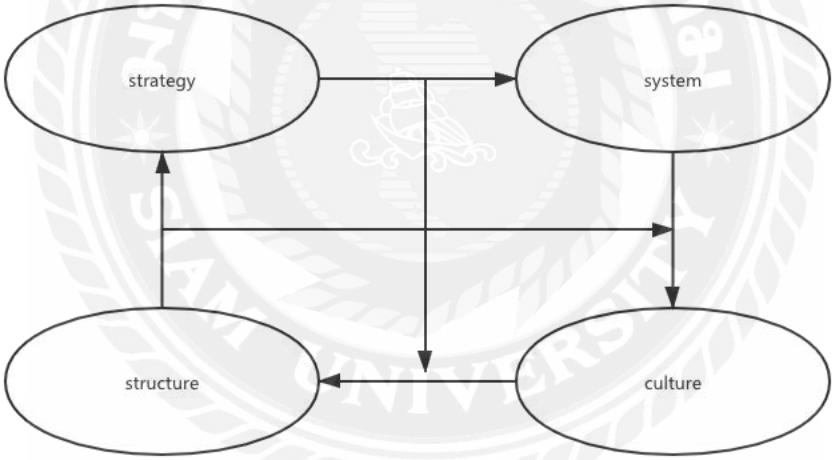
Hubert's (1996) research shows that structural capital contains four elements.

The strategy is the goal and achievement method of the organization;

The system is the process and output of the organization；

The structure is the set of tasks and the positions and relationships of the members of the organization.

Therefore, the relationship between human resource capital and structural capital is a "dynamic cross." Human resource capital establishes structural capital.



2.3.2 The relationship between human resource capital and relational capital

Bontis and Girardi's (2000) research shows that in non-service industries, Human resource capital significantly affects the structure and relational capital. Edvinsson and Malone (1997) believe that when the boundary between the organization and the external environment becomes more and more blurred, and the difference between internal and external gradually disappears, the virtualized management should emphasize the relationship between the upstream and downstream, and the

manufacturer connects to the raw material supply network. Road, connecting distributors and retailers through distribution channels, and even integrating customers to create value and profit.

These are all the best contributors to profit, value, and relationship capital by creating excellent products and services with professional knowledge, talents, and experience, and then attracting customers to repel competitors.

Garvin (1993) believes that people are the basis for improving quality. When knowledge workers improve production and service processes, they can not only reduce organizational costs but also increase product reliability and customer satisfaction. Horibe's (1999) research shows that employee loyalty can use to predict customer loyalty. Bontis and Girardi (2000) pointed out that no matter what industry, the stronger the ability of employees in an organization, the better they can understand customer needs and develop customer/relationship capital to maintain customer loyalty. Therefore, in the thesis, Human resource capital and relational capital are interrelated.

2.3.3 The relationship between structural capital and relational capital

Ross et al. (1997) believe that a project in structural capital should include "outside relations." External relations include relationships with customer groups, raw material suppliers, other investors, shareholders, and alliance companies. Its success depends on long-term information and product flow.

The balanced scorecard model of Kaplan and Norton (1996) and the emphasis on proper internal procedures have a positive impact on customer capital. Bontis and Girardi (2000) pointed out that when organizations invest heavily to become customers and market-oriented, they will eventually develop efficient organizational practices and processes to provide customers with the best service.

The leading indicators for measuring the relationship with the outside world are the following four:

The first is the percentage of transaction volume between the organization and the outside world;

The second is the length of time to keep in touch with the outside world;

The third is the satisfaction of partners;

The fourth is to maintain customer loyalty.

2.4 Literature Reviews about the relationship between intellectual capital and organizational performance

Barney (1991) believes that the core competence of an organization comes from resources that are heterogeneous and immovable. Because such resources are valuable, scarce, difficult to imitate, and irreplaceable, companies can enjoy a sustained competitive advantage.

In the era of the knowledge economy, the key to determining the success or failure of a company is no longer the real assets owned by the company. Still, the innovation activities built on physical assets. The source of company knowledge and innovation is the intellectual capital from the organization, to have Lasting competitive advantage.

The following explains the basic definition of organizational performance, intellectual capital, and the relationship between the three elements and organizational performance.

2.4.1 Definition of organizational performance

in the past, scholars have conducted extensive research on organizational performance, and there have been countless verification adopters.

From the study of Venkatraman and Ramanujam (1986) alone, the organizational performance discussed by scholars in the past summarizes the following three types.

(1) Financial performance:

This method is the simplest and narrowest. It directly represents the performance

of the enterprise with financial indicators, such as sales growth rate, returns rate, returns on assets, returns on sales, and return on investment. For example, Mavondo and Farrell (2003) use Return on Assets (ROA) to represent organizational performance. Hitt. (1997) represents ROA, Return on Investment (ROI) and Return on Equity (ROE) with three fundamental accounting indicators.

Slater and Narver (2000) objectively compare the return on investment with significant competitors over the past three years as organizational performance.

(2) Business performance:

Add operational performance (non-financial performance) to the discussion of financial performance, including market share, new product introduction, product quality, marketing effectiveness, value-added manufacturing, and technical efficiency. For example, Gold et al. (2001) believe that the use of financial indicators (ROI, ROE) to define organizational performance will be disturbed by many uncontrollable environmental factors, which cannot correctly represent organizational performance. Its decision to express organizational performance based on relevant contributions. Lee and Choi (2003) use Global Output as a measurement standard, including market share, revenue, growth rate, innovation, success, and enterprise size compared with competitors, which represent organizational performance. Darroch and Mcnaughton (2003) used profit, market share, and growth rate to compare with the average of enterprises as the basis of organizational performance. Vázquez et al. (2001) used investment returns, earnings, turnover, and new products to represent success. Matsuno and Mentzer's (2000) market share, related sales growth, new product sales accounted for total sales ratio, and investment return rate. Slater and Narver (2000) represent by return on assets, sales growth, and new product success. Hair et al. (1998) use measurable growth and earnings as measurement benchmarks, including objective financial reports (net income growth and return on assets) and self-assessment reports (related growth and profits).

(3) Organizational effectiveness:

The content of the definition is more extensive, such as intelligence information, incentives, and leadership styles. Steers (1975) put together 17 models of organizational effectiveness research into 14 evaluation aspects (adaptation/elasticity, productivity, satisfaction, benefits, resource acquisition, stress relief, environment control, development, efficiency, employee retention, growth, Integration, open communication, survival). Damanpour and Evan (1984) divide organizational performance into two significant parts, actual performance (efficiency, entity services, income, and expenditure) and subjective performance (generalization, service quality, and extension). Agarwal et al. (2003) divided organizational performance into target performance and judgment performance. The target performance includes commercial and market-based projects, such as capacity utilization, revenue, and market share. Judging performance bases on customers and employees, such as service quality, customer satisfaction, and employee satisfaction.

2.4.2 The relationship between intellectual capital and organizational performance

Many papers have reached a consensus that the importance of intellectual capital lies in its significant impact on organizational performance. Intellectual capital in an organization is the driving force for creating and creating corporate value and has a positive effect on corporate performance (Kaplan and Norton, 1996; Edvinsson and Malone, 1997; Johanson et al., 2001).

Intellectual capital generates organizational performance, and its profits come from innovation and knowledge-intensive services, which can transform knowledge into value (Edvinsson and Sullivan, 1996).

Harrison and Sullivan (2000) believe that companies can derive various values from intellectual capital, such as profit generation, strategic positioning, other innovation needs, customer loyalty, cost reduction, productivity improvement, and impact on company performance. The results of Bontis (1998) show that in the diamond model, Human resource capital has a significant effect on structural capital and relational capital, and the latter two have a considerable impact on company performance.

Knight (1999) stated that if the four elements of an organization are combined to create a good cycle, then this cycle will enhance the market value of the enterprise. The four items are Human resource capital, structural capital, external capital, and financial performance.

From the research of Chen Meichun (2000), we can find that Human resource capital has no significant impact on organizational performance. Still, Human resource capital has a significant effect on structural and relational capital, and these two capitals have a considerable impact on organizational performance. Past studies have advocated that having intellectual capital can bring companies a competitive advantage and help companies increase their value. It can describe as the most valuable asset and the most advantageous competitive weapon.

Therefore, through the above literature results, the thesis infers and assumes that there is an intermediary effect between structural capital and relational capital on Human resource capital and organizational performance.

2.4.3 The relationship between the three major elements and organizational performance

(1) Human resource capital and organizational performance

Backhuijs (1999) believes that Human resource capital is the core of intangible assets. At present, there are only a few indicators to measure intangible assets, but the higher the level of understanding of intangible assets, the more able to provide companies with information about future cash flows and risk combinations.

Miller (1999) proposed that Human resource capital is the most valuable asset, and his research shows that organizations should adopt a more comprehensive approach to be able to manage workforce, structure, and customer capital dynamically.

Petty and Guthrie (2000) explained the contribution of Human resource capital to a corporate performance by solving customer problems, proposing innovative ideas, and

changing organizational processes.

Yound (1996) pointed out that employees' technology, knowledge, and ability can create economic value for the organization, so the organization's increased investment in employee technology, expertise, and skill will improve personal productivity and organizational performance.

Sveiby (1997) believes that Human resource capital is an essential source of profit within an organization, and employee knowledge, skills, education, and experience are the most critical factors for the organization's advantage.

Stewart (1997) pointed out that the acquisition, accumulation, and preservation of Human resource capital is the basis for organizational innovation and renewal, and it is also an essential factor for the organization's principal source of profit generation and organizational success.

Brynjolfsson and Hitt (2000) also pointed out from the meaning of strategic management that the difference in organizational performance results lies in the difference in the level of human resource capital.

(2) Structural capital and organizational performance

LeBlanc. (2000) pointed out that if an organization can invest in three types of investment, such as "knowledge," "motivation," and "opportunity," it will be able to construct the organization's structural capital.

Investment knowledge: It can promote the growth of the talent base, and at the same time, increase the skills, education, and talents required by the enterprise. Investment motivation: It can protect against disease and upheaval, long-term insurance, and, at the same time, create a positive enhancement of valuable contributions. The combination of the two can also enhance the efforts of employees.

Investment Opportunities: It is to invest in the working environment and job satisfaction, especially diversity and meaningful work, the time required to complete the task correctly, the necessary support and tools, and sufficient autonomy and discrimination. These investments make it possible for employees to reach the peak of

performance and improve the overall performance of the organization.

Davenport et al. (1998) believe that if knowledge management can be widely constructed based on information technology applications to create a universally operable environment for knowledge share within the organization, the organization will compare its development strategies. Easy to succeed. Lee and Choi (2003) proposed an integrated structure, indicating that knowledge creation activities have many knowledge management infrastructures, including organizational culture, organizational structure, human factors, and IT support and applications. These knowledge management infrastructures can make Knowledge creation activities within the organization are more active. Besides, knowledge creation activities can also enhance organizational creativity, which in turn affects organizational performance. Bontis and Girardi (2000) also proposed that structural capital in service industries has a significant impact on corporate performance.

(3) Relational capital and organizational performance

Bleeke and Ernst (1991) mentioned that organizations and their work partners could achieve goals that cannot be made independently by their respective companies through joint efforts. The primary motivation for the establishment of these alliances or partnerships is to obtain a competitive advantage. The establishment of partnerships can indeed be an organization. Bring productivity improvements and competitive advantages. A connection is an effort by two business organizations to achieve each other's goals and profit. This relationship will bring financial or operational performance (Agrawal and Pak, 2001). Dyer and Singy (1998) believe that the other party of the organization and cooperation, if both parties have a higher level of investment and are willing to cooperate, such a partnership can bring each other a competitive advantage and further improve organizational performance.

Tiwana (2001) pointed out that under the development trend of increasingly fierce market competition, globalization, high customer turnover rate, and the increasing cost of acquiring customers. The organization's relationship management with customers can help companies achieve improved customer satisfaction and enhance customer Loyalty and the purpose of obtaining more profits from existing customers.

Finally, Petty and Guthrie (2000) believe that relationship capital has many effects on corporate performance, such as: improving brand image, consolidating customer relationships, improving customer loyalty, enhancing company awareness, strengthening distribution channels, and strengthening the partnership.

CHAPTER 3 METHODOLOGY

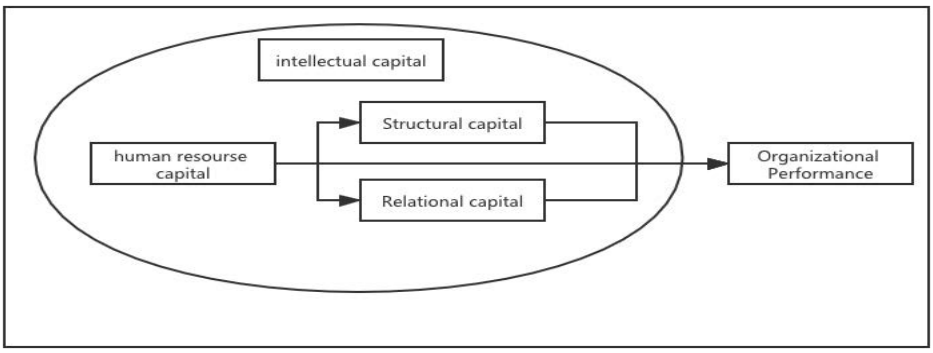
This chapter mainly discusses the effect of overall "Human resource capital" on "performance" when "structural capital" and "relational capital" use as intermediary variables. This chapter will divide into five parts. The first section is the theoretical model and design, which is mainly inferred based on literature evaluation, to put forward the core conceptual framework of the thesis. The second section is the research hypothesis, explaining the reasoning process of each research hypothesis. The third section is the variables and measurement, designing the measurement method of the main variables. The fourth section is the sampling design, which mainly explains the sampling method and legality. The fifth section is the data analysis method, which mainly explains the application process of the research method.

3.1 Theoretical Model and Empirical Research Design

This research model can divide into three parts. The first part is the impact of Human resource capital on structural capital and relational capital, and the observation of the effects of Human resource capital on organizational performance. The second part is the personal impact of structural capital and relational capital on organizational performance. The last part is whether there is an intermediary effect between structural capital and relational capital on Human resource capital and organizational performance.

3.1.1 Theoretical model

Since the research literature discussing the interaction between the three significant factors in intellectual capital is quite scarce, the relevant research that lists factor capital as an intermediary variable is even more limited. If the discussion on the interaction between structure and relational capital is increasing, the thesis will make this research the overall content and results of the website appear more complicated and uncertain. Because the thesis focuses on the intermediary effects of structure and relational capital on Human resource capital and organizational performance, respectively, therefore, this research will not consider the interaction between structured and relational capital.



3.1.2 Empirical Research design

The research object of the thesis is public companies in the high-tech industry. The first is to conduct preliminary interviews with five private companies and understand the organization's management of intellectual capital. Second, modify the questionnaire based on the content of the previous test. Third, a large-scale questionnaire survey is adopted, and the respondent is the manager.

3.2 Research hypothesis

Based on the introduction, literature review, and conceptual framework, this section will focus on deriving hypotheses.

The core concepts of the thesis describe as follows:

(1) Human resource capital: the knowledge, training, and incentives provided by the organization, as well as the professionalism, innovation, skills, and experience of the employees themselves.

(2) Structural capital: the degree of organization's informatization, response, and internal environment.

(3) Relational capital: the relationship between the organization and partners,

customers, and brand image.

(4) Organizational performance: Organizational operations and financial performance.

Based on the literature reviews, the hypotheses established in this thesis are as follows:

Hypothesis 1: Human resource capital has a passive effect on organizational performance.

Hypothesis 2: Structural capital has a passive effect on organizational performance.

Hypothesis 3: Relational capital has a passive effect on organizational performance.

Hypothesis 4: Human resource capital has a passive effect on structural capital.

Hypothesis 5: Human resource capital has a passive effect on relational capital.

Hypothesis 6: Structural capital has an intermediary effect on Human resource capital and organizational performance.

Hypothesis 7: Relational capital has an intermediary effect on Human resource capital and organizational performance.

3.3 Variable definition and questionnaire design

Through literature reviews, the variables discussed in the model defined as:

Human resource capital: the sum of the skills and professional knowledge, experience and cooperation, education level, logical thinking, and other capabilities of all members of the organization, as well as the organization's education and training, recruitment, rewards, and employee satisfaction.

Organizational performance: we use two indicators the organization's operating profile and financial performance.

The questionnaires in this thesis were all measured by Likert's seven-point scale, from very disagree to agree.

Company and individual statistical variables

This statistical variable refers to the economic and industrial background of the research object. The company's statistical variables designed in this research questionnaire include the type of high-tech industry to which it belongs, the complexity of the product, the brand of cooperating manufacturer, the composition of customers, the total number of company employees, and the number of employees in the information department. Demographics include age, education level, current company position, and working experience in the industry.

3.4 Sampling Methods

This thesis mainly discusses the “influence of intellectual capital on corporate performance” and verifies the intermediary effect of structure and relationship capital. In the past decade or so, information technology has highly developed. To strengthen Taiwan’s industrial competitiveness, the government has listed the high-tech industry as an essential promotion and counseling industry. Under such an environmental background, the development of intellectual capital has become one of today’s high-tech industries important topic.

This thesis uses a convenient sampling method to randomly select listed, over-the-counter high-tech industrial companies, including IC, tele companies, information companies, electronics companies, precision machinery, and information software companies. As a research sample, based on a company answering a questionnaire, the total number of recovered samples is one hundred, and it combines with statistical analysis software to study the relationship between intellectual capital and organizational performance.

3.5 Data analysis method

This thesis uses SPSS as a data analysis tool. The data analysis methods used include descriptive statistics, scale reliability analysis, scale validity analysis, factor analysis, correlation analysis, and regression analysis. The following will briefly describe its functions and content.

3.5.1 Statistical methods

This thesis will use a simple descriptive statistical analysis, through the use of descriptive statistical analysis of each company and personal data, to further understand the overall distribution of the sample, its data characteristics and the distribution of various variables.

3.5.2 The reliability and validity of the scale

(1) Reliability:

Refers to the accuracy or precision of the measurement tool; that is, the scores of the same group of subjects tested multiple times in the same test must be consistent, so reliability refers to the consistency of the measurement. In this thesis, Cronbach's alpha coefficient use to test the reliability of the scale. The higher the value of the α coefficient, the higher the consistency of the items in the scale. Generally, the higher the value of α, the better (Guilford, 1965).

(2) Validity:

Validity means that the questionnaire can genuinely measure the ability or characteristic to be measured; that is, it is a valid test that can achieve the purpose of measurement. This degree of effectiveness is called the effectiveness. This thesis uses "content analysis" and "structure analysis" to test the validity of the scale.

(a) Content validity: The primary purpose is to systematically check the suitability of the questionnaire content, and consider whether the questionnaire includes enough behavior samples and has appropriate proportion distribution. Content validity is qualitative validity. It defines a range of concepts and analyzes whether the

measurement can truly represent this range. Then this thesis uses literature review and expert interviews to check content validity.

(b) Construction validity: refers to the degree to which the test can measure the theoretical construction or characteristics. It uses to assess whether a measurement has theoretical consistency with other observable variables. This thesis uses factor analysis to detect construct validity.

3.5.3 Factor analysis

The primary purpose is to represent the original data structure with a smaller number of facets while retaining most of the information provided by the unique data structure. This thesis intends to use factor analysis to streamline aspects of human capital, structural capital, relationship capital, and organizational performance.

Therefore, the main factors selected by the principal component analysis method, and the maximum variation use to rotate the shaft, and the factor load is 0.35 as the variable selection criterion.

In this thesis, only factors greater than 1.0 are selected as the number of facets that determine crucial success factors, and the order in which the factors appear in the order in which the magnitude of the variation is explained. In other words, the first factor is the most explanatory of all factors.

Generally speaking, it is complicated to explain and name the first-factor analysis results and the original factor matrix obtained. It is necessary to go through the process of factor rotation to make the meaning of each variable in the factor clearer with more explanatory power. According to the recommendations of Zaltman and Burger (1985), as long as the eigenvalue is more significant than 1.0, and the absolute value of the load factor of each variable is more significant than 0.3. It can explain more than 40% of the variance, and the factor consists of three or more When the absolute value defines by a variable higher than 0.35, the results of the factor analysis are quite stable and desirable.

3.5.4 Regression analysis

The primary purpose of regression analysis is to understand the relationship between variables. Through this analysis, you can examine the causal relationship between variables and evaluate the effect of independent variables on dependent variables. This thesis will use regression analysis to explore the relationship between variables, and further study the interaction between factors and factors and variables. Among them, the focus of this research is to use hierarchical regression to analyze whether "structural capital" and "relational capital," and their factors have an intermediary effect.

CHAPTER 4 RESULTS

This chapter will analyze the collected questionnaire data. The data analysis tool uses SPSS for Windows version 24.0 software and will be divided into the following sections to discuss.

The first part is the fundamental data analysis of the sample. It uses descriptive statistics for individual variables to explain the average, standard deviation, frequency, and percentage of each variable to understand the actual distribution of the sample.

The second part is the reliability, validity, and factor analysis. The purpose is to confirm the reliability and validity of the questionnaire and hope to use simplified components to explain the more substantial part of the original variable and convert the related variables into a few Conceptualize the meaning of the elements, and name the independent factors.

The third part is to study the relevance of variables, observe the significance of each variable in intellectual capital and organizational performance, and the relativity between each factor and variable.

The fourth part is the correlation between human capital, organizational performance, and intermediary variables, and observes whether the intermediary effect of structural capital and relational capital in intellectual capital exists.

The fifth and sixth parts are mainly to verify the factors of intermediary variables, whether there is also the effect of intermediary effects.

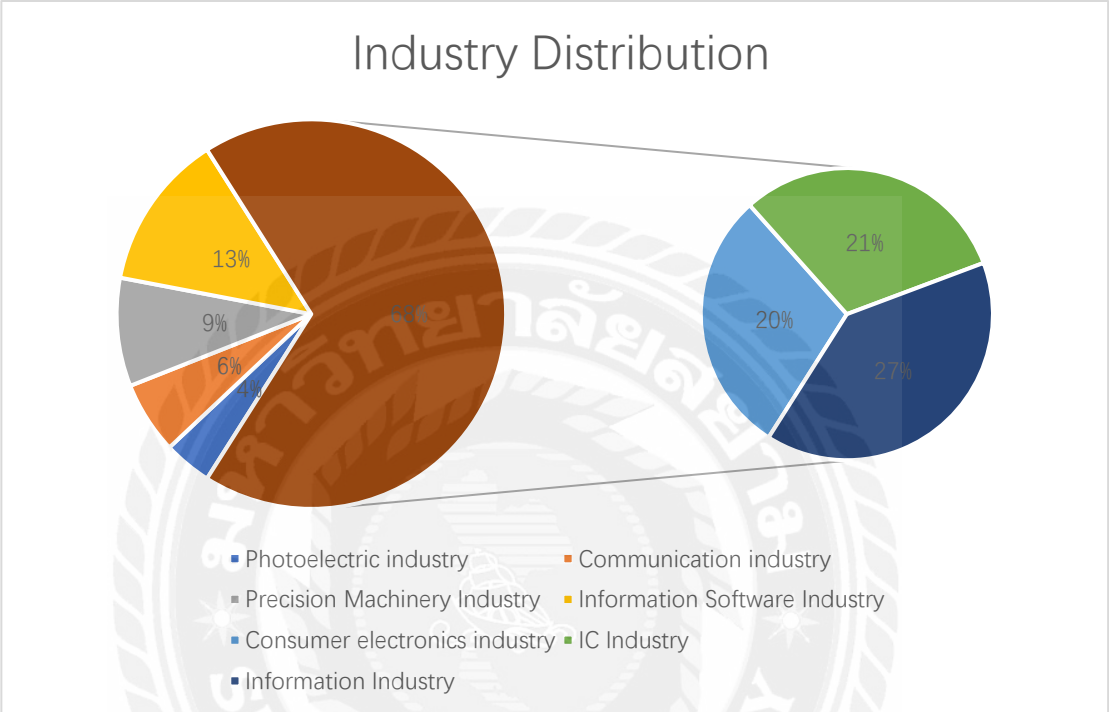
4.1 Sample Distribution

This research began to distribute questionnaires in February 2020. The inquiries are for high-tech manufacturers.

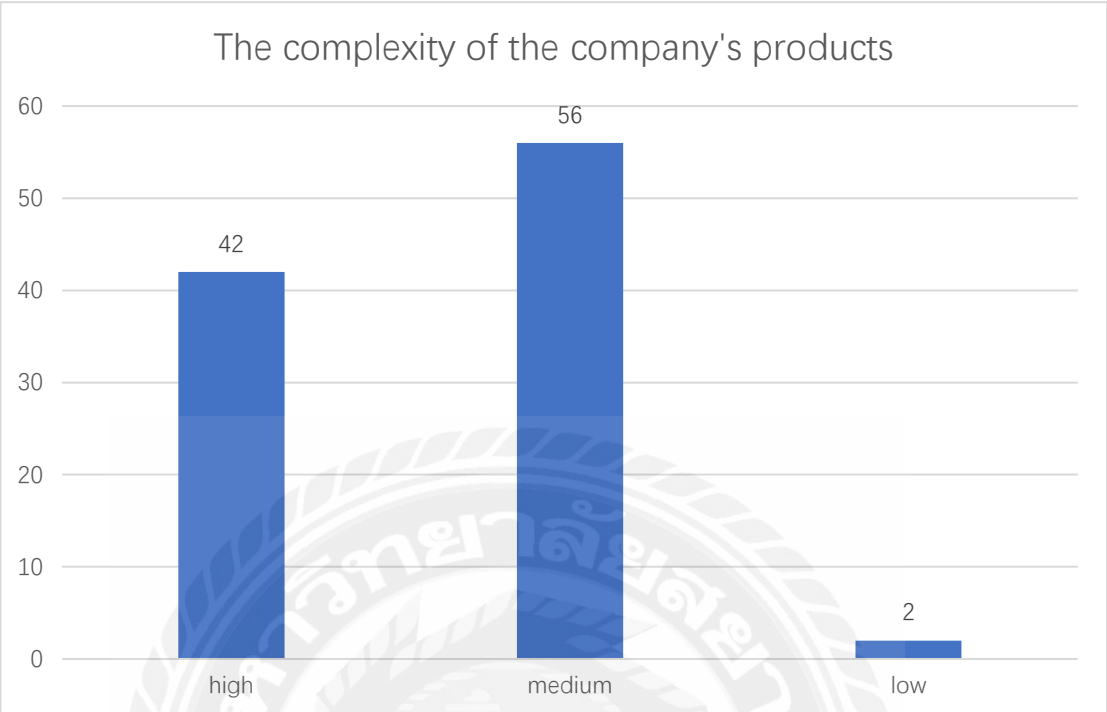
Mainly IC industry (102), telecommunications companies (54), data service companies （87), consumer electronics industry (38), precision machinery industry

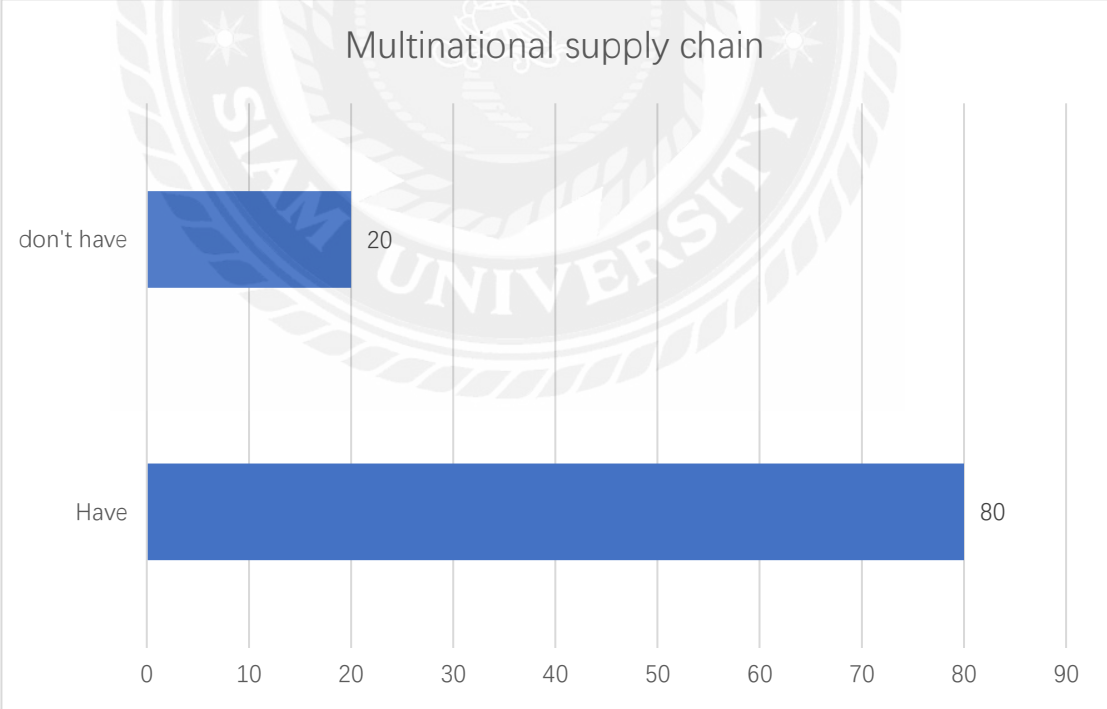
(116), software companies (33), etc.

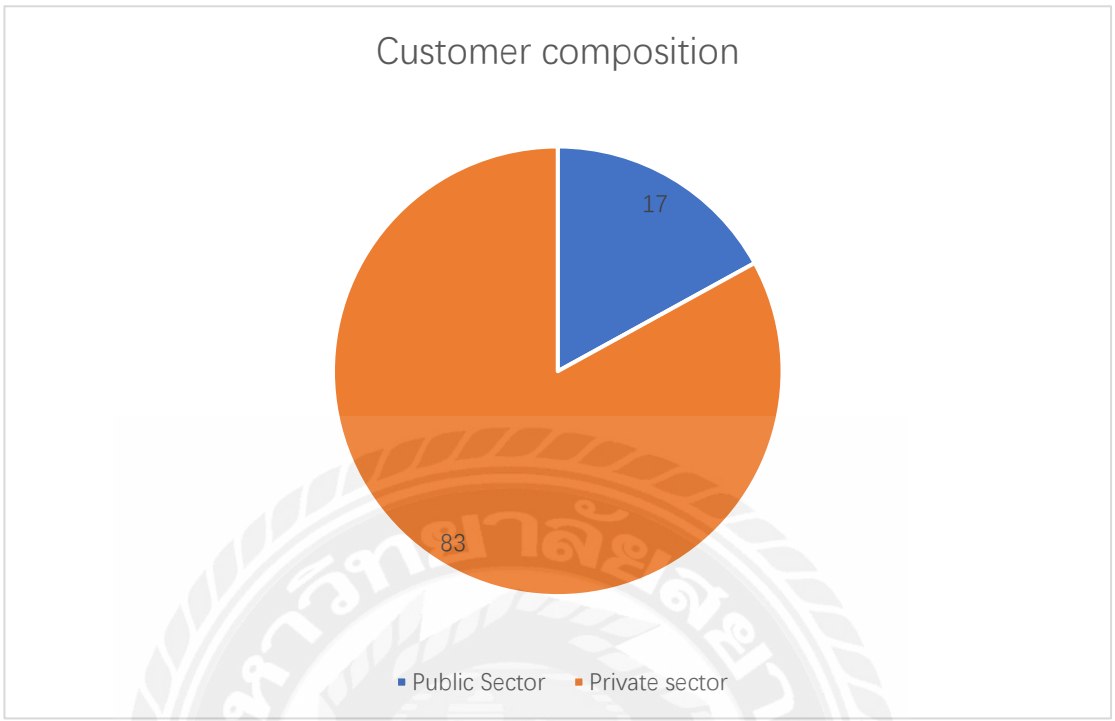
There are about 450 manufacturers, and based on the questionnaires answered by one company, a total of 100 samples deduce from abnormal and invalid samples.

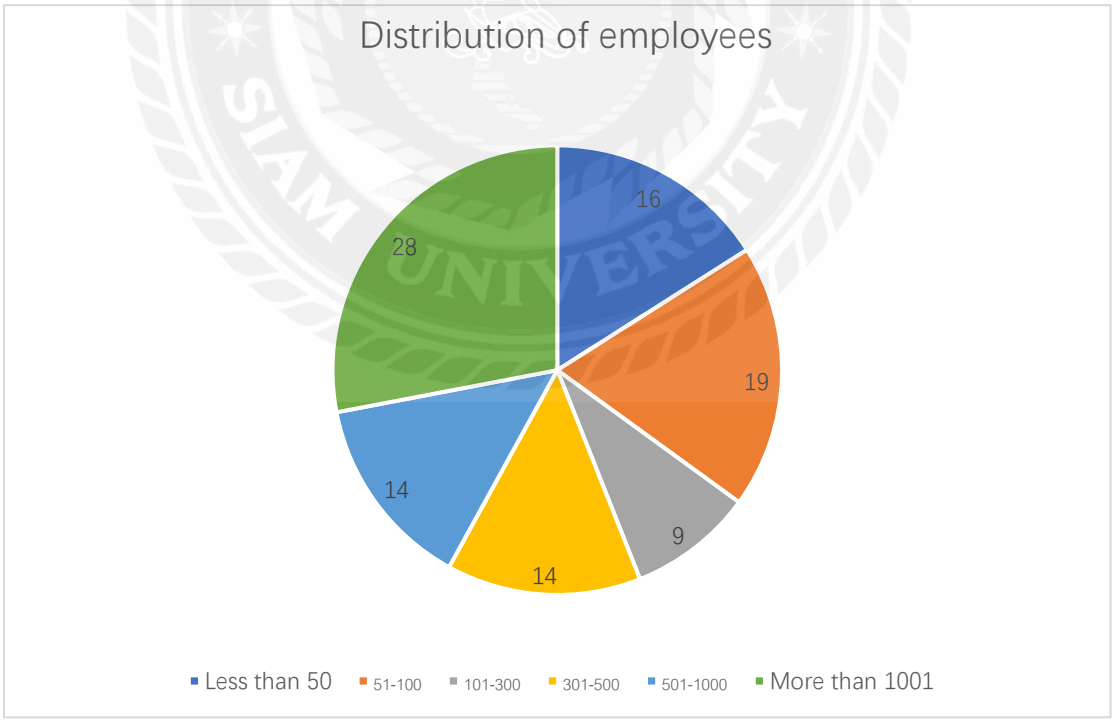


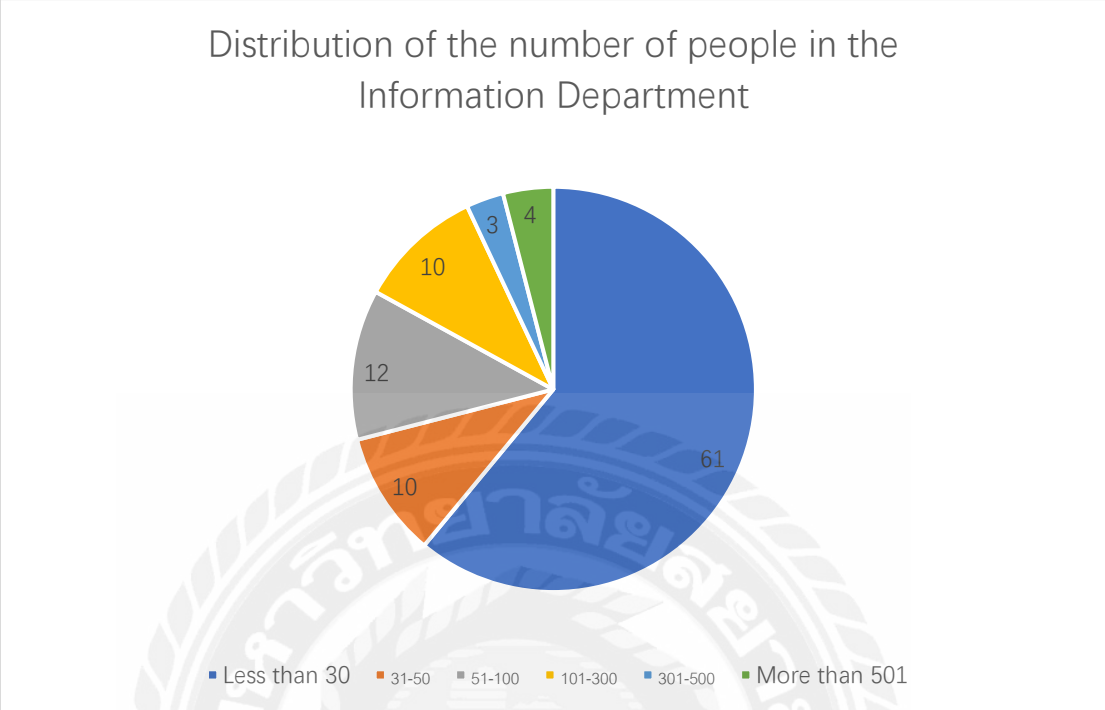
The knowledgeable skills that accountants should possess include economics and accounting, computer skills, critical thinking, judgment, listening, problem-solving skills, supervision, and many other knowledge and skills. In October 1998, the International Organization of the highest accounting organizations (INTOSAI) in Uruguay The INTOSAI Code of Ethics for Accountants in the Public Sector recognizes the need to establish an international code of ethics for public sector accountants. The Code of Ethics provides a statement of the value or principles that accountants should follow in their daily operations. Because of the independence, powers and responsibilities of accountants, the highest accounting authorities and their accounting staff or those involved in accounting work must face high ethical requirements.


The complexity of the company's products
60
50
40
30
20
10
0
42
56
2
high
medium
low


Multinational supply chain
don't have
20
Have
80
0
10
20
30
40
50
60
70
80
90


Customer composition
17
83
Public Sector
Private sector


Distribution of employees
16
19
9
14
14
28
Less than 50
51-100
101-300
301-500
501-1000
More than 1001

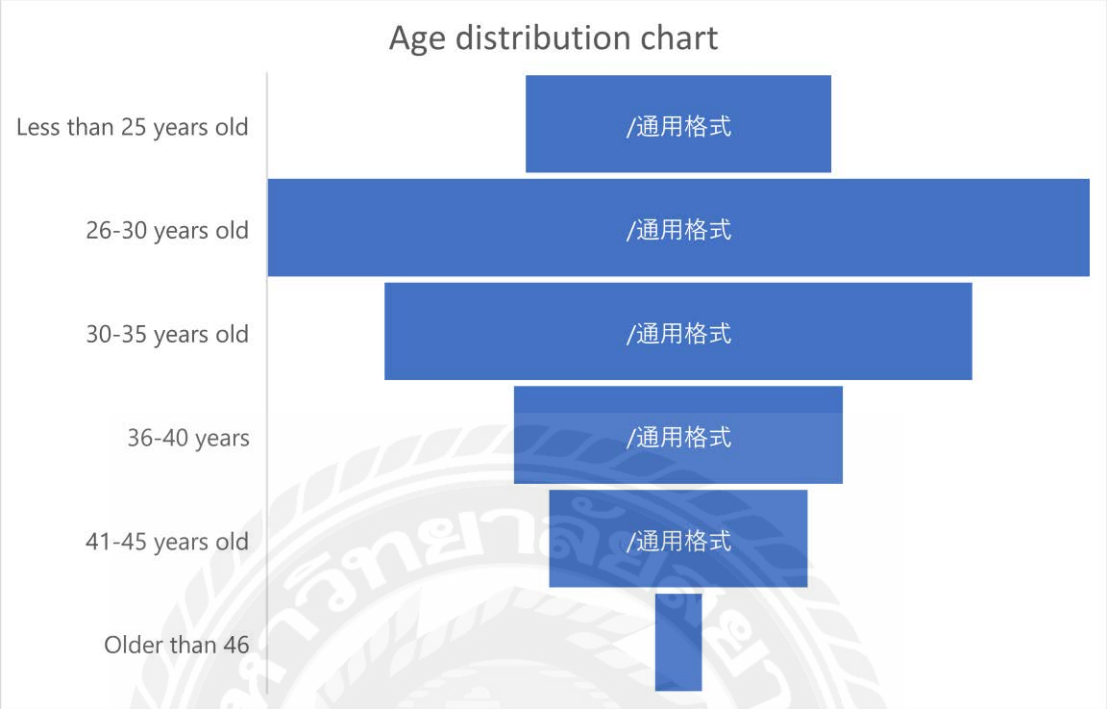


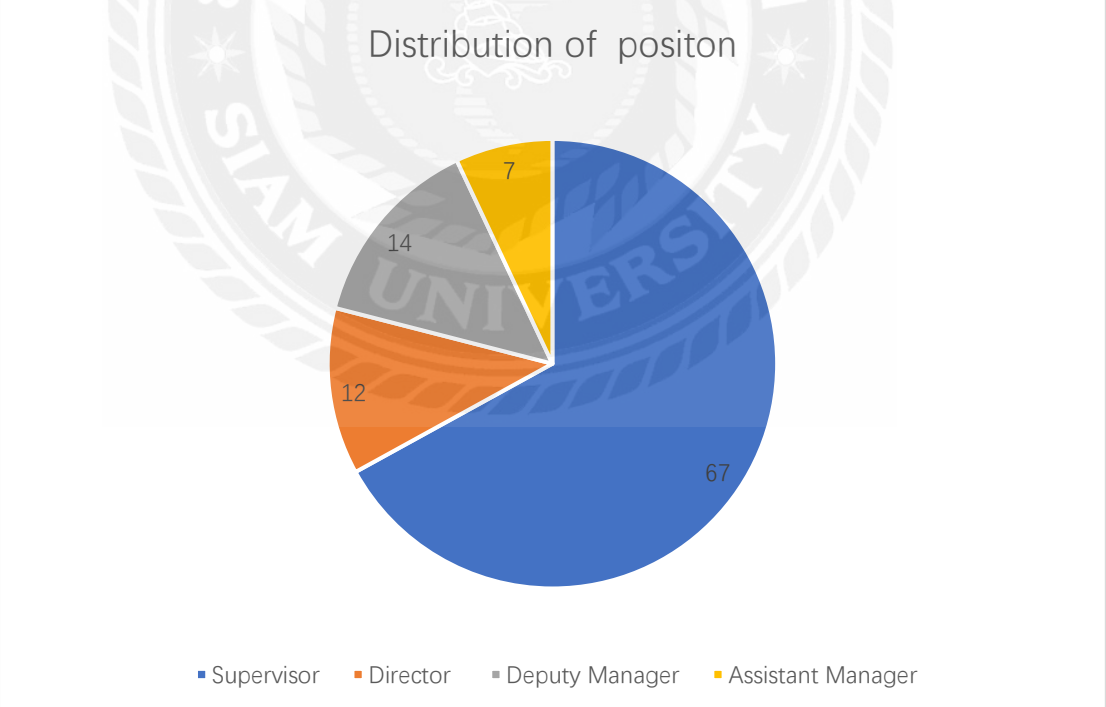
(1) The age composition of the interviewees dominates by employees aged between 26 and 35;

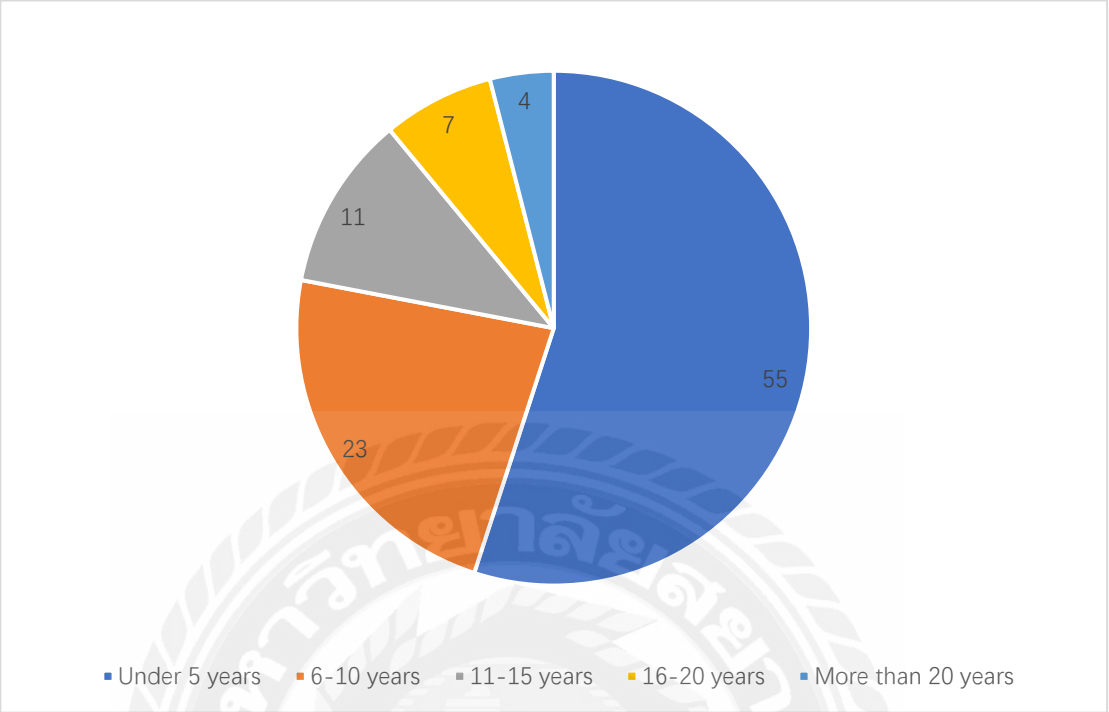
(2) The majority of education is master;

(3) Most of the positions in the company are engineers and deputy managers;

(4) The seniority of working in the industry is mainly less than ten years.


Age distribution chart
Less than 25 years old
26-30 years old
30-35 years old
36-40 years
41-45 years old
Older than 46
/通用格式
/通用格式
/通用格式
/通用格式
/通用格式


Distribution of positon
7
14
12
67
Supervisor
Director
Deputy Manager
Assistant Manager



4.2 Reliability, Validity and Factor Analysis

4.2.1 The reliability and validity of the questionnaire

The questions in this questionnaire were designed and completed in September 2019. To enable the interviewees to understand the meaning of the items, we select five companies as pre-test objects. These five companies are information services, notebook computers, and consumer—industrial types such as electronics. In the process of testing, the appropriateness of the text content and theme is the main focus of the interview. If the questionnaire items do not meet the content validity test and the question questions are doubtful, this thesis will revise before conduct the questionnaire. Distribution, therefore, the content validity of the survey is quite standard. The factor facets discussed in this thesis have a standard factor load above 0.5, so the validity of the construction of this thesis also has a certain degree.

According to Cuieford (1965), the values of Cronbach Alpha for each facet in this thesis are acceptable if Cronbach Alpha <0.35 is low, 0.35 <Cronbach Alpha <0.7, and

if Cronbach Alpha> 0.7 is high confidence. The numerical data displayed in the samples are within the range of high confidence. The Alpha coefficient of human capital is 0.902, the Alpha coefficient of structural capital is 0.944, the Alpha coefficient of relational capital is 0.945, and the Alpha coefficient of organizational performance is 0.972. Therefore, it can consider that the reliability of each facet of this thesis is of a reasonable degree.

In this thesis, the KMO (Kaiser-Meyer-Olkin) sampling appropriateness quantity used in the analysis applies to obtain the KMO value of each variable to ensure whether it is suitable for factor analysis. The KMO value of human capital is 0.826, the KMO value of structural capital is 0.894, the KMO value of relationship capital is 0.898, and the KMO value of corporate performance is 0.945. The more suitable for factor analysis, the P-values of KMO in each facet of this thesis indicate that there are sufficient sample sizes.

4.2.2 Factor analysis of human capital

There are 20 items in the measurement of human capital. First, the principal component analysis method uses to extract the factors. Five common elements with characteristic values greater than one are obtained, but due to the load of six of them, It is relatively weak so that this thesis will be deleted, and the experiment of factor extraction will be continued with the remaining 14 items. And this co-extracted three common factors with eigenvalues greater than 1, and the cumulative variability explained by the three factors was 66.926%. The action of rotating the factor made the connotation of each factor clearer and more visible. 4-3 and Table 4-4 are the component matrix of the revolving shaft after the deletion of the item and the explanatory variance of each factor, as well as the cumulative descriptive difference. In this thesis, the three-factor are named, and the factor load of each factor is referenced, and the factors greater than 0.5 are selected as the reference for the naming. The names are HC1: Training System, HC2: Employee Traits, and HC3: Professional ability.

Rotated Component Matrix[a]

	Item's Name	Stubjects	Cronbach Alpha	Rotation Sums of Squared Loadings		
				Total	% of Variance	Cumulative %
HC1	Training System	6	0. 890	3. 897	27. 709	27. 709
HC2	Employee Traits	4	0. 822	2. 814	20. 098	47. 809
HC3	Professional ability	4	0. 811	2. 677	19. 120	66. 926

Employees can improve their professional skills by themselves		0. 833	
Employees often provide useful suggestions or proposals at work		0. 804	
Employees can motivate themselves to complete their work goals		0. 794	
Employees' work thinking can keep up with the trend of the times		0. 527	
The quality of employees is better in the industry			0. 845
Employees can have professional workability			0. 74
The knowledge and skills of employees are sufficient to solve work problems			0. 648
Employees can have high job satisfaction			0. 639

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

4.2. extr characteristic values greater than one are extracted, and these two factors can be explained. The amount of variation is 65.223%. The action of rotating the factor axis makes the connotation of each factor clearer and more visible. The following table shows the composition matrix after the axis of rotation and the explanatory variability of each factor, as well as the cumulative explanatory variability. This paper names the two-factor facets, and refers to the factor load of each factor, and selects factors greater than 0.5 as the naming reference. The names are SC1: Information System Framework and SC2: Overall Organizational Process.

Structural Capital 11	The company has a complete database system for consultation	.847	
Structure Capital 12	The company has a comprehensive training manual for staff increase for consultation	.815	
Structural Capital 03	The company's various departments can quickly support each other	.759	
Structure Capital 13	The company can quickly develop new products to meet market demand	.729	
Structure Capital 02	The company can keep all documents intact	.714	
Structure Capital 01	Employees can quickly obtain the required information through the information system	.693	

Structural Capital 15	The company can provide comprehensive information tools to allow employees to perform the necessary work	.632	
Structural capital 14	The company can quickly adjust its organizational structure in response to changes in the external environment	.623	
Structural Capital 07	The company's overall information infrastructure is quite complete		.855
Structural Capital 06	The company's overall operation process is quite smooth		.809
Structural Capital 08	The company's information system is easy for employees to operate and use		.740
Structural Capital 09	The company's products and services are above the industry average		.691
Structural capital 05	The company's annual R & D expenditure is above the industry average		.682
Structural capital 10	The company has an environment for knowledge sharing and exchange		.677
Structure Capital 04	The company is effective in showing management		.614

	Item's Name	Subjects	Cronbach Alpha	Rotation Sums of Squared Loadings		
				Total	% of variance	Cumulative %
SC1	Information System Framework	8	0.916	5.263	35.086	35.086
SC2	Overall Organizational Process	7	0.912	4.521	30.137	65.223

4.2.4 Factor analysis of relational capital

There are fifteen items. In this thesis, the principal component analysis method is used to extract the factors. Two common factors with characteristic values greater than one are removed. The amount of variation is 65.621%. The action of rotating the factor axis successively makes the connotation of each factor clearer and more visible. Tables are the component matrix after the axis of rotation and the explanatory variability of each factor, as well as the cumulative explanatory variability. In this thesis, the two-

factor facets are named, and the factor load of each factor is referenced. The factors greater than 0.5 are selected as the reference for the naming. The names are RC1: partner relationship and RC2: customer relationship.

Relationship Capital 14	The company can maintain close business contacts with partners	.834	
Relationship Capital 08	Companies can often create a win-win situation with partners	.827	
Relationship Capital 09	The company can respond to partner issues in a short time	.82	
Relationship Capital 11	The company can provide customers with value-added services	.816	
Relationship Capital 13	The company can maintain a long-term relationship with its partners	.773	
Relationship Capital 10	The company can fully meet customer needs	.765	
Relationship Capital 07	The company and its partners have complementary resources	.728	
Relationship Capital 12	The company can cooperate with partners to handle emergency events	.71	
Relationship Capital 06	The company's brand and image are above the industry average	.662	
Relationship Capital 15	The company and its clients can maintain close business contacts after work	.56	
Relationship Capital 05	The company attaches great importance to customer responses and opinions	.559	
Relationship Capital 04	The company base on customer-centric management	.512	
Relationship Capital 03	Customers have a high probability of repeatedly buying our products		.862
Relationship Capital 01	Customer loyalty is high		.794
Relationship Capital 02	The rate of Customer complaints is minimal		.757

	Item's Name	Subjects	Cronbach Alpha	Rotation Sums of Squared Loadings		
				Total	% of variance	Cumulative %
RC1	Partnerships	12	0.944	6.472	43.146	43.146
RC2	Customer relationship	3	0.821	3.371	22.475	65.621

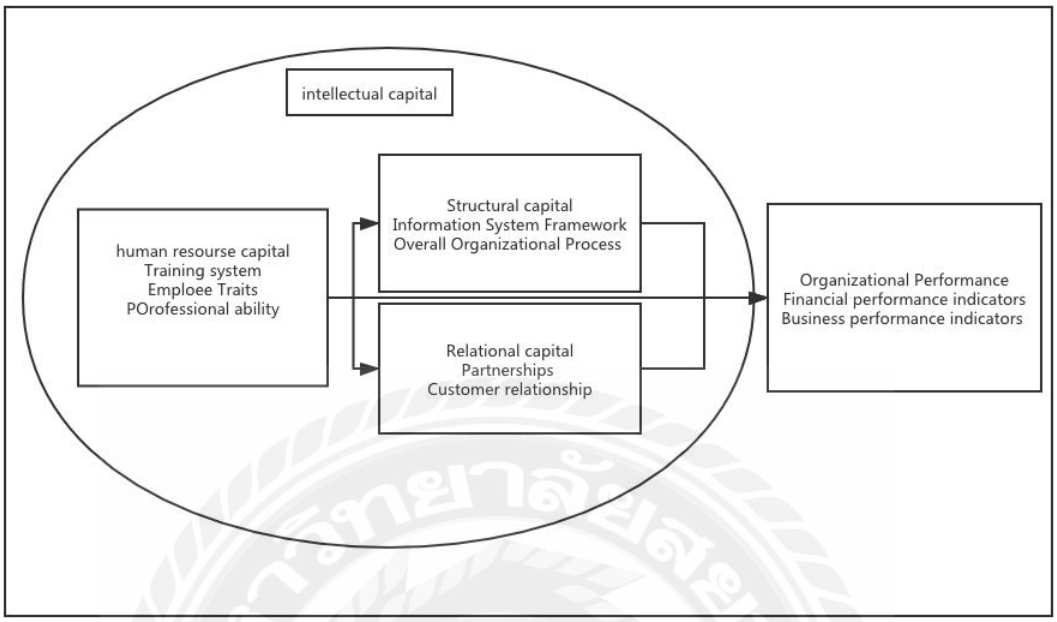
4.2.5 Factor analysis of organizational performance

There are sixteen items to measure the structure of structural capital. In this thesis, factor extraction was carried out by principal component analysis, and two common factors with a characteristic value higher than one were extracted. The explainable variation of these two factors was 78.605%. The action of rotating the factor axis in succession makes the connotation of each factor clearer and more visible. The following table shows the composition matrix after the axis of rotation and the explanatory variation of each factor, as well as the cumulative illustrative variation. In this thesis, the two-factor facets are named, and the factor load of each factor is referenced, and the factors greater than 0.5 are selected as the reference for calling. The names are OP1: partnership and OP2: customer relationship.

Organizational Performance 15	The company's after-tax net interest rate (ROS) is above the industry level	.919	
Organizational performance 14	The company's market-to-net-to-value ratio (P / B) is above the industry level	.900	
Organizational performance 12	The company's price-to-earnings ratio (P / E) is above the industry level	.878	
Organizational Performance 13	The company's earnings per share (EPS) is above industry standards	.872	
Organizational Performance 16	The company's total return on assets (ROA) is above the industry level	.865	
Organizational Performance 04	The company's profitable growth rate is above the industry level	.76	
Organizational Performance 15	The company's sales growth rate is above the industry level	.648	

Organizational performance 05	The overall improvement of customer satisfaction is above the industry standard	.643	
Organizational Performance 03	The company's financial performance is above the industry standard	.608	
Organizational Performance 01	The company is an industry leader		.852
Organizational Performance 2	The company has a high success rate in developing new products		.795
Organizational performance 8	The overall improvement of the company's production capacity is above the industrial level		.763
Organizational Performance 7	The overall improvement of the company's competitiveness is above the industry standard		.651
Organizational Performance 9	The company's overall market share has improved above the industry standard		.648
Organizational Performance 6	The company's cost reduction is above the industry level		.630
Organizational performance 11	The overall improvement of product and service quality is above the industrial level		.607

	Item's Name	Subjects	Cronbach Alpha	Rotation Sums of Squared Loadings		
				Total	% of variance	Cumulative %
OP1	Financial performance indicators	9	0.959	7.294	45.589	45.589
OP2	Business performance indicators	7	0.946	5.282	33.016	78.605



Hypothesis 1: Human capital has a significant impact on organizational performance.
Hypothesis 2: Structural capital has a significant impact on organizational performance.
Hypothesis 3: Relational capital has a significant impact on organizational performance.
Hypothesis 4: Human capital has a significant impact on structural capital.
Hypothesis 5: Human capital has a significant impact on relational capital.
Hypothesis 6: Structural capital has an intermediary effect on human capital and organizational performance.
Hypothesis 6.1: The information system architecture has an intermediary effect between the talent selection training system and financial performance indicators.
Hypothesis 6.2: The information system architecture has an intermediary effect on employee traits and financial performance indicators.
Hypothesis 6.3: Information system architecture has an intermediary effect on employee professional competence and financial performance indicators.
Hypothesis 6.4: The information system architecture has an intermediary effect between the talent selection training system and the business performance indicators.
Hypothesis 6.5: The information system architecture has an intermediary effect on employee traits and business performance indicators.
Hypothesis 6.6: Information system architecture has an intermediary effect on employee professional competence and business performance indicators.
Hypothesis 6.7: The overall organizational process has an intermediary effect between the talent selection training system and financial performance indicators.

Hypothesis 6.8: The overall organizational process has an intermediary effect between employee traits and financial performance indicators.
Hypothesis 6.9: The overall organizational process has an intermediary effect on employee professional competence and financial performance indicators.
Hypothesis 6.10: The overall organizational process has an intermediary effect between the talent selection and training system and business performance indicators.
Hypothesis 6.11: The overall organizational process has an intermediary effect on employee traits and business performance indicators.
Hypothesis 6.12: The organization's overall process structure has an intermediary effect on employee professional competence and business performance indicators.
Hypothesis 7: Relational capital has an intermediary effect on human capital and organizational performance.
Hypothesis 7.1: The partnership relationship has an intermediary effect on the talent selection training system and financial performance indicators.
Hypothesis 7.2: The partnership relationship has an intermediary effect on employee traits and financial performance indicators.
Hypothesis 7.3: The partnership relationship has an intermediary effect on employee professional competence and financial performance indicators.
Hypothesis 7.4: The partnership relationship has an intermediary effect on the talent selection training system and business performance indicators.
Hypothesis 7.5: The partnership relationship has an intermediary effect on employee traits and business performance indicators.
Hypothesis 7.6: The partnership relationship has an intermediary effect on employee professional competence and business performance indicators.
Hypothesis 7.7: Customer relationship has an intermediary effect on the talent selection training system and financial performance indicators.
Hypothesis 7.8: Customer relationship has an intermediary effect on employee traits and financial performance indicators.
Hypothesis 7.9: Customer relationship has an intermediary effect on employee professional competence and financial performance indicators.
Hypothesis 7.10: The customer relationship has an intermediary effect on the talent selection training system and business performance indicators.
Hypothesis 7.11: Customer relationship has an intermediary effect on employee traits and business performance indicators.
Hypothesis 7.12: Customer relationship has an intermediary effect on employee professional competence and business performance indicators.

4.3 Correlation Analysis Between Variable

After completing the factor analysis, it is divided into main aspects (variables) and secondary elements (factors) regression analysis, mainly to explore whether the main aspects of human capital, structural capital and relationship capital are positive or negative correlation.

This thesiswill also continue to study the relevance of employee selection and training systems, employee characteristics, professional capabilities, information system architecture, overall organizational processes, partnerships, and customer relationships, thereby verifying research hypotheses.

The analysis process is based on the average of each variable (factor).

Regression analysis

It can be seen from Table 4-11 that human capital (β value = 0.599), structural capital (β value = 0.553) and relational capital (β value = 0.711) have a significant impact on organizational performance (F significance is less than 0.001). The R2 values are 0.359, 0.558, and 0.505, respectively. This data shows that these three capitals can explain the total difference in the organizational performance of about 35.9%, 55.8%, and 50.5%.

Therefore, we can think that human capital, structural capital, and relational capital can significantly predict organizational performance.

This result can support Hypothesis 1, Hypothesis 2, and Hypothesis 3.

Human capital (β value = 0.767 and β value = 0.600) has a significant effect on structural and relational capital (F significance <0.001. When R2 values are 0.589 and 0.360, respectively, this indicates that human capital can explain structural capital, and the total change in relational capital is approximately 58.9% and 36.0%.

Therefore, it can be considered that human capital can significantly predict structural and relational capital,

This result can support Hypothesis 4 and Hypothesis 5 of this thesis.

Dependent variable	Independent variable	R^2	F	β	Hypothesis verification result
Organizational Performance	human capital	.359	.000***	.599	H_1positive
	Structural capital	.558	.000***	.553	H_2positive
	Relational capital	.505	.000***	.711	H_3positive
Structural capital	human capital	.589	.000***	.767	H_4positive
Relational capital	human capital	.360	.000***	.600	H_5positive

4.4 Regression Analysis of Secondary Factors

When the financial performance indicators are dependent variables, the human capital factors (talent selection and training (β value = 0.126), employee characteristics (β value = 0.061) and employee professional capabilities (β value = -.164)) and structural capital (Information system architecture (β value = 0.112) and the organization ’s overall process (β value = 0.339)) and relationship capital (partnership (β value = 0.187) and customer relationship (β value = 0.3180)).all of this independent variables have an significant impact of financial performance indicators (F <0.001). The R2 value is 0.621, indicating that these seven factors can jointly explain the total change in structural capital of about 62.1%. However, only the organizational process (T-Test<0.001) and customer relationships (T-Test = 0.003 <0.01) has a significant impact on financial performance indicators. Therefore, this thesis believes that the entire organizational process and customer relationships have a significant positive significance for predicting financial performance indicators, and the overall impact of organizational operations is high on Customer relationships.

When operating performance indicators are used as dependent variables, human capital factors (talent selection and training system (β value = 0.023), employee's special ability (β value = 0.095) and employee professional ability (β value =-.127))

and structural capital (Information system architecture (β value = 0.131) and overall organizational processes (β value = 0.245)) and relationship capital (partnership (β value = 0.291) and customer relationship (β value = 0.289)), as well as operational performance indicators There is a significant effect (F<0.001), and the R2 value is 0.662.

The data shows that these seven factors can jointly explain the total variation of structural capital is about 66.2%.

However, the organization process ((T-Test = 0.019 <0.05), partnership (T-Test = 0.002 <0.01)) and customer relationship ((T-Test = 0.002 <0.01)) have a significant impact on operating performance

This thesis believes that the organization's overall processes, partnerships, and customer relationships are substantial indicators that can positively predict operating performance. The impacts of the three are similar.

Dependent variable	Independent variable	R^2	F	T-Test	β
Financial performance indicators	Employee training system	0.621	0.0000	0.191	0.126
	Employee traits			0.813	0.061
	Employee professional ability			0.077	-0.164
	Information System Framework			0.868	0.020
	Organizational overall process			0.000	0.395
	Partnerships			0.061	0.186
	Customer relationship			0.003	0.289
Operational performance indicators	Employee training system	0.662	0.0000	0.802	0.023
	Employee traits			0.258	0.095
	Employee professional ability			0.144	-0.127
	Information System Framework			0.250	0.131
	Organizational overall process			0.019	0.245
	Partnerships			0.002	0.291
	Customer relationship			0.002	0.289

4.5 Correlation between human capital factor and intermediary variable factor

When we use information system framework as the dependent variable,((employee selection system (β value = 0.616), employee characteristics (β value = 0.245) , employee 's professional ability (β value = -0.018)) among human capital factors The individual factors have a positive effect on the information system architecture ((F <0.001), the R2 value is 0.505). The data shows that the above three factors can jointly explain the total variation of information system framework is about 50.5%.

However, the professional competence of employees (T-Test = 0.858> 0.05) has no significant impact on the information system architecture.

Therefore, this thesis believes that talent selection and training systems and employee characteristics can significantly predict the structure and talents of information systems. The degree of influence of the elective training system is higher than the unique ability of employees.

When we use the process of the organization as the dependent variable, three variables (employee training system (β value = 0.571), employee's unique ability (β value = 0.273), and employee professional ability (β value = 0.061)) has a significant impact on the organizational process.

The data shows that these three factors can jointly explain the total variation of the information system architecture is about 53.6%.

However, the employee's professional competence (T-Test = 0.524> 0.05) has no significant impact on the organization's overall process. Therefore, this thesis believes that the talent selection training system and employee traits can significantly predict the whole organization process. The degree of influence of the elective training system is higher than that of employees.

Dependent variable	Independent variable	R^2	F	T-Test	β
Information System Framework	Employee recruitment system	0.505	0.000	0.000	0.616
	Employee Traits			0.100	0.245
	Employee professional ability			0.858	-0.018
Organizational overall process	Employee recruitment system	0.536	0.000	0.000	0.517
	Employee Traits			0.003	0.273
	Employee professional ability			0.524	0.061
Partnerships	Employee recruitment system	0.320	0.000	0.002	0.291
	Employee Traits			0.136	0.164
	Employee professional ability			0.026	0.260
Customer relationship	Employee recruitment system	0.246	0.000	0.000	0.436
	Employee Traits			0.305	0.119
	Employee professional ability			0.820	0.028

When the partnership uses as the dependent variable, employee recruitment (β value = 0.291), employee traits (β value = 0.164) and employee professional competence (β value = 0.260), these three indicators have a significant impact on the partnership relationship F <0.001), R2 value is 0.320).

The data shows that these three factors can jointly explain the total change in partnership of about 32.0%.

However, employee traits (T-Test = 0.136> 0.05) have no significant effect on the partnership. Therefore, this thesis believes that the talent selection and training system and the professional competence of employees can significantly predict partnerships, and the impact of the two is similar.

When the customer relationship is the dependent variable, the talent selection training system (β value = 0.436), the employee 's professional ability (β value = 0.119) and the employee 's professional ability (β value = 0.028), these three indicators are also crucial for the customer relationship Sexual impact (F <0.001). However, the R^2 value is 0.246, which means that these three factors can jointly explain that the total change in the customer relationship is about 24.6%.

If you look closely, we will find that only the training system (T-Test <0.001) has a significant impact on customer relations.

Therefore, this thesis believes that talent selection and training systems can significantly predict customer relationships.

4.6 Correlation analysis of human capital, organizational performance, and intermediary variables

The employee recruitment system (HC1) predicts financial performance indicators (OP1) to a very high level. R2 is equal to 0.317, which means that HC1 (β value = 0.563) can explain that the total change of OP1 is about 56.3%, while T-Test <0.001. The data shows that employee recruitment significantly predicts financial performance and is positively correlated.

After incorporating the information system architecture (SC1) into the regression equation, F <0.001, R2 increased to 0.459, an increase of 44.79% over the original R2 value, indicating that HC1 and SC1 can jointly explain the total change of OP1 by 44.79%. HC1 (β value -61.28%) T-test <0.05, and SC1 T-test <0.001. The results show that when the information system framework（ (SC1) (β value = 0.511)） is added, it may have a certain intermediary role and can significantly predict financial performance

indicators. Therefore, for Hypothesis 6.1, the results of the data analysis are positive.

After incorporating the overall organizational process (SC2) into the regression equation, F <0.001 and the R2 value increased to 0.494, an increase of 55.84% from the original R2 value, indicating that HC1 and SC2 can jointly explain that OP1 is about 49.4%. At this time, the HC1 T-test (β value -61.28%) becomes 0.059> 0.05, and the SC2 T-test <0.001, which represents the overall organization process after addition (β value = 0.549), which can produce a complete mediation. And can significantly predict financial performance indicators. Therefore, for hypothesis 6.7, the results of the data analysis are positive.

After incorporating the partnership (RC1) into the regression equation, F <0.001, and the R2 value increased to 0.466, an increase of 47.00% from the original R2 value. This HC1 and RC1 can jointly explain that the total variation of OP1 is approximately 46.6%. The HC1 T-test (β value reduced by 33.57%) is still <0.001, and the RC1 T-test is still <0.001, which means that partnership (β value = 0.430) added in the equation, it may have a particular intermediary effect. It can be regarded as an essential Forecast of financial performance indicators. Therefore, this result supports the hypothesis 7.1 of this thesis.

If the customer relationship (RC2) including in the regression equation, F <0.001, and the R2 value increases to 0.515, an increase of 62.46% from the original R2 value, indicating that HC1 and RC2 can jointly explain the proportion of the total change OP1 is about 51.5%. HC1 (β value reduced by 43.16%) T-test is still <0.001, RC1 T-test is also <0.001, which means that there is a customer relationship when added (β value = 0.507), it can produce some intermediary effect, and can importantly predict financial performance indicators. Therefore, this result supports the hypothesis 7.7 of this thesis.

4.7 Regression analysis of employee traits and financial performance

We found that the predictive power of employee traits (HC2) for financial performance (OP1) reached a significant level. An R2 value of 0.084 means that HC2 (β value = 0.289) can explain the total variation of OP1 is about 8.4%, and the T-test is 0.004 <0.05, indicating that employee characteristics significantly predict financial

performance indicators and are positively correlated.

When SC1 is included in the regression equation, F <0.001, and R2 increases to 0.434, an increase of 416.7% from the original R2. That means that HC2 and SC1 can jointly explain the total variation of OP1 is about 43.4%. When the HC2 T-Test is changed to 0.691> 0.05 and SC2 T-Test <0.001, it means that the information system framework (β value = 0.645) can produce an entirely positive intermediary effect after adding the regression equation and can Significantly predict financial performance indicators. Therefore, the results of data analysis positively support Hypothesis 6.2.

When SC2 is included in the regression equation, F <0.001, and R2 increases to 0.476, an increase of 466.7% from the original R2. This increase means that HC2 and SC2 can jointly explain the total variation of OP1 to about 47.6%. Under the condition that the HC2 T-Test changes to 0.649> 0.05 and SC2 T-Test <0.001, it shows that when the overall organization process (SC2) (β value = 0.707) is added, it can produce a full mediation effect and can be significant Forecast financial performance indicators. Therefore, the results of the data analysis positively support Hypothesis 6.8.

When RC1 is included in the regression equation, F <0.001, and R2 increases to 0.356, an increase of 323.8% from the original R2. This increase means that HC2 and RC1 can jointly explain the total variation of OP1 is about 35.6%. Under the condition that the HC2 T-Test is changed to 0.527> 0.05 and the RC1 T-Test <0.001, it means that the partnership (β value = 0.571) after adding the regression equation can produce a full mediation effect and can significantly predict Financial performance indicators. Therefore, the results of data analysis positively support Hypothesis 7.2.

When RC2 was included in the regression equation, F <0.001, and R2 increased to 0.452, an increase of 438.1% from the original R2 value. This increase means that HC2 and RC2 can jointly explain the total variation of OP1 to be about 45.2%. Under the condition that the HC2 T-Test is changed to 0.094> 0.05 and RC2 T-Test <0.001, it shows that the customer relationship (β value = 0.571) after adding the regression equation can produce a full intermediary effect and can significantly predict the financial performance indicators. Therefore, the results of the data analysis positively support hypothesis 7.8.

4.8 Regression analysis of employee professional ability on financial performance indicators

The predictive power of employee professional ability (HC3) on OP1 reached a significant level, R2 = 0.068 means that HC3 (β value = 0.261) can explain the total variation of OP1 is about 6.8%. Under the condition of T-Test = 0.009 <0.05, it shows that the professional ability of employees can significantly predict financial performance indicators, and it is a positive correlation.

When SC1 is included in the regression equation, F <0.001, and the R2 value increases to 0.433, which is an increase of 536.8% from the original R2 value. This increase indicates that HC3 and SC1 can jointly explain the total variation of OP1 is about 43.3%. When the T-Test of HC3 is changed to 0.918> 0.05 and the T-Test of SC1 <0.001, it means that after adding the regression equation to the representative information system (β value = 0.655), it can produce a complete intermediary effect and can be significant Forecast financial performance indicators. Therefore, the results of the data analysis support Hypothesis 6.3.

When SC2 was included in the regression equation, F <0.001, and the R2 value increased to 0.479, a 604.4% increase from the original R2 value. This increase means that HC3 and SC2 can jointly explain the total variation of OP1 to be about 47.9%. Under the condition that HC3's T-Test = 0.370> 0.05 and SC2's T-Test <0.001, the overall organizational process (β value = 0.724) can be added to the regression equation to produce a complete intermediary effect and can significantly predict Financial performance indicators. Therefore, the results of the data analysis support Hypothesis 6.9.

When RC1 was included in the regression equation, F <0.001, and the R2 value increased to 0.354, an increase of 420.6% from the original R2 value. This increase means that HC2 and RC1 can jointly explain the total variation of OP1 to be about 35.4%. Under the condition that the HC3 T-Test is changed to 0.727> 0.05 and RC1 T-Test <0.001, it shows that when the partnership (β value = 0.610) enters the regression

equation, it can produce a full mediation effect and can significantly predict Financial performance indicators. Therefore, this result supports Hypothesis 7.3.

When RC2 is included in the regression equation, F <0.001, and the R2 value increases to 0.442, which is an increase of 550.0% from the original R2 value. This increase means that HC3 and RC2 can jointly explain the total variation of OP1 is about 44.2%. When the T-Test of HC3 is changed to 0.290> 0.05 and the T-Test of RC2 <0.001, it shows that when the customer relationship (β value = 0.637) is added to the regression equation, it can produce a complete intermediary effect and can significantly predict the financial performance indicators. Therefore, this result supports hypothesis 7.9.

4.9 Research on the intermediary factors in the correlation equation between human capital and business performance

This section mainly takes the three factors in human capital as independent variables and financial performance as dependent variables adds the information system framework, overall organizational processes, partnership and customer relationship variables to the regression equation to verify the intermediary variables. Significance.

The employee recruitment system (HC1) predicts the operational performance (OP2) to a significant level, R2 = 0.264, which means that HC1 (β value = 0.541) can explain the total variation of OP2 is about 26.4%. Under the conditions of the employee recruitment system on behalf of employees has a positive impact on business performance.

When SC1 is included in the regression equation, F <0.001, and the R2 value increases to 0.490, an increase of 85.61% from the original R2 value, indicating that HC1 and SC1 can jointly explain the total variation of OP2 is about 49.0%. Under the condition that HC1's T-Test = 0.411> 0.05 and SC1's T-Test <0.001, it means that the information system (β value = 0.643) can have a complete intermediary effect after adding regression equations and can significantly predict financial performance index. Therefore, this result supports the hypothesis 6.4 of this thesis.

When SC2 is included in the regression equation, the significance of F is less than

0.001, and the R2 value increases to 0.448, an increase of 69.70% from the original R2 value, indicating that HC1 and SC2 can jointly explain the total OP2 variation is about 44.8%. Under the condition that T-Test of HC1 = 0.204> 0.05 and T-Test of SC2 <0.001, the overall process of the organization (β value = 0.576) added to the regression equation, which can produce a complete intermediary effect and can significantly predict the operation. Performance indicators. Therefore, this result supports the hypothesis 6.10 of this thesis.

When RC1 is included in the regression equation, the significance of F is <0.001, and the R2 value increases to 0.530, which is an increase of 100.8% from the original R2 value, indicating that HC1 and RC1 can jointly explain the total variation of OP2 is about 53.0%. Under the conditions of HC1 (β value reduced by 51.57%), T-Test = 0.001 <0.05, and RC1 T-Test <0.001, it shows that the partnership (β value = 0.573) can add part of the intermediary after adding the regression equation Effectiveness and can significantly predict operating performance indicators. Therefore, this result supports the hypothesis 7.4 of this thesis.

When RC2 was included in the regression equation, the significance of F was <0.001, and the R2 value increased to 0.533, an increase of 101.9% from the original R2 value, indicating that HC1 and RC2 could jointly explain the total variation of OP2 to be about 53.3%. Under the condition that T-Test = 0.004 <0.05 of HC1 (β value reduced by 57.12%) and T-Test of RC2 <0.001, it shows that after the regression equation added to the customer relationship (β value = 0.590), some intermediary can be generated Effectiveness, and can significantly predict operating performance indicators. Therefore, this result supports the hypothesis 7.10 of this thesis.

HC2's predictive power for OP2 reached a significant level, R2 value = 0.141 means that HC2 (β value = 0.376) can explain the total variation of OP2 is about 14.1%, and T-Test <0.001, which represents that employees' traits significantly predict operating Positive performance correlation.

When SC1 is included in the regression equation, F <0.001, and R2= 0.498, an increase of 253.2% from the original R2 value, indicating that HC2 and SC1 can jointly explain the total OP2 variation is about 49.8%. Under the conditions of HC2 T-Test =

0.137> 0.05 and SC1 T-Test<0.001, the representative information system (β value = 0.650) after adding the regression equation can produce a complete intermediary effect and can significantly predict operating performance. Therefore, this result supports the hypothesis 6.5 of this thesis.

When SC2 is included in the regression equation, F <0.001, and R2= 0.445, which is an increase of 215.2% from the original R2value, indicating that HC2 and SC2 can jointly explain the total variation of OP2 is about 44.5%. When the T-Test of HC2 = 0.304> 0.05 and the T-Test of SC2 <0.001, it represents the overall process of the organization (β value = 0.621) when it adds to the regression equation, it can produce a complete intermediary effect and can significantly predict the operation. Performance. Therefore, this result supports the hypothesis 6.11 of this thesis.

When RC1 include in the regression equation, F <0.001, and R2 = 0.485, an increase of 244.0% compared to R2 indicating that HC2 and RC1 can jointly explain the total variation of OP2 is about 48.5%. Under the condition that HC2's T-test = 0.155> 0.05 and RC1's T-test <0.001, it shows that the partnership relationship (β value = 0.642) can produce a complete intermediary effect after adding the regression equation and can significantly predict the operation Performance. Therefore, this result supports hypothesis 7.5.

When RC2 is included in the regression equation, the significance of F is <0.001, and R2 = 0.524, which is an increase of 271.6% from the original R2 value, indicating that HC2 and RC2 can jointly explain the total variation of OP2 is about 52.4%. The HC2 (β value decreases by 43.35%) T-test = 0.004 <0.05 and RC2 T-test <0.001, which represents customer relationship (β value = 0.647) when added in the regression equation, it can have some intermediary effect and can be significant Forecast business performance indicators. Therefore, this result supports the hypothesis 7.11 of this thesis.

The predictive ability of HC3 for OP2 has reached a significant level. R2 = 0.107 means that HC3 (β value = 0.327) can explain the total difference of OP2 is about 10.7%, and T-test = 0.001, which shows that the professional competence of employees can significantly predict business performance and have a positive correlation.

When SC1 include in the regression equation, F <0.001, R2 = 0.490, the original

R2 value increases by 188.2%, which shows that HC3 and SC1 can jointly explain the total change of OP2 is about 49.0%.

Under the condition that HC3's T-test = 0.391> 0.05 and SC1's T-test <0.001, it means that when the information system (β value = 0.671) adds a regression equation, it can produce a full mediation effect and can significantly predict the operation performance.

Therefore, this result supports the hypothesis 6.6 of this thesis.

When SC2 is included in the regression equation, F <0.001, and R2 = 0.439, an increase of 310.3% from the original R2 value, which indicates that HC3 and SC2 can jointly explain the total change of OP2 is about 43.9%. Under the conditions of HC3 T-test = 0.775> 0.05 and SC2 T-test <0.001, the overall process of the organization after adding the regression equation (β value = 0.651) can produce a full mediation effect, and can significantly predict operational performance indicators. Therefore, this result supports the hypothesis 6.12 of this thesis.

When RC1 is included in the regression equation, F <0.001, R2 = 0.474, an increase of 343.0% from the original R2 value, indicating that HC3 and RC1 can jointly explain that the total change in OP2 is 47.4%, which is about 57. Under the condition that the HC3 T-test = 0.937> 0.05 and the RC1 T-test <0.001, plus the regression equation, it represents a partnership (β value e = 0.692), which can produce a full mediation effect and can significantly predict the operation performance. Therefore, this result supports the hypothesis 7.6 of this thesis.

When RC2 include in the regression equation, F <0.001, and R2 = 0.510, which is a 376.6% increase from the original R2 value. HC3's T-test = 0.057> 0.05, RC2's T-test <0.001, which means that adding customer relationship (β value = 0.661) to the regression equation can have a full intermediary effect and can significantly predict operating performance indicators. Therefore, this result supports the hypothesis 7.12 of this thesis.

CHAPTER 5 CONCLUSIONS

This section discusses the research results of Chapter 4. It explains the relationship between human capital, relational capital, structural capital and organizational performance, and supplement by the influence of the factors developed by it.

5.1 The impact of intellectual capital on organizational performance

The results of this thesis show that in terms of human capital, structural capital, and relational capital's predictive effect on organizational performance, all three have positive influences. If further research and analysis of the three-factor aspect of human capital "talent selection system," "employee's special ability" and "employee professional ability" and the two-factor aspect of structural capital "information system structure" and "overall organizational process" and the relationship The two-factor aspects of capital, "partnership" and "the customer relationship," have significant positive effects on both the two-factor elements of financial performance, "financial performance indicators" and "operating performance indicators."

From the above results, it can be seen that when the company can establish good talent recruitment and training system, and find and cultivate employee characteristics and professional capabilities, it will be helpful to its own financial and operating performance. Similarly, if the company has a well-organized internal information software and hardware structure and smooth overall processing flow, and can maintain an intimate partnership and customer relationship with the outside world, it will also significantly improve the company's performance.

5.2 The Impact of Intermediary Effects

In terms of the intermediary effect of structural capital and relational capital on human capital and organizational performance, it shows that structural and relational capital has a significant positive impact on organizational performance. After controlling structural capital, the result of human capital on organizational performance

is entirely replaced by structural capital, indicating that structural capital has a complete intermediary effect on the relationship between human capital and organizational performance. After controlling relational capital, the impact of human capital on organizational performance is partially replaced by relational capital, indicating that relational capital has a partial intermediary effect on the relationship between human capital and organizational performance. If we further explore the factor facets of variables, we find that all the intermediary factors have the effect of the intermediary effect.

(1) The information system is an intermediary factor: It has a partial intermediary effect on the relationship between the talent selection training system and financial performance indicators. For employees

The relationship between trait ability and financial performance indicators has a complete intermediary effect. It has a full intermediary impact on the relationship between employee professional competence and financial performance indicators. The relationship between the talent selection training system and business performance indicators has a complete intermediary implication. The relationship between employee traits and operating performance indicators has a full intermediary effect. It has a full intermediary impact on the relationship between employee professional competence and business performance indicators.

(2) The overall organizational process is an intermediary factor: It has a complete intermediary effect on the relationship between the talent selection training system and financial performance indicators. The relationship between employee traits and financial performance indicators has a complete intermediary effect. It has a full intermediary effect on the relationship between employee professional competence and financial performance indicators. The relationship between the talent selection training system and business performance indicators has a complete intermediary effect. The relationship between employee traits and operating performance indicators has a full intermediary effect. It has a full intermediary effect on the relationship between employee professional competence and business performance indicators.

(3) The partnership is an intermediary factor: The relationship between the talent

selection training system and financial performance indicators has a partial intermediary effect. It has a full intermediary effect on the relationship between employee traits and financial performance indicators. It has a full intermediary effect on the relationship between employee professional competence and financial performance indicators. There is a partial intermediary effect on the relationship between the talent selection training system and business performance indicators. The relationship between employee traits and operating performance indicators has a full intermediary effect. It has a full intermedia.

5.3 management implications

At the level of management practice, more and more companies are beginning to focus on the development of their intellectual capital, and are also interested in investing in intellectual capital. Therefore, this thesis hopes to provide a precise reference basis based on the results of this thesis. The focus of this thesis is on the influence of intermediary effects. Part of the reason is that many companies do not have huge budgets to establish three capitals at the same time.

5.3.1 New employee recruitment system

The company first needs to establish a perfect talent recruitment system and select suitable and good-quality employees to cultivate and develop their professional capabilities in the workplace.

According to the results of this study, human capital significantly affects structural capital and relational capital, so companies should work hard on talent cultivation to increase the amount of human capital. Such as seniority, education level, professional licenses, professional skills, etc., employees learn and exchange experiences, promote mutual interaction to a better level, respond to opinions, or make suggestions.

As for the direction of recruiting new employees, we can divide newly hired

employees into four types: knowledge and skill-oriented, job demand-oriented, contract-oriented, alliance-oriented, and drafted and managed by different types of new employees at the same time Management and development of strategies can effectively enhance a company's competitive advantage.

Companies should establish complete recruitment channels and rigorous selection procedures. When constructing recruitment channels, for example, companies can expand the source of applicants through the use of information technology and the use of the Internet. Recruiting through the Internet can save the company a considerable amount of money, and it can also allow the company to have extensive access to talents from different provinces. Besides, it can also be used to build a company’s talent database, especially for knowledge-based applicants.

Necessary, in this way, the company can obtain high-quality and suitable talents from a large number of applicants; and in the selection process, the company can select through various test tools to ensure that the recruited employees meet the needs of the company.

Finally, the company must have a set of selection and training plans for the new staff, because half of the recruitment and selection work to be successful depends on whether the team is competent, especially the customs and culture of the provinces in mainland China Habits are different.

We need objectively select suitable talents from candidates from various provinces; the quality of recruiting and selecting personnel is essential.

5.3.2 Knowledge management system

Industry knowledge, problem-solving experience, partnerships, and customer relationships are the company’s most valuable assets, and they must even be acquired at a high price. Therefore, complete information architecture and a smooth external feedback system should be established to maintain and use properly. At present, the company most often uses technologies such as video conferencing, electronic bulletin boards, online information services, CD-ROM data, the Internet, corporate intranets,

expert systems, data warehousing, document management, etc., to speed up the solution of employee problems and improve knowledge management Economic benefits, and further improve customer satisfaction, maintain external partnerships, accelerate product development time, and strengthen intellectual property management. Companies should also strive to establish a trust mechanism with customers because goodwill and brand are the most critical elements of intangible assets. Through rigorous quality control of products and services, to win the trust and good reviews of customers, the value of the company will naturally exceed the competition.

This thesis has discovered that intellectual capital's knowledge management strategies can effectively improve employees' human capital. Besides, knowledge-based employees are mostly the core of the company's operations. Therefore, the company should construct a complete knowledge management system, such as Documents, systematically integrate, establish work communities or forums, and provide a platform for information exchange, to enhance the human capital of this type of employee.

However, this thesis is convinced that the development of human capital will still have a positive impact on the improvement of the company's intellectual capital. Using company-level human capital development strategies can improve the quality of the company's intellectual capital. For knowledge employees, because such employees are mainly the promoters of the company's core competitiveness, the company should formulate a complete education and training plan and provide different types of training opportunities to instill new knowledge and new ideas immediately.

More importantly, the management strategy of intellectual capital also has a particular impact on the company's CEO succession plan. Through the management strategy of intellectual capital, the company provides a series of training and development plans for supervisors who may enter the leadership in the future. These strategies encourage all "candidates" to increase the value of their human capital and enhance their ability to compete. These strategies are also applicable to in-service employees to improve their development opportunities, such as a promotion or the ability to learn new skills.

5.3.3 Improve intellectual capital through foreign employees

Although comparative studies have found that employees in high-tech industries are generally not as loyal to the company as in other sectors, however, existing research shows that there is a positive correlation between employee turnover and wages.

For high-tech industries, the introduction of foreign employees can achieve the effect of knowledge spillover. However, some managers said that this method would put a particular burden on the company's operating costs. A few companies have begun to change their practices. They have started to provide employees with intangible measures, such as development opportunities, regular events, and partnerships with employees to enhance intellectual capital.

High-tech companies emphasize tangible and intangible strategies for developing employee's intellectual capital. In summary, this thesis uses such approaches. It has not been tested, but the author believes that this strategy may also have a positive impact on the development of corporate intellectual capital.

5.4 Research Limitations

5.4.1 Restrictions on the relationship between variables

This thesis uses human capital as a critical variable to reduce the complexity of the theoretical model. In the scope of the study, it does not include the interaction between structural capital and relational capital. Therefore, it may ignore the actual impact of these two capitals.

5.4.2 Restrictions by industry

This paper is a topic derived from the development of smart capital in the high-tech sector. The data in the research are all provided by manufacturers in the high-tech

sector. Therefore, the results of this thesis can only be a summary of the manufacturers engaged in the high-tech sector. The conclusion may not apply to all types of companies.

5.4.3 Restrictions by sample

As the research objects of this thesis are mainly high-tech companies, and due to the impact of the global environment, high-tech companies in Shenzhen are relatively low-key. Therefore, this study uses the snowball substitution method instead; however, this may lead to Technology companies were excluded from the investigation.

In this thesis, the Likert scale was used to measure the perception range of the heads of enterprises, heads of human resources departments, and heads of production lines for various variables. The subject will subjectively determine and judge. It is not measured by objective data, which will cause a certain degree of deviation and distortion in the data collected by the research.

5.4.4 Restrictions on empirical data

Due to time and budget constraints, as well as the consideration of replacing high-tech enterprise executives, only a sample survey of high-tech companies in Shenzhen has actually replaced the sample size, the interview sample has been expanded, and different types of human capital cannot be combined.

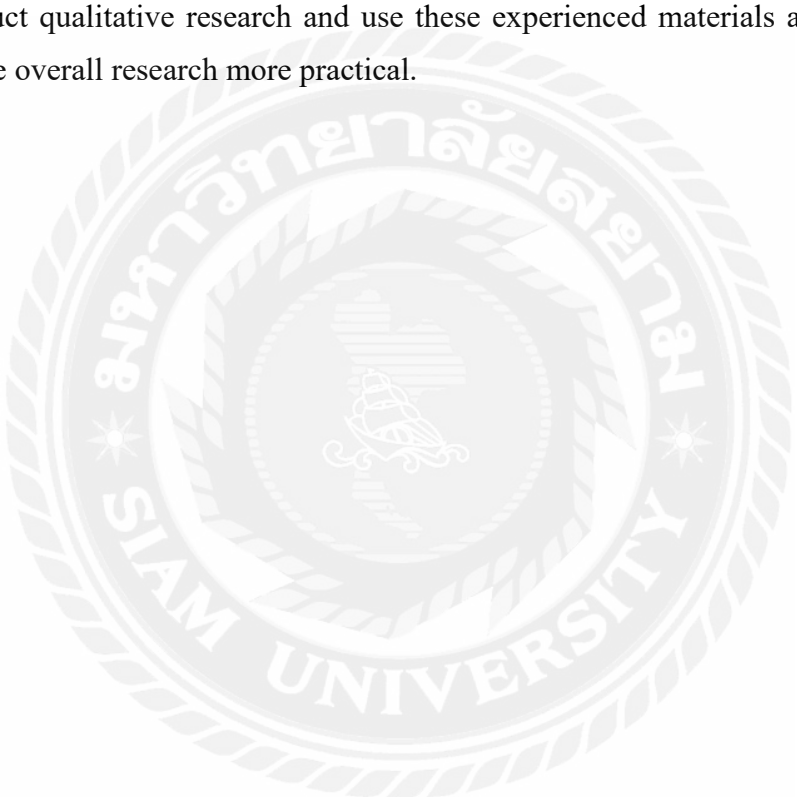
5.5 Suggestions for Future Research

This research has found several points that need to be discussed in the research process, so the following three explanations are proposed to help the study of intellectual capital in the future.

This research focuses on high-tech industries, so it is less applicable to companies in other industry types. Therefore, it is hoped that future research on smart capital can expand or lock the research scope to other industry types for research and development. Make comparisons and make the research on intellectual capital more diversified.

If it is a future study, the "interaction between relational capital and structural capital" restricted by this thesis can be taken into consideration, and the overall interaction of the three elements of capital in smart capital can be added to the organizational performance.

Because this thesis mainly uses the value collected from the questionnaire and uses statistical software operations as a verification of the research hypothesis. Therefore, it is hoped that future research scholars can increase interviews with experts and scholars to conduct qualitative research and use these experienced materials and examples to make the overall research more practical.



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