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Study of Human Resource Management System of the WT Garment Corporation

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Abstract

Aim: The thesis focused on HR management and its application to the WT Garment Corporation. It highlights the integration of HR management theory and Software Engineering to develop an effective HR Management System (HRMS) using Software Development methods. The HRMS addresses challenges faced by HR professionals, decision-makers, branch managers, and staff by providing a comprehensive solution for HR activities. The paper also offers a scientific approach to forecasting HR requirements and availability, allowing the company to optimize talent utilization. The implementation of HRMS not only improves personnel efficiency and departmental management but also contributes to overall company growth and information organization.
Methodology: The dissertation delves into the system's requirement analysis and outlines the detailed design of four subsystems.
Results: It includes a detailed investigation of the Brother Dress Corporation for requirement analysis and focuses on three crucial HR management aspects: HR Planning, Personnel Training Management, and Personnel Performance Management.
Conclusion: The author concludes by briefly discussing the preparatory steps and implementation process of the HRMS. Additionally, the dissertation identifies the future trends in HR management, emphasizing concepts such as flat, soft, and complex approaches.

Keywords: HR Management, Software Engineering, HR Planning, Performance Management

INTRODUCTION

In the context of advancing information technology and economic globalization, enterprises are experiencing profound changes in their business environment and management practices within the knowledge economy era. Many businesses are adopting strategies like Customer Relationship Management (CRM) for handling customer data, transactions, and opportunity analysis. Supply Chain Management (SCM) and Enterprise Resource Planning (ERP) are pivotal in enterprise management digitization, encompassing aspects like financial management, inventory control, purchasing, sales, production, and logistics. This transformation also triggers significant shifts in areas such as funding, products, markets, technology, and talent positioning.

Among these changes, human resources stand out as a dynamic and crucial element driving enterprise progress. Effectively managing, developing, and operating human resources has emerged as the foremost challenge confronting modern enterprises. The evolution of human resource management can be divided into three major developmental stages, spanning from the 1950s to the present.

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In the personnel management stage, more attention is paid to the management of affairs rather than the performance of employees. Employees are not regarded as resources to be developed in the enterprise, but simply exist in the form of Dang'an.

During the period of human resources management, human resources began to act as an independent department. Human resources services such as recruitment, employee training, performance appraisal and other related businesses of the enterprise will be regarded as the enterprise's human resources department to provide as customers. At the same time, as the main executor of strategic planning, the enterprise began to pay attention to the management services of individual performance of each employee, Human resource related factors are often not included in enterprises. Although enterprises recognize that human resources are a resource of the enterprise, they do not consider human resources to be a very important strategic resource for the enterprise in this planning process.

In the contemporary landscape, the significance of human resources within companies is widely acknowledged. Corporate management is now incorporating human resource importance into strategic planning. The evolution of human resource management has transitioned from conventional service provision to recognizing human resources as a crucial strategic asset. This shift involves treating human resources as an essential component of the company's main body, encompassing management, administrative, and technical personnel. This perspective underscores the need for comprehensive, systematic management of human resources rather than isolated efforts.

The challenge of effectively and reasonably developing and operating human resources has intensified for enterprise and human resources managers. The Human Resource Management System (HRMS), built on the theoretical foundation of "human resource management," has gained prominence due to the integration of information technology into management practices. Global enterprise management system investments allocate 10-15% to HRMS, reflecting its pivotal role. HRMS standardizes, digitizes, and networks human resource management, making it more scientific and efficient.

The initial generation of HRMS emerged in the late 1960s to streamline financial and material resource utilization in large enterprises. While it improved manual calculations for employee compensation, it was limited by potential calculation errors. The second generation, developed in the late 1970s, addressed initial shortcomings and included data analysis and historical information reflection. However, its design lacked comprehensive insight into enterprise needs.

The third generation HRMS, developed in the late 1990s, responded to intensified market competition by prioritizing employee motivation, crisis awareness, innovation, talent retention, and attraction. Tailored to enterprise requirements, it streamlined information processing, offered advanced user interfaces, precise reporting, analytical tools, and simplified information sharing. This generation significantly lightened the workload of human resource management personnel, enabling them to focus on strategic planning and policy formulation.

The economic growth in developed nations like the United States and Japan has significantly contributed to the advancement of human resources and the refinement of human resource management. This progress is bolstered by well-established classical management theories, including Taylor's scientific management, Weber's organizational theory, corporate culture theory, Theory Z, and the learning organization theory.

Foreign countries have entered the third stage of human resource management, characterized by comprehensive development and operational utilization of human resources as a value-added asset. Information technology is integrated into human resource management practices. Many companies have established advanced, technology-driven human resource management platforms, enabling comprehensive management of their workforce. Decades of practical experience and specific applications have led to the accumulation of substantial research insights in enterprise human resource management, yielding significant practical benefits.

In China, the concept of human resource management was spread when a large number of foreign-funded enterprises entered, and it was only about 10 years ago. For Chinese enterprises, the concept of human resource management is undoubtedly an imported product, and there is still a significant gap compared to developed countries.

For most enterprises in our country, the application and research of human resource management still remain in the second stage - the human resource management stage. A dedicated human resource department has been established to provide human resource services such as recruitment, training, and assessment for enterprise employees, and attention has been paid to the management of individual employee performance. Although many enterprises realize the importance of human resources for their business level and future development, they have not

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yet risen to a strategic level and believe that human resources work is only handled independently by the human resources department.

With the development of society, the gap in human resource management between China and foreign countries will become more apparent. The main reason for this is that China's basic research on human resource management is not stable, and there are few institutions that seriously study how to apply human resource management to Chinese enterprises. More commercial institutions only copy the application methods of foreign countries, without considering the company's own situation, causing many problems in the daily operation of enterprises. On the one hand, the management of most enterprises is not very familiar with human resource management and cannot be effectively implemented in daily management, but simply handed over to employees. On the other hand, the majority of personnel engaged in human resource management in China do not have relevant professional knowledge, and many are transferred from other positions, unable to have a good understanding of the human resource management system, and even unable to integrate human resource management with the enterprise perfectly. Instead, they place themselves in a high position, often not implementing policies, but passively accepting execution, and the energy has not been focused on human resource management, and there are few who actively strive to become strategic partners for their own work effectiveness.

Through the above analysis, in order to change the drawbacks of human resource management in domestic enterprises, it is necessary to thoroughly change the concept of enterprise managers. In addition, it is also necessary to establish a transparent, compatible, consistent, easy to check and comprehensive Human resource management system to manage the information related to people in a unified way, and truly realize the informatization and comprehensiveness of enterprise human resource management.

How to combine the actual development and implementation of WT clothing Human resource management system is the main purpose of this paper.

The Human Resource Management System (HRMS) is a fusion of management and information technology, playing a vital role in effective human resource management. Information technology streamlines various quantitative tasks like employee information management, attendance tracking, and salary calculations, offering efficiency gains over manual methods. This technology enhancement not only saves time for HR staff but also elevates overall office efficiency, affording managers more time for strategic considerations.

A well-designed HRMS offers significant advantages to human resource managers. It utilizes databases to store comprehensive employee information, enabling rapid generation of accurate reports. This supports informed decision-making and enterprise management. Moreover, network technology extends HR services beyond the HR department, catering to managers and employees across different departments. Managers can assess employee data, performance, and costs, while employees access salary information, benefits, training opportunities, and more. This empowers employees in their HR interactions and transforms post-management into proactive pre-management, enhancing overall service quality and fostering broader employee engagement in HR management.

The article discusses the specific application of information system architecture and construction within WT Clothing Company. The company's future information system architecture encompasses ERP, CRM, and OA systems. As a foundational and specialized component, the HRMS serves as a vital trend in modern enterprise human resource management, integrating and harmonizing information flows throughout the information system architecture.

As mentioned above, the Human resource management system has many benefits and help for senior leaders, grass-roots leaders and employees. In short, the successful implementation of the Human resource management system can:

(1) Improve work efficiency
(2) Optimize business processes
(3) Improve service quality
(4) Provide information based decision support
(5) Realize comprehensive human resource management

The Human resource management system is a powerful tool for the informatization of human resource management, and the informatization of human resource management will certainly promote the development of enterprise informatization.

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From this, it can be seen that it has significant practical significance for high-level decision-makers, middle-level leaders, and individual employees, as well as for the development of the entire enterprise.

The main task of this paper is to complete the development and design of WT Clothing Branch's Human resource management system by applying the principles of human resource management and the software engineering theory in information technology according to the actual situation of WT Clothing Company through several steps such as system overall planning, system demand analysis, system overall design and system detailed design.

The main problems to be solved include system requirements analysis, overall system design plan, and detailed design of the four subsystems. In the detailed design of the four subsystems, three important links in human resource management activities were mainly studied: human resource planning, employee training management, and performance management.

Human Resource Management Theory

The Human Resource Management System (HRMS) differs from general business management systems due to its flexible and complex nature. Unlike rigid business management systems, HRMS deals with multifaceted human resource functions, ranging from planning, recruitment, and on-the-job management to performance, training, and resignation processes. Human resource management's inherent complexity makes clear requirement description challenging.

While typical business processes are straightforward, HR processes are adaptable and intricate. Understanding human resource management principles and theories is crucial to align system development with actual needs. Therefore, incorporating these principles and theories is essential for guiding HRMS development. The author aims to succinctly introduce key human resource management principles and theories to aid in system development.

Human resources refer to the total labour capacity of a population within a certain range, or a type of resource that can promote social and economic development and is composed of individuals with a certain level of intelligence and sufficient physical labour. In economics, the production conditions that can generate wealth in production are referred to as "resources", and human resources are regarded as resources. Compared with general natural production resources, the main difference is that human resources are not only the bearers of production, but also the practitioners of production purposes, that is, all production purposes are to serve the needs of human development and comprehensive progress of the social environment.

Compared to natural and material resources, human resources have the following three characteristics:

a. Human resources are a renewable and inexhaustible biological resource Human resources are a natural carrier of individuals and are a living resource with regenerative properties.

b. Human resources are the primary active resources in economic activities Human Resource Management Theory 9 Compared with other production factors, human resources are the most important and necessary production factor, occupying the primary position.

c. Human resources with timeliness

The formation, development, and use of human resources are constrained by time constraints.

Human resource development and management include the overall process of human resource economic movement. Human resource development mainly refers to the entire process of formal education, intellectual development, vocational training, etc. provided by the country or enterprises to the personnel involved in the scope; Human resource management mainly refers to the management of the entire process of recruitment, recruitment, training, use, promotion, transfer, and retirement of employees from all levels of society or an enterprise.

Human resource development and management can be seen as the comprehensive development of human resources, with diverse goals that determine the breadth of the content of human resource development and management. The main contents include:

a. Human resource development

Improving the quality of employees is the most basic content of human resource development, including sufficient physical strength, professional skills, clear functions, accurate behavior, values, and labor.

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The education of employees is the core of human resources, and also includes the development of concepts and behavioral patterns that are compatible with the requirements of industrial society and the labor field.

b. Human resource allocation

The process of arranging workers into the required production industries, various industries, and different enterprises is called human resource allocation. The allocation of human resources varies with the needs of society for different types of labor, the prosperity of enterprises, and the willingness of workers to seek employment. At present, there are two main methods for allocating human resources: market allocation system and administrative allocation system.

c. Human resource protection

Life exists in nature, and the occurrence of natural disasters and accidents can have various impacts on people's lives, property, and labor capacity. Therefore, it is necessary to establish and improve safety production and labor hygiene systems to protect the health and safety of human resources during the labor process and establish and improve social security systems to protect human resources.

Human resource protection is an important guarantee to prevent the loss of talent.

d. Use of human resources

The utilization of human resources is the most important aspect in all operational processes. In economics, from the perspective of factors, no matter what factors, enterprises should make full use of them as much as possible, while achieving consistency with other production factors such as factor attribute matching, quantity matching spatial layout, and temporal linkage.

Human resource management is the entire process of managing the recruitment, recruitment, training, use, promotion, transfer, and retirement of employees from all levels of society or an enterprise. Human resource management theory is a systematic theory that studies the laws and methods of the entire management process, mainly revealing how to allocate, fully utilize, and develop human resources. The most influential management theories among them are [7]:

a. Scientific Management Theory – Taylor

Taylor's scientific management theory emphasizes the central principles of standardization and scientific approaches to management. He promoted a spiritual revolution, stressing the alignment of interests between labor and capital. The practical outcome of implementing scientific management has shown enhanced productivity, with efficiency serving as the foundation for mutual benefit between employees and employers. Thus, replacing traditional experiential management with systematic and standardized practices is key to achieving optimal work efficiency. The main contents of scientific management include:

(1) Action research requires determining operating procedures and action norms, and then improving efficiency by determining labor hours and improving operating methods.

(2) Train employees to use the most standard operating methods to help them grow.

(3) Develop more scientific workflow to standardize machines, processes, equipment, tools, materials, and environment as much as possible.

(4) Implement a piece rate wage system, where there is excess labor, there is excess compensation.

(5) Separation of management and labor.

b. Organizational Theory – Weber

Weber's perspective asserts that economic organizations should establish power structures grounded in rationality and legality to ensure their longevity and stability. The foundation for sustaining power's legitimacy lies in a well-structured system. Weber's innovative administrative organizational science theory and principles offer a rational and creative approach to achieving this goal:

(1) Organizations are generated based on legitimate procedures, with clear objectives and complete rules and regulations.

(2) The organizational structure is actually a hierarchical control system, where people in the organization exercise their authority based on their position and formal job responsibilities.

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(3) The relationship between people: the relationship between people and work, not between people.

(4) Publicly select suitable talents according to the requirements of the position.

(5) Reasonable division of labor among people and professional training to improve production efficiency.

(6) Pay according to position and contribution, establish a system of promotion and rewards and punishments to enhance employees' sense of achievement.

b. Theory Z

Theory Z believes that trust, sensitivity and intimacy are indispensable to the success of all enterprises, so we can use candor, communication and openness as principles to carry out democratic management. To create a Z-shaped organizational program:

(1) Cultivate employees' integrity and kindness.

(2) Leaders and managers need to work together to develop new strategies and establish common business goals.

(3) Implement the company's goals through efficient cooperation and flexible incentive measures.

(4) Need to cultivate communication skills for managers.

(5) The employment system should be relatively stable.

(6) Reasonable assessment and promotion system.

(7) Rotate positions and establish a career development path for employees.

(8) Encourage employees and unions to participate in company management, and appropriately expand their participation areas.

(9) Establish the overall relationship between individual employees and the organization.

c. Learning based organizational theory

The learning organization theory underscores the importance of bolstering a company's lasting growth by enhancing its overall competitive edge and capabilities. The future's exemplary enterprises are those where all employees are dedicated to continuous learning, forming a learning organization. By fostering a conducive work environment and fostering a learning-oriented corporate culture, the aim is to encourage employees to consistently learn, evolve, and adapt their perspectives, thus ensuring the organization's enduring success.

Characteristics of a learning oriented organization:

(1) All employees should have common ideals and aspirations.

(2) Be good at continuous learning.

(3) Flat structure organization.

(4) Employees should manage themselves independently and consciously.

(5) The balance between employees' families and careers.

(6) The new role of leaders has changed to designers and service personnel.

With the ongoing advancement of human resource management theory, valuable aspects from the aforementioned theories serve as inspiration for new concepts. The emerging theory of new human resource management is adept at addressing individual needs, fostering internal motivation, and attracting members to organizations. This approach leads to heightened personal fulfilment, responsibility, motivation, stability, and effective coordination within the organization.

The basic principles of human resource management are based on the continuous development and management of human resources, and after long-term practice, they have finally formed the basic principles. The most important ones are:

a. Principles of Systematic Optimization

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The principle of systematic optimization involves the theory that a human resource system attains its highest efficiency through holistic organization, coordination, control, and operation. A system comprises interconnected elements that interact to achieve unified development, forming an organic and intricate whole.

The human resources system is like all other systems, but its constituent elements and its own environment are different from other systems and have unique characteristics. The basic points of human resource system optimization principles include:

(1) The overall functionality of the system must be greater than the algebraic sum of some functions, i.e. achieving 1+1>2.

(2) The overall function of the system needs to take the optimal value from the sum of functions, and the various elements in the system need to be harmonious, harmonious, and cooperate with each other, with the overall power to strive upwards. Maximize the ability to turn. And the internal consumption of the system needs to reach the minimum value.

b. Energy level Correspondence principle

Energy level correspondence in human resource management involves arranging tasks, roles, and positions according to individuals' abilities to maximize their potential. The principle highlights that people possess varying capabilities. Aligning human resource management with energy levels necessitates creating a stable organizational structure that corresponds to individuals' levels. This dynamic alignment ensures that people's energy levels match their managerial positions, as illustrated in Figure 2-1.

The synergy of the system optimization principle and the energy level correspondence principle offers a robust theoretical foundation for devising human resource plans and managing personnel transfers.

c. System Power Principle

The system dynamics theory is a systematic theory that studies the stimulation and praise of people's work enthusiasm through material, spiritual, or other aspects in human resource management activities. Including the following content:

(1) The principle of material motivation: Using material encouragement to satisfy people's pursuit of material things and stimulate employees' work enthusiasm.

(2) The principle of spiritual motivation: By using measures such as praise, spiritual motivation, and opportunities for promotion and promotion, it expresses the love and trust of managers, as well as their recognition and recognition of employees' work abilities and performance, in order to motivate people's internal work motivation and enhance employees' efforts towards the expected goals of managers.

(3) The principle of information dynamics: It is not a "motivation" directly imposed on the workers themselves, but rather a "news" from the surrounding environment. From the situation of the country and the pride of the nation to the good news from family or friends, it can stimulate employee enthusiasm and motivation, indirectly affecting production efficiency. In the management of employee compensation and benefits, the material power principle in the system power principle should be fully considered to stimulate employee enthusiasm.

d. Elastic redundancy principle

In human resource management, flexibility is essential while avoiding overloading. Labor intensity, hours, and quotas have limits, surpassing which can lead to physical and mental exhaustion and loss of human resources.

The principle of elastic redundancy highlights optimizing human resources by fully utilizing their abilities and potential. It promotes balanced intensity and moderate relaxation, enabling more effective, healthy, and beneficial work. This principle guides policy formulation, regulation creation, and labor contract management, safeguarding human resources and facilitating smooth enterprise operations.

e. Complementary Value-Added Principle

In the human resources system, diversity and individual differences create a complementary nature in areas like personality, skills, and perspectives. The principle of complementary value-added emphasizes leveraging strengths and mitigating weaknesses. It involves principles such as knowledge complementarity, where diverse knowledge

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structures enhance each other, and balanced temperaments of firmness and flexibility. Complementary aspects encompass abilities, gender, age, and skills, fostering a holistic approach to human resources utilization.

f. Competition Enhancement Principle

The principle of competition intensification involves fostering initiative, persistence, and innovation through constructive competitions, aiming to identify innovative and exceptional talents capable of leading overall efforts. Organized and non-adversarial competitions stimulate employees, aiding in discovering management and strategic talents. Effective performance evaluations promote urgency and competitiveness in work. Collectively, these theories and principles in human resource management hold significant guidance for such activities, aiding in demand analysis, system design, and overall enhancement of the Human Resource Management System.

Overall Design of WT Clothing Human Resource Management System

System Master Plan

The Human Resource Management System encompasses various aspects of an enterprise's organizational structure, operational management, and modes of operation. It requires a complex data structure with a strong emphasis on data authenticity, accuracy, processing, and security. System development demands thorough pre-planning to allocate information resources effectively, save on information system investments, and advance the application of information systems.

The system's overall planning comprises three facets: preliminary system investigation, system development concepts, and feasibility assessment. The large, widely distributed workforce of WT Clothing Company necessitates a comprehensive human resource management approach, including personnel transfers and assessments. The centralized information planning by the company's headquarters underscores its commitment to informatization. The human resources department's understanding and technical prowess further strengthen the company's readiness for system development.

a. Current situation of information system construction

At present, the information system of WT Clothing is generally divided into two categories:

One of them is a real-time production system for end users, which is characterized by real-time operation without interruption, and once a fault occurs, the impact is wide and the losses are difficult to estimate. Classification by function includes: HLR interface, billing, business, settlement, accounting, payment, recharge, credit control, agency, customer service, point system, etc. Classification by business includes: GSM, CDMA, IP, 165, SMS, Ruyi Tong, Thesis of Senior MBA of Xi'an University of Technology 16 virtual network, dedicated line system, etc.

The second is the internal information system of the enterprise, such as office automation system, fixed assets management system, key customer management system, market operation management platform, interconnection management platform, Financial software of the Finance Department, project contract management system of the Planning Department, etc. It is characterized by low real-time requirements, but must be flexibly adjusted according to internal needs.

b. Overall development plan

The Human Resource Management System falls under the category of an enterprise-oriented information system. Within WT Clothing's internal information system, several shortcomings are identified:

Functionality: There's an overemphasis on "multiple subsystems" while underestimating the importance of an integrated "one system" approach.

Technical Approach: Past information resource planning prioritized demand-driven functionality, leading to a lack of comprehensive analysis, guided requirements, and supportive data strategies. Knowledge was skewed towards client/server systems, with less experience in browser/server setups.

Information Definition: A lack of holistic system requirement planning resulted in a lack of unified enterprise-level metadata definition and management.

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Data Sharing: Separate systems led to difficulties in data sharing, with no unified enterprise-level data centers or middleware standards for subsystem interaction.

Considering these challenges within WT Clothing's information system, the author leverages existing subsystem advantages while discarding previous system design flaws in the development of the Human Resource Management System.

The overall development plan of the system is as follows:

(1) Unified data source. Due to the inconsistency of data in the existing subsystem of WT Apparel, it is necessary to organize and classify the codes of various departments within WT Apparel in a unified manner to ensure consistency in the coding of each subsystem and achieve full sharing of data among various departments; In addition, while unifying data sources, ensuring data integrity and accuracy;

(2) Adopting a new three-layer browser/server (B/S) architecture. Most existing systems, such as office automation systems, adopt the traditional client/server architecture, which is not only complex to operate and inflexible to use in different locations, but also difficult to maintain, with significant drawbacks. Therefore, the author chose a new type of B/S system architecture that is simple to operate and less difficult to maintain;

(3) Fully embody the idea that "computers are tools, networks are the foundation, and applications are the purpose". Utilizing the internet to promote the comprehensiveness of human resource management;

(4) Analyze and design information systems based on computer software engineering theory.

a. Economic feasibility

The development of the Human Resource Management System is a precursor to WT Clothing's complete information system architecture. The company possesses adequate system development personnel and technical expertise, enabling independent development with moderate investment. Upon system completion, it will substantially enhance convenience and impact the company's human resources expansion and business growth. The system's intangible operating benefits make it economically viable.

b. Technical feasibility

The system's adoption of the new B/S architecture is well-established, and software engineering theory is mature. The presence of skilled system developers who understand both computer information system development and human resource management theory ensures seamless integration with organizational needs. Technologically speaking, the system's feasibility is assured.

c. Operational feasibility

Given the comprehensive planning and research during development, the independent system development by knowledgeable human resource management developers is feasible, aligned with the company's needs. Moreover, post-development operational implementation is also viable.

System Analysis

The detailed investigation in the system analysis stage is to thoroughly understand the processing of information and all management processes in the company's human resources management, which is relative to the preliminary investigation conducted in the overall system planning and design.

a. The connection between WT clothing institutions and human resource management

Human resources encompass extensive information from diverse sources and are interconnected with various company departments including HR, development, public relations, sales, and finance. Thorough system investigation entails comprehensively understanding the company's overall structure and institutional departments, collecting accurate data, and then summarizing it. The interrelationships among WT Clothing's departments are depicted in Figure 3-1.

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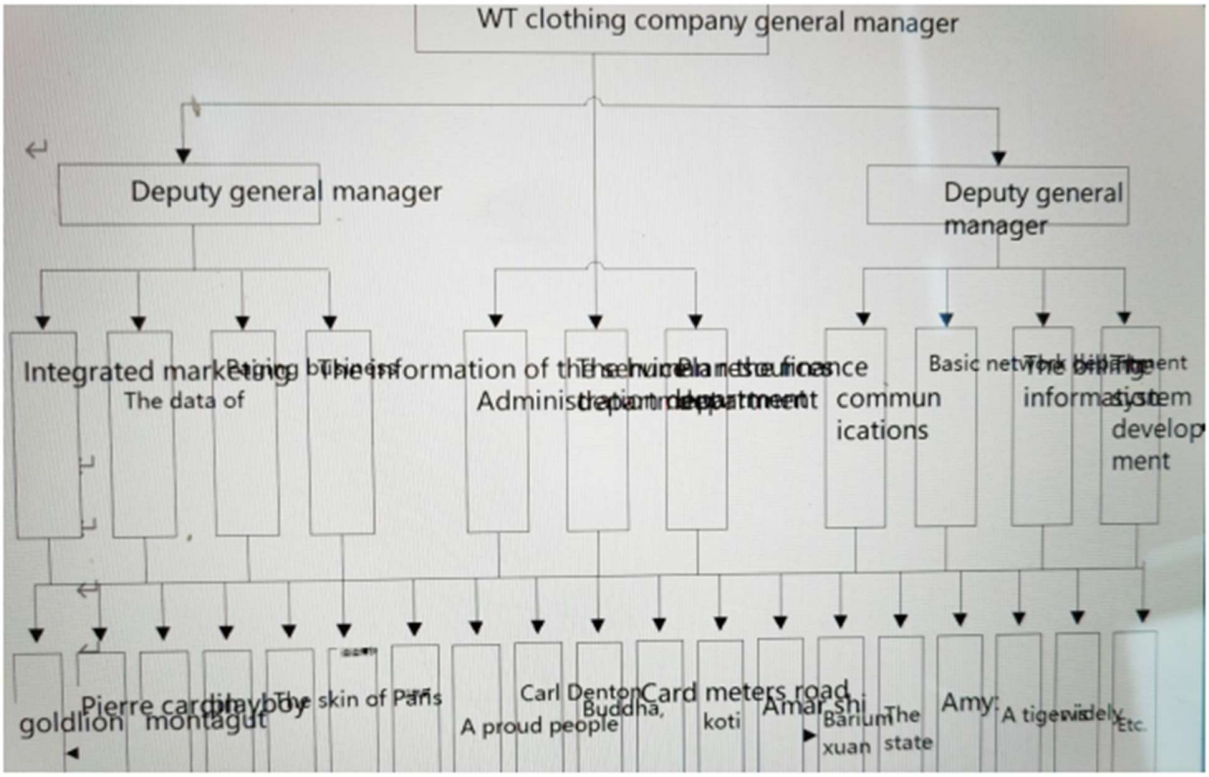
Figure 3-1 Brothers dress organizational chart



Human resource-related information is integral to all departments. Employee details are maintained in the HR department, while HR plans are centrally coordinated. Communication between the HR department and other departments occurs through interactions between department managers and HR personnel, ensuring a seamless flow of information and coordination.

b. Business Data Flowchart

The business data flowchart serves as a logical representation of the system's functions, inputs, outputs, and data storage, providing an in-depth analysis of its operations.

This analysis is rooted in the actual human resource management activities, and a precise data flowchart enhances comprehension of system needs. Since module processes will be detailed in subsequent sections, the broader depiction of the entire Human Resource Management System's functions is shown in Figure 3-2, reflecting its overall operational scope.

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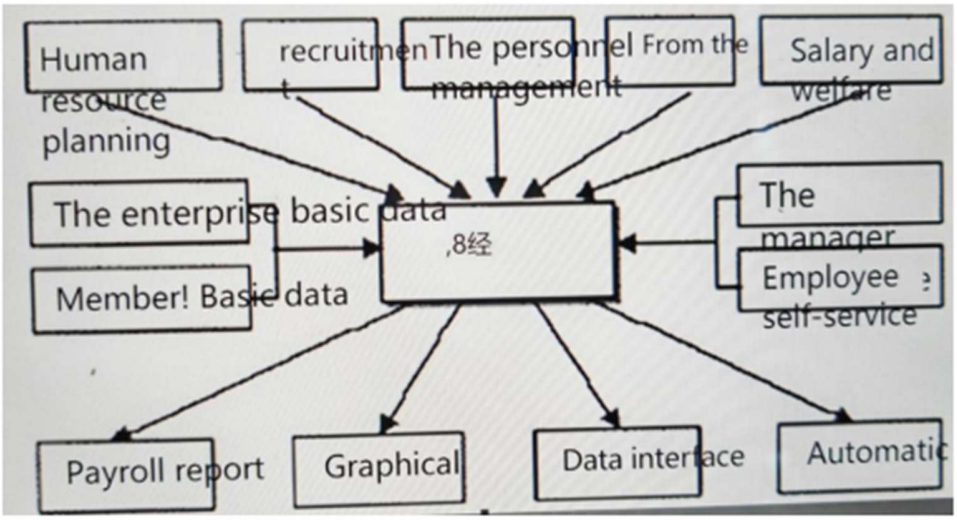
Figure 3-2 human resources management system flow chart of the overall information



c. Data dictionary

The Data Dictionary is a comprehensive list detailing all elements within the system's data flowchart, providing specific information such as names, aliases, descriptions, and definitions of various data components. Creating the Data Dictionary significantly impacts future database design performance and serves as the foundational data reference for the entire Human Resource Management System. Detailed insight into the Data Dictionary's role will be provided in the upcoming database design section.

System requirements constitute the foundation for system development, encompassing user expectations in terms of functional indicators and performance. These requirements vary based on the intended users.

Different user groups within an enterprise have distinct needs for the Human Resource Management System:

(1) Senior Leadership (WT Apparel): Senior leaders require insights into the correlation between human resource indicators and business metrics, enabling them to formulate strategic measures to enhance organizational performance. They also need to monitor human resource allocation, vital employee status, cost analysis, and employee performance online.
(2) Line Managers (WT Apparel): Modern human resource management involves collaborative efforts between middle managers and the human resources department. Line managers must execute human resource plans, oversee departmental employees, manage attendance, approve leave requests, and implement performance management through the system.
(3) Ordinary Employees: Regular employees need access to information like monthly salary details, benefits accumulation, internal stock value changes, internal job postings, personnel policy updates, attendance and leave records, and registration for internal training via the internet.

These user-specific requirements reflect the diverse roles and needs within the enterprise, driving the development of a tailored Human Resource Management System.

b. According to the work level of human resource management [9]

The theory of human resource management is divided into four levels:

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Firstly, there are regulations and business processes, followed by operations based on standardized business processes, as well as human resource strategy and strategic human resource management.

(1) Basic work

The concept revolves around creating an operational framework for enterprise human resource activities. This starts by enhancing human resource management rules and regulations, serving as the "legal foundation" for departmental activities. Yet, without a standardized operational process, there can be discrepancies and confusion in applying rules. By addressing this with an efficient operational process, the human resource management team can overcome paper-based challenges, ensuring effective practical implementation. Establishing such a process becomes a crucial assurance for successful human resource management in practice.

(2) Routine work

Routine tasks on the infrastructure platform of rules and regulations encompass activities like human resource planning, recruitment, contracts, archiving, assessments, training, attendance, salary, benefits, and employee resignations. These tasks are typically repetitive, experience-based, mundane, and lack creativity, making them a defining aspect of routine work. Although time-consuming for human resource management personnel, they are essential tasks. As these tasks don't directly impact the core enterprise values, outsourcing to professional service firms or consultants is emerging as a trend.

(3) Strategic work

Human resource managers need to align with the enterprise's strategic development and offer insightful analysis of current human resource management. This involves providing valuable information to decision-makers and directly aiding in achieving overall strategic goals. Formulating precise action plans to realize strategic objectives, human resource strategy serves as the guiding compass for all departmental efforts within the enterprise.

(4) Pioneering work

Human resource management focuses on providing value-added services to enterprises, creating conditions for departments to generate value directly, and aiding them in attaining their objectives. The value of the human resources department manifests through enhancing employee and organizational efficiency. However, to boost employee and organizational performance, aligning corporate strategy with human resource strategy is crucial. This entails developing a positive corporate culture, personalized career plans, relevant salary and incentive systems, and giving substantial attention to comprehensive enterprise human resource development.

Based on the analysis of human resource management levels and the management context of WT Clothing, the system functions can be categorized into four major subsystems, depicted in Figure 3-3:

Basic Work Subsystem: Comprising four modules - personnel basic information, job function management, system and policy management, and labor contract management.

Routine Work Subsystem: Encompassing ten modules - human resource planning, recruitment and selection management, training management, deployment management, attendance management, business

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trip management, overtime management, leave management, salary management, and resignation management.

Strategic Work Subsystem: Comprising three modules - comprehensive report, general manager self-service, and line manager self-service.

Pioneering Work Subsystem: Consisting of three modules - performance management, employee self-service, and system maintenance.

The division of these subsystems is based on the analysis of human resource management work levels and the specific operational context of WT Clothing.

a. Composition of application system

For any application system, it is composed of the following three parts: (1) User interface part (prZesentation of Presentation layer);

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(2) Application logic part (application logic layer);

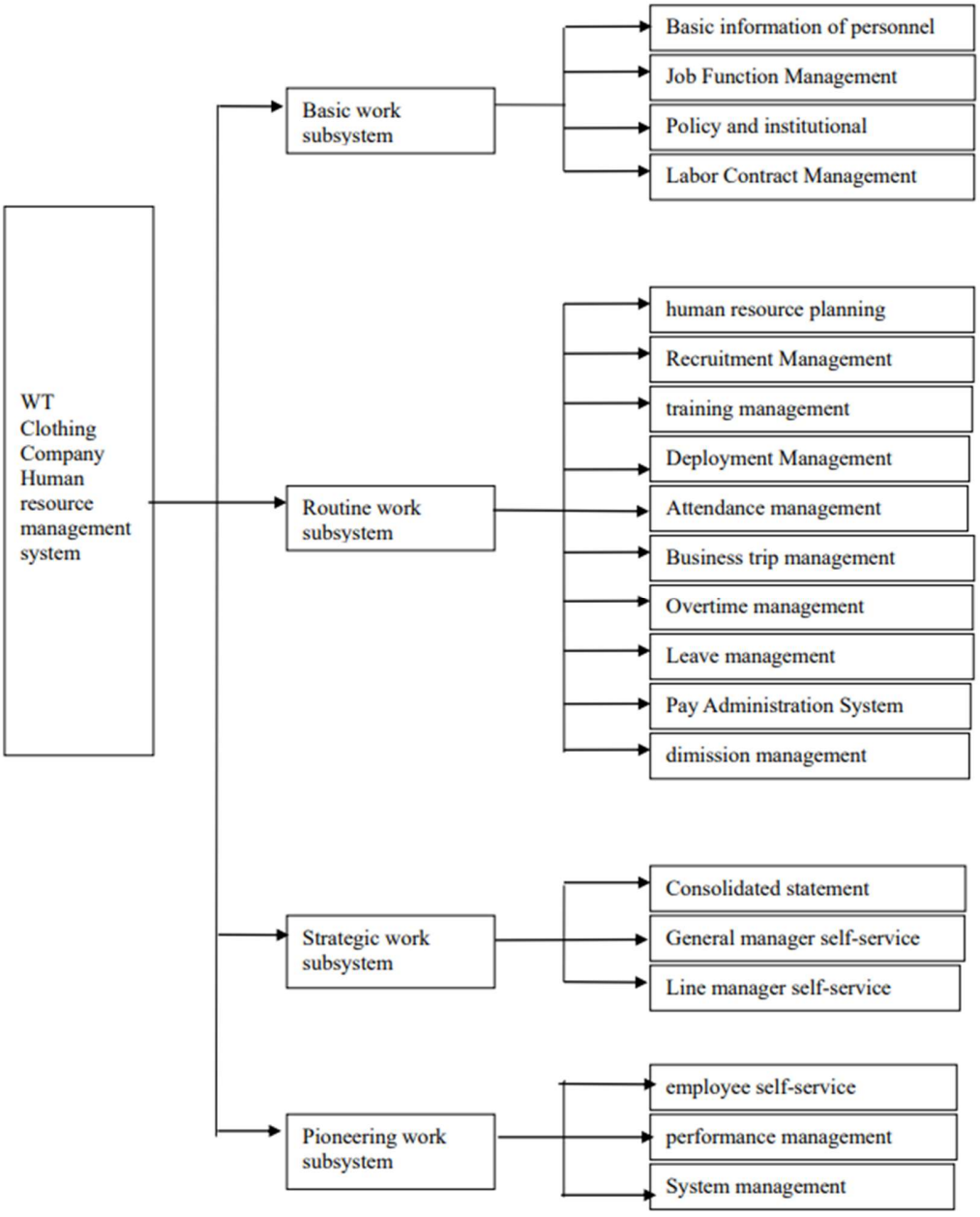

Figure 3-3 subsystem of human resource management system

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(3) The data service part (data service layer Data and Service).

Among them, the function of the Presentation layer is to interact with users, that is, how users use applications; The application logic layer performs specific operations and determines the flow of the program; The data service layer is mainly responsible for managing, maintaining, and updating application data. The structure is roughly shown in Figure 3-4:

Figure 3-4 application system composition block diagram

b. Human resource management system Model [11] [12]

The Human resource management system is no exception, and it should also have three major parts: user interface, application logic and data service. The user interface is programmed by a visual development tool. The application logic includes decision support, statistical analysis and routine work. The data service includes basic data and business data.

The Human resource management system model is shown in Figure 3-5.

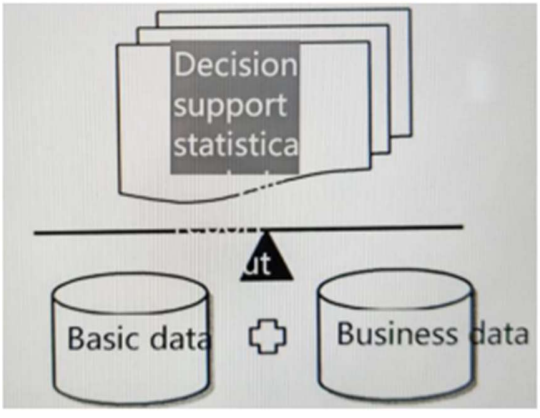

Figure 3-5 model of human resource management system

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From Figure 3-5, it can be seen that the system can be divided into three levels based on functional structure classification:

Basic data layer; Business processing layer; Decision support layer. Below is an introduction to the three functional levels:

(1) Basic Data Layer: This layer involves static data with minimal changes. It comprises two main categories: employee personal attributes (like name, gender, education) and enterprise-related data (organizational structure, positions, salary levels, etc.). This foundational data forms the backbone for the system's normal operation.
(2) Business Processing Layer: This layer deals with dynamic data that correspond to specific business processes in human resource management. Examples include new employee data, salary records, performance appraisals, training information, attendance, and vacation data. It acts as a functional processing layer, continuously accumulating new data during daily management activities. These data sources enable enterprises to comprehend the state of human resources, enhance management capabilities, and support decision-making.
(3) Decision Support Layer: Built upon a human resource database composed of basic and business data, the decision support layer enables rapid information retrieval through data analysis and statistics. This layer enhances the efficiency of human resource management and empowers senior management to gain a comprehensive understanding of human resource situations for informed decision-making.

After the system analysis phase, the subsequent step is system design, with the initial focus on overall system design. This phase aims to establish the comprehensive structure of the Human Resource Management System. The overall design encompasses several key aspects, including the overarching objectives, the chosen system architecture, database design, and the general system structure.

a. Implementing Information Integration

The system employs a centralized database to efficiently connect human resource management information, reducing redundancy in data updates and searches. This enhances compatibility, integrates information, and boosts work efficiency. Specific advantages include:

(1) Unique Source: Data input is confined to specific departments or employees, eliminating the need for duplication across other sections. This minimizes repetition, enhances efficiency, and reduces errors. Using employee passwords, data sources can be traced, and accountability established.
(2) Real-time Sharing: Input data, along with processed results adhering to predetermined rules, is stored in a designated database, accessible to authorized personnel. This enables real-time sharing and swift responses to changing circumstances, enhancing proactive management. Using the same information source avoids discrepancies in decision-making outcomes.
(3) Multiple Query Paths: The system not only shares data but also uses database technology to establish diverse query paths from distinct viewpoints. This accommodates specialized business needs, providing management with unified information resources.

b. Beneficial for reflecting the principle of fairness and retaining talents

Talent attrition is primarily linked to salary aspects, although various other factors, including work environment, leadership fairness, training prospects, and personal growth opportunities, also play roles. An effective solution involves inputting employee strengths and skills into the management system. When a position requires staffing, the system can be used to search for suitable candidates within the organization, promoting talent utilization and retention.

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Moreover, the system should uphold fairness principles, selecting appropriate talents to incentivize individual contributions, and fostering enthusiasm and motivation among employees.

c. Helping the company improve management efficiency

The implementation of a Human Resource Management System goes beyond enhancing work efficiency. It also enables the generation of detailed analysis reports that aid business leaders in decision-making. Through integrated and accurate information, these reports provide a comprehensive understanding of the organization's current human resource landscape. This comprehensive and consistent data serves as a reliable basis for informed decision-making by business leaders.

d. Realize the unity of information transparency and security

Implementing a Human Resource Management System aims to balance information sharing and transparency with the critical aspect of security. The system's security design ensures controlled transparency of confidential personnel and salary data. Users gain access to authorized information and pages through system authorization, maintaining security. Thus, the adoption of the system enhances information security and confidentiality rather than diminishing it.

Based on the above system investigation and functional analysis, in order to better achieve information sharing and meet the anytime and anywhere operation of users (senior leaders, line managers, and employees), the system adopts a three-layer development technology of Browser/Server (B/S) structure. a. The shortcomings of traditional client/server architecture

The traditional C/S architecture is shown in Figure 3-6. As shown in the figure, the C/S architecture decomposes computer application systems through three basic components:

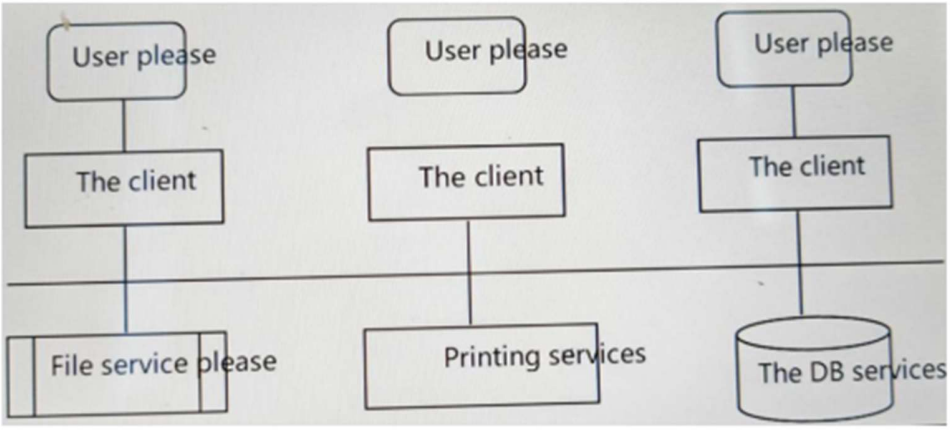

Figure 3-6 client/server system structure

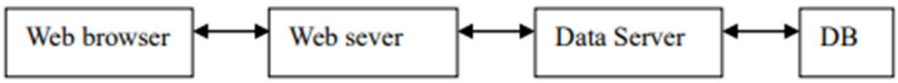

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Figure 3-7 browser/server system structure

The characteristics of the B/S architecture include:

The B/S architecture comprises three layers: the Presentation layer, Application logic layer, and Data resource layer. The Presentation layer offers a user-friendly graphical interface and positioning services. The Application logic layer processes data and employs the data service layer to access and modify data, while the Data resource layer manages the database.

B/S architecture improves C/S architecture issues by distributing load on the WEB server, enhancing system openness, reducing access limits, and addressing high user numbers. Business processing is handled by the application server, establishing a Connection pool for more efficient use. Centralized servers in B/S systems enhance processing speed. The B/S system's centralized nature allows easy maintenance and expansion without altering client code. The system is network-based, enabling remote control, upgrading, and maintenance.

Whether users are in a local area network or different locations, the B/S system works over the internet or dedicated lines, offering flexible access options.

c. Advantages of B/S architecture

(1) Simplified Client: B/S eliminates the need for installing different client applications by using universal browser software, saving client memory and disk space. This simplifies installation and enhances network flexibility.
(2) Simplified Development and Maintenance: B/S reduces development complexity. All functions are implemented on the web server, and user permissions are set for different functions. Maintenance is more efficient as changes in application logic only require altering server-side code, not client applications.
(3) User-Friendly Operations: B/S simplifies user operations as browser software serves as the client interface. Users, including decision-makers and operational staff, can use it directly without specialized training, reducing limitations on MIS system maintenance.
(4) Publishing Network Information: B/S is ideal for publishing information on the internet, unlike C/S systems limited to local area networks. This enables efficient electronic document preparation, approval, and release, simplifying administrative procedures and saving resources.

B/S's progressive advantages have made it a preferred platform for MIS systems in enterprises, offering simplicity, efficiency, and enhanced information dissemination.

d. Development Technology under B/S Architecture

Traditional client/server applications often rely on visual development tools like Visual Basic, Visual C++, Delphi, C++Builder, and PowerBuilder. These tools facilitate quick application system development. However, browser/server applications offer advantages like unrestricted client access and simplified deployment, leading to the growth of multi-tier browser/server applications. Technologies like JSP and ASP have emerged to address this shift. In the case of developing the Human Resource Management system, JSP technology is chosen.

JSP, introduced by SUN, enables dynamic web generation on the server side. It combines browser-based web technology with server and database technologies, executing on the server and delivering HTML to the client. Its applicability is strong, as long as the client has a browser. JSP is effective, convenient, and widely used for developing dynamic websites, with features like efficiency, security, convenient component development, and broader platform adaptability, making it superior to Microsoft's ASP technology.

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Database design is the type, format, length, and organization of data required for designing an application. As an application system needs to handle a large amount of data, database design has become an independent development activity.

The performance of database design directly affects the performance and execution efficiency of the entire system.

Database design is a comprehensive activity based on ready-made DBMS, using certain design methods to construct an application system's database and develop application programs.

a. Selection of Database management system

The Database Management System (DBMS) is crucial for database design and management. Widely used DBMS options include Microsoft's Access and SQL Server, Oracle's Oracle, and IBM's DB2. The choice of DBMS depends on factors like data scale and security.

For the Human Resource Management system, the author selects Oracle 8 from Oracle Corporation due to its powerful and secure database management capabilities. Oracle is a highly recognized relational database system known for its industry reputation. It's based on IBM's System/R Relational model and has undergone significant development and research.

Oracle's recognition, maintenance system, and technological advantages have led it to become a leading RDBMS supplier. The company has expanded its offerings to include application servers, development tools (e.g., CASE tool Designer2000, Developer 2000), and application software (like Oracle Financial, Oracle Manufacturing, Oracle Human Resources). These tools and software are adapting to the web-based development and networking needs.

b. Database Design Methods

In database design, three prominent methods are the Entity Relationship (ER) method, Object Role Modeling (ORM) method, and IDEF1X method. The ER method represents entity types, attributes, and relationships to describe real-world conceptual models, creating an independent Entity-Relationship model. The ORM method simplifies design through natural language use, while the IDEF1X method, developed by the US Air Force, is a widely used system analysis and design method based on structural analysis and design from the Integrated Computer Aided Manufacturing (ICAM) project.

c. Database design process

Database design is a systematic process that integrates computer software and hardware technology with domain knowledge and management techniques. It involves following established rules, methods, and steps. This process encompasses requirement analysis, conceptual design, logical design, and physical design. These four steps constitute the general database design process, as depicted in Figure 3-8.

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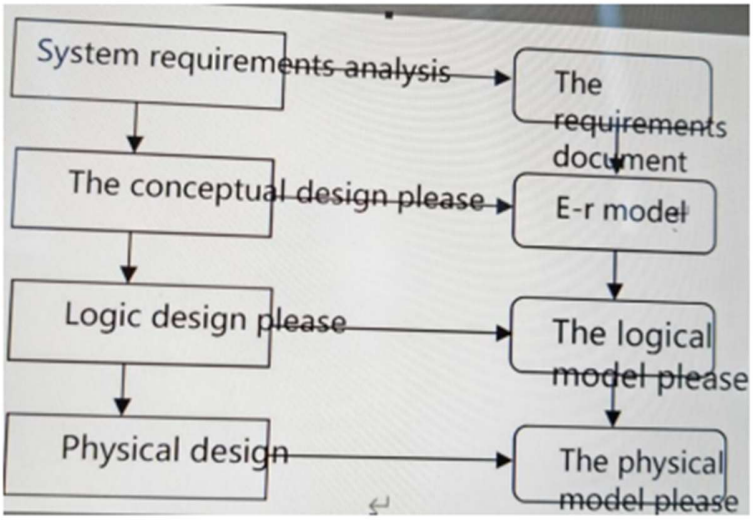

Figure 3-8 figure database design process

Traditional database design follows standardized theory and incorporates system analysis and design steps from software engineering to create functional database systems. However, this approach has shown limitations due to issues like maintenance challenges, low reusability, inefficient design, and unstable performance. In the present technology landscape, rapid advancements have led to the emergence of new principles based on databases. These principles leverage visual design and integrate seamlessly with modern Database Management Systems (DBMS), exemplified by tools like Power Designer, Rose, and ERwin. These tools enhance design efficiency and functionality, aligning with evolving needs in the field of database utilization.

The following are the specific steps for designing a database using auxiliary development tools:

Database design involves three main stages: conceptual design, logical design, and physical design.

(1) Conceptual Design:

In this stage, data needed for system development is collected and organized into a Data dictionary. Using this dictionary, a unified model is created, tailored to the specific needs of the enterprise. This process is known as conceptual design. It begins by identifying entity requirements and creating local Entity-Relationship (E-R) diagrams. These diagrams are then merged to eliminate redundancies and inconsistencies, resulting in an overall E-R model for the system.

(2) Logical Design:

The E-R model obtained from conceptual design cannot be directly used by Database Management Systems (DBMS). Logical design is the process of transforming the conceptual E-R model into a form that can be accepted by the DBMS.

(3) Physical Design:

Physical design focuses on determining the storage structure of the database. It involves converting the logical model from logical design into the physical model required by the DBMS for system implementation. Database assistance tools can simplify these steps by automatically generating the static structure of a specific database based on the final physical model.

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Overall, these stages work together to ensure that the database is well-structured, efficient, and capable of meeting the specific needs of the enterprise.

The comprehensive system structural design takes into account various aspects including information processing, process handling, strategic management, management tools, and analysis. Based on the requirements analysis of the Human Resource Management system, the system's functions are categorized into four main subsystems aligned with human resource management levels: basic work, routine work, strategic work, and pioneering work subsystems.

Overall System Structure Detailed Design of WT Clothing Human Resource Management System

Basic Work Subsystem Design

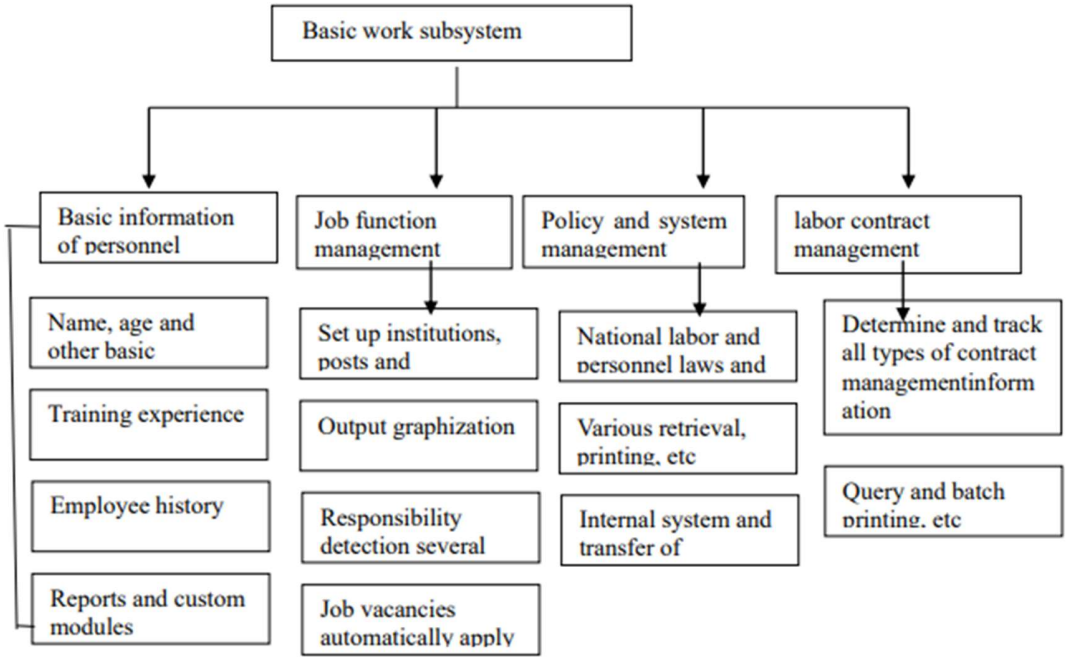

Figure 4-1 basic work subsystem frame

The following are the specific designs of the four modules:

a. Basic information of personnel

Personnel, also known as human resources, are the foundation of human resource management. Human resource management should first have a detailed and accurate grasp of the information of company personnel. According to the personnel situation of WT Clothing, the basic functions of the designed personnel basic information module include:

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(5) View all information of all employees in the company during their work period (including basic information of employees, such as name, gender, age, contact phone number, photo, etc., employee education level, rewards and punishments, contracts, phased performance evaluations, wages and benefits, and other information);
(6) Enterprises can customize their employee profile items when needed;
(7) Promptly prompt probationary employees to become regular employees;
(8) Ability to track and manage the historical records of employees throughout the entire process, including salary fluctuations, job changes, rewards and punishments received, etc; Can link various employee files, such as Word files, WPS files, Excel files, and scanned files.
(9) In enterprises, the system can provide various forms of employee information tables as needed; The system can automatically prompt information, such as employee birthday reminders and contract expiration reminders. It can flexibly handle the confirmation, retirement, resignation, and re employment of enterprise employees.

The personnel basic information management module provides a unified data source for future modules, thus serving as the foundation for the design of other modules.

b. Job Function Management

In the design of job function management, the Correspondence principle of energy level in the principle of human resource management is used to arrange jobs, posts and positions according to the ability of employees, so as to make the best of everyone. Based on the characteristics of the WT clothing industry, the basic functions of the job function management module designed include:

(1) Provide multiple organizational structure design models, and provide appropriate solutions based on the industry characteristics, production status, business scale, and basic nature of the enterprise;
(2) When setting up organizational structures, job levels, and positions at all levels, it is necessary to be flexible and diverse, and to customize the hierarchical relationships between various institutions in a "timely manner";
(3) Timely and effectively adjust the job levels of each position, clarify job responsibilities, review job qualifications, optimize job staffing, and other information;
(4) Obtain graphical analysis tools that intuitively and dynamically reflect the organizational structure and development status of the enterprise;
(5) Based on job analysis and effectiveness evaluation, conduct a comprehensive evaluation and optimization of current positions;
(6) For different positions, specific responsibility testing standards should be followed for evaluation, and timely responsibility evaluation should be conducted for each position;
(7) Automatically apply for personnel recruitment based on the gap between existing and required positions, and clarify the responsibilities and requirements of the required personnel.

c. Policy and institutional management

The policy system is the legal guarantee for the normal operation of various activities of the company. According to the policy system of WT Clothing, the main functions of the designed policy system management include:

(1) Provide a database of relevant national labor and personnel laws, regulations, policies, and systems;
(2) The database has scalability, and can be dynamically added to the database when relevant national and local laws and regulations change;

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(3) Powerful search and query function, with the option to browse multiple query result windows, achieving simultaneous retrieval of multiple documents and printable output;
(4) Manage the internal system and document approval system of the enterprise organization, including the system of personnel violations.

d. Labor Contract Management

Labor contract management, like system and policy management, is designed to strengthen the protection of human resources, with the aim of providing every employee with a "fair, just, and reasonable" work environment and preventing talent loss. The main functions of labor contract management include:

(1) You can create templates for labor contracts, position agreements, Non-disclosure agreement, and training agreements, and determine the basic contents and attributes of various contracts;
(2) Establish management of various types of contracts, including recording contract signing status, changes, and renewals;
(3) Record the termination or termination of contracts by employees;
(4) Employees who have a probationary period or labor contract that has expired can set the number of days for early reminders and automatic reminders upon expiration;
(5) Calculate the employee's liquidated damages and Financial compensation obtained by terminating the labor contract;
(6) Able to provide arbitrary addition, deletion, and printing of various labor contracts;
(7) Able to batch print various contracts of a certain batch of employees;
(8) Provide automatic updates of contracts based on changes in circumstances, and provide ledger management of contracts, making it easy for the company to search and calculate the overall status of contract signing.

Design of Routine Work System

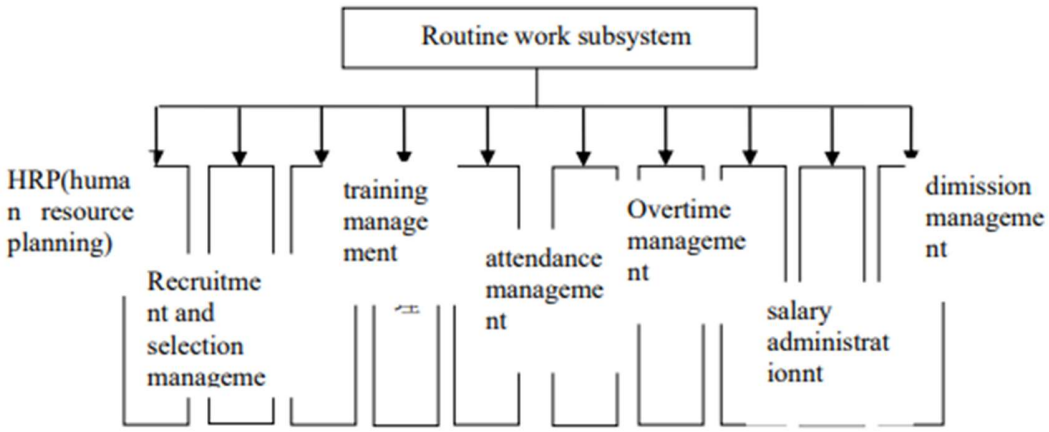

Figure 4-2 subsystem frame routine work

The following are the specific designs of each module:

a. Human Resources Plan

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Human resource planning (also known as human resource planning) is one of the important contents of human resource management. A successful organization can obtain the necessary talents in a timely manner at any time and in any position, which requires scientific prediction and planning of human resources. The main content of human resource planning is to predict the future demand, ownership, and matching of organizational human resources. The steps of human resource planning are shown in Figure 4-3 on the previous page.

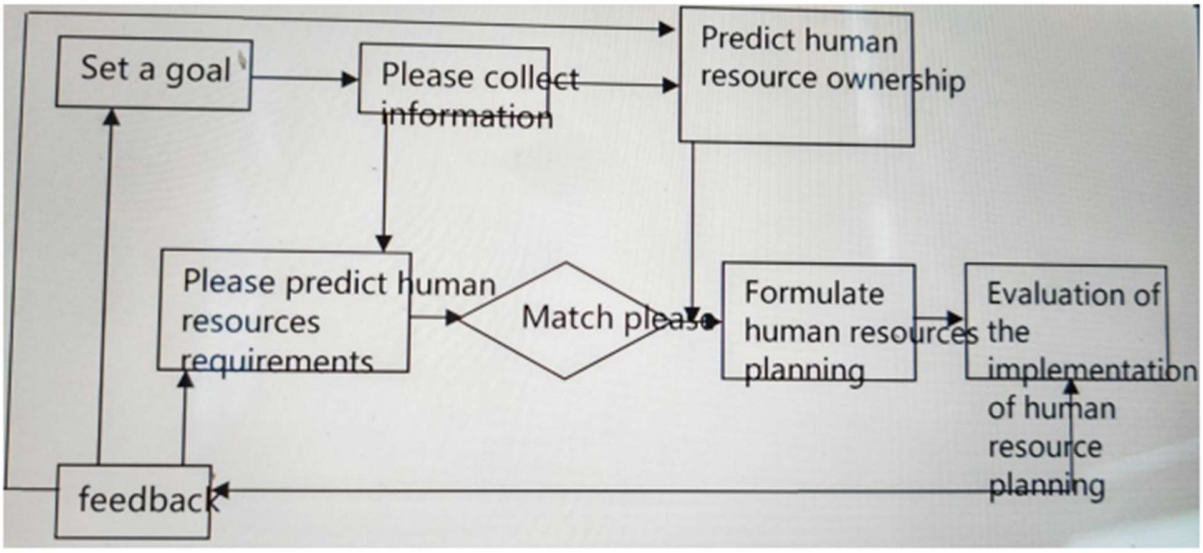

Figure 4-3 hr planning steps

(1) Forecast of human resource demand

There are two methods for predicting human resource demand: univariate prediction and multivariate prediction.

1) Univariate prediction:

Univariate prediction assumes a certain trend in human resource demand.

Univariate model with deterministic trends:

$$Mt=a+bt \qquad \text{(formula3.1)}$$

Among them, Mt represents the predicted value of human resources, a and b are undetermined parameters, t is a time variable, and the values of a and b are obtained from the organization's past historical data. This model indicates that the trend of human resource growth is linear.

Exponential growth trend model:

$$\ln Mt=\ln a+bt \qquad \text{(formula3.2)}$$

a,b are undetermined parameters, and t are time variables. Such models are used to predict human resource demand of stable expanding organizations.

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2) Multivariate prediction:

Multivariate forecasting means that human resources of an organization are affected by many factors (such as production level, technology level, etc.).

Simple scale model:

$$Mt = M0 \cdot Y0\ Yt \qquad \text{(formula3.3)}$$

Among them, Mt is the predicted value of human resources at time t, M0 is the initial number of human resources, Yt is the production level (represented by labor or output value) at time t, and Y0 is the initial production level.

Taking WT Clothing as an example, last year's annual output value was 100 million yuan, with 400 employees. If the expected output value this year is 150 million yuan, according to the formula, the human resource demand for this year is 600 people.

Complex Scale model:

$$Mt = \frac{M0}{Y0} Yt - \left(\frac{M0}{Y0} - \frac{M}{Y}\right)(Yt - Y) \qquad \text{(formula 3.4)}$$

M and Y represent the number of human resources and production level last year, respectively. The latter part of formula 3.4 is the corrected value of formula 3.3.

Due to the significant impact of production level on the demand for human resources in WT clothing, the author adopted a multivariate prediction model in the specific design, and provided two alternative solutions: a simple model and a complex model.

(2) Prediction of human resource ownership

The prediction of human resource ownership refers to the deepening trend and future distribution characteristics of different levels and types of personnel in an organization. The commonly used model for predicting human resource ownership is the Markov model. The Markov model is represented by formula 3.3.

$$\eta i(t) = \sum_{j=1}^{k} \eta i\text{-}1\ (t) \cdot Pij + ri(t) \qquad \text{(formula3.5)}$$

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ηi(t) Is the number of Class I personnel at time t, P Ij represents the probability of transitioning from class i to class j, and ri (t) represents the number of people replenished by class i within time (1, t). Define the following three matrices:

$$N(t)=[n1(t) \quad n2(t) \quad \ldots \quad nk(t)]$$

$$K(t)=[r1(t) \quad r2(t) \quad \ldots \quad rk(t)]$$

$$P=\begin{bmatrix} P11 & P12 & \ldots & P1k \\ P21 & P22 & \ldots & P2k \\ \ldots & \ldots & \ldots & \ldots \\ Pk1 & Pk2 & \ldots & Pkk \end{bmatrix}$$

Figure 3-5 can be written as:

$$N(t)=N(t-1) \cdot P + K(t) \qquad \text{(formula3.6)}$$

The Markov model assumes that the transition from class i to class j within a given period is only related to the total number of people in class i in the initial stage, and is not related to previous changes. The following is a quantitative explanation of the prediction of human resource ownership using the WT clothing technology department as an example: The company's technology department has three types of personnel: department managers, project managers, and developers. According to the company's statistical data, it is shown in Table 4-1:

Table 3-1 technical department actual personnel distribution table

Category	Department Manager	Project Manager	Developers	Total number
number	5	15	60	80

If 2 department managers, 5 project managers, and 20 developers are added annually, the transfer probability matrix P is :

$$P=\begin{bmatrix} 0.6 & 0.2 & 0 \\ 0 & 0.5 & 0.2 \\ 0 & 0 & 0.8 \end{bmatrix}$$

(3) Matching

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After forecasting the change trend of the organization's demand and ownership of human resources, we should make them match each other. The matching is solved by the Linear programming model. Linear programming involves the calculation of system engineering, which is more complex. This article will not introduce more.

According to the steps of human resource planning and the prediction mathematical model, the specific functional design is as follows:

1) Generate quarterly and annual plans based on monthly and annual human resource data and basic business data;

Table 4-2 five years forecast

Year t	Department Manager	Project Manager	Developers	Total number
	B L Z	B L Z	B L Z	
0	5	15	60	80
1	2 + 3 = 5	5 + 8 = 13	20 + 48 =68	86
2	2 + 3 = 5	5 + 7 = 12	20 + 54 =74	91
3	2 + 3 = 5	5 + 6 = 11	20 + 59 =79	95
4	2 + 3 = 5	5 + 6 = 11	20 + 63 =83	99
5	2 + 3 = 5	5 + 6 = 11	20 + 66 =86	102

(Among them: B Represents the number of supplementary personnel, L represents the number of the retained personnel, and Z represents the total number of personnel)

2) The system can generate a three-year, five-year, and other medium and long-term plans for the enterprise, as well as quality plans for employee structure, based on historical data and development strategies;

3) Flexible generation of planning indicators such as update rate, growth rate, and turnover rate;

4) Determine basic goals for new employees, elimination, transfer, and continuing education of the enterprise;

5) Managing vacant positions in enterprises can serve as an important reference for recruitment plans;

6) Analyze the current human resource situation of the enterprise and optimize the allocation of human resources for each position;

7) Output a report on the historical allocation of human resources and the development trend of human resource costs;

b. Recruitment Selection Management

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The selection and employment of employees is a prerequisite and main function of effective human resource management. The entire process of employee selection and employment is shown in Figure 4-4 on the following page:

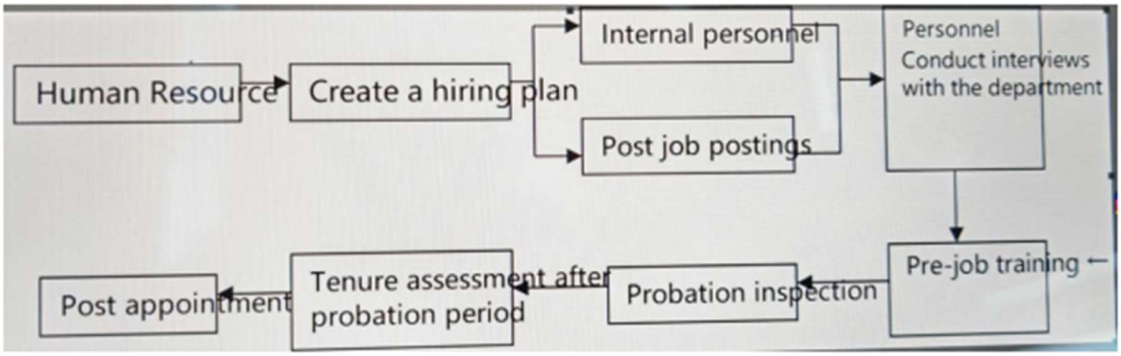

Figure 4-4 selection and flow chart of hiring employees

The main functions of recruitment selection management include:

(1) Develop a reasonable recruitment plan based on the current year's enterprise human resources plan and departmental demand plan;

(2) Timely respond to job vacancies and provide corresponding job descriptions, basic current situations, requirements and expectations for the position, as well as the basic qualities and necessary conditions required for applying for the corresponding position, in case of job vacancies;

(3) Obtain a detailed resume of the applicant, compare the requirements information of the vacant position, and match the position with the corresponding applicant;

(4) Establish a job application archive database based on categories to facilitate search and retrieval of job applicants;

(5) Develop custom rules and arrange interview locations and times accordingly, and automatically adjust them when conditions do not allow;

(6) Automate the interview process, usually through online self-service, categorizing and summarizing the evaluations of relevant personnel, storing and submitting them to the human resources department;

(7) Efficient processing of hired personnel to reduce duplicate entries of the same personnel;

(8) Establish a reserve talent database to store unused personnel for future query and management.

c. Personnel deployment management

The basic functions of personnel deployment management include:

(1) Flexible definition of personnel deployment types;

(2) Flexibly set up personnel deployment procedures, record detailed personnel deployment information, record reasons for deployment and job transfer, and conduct statistical analysis;

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(3) Provide a detailed list of resource usage, financial processing, work handover, and training status for transferred employees;

(4) Management of laid-off employees, including re employment training programs, community resettlement plans, etc.

d. Attendance management

The main functions of attendance management include:

(1) Flexible setting of work and work hours, as well as flexible setting of rest days;

(2) The type of reverse overtime can be flexibly set;

(3) The attendance plans for various departments and employees of the enterprise can be set separately or in batches;

(4) Provide interfaces for inputting and reading attendance data of enterprise employees on various attendance machines;

(5) Truthfully record the attendance status of each employee in the enterprise, and set an attendance plan that can automatically set and determine whether to leave early, leave early, or be absent from work; According to the attendance plan, calculate the monthly attendance status of each employee and link them in the process of calculating salary;

(6) In a specific time required by the enterprise, the attendance Chart of the company/department/individual can be drawn according to the above steps.

e. Training Management

Enterprise training is an important component and key function of human resource management and development in enterprises. It is an important way to promote the personal development of employees and the appreciation of human assets in enterprises, and also one of the important processes for improving organizational efficiency in enterprises.

The complete employee training of the enterprise includes three aspects: knowledge, skills, and attitude (Figure 4-5), and the training of employees should be throughout their entire career.

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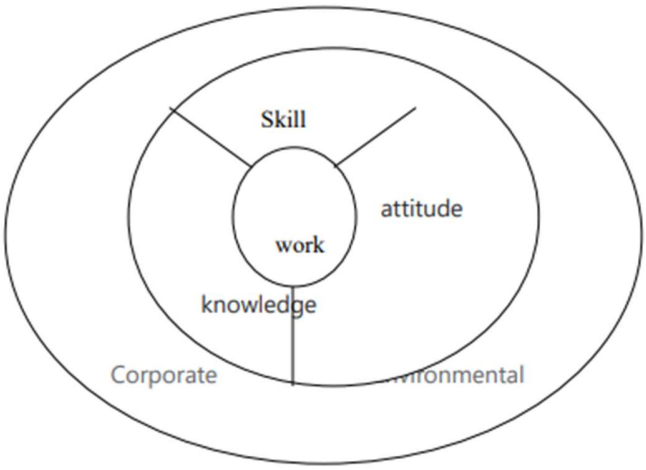

The work process of work enterprise training is shown in Figure 4-6.

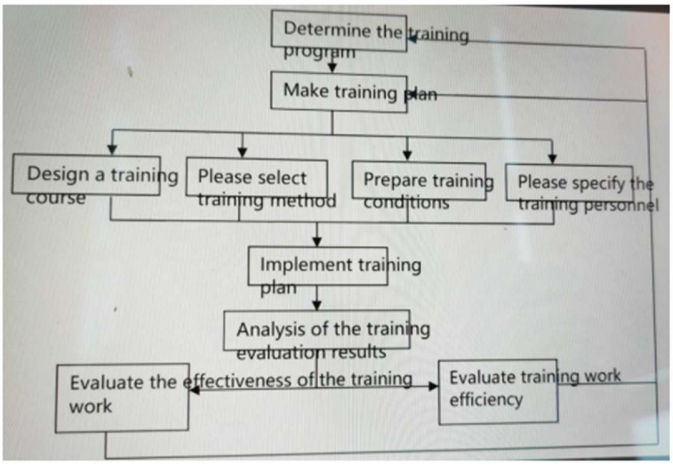

Figure 4-6 enterprise training working procedure chart

The association between training management and other modules is shown in Figure 4-7:

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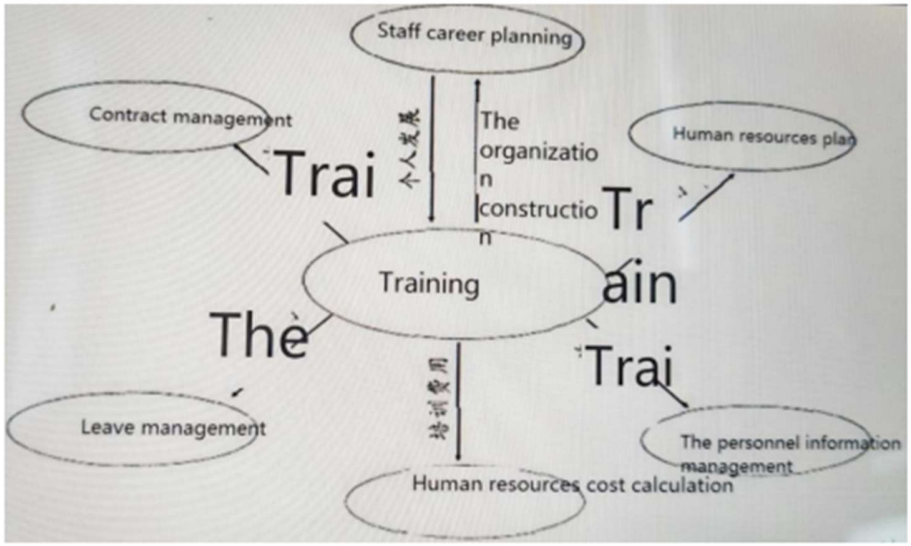

Figure 4-7 training management linked to other modules

The main functions of training management include:

(1) Determine training needs based on business development strategy, import training needs from the performance management system, submit training needs applied by departments or individuals to relevant units for evaluation and suggestions of training needs;
(2) Draft training plans and corresponding implementation plans based on the training needs applied for, and arrange them reasonably to enable querying of the plans;
(3) Keep management records of ongoing training projects, evaluate and summarize the status of completed training projects;
(4) Conduct statistics and management on relevant personnel of training institutions, internal and external teachers, courses offered, teaching materials, and instruments;
(5) Special management programs such as academic education, overseas training, and other unconventional training programs;
(6) During the training process, strict management is carried out in accordance with attendance and agreements, and the contract management module is included in the training system;
(7) Conduct a comprehensive evaluation of training, faculty, and project funding, track and manage training effectiveness, and establish an effective training feedback mechanism;
(8) Control and manage training costs, with automatic warning based on cost budget;
(9) Conduct various statistical analyses on training results, such as cost and effectiveness analysis.

f. Salary and Welfare Management

The basic functions of new employee welfare management include:

(1) Flexible setting of various salary items and calculation methods for different types of employees;
(2) Customizable salary calculation parameters to calculate specific items in each month's salary table separately;
(3) Provide support for different tax definition methods in different regions and flexibly handle tax payment methods;

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(4) Batch process salary adjustments and calculate individual salaries for employees in special circumstances;
(5) Being able to use last month's data to calculate future salaries, improving processing efficiency and accuracy;
(6) Establish a mechanism for troubleshooting salary errors, promptly correct calculation errors, and reset and handle salary payment errors in accordance with relevant regulations;
(7) Link to the attendance system and adjust employee salaries and benefits according to relevant regulations based on employee attendance for the current month; Set up employee personal query and leader query functions;
(8) Provide employees with information on their monthly salary and past salary, as well as statistics on the cumulative and horizontal comparison of personal benefits; Support the generation of salary and benefit statistical reports in different formats, with access to detailed reports;
(9) Output data in a format compatible with the bank transfer system and store backups for easy business integration with the bank;
(10) Provide comprehensive salary statistics functions and generate main analysis parameters based on data, providing a basis for modifying salary systems and adjusting salary structures.

g. Leave Management

The basic functions of leave management include:

(1) To flexibly apply the existing leave regulations of the enterprise, calculate the time of annual leave, sick leave, home leave, and other leave based on the actual situation of employees and the nature of the enterprise's industry, and based on the individual years of work of employees and the years of work of the unit;
(2) Rationalize the arrangement of employee vacation plans and implement mandatory vacation regulations for special personnel; And truthfully record the attendance and vacation status of employees on a daily basis. For unplanned vacations, employees must apply for them;
(3) Provide leave end reminder and handle leave cancellation functions;
(4) Being able to systematically record employees' actual attendance and leave status, and generate records of remaining periods for different types of leave;
(5) Calculate the vacation status of employees and obtain the results for use in salary management statistics;
(6) Some unused holidays (such as annual leave) can be automatically converted into wages.

h. Overtime management

The functions of employee overtime management include:

(1) Provide overtime application and approval system;
(2) Truly reflect the situation of employees working overtime, and can convert the overtime time into working days;
(3) Approved overtime applications automatically generate overtime records, eliminating manual entry;
(4) Provide an adjustment system for overtime leave;
(5) Overtime salary settlement can automatically determine the calculation multiple of overtime salary based on the actual overtime situation, and the results can be provided to salary management for use.

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i. Business trip management

The functions of employee travel management include:

(1) Establish travel regulations and provide time management;
(2) Provide a business trip application and approval system, and truthfully register business trip records;
(3) Keep track of the travel situation of relevant employees at all times, such as location, contact information, end date, etc;
(4) Develop a pre business briefing and post business leave adjustment system.

j. Employee Resignation Management

The business process of resignation management is shown in Figure 4-8:

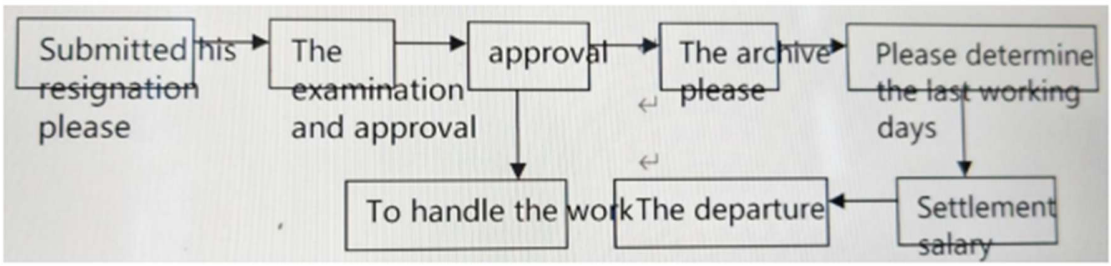

Figure 4-8 departure management business process diagrams

Strategic Work Subsystem Design

Strategic work in human resource management involves analyzing the current human resource situation and providing valuable information to enterprise decision-makers. This leads to the creation of the strategic work subsystem, which includes comprehensive reporting, general manager self-service, and line manager self-service modules.

The structural diagram of this subsystem is shown in the following figure.

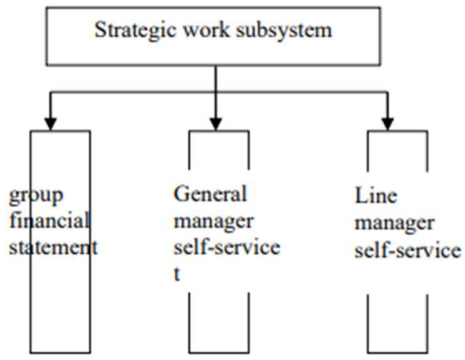

Figure 4-9 strategic subsystem frame work

a. Comprehensive report

The basic functions of comprehensive reports include:

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(1) Flexibly customize various queries and reports, and freely control the data range and query conditions of all reports;
(2) Flexible definition of report format and generation of different analysis charts;
(3) The report can automatically complete the verification function;
(4) Provide report output and printing functions;
(5) The functions included include tree queries, conditional queries, statistical reports, etc
    1) Tree like queries can provide employees with the ability to query organizational structure and relevant personnel information in their work, and conditional queries can query employee information according to the size of the manager's rights and needs;
    2) Summarize enterprise personnel information through statistical reports;
    3) Users have the function of customizing queries, which can be queried according to their own needs and can also save query schemes.
    4) The total comprehensive report specifically includes: Dang'an query table, employee resume, employee attendance query table, personnel change query table, employee analysis table, employee situation comprehensive statistics table, resigned employee list, resigned employee statistics table, new employee statistics table, employee employment expiration statistics table, employee transfer, job rotation statistics table, payroll form, payslip, payroll summary table, multi period payroll statistics table Performance Appraisal Record Form, Performance Appraisal Plan List, Performance Appraisal Result Query Form, Training Process Evaluation Form, Employee Training Attendance Form, Employee Information List, Training Needs List, Training Plan List, Training Record Form, Training Effect Survey Statistics Form, etc.

b. General Manager Self Service

General Manager Self Service is designed to provide decision-making for senior management. General Manager self-service includes the following functions:

(1) The general manager can view human resource information online without the help of the human resources department, such as the situation of human resource personnel, human resource equipment, human resource fund flow, organizational performance or employee performance, etc;
(2) Utilize the system platform to handle human resource situations that require the General Manager's decision online;

c. Line Manager (Department Manager)

Self Service Due to the inability of the human resources department to understand the detailed information of each employee, only line middle managers are most familiar with the situation and needs of their subordinates. The human resources department manages human resources through line managers. Line manager self-service is designed for Middle management.

The main functions of line manager self-service include:

(1) Line managers, within their authority and responsibility, view all information and relevant human resource information of their subordinate employees through the internet;
(2) Provide a work platform related to human resources activities, which can change employee attendance status online within the authority and responsibility, provide recruitment and training plans for human

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resources, review and review employee confirmation, training, leave, leave, resignation, etc., and manage employee performance through the internet.

Design of pioneering work subsystem

The pioneering work in human resource management focuses on offering value-added services and supporting value-creating departments. This leads to the creation of the pioneering work subsystem with modules for employee self-service and performance management. Additionally, a system management module is included for overall system security.

AFigures 4-10 depict the structural diagrams of the pioneering work subsystem, with detailed designs for the three modules.

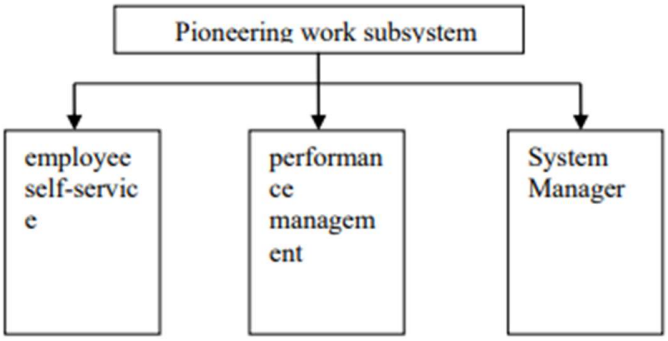

Figure 4-10 subsystem frame pioneering work

a. Employee self-service

Employee self-service is designed to empower employees by providing easy access to information and enabling their active participation in human resource management processes. This module allows employees to engage with HR personnel, offer suggestions, and access information without the need for client software installation. Through registration and authorization, employees can conveniently use a browser to access internal network-based human resource information and management processes.

The main functions of employee self-service include:

(1) Search for company bylaws and regulations, organizational structure, relevant personnel information, internal recruitment status, all personal salaries, personal benefits, personal attendance status, etc. online;
(2) Communicate online with human resources members, such as applying for personal training, submitting vacation requests, changing personal information, managing personal performance, and so on.

b. Performance Evaluation Management

Human resource performance evaluation is the central link of human resource management. Only through fair and impartial appraisal and evaluation of employee performance can employees' performance contributions be recognized, thereby further stimulating their innovative spirit, improving their work methods, developing their potential abilities,

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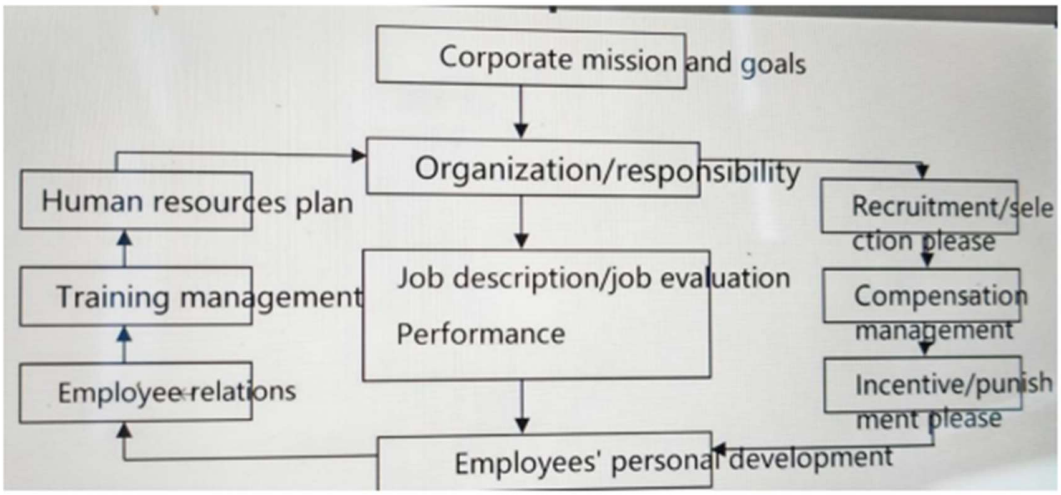
and ultimately achieving the overall goal of the enterprise. In addition, performance evaluation mainly provides a basis for various personnel decisions, and can strengthen the team building of the organization to improve management efficiency. The specific functions include:

Provide a basis for employee compensation management

Provide a basis for determining employees' future appointments

Provide a basis for employee training

The core role of performance evaluation in human resource management can be represented by Figure 4-11:



Performance evaluation and competency assessment, rooted in job description and job evaluation, form the heart of human resource management. They guide the organization's structure, job roles, and various management functions. The performance evaluation process involves planning, data collection, analysis, feedback, and review.

As depicted in Figure 4-12, this process is pivotal to aligning employee performance with company goals and enabling effective management activities such as recruitment, salary management, and training.

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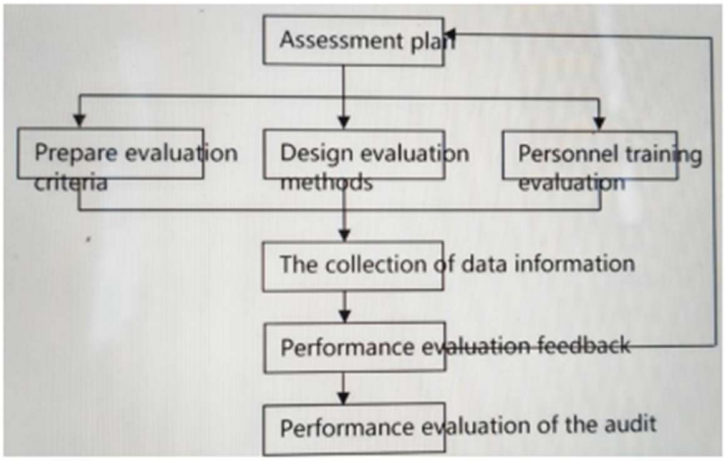

Figure 4-12 performance evaluation flow chart of the business

The following is the design of a performance evaluation plan based on the actual situation of WT clothing:

(1) Selection of evaluation methods

Based on the characteristics of WT clothing employees, a comprehensive and three-dimensional evaluation method is adopted:

1) Evaluate employees' work performance and personal skills over a certain period of time
2) 2) Combining qualitative and quantitative assessment
3) 3) Combining self-assessment with supervisory assessment
4) 4) Regular (such as expiration of probationary period, annual assessment) and irregular assessment
5) 5) Assessment of employment, promotion, distribution of rewards, and personal competence assessment
6) 6) The results of assessment and evaluation are divided into the following 6 levels: A. Creative

B. Excellent

C. Good

D. Satisfied

E. General

F. Below requirement

(2) Implementation of performance evaluation In the specific implementation of performance evaluation, based on job description and job evaluation, a combination of self-evaluation by assessors and evaluation by line managers is implemented.

In the performance evaluation process, feedback plays a crucial role. It involves open communication between the assessor and the assessed, providing honest assessment results, acknowledging strengths, and addressing areas for improvement. If the evaluation falls below expectations, written notices are issued with recommendations for

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corrective action. Performance evaluation aligns with systematic motivation principles in human resource management. It demands tailored responses to evaluation results, offering material and motivational incentives to employees with good performance to enhance their work enthusiasm.

The main functions of the performance evaluation module include:

The performance evaluation process involves several key steps:

1. Designing a personalized assessment system based on departmental responsibilities, job descriptions, and customized indicators. This includes selecting appropriate assessment elements and indicators from a custom library.
2. Implementing the assessment plan by assigning assessment personnel, defining assessment content, setting deadlines, and recording assessment results.
3. Utilizing the weights of assessment elements and indicators to create multiple assessment scales for different assessors evaluating the same object.
4. Calculating performance evaluation results using the system's computation capabilities.
5. Providing query options for accessing detailed assessment information and conclusions.
6. Recording and managing significant employee performance events to support performance evaluation.
7. Managing performance interview records and addressing employee performance complaints.
8. Linking assessment results to salary, training, and career development.
9. Using past assessment records to enhance employee and departmental performance.
10. Analyzing and summarizing assessment results using the assessment result analysis table.

As an example, the WT Clothing Engineering Technology Department's employee performance evaluation is presented in Table 4-3, based on the outlined methods and implementation plans.

c. System Management

To ensure system security while achieving comprehensive information integration and resource sharing, system management plays a crucial role. The system management module is designed to address security concerns and control system access. The functional components of the system management module are illustrated in Figure 3-22. The main tasks of system management include:

1) Implementing a robust login mechanism and configuring permissions according to employee roles.
2) Managing permissions for user groups to control access to various functionalities.
3) Tracking and recording significant operations within the system.
4) Providing operational assistance to users.
5) Enabling data encryption, automated backup, and restoration of data and databases.

The system's permissions and access control mechanisms are versatile, using factors like user categories, job positions, and account types to determine operator permissions. This allows for batch processing and effective management without constant manual intervention. The system adjusts permissions and scope automatically as employees change positions, reducing workload, improving efficiency, and minimizing errors.

Table 4-3 brother apparel engineering department staff performance evaluation table

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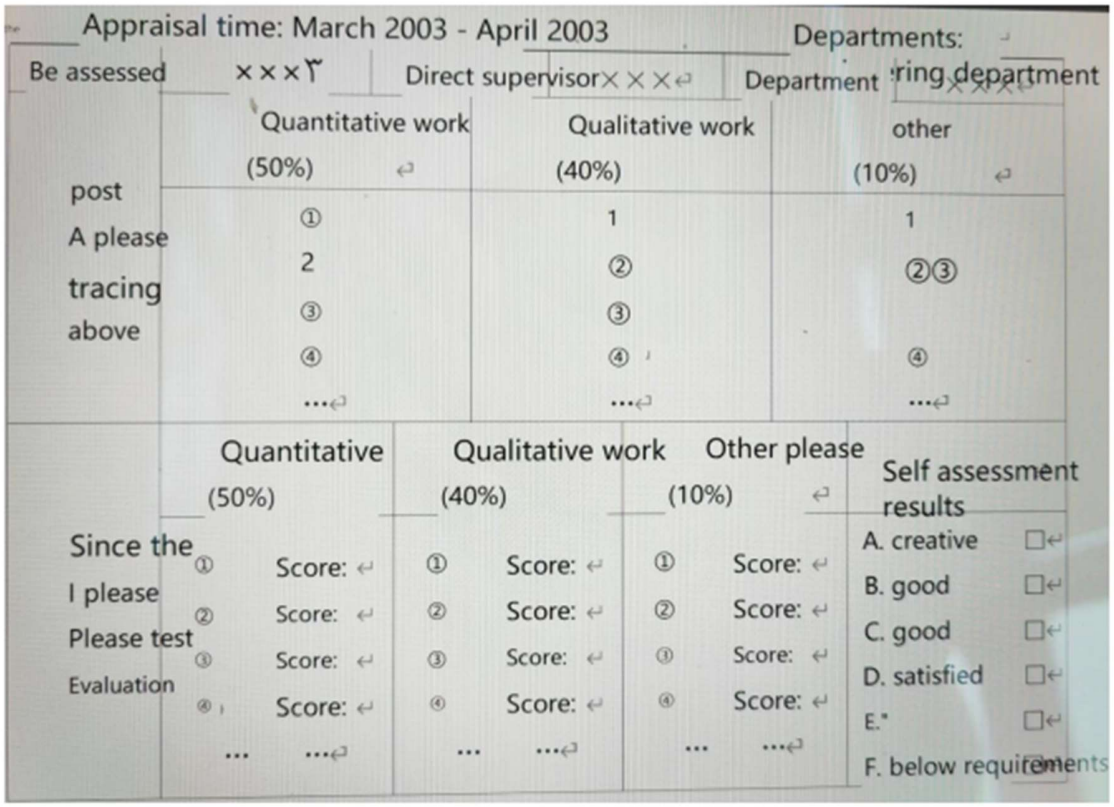

Appraisal time: March 2003 - April 2003 Departments:

Be assessed ××× Direct supervisor××× Department ring department

post	Quantitative work (50%)	Qualitative work (40%)	other (10%)
A please	①	1	1
tracing	2	②	②③
above	③	③	
	④	④	④
	…	…	…

	Quantitative (50%)	Qualitative work (40%)	Other please (10%)	Self assessment results
Since the	① Score:	① Score:	① Score:	A. creative ☐
I please	② Score:	② Score:	② Score:	B. good ☐
Please test	③ Score:	③ Score:	③ Score:	C. good ☐
Evaluation	④ Score:	④ Score:	④ Score:	D. satisfied ☐
	… …	… …	… …	E. ☐
				F. below requirements

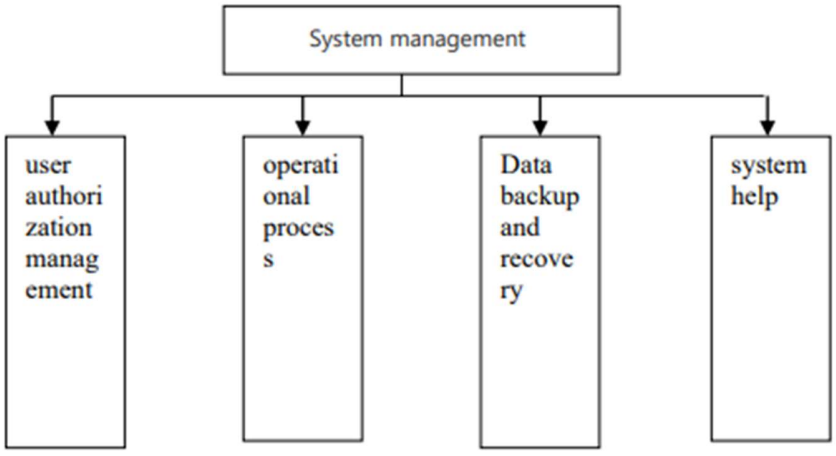

Figure 4-13 system management functions

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Implementation of Human resource management system in WT Clothing Company

The Human Resource Management System is built upon the B/S architecture, aiming to achieve network-based self-service for senior leaders, line managers, and employees, enable comprehensive information sharing, and accomplish the digitization of human resource management. Establishing the company's intranet becomes a fundamental prerequisite before implementing the Human Resource Management System.

While certain departments have established local area networks, information resources remain isolated. Developing and implementing an internal network is a critical step in realizing seamless internal information sharing and establishing a cohesive information system architecture across the company.

Implementing a Human Resource Management System is a complex endeavor with intricate interconnections within the organization. It's a comprehensive management system where decisions made at one stage can significantly impact the entire process. Failing to establish a solid foundation during the demand analysis, goal setting, and system selection stages can lead to future complications that are difficult to rectify. The adoption of such a system brings about changes in management policies, workflows, work habits, and tasks across the enterprise.

Implementing the system involves data collection across departments, necessitating considerable human resources, financial investment, and time. Being a relatively new field, the application of the Human Resource Management System isn't as widespread as other systems like MRP-II and ERP. This interdisciplinary field requires project leaders with expertise in both human resource management and computer application skills, as well as a strong understanding of laws and regulations.

To address these challenges, hiring project consultants is advisable. These consultants bring valuable experience in human resource project management and implementation. They provide insights into the company's policies, systems, and processes, offering impartial advice. Furthermore, external consultants bring an unbiased perspective, free from internal departmental interests, ensuring fairness in the implementation process. They can also act as communication intermediaries between project managers, teams, senior management, and various departments within the company.

The success of a Human Resource Management System hinges on its implementation, transcending the importance of technology. A comprehensive project management plan and process are critical during this phase. Project management encompasses various stages of the human resources system, from project establishment and authorization to system design analysis, software and hardware selection, comprehensive implementation control, and ongoing project management. The process includes seven key components: appointing a project manager, project preparation, plan formulation, execution, real-time evaluation and updates, project completion, and daily operational activities.

The project manager serves as the heart of the project, ensuring alignment with established goals. Successful project managers exhibit leadership, communication, and advocacy skills. Initially, the project analyzes project needs, scope, and feasibility, determines pilot projects, and creates an overall project arrangement plan. This includes:

Communicating the purpose of company informatization, highlighting its value creation for shareholders, customers, management, and employees to foster acceptance and a positive environment.

- Defining project goals according to the company's attributes, strengths, weaknesses, and business direction to optimize investment.
- Establishing a clear timetable for the project to maximize investment protection and efficiency.

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- Planning the project execution, which involves various uncertain factors that may persist from start to finish.

The project planning stage includes project research and the formulation of implementation plans:

- Project research involves surveys, requirement interviews, and a system definition memorandum to ascertain user needs and the scope of implementation.
- Developing a project master plan and breaking it down into detailed plans, including time planning and human resource allocation.
- Formulating an implementation plan with relevant documents and final system execution.

Throughout these phases, effective project management ensures a smooth and successful implementation of the Human Resource Management System.

Execute

During the project execution phase, enterprises engage in several management activities to ensure a successful implementation of the Human Resource Management System:

a. Implement Implementation Plan: Daily work progresses according to the established plan, addressing arising issues promptly. This includes managing human resources, interdepartmental coordination, communication, and technical support for implementation.
b. Standardize Management and Data: The system aids enterprises in transitioning from experiential to scientific management, facilitated by standardized management and data.
c. Application Training: Training occurs at three levels:
   - Management team training covers basic theories and methods in human resources and how the software meets enterprise management needs.
   - Core user education encompasses software operation.
   - Relevant employees are educated about project implementation, computer knowledge, and management theories.
d. System Settings: Software settings can be adjusted to align with enterprise needs.
e. System Trial Operation: New systems undergo trial operation, assessing correctness, reliability, and stability. System functions are improved during this process.
f. Project Progress Report: Regularly report project progress, ongoing work, and outstanding issues to specific implementation personnel through progress reports.
g. Implementation Documentation: Maintain comprehensive documentation of the project implementation process, including project plans, implementation plans, reports, training materials, and testing records. Important documents are shared with relevant leaders and personnel.

Project evaluation and revision

The project evaluation and revision phase centers around project monitoring, using project management tools to manage ongoing projects in real time. This phase involves evaluating and revising the project through its key stages of requirement analysis, system implementation, and project acceptance. Common management techniques and tools in this phase include:

a. Stage Evaluation:
Assess project stages according to the plan and goals, adjusting the research plan and implementing updates if needed to achieve expected results.

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b. Evaluation Content:
   - System Operation Integration: Evaluates if project implementation meets enterprise goals, achieves integrated development and data sharing, and establishes a complete data decision-making system.
   - Business Process Rationalization: Measures success by improving management efficiency through reorganized business processes tailored to the enterprise's current needs.
   - Performance Monitoring: Successful project implementation should provide relevant information for enterprises, which must be effectively utilized to monitor and manage performance changes. This involves designing a dynamic monitoring and management system based on business needs.
   - Management Level Monitoring: Utilizes a unified evaluation system provided by consulting agencies to assess enterprise management levels.
   - Project Phase Meeting: Conducted at critical project stages to review previous work progress, results, and mobilize the next phase of deployment.

As the project approaches its conclusion with achieved results, the remaining tasks include:

a. Periodic Evaluation: Assess project implementation phases, compare them against the plan, and determine if updates are necessary to align with expected results.
b. Project Summary: Review and summarize the implementation process, achievements, experiences, and lessons learned. Prepare a comprehensive summary report.
c. Project Handover: Transition formal system operation and ongoing technical support to the enterprise's computer department.
d. Project Acceptance: Evaluate and accept the project's specific implementation results based on the planned goals set during the project planning phase.

Successful project acceptance isn't the end of application work, but rather the start of normal usage. Continued optimization of management processes is possible as understanding of the system deepens. Ongoing training, whether provided by experienced project team members or through internal exchanges, helps employees utilize the system effectively.

Long-term success hinges on cultivating skilled human resources project management professionals, building strong talent teams, and promoting effective human resources project management ideas and methods.

Conclusion

The rapid expansion of network technology is reshaping the human resource management landscape, driving flexibility, flattening of organizational structures, and introducing complexity. Flexibility in the human resource management system responds to the knowledge economy, emphasizing employee enthusiasm, creativity, and self-initiative. Flexible management is crucial for success in the 21st century's evolving workforce.

Networking also promotes organizational flattening, challenging traditional hierarchical information flow. This approach accelerates information transmission and decision-making by reducing middle management layers. Consequently, enterprises should adapt their organizational structures to be more horizontal and agile.

Furthermore, networking brings complexity to personnel relationships, due to decentralized office management. Improved communication technologies facilitate real-time collaboration and remote work. Decentralized office work is projected to alleviate transportation issues and improve collaboration efficiency. However, it also presents challenges such as increased management span and complexity.

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Embracing these trends—flexibility, flattening, and complexity—is essential for future human resource management. These changes present both opportunities and challenges for HR professionals, who must navigate evolving management strategies to meet the demands of the modern workforce.\

When implementing information technology in human resource management, it's essential to consider the enterprise's existing capabilities and foundations. While technology can enhance HR operations, its effectiveness depends on the organization's management readiness. Information technology should serve to improve management rather than being a stand-alone solution. Successful implementation requires strong support from enterprise leaders who prioritize human resource management. Investments in HR may not yield immediate results, but long-term benefits are substantial. Without top-level endorsement, achieving effective digital transformation in human resource management is challenging.

To achieve the successful implementation of the Human Resource Management system, it's crucial to lead the integration of information technology into HR processes. This endeavor involves not only computer operations but also effective information management, storage, and processing of HR affairs. Skilled operational experience, a comprehensive understanding of the project's implementation process, and the ability to oversee the entire endeavor are essential for those involved.

Human resources management encompasses various activities like planning, recruitment, on-the-job management, and employee turnover, which are now often decentralized. However, constructing, implementing, and enhancing the HR system's efficiency requires the central oversight of the HR department. This demands strong management knowledge and proficient information processing skills, setting high standards for HR personnel.

Summary

Human resources play a crucial role in driving enterprise development, and effectively managing, developing, and operating human resources is a major challenge for modern businesses. Enhancing enterprise informatization holds great potential for elevating management standards and expanding growth opportunities. Within this context, the digital transformation of human resource management emerges as a pivotal component of enterprise-wide digitization efforts. This paper underscores the value that a Human Resource Management system brings to enterprises, emphasizing the importance of digitalizing human resource processes. By melding human resource management theories with the practical experience of WT Clothing's informatization, the paper proposes a strategy for developing a customized Human Resource Management system. The article concludes by briefly discussing the implementation process and the future trajectory of the system. While this article focuses on a specific aspect of enterprise management digitization, its insights into human resource management informatization can certainly provide valuable guidance for broader enterprise-wide digitization endeavours.