

Original Paper

Innovative Practices and Development Countermeasures of Enterprise Human Capital Management in the Era of Digital Economy

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Abstract

The digital economy is profoundly and comprehensively reshaping the underlying logic and operational paradigm of enterprise human capital management. The large-scale and increasingly widespread application of data as a core production factor is driving management decision-making away from experience-based judgment and toward scientific prediction and evidence-based forecasting. As a result, the functional positioning, operating mechanisms, and value creation approaches of human capital management are all facing systematic reconstruction and fundamental transformation. Grounded in the context of the digital economy era, this paper systematically analyzes the internal mechanism through which enterprise human capital management transitions from “personnel and administrative affairs management” to “data-driven value operation and management.” It reviews and organizes corporate innovation practice pathways from four dimensions: data-driven decision-making, intelligent talent allocation and deployment, digital training and development systems, and flexible incentive and assessment mechanisms. In addition, by incorporating industry survey data, the paper reveals the key bottlenecks currently encountered in this transformation, including weak data governance, organizational inertia and resistance, and the digital capability gap among talent. On this basis, the

paper proposes development countermeasures from four aspects: consolidating the foundation of data governance, promoting the reconstruction of organizational capabilities, cultivating compound and interdisciplinary digital talent, and establishing a dynamic evaluation mechanism. The aim is to provide theoretical reference and practical guidance for enterprises seeking to achieve a leap in human capital management from control to empowerment, and from functional orientation to value creation.

Keywords

digital economy, human capital management, data-driven, digital transformation, innovation practice

1. Research Background and Significance

The digital economy has become the core engine driving high-quality economic development, and its influence is penetrating deeply from the industrial side to the organizational management side. According to Sequoia China's annual survey of 239 corporate digital leaders, 65% of the surveyed companies plan to increase digital investment, and 12% of companies will increase their investment by more than 50%. The trend of companies moving from "digital" to "intelligent" is becoming increasingly clear. At the same time, human capital, as the core strategic resource of an enterprise, is undergoing fundamental changes in its management methods. Traditional human resources management centers on the transactional functions of "selection, training, employment, and retention" and relies on managers' experience to make fuzzy judgments. It is difficult to adapt to the new requirements for talent allocation accuracy, decision-making speed, and value creation efficiency in the digital economy era.

A survey of more than 2,100 companies by the National School of Development of Peking University and Zhaopin Recruitment showed that 22.1% of companies have fully integrated artificial intelligence into core business processes, and 23% of companies have formulated formal job descriptions for digital employees. This set of data shows that the impact of digital technology on human resources management has penetrated from the peripheral tool level to the core decision-making level, and human capital management is transitioning from a "functional orientation" to a "data-driven value management" paradigm. However, most enterprises still face practical difficulties such as prominent data islands, mismatched management mechanisms, and lack of comprehensive talents during the transformation process. Conducting this research will help clarify the theoretical logic of human capital management innovation in the digital economy era, refine replicable practical paths and countermeasures, and provide a reference for enterprises to maximize the value of human capital.

2. Logical Changes in Human Capital Management in the Digital Economy Era**2.1 Paradigm Shift from Empirical Decision-making to Data-based Decision-making**

The most fundamental management change in the digital economy era is that the basis for decision-making shifts from managers' experience judgment to scientific predictions based on data. In traditional human resources management, the setting of recruitment standards, the identification of

training needs, and the weighing of performance evaluations are highly dependent on the subjective judgment of managers. There are problems such as inconsistent standards, delayed responses, and systematic deviations. The large-scale application of data elements is changing this landscape—the integrated analysis of talent market data, organizational performance data, and business development data makes it possible to forecast talent supply and demand, identify key skill gaps, and provide early warning of turnover risks, and human resource planning can be deeply coupled with corporate business strategies.

The core logic of this paradigm shift is to transform the entire process of human resources management into a quantifiable, modelable, and optimizable data closed loop. Take Meituan as an example. Its life service platform integrates weather data, historical order heat maps, business district promotion information, traffic congestion index and other multi-source data to dynamically predict manpower needs in various regions and time periods to achieve real-time optimization of rider scheduling. This data-driven decision-making model enables human resource management to shift from “post-event response” to “pre-judgment beforehand” and from “static planning” to “dynamic adaptation”, fundamentally improving the accuracy and efficiency of human capital allocation.

2.2 Role Upgrade from Functional Control to Value Creation

In the traditional management framework, the human resources department has long been positioned in a transactional support role, focusing on operational matters such as file management, salary accounting, and attendance statistics, and has limited say in strategic decision-making. The in-depth application of digital technology has fundamentally expanded the functional boundaries of human resource management. Data mining technology can predict talent supply and demand trends, identify key skill gaps, deeply couple human resource planning with corporate business strategies, and promote human resource management from a cost control unit to a core force for strategic implementation.

The essence of this role upgrade is that human capital management shifts from “managing human resources” to “operating human resources.” The concept put forward by Nangang Group that “the essence of digitalization is not to replace people, but to liberate people” is a typical footnote of this transformation. When human capital data and business data are connected, managers can clearly understand the causal relationship between human input and business output, thereby upgrading the allocation of human capital from “allocation by establishment” to “allocation by value” and truly realizing strategic management of human capital.

2.3 Model Evolution from Standardized Management to Personalized Empowerment

The human resources management formed in the industrial era takes standardization and unification as its core features. The same system and the same standards apply to all employees. In the era of digital economy, generational replacement and demand differentiation among employee groups make standardized management models unsustainable. The digital platform makes it possible to implement personalized management of “thousands of people” - based on data such as employee ability portraits, career development preferences, and performance performance, companies can push differentiated

training content to different employees, plan personalized career development paths, and design flexible incentive plans. This transformation from “one size fits all” to “precision drip irrigation” not only improves management efficiency, but also fundamentally changes the relationship model between the organization and its employees, from “controlling” to “empowering”.

3. Innovative Practice of Enterprise Human Capital Management

3.1 Construction of Data-driven Talent Decision-making System

The data-driven talent decision-making system is the basic project for human capital management innovation in the digital economy era. Its core is to break through the data barriers in recruitment, training, performance, compensation and other modules, establish a unified talent data center, and realize the aggregation and penetrating analysis of employee life cycle information.

The practice of China Southern Power Grid Guangxi Power Grid Company is of typical significance. The company built an intelligent service system “Human Intelligence” in the human resources field based on its own large-scale artificial intelligence model. It sorted out more than 900 typical problems in 8 categories such as vacation management, recruitment and onboarding, salary and social security. It accessed more than 10,000 pieces of business knowledge inside and outside the human resources field. After being launched in Guangxi, the company has served more than 60,000 people. The average response time for employee consultations has been shortened from 2 hours to 10 seconds, and the accuracy rate has increased to more than 95%. What is even more noteworthy is that the company has also extended its digital capabilities to the matching scenarios of talents and projects, built a “talent + project” digital platform, broke the traditional one-way selection model of “direct project release”, and formed a two-way interactive mechanism of “talents can be announced and projects can be invited”. As of October 2025, a total of more than 40,000 projects have been released and completed, which has fully stimulated the transformation from “I want to do it” to “I want to do it”.

CIIC Group has achieved data-driven breakthroughs in the talent recruitment process. The artificial intelligence digital human interview system developed by it can formulate questions based on dynamic resumes, intelligently ask questions, and conduct multi-dimensional assessments through voice and micro-expressions, shortening the initial screening feedback time from 3 days to 4 hours. The project was selected into the first batch of “Artificial Intelligence Strategic High-Value Scenarios for Central Enterprises” by the State-owned Assets Supervision and Administration Commission of the State Council. These practices show that data-driven talent decision-making not only improves efficiency, but also achieves a qualitative leap in decision-making quality.

3.2 Intelligent Talent Allocation and Flexible Employment Mechanism

In the era of digital economy, the market environment faced by enterprises is changing at an accelerating pace, which puts forward higher requirements for the agility of talent allocation. The core idea of intelligent talent allocation is to use data as a link to dynamically match talent capabilities and business needs, breaking the traditional rigid structure of fixed positions and fixed personnel.

In the talent allocation process, some leading companies have realized the transformation from “job-oriented” to “capability-oriented”. Research data from Zhaopin Recruitment shows that 51.3% of corporate talent management has shifted from “job-oriented” to “new quality productivity-oriented”. Among the portraits of talents most needed by enterprises, 55.1% of enterprises value talents with technical sensitivity the most, that is, “technical understanding” rather than pure programming ability. This reflects that enterprises’ demand for talent capabilities is upgrading from “single skills” to “complex literacy.” Against this background, more and more companies are adopting a “core + flexible” employment structure, supported by digital platforms, to achieve the collaborative deployment of full-time employees, project-based talents, and digital employees, ensuring core capabilities while improving the organization’s response speed to market fluctuations.

3.3 Digital Training System and Learning Ecosystem Construction

The speed of technological iteration in the digital economy era puts forward continuous requirements for the updating of talent capabilities. The traditional centralized training model is difficult to adapt to the rapidly changing ability needs, and the construction of a digital training system has become an important direction for corporate human capital investment.

Zhaopin’s recruitment survey shows that 49.9% of employees hope to obtain artificial intelligence learning assistants, and 34% of companies have implemented “continuous change mechanisms” to integrate learning into daily work processes. This demand has promoted the transformation of corporate training systems from “course center” to “learning ecology”. Specific practices include: automatically pushing personalized learning resources based on gap analysis between job competency models and employee competency assessments; using artificial intelligence technology to build a virtual training environment to reduce training costs; establishing an incentive mechanism linking learning points with career development to stimulate employees’ independent learning motivation. The career planning agent matrix launched by CHC Group guides employees in self-awareness and career planning through modules such as career gene decoding, job perspective, and path planning. It represents the trend of the digital training system extending from “skills training” to “career empowerment.”

3.4 Flexible Incentive Assessment and Value Distribution Innovation

The innovation of incentive and assessment mechanisms is the most challenging link in the transformation of human capital management in the digital economy era. The traditional assessment system, which is based on job levels and uses fixed cycles as nodes, is difficult to accurately measure the value contribution of knowledge employees, and it is also difficult to adapt to the project system and flexible work organization methods.

Nangang Group’s “all-partner” system provides useful exploration. This system is not a patent for a few core layers, but a systematic institutional arrangement covering all employees. By sharing the results of corporate development with employees, it builds a psychological contract that goes beyond simple salary incentives and is committed to creating an innovative and creative atmosphere where “everyone is a striver.” At a broader level, data-driven incentive innovation is also reflected in: using

real-time performance data to achieve dynamic salary adjustments, making incentives more timely and accurate; through a multi-dimensional contribution evaluation model, implicit contributions such as knowledge sharing and collaborative support are included in the assessment scope to guide employee behavior to be consistent with the company's strategic direction.

Table 1. Multidimensional Comparison of Corporate Human Capital Management Innovation Practices

Innovation Dimension	Core Feature	Representative Practice	Key Outcome
Data-driven decision-making	Using data to support management decisions, improving response speed and accuracy	Guangxi Power Grid “HR Xiaozhi”	Response time reduced from 2 hours to 10 seconds, accuracy over 95%
Intelligent talent allocation	Optimizing talent screening and matching with intelligent systems	CIIC Group Digital Human Interview System	Initial screening feedback reduced from 3 days to 4 hours
Digital training system	Building a digital learning and career development system	CIIC Career Planning Agent Matrix	Covering six major modules
Flexible incentive and assessment	Building a flexible partnership culture and incentive mechanism	Nangang “All-staff Partner” System	Building a partnership culture and incentive system

Table 1 summarizes the four core dimensions of current enterprise human capital management innovation and their representative practices. As can be seen from the table, although the innovation practices in each dimension differ in specific forms, they all point to a core logic: using data as a link to liberate human capital management from the standardized and rigid traditional model to a precise and flexible value management model. These practices provide a reference path framework for other companies to promote human capital management innovation.

4. Development Strategies and Safeguard Measures

4.1 Consolidate the Data Governance Foundation and Build a High-quality Human Capital Data System

Data is the core production factor for human capital management innovation in the digital economy era, and data quality directly determines the reliability of analysis and decision-making. Currently, most enterprises have obvious shortcomings in human capital data governance: data is scattered in different systems, standards are not unified, historical data is seriously missing, and data security protection is

insufficient. To solve this problem, we need to systematically advance from three levels.

First, establish a unified human capital data standard system. Clarify the collection frequency, format specifications, accuracy requirements and interface standards of various types of data to ensure that multi-source data can be integrated and compared. Second, build a human capital data center to integrate data from recruitment, training, performance, salary, attendance and other modules to achieve unified storage, cleaning and sharing of data. Third, establish a data security and compliance management mechanism, clarify data usage permissions, desensitization rules and audit procedures, and release the value of data while protecting employee privacy. The industry indicator database released by Beisen covers eight major analysis themes, including organizational effectiveness, organizational assessment, and personnel planning, with a total of more than 400 indicators, providing a reference framework for enterprises to establish human capital data systems.

4.2 Promote the Reconstruction of Organizational Capabilities and Establish an Agile Response Management Mechanism

The introduction of technical tools does not automatically lead to improvements in management efficiency. The simultaneous reconstruction of organizational capabilities and management mechanisms is a key condition for successful transformation. The traditional bureaucratic organizational structure is based on functional division of labor and uses hierarchical approval as its operating method. Its long decision-making cycle and slow response speed form a fundamental contradiction with the requirements for agility in the digital economy era.

Enterprises need to simultaneously promote changes from three dimensions: organizational structure, management process, and assessment system. At the organizational structure level, promote the transformation from hierarchical to networked and platform-based, reduce management levels, form cross-functional agile teams, and improve the response speed to market changes. At the management process level, data drive is embedded into daily management decisions, and a closed-loop mechanism of “data collection - analysis and insight - decision execution - effect evaluation” is established to make management decisions well-founded. At the assessment system level, data literacy and digital management capabilities are included in the assessment indicators of managers to guide the transformation of management behavior from experience-driven to data-driven. It is worth noting that the promotion of organizational change requires the continuous investment and demonstration of senior managers. Only in this way can we break through the inertial resistance of the organization and form a top-down synergy for change.

4.3 Cultivate Compound Digital Talents and Bridge the Capability Gap

Innovation in human capital management puts forward new requirements for talent capability structure. On the one hand, human resources practitioners need to have the combined capabilities of data analysis, technical understanding, and business insights to transform from “personnel managers” to “human capital analysts”; on the other hand, all employees need to improve their digital literacy and adapt to intelligent tools and digital working methods.

Enterprises should systematically advance from the three links of talent introduction, ability training and career development. In the talent introduction process, appropriately increase the recruitment ratio of compound talents with backgrounds in data analysis and artificial intelligence applications, and optimize the capability structure of the human resources team. In the ability training process, a hierarchical and classified digital ability training system is established to focus on cultivating data analysis and business insight capabilities for human resources practitioners, data-driven decision-making capabilities for front-line managers, and improving the use of smart tools and digital collaboration capabilities for ordinary employees. In the career development process, a special promotion channel is designed for digital talents, and digital capabilities are closely linked to career development to form a positive incentive for continuous learning. Guangxi Power Grid Company has carried out provincial-level digital literacy improvement training for 182 people through a combination of “internal training + external delivery” and “training + competition”. This systematic talent training idea is worth learning from.

4.4 Establish a Dynamic Evaluation Mechanism to Achieve Continuous Iterative Optimization

Human capital management innovation is not a one-time project, but a long-term process that requires continuous iteration. Enterprises should establish a dynamic evaluation mechanism for transformation effects, regularly review key indicators such as data governance quality, scientific decision-making, employee satisfaction, and human capital input-output ratio, promptly discover deviations and problems in the transformation process, and dynamically adjust implementation strategies.

The construction of the evaluation mechanism should follow the following principles: first, the indicator design takes into account both process and results, focusing on process indicators such as system construction progress, as well as result indicators such as talent allocation efficiency and human capital return rate; second, the evaluation cycle takes into account both regularity and real-time, combining annual comprehensive evaluation with quarterly monitoring and analysis; third, the evaluation results are linked with improvement measures to ensure that problems discovered can be transformed into optimization actions in a timely manner. Through continuous evaluation and iterative optimization, enterprise human capital management innovation can move from “pilot breakthrough” to “comprehensive deepening” and achieve continuous improvement in management efficiency.

Conclusion

This article systematically analyzes the internal logic and practical path of enterprise human capital management innovation in the digital economy era. Research shows that the impact of digital technology on human capital management has deepened from the tool level to the paradigm level - the basis for decision-making has shifted from empirical judgment to data-driven, the functional positioning has shifted from transaction support to value management, and the management model has shifted from standardized control to personalized empowerment. By building a data-driven talent decision-making system, promoting intelligent talent allocation, building a digital training system, and

innovating flexible incentive and assessment mechanisms, enterprises are forming a new paradigm of human capital management that adapts to the digital economy era. However, problems such as weak data governance, organizational inertial resistance, and talent digital capability gaps remain prominent during the transformation process. Enterprises need to implement systematic measures from four aspects: consolidating the foundation of data governance, promoting the reconstruction of organizational capabilities, cultivating compound digital talents, and establishing a dynamic evaluation mechanism, in order to realize the fundamental transformation of human capital management from passive response to proactive management. In the future, with the continuous evolution of artificial intelligence technology and the continuous improvement of human capital data systems, corporate human capital management will develop in a more intelligent, precise, and valuable direction.

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