

# Digital Financial Performance Analysis of Listed Companies in the Smart Security Industry: A Case Study of Hikvision

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## Abstract

Under the profound influence of digital technology, numerous manufacturing enterprises have adopted digital transformation strategies to optimize and upgrade production processes. This enhances their ability to address both internal and external challenges, thereby improving their competitive position in the industry. Taking Hikvision as a case study, this research aims to thoroughly explore the current status of its digital transformation, including driving forces and specific implementation measures. Building on this foundation, the paper evaluates Hikvision's post-transformation profitability, operational efficiency, and growth potential using three key financial indicators: return on equity (ROE), total asset turnover ratio, and net profit growth rate. Ultimately, the study summarizes Hikvision's successful digital transformation experience and provides actionable recommendations for other enterprises implementing similar initiatives.

## Keywords

Digital Transformation; Financial Performance; Hikvision.

## 1. Introduction

The digital economy is thriving, driving transformation and development opportunities across industries. In recent years, China has implemented a series of policies to accelerate its growth. Digital transformation enables enterprises to optimize business processes, enhance efficiency, boost innovation, better adapt to market demands, and improve performance. The security industry has expanded from traditional public sectors to home applications, with projected market growth rates of 20%-80% during the 13th Five-Year Plan period. Meanwhile, shifting consumer demand for personalized and intelligent solutions is compelling companies to upgrade their technologies and services. China's security sector faces severe homogenization, where cutthroat price competition has eroded profit margins. In the big data era, deep data processing and value extraction have become crucial, making technological advancement key to success.

Hikvision (Stock Code: 002415), a global security leader and a model of digital transformation in China's traditional manufacturing sector, specializes in video technology and delivers intelligent IoT solutions and big data services to clients worldwide. After implementing its digital transformation strategy, the company has achieved significant productivity gains with financial performance consistently outperforming industry averages. This case demonstrates the potential of digital transformation and provides valuable insights for corporate development. Therefore, this article analyzes the positive impact of digital transformation on corporate financial performance, offering reference experience for other enterprises[1].

## 2. Digital Implementation Status of Hikvision

### 2.1. The Motivation of Hikvision's Digital Transformation

#### (1) National macro policy

The 14th Five-Year Plan further elevates digital transformation to the level of a national strategy, explicitly requiring accelerated corporate digital transformation and deepened digital infrastructure development. In the security industry sector, the state has successively issued policies such as the "China Security Industry 14th Five-Year Development Plan (2021-2025)"[2], driving the industry toward intelligent and digitalized development while encouraging security enterprises to innovate through new technologies like big data and artificial intelligence. Notably, the "China Security Industry 14th Five-Year Development Plan" clearly proposes achieving qualitative breakthroughs in core technologies and industrial upgrading, optimizing industrial structures, and expanding application scenarios. These requirements align closely with Hikvision's development strategy, further solidifying its determination to enhance core competitiveness and expand business domains through digital transformation. These top-level designs chart a clear course for Hikvision, making it realize that digital transformation is not only essential for corporate growth but also a crucial measure to align with national strategies and capitalize on policy dividends.

#### (2) Industry competition intensifies

The evolving competitive landscape in the security sector and challenges from new entrants have subjected Hikvision to intense market competition pressure, prompting it to accelerate digital transformation to consolidate its position and enhance advantages. China's security industry comprises over 22,000 enterprises, mostly small and medium-sized businesses. Market concentration has gradually increased, forming a first-tier group led by Hikvision and Dahua Technology Co., Ltd., which together hold over half of the domestic market share, with Hikvision leading the global video surveillance product market. However, Dahua Technology demonstrates strong competitiveness, and their repeated confrontations threaten Hikvision's market share. Therefore, Hikvision needs to optimize product architecture and increase added value through digital transformation to maintain its advantage. In recent years, tech giants like Huawei and Alibaba, along with AI unicorns such as Megvii Technology and CloudWalk, have entered the security industry[3]. Their cross-sector competition pressures from technological capabilities, capital investments, and ecosystem-building competencies have made Hikvision realize that failure to accelerate transformation will lead to elimination. Meanwhile, significant product homogenization in the security sector has narrowed differentiation among traditional video surveillance companies, with price wars becoming the primary competitive approach. The low-price strategies of small and medium-sized enterprises have compressed industry profit margins, affecting Hikvision's revenue quality. Data from 2018 highlights intense homogenized competition. Consequently, Hikvision must leverage digital transformation to pursue differentiated competition and break market stagnation.

#### (3) Internal motivation for enterprise digital transformation

Hikvision's traditional security business has experienced prolonged growth stagnation, necessitating digital transformation to break through operational bottlenecks. Initially relying on conventional video surveillance product sales, the company faced slowing growth in front-end and back-end audiovisual products from 2011 to 2020 as market saturation intensified competition. The shift from incremental to existing markets for traditional surveillance products, coupled with growing customer demands for intelligent and digital solutions, rendered the hardware-focused sales model unsustainable. This necessitated transitioning to a "comprehensive solution provider" model. Moreover, the company's single-sector focus made it vulnerable to industry shifts, requiring diversified business expansion. With evolving digital

technologies and upgraded customer expectations, Hikvision's traditional technical systems increasingly fail to meet market demands, making technological advancement the core driver of transformation. Customers now prioritize intelligent analysis capabilities in security products, where traditional offerings fall short[4]. Accelerating R&D upgrades and integrating cutting-edge technologies are crucial for developing competitive solutions. Amid rapid industry innovation, increased R&D investment is essential to maintain leadership, with digital transformation providing new pathways to enhance efficiency and reduce costs. Hikvision's operational risks demand heightened resilience-building capabilities, particularly addressing supply chain vulnerabilities from imported components and rising costs due to high inventory levels. Through digital transformation, we will establish a digital supply chain management platform to optimize inventory control, build diversified supply chain systems, and reduce operational costs. Addressing previous issues like information silos within the organization, we are restructuring business processes comprehensively during this transition. This includes creating smart factories and digital financial shared service centers to achieve full digitalization across all operational stages. By enhancing internal risk management systems, we aim to strengthen organizational resilience against potential risks.

## 2.2. Digital Transformation Measures of Hikvision

### (1) We will strengthen investment in digital research and development

Hikvision positions R&D investment as the cornerstone of digital transformation, focusing on breakthroughs in key intelligent IoT technologies. Through sustained high R&D spending and talent reserves, the company builds technological barriers to support its transformation. Since initiating its transformation, Hikvision has maintained rapid growth and high proportion of R&D expenditure. From 2018 to 2024, R&D expenses as a percentage of revenue increased annually, reaching 11.864 billion yuan (12.8%) in 2024[5]. Funding is primarily allocated to four major technical directions: software/hardware integration, cloud-edge computing, IoT-telecom convergence, and digital-intelligent fusion, covering core areas like AI algorithms. For instance, the AICloud architecture broke through traditional cloud computing bottlenecks in 2017, while the IoT-telecom converged data platform achieved physical-to-digital world integration in 2019. The scale and structure of R&D personnel ensure technological innovation. As of the end of 2024, Hikvision had 59,689 employees, with 28,272 dedicated to R&D and technical services, accounting for nearly 47.4% of the workforce, forming multi-domain professional teams. The company establishes domestic and overseas research centers to attract talent and accelerate technological iteration. For example, its AI open platform algorithm development team provides customized services to 24,000 enterprise clients, generating 100,000 algorithm models to support smart security scenario implementations. Aligning with national strategies, Hikvision intensifies independent R&D of core components to reduce external dependence. In the face of the impact of the US "entity list", Chinese manufacturers will realize the domestic substitution of DVR SoC and IPC SoC chips, so as to ensure the stability of the supply chain and reduce the risk of technological constraints[6].

### (2) Internet business platform

Hikvision has revolutionized its business model by establishing an internet-based platform that breaks away from traditional hardware sales, achieving a "devices + services + data" transformation to comprehensively meet end-user and enterprise needs across all scenarios. In 2013, the company launched its internet brand "Yingshi", creating a smart home ecosystem of "1+4+N". This platform centers on video surveillance while integrating products like smart locks and robots, along with value-added services including cloud storage and voice assistants. Through its e-commerce platform "Yingshi Mall", Hikvision enables direct online sales, achieving a 25.8% global market share for smart home cameras in 2024, cementing its leadership position. To cater to diverse industry demands, Hikvision offers customized cloud

platforms: For SMEs, it developed the "Hikvision Cloud Eye" platform providing lightweight services like device management and data analytics to reduce digital barriers; for large enterprises and public service sectors (EBG/ PBG), it created an "Intelligent Information Integration Data Platform" combining video and operational data, delivering integrated solutions such as traffic flow analysis and emergency command dispatch for smart city projects. Additionally, Hikvision partnered with Germany's SAP to build a "Digital Supply Chain" system[7].

The "Chain Information Management System" integrates upstream raw material supply and downstream product demand data. Through this platform, the entire process-from supplier certification and order management to logistics tracking- is fully digitized online, reducing reliance on single suppliers. At the Tonglu factory, the company has deployed over 800 "Qianmo" intelligent handling robots, further enhancing production efficiency.

(3) Develop in various aspects and cultivate innovative business

Hikvision has transcended traditional security industry boundaries through its "core business expansion + new market entry" strategy, cultivating a diversified innovation matrix and successfully establishing a second growth curve. The company actively expands into smart IoT domains, extending security service capabilities from "traditional security" to "pan-security" solutions. By deeply integrating video technology with artificial intelligence and IoT, Hikvision has extended applications to industrial automation, automotive electronics, and other sectors. In machine vision, Hikvision launched industrial cameras and visual control systems, achieving full self-reliance in mid-to-low-end products and breaking foreign monopolies in high-end markets. In automotive electronics, the company developed in-vehicle cameras and ADAS systems. Through an "innovation co-investment" mechanism, Hikvision has incubated eight innovative businesses including Yingshi Network, Hikvision Robotics, Hikvision Micro Vision, and Hikvision Storage. With 23 overseas regions and 66 branches, Hikvision has built a network system combining localized R&D and services. Customized solutions are tailored to regional needs-such as GDPR-compliant data security solutions for European markets and humidity-resistant surveillance equipment for Southeast Asia. Meanwhile, through overseas acquisitions, Hikvision has acquired local technical expertise and distribution channels, accelerating the globalization of its innovative business models.

3. Financial Performance Evaluation of Digital Transformation of Hikvision

3.1. Return on Equity

Table 1. Comparison of Return on Equity of Hikvision and Its Peers (unit:%)

|                                    | 2016  | 2017  | 2018  | 2019  | 2020  | 2021  | 2022  | 2023   | 2024   |
|------------------------------------|-------|-------|-------|-------|-------|-------|-------|--------|--------|
| Hikv-<br>ision                     | 34.58 | 34.96 | 33.99 | 30.53 | 27.72 | 28.99 | 19.62 | 19.64  | 15.34  |
| Dahua<br>Co.                       | 24.80 | 25.47 | 22.16 | 22.74 | 22.09 | 15.58 | 9.49  | 22.43  | 8.19   |
| Jiadu Te-<br>chnology              | 6.95  | 7.92  | 15.40 | 13.99 | 1.75  | 5.64  | -4.75 | 5.36   | -1.50  |
| IV. Crea-<br>tive Elec-<br>tronics | 13.48 | 10.33 | 11.33 | 4.57  | 6.84  | 6.98  | 2.43  | -22.50 | -12.06 |

According to Table 1, Hikvision's return on equity (ROE) remained stable at around 30% from 2016 to 2019, demonstrating strong profitability and capital efficiency. It slightly declined to 27%-29% between 2020-2021, then dropped significantly to 15%-20% in 2022-2024, though still leading the industry despite annual declines. Dahua Technology's ROE fluctuated between 20%-25% from 2016-2019, plummeted sharply in 2021, experienced dramatic volatility at 9%-22% in 2022-2024, rebounded in 2023, and declined again in 2024. Jiadu Technology saw rising fluctuations from 2016-2019, recovered after a sharp decline in 2020-2021, but recorded negative or low single-digit values from 2022-2024, showing unstable performance. Sichuang Electronics maintained stable ROE levels from 2016-2019[8].

It continues to decline, hovering at the low level in 2020-2021 and negative in 2022-2024, indicating a worsening trend.

Hikvision maintained its leadership despite declining return on equity (ROE), driven by its digital transformation strategy.

The company has upgraded its product portfolio to become an "intelligent IoT AIoT" solution provider, with increased software and platform business shares. It has strengthened its technological moat through investments in AI and other technologies while diversifying operations. Operational efficiency improvements, including superior asset turnover rates and leverage control compared to peers, further solidified its competitive edge. Dahua Technology exhibited volatile ROE with unstable profitability, lagging behind Hikvision in ecosystem development and technological innovation. Jiadu Technology's ROE fluctuated at low levels or even turned negative, constrained by an immature core business model heavily reliant on project-based operations. Sichuang Electronics' persistently declining ROE now shows negative values, potentially facing losses or asset impairment risks.

While Hikvision's return on equity (ROE) has declined in recent years, it remains above the industry average, demonstrating strong profit resilience and robust management capabilities. The company is now forging a second growth trajectory through digital transformation. With the maturation of demand for AIoT solutions, Hikvision is poised to solidify its leadership position, with its ROE expected to stabilize and rebound.

3.2. Total Asset Turnover

Table 2. Comparison of Total Asset Turnover Times of Hikvision and Its Peers (unit: Times)

|                              | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|------------------------------|------|------|------|------|------|------|------|------|------|
| Hikv-<br>ision               | 0.89 | 0.90 | 0.87 | 0.83 | 0.77 | 0.85 | 0.75 | 0.69 | 0.68 |
| Dahua<br>Co.                 | 0.99 | 1.03 | 0.99 | 0.94 | 0.80 | 0.81 | 0.68 | 0.65 | 0.61 |
| Jiadu<br>Techno-<br>logy     | 0.67 | 0.78 | 0.68 | 0.58 | 0.42 | 0.59 | 0.49 | 0.49 | 0.52 |
| Fourtron<br>Electro-<br>nics | 0.95 | 0.87 | 0.75 | 0.50 | 0.52 | 0.40 | 0.36 | 0.27 | 0.25 |

Total asset turnover ratio measures a company's efficiency in converting total assets into sales revenue, with higher ratios indicating stronger asset utilization capabilities. From 2016 to 2018, Hikvision maintained an industry-leading total asset turnover ratio between 0.87-0.90, demonstrating how asset scale and revenue growth mutually reinforce each other. During

2019-2024, the company increased fixed asset investments to drive digital transformation and long-term development, resulting in rapid growth in total assets. Despite challenges in revenue growth, the ratio dropped to 0.68-0.85. While affected by economic cycles and market demand, the turnover frequency gradually decreased annually but remained notably stable within the industry. Dahua Technology's total asset turnover ratio declined from 0.99-1.03 in 2016-2018 to 0.61-0.81 in 2019-2024, narrowing the gap with Hikvision yet still lagging behind. Jiadu Technology's ratio fluctuated between 0.67-0.78 in 2016-2018 before plummeting to 0.42-0.59 in 2019-2024, showing significant efficiency decline and volatility. Sichuang Electronics' ratio fell sharply from 0.75-0.95 in 2016-2018 to 0.25-0.52 in 2019-2024, indicating deteriorating asset efficiency.

While Hikvision's asset turnover ratio has declined, its absolute level and stability still surpass the industry average. The company's strategic shift from "hardware sales" to "solutions + operations" may temporarily reduce turnover rates, but this transformation enhances customer retention, boosts profitability, and elevates overall value creation capabilities. The marginal benefits of Hikvision's "light-asset" strategy demonstrate remarkable effectiveness, trading short-term efficiency for long-term competitive advantages and sustainable profitability.

The operational efficiency decline was relatively moderate compared to the industry-wide deterioration in asset efficiency, indicating superior capabilities in supply chain management, inventory control, and accounts receivable management. Digital transformation mitigated external shocks. While Dahua Technology's performance trend mirrored Hikvision's decline with greater magnitude, its operational resilience under adversity remained weak, likely due to high business standardization or operational efficiency sacrifices for market share retention. Jiadu Technology maintained persistently low turnover rates, with project-based operations leading to excessive asset utilization and inefficiency. Digital transformation failed to significantly improve its turnover rate. Sichuang Electronics experienced a "cliff-like" plunge in asset turnover, accompanied by overcapacity and shrinking revenue, trapped in operational difficulties without effective transformation strategies.

Hikvision's reduced total asset turnover reflects an essential transition toward "high-quality development", achieving business model upgrades, profit quality enhancement, and technological moat consolidation through short-term efficiency gains. When the industry-wide asset efficiency declines, Hikvision demonstrates exceptional operational management capabilities and robust risk resilience through its most stable turnover ratio. The success of digital transformation is evident in the comprehensive optimization and restructuring of technology, business models, and asset structures.

### 3.3. Net Profit Growth Rate

According to data in Table 3, Hikvision recorded a net profit growth rate exceeding 20% from 2016 to 2018, fully benefiting from industry dividends. However, this growth slowed to single digits between 2019 and 2020 due to macroeconomic challenges and competition in traditional business segments. The company staged a strong rebound in 2021 but saw negative growth from 2022 to 2024 amid economic downturns and weak demand. Overall, its net profit growth demonstrated moderate deceleration, though occasional declines did not compromise its position as the most stable performer in the industry. In contrast, Dahua Technology exhibited volatile fluctuations and poor stability in net profit growth. Jiadu Technology faced extreme volatility with a fragile profit model, while Sichuang Electronics displayed heightened operational risks through dramatic market fluctuations.

**Table 3.** Comparison of Net Profit Growth Rate of Hikvision With the Same Industry (unit:%)

|                                 | 2016   | 2017  | 2018  | 2019   | 2020   | 2021   | 2022    | 2023    | 2024    |
|---------------------------------|--------|-------|-------|--------|--------|--------|---------|---------|---------|
| Hikv-<br>ision                  | 26.49  | 26.77 | 20.63 | 9.36   | 7.82   | 25.51  | -23.59  | 9.89    | -15.10  |
| Dahua<br>Co.                    | 33.00  | 30.33 | 6.34  | 26.04  | 22.42  | -13.44 | -31.20  | 216.73  | -60.53  |
| Jiadu<br>Techno-<br>logy        | -36.64 | 96.88 | 23.35 | 159.58 | -86.51 | 242.27 | -183.30 | 250.78  | -129.10 |
| Si Chu-<br>ang El-<br>ectronics | 87.71  | -6.99 | 27.82 | -56.83 | 53.29  | 7.99   | -64.08  | -937.69 | 55.56   |

While companies like Jiadu and Sichuang experienced dramatic net profit fluctuations, Hikvision maintained steady growth through digital transformation. Traditional security services face high volatility, whereas enterprise-level digital solutions- characterized by sustained demand, long-term contracts, and diversified revenue streams-effectively offset declines in conventional business. Amid industry homogenization, Hikvision leveraged AI differentiation to enter high-value-added sectors, with digital transformation creating premium pricing and customer retention that safeguarded profit margins. The 2021 rebound stemmed from earlier investments in innovative ventures, where new businesses became primary growth drivers. Dahua Technology exhibited extreme volatility: its net profit surged 216.73% in 2023 due to low base effects, then plummeted to -60.53% in 2024. Its slower-than-Hikvision transformation progress and structural optimization may leave it more vulnerable to profitability shocks. Jiadu Technology's erratic growth reflects its project-driven nature as a low-margin system integrator lacking sustainable models, with digital transformation failing to fundamentally alter its core business. Sichuang Electronics

Extreme volatility, such as -937% in 2023, may face problems such as asset impairment, single business, weak resistance to risk, and failure to establish a new growth curve.

The core value of Hikvision's digital transformation lies in delivering "certainty" and "predictability" to industries. When sector profits are highly cyclical, Hikvision demonstrates greater financial stability and stronger risk resilience. It has shed its "cyclical stock" characteristics, with growth drivers now shifting toward technology-driven solutions. This digital transformation enhances its ability to withstand market fluctuations and rebound, enabling long-term value creation that transcends cyclical patterns.

4. Conclusion and Recommendations

4.1. Research Conclusion

This study takes Hikvision as a core case to analyze the driving forces and measures of its digital transformation. By examining the impact of transformation on financial performance through return on equity (ROE), total asset turnover ratio, and net profit growth rate, and comparing with industry peers, the following conclusions are drawn: The driving forces of digital transformation precisely align with internal and external demands. Externally, it is driven by the national " 14th Five-Year Plan" and industry planning, as well as competitive pressures within the sector. Internally, transformation becomes inevitable due to issues in traditional security business. The motivation system of "policy guidance-competition-driven-internal

breakthrough" ensures alignment between transformation direction and financial performance improvement goals. Digital transformation measures build core capabilities to support financial indicator improvements. Hikvision adopts strategies of "R&D investment foundation-building, platform-based transformation breakthrough, and diversified business expansion," including high R&D investment for domestic substitution of core chips, internet-based platform restructuring of revenue models, and cultivating second growth curves through diversified businesses. Digital transformation significantly impacts Hikvision's core financial indicators, with financial performance outperforming the industry. In terms of ROE, profitability resilience leads the industry. Although declining from 2016 to 2024, the decline remains controlled, driven by product structure upgrades. Regarding total asset turnover ratio, short-term efficiency adjustments yield long-term value. Operational capabilities outperform peers, with moderate but higher declines from 2016 to 2024 compared to competitors. While transformation-related investments and business model changes affect performance, digital management has reduced asset efficiency decline below industry levels. In terms of net profit growth rate, the anti-cyclical ability is prominent, the growth stability is leading, the growth rate is stable, and the transformation hedges the cyclical risks of traditional businesses.

The Hikvision case demonstrates that digital transformation represents a deep integration of strategy, technology, business operations, and management, fundamentally reshaping the logic of financial performance. Its success story proves that enterprises can achieve metric optimization and transition to high-quality development through "strategic anchoring under policy guidance, capability building driven by technological innovation, and risk hedging enabled by business diversification," offering practical references for peers in the industry.

## 4.2. Research Recommendations

### (1) Grasp customer market demand

First, establish a demand insight system to eliminate information asymmetry. Build a digital demand collection platform that integrates multi-channel data from online and offline sources, such as customer information gathered through corporate websites, social media platforms, and other touchpoints. Implement a rapid response mechanism by forming a demand analysis team to regularly analyze data, generate insights reports, and share them with relevant departments. For urgent demands or market changes, establish cross-departmental task forces to shorten turnaround cycles. Second, provide customized solutions to enhance customer retention. Segment customer groups based on scale, industry, and other dimensions, then deliver tailored products or services for different demographics. Create a closed-loop "demand-R&D-delivery" system where R&D and production flexibly adapt to customer needs through smart manufacturing lines. Establish a co-creation R&D mechanism by involving key customers to ensure product alignment, thereby strengthening their sense of belonging and loyalty. Third, explore extended value from demands to expand market potential. Develop related businesses based on core needs and explore extended application scenarios. Anticipate demand trends and focus on

Industry technology, policy and consumption habits have changed, so we should increase investment in research and development of forward-looking technologies and lay out potential markets.

### (2) Combine the actual situation of the enterprise itself

Digital transformation should avoid blind conformity and instead be grounded in corporate resource advantages, business characteristics, and current development status, steering clear of a one-size-fits-all approach. First, enterprises must conduct a comprehensive review of their resources and capabilities to establish a solid foundation for transformation. This involves identifying core strengths and weaknesses, determining their position in the industrial chain, assessing technological reserves, managing capital, and understanding customer demographics.

Breakthroughs should be made in advantageous areas while anticipating and planning for potential risks. Transformation models should align with business characteristics: manufacturing enterprises should advance intelligent production and supply chain digitization; service-oriented companies should focus on digitalizing customer service and optimizing operational processes; platform-based enterprises should build digital ecosystems and enhance collaborative efficiency. Second, companies should set phased transformation goals and strategies. In the initial phase, consolidate digital foundations by prioritizing core business digitalization frameworks for underdeveloped enterprises. During the mid-term phase, promote business-digital integration to optimize workflows and innovate models. In the final phase, establish digital ecosystems to explore new growth pathways. Third, dynamically adjust strategies to adapt to internal and external changes. Implement an evaluation mechanism with metrics covering financial performance, operations, and customer satisfaction, conducting regular assessments and strategic adjustments. Stay attuned to macroeconomic trends and policy regulations.

With the changes of market competition, we should flexibly adjust the pace and focus of transformation.

### (3) Focus on the establishment and cultivation of technical team

Technical teams are the core driving force behind digital transformation. To build a professional and stable talent pool, enterprises must ensure continuous R&D, application, and innovation of digital technologies. First, establish a well-structured technical talent framework by strategically recruiting key domain experts, clarifying required roles, and attracting top talent through multiple channels. Develop interdisciplinary technical managers to bridge technology and business integration. Second, implement systematic internal training programs with tiered development systems covering career growth stages, offering customized plans for different levels. Create hands-on platforms where projects drive skill enhancement through real-world implementation. Encourage participation in industry exchanges to broaden perspectives and gain practical experience. Promote cross-departmental rotations to cultivate interdisciplinary thinking by assigning technical experts to business units, breaking down "technology silos." Third, create incentive mechanisms that stimulate innovation. Given the long R&D cycles, provide tailored incentives: emphasize long-term rewards for basic researchers and short-term incentives for application developers. Establish error-tolerant mechanisms that allow reasonable failures, fostering an environment that "encourages innovation and tolerates trial-and-error" to prevent talent loss.

## References

- [1] Lan Wenyong, Huang Xianghua, and Yu Kanghui. Value Creation in the Digital Transformation of Traditional Manufacturing Enterprises: A Case Study of Hikvision [J]. *Accounting Monthly*, 2023,44(7):135-141.
- [2] Jian Guanqun, Wang Xiaobao. Mechanisms and Effects of Digital Transformation in Manufacturing Enterprises Driving Value Creation: A Case Study Based on Gree Electric Appliances [J]. *Accounting Communications*, 2024(14):154-159.
- [3] Wang Xinlan and Shi Meiqi. How does digital transformation drive the generation of dynamic capabilities in enterprises to achieve value creation? -- A longitudinal case study based on Sany Heavy Industry [J]. *Accounting Communications*, 2024(6):153-159.
- [4] Jian Guanqun, Lu-Wan. Digital Transformation Pathways and Value Benefits of Manufacturing Enterprises from a Dynamic Capability Perspective: A Case Study of Midea Group [J]. *Journal of Economic Research*, 2024(7):288-290.
- [5] Jian Guanqun and Feng Haowen. How to Achieve High-Quality Corporate Development Through Digital Transformation? -- Case Study of Muyuan Co., Ltd. [J]. *Accounting & Finance Communications*, 2023(24):147-155.

- [6] Tian Xiaofeng and Feng Xueyi. The Mechanism and Evaluation of Digital Transformation's Impact on Corporate Performance: A Case Study of Northeast Pharmaceutical Group [J]. Management & Operations, 2024(4):113-119.
- [7] Cao Xiaoyu, Wang Rui, Bai Yina. The Impact of Digital Transformation on the Performance of Traditional Chinese Medicine Manufacturing Enterprises: A Case Study of Company D [J/OL]. Management and Operations, 1-21 [2025-09-29].
- [8] Jian Guanqun, Li Yuehan. "Research on the Impact and Pathways of Enterprise Digital Transformation on Corporate Governance: A Case Study of Jiuzhoutong Pharmaceutical [J]. Accounting Communications, 2024(12):142-147+152."