

The Relationship between New Quality Productive Forces and the Intelligent Transformation of Accounting -- A Case Study of Deloitte

Jiayi Wu^{1,a,*}, Xin Song^{1,b}

¹Business School, University of Shanghai for Science and Technology, Shanghai, China

^a157917653@qq.com, ^bsongxin@usst.edu.cn

*Corresponding author

Abstract: The proposal of New Quality Productive Forces corresponds to the demands of development in the new era, coinciding with the imperative for traditional industries to undergo transformative upgrades in informatization, digitization, and intellectualization. Within the context of a highly developed digital economy, New Quality Productive Forces play a significant role in driving the intelligent transformation of accounting. Conversely, this intelligent transformation reciprocally influences the evolution of New Quality Productive Forces. This study employing Deloitte as a case study illustrates the link between the two, investigates their mutual influences, identifies existing challenges, and discusses potential strategies.

Keywords: New Quality Productive Forces; Intelligent Transformation of Accounting

1. Introduction

New Quality Productive Forces are closely related to science and technology, placing new demands on three aspects: workers, means of labor, and objects of labor. Workers should be highly qualified individuals with scientific thinking and strong learning abilities, while the means and objects of labor should align with the development trends of advanced productive forces. The concept of New Quality Productive Forces demonstrates the direction for innovation and transformation across various industries.

The intelligent transformation of accounting refers to the utilization of emerging technologies such as AI to reform the conventional accounting industry, enhance its operational efficiency, and enable the automation of tasks such as bookkeeping and financial reporting, aligning with the development trend in the new era. On December 30, 2021, the Ministry of Finance of China issued a notice on the "Accounting Informatization Development Plan (2021–2025)," which outlines the overarching objective of advancing the digital transformation of accounting during the "14th Five-Year Plan" period. The plan emphasizes the need to modernize the accounting system in accordance with contemporary requirements and underscores the critical importance of digital development in accounting. The intelligent transformation of accounting represents a further upgrade on the basis of digital development, enabling accounting functions to operate autonomously.

Professor Yang Yin argues that the scientific and technological innovation system formed by New Quality Productive Forces can drive the upgrading of multiple systems within the digital transformation of accounting^[1]. Ou Yun suggests that integrating the cultivation of New Quality Productive Forces with the intelligent transformation of accounting serves as a significant driver for promoting high-quality development in enterprises^[2]. Numerous scholars have explored the relationship between New Quality Productive Forces and the digital and intelligent transformation of accounting. In accordance with Karl Marx's proposition in *Das Kapital* that "the more developed the economy, the more important the accounting," and considering the current context of a rapidly expanding digital economy, the intelligent transformation of accounting is becoming increasingly crucial. However, existing research has predominantly focused on the connection between New Quality Productive Forces and the digital transformation of accounting, while studies specifically addressing the relationship with the intelligent transformation of accounting remain relatively scarce. This study aims to investigate the impact of New Quality Productive Forces on the intelligent transformation of accounting, employing the intelligent transformation initiatives of Deloitte as a case study, promoting the advancement of this transformation. The overall detailed approach is shown in Figure 1.

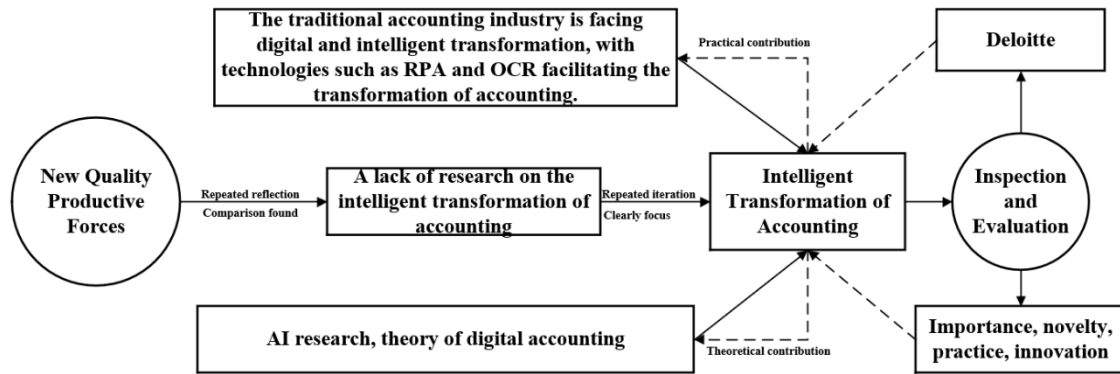


Figure 1: Research and Evaluation on the link between New Quality Productive Forces and the Intelligent Transformation of Accounting

2. General Overview of New Quality Productive Forces

2.1 Characteristics of New Quality Productive Forces

New Quality Productive Forces represent a form of productivity characterized primarily by innovation, aligning with the five development concepts of "innovative, green, coordinated, open, and shared" development. The term "New" reflects its nature as productivity that drives innovative development, while "Quality" signifies its role in promoting high-quality development. This is manifested in the increasing intelligence and digitalization of means of labor, such as robots, sensors, and internet platforms. The objects of labor have become more diversified and novel, including algorithms, new energy sources, programming, and bio-materials, which are predominantly concentrated in emerging industries. Additionally, higher demands are placed on the labor force, requiring workers to possess digital literacy, creativity, and strong comprehensive competencies, emphasizing the need for innovative and interdisciplinary talents.

2.2 The role of New Quality Productive Forces

The world today is undergoing unprecedented transformations in a century, marked by increasingly intense competition in soft power among nations. New Quality Productive Forces serve as a crucial element in driving technological innovation, enabling countries to seize the commanding heights of sci-tech advancement, achieve self-reliance and controllability in core technologies, and grasp the initiative in development. This, in turn, facilitates the diffusion of technological progress across various industries. Moreover, New Quality Productive Forces constitute a crucial driver of green development, aligning with the principle that "lucid waters and lush mountains are invaluable assets." They promote harmonious coexistence between humanity and nature, providing robust momentum and underpinning high-quality development.

3. The impact of New Quality Productive Forces on the intelligent transformation of accounting

The influence of New Quality Productive Forces on accounting digitalization is primarily reflected in five dimensions of productivity: technology, factors, collaboration, openness, and integration^[1]. The transformation towards intelligent accounting consolidates these five dimensions into three key productive forces for further enhancement, centering the discussion on integrated technology, refined factors, and collaborative openness, as shown in Figure 2.

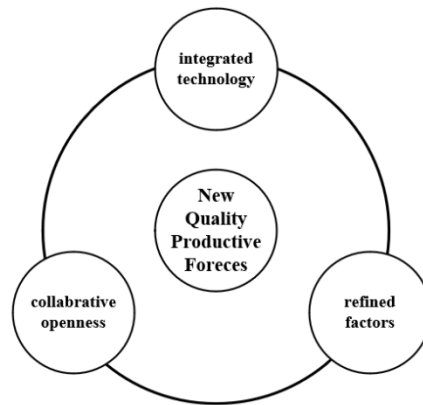


Figure 2: The specific impact of New Quality Productive Forces on the intelligent transformation of accounting

In terms of technological integration, New Quality Productive Forces introduce advanced technologies into the process of accounting digital transformation. Currently, accounting bookkeeping has preliminarily achieved the goal of digitalization, with electronic vouchers, ledgers, and reports becoming widely adopted. This achievement has saved time in accounting tasks, improving the accuracy of ledgers and reports and enhancing the efficiency of bookkeeping.

In the transition towards intelligent accounting, the aim of New Quality Productive Forces is to integrate a new generation of AI technologies into accounting scenarios. This integration enables the interaction of AI technology with real-time internal financial information of enterprises, automatically records relevant business activities and collects associated vouchers, and generates financial ledgers and reports combined with the enterprise's financial condition. The integration of business and finance supports efficient operational decisions and enhances the market competitiveness and profitability of relevant enterprises. Furthermore, embedding AI into the enterprise architecture through intelligent accounting can provide users with more intuitive and clear data, boost customer trust, expand the customer market, and offer strong support for high-quality enterprise development.

In terms of factor refinement, the core element of New Quality Productive Forces is data. Achieving intelligent transformation in accounting still relies fundamentally on data as a key factor. Accounting digitalization has initially converted real-world market, operational, and financial information into multi-faceted and multi-dimensional data. Intelligent accounting enables the automatic acquisition of such digital enterprise information on the basis of digital accounting. By inputting simple instructions, relevant precise information can be retrieved. The convenience contribute to understand the financial status of competitors, grasp the market environment, enhance the enterprise's competitiveness, improve operational efficiency, and inject momentum into high-quality enterprise development.

In terms of collaborative openness, the transformation to intelligent accounting should further expand the enterprise value chain across different dimensions. Collaborative productivity requires that enterprises further leverage the productivity on the basis of meeting fundamental accounting needs to drive innovative cooperations from the perspective of supply chains and industrial chains. Subsequently, the goal of high-quality development in accounting work can be realized. Specifically, the shift to intelligent accounting allows relevant government departments to access corporate accounting information more quickly and conveniently. This accomplishment facilitates the government's understanding of enterprises' basic operational conditions, supports the formulation of relevant national policies, improves resource allocation, and promotes high-quality development at both governmental and national levels.

4. The intelligent transformation of accounting at Deloitte

4.1 The process of accounting intelligent transformation of Deloitte

Among the numerous endeavors to transition towards intelligent accounting, Deloitte, a prominent firm within the Big Four accounting networks, represents a typical example.

Deloitte has undertaken a structured journey in its intelligent transformation. This transformation began in 2015 with the establishment of its AI Institute, building an enabling framework across five core

domains: strategic planning, security governance, industry research, solution development, and training. A significant milestone followed in 2017 with the launch of its financial robots, "Little Qinren", demonstrating the significant potential of robotic process automation (RPA) in finance through accurate and efficient performance of many financial robots. The firm expanded its technological alliances in 2019 by upgrading its partnership with Alibaba Cloud to a global strategic collaboration. This evolution culminated in 2024 with the introduction of Deloitte China's AI strategy implementation plan. This initiative aims to deeply integrate AI across all facets of the organization including products and services, operational models, infrastructure, and talent development to build an AI-driven service enterprise and enhance clients' trust. Concurrently, Deloitte partnered with Alibaba Cloud International, Salesforce, and Feishu to conduct in-depth research into how AI technologies are reshaping the customer relationship management (CRM) landscape.

4.2 Deloitte's New Quality Productive Forces drive accounting intelligence transformation

Deloitte contends that recent reforms across various sectors in China have established favorable conditions for advancing New Quality Productive Forces, and simultaneously fostering innovation vitality among enterprises, including Deloitte. Deloitte emphasizes that this corporate innovation contributes to China's high-quality development, explicitly stating that New Quality Productive Forces are playing an indispensable and positive role in China^[3]. The detailed effects are shown in Figure 3.

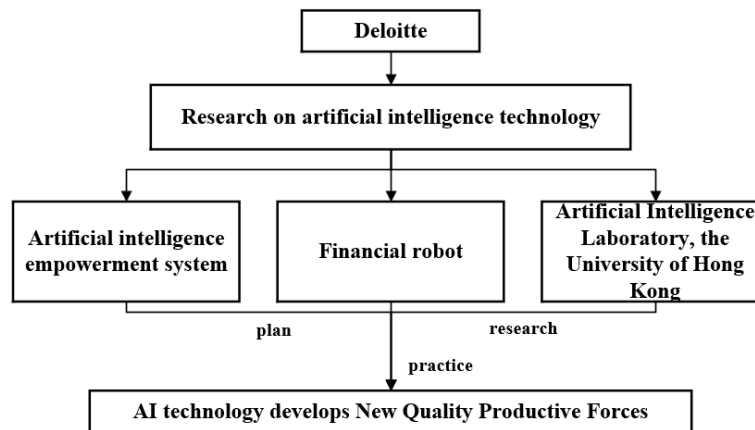


Figure 3: The impact of Deloitte on New Quality Productive Forces

Deloitte China, as a leading accounting firm operating within the country, has closely aligned its journey towards intelligent accounting transformation with the development of New Quality Productive Forces. Deloitte's research and initiatives in artificial intelligence can be categorized into three primary areas: the AI Enablement Framework, financial robots, and the University of Hong Kong AI Laboratory.

The AI Enablement Framework is a system proposed by Deloitte, with the aim of leveraging AI research to apply AI technologies across various operational domains of the firm, accelerating the transition to intelligent accounting. In its publication "Technology Trends 2025", Deloitte China specifically highlights the significant influence of AI, acknowledging its extensive role in programming, software testing, and overall enhancement of technical team capabilities. Furthermore, in its report "Choices in the AI Era: Building on Trust for Sustainable Intelligence", the report notes that the adoption of AI solutions by employees can contribute to increased corporate revenue.

The University of Hong Kong AI Laboratory represents a critical initiative by Deloitte to advance AI technology and promote intelligent accounting transformation. Established in collaboration between Deloitte's AI Institute and the University of Hong Kong, this laboratory jointly explores the transformative impact of AI on modern accounting and auditing. It explicitly advocates that accounting and auditing professionals must develop competencies in the application and management of AI to drive the intelligent transformation of the profession^[4]. The New Quality Productive Forces affect Deloitte from three aspects: talent, technology, and development, as shown in Figure 4.

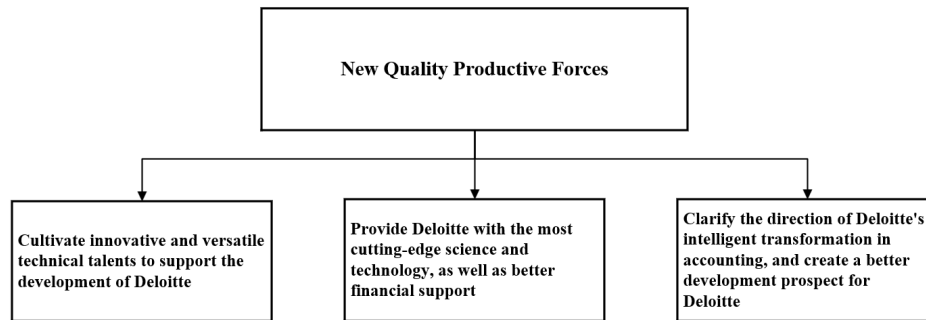


Figure 4: The impact of New Quality Productive Forces on Deloitte

Currently, AI technology is playing a transformative role in driving innovation across various industries. AI is altering industrial structures, optimizing production processes, and facilitating industrial upgrading. Furthermore, it enhances production efficiency, improves product quality, stimulates the job market, and helps establish new talent standards. This suite of improvements aligns closely with the developmental objectives of New Quality Productive Forces^[5]. Concurrently, the advancement of these forces will more effectively propel the intelligent accounting transformation at Deloitte. New Quality Productive Forces will supply the transformation process with more highly skilled tech talent and more sophisticated AI technologies, ultimately facilitating machines to perform accounting and financial tasks with full autonomy in the future.

4.3 The case of accounting intelligent transformation of Deloitte

The continuous advancement of network information technologies, coupled with improvements in hardware infrastructure and algorithmic sophistication, has laid a robust foundation for the development of AI in the accounting sector. Deloitte has consistently dedicated itself to this digital transformation. A cornerstone of its efforts is the implementation of RPA financial robots. RPA standing for robotic process automation is a software tool grounded in information processing theory, pattern recognition theory, business process reengineering theory, and economies of scale theory^[6]. RPA operates by deconstructing financial workflows into four core components: input, processing, decision-making, and output. Leveraging cognitive technologies such as OCR and speech recognition, RPA converts external information into digital data, enabling software robots to emulate the actions of financial professionals. This allows robots to autonomously execute tasks. For instance, robots can fill in and submit in ERP, CRM and other related financial software.

Deloitte's RPA solution, named "Xiao Qin Ren", facilitates automated data collection, analysis, and processing. "Xiao Qin Ren" can rapidly search through massive amounts of information, selectively retaining useful financial data during the process. This capability saves significant time in information retrieval, assists auditors and accountants in making accurate judgments more quickly, provides deeper insights for relevant staff, and enhances risk assessment capabilities. In practice, "Xiao Qin Ren" can manage value-added tax invoices within a short timeframe and automate highly repetitive audit procedures, reducing the probability of human error. Furthermore, its capacity for 24/7 operation and advanced imitation frees human personnel from repetitive, routine tasks. This liberation allows human personnel to focus on more complex analysis and decision-making, reducing risks, improving the firm's overall efficiency, and subsequently driving the intelligent transformation of accounting. Related theories, specific practice, specific function are shown in Figure 5.

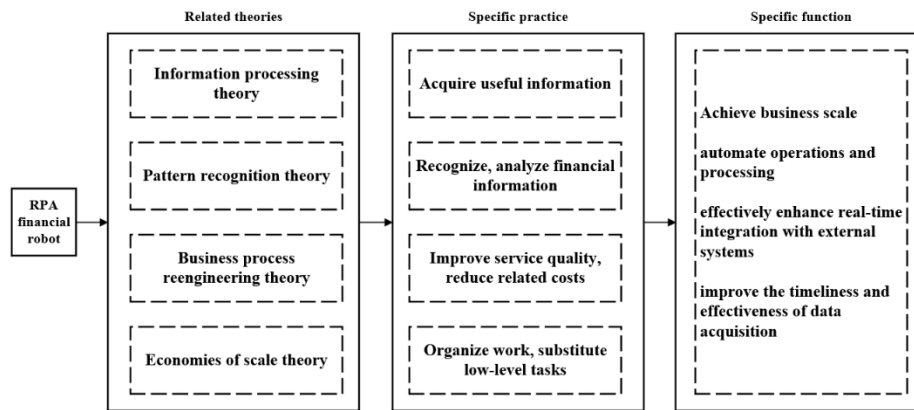


Figure 5: "Xiao Qin Ren" financial work business implementation process

Deloitte has also elevated its focus on intelligent expense control systems. An expense control system is a digital management platform designed for business functions including corporate expense budgeting, process approval, data integration, financial automation, and cost analysis^[7]. Jin Ke, Deloitte Asia Pacific Audit & Assurance Digital Enablement and AI Lead Partner, emphasizes that intelligent expense control is evolving from a process-oriented tool into a decision-making platform with its core competitiveness shifting from reimbursement speed to business insight and predictive capabilities. The development direction for these systems is building platforms, intellectualization, and embedded compliance, pointing towards a future where they integrate advanced technologies such as AI, big data, and cloud computing. By enhancing the transparency of expenditures, enabling real-time monitoring of departmental spending, and reducing information asymmetry, these systems facilitate timely fund flow adjustment and support overall corporate development. The systems further streamline approval workflows, reduce errors, increase process visibility, and improve efficiency across organizational hierarchies. Additionally, by leveraging historical income and expense data, they realize more accurate future budgeting and optimal resource allocation^[7]. Ultimately, intelligent expense control systems free up accounting personnel's time, accelerate the intelligent transformation of accounting, and empower enterprises to achieve refined management and strategic decision making.

5. Challenges & Countermeasures

5.1 The deficiency of new productive forces in the intelligent transformation of accounting

Despite the optimistic prospects for the intelligent transformation of accounting, its advancement is confronted with a series of challenges. Technologically, lacking autonomous operational mechanisms within the relevant advanced technologies. Furthermore, accounting professionals often struggle to identify tasks suitable for AI delegation, leading to potential declines in efficiency. The security of these sophisticated technologies also remains a concern, as intelligent accounting systems could potentially lead to breaches of client privacy and subsequent losses. Given that accounting intelligence is still in its nascent stage, there is a significant shortage of standardized regulations and usage protocols, necessitating substantial human resources to standardize related formats^[7].

Beyond the technical shortcomings of New Quality Productive Forces in this transformation, the intelligent transformation of accounting itself remains contentious. It enforces strict adherence to rules and regulations, which are inherently human-designed and may contain imperfections. If AI executes these rules over extended periods without human revision, it could result in substantial financial losses for enterprises, ultimately impeding their progress towards high-quality development.

5.2 The countermeasures provided by New Quality Productive Forces for the intelligent transformation of accounting

To address the lack of autonomous operational mechanisms and the difficulty in matching AI with appropriate accounting tasks, current technologies can be leveraged to integrate and analyze existing accounting workflows, identifying specific tasks suitable for automation. Concerning security vulnerabilities, dedicated technical departments should enhance system firewalls and implement robust data protection mechanisms. Regarding the absence of standardized regulations, relevant policy-making

bodies should utilize advanced technologies to systematically gather existing accounting rules and AI usage specifications, facilitating the formulation of comprehensive guidelines for intelligent accounting. Furthermore, it is essential to broadly incorporate recommendations from renowned experts across various fields, harnessing collective wisdom to achieve optimal policy outcomes. Additionally, while minimizing manual intervention, dedicated personnel should be appointed to oversee the orderly progression of accounting intelligence.

6. Future Outlook on New Productivity and the Intelligent Transformation of Accounting

Under the dual influence of the accelerating evolution of New Quality Productive Forces and the in-depth development of the digital economy, the intelligent transformation of accounting is poised for breakthrough developments across multiple dimensions, including technological integration, functional upgrading, and ecological collaboration. It is set to become both the core engine for high-quality enterprise development and a critical vehicle for the practical implementation of New Quality Productive Forces.

New Quality Productive Forces will continue to provide robust support for this transformation. By leveraging advanced technologies, the transformation can undergo comprehensive upgrades, effectively mitigating existing uncertainties and security concerns. The utilization of sophisticated algorithms and code will realize higher-dimensional autonomous operations, injecting powerful momentum into enterprise high-quality development.

Furthermore, the intelligent accounting transformation will provide precise data underpinning for the development of New Quality Productive Forces. Relevant government entities can utilize a unified accounting data standard system to aggregate financial data and operational dynamics from various industries in real-time. Moreover, by enabling detailed analysis of green and low-carbon benefits, intelligent accounting will further promote the adoption of new quality green development concepts. This collaboration will facilitate the simultaneous achievement of high-quality economic growth and ecological environmental protection.

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