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The Development Path of Accounting Informatization in the Internet Era

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Abstract

Against the backdrop of accelerating global digital transformation, the deep integration of internet technology with the real economy is reshaping the development models of various industries. As a critical component of recording and managing economic activities, the accounting profession is experiencing an informatization process that has become key to enhancing enterprises' core competitiveness. Traditional accounting models increasingly reveal shortcomings in data processing efficiency, information-sharing capacity, and decision-making support, making them inadequate for meeting the demands of real-time, precise, and intelligent financial information in the internet era. Based on this context, this paper systematically analyzes the characteristics of accounting informatization in the internet era-namely real-time processing, information sharing, and intelligent applications. It reviews the evolutionary process from the initial stage of computerization to the development of informatization and the current exploration of intelligent systems, and further explores the profound changes triggered by internet technology in technical applications, business processes, and information requirements. Finally, it proposes targeted development paths to promote high-quality development of accounting informatization and provide theoretical and practical guidance for enterprises in their digital transformation.

Keywords

Internet Era; Accounting Informatization; Development Path; Data Standards; Information Security.

1. Introduction

With the widespread adoption of internet technologies such as 5G, cloud computing and big data, the global economy has entered into a new era which driven by digitalization. Business models, management philosophies, and technological architectures all has undergone disruptive changes. As a core tool for enterprise value management, accounting have evolved from its traditional role of bookkeeping and supervision into a strategic support. The level of informatization become an important indicator to measure the modernization of enterprise management. However, the accounting field still facing many challenges, such as serious data silos, low system compatibility and increasing security risks. Traditional accounting information systems is more and more unable to handle huge data processing or to support real-time decision-making [1-2]. Under this background, to clarify the development logic of accounting informatization in the internet era and exploring feasible upgrade paths not only can resolve problems like inefficiency and information delay, but also provide important support for enterprises to build digital competitiveness. This has great significances for promoting the transformation and upgrading of the accounting profession and serving high-quality economic development.

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2. Characteristics of Accounting Informatization in the Internet Era

The widespread application of internet technologies has brought new vitality into accounting work, and resulting in a series of new characteristics. First, data processing demonstrate a high degree of real-time capability. Economic transactions of enterprises can be transmitted to accounting information systems by the internet instantly, which enable the immediate processing of voucher entry, review and posting, and allow managers to keep track of the latest financial status at any moment. Then, information sharing has break through the constraints of time and space. With the help of cloud platforms and other technologies, accounting information can flows across internal departments as well as between enterprises, external partners, and regulatory authorities, which greatly improve the efficiency of information exchange and decision-making. Finally, intelligent applications have gradually penetrated in various aspects of accounting work. Intelligent algorithms now are able to automatically deal with repetitive tasks such like invoice recognition, voucher generation and tax calculation. This development not only enhance efficiency but also reduce the probability of human error, supporting the modernization of enterprise accounting practice.

Table 1. Characteristics of Accounting Informatization

Feature Name	Specific manifestations:	Functions
Real-time Data Processing	Business data is transmitted into the system in real time, and processes such as voucher processing and bookkeeping are completed immediately.	Managers can keep abreast of financial dynamics at any time, enhancing the timeliness of control.
Information Sharing	Relying on the cloud platform, seamless connection and efficient circulation of internal and external accounting information are achieved.	It breaks through the limitations of time and space, improving the collaborative efficiency of all parties involved.
Intelligent Application	Intelligent algorithms automatically handle repetitive tasks such as invoice recognition and voucher generation.	It increases efficiency, reduces errors, and alleviates the burden of repetitive work.

3. The Development Process of Accounting Informatization in the Internet Era

3.1. The Initial Stage of Computerization

From the 1980s to the 1990s, with the gradual popularization of computer technology in China, accounting began to break free from the constraints of traditional manual bookkeeping, marking the initial stage of accounting computerization. The computing power of computers provided a new tool for accounting, as enterprises successively introduced stand-alone accounting software, such as early versions of UFIDA and Kingdee, for basic functions including voucher entry, bookkeeping, closing, and financial statement generation. Accountants were required to undergo specialized training to master software operations, transferring work previously performed manually, such as maintaining general ledgers and subsidiary ledgers, into computer systems. Compared with manual bookkeeping, data processing became significantly faster and more accurate. However, due to technological limitations at the time, most computerized systems operated independently as stand-alone programs, with incompatible data formats across different software[3-4]. This prevented financial and business departments from sharing information, resulting in numerous “information silos.” Moreover, given the high cost of computer hardware, computerized systems were mainly adopted by large enterprises with strong financial resources, while small and medium-sized

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enterprises (SMEs) continued to rely primarily on manual bookkeeping. As a result, the coverage of accounting informatization was relatively limited.

3.2. The Development Stage of Informatization

Entering the 21st century, the rapid progress of internet technology broke through temporal and spatial barriers in information transmission, providing technical support for deepening accounting informatization and pushing it into a new development stage. The maturity of network technologies facilitated the spread of network-based accounting software. Enterprises could connect multiple computers within the finance department via local area networks (LANs), enabling centralized storage and sharing of financial data. Authorized personnel could access and process data in real time, significantly improving cross-functional collaboration efficiency.

The rise of e-commerce also shifted procurement, sales, and other business activities online, promoting integration between accounting information systems and business systems. For example, purchase orders could be automatically transmitted to financial systems to generate accounts payable vouchers, while sales data could be directly transformed into accounts receivable records, marking the initial formation of business-finance integration. As software costs decreased and operations became simpler, SMEs also began to adopt accounting informatization systems. Accounting information increasingly played a vital role in budgeting, cost control, and business decision-making. However, as the frequency of data exchange increased, new threats such as computer viruses and illegal intrusions emerged. Enterprises began to recognize the importance of preventing data leakage and system failures.

3.3. The Exploratory Stage of Intelligentization

The breakthrough development of emerging technologies such as big data, artificial intelligence (AI), and cloud computing has imbued accounting informatization with intelligent features, advancing it into the exploratory stage of intelligentization. AI algorithms, modeled on human cognitive processes, are now capable of performing functions such as automated invoice recognition, intelligent voucher generation, and automatic tax declaration. Some intelligent financial systems even apply machine learning to continuously optimize accounting rules, thereby reducing the need for manual intervention[5].

The maturation of cloud computing has given rise to cloud-based accounting platforms. Enterprises no longer need to build their own servers but can instead rely on cloud services accessed via the internet, significantly lowering the cost of informatization for SMEs and enabling them to enjoy the same benefits as large enterprises. Blockchain technology, with its characteristics of distributed ledgers and immutability, has demonstrated unique advantages in areas such as accounting data storage and transaction traceability, effectively enhancing the reliability of accounting information.

As a result, the focus of accounting informatization has shifted from simply improving efficiency to delivering greater value-added services. By leveraging in-depth analysis of massive datasets, it now supports enterprises in financial forecasting, risk assessment, and other strategic decision-making activities. Consequently, the role of accounting is rapidly transitioning from one centered on bookkeeping to one centered on management.

4. The Impact of the Internet Era on Accounting Informatization

4.1. Technology-Driven Transformation

The progressive iteration and upgrading of internet technologies have provided strong technical support for accounting informatization, triggering major transformations in the accounting field. Cloud computing enables centralized storage and remote access to accounting

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data. Enterprises no longer need to make large-scale investments in local servers, as renting cloud services provides stable and efficient support, thereby lowering the entry barrier to informatization. Big data technologies allow for in-depth mining and analysis of massive accounting datasets, extracting valuable information that offers data-driven insights for accurately identifying market demand and optimizing resource allocation. Artificial intelligence, through functions such as natural language processing and image recognition, has automated a large amount of repetitive accounting work, allowing accountants to focus more on financial management and strategic planning.

4.2. Business Process Restructuring

The advent of the internet era has broken through the limitations of traditional accounting processes, reshaping them toward higher efficiency and stronger collaboration. Traditional accounting workflows typically relied on post-event bookkeeping, resulting in delayed information output. In an internet-based environment, accounting information systems are integrated in real time with business systems, enabling business data to be automatically transferred into accounting systems as soon as transactions occur[6-7]. This ensures that business activities and accounting entries are processed simultaneously, shifting accounting work from lagged recording to real-time feedback. Cross-departmental and cross-enterprise collaboration has also become more feasible. Financial interactions between enterprises and their suppliers or customers can now be handled in real time through online platforms, significantly improving the efficiency of reconciliation and settlement, and greatly enhancing the financial coordination capacity of the entire supply chain.

4.3. Transformation of Information Needs

Intensified market competition in the internet era has been fundamentally changing the demand of enterprises for accounting information. Traditional accounting information, which usually present in the form of financial statements, mainly reflect past performance and current financial conditions, so it is not enough to meet enterprises' needs of anticipating future trends. Besides accurate historical data, enterprises are also requiring more forward-looking insight that can support strategic decision making, for example, how market dynamics influence financial results or early signal of potential risks. Moreover, the demand of information has expanded from only financial data to also include wider datasets that integrate business and market information together. Therefore, accounting information systems need to integrate multi-dimension data and to provide more holistic and multi-perspective supports, so that enterprises can better navigate in a volatile and fast changing market environment.

5. Exploring Development Paths of Accounting Informatization in the Internet Era

5.1. Establishing Unified Data Standards

Due to the lack of uniform regulations, accounting information systems in different enterprises often vary significantly in terms of data collection dimensions, indicator definitions, and storage formats. When sharing data across enterprises, a large amount of manual conversion is required, which not only increases operating costs but also risks data distortion. Such fragmented data management models severely constrain the application value of accounting information in scenarios such as supply chain collaboration and industry-wide data analysis. Regulatory authorities should work together with technical institutions to establish a national-level accounting data standard system. This would include unified specifications for data element definitions, coding rules, and interface standards, thereby providing a "common language" for data exchange across different systems. On this basis, enterprises should refine data dimensions according to their business characteristics, adopting standardized

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transformations to ensure seamless integration between internal financial and business data as well as smooth interaction with external partners and regulatory platforms. In this way, accounting data can truly become a "digital asset" that drives enterprise decision-making[8-9].

5.2. Conducting Regular Security Vulnerability Testing

At this stage of deep internet empowerment, accounting data has become a strategic asset at the core of enterprise operations. If the business secrets and financial information it carries are exposed to security risks, it may trigger a chain reaction of operational crises. Currently, many enterprises are equipped with basic firewalls but overlook the dynamic evolution of internal system vulnerabilities, such as compatibility conflicts caused by delayed software updates or blind spots created by overly concentrated access privileges. These hidden risks often become the entry points for security incidents. Enterprises should establish a full life-cycle vulnerability detection system and collaborate with third-party security institutions to conduct quarterly in-depth testing, focusing on key areas such as encryption algorithm strength, user authentication mechanisms, and abnormal login behaviors. Detected vulnerabilities should be classified by impact scope for repair, while security policies and contingency plans should be updated accordingly. Simulated attack drills should also be conducted to enhance employees' emergency response capabilities, forming a comprehensive security management framework that ensures the stable operation of accounting information systems in complex network environments.

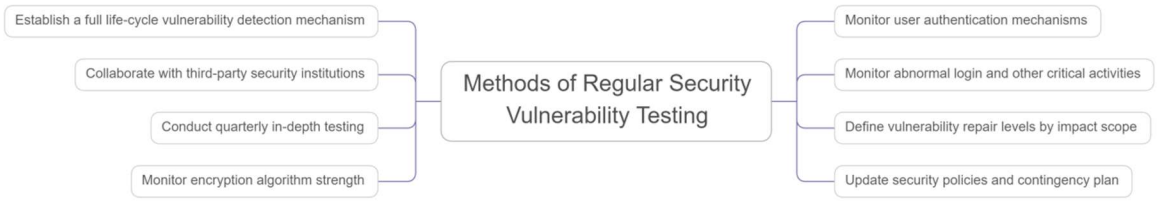

Figure 1. Methods of Regular Security Vulnerability Testing

5.3. Building Integrated Information Systems

Due to various constraints, many enterprises still maintain accounting information systems that are separate from procurement, production, and sales operations. Business data must first be manually sorted before it can be entered into financial systems, leading to delays in financial reporting and risks of transcription errors that undermine the accuracy of financial information. This "business first, accounting later" model prevents finance departments from engaging in risk control at the business front end, weakening the role of accounting information in supporting managerial decision-making. To address this issue, enterprises should leverage cloud platforms to develop integrated financial-business information systems. By using unified data interfaces, accounting systems can be deeply connected with supply chain management, production execution, and customer relationship management systems. The system can automatically convert business data such as purchase orders, material requisitions, and sales shipments into financial vouchers, generating real-time cost accounting and capital utilization reports. This enables financial staff to shift from back-end bookkeeping to full-process monitoring, thereby providing real-time data support for decisions such as inventory optimization and pricing strategy adjustments, and facilitating the transformation of enterprise management from "post-event analysis" to "real-time control."

5.4. Establishing Collaborative Work Mechanisms

In the internet era, the establishment of collaborative mechanisms has become a core requirement of accounting work. Enterprises should break down departmental silos and build

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internally and externally connected collaborative systems. Internally, finance departments should establish regular communication mechanisms with business departments through periodic meetings and shared data platforms to jointly optimize business processes and data standards, ensuring that accounting information accurately reflects business realities. For example, sales and finance departments can jointly formulate revenue recognition rules and update related order and collection data, thereby avoiding delays or inconsistencies[10].

Externally, enterprises should use digital platforms to establish real-time interaction channels with banks, tax authorities, supply chain partners, and customers. This allows for the automation of functions such as electronic invoice delivery, online account reconciliation, and one-click tax filing, simplifying traditionally cumbersome manual processes. Deepening collaborative mechanisms can eliminate information silos, enhance the efficiency of accounting processes, and enable multi-dimensional data integration. This, in turn, provides real-time decision-making support for management, reduces operational risks, and strengthens the enterprise's capacity for agile responses in a dynamic business environment.

6. Conclusion

In summary, accounting informatization in the internet era is the inevitable result of the deep integration of technological innovation and industry development. Its characteristics continue to evolve with technological advances, having progressed through the stages of computerization, informatization, and intelligentization, and achieving qualitative leaps in technology application, process restructuring, and information demand. Facing emerging challenges, the key pathways for sustained progress include establishing unified data standards to break information barriers, reinforcing security defenses to mitigate risks, building integrated systems to enhance coordination, and establishing collaborative mechanisms to optimize operational models.

Looking ahead, accounting informatization must continue to keep pace with technological frontiers, deepening its role in enterprise decision-making and risk management to better adapt to the demands of the digital economy. In doing so, it will provide lasting momentum for the transformation of the accounting profession and contribute to the high-quality development of the broader economy.

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