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**Cloud accounting: A new business model in challenging context of China**

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# Cloud Accounting: A New Business Model in Challenging Context of China

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## Abstract

This paper reviewed literatures related to cloud accounting that published during 2013-2019 to make a comprehensive analysis of the impact of cloud accounting in China. This paper is organized to answer three questions: (a) how cloud accounting a new business model in China, (b) how does cloud accounting influence the business in China and (c) what the accountant's perspective in China is. By comparing the cloud accounting with tradition accounting, we answered the first question. In the second question, this paper explains from the perspective of opportunity and risks. In the third question, this paper analyzes from accountant, accounting discipline and accounting work. All the influence and characters of cloud accounting mentioned in this paper are all based on Chinese social background. This paper promotes the exploration and innovation of the basic theory of accounting informatization and provides a theoretical basis for Chinese enterprises to use cloud accounting.

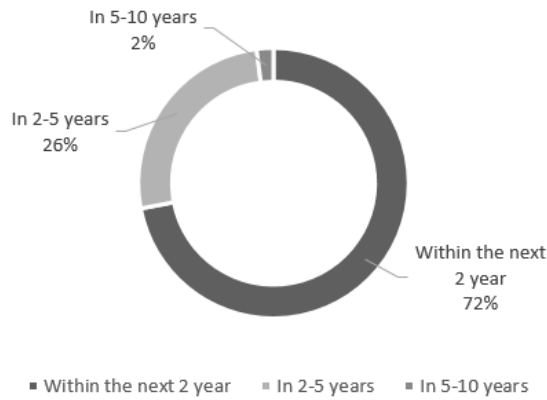
*Keywords:* cloud accounting; cloud computing; accounting software;

## 1. Introduction

In 2013, ACCA and IMA published a report on the technology impact. This report lists top ten technologies that have the capacity to influence the future of business. Cloud technology is in sixth. The following pie chart shows people's expectation of widespread adoption of cloud-based system. Almost 72% expect Cloud based system will be widely used in next 2 years, and only 2% expect in 5-10 years. Accountants and finance departments increasingly adopt cloud computing, the consensus is that cloud computing will be important.

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**Figure 1**  
**Expectation of Widespread Adoption of Cloud-Based System**



(Source: ACCA-IMA, Digital Darwinism, 2013)

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Cloud accounting is a derivative of cloud computing. Wu Min (2018) defined cloud computing respectively in the broad sense and in the narrow sense. In broad sense, cloud accounting is a web service that combines delivery and application patterns together, which are available through the network. In narrow sense, cloud accounting is defined as an internet infrastructure that combines delivery and application patterns, and users pay fees through the internet and get the corresponding service. From the perspective of service mode, there are three types of cloud accounting, which are IaaS (Infrastructure as a Service), PaaS (Platform as a Service) and SaaS (Software as a Service) (M Marand et al, 2013).

Recent years, the global digital economy is booming, gradually becoming an effective driving force for economic growth. China has entered a new era in which digital economy leads economic development. Another condition is "Internet +". "Internet+" refers that people effectively link various industries to create a certain correlation by using internet technology (Ru, 2019). Ru Guoteng (2019) points out that "Internet +" brings accounting industry severe challenges, including management mode and control mode. Under the influence of "Internet +", Big Data, Internet of Things and other emerging technology has attracted the attention of many scholars. Ning Yangyang et al (2019) analyze cloud accounting from the perspective of Big Data. Big data technology has been applied in the diversified fields of modern enterprise management, greatly impacting the traditional management accounting. They found the security of accounting information is the most influential factor for cloud accounting, while network security a system security has little influence. Xu Jinye and Xu Lin consider the application of Internet of Thing. They point out that the development of the Internet of Thing enables enterprises to enter the era of "Big Data" from the era of "Small Data", but it contains huge amount of unstructured data processing which only can be realized by computing technology.

Gradually, traditional accounting can only meet basic financial needs but cannot satisfy the financial needs in the era of big data. Cloud accounting is a new business model with high reliability, high expandability and high cost performance (Yuan et al, 2019). Wu Qi (2017) points out that cloud accounting is the optimization of traditional accounting principles and business process.

Due to various reasons, the accounting informatization developed very slow in China. More than 60% enterprise does not have a network security system and less than 11% of enterprises have complete the construction of all CAD, OA, AND MIS system (Wan Sinong, 2019). Compared with other countries, cloud accounting started late in China, and is an emerging technology and service (Geng Zhao, 2015).

In the existing literature, people did some research on the comparison between cloud accounting and traditional accounting. Bradshaw et al (2011) believe that cloud accounting has a greater flexibility than traditional accounting, but people are less certainty for the data location and any contract's legal foundation. Shaban Mohammadi and Ali Mohammadi (2014) predict the that cloud accounting software will be widely used. They list advantages and disadvantages of using cloud accounting by comparing with traditional accounting. For example, cloud accounting can accelerate time, follow without physical presence and connect to other computer system, but it requires a constant internet connection and does not work well at low speed.

In addition, Otilia Dimitriu and Marian Matei (2015) emphasize the lack of meaningful academic sources regarding the cloud accounting model in their report. They mention that although this technology has been known, few people wrote papers about it. Geng Zhao (2015) says although cloud accounting's market share is not high, its prospects are huge, so it is necessary to make some research. Some papers discuss from one specific aspect. Some discuss from a

macroscopic perspective. However, there is no outstanding cloud accounting product in China that can make impact on existing accounting information system. And there is a lack of a systematic analysis of cloud accounting which focus on China's current social background. China develops very fast during these years. Recent years, China adjust and optimize the layout of China's strategic scientific and technological forces (Pan, 2019). Therefore, this paper will focus on China's current social background to analyze the cloud accounting.

Three questions will be answered in this paper. The first question is how cloud accounting a different business model in China. The second question is how cloud accounting influences the business in China. The last question is what the accountant's perspective is in China. This paper uses three research method, which are literature research method, comparative analysis method and case analysis method. Though these methods, this paper collects enough information background for supporting.

## **2. How is cloud accounting a different business model in China?**

Cloud accounting is an accounting information system formed by using cloud computing technology, which can be understood as an organic combination of traditional accounting information and cloud technology (Zhang, 2019). Cloud accounting is considered as a different business model in China, because when companies buy cloud accounting software, what they actually buy is accounting service instead of just a software. The appearance of cloud accounting change the relationship between enterprises and software provider, providing a different business cooperation model.

The development of accounting software in China has gone through several stages. During 1978-1996, manual accounting software appeared, which was based on Disk Operation System. This accounting software was used to replace manual bookkeeping, so it just needed to have bookkeeping function. After 1996, Windows system was invented. As the Windows operating system matures, the accounting information system began to involve the management content of the enterprise. Some company's system like invoicing system and physical management system are all included in the company's accounting software (Zhao Yashan, 2016). In traditional accounting, two models are used in Chinese companies and enterprises. One is accountants manually write accounting vouchers and edit accounting statements. This model has been eliminated by the times (Xing & Zhang, 2017). Another one is accountants use traditional accounting software to enter data and generate report. This model is most common in China. Recent years, cloud computing-based accounting software appears in China's software market. The most popular cloud accounting products in the Chinese market are Kingdee Jingdou Cloud Accounting, Yongyou Cloud Accounting and Inspur Cloud accounting.

How the cloud accounting become a different business model in China can be reflected in the cloud accounting software. Following is the comparison of China cloud accounting software and traditional accounting software.

### *2.1 System Construction and invested cost*

Traditional accounting is based on Self-built system (Zhao Shuli, 2018). In the preliminary stage, company needs to invest a large amount money to purchase financial software, databases and firewalls. The company also needs to introduce the necessary infrastructure. In the later stage, the company should routinize the maintenance of the system, and also update the software in time.

Company that uses cloud accounting software construct its system on external platform. Company leases cloud accounting service platform from website. The Cloud accounting greatly save the cost (CaoYuanchun, 2018, Wu Min 2018, Chen Xumin, 2019, Geng Zhao 2015). After the company registers an account on the website, they can enjoy the cloud accounting service. Software service providers will be responsible for the normal operation and update of the software. Many cloud accounting software develop multiple channels that allows companies to enter information from both computer and mobile phone. For example, Kingdee Jiindouyun provides three ways to access the service: APP, Website and applet.

## *2.2 Data storage*

Traditional accounting software adopt centralized storage technology (Jin Tianjiao, 2019). Centralized storage technology means that all the data and calculation are completed on a host computer. The central computer is connected to multiple terminals. The terminals are used for input and output and does not have data processing capability. All calculations and data storage are performed on the host computer. However, centralized storage technology has a very obvious problem. Although host computer has excellent performance and stability, the host computer may break down. Once the host computer fails, the entire system will be unavailable. In addition, with the rapid increase of data and user, computer systems are also growing in size, which puts forward higher requirements for data storage.

Cloud accounting software adopt distributed storage technology, which means the data is stored on multiple independent devices (Geng Zhao 2015). Under this technology, the data capacity space is very huge. The transition from centralized storage to distributed storage has become a trend, like the 'Take off IOE' program of Alibaba. In 2008, Alibaba put forward 'Take off IOE' program. The biggest purpose of this program is to update the IT architecture. Its mainframes represented by IBM, relational database represented by ORACLE, and high-end storage equipment represented by EMC are all replaced by new cloud computing technologies. Alibaba's e-commerce system entered the era of distributed systems.

## *2.3 Update*

Traditional accounting software generally has a bookkeeping, report editing and other functions. When the accounting industry has new changes, the traditional software needs to wait for the update or reinstall of the system (Zhao Shuli, 2018). For example, if new laws and regulations were issued, enterprises may need to make some change to the accounting treatment method. However, it is difficult to add a new function to the traditional accounting software. So the company has to let the system down for update or install new system.

The update of cloud accounting was responsible for the service provider. The service provider has a more professional team for maintenance and update (Tian Zhiguo, 2019, Geng Zhao 2015). When the system needs to update, the accounting service will not be suddenly interrupted, which ensures the progress of accounting work.

## *2.4 Collaboration between different areas*

Traditional accounting software only be used in local area network, so it has a high space limitation. Cloud accounting software is more flexible to use. The system can be accessed anytime

and anywhere through the Internet, which can solve the problem of difficult coordination in different places.

**TABLE 1**  
**Comparison of Cloud Accounting and Traditional Accounting**

	<b>Cloud Accounting</b>	<b>Traditional Accounting</b>
<b>Invested Cost</b>	Rental expense of software and little investment in hardware	Heavy investment in hardware and later maintenance
<b>System Construction</b>	Lease external platform	Self-built system
<b>Data Storage</b>	Distributed storage technology	Centralized storage technology
<b>Update</b>	Service update without interrupted	System down for update
<b>Collaboration Between Different Areas</b>	Terminal equipment and internet.	Local area network

### 3. How does cloud accounting influence the business in China?

#### 3.1 Reduce the cost

Cloud accounting service does not require the company to invest money and human resource on the hardware, office space, the later maintenance and update. The company only has to pay the software lease expense, which can also be paid in monthly installments, without the need for a one-time payment (Chen Xumin, 2019). Monthly installments can release enterprise' financial pressure to a certain degree. Table 3 shows the yearly expense of three popular cloud accounting software in Chin. Compared with the traditional accounting information system, the investment of cloud accounting is very low.

**TABLE 2**  
**The Software Expense of Three Cloud Accounting Software in China**

	Kingdee Jindou Cloud	Hao Kuai Ji Cloud Accounting	Inspur Cloud Accounting
Software Expense	798 RMB/year	Learning edition: 498 RMB/year Standard edition: 898 RMB/year Professional edition: 1998 RMB/year	Standard edition: 468RMB/year Personal edition: Free

When using traditional accounting system, companies need to spend a lot of money on hiring professional teams to train their accountants on the use of software. However, during the application of cloud accounting software, due to the simple operation process of cloud accounting software, accountants can learn how to work with the cloud accounting software by using the accompanying tutorial video. Some software even provides professional training platform for users. For example, Kingdee has a Jindou Cloud practical training teaching-platform. This platform

integrates learning, practice, testing and assessment in a unified manner. Kingdee also applies this platform to the course teaching and examination management in colleges and universities.

One final point, in the early stage of establishment, small and micro businesses will reduce their expenses in various aspects in order to survive. Instead of setting up a special financial department, they could find bookkeeping agency to do tax reporting and accounting. The bookkeeping agency is widely favored by small and micro businesses because of its relatively low fees. Cloud accounting software could provide not only the software but also the bookkeeping agency service (Geng Zhao 2015). The small and micro businesses could have a more professional team to deal with company's accounts with little money.

### *3.2 Improve work efficiency*

Traditional accounting software needs to be used under the local area network, while cloud accounting service does not, so cloud accounting allows the accountants to work anywhere at any time, as long as there has network and a terminal. Cloud accounting makes virtual office possible (Shi Qunan, 2016). Enterprises do not have to bear the expense of owning or leasing a traditional office.

By using cloud accounting service, the company could achieve the timely sharing of financial data. Accountants can overcome the time and location constraints to communicate directly with customers, suppliers and intermediaries. Within the company, managers can quickly query the financial business data of subsidiaries through the cloud accounting service platform, which will benefit the improvement of corporate management efficiency and financial monitoring efficiency.

Cloud accounting can extend the accounting software's function to improve the work efficiency. For different industries, cloud accounting will provide different service. Companies can choose services according to their own needs. Cloud accounting is based on internet information technology, and its storage space is not limited, so it can acquire new technology in the first time and ensure the rapid adjustment of enterprise financial information. There are many examples of the function extending of accounting software. Take the cooperate of Kingdee and Guanyiyun as an example. Guanyiyun C-ERP is a one-stop solution for the stocking-selling-storing business of e-commerce enterprises. Kingdee cloud accounting software provides comprehensive financial accounting system. The combination of Kingdee and Guanyiyun provides more complete financial business functions for e-commerce. Cloud accounting software can also combine with payment system, like Alipay, for financial reconciliation.

### *3.3 Concerns and risks*

Cloud accounting can bring a lot of benefits to enterprises. Especially in the age of Internet, Cloud accounting can be seen as an important resource to improve enterprise competitiveness. However, the cloud accounting still faces many risks and problems in China. This paper mainly analyzes two points. The first point is the security of accounting information. For enterprises, accounting information is high confidential, so security risk has always been the most concerned issue. The second point is the resistance and negative impact that brought by traditional thinking and traditional accounting.

In the context of big data, business accounting information is no longer kept in the archives room in the form of account book and vouchers, but is stored in the cloud database. On the one hand, cloud accounting is free from space constraints. On the other hand, cloud database makes

the enterprises face some security risks. Cloud database is a virtual storage system. If the cloud database, suffered from malicious code, the password is stolen or virus invaded the system, enterprise accounting information security is seriously threatened (Ning & Liu, 2019). Enterprises will face the risk of information tampering and theft. The security risks also exist in the conversion of accounting information. Accounting information is becoming more diversified than before. In addition to digital information, information of text, pictures, voice and video are increasing, which required the cloud accounting system could accurately transfer the unstructured information to structured information. However, if operator error or other unexpected conditions occur during the conversion process, the authenticity of accounting information will be affected. During the transportation of accounting information, massive access and exchange of data information may cause data delay and network congestion (Ning & Liu, 2019). If the network is severely disabled, accounting information will be lost.

In China, small and medium-sized enterprises have exceeded 40 million by the end of 2016, accounting for more than 90 % of the total number of enterprises and contributing more than 60% of China's GDP (Guo, 2019). Therefore, China's small and medium-sized enterprises are playing a decisive role in the national economy. Because big enterprises are difficult to switch to cloud accounting immediately, cloud accounting users are mostly concentrated in small and medium-sized enterprises, but only a few small and medium-sized enterprises are using cloud accounting (Geng, 2015). One of the reasons is that many small and medium enterprise do not fully understand the convenience and value created by cloud accounting and have doubts about whether they need to use such an information platform (Wu Min 2018, Chen Xumin, 2019). The cloud accounting stored the business accounting information on the cloud database, so the cloud accounting software providers have access to their important information. This increases the concerns of enterprise managers who prefer to hold the data in their own hands. In addition, because of the small scale, small business volume and weak economic strength of the small and medium enterprise in China, few companies want to invest too much money in the construction of accounting information system. (Zhang & Wang, 2019). Many companies still use the traditional manual bookkeeping method and believe they can handle daily operations well without using cloud accounting (). Recent year, China strengthen the propagation of accounting Informationization, but how to break their traditional thinking is still a tough task.

The cloud accounting software that are popular in China have many shortcomings. Software like Yonyou cloud accounting software can meet the needs of most enterprises. However, its strong universality caused it to lose the pertinence, so it cannot effectively combine with the organizational structure of the enterprise and is more difficult to meet the diverse needs of the enterprise in the future (Zhang & Wang, 2019).

#### **4. What is the accountant's perspective in China?**

In 2013, ACCA and IMA published a report on the technology impact. This report mentioned that ACCA and IMA members were asked how they expected the cloud accounting affect their career in the future. These members expressed that accountants may no longer be required (2013). In 2019, Shanghai National Accounting Institute launched 'Top Ten Information Technology Affecting Chinese Accounting Industry'. thorough social mobilization, industry recommendation, expert selection, questionnaire survey and other methods, cloud technology stands out as the first place with 72.1% vote rate. This result shows that, in China, cloud technology has a huge impact on accounting industry and has aroused the attention of accounting professionals.



#### *4.1 Accountants*

The number of accountants in China has reached nearly 20 million in March 2018. Cloud accounting will provide comprehensive accounting service to enterprises. The demand for accounting professionals will decreased in enterprises, but the demand for accounting professionals will increase in cloud accounting provider. The increasingly intelligent information processing system will allow an accountant to deal with many enterprise tasks at the same time. The employees that engaged in basic accounting operations no longer employed in large numbers and more and more accounting jobs have been replaced. Traditional accountants face the risk of being liminated (Shi Qunan, 2018, Guo Jieying, 2018).

The cloud accounting also puts forward higher requirements for accounting professional ethics (Shi Qunan, 2018). When they deal with the business information, they must guarantee not to disclose the secrets of any company.

#### *4.2 Accounting discipline*

The advent of cloud accounting has made it possible for the financial accounting system to achieve convenient, institutionalized, and standardized. The emphasis of accounting discipline will shift from the accounting and supervision to the forecasting and decision-making of management accounting (Guo Jieying, 2018).

#### *4.3 Accounting work*

Computer technology has developed rapidly in the contemporary accounting industry, and many cutting-edge information technologies will definitely push forward the profound changes in accounting. The management function of accounting will become the primary function of accounting (Zhao Yashan, 2006).

### **5. Conclusion**

In China, there is a word to describe the challenging context of China, which is ‘Da Zhi Yi Yun’. ‘Da’ means big, so it represents big data. ‘Zhi’ represents intelligence. ‘Yi’ represents mobile internet and ‘Yun’ represents cloud computing. The proposition of this concept not only reflects the closeness of the connection between these four information technologies, but also forecasts the coming of the information age. In the information age, the way people live and work is changing. Nowadays, people rarely need to bring cash or bank cards. They use We Chat or Alipay. Mobile payments replaced traditional payment methods. Similarly, in such an era, if enterprises want to have a sustainable development in the future, they need to make changes in business management model. Therefore, the requirements for enterprise accounting will inevitably change and challenged.

Cloud accounting is an emerging technology and service, which is very different from traditional accounting. However, in China, the cloud accounting has less service platforms, the market share of cloud accounting software is not high, and the public awareness of cloud accounting is low. The enterprises need to realize the potential of cloud accounting is huge. Especially in China that dominated by SMEs, cloud accounting can be a powerful competitive tool.

The paper also reveals the risks of cloud accounting, especially information security which is the biggest concern for enterprises. Thousands of years of traditional culture has made Chinese

business behaviors tend to be more conservative and compliant. The emergence of cloud accounting also brings an impact on the accounting industry. It increases the difficulty of accounting personnel employment, and also makes the accounting function focuses more on the management level. Some people think the cloud accounting will replace the accountant in the future. In fact, the emergence of cloud accounting does not mean the end of the accounting profession, but the use of information technology to achieve a leap in accounting work.

In short, with the gradual maturity of big data, mobile Internet, Internet of Things and other technologies in China, Cloud accounting will certainly become a new stage of the development of accounting informatization. The enterprise will establish an accounting information management and analysis platform that does not require pre-capital construction. By paying extremely low fees on time, they can use cloud accounting products on the Internet at any time and get real-time services based on their needs. At the same time, enterprises can purchase information services according to different needs of their business development.

This article does not intend to put forward specific methods and suggestions for the problems existing in cloud accounting. Therefore, more researches are needed in this area. Another limitation is that due to the short research time, the cloud accounting products mentioned in the article could not be researched in depth. But in the actual application of cloud accounting software, more details of the product will be involved.

This paper has two theoretical contributions. Firstly, this paper promotes the exploration and innovation of the basic theory of accounting informatization and provides a theoretical basis for Chinese enterprises to use cloud accounting. After China enters into this rapid developed era, accounting is facing new requirements and challenges. Secondly, this paper can provide some practical guidance for enterprise in China to apply cloud accounting. This paper lists some risks and opportunities. The application of cloud accounting in China is still not mature, which means China faces more problems than some other countries. In order to give more practical theories, this paper also refers to some domestic accounting software.

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