

# Research on Optimization of University Financial Informational Construction in the Era of Big Data

## Taking X University as an Example

Lin Yang

Jingdezhen Ceramic Institute  
Jingdezhen, China

**Abstract**—With the advent of the big data era and the rapid spread of the concept of financial information sharing, the construction of financial informational in colleges and universities has become a hot topic both in academia and practice field once again. Based on this, this article uses case analysis method to systematically analyze the problems and solutions adopted by X university in the process of financial information construction, with a view to providing experience for other colleges and universities to learn from. First of all, this paper points out a series of problems that colleges and universities financial information construction generally faces in the era of big data. Then, combined with the specific practice of X university, and closely linked to the core difficulties of "financial information island" in-depth exploration, put forward the idea of using big data combined with modern information technology to build financial data as the core data exchange platform. This platform can wake up the financial data which sleeps in various business systems and truly crack financial information "island effect." Finally, it systematically points out which X university should be used for reference and study in process of financial information construction, and put forward feasible suggestions on the construction of university financial informational in the new period.

**Keywords**—college finance; informational; big data

### I. INTRODUCTION

As an important part of national education, colleges and universities are of great significance to China in building a civilized society and enhancing the level of spiritual civilization among all the people. Meanwhile, colleges and universities have trained a large number of outstanding talents for the modernization of our country and have delivered a steady stream of backbone forces to the rise of great powers and the rejuvenation of China.

However, the financial work in colleges and universities has not received due attention in the past, nor did it give full play to its support role in the promotion of education level in universities. In recent years, some universities are corrupt, financial fraud and other events have also occurred, which has raised higher requirements for financial work in colleges and universities. In my opinion, make full use of the advantages of information transmission and financial data sharing under the era of big data to make the optimization of financial informational construction in colleges and universities, make

colleges and universities financial informational disclosure more open and transparent, colleges and universities financial accounting more standardized, colleges and universities financial management to a new level is imminent.

The paper first sorts out the common problems faced by the domestic colleges and universities in the construction of financial information. By means of case analysis, the author systematically introduces the advanced practices of X University in the process of financial information construction so as to provide reference for the practical application of work and help promote the construction of financial information in colleges and universities all over the country.

### II. THE PROBLEMS FACING FINANCIAL INFORMATION CONSTRUCTION IN DOMESTIC UNIVERSITIES

#### A. Financial Information Construction Investment Inadequate, the Lack of Strong Support

For a long time, the internal structure of domestic colleges and universities is generally dominated by the teaching department, supported by administrative, logistics support and other supporting departments. Basically, no matter in engineering colleges or art colleges or universities, financial departments belong to the non-focus of the object, and decision-makers invest more energy and funds in various academic departments or scientific research platforms, seriously restricted the optimization of financial information construction in colleges and universities. On the one hand, colleges and universities in the financial informational construction on the investment is not enough, funding is not sufficient, leading to the slow progress of financial information technology, many can rely on accounting computerization or information platform to complete the work is still rely on manual review of information and through paper delivery, leading to serious information asymmetry and increasing the inconvenience of financial work. On the other hand, financial officers are in a disadvantageous position in the school's performance allocation and job title assessment, which seriously disrupts the enthusiasm of financial staff. At the same time, many universities are located in relatively backward cities, and the informational level of staff in the whole school is not high enough. For many new information technologies, they are in a state of resistance and fear. Therefore, it is even more

necessary for the school leadership to strongly promote information construction and, if necessary, go through administrative orders way to speed up the construction of financial information.

*B. Digital Campus Module a Single Function, the Data Exchange Channel Is not Smooth Enough*

So far, statistics show that many colleges and universities digitized campus function is too single, some colleges and universities only integrated the business system to do a single sign-on, although the solution to the problem of different system account password, but did not build based on the various system data center, the application system cannot be achieved between the data transmission and exchange. As far as the financial data are concerned, it is still impossible through the digital campus platform to obtain the student status information, and the information of scientific research projects and so on, the financial data cannot be fed back to the educational administration system, all - purpose card system or the like. The exchange of application data by various departments relies on the form of paper or spreadsheets, which seriously reduces the efficiency of data transmission and the accuracy of data. This not only causes many work processes to be artificially slowed down, but also often leads to tug of war between business departments, caused a lot of manpower and material waste.

*C. Large Amounts of Data "Sleeping" in the Decentralized Business Subsystem, Did Not Effectively Play a Big Data Effect*

At present, most of the financial systems used by colleges and universities basically include a number of sub-modules such as accounting management system, salary management system, charging management system and online comprehensive inquiry system. Basically, each business system has a clear division of the corresponding functions and can meet the financial accounting requirements of each part. However, the data query results of each system are single, all the data generated by the business systems are not collected and analyzed uniformly, and the data is only data is always "sleeping" in the system, lacking a unified information sharing platform. On the one hand, fragmented system data hinders the exchange of data between financial data and other business systems. Other business systems need to extract the required data from multiple financial subsystems, and the data formats are diverse and often cannot be unified. On the other hand, the data stored simply in the various business subsystems cannot meet the needs of the management status quo. The scientific management of colleges and universities needs to fully excavate the useful information from the financial data to promote the long-term scientific development of colleges and universities. For example: through efficient budget execution and performance appraisal, we can determine which businesses in colleges and universities should focus on support; through analyzing the salary and salaries of teachers and staff in combination with the titles or positions, we can understand the salary structure of school faculty and make more reasonable distribution of performance salary and transfer staff enthusiasm and so on.

*D. Talent Structure Imbalance, Lack of Compound Talents*

According to statistics, there are different degrees of talent structure imbalances in domestic colleges and universities. Some financial personnel in some colleges and universities are mostly spouses who adjust with the introduction of high-level talents in schools. They lack the professional background of finance and accounting or computer technology, and fail to meet the demand of school financial accounting well. Although some finance staffs of colleges and universities are mostly professional accounting origin, but the level of accounting computerization is not enough, and departments do not have financial knowledge and computer technology in a composite professionals, many of the time to rely on software operators to complete the system settings, software routine maintenance work, high cost and low efficiency. There are still some colleges and universities that have a small number of professionals, but are generally older, the age structure of the financial department is not reasonable and it cannot provide sustained and powerful support to the construction of financial informational. The existence of all the above phenomena makes the promotion of financial informational work rather slow. On the one hand, financial information needs financial personnel have a higher information level, not just a simple operation of the business system, but rather should understand the data between the various business systems to better handle the data between business systems mutual transformation, so for most accounting personnel information technology requirements will be higher. On the other hand, due to the lack of information technology professionals, in the use of financial software, or in the implementation of the new system, over-reliance on the software company's support and support. In many cases, the geographic distance between a software company and a university is too far away, in the event of a problem, most of the time, remote assistance is only available, which is inefficient and has a high network risk.

*E. Financial Department Internal Control Mechanism Is Weak, High Security Risk of Financial Data*

Today, all financial data is electronically based, and traditional financial sector internal control mechanisms do not involve much in the area of electronic data. On the one hand, the routine maintenance and backup of all the financial data of many universities depend on the part-time handling of some financial personnel. Without corresponding supervisory mechanisms and personnel backup solutions, data instability is easily caused. On the other hand, although some colleges and universities have set up a financial private network, in order to facilitate their work, financial offices and campus networks are connected to each other through dual WAN port routers or a USB network card installed in each computer. Although this is convenient the work of financial staff, but the financial private network exposed in the public network, the financial data security is a great threat, how to take into account the convenience and security of the financial network has become a major problem for many colleges and universities.

Through the above analysis, we can see that the reason why the construction of university financial information failed to achieve a qualitative leap in addition to the objective conditions, there are subjective factors. To solve these problems, we must

co-ordinate the various departments and mobilize the enthusiasm of faculty and staff to jointly promote the optimization of financial information construction. Next, take X university as an example to understand the various measures and results X university took in the process of financial informational in order to provide valuable experience for other colleges and universities in China.

### III. CASE STUDY — OPTIMIZATION OF UNIVERSITY FINANCIAL INFORMATION CONSTRUCTION OF X UNIVERSITY

#### A. X University Financial Information Construction Basic Situation Introduction

X University is located in China's central non-provincial capitals, is a typical multi-disciplinary undergraduate college in China, more than 20,000 students, serving staff and retired staff of more than 1,500 people. The planning and finance department undertook all the school financial planning and related work such as income and expenditure. At present, there are 20 financial officers in the department, and the age structure is relatively young. X university financial informational work started from the late 90s of last century, and basically completed the accounting computerization work by the beginning of the 21st century. In 2013, it started to use Shenzhen Haotian's Tiancai financial management software. At present, the system that has been running smoothly includes financial accounting system, the wage income system, student fees management system and online integrated query system, the basic financial income and expenditure to complete the school related work. In terms of hardware and network, with four independent data server, stored in the school computer room centralized management by the network center, at the same time has established a relatively independent financial private network.

Overall, X university's planning and finance department has been improving its financial informational. However, due to its late start and slow progress, although it can basically meet the needs of its financial revenue and expenditure, it is indisputable that the overall financial information level is low fact. Under the background of big data, X university is trying to solve the problems encountered in the financial management of colleges and universities by improving the level of financial informational.

#### B. X University Financial Informational Construction Optimization of the Expected Goal

At present, X university has begun to deploy the next phase of financial informational work, through the establishment of financial digital campus platform, the implementation of online reservation system, the online payment system and banking school internet mechanism, open up various financial business subsystems in the data channel, to achieve financial data sharing. Gradually began to implement the financial services of mobile, through the establishment of financial we chat public number, financial digital platform mobile terminal, to achieve financial services, real-time and effectiveness. Through big data and other internet technologies, we can solve the problems of reimbursement in the current financial management of

colleges and universities and provide more refined financial services.

### IV. THE SPECIFIC POLICY AND EFFECT OF THE OPTIMIZATION OF FINANCIAL INFORMATIZATION CONSTRUCTION IN X UNIVERSITY

#### A. *Perfecting the System Design, ensuring the Smooth Advancement of the Financial Informatization Construction Work*

In view of financial information construction investment limited and insufficient support, under the leadership of president X university, the department of finance working group has been set up, which is mainly composed of finance, personnel, asset management, bidding and procurement, logistics support and other departments, established the important position of financial work. In addition, the members of party committee of X university have formulated a long-term funding plan, focusing on providing financial support for financial software updates and the introduction of financial information talents. The working group coordinates with each other in the work, resolves the problems encountered in the process of financial informational construction, coordinates the coordination among the departments, and ensures the transfer and convergence of the business data between the departments. And in the whole school scope to promote the financial information results, through the organization of financial software training in the whole school, widely publicize the role and significance of financial information construction, create a good information construction environment, prompting the teachers to use financial information software correctly, to guide everyone to fully feel the changes brought about by information technology and willing to participate in it.

#### B. *Multi-sector Work Together to Create a Data Sharing Platform to Help Build Smart Campus*

In order to solve the problems such as the insufficiency of the digital campus module and the asymmetry of the internal information, under the impetus of the working group of the financial informational construction, X University makes great efforts to build the modern data sharing platform with the core of financial data. On the basis of the existing digital campus platform, the school's teaching, personnel, scientific research, assets, students and other basic data and financial data collection and integration, build a perfect database, at the same time do a good job of data standards, and clean and tidy storage. Then the newly constructed basic data database into the digital campus system construction. The rearranged data can be used by various departments to exchange business systems, which helps to break the information isolated island problem among various departments and achieve data exchange and sharing among business departments in all departments. To this end, X university also in the teaching of the building inside the establishment of self-help inquiry terminal, the staff can find out the salary and the details of consumption, as well as through the auxiliary module in time to understand all kinds of financial information related to it, students can also timely inquiry books borrow, tuition and other payments. These measures have greatly reduced the cost of information users,

and breaking the "information island effect", which really means that the school's financial information construction has made a major breakthrough.

*C. The Use of Big Data Technology, Depth Mining Financial Data and Improve Financial Services Level*

In the era of big data, the value of data resources generated by all economic operations in colleges and universities will be greatly magnified. X university relies on the modern data sharing platform and classify and classify all the data and fully tap and analyze the future applications in all aspects of scientific management in colleges and universities. Through the online reservation system, the reporting system collects the information of the reimbursement time and the reason of repeating the reimbursement, scientifically instructs the staff and workers to pay attention to the problems, and solves the problems of the college staff reimbursement; according to the relevant information such as the rank of the faculty in the talent management system, the income composition of the staff is statistically analyzed, and the better performance wage distribution scheme is formed; by comparing students' payment and all-purpose card consumption, we can analyze and judge the students' economic status and provide necessary data support for the student management department to evaluate the scholarship; and through the analysis of various types of scientific research projects to declare the duration of the results of transformation, to understand the internal scientific research level, better guide the development of scientific research work. Through the above work, X University financial informational level has the quality enhancement, has saved the school running cost greatly, has promoted the scientific research achievement transformation, causes the school to be able more scientific management and the decision-making, concentrates the strength to do well the education work.

*D. Vigorously Absorb the High-level Personnel, Creating Professional Level of Financial Talent Team*

In order to solve the problem of the imbalance of talent structure and the scarcity of compound talents, X university attaches great importance to actively instructing the personnel departments of the school to introduce higher talents, and to relax the conditions in salary, promotion channel, professional title evaluation and so on, through many open recruiting ways, finally absorbed a number of graduates from well-known domestic institutions in the school's financial department. Among them, not only the accounting graduates, but also the computer and financial knowledge of the combination of higher talent, to a certain extent, to solve the problem of talent fault, but also make the school's financial information to promote more support power.

In addition to absorbing fresh blood and expanding financial staff, X University also developed a detailed follow-up training program. Taking into account the learning of information technology does not happen overnight, requiring financial officers in the work of continuous exploration. X university planning and finance department tentatively every Friday afternoon for the internal learning time, in the study of financial-related knowledge, the full use of this time to learn

the exchange of financial informational software use, and for practical problems encountered in the focus of discussion. In addition to the internal exchange of learning, X university has also strengthened its communication with fraternal universities in the field of financial informational, apart from irregular surveys, it has also made it possible to grasp the dynamics of financial informational through online exchanges so as to promote the construction of financial information better to carry out, keep up with the pace of building the financial information within the industry.

It is worth mentioning that X university planning and finance department also set up a special data management position, by the specific person responsible for the financial information system and the day-to-day maintenance of financial data, as well as the financial information platform planning and implementation, combined with the school's economic business nature and management needs, the financial data for effective analysis and integration. The school also established a more mature training program, targeted training of financial professionals with the ability to apply information technology complex talents, and constantly improve the level of financial personnel information.

*E. Pay Close Attention to Safety Issues and Escort Financial Informational Work*

The data security problem faced by the financial informational construction needs to reform and innovates simultaneously from the school management system and the information technology. In respect of management system, X University re-arranged the accounting business process and established a new set of norms and systems of financial information suitable for its own management based on the rules and characteristics of its economic business activities. The new system focuses on the reform of the financial business process, the authority and password management of the role in the financial system, how to reduce the unconscious errors in the financial system and the prevention of man-made sabotage, and how to enhance the risk precaution awareness of financial personnel. In information technology, X university will be the financial private network and campus network completely isolated, not allowed to use a dual-wan router, you can configure two computers for each post, do not allow the same computer to operate across the network. The physical firewall is purchased in front of the financial data server, the data management personnel often make off-site backup on the basis of the system automatic backup, and plan to adopt the dual machine hot standby mechanism when the condition is ripe, enhance the security and reliability of the financial data.

At present, X university's financial informational construction work is in an orderly manner. We have basically achieved the following reform results: first one is to improve the online booking reimbursement, to a certain extent, to solve the on-site reimbursement of overcrowded, a large number of duplication of work, and gradually to check the bill, the basic financial information transmission and so on all online solutions, improve financial efficiency; the second is to build an online payment system and banking school internet mechanism to achieve all the financial data network, open up the various financial business subsystem data channels, to

achieve financial data sharing; third is to gradually begin to deploy and implement the mobilization of financial services, and realize the real-time availability and effectiveness of financial services through the establishment of a public account for financial we chat and a mobile digital platform for financial services. Thus, the key to optimize the financial information construction of X university is to make full use of the Internet technology such as large data, and solve the problems of the financial informational construction in the previous paper.

## V. CONCLUSION

The advent of the information age has provided many enterprises with the key opportunity to solve the traditional financial accounting problems and information disclosure bottlenecks in their financial work, the financial accounting work in colleges and universities facing the various problems mentioned above is also true. Through systematically combing and analyzing a number of concrete measures and construction achievements of X university's financial informational construction, it can be concluded that under the background of big data, the fundamental of financial management in colleges and universities is to manage and explore the application of financial data, and the realization of this goal we need to work together and focus on top-level system design, infrastructure improvement, information sharing platform construction, big data technology application, talent team building and data security maintenance and other aspects of work.

All colleges and universities can choose the specific countermeasures of X university dialectically in the optimizing process of informational construction of university according to the actual situation and management requirements, and promote the gradual transformation of the unit from the original accounting and accounting to the management and accounting, and obtain it through informational means a variety of data generated by the economic operation of colleges and universities. Relying on the concept of big data and the development of related information technologies, the data generated from all economic businesses are collected, sorted, stored, classified and used to provide the necessary support for the scientific management and decision-making in higher education institutions, prompting the traditional higher education institutions the rapid transformation of financial management, flexible response to the new era of "new university finance" proposed by the various challenges.

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