Based on the construction of financial management information platform of colleges and universities in 5G environment----Take Guangzhou Nanyang Polytechnic Vocational College as an example

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Abstract: With the rapid development of wireless technology, mobile communication service has experienced the development from voice service to mobile broadband data service, mobile communication network has gradually evolved from 3G, 4G to 5G, namely the fifth generation of mobile communication network. With the advent of 5G technology, the new generation of information technology has accelerated the reform of higher education system, and the construction of an information platform for financial management in colleges and universities has become an important research topic for the information construction and financial work in colleges and universities. Under the background of "Internet +", the construction target of "financial management informatization platform" from the construction stage of "smart campus" is being promoted to the informatization application service of "smart campus" and "Internet of Things +", and the development of financial management informatization in colleges and universities is changing from business process-oriented to service informatization. Financial resources are transformed from digitization to digitization, and the integration, analysis and utilization of data are emphasized to provide personalized services. The main network scenarios of 5G can be summarized as continuous wide area coverage, high capacity of hot spots, large connection with low power consumption and high reliability with low delay. Now that 5G technology is on the way, in the connected society of the future, everyone and everything will be connected to each other, thus achieving the so-called "Internet of everything".

In this paper, using the method of literature research, field survey and data analysis of guangzhou nanyang technological vocational college financial management informationization development research and analysis, combining the present situation of the financial management informatization, with the help of a financial management concepts and network information technology, knowledge, financial software system using financial management information platform for the school financial management software for scientific and standardized management, based on a student online payment platform, financial reimbursement platform, campus all-in-one-card platform, improve the service efficiency of funds, the school to further enhance the level of school financial management.

1. The introduction
With the development of China's higher education, the development scale of colleges and universities is constantly expanding, the number of students is increasing geometrically, and the amount of school funds is also increasing year by year, which leads to the doubling of financial data and the increasingly heavy work of school financial management. Through the popularization and extensive application of
computer science and technology, it has become a pressing matter of the moment to combine the
development of information technology with the development of financial management in colleges
and universities and supplement each other to enhance the level of financial management in colleges
and universities and promote the construction of intelligent campus. In recent years, new modern
information technologies such as mobile Internet, cloud computing, big data analysis and Internet of
Things have been developing rapidly. 5G is the singularity point where human beings move
digitalization from personal entertainment to a fully connected society. It is an opportunity for the
mobile communication industry and also poses a challenge to the existing mobile communication
technologies. In order to better face the digital world and serve the digital society, operators worldwide
are undergoing digital transformation. Informationization has exerted a great influence on our way of
life and work, which has led to new thinking and new forms of education and injected new vitality into
the development of education.

Financial management informatization construction is an inevitable trend in the development of
financial management in colleges and universities in China. After 36 years of development since its
establishment in 1984, Nanyang Polytechnic has left valuable resources for us in terms of teachers,
equipment, practical teaching and scientific research materials. With the increase of the enrollment
scale of the school, there are more than 11,000 students in the school, the teaching cost is increasing
year by year, the laboratory is scattered, especially the school is speeding up the construction of
various projects. For example, the catering center, the complex building, the training building, the
dormitory building, the teachers' apartment, the stadium and the new training room, all of which
require a lot of funds. All these have brought great difficulties to the school financial management. In
order to guarantee the three aspects of "teaching, operation and project progress", the school financial
management is also facing new challenges.

Therefore, the traditional financial work has been transformed into a financial management
information platform composed of three service platforms, namely, students' online payment, financial
online reimbursement and campus one-card. In the development of network information technology,
network technology, database application server and financial management software system constitute
an information platform for financial management. Financial work pushes the traditional business
processing to the online processing of financial services to achieve networking and intelligence.
Financial management information platform and other business functions, such as the information
construction and management center, state-owned assets management, work place, enrolment division,
the personnel department, office, scientific bureau and other departments of integrating information
management system, and build a unified information management platform, with all business
departments to achieve financial data resource sharing, and promote the financial management
scientific, standardized, work fine, promote the financial management of colleges and universities
work towards the road of innovation.

2. Relevant theoretical basis

2.1. 5G technology
5G, the fifth-generation mobile communication technology, is a further extension and development of
4G, which will further improve network performance and meet communication needs in 2020 and
beyond. And 5G network is an innovation revolution, human society has entered the "moving cloud"
wisdom, age, big data, artificial intelligence, the combination of mobile Internet and cloud computing
more and more close, in this context, the "intelligent campus" phase of the construction of the
"financial management information platform construction goal is to" intelligent campus "and" Internet
of things + "information application service, college financial management informationization
development by business process oriented, to the service information change; 5G will bring
prosperity to the big data industry and drive the rapid growth of smart campuses.
2.2. **Financial management theory**

Modern Chinese Dictionary explains theory as a system of concepts and principles as well as a systematic rational understanding. No matter from which Angle theory is summarized, theory is tested in practice, and theory guides practice. The two are closely combined and complement each other. Theory can be highly generalized, including the experience of people. Scientific theory is generally accurate and reasonable to solve some problems, such as theory applied to practical work, it can change the world; In understanding new things, theory can explain relevant practical activities. We can according to the theory of the definition, the characteristics of the current financial management, summarizes the theory of financial management means: financial management theory is the summary of modern financial management practice scientific activities system and establishing the concept of system or according to the hypothesis of financial management scientific reasoning, the main purpose is to summarize and evaluation, innovation, perfect the financial management development practice. In China, the theory of financial management has been studied since 1960s. At present, China's financial management theory research is not in-depth enough, but the development of financial management is very rapid, we need the theoretical guidance of financial management standard and improve innovation, in order to promote the development of China's financial management information construction.

2.3. **Financial management informatization**

In the 21st century, with the deepening of financial management theory research, under the premise of the development of information technology and big data analysis, financial management information construction development ideas. In information era of rapid development, the financial management financial management informationization is to each business unit software system integration, the financial department through the financial data analysis systems share data with each business department, for the enterprise leaders timely provide complete and reliable financial information, can also be other employees for the enterprise to provide personal financial information, financial data resource sharing. Financial management informatization takes financial software as the platform to fully penetrate and cooperate with financial software and various business systems. The way of infiltration and cooperation is not only reflected in the connection of software system function design, but more importantly, the data should be integrated to ensure the consistency of financial data and data of relevant business departments. The development and construction of financial management informatization are inseparable from the service support and technical support of informatization technology.

2.4. **University financial management informatization**
College financial management informatization is one of the colleges and universities based intelligent campus, also is the advanced network information technology and scientific management concept applied to traditional financial work, carry on the reform and innovation, we from the network technology, hardware, software development, etc., combining with the traditional financial work to integrate innovation, establish a new financial information system in university, through the university financial information system for integration of refining and financial data for the leaders to provide timely, reliable, accurate, comprehensive financial data, basic information and financial analysis to support the leadership of the university financial decision-making basis.

Under the background of the rapid development of the information age, research on financial management informatization construction of intelligent Universities -- Taking Guangzhou Nanyang Polytechnic As an example is the general trend of modern informatization development.Smart campus is the school management system integration from various business units focus, through the network technology and software technology development to realize information integration, to implement a platform to share multiple systems, users can just log on to a system platform application can use multiple campus function, realizes the campus reasonable utilization of resources, improve the efficiency of management, guarantee the information security colleges and universities.At present, large departments and universities are speeding up the construction of financial management information, using the campus card as the bridge and link between campus management and financial work.The promotion and use of the campus All-in-one card has made a solid step towards the goal of "one card is easy to use, one card can be used for many purposes and one card in hand can be used throughout the campus", and promoted the construction of a high-standard intelligent campus.

3. System functional requirements analysis

With the rapid development of Guangzhou NANYANG Institute of Technology in recent years, the college enrollment and the continuous expansion of school scale, funding is one of the most important factors affecting the teaching environment, hardware and software facilities investment, university development, faculty, talent introduction and other aspects. The financial management plays a very important role in the management of colleges and universities.

The financial management system of colleges and universities is developed for the financial data management of colleges and universities as well as other management requirements of campus network. In the process of system demand analysis, we unified and standardized all kinds of management mechanisms. For colleges and universities, the importance of financial management is beyond doubt, and it involves a wide range of departments, such as logistics, teaching, educational administration and scientific research, which also directly affect the overall level of school management.

3.1. Functional structure diagram of the system

By making full use of computer technology, accounting and management personnel will be liberated from tedious work, improve work efficiency, make financial management work in an orderly manner, and ensure the sustainable development and good competitiveness of colleges and universities. According to the actual situation of Guangzhou Nanyang Polytechnic Vocational College, the functional structure demand analysis of the system is shown in Figure 2 below:
A well-operated financial management department can reasonably allocate and raise funds for school operation, management, teaching, scientific research and other work, and even play a greater role of funds to produce greater benefits. Complete and accurate financial statistical information can also serve as an important basis for leaders of all departments to plan and make decisions, and can be adjusted and coordinated according to real-time changes of relevant financial information.

3.2. **System analysis of UML diagrams**

When designing and implementing the financial management system in colleges and universities, it is very important to analyze the functional requirements of the system and carry out the corresponding use case analysis of the system's functions. Prior to functional use case analysis, the functionality of the system and the user objects designed need to be determined. UML use case diagram as a description of the type of file analysis system, is a key part in the design of the system, mainly used to describe the corresponding relation between the user and the system function, and the system the user's access and access are visually presented in the chart, making the user and the system developer of the software system has a better agreement, has the advantages of simple structure, easy to understand, standard strictly, etc. The overall use case diagram for the target system is shown in Figure 3.

According to the overall use case diagram of the system, the system mainly consists of seven functional modules, namely, voucher management, cashier management, account statement management, salary management, fee management, system management and fixed assets management. It mainly includes four types of management users, namely financial management users, fixed assets management users, fee management users and system management users. The corresponding relationship between each functional module and the user and the system is analyzed below.
4. Design of financial management system for high schools

The use and demand of financial management system in colleges and universities are different. For example, financial management personnel often need to carry out statistics, input and analysis of a large number of complex data information, etc., which requires the system to have fast response speed, higher system security and interaction, and fixed office locations. For ordinary users such as faculty and students, they pay more attention to whether they can access the relevant information through the access system at any time and anywhere, and the amount of data processed is small and the location is not fixed. To sum up, this paper combines B/S and C/S architectures to meet the needs of users of different levels.

4.1. System function design

The first thing that the system should design and implement is the system management function module, which is the foundation of the system. The main functions of this module include system login management, voucher management, cashier management, financial statement management, account book management, wage management and charge management. Each function module is composed of corresponding sub-functions respectively, which jointly constitute the functional structure of the financial data management system platform. According to the functional demand analysis and actual investigation of the system, in the process of design and implementation, we should not only consider the design and development of functional modules and database, but also take into account the growth demand after the system is put into operation, and give corresponding solutions.

4.2. Main functional modules

(1) System login module: To realize the system login function, the login dialog box is designed on the login interface of university financial management system. When the user enters the login system by outputting the user name and password, the login program will compare the corresponding application data with the data in the system database. If the user exists in the system database and the user name and login password are completely correct, the user is allowed to enter the system and perform system functions; Otherwise, an error message pops up. The sequence diagram can show the interactive relationship of different objects in the financial management system of colleges and universities. It can effectively show the whole process of user login.

(2) Voucher management module: Voucher management module mainly includes voucher entry, voucher audit, voucher accounting, voucher query and other functions. Voucher entry is a voucher automatically generated by project information, which realizes voucher storage and accounting. Voucher audit is to judge and audit the data and format of one or more vouchers in the system.

(3) Salary management module: The salary management module can automatically transfer the salary cost, so as to reduce the work intensity of financial management personnel, improve the efficiency and accuracy of salary management. Specific include: salary management includes salary file management, salary adjustment, salary standard setting. Among them salary file management is to undertake automatic settlement to the work of teaching and administrative staff according to working standard and other allowance; Salary adjustment is to make timely changes to the work standard setting or the specific situation of different employees according to the corresponding policy changes. All adjustment records are stored in the salary file. Data query. In this management module, salary information, working standard, work adjustment and salary file can be inquired.

(4) Time management module: including attendance management, overtime management and business trip management. Attendance management includes the inquiry of staff attendance and the formulation of attendance plan. By connecting the attendance machine to the system, information can be directly obtained without manual input. Besides, the attendance results can be calculated according to the attendance plan and attendance record, and the statistical data can be connected with the salary management module to ensure timely and accurate statistics and calculation of salary performance.
data. Overtime management is to make detailed records and statistics of the basic information and overtime situation of each overtime worker. Business trip management is to make detailed records and statistics of the business trip, including the name, department, place, time and purpose of the business trip.

Statement printing can print detailed salary list, general ledger table, salary adjustment report, attendance report and custom statement generated by each department, and can be output in the form of or file.

(5) Cashier management module: Cashier management refers to the management of various cash business, banking business, bill management and related statements in colleges and universities. The specific process is shown in Figure 6.

(6) Charge management module: This module includes charge standard setting, agency management, arrears management and other functions. First of all, the fees should be set in advance, and then the fees should be set according to the information such as credits, academic years and majors. The amount of fees; The management of tuition fee and agency includes the information inquiry of charge and actual charge, as well as the information inquiry function of special circumstances such as the change of student status, etc., and can be output or printed directly in the form of documents; Arrears management is not paid by students to mark and prompt. For students who owe fees, there are certain restrictions on the user rights, such as logging in the system can not conduct score query, course selection, or when the query pop-up interface to remind students to pay fees and register as soon as possible; Other functions are some special functions in addition to the above.
situation, including the generation, query the corresponding statistical table of student arrears, paid student situation table, fee situation table, can also have financial difficulties for students to implement tuition remission, delay payment period and provide student loans and other ways. The system will first audit the students who submit the above application, and after the audit is approved, users will be given corresponding permissions. Users can log in to the system to set the custom Settings such as deferment of tuition fees, explanation of reasons, payment time, etc., or directly reduce the payment fees by modifying the fees.

Figure 6 Charge management module diagram

Through the detailed analysis and design of the financial management system in colleges and universities, the design requirements of the system, the overall framework design, according to the analysis of the system needs, the design of the financial management system operation functions. For the system administrator, the C/S client can be used for the management and operation of the system, but also through B/S Internet Explorer to access the system. This hybrid architecture of cross-parallel use gives full play to the respective advantages of the two architectures, which can not only guarantee the integrity and security of the data in the financial management system, but also significantly improve the layout of the system network structure, system maintenance, system adaptability to the environment and network communication efficiency.

5. Supporting construction of financial management informatization in high schools

The present guangzhou nanyang technological vocational college is in a critical period of building "double top" colleges and universities, strengthening financial management of construction is the inevitable demand of security aspects, such as, perfect good guangzhou nanyang technological vocational college financial management informationization work, help to improve school management level, also relevant to today's "double top" requirements for the construction of high-level university.

According to the coupling theory, financial management information system in the various functional subsystems influence only from each other, positive interaction and mutual existence, produces correlation form mutual coordinate, and promote the dynamic relationship of the interactive coupling body, to make the financial management information system function more complete, management efficiency is higher. In colleges and universities, financial management guarantee and supervision work is the focus of management needs, and has been showing an increasing trend. As far as the current situation is concerned, various management functions of colleges and universities are absolutely related to financial management. Only by constantly improving the quality of financial management can we achieve business volume and help schools make great progress in various undertakings.

The school should adhere to the principle of "overall design and overall planning", fully consider the requirements of financial supervision, internal control, existing facilities and resources, and future business development and changes, steadily promote the construction of financial management information, and continuously optimize the financial management information system. Financial work
is closely linked with each link of school work. Therefore, in the informationization construction of financial management, it is necessary to proceed from the overall situation, comprehensively consider all functions and management work of the school, fully consider them, and at the same time give consideration to sustainable development. It is necessary to construct the financial management process system of Guangzhou Nanyang Polytechnic Vocational College, plan each work item in it, draw lessons from some successful cases in relevant aspects of the school, constantly refine the working method, and link all the work together to enhance the utility and improve the service level with the help of modern science and technology.

6. Conclusion

Financial management information construction is an important part of university information construction, is the construction of intelligent campus requirements and key. Taking guangzhou nanyang technological vocational college financial management department as an example, the study mainly aimed at the following aspects of content, through the analysis of guangzhou nanyang technological the whole situation of vocational college financial management informationization, the use of a new generation of information technology and financial management software, integration of relevant financial information resources, docking other business software system, to build the financial management of colleges and universities information platform, realize financial information sharing, and ensure the timeliness of financial management, save manpower, material resources, financial resources, and more able to meet the needs of teachers and students on financial information, improve the level of school financial management.

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