Research on the Application and Optimization of B University Financial Integrated Information Portal System

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The rapid development of Abstract: technology information has brought favorable opportunities for colleges and universities to continuously innovate management financial methods improve the quality and level of financial services, and has promoted the wide application of a comprehensive financial information portal system in colleges and integrates universities. which online reimbursement, inquiry, authorization and other functions. Therefore, taking B university as an example, this paper analyzes and discusses the functions, operation processes and advantages of the financial integrated information portal system based on the problems of its traditional manual reimbursement methods, summarizes the bottlenecks that need to be further solved in the actual operation process of the system, and puts forward targeted optimization strategies. financial comprehensive information portal is an important part of the financial informatization of B university, which is a powerful starting point to improve the financial management, education, service education of B university, and contributes to the financial strength for the university to truly realize the concept of "three-all education" of all-staff education, whole-process education and all-round education, with a view to providing the basis for relevant policies to optimize the financial work.

Keywords: Financial Comprehensive Information Portal; Online Reimbursement

1. Introduction

University financial work is an important part of university management, which undertakes the task of educating people while doing a good job of teaching and scientific research financial security. College finance shoulders the responsibility of managing and serving education, which is a kind of imperceptible education. Under the background of big data informationization and intellectualization of financial work is a favorable tool for financial departments to improve service quality and level [1]. As higher education enters the stage of connotative development [2], the total amount of university funds not only continues to increase, but also has new and higher requirements on management performance. Discipline inspection and supervision work has been carried out in depth, and the regulations on the supervision of various types of funds have become more refined. Moreover, the financial reimbursement of university funds also involves the vital interests of teachers and students, which requires strong service quality and level of financial work. Therefore, colleges and universities should use the achievements of information technology development to upgrade and optimize the financial management system, empower the financial work through innovative financial management methods, effectively improve the effectiveness of financial work, make it play a financial management. role in supervision and service functions. contribute financial strength to the realization of the concept of "three-all education" in colleges and universities.

2. Traditional Manual Reimbursement Process and Existing Problems of University B

2.1 Traditional Manual Reimbursement Process of University B

Under the traditional manual reimbursement method of University B, the reimbursement person obtains genuine and legal original vouchers and organizes them according to the financial reimbursement requirements. According to the content of the invoice, they categorize and summarize to fill in the

"Business Summary Form", and then go to the financial hall to handle the on-site reimbursement procedures after fulfilling the approval requirements at each level. Financial auditors audit the submitted reimbursement materials according to financial regulations, communicate and resolve issues on the spot, and manually fill out accounting vouchers after confirming there are no errors. Financial reviewers pay after re-checking and confirming there are no errors [3].

2.2 Existing Problems of Traditional Manual Reimbursement at University B

Traditional reimbursement methods are time-consuming and labor-intensive.

Under the traditional manual reimbursement method, the reimbursement person must handle the business in person at the financial hall, often facing long waiting times in line. Especially before the end of each year when deadline fund for reimbursement approaches, the centralized reimbursement situation often occurs, posing a huge challenge to the reimbursement person and financial staff. In addition, when financial staff are doing accounting, they need to manually enter and select a large amount of information, wasting a lot of time and energy, which seriously affects work efficiency. Moreover, because the original financial system functions mainly meet the needs of financial personnel, the financial information query and management needs of the reimbursement person cannot be met. If they want to understand project information, they need to go to the financial window for financial personnel to query on their behalf, which often also requires a lot of time and energy from financial personnel.

The composition of reimbursement personnel is complex, and the financial professional quality needs to be urgently improved.

The reimbursement personnel of University B include project leaders, teachers and students designated by project leaders, and financial assistants for scientific research, etc. Most of the personnel are not from financial professional backgrounds, and the financial professional quality is uneven. On the other hand, due to various reasons such as insufficient attention to reimbursement work by project leaders and rapid updates to financial regulations, reimbursement people lack understanding of financial regulations and

reimbursement policies; reimbursement people are not business handlers and do not understand the specific business situation, leading to multiple reworks and increasing the workload of accounting personnel and reimbursement personnel.

The number and quality of financial personnel need to be improved.

As the scale of university education continues to expand, the total amount of funds obtained and used also increases, and the workload of financial accounting work increases day by day. However, due to the reduction of establishment and the improvement of school requirements for staff qualifications, it is difficult to increase the number of financial personnel.

In recent years, University B can only increase financial personnel through contract workers or temporary workers. Although this helps to alleviate the huge financial work pressure, the number of financial personnel is still relatively small and the work tasks are heavy, resulting in high personnel mobility, and the professional ability and work quality of financial personnel cannot be guaranteed, which has a certain negative impact on the quality of university financial work.

At the same time, in recent years, the changes in university accounting systems have been relatively frequent, but due to heavy work tasks and insufficient attention from leaders, only a few financial personnel who can leave can participate in training, and many financial personnel can only explore and implement the new system, solving problems one by one, and lack a systematic understanding and recognition of the new system.

The financial information "island" is serious, and the degree of information sharing is low. [4]

The original financial system of University B can only be used by financial personnel. If functional departments, faculties, teachers, and other external users need to query financial information, they can only go to the financial window to handle and print materials. This not only increases the workload of financial personnel and project leaders and other financial information users but also affects the project leaders' real-time grasp of the project's income and expenditure situation, which is not conducive to the project leaders' real-time management of the project. Moreover, the

financial system of University B cannot be interconnected with the scientific research management system, asset management system, personnel management system, teaching management system, etc., especially the functional departments all have their own business information systems, resulting in business and financial information not being shared, which also increases the workload of financial work to a certain extent.

The internal control risk is relatively large.

The accuracy of the budget setting and modification process, accounting entry process, fund payment process, and other work in the original financial system of University B can only be guaranteed by the professionalism, responsibility, and attention to detail of the accountants. Over-expenditure of scientific research and teaching projects, accounting entry errors, and errors in collection and payment occur from time to time, greatly increasing the internal control risk of accounting work.

3. Functions and Operation Processes of the Financial Comprehensive Information Portal System of University B

In 2017, University B introduced the financial comprehensive information portal system. This is a comprehensive information service platform integrating multiple functions such as online reimbursement, project authorization management, and financial information inquiry, which helps to solve many problems under the original financial system and traditional manual reimbursement method. The financial comprehensive information portal University B mainly consists of three functional modules: online reimbursement project management, authorization management, and financial information inquiry. and each performs different operation processes.

3.1 Functions and Operation Process of the Online Reimbursement Management Module

The functions of the online reimbursement management module mainly include: applying for reimbursement orders, modifying reimbursement orders, revoking reimbursement orders, historical reimbursement orders, viewing reimbursement logistics, and VAT invoice verification, etc.

Here, the function and operation process of the online reimbursement management module [5] are illustrated by taking the application for reimbursement orders as an example.

In the financial comprehensive information portal, the process of the reimbursement person filling out the reimbursement order online is very convenient. The online order interface is divided into reimbursement basic information interface, the reimbursement amount filling interface, and the payment method filling interface. In the reimbursement basic information interface, the reimbursement person only needs to select the project and payment method, fill in the summary and the number of attachments, and then enter the reimbursement amount filling interface. In this interface, the reimbursement person only needs to fill in the reimbursement amount under the set reimbursement items according to the content of the invoice, click next to enter the payment method filling interface. The payment methods include five ways: transfer to personal card, remittance, check, offset loan, and official card, to meet the various payment needs of reimbursement person. After completing the above steps, the reimbursement person can submit an online reimbursement order with an independent barcode in the financial system.

The reimbursement person prints the online reimbursement order, signs and approves it, and then delivers it to the designated delivery box of the finance department. The finance department has a dedicated person who regularly takes the reimbursement orders from the delivery box, scans the barcode to enter the information into the reimbursement logistics system, so that the reimbursement person can understand the handling status of the reimbursement order online in real time and assign work to the financial auditors. After receiving the online reimbursement order, the financial auditor reviews the original vouchers, confirms that there are no errors, and imports the reimbursement order into the accounting system with a scanning gun. On this basis, only minor adjustments are needed to automatically complete the accurate accounting entries. In the whole process, there is very little manual operation by the accountants, which greatly reduces the risk of errors and significantly improves the accuracy efficiency accounting and of and

reimbursement.

3.2 Functions of the Project Authorization Management Module

The functions of the project authorization management module mainly include: viewing the overall situation of the project, project authorization, project fund use, project transactions, batch authorization, and review management, etc. In this module, the project can understand financial leader the information of the project in detail, view the income and expenditure situation and detailed accounts of the project at any time, as well as the unliquidated loan situation of the project, and grasp the progress of fund expenditure in real time. Moreover, the project leader can also others through this module. authorize enhancing the security and flexibility of fund management.

3.3 Financial Information Inquiry Module Functions

The financial information inquiry module mainly includes project inquiry, income inquiry, receipt inquiry, and my financial information inquiry. Under the project inquiry function, project leaders can inquire about the project list, unliquidated loan situation, and detailed accounts of the project according to the nature of the project (special funds, basic funds, horizontal and vertical funds). The income inquiry includes personal salary inquiry, personal remuneration inquiry, and tax calculation function. The receipt inquiry function can inquire whether the project has received funds based on the input keywords or amounts, so as to handle the establishment procedures in a timely manner at the scientific research management department. financial information inquiry function includes personal name, contact information, bank card, and other information, which can reserve information for subsequent online reimbursement orders, payment reimbursement funds, problem feedback, etc.

4. Advantages of University B's Financial Comprehensive Information Portal System

4.1 Solved the Problem of Queuing for Reimbursement and Achieved Wait-Free Reimbursement

After the introduction of the financial

comprehensive information portal system, the reimbursement person does not need to wait after submitting the reimbursement order, and there is no longer a scene of overcrowding in the financial service hall. Especially before the end of the year when the deadline for funds is approaching, the advantage of wait-free reimbursement is more reflected, which improves the satisfaction of the reimbursement person with the financial service work. Moreover, the working environment of the financial staff has also been improved, allowing them to handle business quietly and attentively, free from the pressure brought by the anxious emotions and urging of the reimbursement person, enabling the financial staff to better play the financial management function.

4.2 The Reimbursement Process is Clearer and More Explicit

When designing the financial comprehensive information portal, University В systematically combed the entire reimbursement process according to the requirements of the internal control system of the unit, making the interface settings and operation processes of each module of the system more concise, easy to understand, and easy to operate, as much as possible in line with the filling habits of teachers and students. Special prompts are also made for the links where reimbursement persons are prone to problems under the manual reimbursement method, making the reimbursement process smoother and effectively avoiding rework caused by omissions in individual links [6].

4.3 The Reimbursement Logistics System Reflects the Status of Document Processing in Real Time

After the dedicated personnel of the financial department receive the online reimbursement order, they enter the reimbursement order information into the reimbursement logistics system by scanning the barcode, and then assign it to the financial auditor. The reimbursement logistics system is seamlessly linked with the financial accounting system, which improves the effectiveness and operability of financial reimbursement work and simplifies the communication process between financial personnel and reimbursement persons. When the financial

audit finds that there is a problem with the online reimbursement order that needs to be returned, the return operation can be performed in the reimbursement logistics system, and at this time, the reimbursement person can see in the financial comprehensive information portal system that the logistics status of the reimbursement order is "returned"; if there is no problem with the reimbursement order and it is finally paid, the logistics status seen is "paid". The reimbursement logistics system can enable the reimbursement person to grasp the status of the reimbursement order in real time and deal with the problematic documents in a timely manner. The online payment cycle of University B is about 3 days, the reimbursement person whose reimbursement order has a logistics status of "to be paid" for more than 3 days can inquire by phone about the reason why the reimbursement order has not been paid, effectively avoiding the problem of missed payments.

4.4 Online Reimbursement has Basically Achieved Cashless Payment

The financial comprehensive information portal system of University B is integrated with the bank-school interconnection payment system. Therefore, the system has specially set up a cashless payment subject under the online reimbursement method, and the vouchers containing this subject will generate a unique settlement number, which becomes the only basis for the cashier to make payments. At present, only a few businesses that are not suitable for online reimbursement University B are still handled on-site, so the volume of cash business is very small, and cashless payment has basically been achieved. The reduction of cash also reduces the risk of problems in cash custody and collection and payment processes, improving the security of funds, and also reducing the use of checks, accelerating the speed of fund payment, and improving work efficiency.

4.5 Multiple Inquiry Functions Facilitate the Financial Situation of the Person in Charge of the Funds in Real Time

The project inquiry function enables the project leader to understand the financial information of the project from an overall and specific level, so as to make reasonable

expenditure arrangements in advance and use the project funds more effectively. The unliquidated loan situation inquiry function solves the problem that the reimbursement person may forget to reimburse in time due to forgetting to borrow money in the past, which may eventually lead to their compensation. In the financial comprehensive information portal system of University B, each loan is recorded and the corresponding amount of the project is frozen, so as long as the reimbursement person selects the project to fill in the reimbursement order, it will prompt that there is an unliquidated loan, making it impossible for the reimbursement person to forget. The receipt inquiry function also greatly facilitates teachers and students, because it allows teachers and students to first check the receipt situation online, and then go the scientific research management department to handle the establishment procedures, which is convenient and fast, while in the past they could only inquire at the financial window, and had to wait patiently when there were many people queuing for business, which was time-consuming and laborious.

4.6 Enhanced the Tightness of the Internal Control Mechanism

The traditional manual reimbursement method has a rough control over the budget, and it is usually only when the project is concluded or audited that it is found that the actual expenditure does not match the budget and needs to be adjusted. This kind of control belongs to the post-event control of the budget. After the introduction of the financial comprehensive information portal system at University B, the online reimbursement system is linked with the financial system, and the "fill in the reimbursement amount" interface of the online reimbursement system will automatically retrieve the budget template of the project in the financial system. When the mouse hovers over the reimbursement item amount column, it will pop up the remaining reimbursable amount of the reimbursement item, and if the amount filled in exceeds the reimbursable amount, the system will automatically prompt an overspend, achieving pre-control of the budget and enhancing the tightness of internal control, which is conducive to playing the role of financial

supervision [7].

5. New Bottlenecks in the Operation of University B's Financial Comprehensive Information Portal System

The financial comprehensive information portal system of University B is currently running well, liberating financial personnel and reimbursement persons from simple and repetitive physical labor, significantly improving the quality and level of financial service, and has been well received by teachers and students. However, it has also produced some new bottlenecks that need to be resolved.

5.1 Poor Communication Leads to Low Efficiency

After the implementation of online reimbursement at University B, when financial auditors encounter problematic reimbursement orders, they mainly communicate with the reimbursement persons through two ways: sending text messages and making phone calls. However, under the text message notification method, financial auditors need to manually enter the problem description information, which is time-consuming. Although a text message template has been set up, due to the complexity and diversity of the problems, there are often cases where the text message template is not applicable; under the phone call method, there may be issues of not being able to contact, or the reimbursement person may need to go to the financial window to specific situation of the check the reimbursement order because they cannot remember clearly, resulting in low efficiency in financial work [8].

5.2 Reimbursement Orders Have Not Achieved Online Approval

For the printed online reimbursement orders, the reimbursement person needs to go through procedures the corresponding approval according to the nature of the funds and the specific type of business. Since the financial comprehensive information portal system of University B is independent of the online approval system, real-time online approval cannot be achieved, so there will still be a "running around" phenomenon caused by unsmooth approval links. Especially when the online reimbursement order needs to be modified, the reimbursement person has to go

through a new round of approval procedures. At the same time, manual approval of the online reimbursement order also carries a certain risk of forgery, which requires financial auditors to spend time and effort identifying it [9].

5.3 Network Security Issues

The financial comprehensive information portal system of University B needs to be connected to the external network, and the risks of firewall vulnerabilities, virus invasion, or hacker attacks are also present at any time, posing a great threat to system security and financial information security. In order to avoid the above problems, University B has not yet opened the off-campus login function, and the reimbursement person can only log in to the financial comprehensive information portal system through the campus network, which also greatly reduces the convenience of the system.

5.4 The Value-Added Tax (VAT) Electronic Invoice Verification Function Needs to Be Upgraded

The advent of electronic invoicing is now inevitable, and the verification of electronic invoices has become an essential task for every reimbursement staff member. Currently, the VAT electronic invoice verification function at University B is integrated into the online reimbursement module of the financial comprehensive information portal system and can only be authenticated on a computer. The system is linked to the VAT invoice verification platform of the State Taxation Administration, where the verification process requires inputting invoice numbers and other information from the invoice surface, followed by entering a verification code. However, the current verification codes are diverse, evolving from simple four-digit numbers to complex combinations of letters, numbers, and color changes. Due to network delays, verification codes often expire before they can be used for verification. Reimbursement applicants must then go to the State Taxation Administration's invoice verification system to verify and print the invoice verification form. This not only wastes a significant amount of paper and resources but also greatly increases the workload for the binding of financial vouchers and occupies a large amount of storage space.

5.5 There Are Risks Associated with the Use of the Submission Box

University B uses a submission box method to accept online reimbursement forms. The submission box, similar to a voting box, is located at the entrance of the financial service hall. After the reimbursement applicant places the reimbursement form into a special financial reimbursement bag and submits it into the box, they leave without obtaining any proof that the reimbursement form has been submitted. If the reimbursement form is lost or other issues arise in subsequent processes, it is difficult to assign responsibility. Alternatively, if the reimbursement applicant incorrectly remembers having submitted reimbursement form when they have not, it can lead to unclear responsibilities.

6. Optimization Strategies for University B's Financial Comprehensive Information Portal System

6.1 Strengthen Training and Publicity, and Establish Full-Time Information Technology Managers

University B has only organized several special training sessions and Q&A meetings when the financial comprehensive information portal system was launched. Due to the busy nature of financial work, no further financial knowledge training sessions have been held since. Currently, financial regulations are only posted on the finance department's website for reference. However, considering that many applicants lack financial reimbursement knowledge and do not understand many financial terms, they often cannot comprehend manuals or regulations and prefer to get verbal confirmation from financial staff. It is recommended to regularly organize financial system and reimbursement regulation training sessions and Q&A meetings, and to produce online training courses or organize video conference training sessions. In addition, the finance department can collaborate with other departments such as the asset management and science and technology departments to provide training for cross-business systematic operations. To address the situation where faculty and staff do not pay attention to financial publicity and are reluctant to learn

financial knowledge, online quizzes can be organized after training, and only those who pass can handle financial affairs.

University В can provide convenient conditions for reimbursement applicants to obtain financial reimbursement regulations. For example, by using information technology to embed financial reimbursement regulations into the online reporting system, it provides convenient channel the most reimbursement applicants to understand the reimbursement system. Specifically, when filling out the online reimbursement form in "Fill in Reimbursement Items and Amounts" interface, corresponding reimbursement regulations or links will pop up when the mouse hovers over a specific reimbursement item, making it clear for reimbursement applicants and eliminating the need to look up consultations elsewhere.

As the financial informatization of University B is continuously being built and improved, the workload in the field of informatization will also increase. There is an urgent need for compound talents who are proficient in both finance and information technology to serve as full-time information technology managers to solve technical issues in daily work, which is crucial for improving the quality and level of financial services.

6.2 Use Information Technology to Build a Communication Platform between Reimbursement Personnel and Accountants

Currently, the communication methods of University B, such as SMS and telephone, are one-way and do not guarantee timeliness and Often, after communication completed, reimbursement applicants still need to go to the finance department to check the online reimbursement form and have the auditor explain in person to understand the problem. It is suggested to use information technology establish to two-way communication platform, such as embedding an intelligent customer service feature in the financial system. After the financial auditor sends a question message to reimbursement intelligent applicant, the customer service can reply to the questions raised by the reimbursement applicant online and push specific reimbursement regulation documents or links to improve timeliness and accuracy. Moreover, the finance department

can establish a WeChat group where reimbursement applicants can ask questions in the group, and the finance department can set up a rotating answering staff to solve the problem of the hotline often being busy and the dissatisfaction of reimbursement personnel. It can also push the latest financial knowledge and answers to common questions to reimbursement applicants [10].

6.3 Embed the Online Approval Module to Achieve a Fully Networked Reimbursement Process

The financial comprehensive information portal system of University B should embed the approval module in the online reimbursement system, pre-set the approval process according to the type of business, the nature of the funds, and the internal control system, and the reimbursement applicant only needs to select the specific business. The approval system can also be in the form of a mobile app, so that when the approver receives the approval request, they can have a message prompt to ensure the timeliness of the approval and subsequent financial reimbursement.

6.4 Strengthen Technical Support and Guard against Network Security Risks

Good technical support is a prerequisite for the of operation smooth the financial comprehensive information portal system. The financial comprehensive information portal system of University B is currently only allowed to be used in the campus network environment to ensure the security of the portal, but this also greatly reduces the convenience of using the portal. Therefore, University B should open up off-campus login permissions, strengthen technical cooperation between the campus information center and external software companies, and jointly ensure the security of using the information portal in the external network environment to provide more convenient services for all teachers and students.

6.5 Introduce a Mobile Phone End VAT Electronic Invoice Verification System

University B, in conjunction with software companies, has developed a mobile phone end VAT electronic invoice [10] verification system to upgrade and transform the electronic invoice verification function. Open a

"mini-program" channel in the online reimbursement system, use the WeChat scan function, and by scanning the QR code of the invoice, you can immediately verify the invoice information and automatically enter the reservation system, making the operation efficient and preventing duplication.

6.6 Add a Submission Machine to Achieve Full-Process Management of Reimbursement Forms

In response to the unclear responsibility issues associated with the current use of the submission box method for receiving reimbursement forms at University B, it is proposed to introduce a submission machine to replace the submission box. After reimbursement applicant submits reimbursement form into the submission machine, the machine will automatically print a submission receipt, which will serve as a voucher for subsequent inquiries by the reimbursement applicant, making responsibility clear in the submission process of the reimbursement form. [11] The physical form of the submission machine itself also enhances the security of the reimbursement form. By setting up multiple submission machines throughout the school, it meets the needs of teachers and students for efficient office work anytime, anywhere, and further improves the quality and level of financial services.

7. Conclusion

In summary, the establishment of the online reimbursement system at University B not only conforms to the trend of financial development in colleges and universities but also represents an exploration of intelligent financial management, which is a favorable starting point for the realization of "three-all education" in college finance. The introduction of the online reimbursement system has not only improved work efficiency and the level of financial services but also the overall financial management level of the school, in line with the development trend of the big data era.

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