

# Research on the Key Problems of Credit Bank System Construction in Vocational Education

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**Abstract.** The construction of credit bank system in vocational education is a systematic and complex work, which requires us to solve three key problems: defining the operating mechanism, improving the organizational structure, and building a supporting platform. Only by solving the three problems and removing the barriers at the ideological, organizational and technical levels can we ensure the efficient implementation of the credit bank system in vocational education.

**Keywords:** credit bank; vocational education; credit banking system; credit; vocational education credits.

## 1. Introduction

Credit bank is a service provided by authorized education organizations so that customers can save, manage and exchange education credits[1]. The emergence of credit bank is an innovation in the history of education development. Through the operation and continuous development of many economically developed countries around the world, credit bank has finally become the core of lifelong education and continuing education system construction, especially an important way to integrate multi type, multi-level and multi institutional vocational education resources for social education. At the exploration stage of the current credit bank system construction of vocational education, We must learn from the experience of foreign credit bank construction in system construction, and focus on solving the three key issues of defining the operating mechanism, improving the organizational structure, and building a support platform, so as to promote the sound and rapid development of vocational education and ensure the "lifelong" of vocational education.

## 2. Operating mechanism

In real life, the bank circulates currency, which has three functions of deposit, exchange and loan. Credit bank is crowned as "bank", and theoretically it should also have the above three functions. But because the credit bank "manages" credits, it is not a bank in the actual sense. Therefore, compared with the money bank, the credit bank of vocational education has many particularities. We should pay attention to their different particularities on the basis of their commonness.

The operation of vocational education credit bank is based on a series of procedures such as credit account registration → credit certification (acquisition) → credit conversion → credit accumulation → credit exchange → certificate (reward) exchange. As shown in Fig.1.

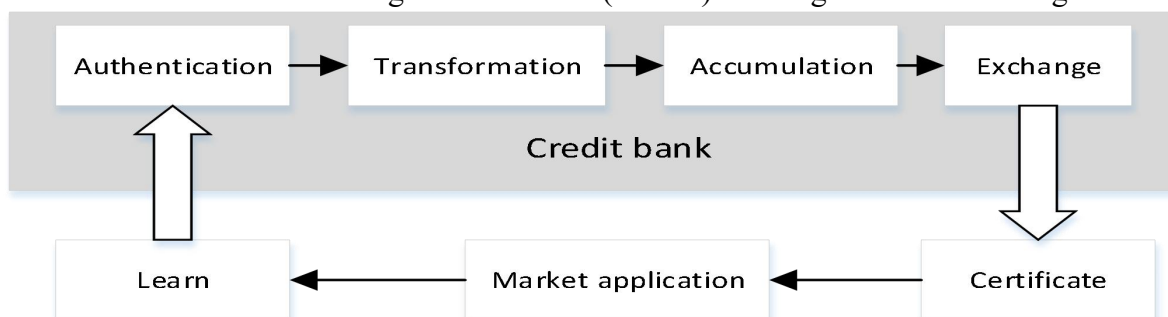


Fig. 1 Operation Chart of Vocational Education Credit Bank

### **3. Credit certification**

Vocational education credit certification is the process of identifying matching credits of vocational education students' learning achievements and accumulating them in students' accounts according to relevant standards and specifications of vocational education, which is a key link in the operation of vocational education credit bank. People at all levels and all kinds of levels who participate in vocational education are not limited by time, age and occupation. They can first register a credit account in the credit bank system, and then independently choose courses in the course supermarket to learn at anytime and anywhere. After the students have completed their studies, the credit bank will identify the learning results according to the published standards to judge the quantity and quality of the students' learning achievements, and then determine their credits according to the corresponding calculation rules, and finally deposit the credits into the students' credit bank account for accumulation. Specifically, after vocational education students finish a course, the credit bank matches the corresponding credits according to the students' learning achievements, and deposits the credits in the credit bank for accumulation.

The credit bank of vocational education meets the personalized needs and development of social vocational education students through credit certification and conversion, and also effectively connects various educational resources.

### **4. Credit accumulation**

Like the bank savings mechanism, vocational education students can record and accumulate credits obtained at different times, places and ways in the credit bank account after participating in vocational education. Learners hold the proof of learning results to register at the corresponding branches[2]. However, the credit accumulation of credit bank is different from that of cash bank deposit. First, the credit accumulation is not just a simple accumulation in terms of quantity. Because the curriculum types and levels of vocational education are complex, students' credits can only be converted into general credits for accumulation after classified identification, value orientation and level judgment. Second, the accumulation of credits has timeliness, which can also be called freshness. In today's era of knowledge explosion, the curriculum composition and knowledge content of vocational education are updated very quickly, and many skills knowledge may become invalid or reduce in value due to changes in the application environment. Therefore, the credits of vocational education must have the timeliness attribute. If the specified time limit is exceeded, the relevant credits will be deducted or reduced. Through such system design, we can not only ensure the timely updating of vocational education knowledge content, but also enhance the enthusiasm of vocational education students to adapt to social development and actively learn new knowledge.

### **5. Credit exchange**

Cash banks can not only save money, but also withdraw money. Credits in credit banks also have the functions of "saving" and "cashing". The purpose for vocational education students to obtain and store credits during on-the-job learning is to exchange credits and obtain certificates. Therefore, the credit exchange mechanism of the vocational education credit bank is the core operating mechanism of the credit bank. The credit bank needs to decide what grade and type of certificate to issue according to the relevant certificate standards of vocational education. The corresponding relationship between credit bank certificates and credits of courses are the basis for realizing credit exchange.

## 6. Organizational structure

The system construction of the credit bank for vocational education involves many units such as the competent department of vocational education, society, colleges and training institutions, which is complex. We should adopt a combination of centralization and decentralization to establish an organization with clear hierarchy, clear responsibilities and reasonable combination, so as to fully assume the responsibility of organization construction and management and ensure the smooth operation of the credit bank system of vocational education. The organizational structure of vocational education credit bank is shown in Fig 2.

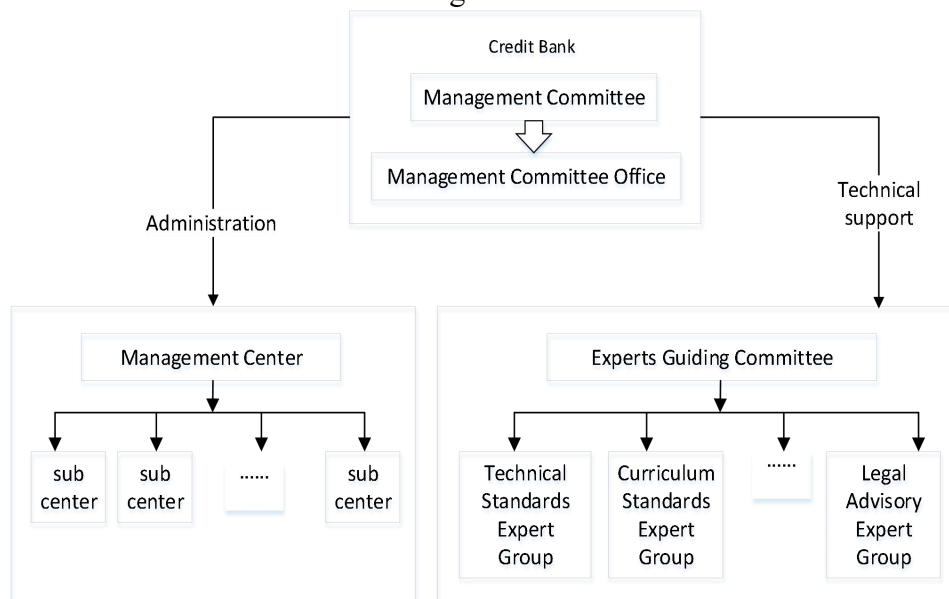


Fig. 2 Organizational Chart of the Vocational Education Credit Bank

## 7. Decision making layer

Under the leadership of the competent department of vocational education, we should establish a credit bank management committee to guide the relevant work of the national vocational education credit bank. The Credit Bank Management Committee shall perform the following duties: to conduct top-level design and overall layout for the construction of credit banks, formulate relevant policies, laws, systems and standards of credit banks, examine and approve the development plan of credit banks, and uniformly lead the overall work of the construction and development of vocational education credit banks.

The Credit Bank Management Committee has an office which is responsible for the daily operation of the Credit Bank and performs the following duties: implementing the directive spirit of the Credit Bank Management Committee and drafting the development plans, policies and regulations of the Credit Bank; To guide and standardize the relevant work of credit bank organizations at all levels; Supervise the registration, credit certification, credit accumulation, credit conversion and other related links of credit bank users; Coordinate the mutual recognition of learning achievements between various types of training certification institutions and vocational education participants; Commend advanced units and individuals in credit banking work, investigate and deal with violations, etc.

## 8. Management layer

We should set up a credit bank management center in the national competent department of vocational education, which is under the leadership of the committee office to guide the credit bank management of its affiliated units. The center performs the following duties: to guide the

subordinate credit bank management departments to carry out daily work; Organize the review of credit certification, credit transfer and other relevant certification materials; Handle users' application for review of credit bank management; Supervise and inspect the course construction in the credit banking system to meet the standards.

## **9. Implementation layer**

Establish a regional credit bank management sub center to be responsible for the specific business of the regional credit bank. The Credit Bank Management Sub center shall perform the following duties: review the user's application for learning in the Credit Bank; Manage relevant information of user credit banks in the region; Accept credit certification, credit conversion and other businesses, and handle the user's reconsideration application accordingly; Provide services such as proof of user credits, printing and transferring of learning files; Complete other duties assigned by the superior business department.

## **10. Consulting agency**

The consulting agency is jointly composed of the Credit Bank Expert Committee and the expert sub committee established by the experts in the field appointed by the Committee Office. The consulting agency performs the following duties: review the admission qualifications of each professional (module) school; Review the training program of each specialty (module); Formulate the curriculum catalog of vocational education, the construction standard of admission courses and the standard credit calculation method; Review the compliance of construction courses and set corresponding credits; Research and set up a credit certification and conversion standard system for various learning achievements, and provide consultation and guidance for credit certification and conversion.

## **11. Credit bank information platform**

Credit bank is a service provided by authorized education organization so that customers can save, manage and exchange education credits[3]. The information platform with perfect functions is an effective tool and important guarantee to realize the construction and operation of the vocational education credit bank system. The credit bank information platform of vocational education involves both the system construction and the technology. The scientificity and rationality of the platform design and the stability and reliability of the technology used have become important factors determining the stable operation of the credit banking system. The vocational education information platform under the background of education big data needs to process massive teaching resources, exchange data between multiple platforms, and complete the storage and analysis of student learning data. Therefore, we should adopt the current advanced cloud based construction model to build the vocational education credit bank information platform, and provide stable and reliable online services for multi-level, multi type, large-scale vocational education users.

## **12. Functions of information platform**

The characteristics of the vocational education credit bank, such as wide coverage, large number of users, and high service quality requirements, have determined that the information platform of the vocational education credit bank is generally distributed according to the three-layer organization, with three-level information center and a backup data center set up to backup data in real time. The National Information Center can interface with the public data interface of local education information basic platform and relevant institutions to provide corresponding data services; The vocational education credit bank information platform has information sub centers in all provinces (industry fields) and application nodes in employers.

The National Credit Bank Information Center corresponds to the first level business organization, which is mainly responsible for the establishment and management of the organization, the construction of the curriculum system, the construction of the standard system, etc. It also provides resources to support the operation of the vocational education credit bank information platform and completes comprehensive data analysis. Each provincial (industry) sub center corresponds to the second level business organization and is mainly responsible for account management, credit certification conversion, vocational education student learning file management, information node management, etc. The credit bank information node corresponds to the third level business organization, and is responsible for opening accounts, credit certification, conversion and file query for vocational education students. The data between the national center, sub centers and information nodes are vertically connected.

### 13. Structure of information platform

The operation of the credit banking system of vocational education relies on the information platform, so whether the information platform is constructed scientifically, whether the data flow is efficient and smooth, and whether the information security is guaranteed determine the success or failure of the development of vocational education. The overall structure of the credit bank information platform for vocational education can be divided into basic service layer, application support layer and application service layer. The basic service layer relies on the public Internet, including a series of network equipment, storage equipment, security and confidentiality equipment, to provide a basic environment for the deployment of vocational education credit banks. The application support layer includes 9 aspects, including unified identity authentication, data exchange, system software, portal support, etc., to provide support services for the operation of the application system. The application service layer provides application services for management institutions at all levels and the vast number of vocational education students participating in vocational education. Its construction content mainly includes institutional self-service portal, personal self-service portal and management platform.

Data is the core resource of information platform operation. The operational data format of the vocational education credit information platform is complex, including text, pictures, audio, video and other data formats. To make full use of the data resources of the information platform, we need to implement the following requirements: First, define the relevant responsibility requirements, pay attention to the data entry from the source, and ensure the efficient operation of the data; The second is to scientifically design the data process, formulate relevant systems and specifications, standardize the operating procedures, and collect, produce, transmit, store and back up information according to the program standards to prevent data from being tampered with or missing; The third, strictly implement the confidentiality provisions to ensure the information security necessary for vocational education.

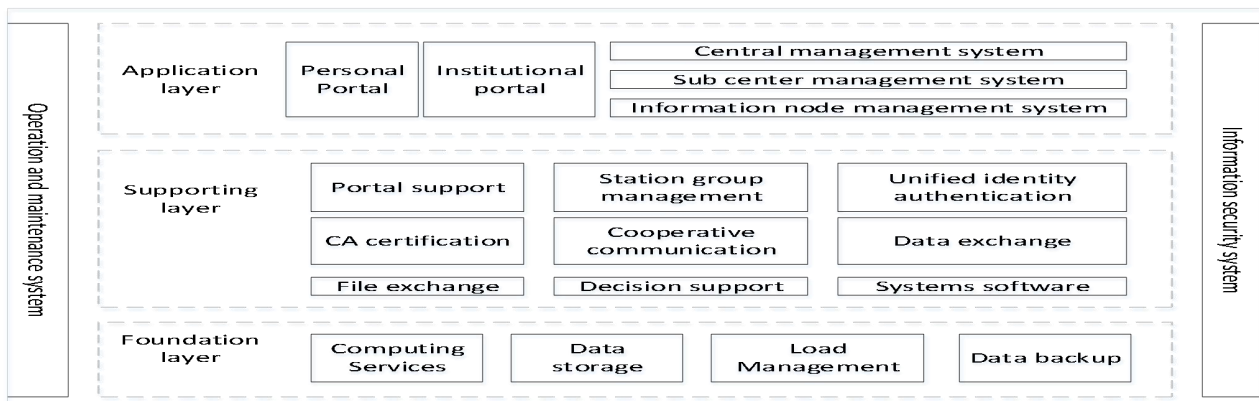


Fig. 2 Structure of the credit information platform

## 14. Website construction of bank portal for vocational education credits

The functions provided by the portal of vocational education credit bank include: establishing a learning account, managing credit files, certifying credits, converting and exchanging applications, publishing rules and regulations related to vocational education in real time, publishing news, pushing notices and other information, querying credit information and online navigation services. As the portal directly faces all vocational education students, the scientific and rational construction, the normative and comprehensive service, the stability and friendliness of the system directly determine the service quality of the credit bank. The special requirements for the construction of the credit bank portal of vocational education include: first, the direct connection mode between "teaching" and "learning". Vocational education students can directly select and learn the standard curriculum resources recognized by the credit bank of vocational education on the portal. The two ends of "teaching" and "learning" are directly connected, and the credits obtained are directly stored in the corresponding database of the credit bank. Second, one-stop service mode. Vocational education students can use various resources quickly and efficiently on the portal website independently. The website can realize the one-stop service of credit management, learning service, personalized recommendation and information consultation for vocational education students. Third, big data driven model. Relying on big data analysis technology, the website accumulates and integrates learning, behavior and operation data, provides demand analysis and decision-making suggestions for vocational education management institutions, teaching resource construction units and guarantee units, and provides personalized learning suggestions for vocational education students.

## 15. Summary

This paper focuses on strengthening the construction of system guarantee mechanism, and puts forward some suggestions and countermeasures from three aspects: defining the operating mechanism of vocational education credit bank, improving the organizational structure of credit bank system construction, and developing vocational education credit bank information platform. It puts forward the organizational structure of the vocational education credit bank with "three layers and two lines" (i.e., decision-making layer, management layer, executive layer, management line and technical line), clarifies the responsibilities of institutions at all levels, conducts functional analysis and structural design around the construction of the vocational education credit bank information platform, and puts forward the principles for the construction of the vocational education credit bank portal.

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