# ENTERPRISE ACCOUNTING STATEMENT PRODUCTION AND FINANCIAL CALCULATION FOR INTELLIGENT PLATFORMS

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## ABSTRACT

*The increasingly complex structure of enterprise economy highlights the drawbacks of traditional accounting, and this paper builds an intelligent platform to meet these challenges. Based on the overall objective, the design constructs the functional framework of full-scene reporting, budget control, intelligent filling and automatic accounting. In terms of technology application, OCR is applied to intelligent accounting, and bills are automatically filled through image processing and character recognition. Meanwhile, the enterprise financial process is reshaped based on process reengineering, and intelligent financial calculation methods are proposed. The study shows that the financial accounting intelligent platform significantly improves the total asset turnover rate of the enterprise, and the positive correlation between the two reaches 0.257. After the introduction of the intelligent platform technology in the accounting work, its technological advantages have brought a positive impact on the accounting work of the enterprise, and has brought substantial benefit improvement for the enterprise.*



## KEYWORDS

*Intelligent reporting; OCR technology; process reengineering; intelligent platform; enterprise accounting*




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# 1. INTRODUCTION

The general sense of the "intelligent management accounting platform" is based on digital technology, based on the software service development model, the traditional software services on the cloud, to provide users with data resources and software resources to share the information integration platform [1-2]. Using this comprehensive management platform, it can carry out information integration synthesis and management optimization for enterprises, and provide good data support for enterprise decision support. On this basis, based on the cloud computing shared information platform, with the premise of enterprise financial integration, artificial intelligence technology and risk early warning technology is applied to the decision support system, through digital technology and data sharing as a means to provide managers with digital interactive information platform support [3-5].

The construction and implementation of intelligent financial management system can enhance the efficiency of the traditional financial processing process, reduce the financial staff's complicated documents processing, report approval and other financial work, reduce the asymmetry of accounting information, and promote the change of financial management mode [6-7]. At the same time, under the application of big data technology information technology, the enterprise financial management process will be more transparent, real, more conducive to supervision and control, reduce irregular financial behavior, and safeguard the safety of enterprise funds and the stability of the financial environment [8]. The construction of enterprise intelligent financial management mode is an effective way to establish core competitive advantages in the fierce market competition environment and complex and changeable economic environment, therefore, enterprises should strengthen the basic computer software and hardware construction, enhance enterprise profits through the application of intelligent financial management mode, and guarantee the realization of strategic objectives [9-10]. At the same time, in the process of constructing intelligent financial management mode, enterprises also face the problems of insufficiently comprehensive system construction, insufficiently reasonable application of big data technology, and insufficiently scientific financial management methods. Therefore, enterprises should, on the basis of market prediction and future target analysis, actively introduce professional information talents and accounting talents, integrate scientific information technology such as big data technology into financial management activities, and then comprehensively enhance the competitive advantage and operational efficiency of enterprises [11-12].

Corporate accounting's and financial management research is of great significance to the overall efficiency and operation of enterprises. Literature [13] launched a 3-stage closed study, inviting 272 eligible people to fill in the questionnaire, exploring the relationship between investment literacy and financial management behavior, revealing the deep logic of financial behavior. Literature [14] analyzes the importance


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of financial management in green project financing for natural resource markets, and takes Pakistan as an example, proposes that a wide range of money supply and other related financial management measures can effectively escape from the "resource trap" problem. Based on the theory of Gendron and Rodrigue, [15] analyzed the boundary of corporate financial accounting, pointed out that the concept of "imagination" explains the key role of financial accounting in the composition of corporate entities, and made a phenomenological explanation of the financial links between individuals and organizations. Literature [16] discusses the social responsibility of corporate accounting from a realist critical perspective, choosing an Australian packaging company as the subject of the study, and proposing a new structuralist understanding of the expressive nature of corporate social responsibility. Literature [17] addresses the governance of accounting information in corporate enterprises, proposing a response based on the design of high standard objectives, and re-examining the historical accounting information data with high standard requirements to realize a new evolution of accounting research.

In this paper, an enterprise accounting intelligent platform is designed for the defects of the traditional accounting process, and the intelligent application direction is conceived from the aspects of full-scene account reporting, budget control, intelligent bill filling and automatic accounting. It proposes an OCR-based intelligent accounting reporting method, which carries out image rotation or image deformation of the original bill voucher image through the perspective transformation of image processing, corrects the skewed image therein, and extracts the key pixel points using binarization. Then the character recognition is completed by combining HOG features with SVM classification to realize the automatic filling of reports. For the financial calculation scenario, the enterprise financial process is simplified based on the process reengineering method, and the financial calculation is reintegrated by means of mathematical modeling. Finally, the production and sale of cosmetic lotion of a cosmetic company is used as a case study to develop the application of intelligent accounting, and the role of the use of intelligent platforms in corporate finance is explored through regression analysis.

# 2. CONSTRUCTION OF ENTERPRISE ACCOUNTING INTELLIGENCE PLATFORM

## 2.1. OBJECTIVE DESIGN OF ENTERPRISE ACCOUNTING INTELLIGENCE PLATFORMS

Relying on the financial sharing platform to build electronic image module and mobile application reimbursement module and other sub-systems, to realize the intelligent filling of the billing business, automatic identification and verification of invoices, automatic and intelligent system audit, real-time automatic generation of


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vouchers, real-time analysis of the report push. Promote the quality of financial work, efficiency and power of change, so that the existing accounting staff can be liberated from the heavy and boring and low-value affairs, and focus on the creation of high value, to truly realize the transition from basic accounting to management accounting.

## 2.2. FUNCTIONAL FRAMEWORK OF INTELLIGENT ACCOUNTING PLATFORM

### 2.2.1. FULL SCENARIO REPORTING

The functional framework includes the setting of reporting matters for prior application, material procurement, functional expenses, monopoly law enforcement funds, financial expenses, employee remuneration, tax and fee payment, R&D expenditures, capital operations, asset operations and other operations. The automatic accounting generation in the whole scenario is shown in Figure 1. Matching document templates for different business matters, realizing online filling by employees, online approval by management and document status tracking. Support write-off of pending accounts, receivables and payables.

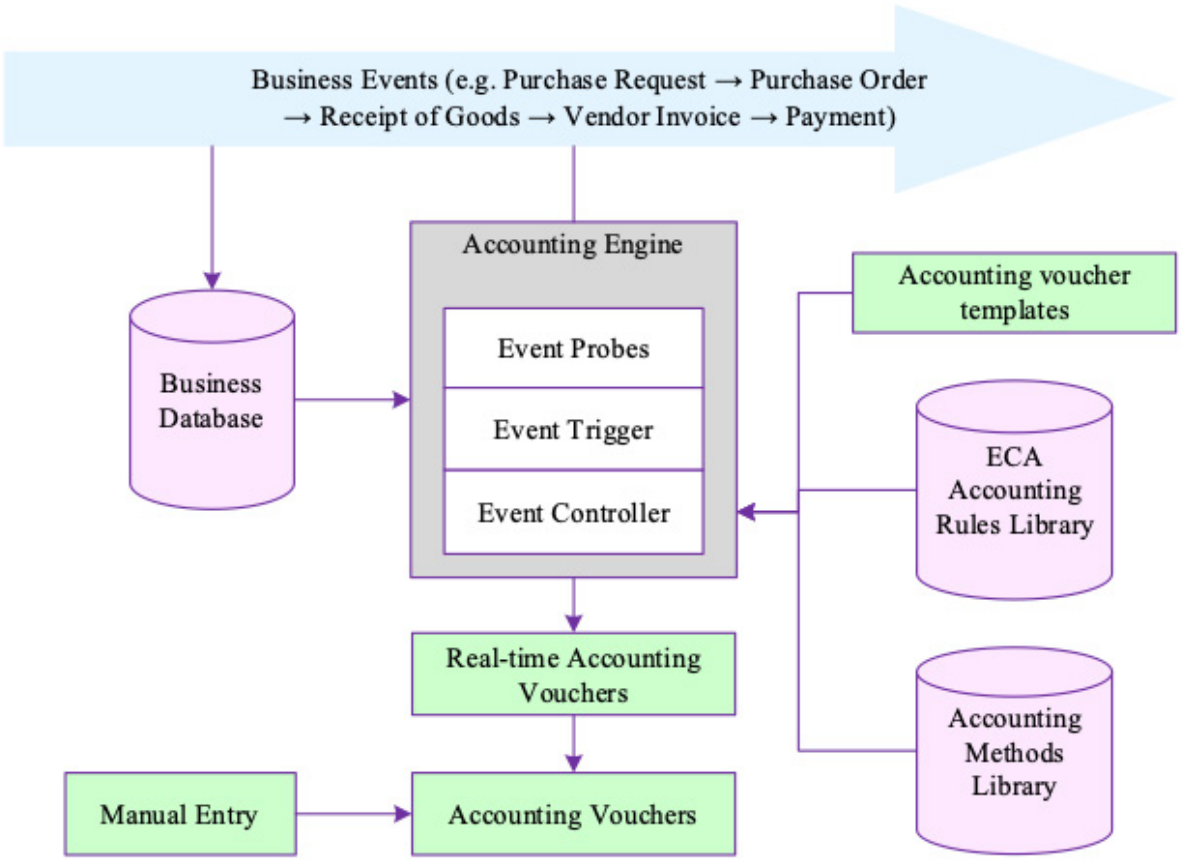


**Figure 1.** Automatic report formation under the full view


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## 2.2.2. BUDGETARY CONTROL

The intelligent accounting platform is docked to the comprehensive budget management system, and through system interaction, the budget data validated by the comprehensive budget module is synchronized to the intelligent accounting platform for the process control of freezing, occupying and releasing the budget. The budget control process is shown in Figure 2. The intelligent accounting platform regularly writes back the budget execution figures to the comprehensive budget module as the basic data for the budget execution statement.

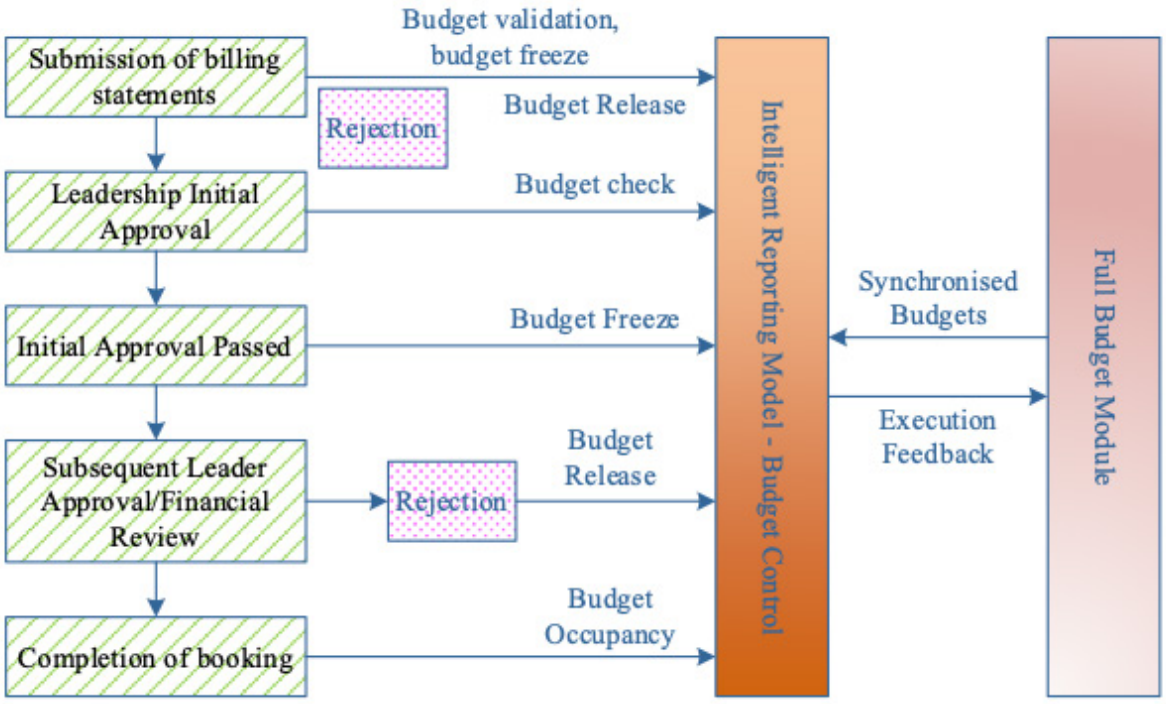


**Figure 2.** Budget control process

Intelligent accounting platform is docked to the shared operation module, which pushes the approved accounting documents to the shared operation task pool for auditing and sends back the auditing status of the documents. Intelligent accounting platform connects to the fund management module, synchronizes the fund budget to automatically generate the fund plan, and updates the execution of the fund plan according to the execution of the fund budget. Synchronize the information of the reporting documents with the bank water for automatic matching, and send back the bank water information to the reporting documents.

## 2.2.3. INTELLIGENT BILLING AND AUTOMATED ACCOUNTING

It supports extracting information from invoices, contracts, customers, etc. and automatically filling in relevant fields, automatically calculating tax deductible amount, and automatically filling in payee bank account information. According to the standard


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business matters corresponding to the accounting standards, automatically generate accounting vouchers. At the same time, it interfaces with internal and external systems, receives or pushes out information, and generates corresponding accounting documents according to the received information or checks the information in the relevant systems in the accounting documents to realize information sharing.

# 3. INTELLIGENT REPORT PRODUCTION AND FINANCIAL CALCULATION

## 3.1. OCR-BASED INTELLIGENT ACCOUNT REPORTING

### 3.1.1. BILLING IMAGE PROCESSING

1. Perspective transformation and image normalization

The use of high-flying cameras or mobile devices for the original certificate image information acquisition, the need to extract the original certificate from the captured image, in the process of using image processing perspective transformation for the original certificate image image rotation or image deformation. Perspective transformation, also known as projection transformation, refers to the use of perspective center, the target point, the image point of the conditions of the three points of the co-linear, according to the law of perspective rotation so that the perspective surface and the axis of rotation of the perspective at a certain angle, destroying the original projected beam of light, but still be able to maintain the projection geometry on the surface of the projected surface of the unchanged transformations.

The essence of perspective transformation is to project an image onto a new plane, and the mutual transformation between the original image $P$ and the new image $P'$ requires a perspective transformation matrix $T$, which is realized by equation (1):

$$\begin{bmatrix} x' & y' & z' \end{bmatrix} = \begin{bmatrix} u & v & z \end{bmatrix} * T \tag{1}$$

Where $(u, v)$ is the pixel coordinate of the original image $P$, after perspective transformation, the corresponding image $P'$ coordinate is $\left(x = x'/z'/, y' = y'/z'\right)$. The transformation formula for the perspective transformation matrix $T$ is as follows:

$$T = \begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{bmatrix} = \begin{bmatrix} T_1 & T_2 \\ T_3 & a_{33} \end{bmatrix} \tag{2}$$


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Wherein, $T_1 = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}$ is a linear transformation of the scanned image information, and $T_2 = [a_{13} \quad a_{23}]$ produces a perspective transformation. $T_3 = [a_{31} \quad a_{32}]$ represents the recognized image translation.

2. Image rotation

Image rotation processing that is the process of image tilt correction, the phenomenon of image tilt refers to the operation of the actual business process, due to reimbursement claims processing business personnel are not familiar with high-fidelity camera and other hardware equipment, there is a scanning process of the original voucher paper inverted, that is, rotated 180 °, in this case, the scanning of the image needs to be flipped after the processing. Taking the VAT invoice as an example, the VAT invoice will be stamped with a red seal in the middle of the invoice right above the invoice, and the position of the red seal of the invoice can be detected through this mark to determine whether there is an inversion of the VAT invoice in the process of scanning the invoice.

3. Image binarization

Through the above series of image transformation operations, in order to really extract a correctly placed original certificate image, and has been normalized to the pixel size of 1200 * 700, the next thing to do is to do further image processing for the original certificate image, highlighting the characteristics of the image and reduce other interference. The first step is to binarize the original certificate image.

Binary image of each pixel value are black or white, will be defined as 0 for black, 255 defined as white, binary map is non-black or white image, and will be converted to a binary map of an image we call the process of image binarization. The role of image binarization is to distinguish the background of the image from the target, the background mentioned here is the part of the image other than the specific target to be obtained. The maximum inter-class variance binarization algorithm is introduced next.

The maximum interclass variance formula is shown in equation (3)

$$\sigma_B^2 = P_1 \left(m_1 - m_G\right)^2 + P_2 \left(m_2 - m_G\right)^2 \tag{3}$$

Where $\sigma_B^2$ denotes the inter-class variance, $P_1$ denotes the probability of a pixel being classified as a target image, $P_2$ denotes the probability of an image being classified as a background image, $m_1$ denotes the average gray level of a pixel being classified as a target image, $m_G$ denotes the average gray level of all pixels, and $m_2$ denotes the average gray level of a pixel being classified as a background image. So in the process of binarization of the image, traverse the 256 pixel values and find a


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pixel value which gives maximum inter class variance, then this pixel value is considered to be the appropriate threshold value and process the image with this appropriate threshold value and finally get the binarized image.

### 3.1.2. BILLING CHARACTER RECOGNITION

In the natural scenario of expense reimbursement, the characters to be recognized include the name of the purchaser and seller, invoice number, invoice code and taxpayer identification number in the VAT invoice or the type of medical insurance and social security number in the medical fee invoice, which contains both character recognition and text recognition. Recognition methods for character recognition.

HOG, short for Histogram of Orientation Gradient. HOG is an image feature that is very commonly used in the field of computer vision and pattern recognition to describe the local texture of an image [18]. HOG features combined with SVM are widely used in the field of image recognition, and here this method is also applicable to character recognition. The processing flow of HOG+SVM method is shown in Figure 3.

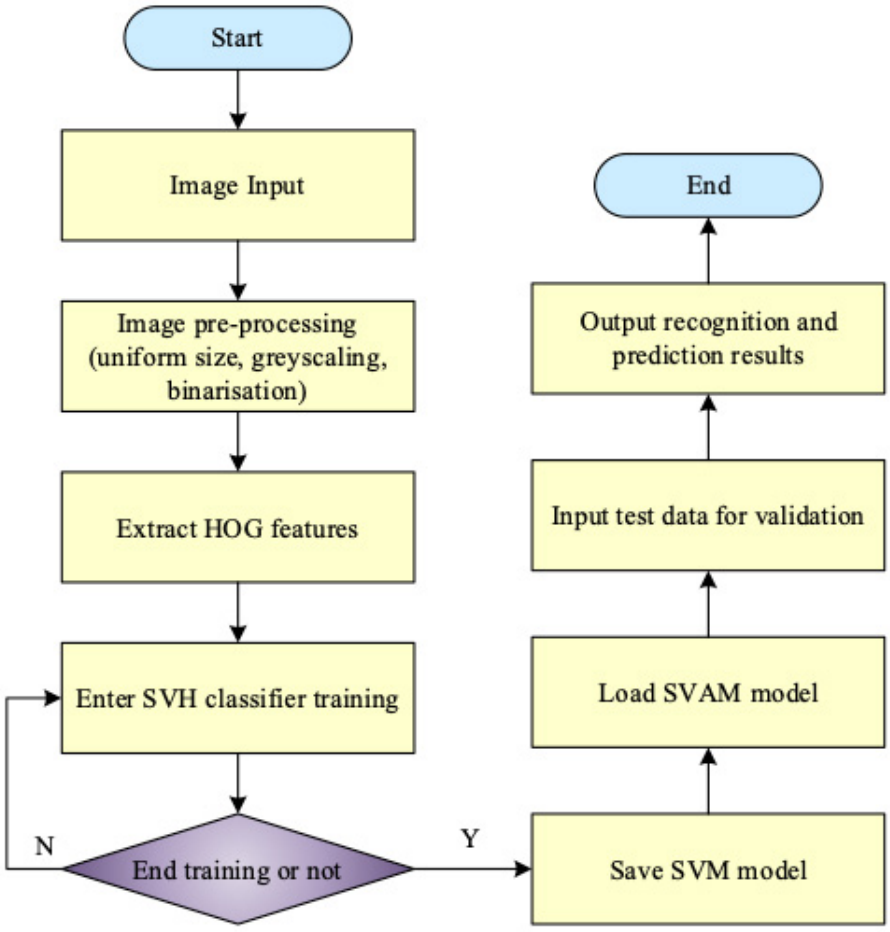


**Figure 3.** The HOG+SVM method processing process

The specific implementation steps of HOG+SVM algorithm are as follows:


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1. After grayscaling and normalizing the collected original voucher image, as an input to the algorithm, calculate the directional gradient through the gradient operator and get the gradient information of the image, the gradient formula is as follows:

$$G_x(x,y) = H(x+1,y) - H(x-1,y) \quad (4)$$

$$G_y(x,y) = H(x,y+1) - H(x,y-1) \quad (5)$$

In Eq. $G_x(x,y)$ and $G_y(x,y)$ represent the horizontal and vertical gradients of $(x,y)$ the pixel point in the input image, respectively, and $H(x,y)$ denotes the pixel value of the pixel point, then the magnitude and direction of the gradient at that point is:

$$G(x,y) = \sqrt{G_x(x,y)^2} + \sqrt{G_y(x,y)^2} \quad (6)$$

$$\alpha(x,y) = \tan^{-1}\left(\frac{G_y(x,y)}{G_x(x,y)}\right) \quad (7)$$

2. After completing the above steps, the next step is to segment the sample image into cells containing a number of pixels, for example, segmented into units of size 3*3, divide the gradient direction sub-evenly into 9 intervals, and in each cell perform interval histogram statistics of the gradients of all the pixels in the 9 directions, to obtain a 9-dimensional feature vector.

3. Combine individual cell units into large, spatially connected intervals. The feature vectors of all cells in an interval are concatenated and normalized to obtain the HOG features of the interval.

4. HOG feature extraction is accomplished by concatenating all the blocks that have completed normalization.

5. Using the extracted features and the pre-completed classification labels, SVM classifier training is performed. Input the character to be recognized, first perform HOG feature extraction, and then complete the character recognition by the classifier trained in the above steps.

## 3.2. FINANCIAL CALCULATIONS BASED ON PROCESS RE-ENGINEERING

Typical features of accounting process reengineering can be summarized as integration of financial business processes, decision making by employees, natural shaping, and process diversification [19]. Performing work in the smartest state, reducing checks and controls, reducing tradeoffs and coordination, providing a single point of contact, centralization and decentralization coexist, etc. In this paper, the typical features applied to financial processes are selected based on the difference


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between process reengineering and financial process reengineering, and financial calculations are reintegrated by means of mathematical modeling.

The following assumptions can be made about sequential and parallel systems:

1. Sequential system. Total work tasks are divided among sequenced $m$ treasurers, each of whom processes one job. All tasks are processed in the same order $1,2,\ldots,m$. There exists between personnel $J$ and $J-1$ that there are enough tasks waiting to be processed by personnel $J$. Each personnel processes one job at a time.

2. Parallel system. Parallel processing mode has personnel with the same function, and all the tasks required for the job can be accomplished one after the other in the hands of any one of the personnel, with no interruptions or change times between tasks. The total processing time of a task in the hands of each personnel is and its mean value is:

$$\overline{S'} = \sum_{j=1}^{m} \overline{S_j} \tag{8}$$

$Svc$ for $C_s^2 \cdot \sum_{j=1}^{m} \overline{f_j^2} \cdot C_{s_j}^2$, among others:

$$f_j = \overline{S_j} / S' \tag{9}$$

The processing efficiency of the sequence processing model is:

$$TH^{(S)} = 1 / \max_j \overline{S_j} \tag{10}$$

In contrast, the processing efficiency of the parallel processing model is:

$$TH^{(p)} = n / S' \tag{11}$$

Notice that if $n \geq n^t = \sum_{j=1}^{m} \overline{S_j} / \max_j \overline{S_j}$ & $n^t < m$ then there is $TH^{(S)} \geq TH^{(p)}$ unless the sequential system is balanced (has an average business processing time) and so $\overline{S_j} = \bar{S}'/m, J = 1,\ldots,m$. That is, the parallel processing mode can require only a small investment. In order to make the resource requirements of the two modes the same. In order to make the resource requirements of the two systems identical, it will be assumed that the sequential systems are balanced in terms of average processing time, so $\overline{S_j} = \bar{S} = \overline{S'}/m, J = 1,\ldots,m$. Following this, we have $f_j = 1/m$, $C_S^{2'} = \sum_{j=1}^{m} C_{S_j}^2 / m^2$. For simplicity, it will also be assumed for most comparisons that


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the sequential systems are identical in terms of the $Scv$ of the modal processing operation times, i.e., $C_{s_j}^2 = C_s^2, J = 1,\ldots, m.$

Assume that the mean task arrival interval is $1/\lambda$ and $Scv$ is $C_s^2$ and that the task intervals are independent. The utilization rate of each personnel is $p = \lambda \bar{S}.$

In a sequential system, it is assumed that jobs are processed in FCFS order, whereas in a parallel system there are more ways to carry out control. There are two options to consider:

1. Random assignment. Arrival tasks are randomly assigned to parallel personnel with a probability of assignment to a particular personnel of $1/m$. Thus, the $Scv$ of the arrival interval on that personnel is $1 - 1/m + C_s^2 m.$
2. Cyclic assignment. Arrival tasks are assigned mechanically, with the first task going to person 1, the second to person 2, and so on. The $Scv$ of the arrival interval on a particular person is $C_s^2/m.$
3. Single-team assignment. Instead of assigning tasks to a parallel person as soon as they arrive, tasks are first organized into a single queue and then assigned from that queue to the person who will be idle.

A common performance metric for comparing the two patterns is the total average captain. Viewing the patterns as special open business processing units, the performance metric for the sequential pattern is made to be $\bar{l}^{(n)}$, and the performance metrics for the parallel system, randomized allocation, and round-robin allocation are made to be $\bar{l}^{(p)}$ and $\bar{l}^{(c)}$.

The interaction between employees and leaders and finance in the new process is no longer face-to-face, but through the system as an interface. There is no longer the phenomenon that the work of leaders is interrupted, saving a lot of labor costs. The efficiency of the financial entry staff is also greatly improved after the reengineering, a large number of review work is replaced by the system simulation verification, financial staff only need to pay attention to the authenticity of the bills, business compliance can be. Due to the organic docking between the reimbursement system and the Internet banking system, the workload of the cashier has also greatly decreased, and through batch import, a cashier can complete the work of multiple cashiers previously. Due to the transparency of the whole process of the system, the information communication cost of each link has been effectively controlled. From employees to leaders to finance, you can dynamically monitor the process and status of each relevant document.


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# 4. EXAMPLES OF ENTERPRISE INTELLIGENT ACCOUNTING APPLICATIONS

The case study is based on the production and sale of general cosmetic lotions by a cosmetic company. For the sake of simplicity, certain conditions have been set for this case.

First, considering that a real multi-firm value chain can eventually be transformed into the simplest model of supplier, manufacturer, and seller, the value chain of this cosmetic company (denoted by M) consists of only upstream material suppliers (denoted by S) and downstream sellers (denoted by D).

Second, the value chain within enterprise M is composed of a number of value activities such as design and development, material procurement, production and processing, sales and delivery, and after-sales service, while design and development and after-sales service are not considered for the time being because they are not representative.

Thirdly, the operation and management costs incurred within the enterprise for daily operation and management are not very relevant to the research purpose of this paper, so they are not considered as the research object.

Fourthly, this chemical pastoral company assumes that there is only one production workshop which only produces two kinds of cosmetic emulsions T1 and T2, and the production process of this product is five specific operations: oil phase preparation, water phase preparation, emulsification and cooling, aging, and filling; the outputs of oil phase preparation and water phase preparation are the inputs of emulsification and cooling; the outputs of emulsion and cooling are the inputs of aging and filling; the outputs of filling are the final products. The output of the filling operation is the final product, and different products A and B are obtained according to the different amounts of raw materials added, heating and cooling time in each process.

## 4.1. INTERNAL COST ACCOUNTING

Resource consumption for the month is charged separately to each resource account, i.e., the various resources consumed during the month are charged separately to each resource account. The calculation of material costs for Company M is shown in Table 1. The content costing of material costs for the two products, T1 and T2, totals $1,008,300. Since specific products directly consume specific materials, they can be charged to each product cost account according to the product's quota consumption value, and the difference in material costs over the quota is charged to manufacturing overhead.


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**Table 1.** M company's material cost calculation (Yuan)

| Resource project | | Materials cost | | | Total |
|---|---|---|---|---|---|
| | | Oil phase | Water phase | Packaging | |
| Production cost | T1 | 267200 | 201400 | 11500 | 480100 |
| | T2 | 298300 | 195600 | 10200 | 504100 |
| Manufacturing cost | | 13900 | 10200 | - | 24100 |
| Total | | 579400 | 407200 | 21700 | 1008300 |

## 4.2. INTER-ENTERPRISE COSTING

After the above-mentioned resource analysis and cost collection, it is the specific accounting of inter-enterprise costs. First of all, we take the fees collected in all primary assembly points as transaction costs, and the fees collected in all secondary assembly points as relationship costs, and calculate the human, financial and material resources that occur between S-M and M-D in the transaction costs and relationship costs, respectively, and the inter-enterprise cost accounting is shown in Table 2. Among them, the final accounting results of transaction cost and relationship cost were 89,353.5 yuan and 216,848.5 yuan respectively.


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**Table 2.** Acquisition cost accounting

| Project | Transaction cost (Yuan) | | | | | |
|---|---|---|---|---|---|---|
| | HR primary assembly point | | FR primary assembly point | | MR primary assembly point | |
| | S-M | M-D | S-M | M-D | S-M | M-D |
| Direct account | 0.0 | 0.0 | 27614.0 | 27635.0 | 0.0 | 0.0 |
| Mixed transfer | 4852.4 | 6354.2 | 9215.4 | 2854.3 | 3685.7 | 7142.5 |
| Subtotal | 4852.4 | 6354.2 | 36829.4 | 30489.3 | 3685.7 | 7142.5 |
| Amount to | 11206.6 | | 67318.7 | | 10828.2 | |
| Total | 89353.5 | | | | | |
| Project | Relationship cost (Yuan) | | | | | |
| | HR primary assembly point | | FR primary assembly point | | MR primary assembly point | |
| | S-M | M-D | S-M | M-D | S-M | M-D |
| Direct account | 44123.5 | 37481.5 | 15428.3 | 97541.2 | 8248.4 | 14025.6 |
| Mixed transfer | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Subtotal | 44123.5 | 37481.5 | 15428.3 | 97541.2 | 8248.4 | 14025.6 |
| Amount to | 81605 | | 112969.5 | | 22274 | |
| Total | 216848.5 | | | | | |

# 5. RESEARCH ON THE IMPACT OF INTELLIGENT PLATFORMS ON BUSINESS ACCOUNTING

## 5.1. RESEARCH HYPOTHESIS AND VARIABLE SETTING

The theory of operational accounting points out that the degree of refinement of accounting work will directly affect the operational efficiency of enterprises. The impact of the intelligent platform on accounting work and operational accounting performance response, decision support, real-time control features have many similarities, the application of the intelligent platform in the accounting confirmation process can make the confirmation of income and expense accounting data more real and reliable, in order to improve the operational efficiency of the income and expense confirmation process at the same time also reduces the cost of the enterprise, for the managers to make decisions to provide more accurate and effective support for the financial data so as to Enhance the efficiency of the enterprise.


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In this paper, the sample data is selected from the data of listed companies in the computer, communication and other electronic equipment manufacturing industry that have introduced intelligent platforms in their accounting work between 2012 and 2022, and the data is obtained from the database of GuotaiAn. First of all, this paper will empirically explore the effectiveness of the practical application of intelligent platform in accounting work. Measuring the enhancement of corporate efficiency should not only consider the changes in revenue, but also need to consider the changes in total assets, the use of revenue and asset rationing relationship reflects the efficiency of the enterprise's use of assets, and better reflect the actual operating efficiency of the enterprise, so this paper will be the total asset turnover as a measure of the effectiveness of the application of the intelligent platform in the accounting work.

The representation and definition of each variable are shown in Table 3. By collecting the data of listed companies in the computer, communication and other electronic equipment manufacturing industry that use the intelligent platform in accounting work from 2012 to 2022, and after processing the sample data by deleting the missing values outliers as well as up and down indenting by 1.5%, 152 compliant sample data are obtained.

**Table 3.** The representation and definition of each variable

| Variable type | Variable name | Variable symbol | Variable specification |
|---|---|---|---|
| **Explained variable** | Total asset turnover | TAT | Use total asset turnover rate as a measure of the effectiveness of block chain technology in accounting work |
| **Interpretation variable** | Use smart platforms | Smart-plat | The sample enterprise used the year of the block chain technology in accounting accounting to be 1, and did not use the block chain technology year for 0 |
| **Control variable** | Total asset profit rate | ROA | The total net profit of the enterprise is the ratio of the total total assets of the enterprise |
| | Company size | Size | The average total assets of the year |
| | Asset ratio | ALR | The annual report lists the ratio of total liabilities to assets |
| | Current liability ratio | CAR | The annual current liabilities account for the total amount of liabilities |

## 5.2. STATISTICAL EMPIRICAL ANALYSIS

The correlation analysis was done by analyzing the explained variables, explanatory variables as well as control variables and making initial judgment on the research hypotheses. Table 4 gives the correlation analysis of the main variables. According to the table, it can be seen that whether or not to adopt the smart platform dummy variable in accounting work has a significant positive correlation with the total asset turnover ratio (0.257), and the total asset turnover ratio has a positive and


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significant correlation with the company's size, the asset liability ratio and the current liability ratio, but the correlation with the profitability of the total asset ratio is insignificant, which indicates that the profitability level of the enterprise may not be a representative of the enterprise's operational efficiency, on the contrary, it may be that the profitability level of the enterprise may not represent the operational efficiency of the enterprise. Intelligent platform dummy variable indicators have a more significant effect on the total asset turnover ratio.

Table 4 Correlation analysis of major variables

| TAT | Smart-plat | ROA | ALR | CAR | Size | |
|---|---|---|---|---|---|---|
| TAT | 1 | | | | | |
| Smart-plat | 0.257*** | 1 | | | | |
| ROA | 0.0274 | 0.00124 | 1 | | | |
| ALR | 0.325*** | -0.0543 | 0.152* | 1 | | |
| CAR | 0.192** | 0.206** | -0.0132 | -0.254*** | 1 | |
| Size | 0.223*** | 0.158* | -114 | 0.0325 | 0.178** | 1 |

The above study shows the positive correlation of the dummy variable of intelligent platform on the total asset turnover ratio, on the basis of which we will carry out multiple regression analysis on the related variables, and the multiple regression results of the main variables are given in Table 5. As can be seen through the multiple regression results, the regression results of the intelligent platform dummy variable as an explanatory variable are significant, while the regression results of the three control variables, namely company size, gearing ratio, and current liabilities ratio, are also more significant, with 95% confidence intervals of [0.14852,0.30819], [0.16751,1.27943], [0.02417,- 0.02252]. It shows that to some extent the initial experimental hypotheses can be verified, but the variable of net profitability of total assets is not significant, which matches the results of the previous correlation analysis. The profitability level of the sample enterprises did not significantly affect the total asset turnover ratio of the enterprises, from which it can also be seen that the profitability level of an enterprise can not be a single indicator to measure the level of operation of the enterprise. The total asset turnover ratio, as a measure of the effectiveness of the application of the intelligent platform in accounting, is significantly affected by the dummy variable of the intelligent platform, which shows that after the introduction of the intelligent platform technology in accounting, its technological advantages have brought about a positive impact on the accounting work of the enterprise, and brought about a substantial increase in the efficiency of the enterprise. The positive regression results of the gearing ratio variable reflect that although more capital utilization will bring certain debt-servicing pressure and debt risk to the enterprise, it is able to utilize the utilized capital to improve the operating efficiency of


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the enterprise, and the production scale benefit brought by the larger company size can also significantly improve the asset turnover rate.

**Table 5.** Multivariate regression of major variables

| Source | SS | Df | MS | Number of obs | | 152 |
|---|---|---|---|---|---|---|
| | | | | F(5, 142) | | 10.56 |
| Model | 9.45217 | 6 | 1.93582 | Prob > F | | 0 |
| Residual | 26.1247 | 141 | 0.163574 | R-squared | | 0.2574 |
| Total | 36.21457 | 143 | 0.235841 | Adj R-squared | | 0.2415 |
| | | | | Root MSE | | 0.43153 |
| TAT | Coef. | Std.Err | t | P>\|t\| | [95%Conf. | Interval] |
| Smart-plat | 0.23161 | 0.05582 | 3.27745 | 0.00421 | 0.09421 | 0.34829 |
| ROA | 0.60507 | 0.38991 | 1.69422 | 0.10514 | -0.13486 | 1.31163 |
| ALR | 0.17127 | 0.02043 | 5.24553 | -0.07268 | 0.14852 | 0.30819 |
| CAR | 0.68195 | 0.2884 | 2.59546 | 0.04716 | 0.16751 | 1.27943 |
| Size | 5E-05 | -0.05145 | 2.01994 | 0.05924 | 0.02417 | -0.02252 |
| _cons | -0.28104 | 0.24317 | -0.95824 | 0.35691 | -0.75004 | 0.24245 |

## 6. CONCLUSION

In this paper, by building an intelligent platform for enterprise accounting and designing the corresponding functional framework, we propose an intelligent reporting method based on OCR and a financial calculation based on process reengineering. Company M is selected as an accounting example, and the impact of the intelligent platform on accounting is analyzed by regression method. The research conclusions are as follows:

1. The adoption of intelligent platform dummy variables in accounting work has a significant positive correlation (0.257) with the total asset turnover rate, while the total asset turnover rate and so on also have a positive and significant correlation, indicating that the level of corporate profitability may not be representative of the operational efficiency of the enterprise, on the contrary, the intelligent platform dummy variable indicators of the total asset turnover rate has a more significant impact.

2. Intelligent platform dummy variable as an explanatory variable its regression results are significant, but the total assets net profit margin variable is not significant, which matches the results of the previous correlation analysis.


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3. The positive regression results of the gearing ratio variable reflect that more funds are occupied, which will bring certain debt-servicing pressure as well as debt risk to the enterprise, but it can utilize the occupied funds to improve the operating efficiency of the enterprise.

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