

## Research on the Performance Evaluation of the Financial Shared Service Center Based on the Sustainable Balanced Scorecard

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**Abstract:** With the diversification and global operation of enterprises, the Financial Shared Service Center has become a new trend in the transformation of corporate financial management. Through the standardization of business processes, the integrated development of corporate business and financial information will reduce the cost and improve the operational efficiency of internal organizations. Performance evaluation plays an important role in maintaining the effective operation of the Financial Shared Service Center. It is especially important to establish a performance evaluation system suitable for the operation characteristics of the Financial Shared Service Center. Previous studies have used the Balanced Scorecard. Based on the Sustainable Balance Scorecard, this paper adds social and environmental dimensions based on the four dimensions of finance, customer, internal business process, learning and growth, and then evaluates the sustainable development capabilities of Financial Shared Service Center. The research results show that the customer and internal business process dimensions are more important. In The five dimensions, labor cost, problem processing efficiency, business processing efficiency, employee training completion rate, and innovation investment are worthy of attention.

### 1. Introduction

In the context of global economic integration, the expansion of enterprise business is faced with a global market. The expansion of business scale brings about the continuous increase of departments and posts. The operation of internal organizations faces challenges, and business processes need to be standardized. The development of information technology such as big data promotes the reorganization of corporate financial processes. Modern information technology enables the integrated development of corporate finance and business, and all departments of the enterprise share resources to achieve coordinated development. With the support of national policies, financial sharing has become a new trend in financial transformation of various enterprises. Through standardization management, the integration of business and financial information is promoted, synergy is generated, and the level of financial risk control is improved, thereby improving the effectiveness of the control of entire enterprise. As an innovative organization, we should use the performance evaluation system that meets its own characteristics to help the Financial Shared Service Center to locate and play its service functions, and help the company's strategic landing and value creation.

Most of the existing literatures use the Balanced Scorecard to establish a performance evaluation index system for the Financial Shared Service Center from the perspectives of finance, customers, internal business processes, learning and growth. Xu Jie, Zhang Qiang (2018) used the DEMATEL method to study the degree of influence and causality between the performance indicators of the Financial Shared Service Center [1]. The results show that the internal business process is the core indicator. Chen Yi (2018) studied the characteristics of the Financial Shared Service Center in the

era of “Da zhi Yi yun” [2]. Through the Delphi method and the analytic hierarchy process, it was pointed out that the financial sharing service is gradually moving towards external sharing and providing services to the outside, so customer satisfaction, service personalization, business processing quality and other indicators become the core indicators. Hao Jiajia et al. (2018) established a key performance indicator hierarchy model for outsourced Financial Shared Service Center based on the Balanced Scorecard [3].

In today's business environment, sustainable development is a trend, and it emphasizes the integration of society and the environment into the strategy and management of the enterprise. The Balanced Scorecard combines with sustainable parameters to form a Sustainable Balanced Scorecard. The financial sharing service center plays an important role in the strategic implementation and value creation of enterprises in the context of new information technology. It is necessary to incorporate social and environmental perspectives into their performance evaluation systems, and use the Sustainable Balanced Scorecard to establish a performance evaluation system to promote the sustainability of the service center.

## **2. Literature Review**

### **2.1 Sustainable Balanced Scorecard**

Integrating social and environmental aspects into the management of the company is an important part of today's business activities, and the Sustainable Balanced Scorecard offers tremendous potential for addressing this issue. The Balanced Scorecard has been combined with sustainable parameters to provide meaningful tools for sustainable development (Rabbani et al., 2014) [4]. The Sustainable Balanced Scorecard clearly integrates the environmental, social and ethical goals associated with the strategy, which differs from the Balanced Scorecard in that it clearly recognizes sustainability-related goals and metrics (Hansen et al., 2016) [5]. Yılmaz et al. (2018) analyze companies that published sustainability reports in 2015 and 2016 [6]. From the indicators included in the sustainability report, 20 key performance indicators common to each company were selected and utilized. The TOPSIS method evaluates the selected performance indicators, intersects the sustainable development dimension with the Balanced Scorecard dimension, and establishes a sustainable balanced scorecard model.

According to Figge (2010) and Zeynep (2016), there are three possible scenarios for adopting a sustainable strategy in an organization that uses a balanced scorecard: integrating environmental and social aspects into existing four standards, creating an additional perspective to consider social and environmental aspects, and developing a specific environment or society scorecard [7, 8]. Among them, the creation of an additional perspective is considered to be a relatively simple and feasible method. This paper increases the social and environmental performance of the Financial Shared Service Center performance evaluation system.

### **2.2 Financial Sharing Service**

As the enterprise develops to a certain stage, the business volume continues to increase, the traditional financial management model no longer meets the needs of enterprises, and the emerging financial management model of financial sharing emerges as the times require (Tang Yuqi, 2018) [9]. The use of financial sharing services is the key to the transformation of financial management models. Financial sharing services are independent organizational entities that integrate and centrally integrate corporate financial activities and provide services to all departments of the enterprise (Li Aiwei, 2018) [10]. Chen Hu and Sun Yancong (2015) defined the goal of financial sharing services to improve business operation efficiency, improve customer satisfaction and service level of enterprises [11]. Financial sharing services are designed to enable enterprises to integrate data across business and departments, and to separate financial and management accounting, and to integrate financial resources.

Zhou Lei et al. (2019) believed that under the era of “Da zhi Yi yun”, financial sharing services tend to build a “cloud platform”, which is more extended to the business side, and the goal shifts

from centralized management of corporate finance to value creation [12]. In addition, Chen Yi (2018) also pointed out that financial sharing services are more oriented to customer needs and create value through data mining, analysis and redevelopment [2]. However, the construction of China's Financial Shared Service Center still faces many problems in the information age. For example, business process and information system construction are still not perfect, employee service awareness is insufficient, and unified management mechanism is lacking. Therefore, the construction of the Financial Shared Service Center should strengthen the training of employees and the improvement of information systems, develop standardized business processes, pay attention to internal management of enterprises, and establish a performance appraisal system that can comprehensively evaluate operational efficiency.

### **3. Establishment of the Performance Evaluation Index System of the Financial Shared Service Center**

Based on previous research, this paper adopts the concept of Sustainable Balance Scorecard to construct a performance evaluation index system from the perspectives of finance, customers, internal business processes, learning and growth, and social and environmental aspects.

#### **3.1 Performance Evaluation Index System**

##### **3.1.1 Financial Dimension**

Zeynep et al. (2016) argue that the financial perspective only assesses firm performance based on financial performance, and indicates that previous strategies have achieved economic success by measuring revenue growth, return on investment, and cost reduction [8]. The goal of the Financial Shared Service Center is very different from that of the traditional enterprise. The pursuit of profit is transformed into providing high-quality services at low cost. Therefore, the performance appraisal should be centered on cost. In this paper, the cost profit rate, unit business cost and labor cost ratio are taken as the three assessment indicators.

##### **3.1.2 Customer Dimension**

In the customer dimension, customer value and profitability are considered key metrics, enabling organizations to create a clear vision for their customers based on their needs and expectations. The customer is the foundation of any organization's work. In the context of the Financial Shared Service Center tending to provide external services, customer demand becomes its business orientation. In the customer dimension, this paper selects customer satisfaction, number of customer complaints, and problem processing efficiency as evaluation indicators.

##### **3.1.3 Internal Business Process Dimension**

Companies should effectively identify and build internal value-driven processes that are critical to the goals of customers and shareholders. Figge et al. (2010) argue that the internal process perspective identifies internal business processes that enable the company to meet the expectations of customers and shareholders in the target market [7]. The internal business process dimensions should reflect the operational and management efficiencies within the Financial Shared Service Center. This paper adopts the business completion rate, business process standardization rate, business error rate, and business processing efficiency as the evaluation indicators of internal business processes.

##### **3.1.4 Learning and Growth Dimension**

The learning and growth perspective focuses on internal skills and competencies and is the foundation for achieving the goals of the other three perspectives, including employee skills, training, and day-to-day process management. The learning and growth dimension is an assessment of the development capabilities of the Financial Shared Service Center. In order to cope with the fiercely competitive and changing business environment, continuous learning can only achieve sustainable development. This paper adopts employee training completion rate, technology and management

thought update rate, and information system improvement rate as the evaluation indicators of the learning and growth dimension of the financial shared service center.

### 3.1.5 Social and Environmental Dimensions

Yılmaz et al. (2018) analyzed companies that published sustainability reports in 2015 and 2016[6]. From the indicators included in the sustainability report, 20 key performance indicators common to each company were selected. Guo Rui (2006) puts forward the assessment indicators of corporate social responsibility from five dimensions: social environment, industry, technology, system and finance[. This paper adopts environmental awareness, development prospects, innovation input, and organizational culture as the indicators for the social and environmental dimensions of the financial shared service center[13].

## 3.2 Determine Performance Indicator Weights

### 3.2.1 Building a Hierarchical Analysis Model

According to the analytic hierarchy process, the performance evaluation indicators of the Financial Shared Service Center are divided into three levels. The highest level is the target level, which is the Financial Shared Service Center performance evaluation system. The middle layer is the standard layer, which includes finance, customers, internal business processes, learning and growth, and social and environmental aspects. The bottom layer is the policy layer, which is divided into 17 indicators according to the middle layer.

Table.1. Financial Shared Service Center Performance Evaluation Hierarchy Table

Target layer(A)	Criteria layer (B)	Solution layer (C)
Financial sharing service center performance appraisal system (A)	Financial dimension (B <sub>1</sub> )	Cost profit margin (C <sub>11</sub> )
		Unit business cost (C <sub>12</sub> )
		Labor cost ratio (C <sub>13</sub> )
	Customer dimension (B <sub>2</sub> )	Customer satisfaction (C <sub>21</sub> )
		Number of customer complaints (C <sub>22</sub> )
		Problem processing efficiency (C <sub>23</sub> )
	Internal business process dimension (B <sub>3</sub> )	Business completion rate (C <sub>31</sub> )
		Business process standardization rate (C <sub>32</sub> )
		Business error rate (C <sub>33</sub> )
		Business processing efficiency (C <sub>34</sub> )
	Learning and growth dimension (B <sub>4</sub> )	Employee training completion rate (C <sub>41</sub> )
		Technology and management thought update rate (C <sub>42</sub> )
		Information system improvement rate (C <sub>43</sub> )
	Social and environmental dimensions (B <sub>5</sub> )	Environmental awareness (C <sub>51</sub> )
		Prospects (C <sub>52</sub> )
		Innovation investment (C <sub>53</sub> )
		group Culture (C <sub>54</sub> )

### 3.2.2 The Weight Distribution of Each Level Indicator to the Upper Level Indicator

This paper uses the 1-9 scale method in the AHP method established by Satty to design the questionnaire, and conduct an anonymous questionnaire survey to 10 experts and managers. According to the results of the questionnaire collection, the scoring geometric mean method was used for calculation and analysis, and the results were tested for consistency to verify its rationality. The scale method is as follows:

Table.2. Scale Method

scale	meaning
$a_{ij}=1$	Element i and element j have the same importance to the previous level factor
$a_{ij}=3$	Element i is slightly more important than element j
$a_{ij}=5$	Element i is more important than element j
$a_{ij}=7$	Element i is much more important than element j
$a_{ij}=9$	Element i is extremely important than element j
$a_{ij}=2n, n=1,2,3,4$	The importance of elements I and j is between $a_{ij}= 2n - 1$ and $a_{ij}= 2n + 1$
reciprocal	Factor I is $a_{ij}$ when compared with factor j, and factor j is $a_{ji}=1/a_{ij}$ when compared with factor I, where $a_{ii}=1$

Source: According to the 1-9 scale method in the Analytic Hierarchy Process

3.2.2.1 The Impact of the Criteria Layer on the Target Layer

(1) Comparison of the establishment of discriminant matrix

Based on the business characteristics of the Financial Shared Service Center and the Sustainable Balanced Scorecard, this paper uses the pairwise comparison method to construct the discriminant matrix.

Table.3. Comparison discriminant matrix table of criterion layer to target layer

A	B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>	B <sub>4</sub>	B <sub>5</sub>
B <sub>1</sub>	1.00	0.22	0.22	0.20	4.52
B <sub>2</sub>	4.46	1.00	1.57	1.14	7.20
B <sub>3</sub>	4.58	0.64	1.00	0.69	6.90
B <sub>4</sub>	4.98	0.88	1.45	1.00	6.52
B <sub>5</sub>	0.22	0.14	0.14	0.15	1.00

Source: According to the questionnaire data

(2) Sorting and consistency checking under single criterion

Calculate the weight vector of the criterion layer to the target layer comparison discriminant matrix:

$$W_0=(0.08, 0.33, 0.25, 0.31, 0.03)^T$$

Maximum eigenvalue:  $\lambda_0=5.18$

This shows the consistency ratio:  $CI^{(0)}=(\lambda_0-5)/4=0.05$ ,  $CR^{(0)}= CI^{(0)}/1.12=0.04<0.1$

Therefore, the consistency test is passed.

3.2.2.2 The Impact of the Solution Layer on the Criteria Layer

(1) The impact of the solution layer  $C_{2n}(n=1,2,3)$  on the financial dimension

First, the construction of the comparative discriminant matrix under the financial dimension is as follows:

Table.4. Comparison Discriminant Matrix Table under Financial Dimensions

B <sub>1</sub>	C <sub>11</sub>	C <sub>12</sub>	C <sub>13</sub>
C <sub>11</sub>	1.00	4.10	0.25
C <sub>12</sub>	0.24	1.00	0.16
C <sub>13</sub>	4.00	6.25	1.00

Source: According to the questionnaire data

Second, the ordering and consistency check under the single criterion is as follows:

Calculate the weight vector of the financial dimension comparison discriminant matrix as:

$$W_1=(0.24, 0.08, 0.68)^T$$

Maximum eigenvalue:  $\lambda_1=3.10$

Consistency ratio:  $CI^{(21)}=(\lambda_1-3)/2=0.05$ ,  $CR^{(21)}= CI^{(21)}/0.58=0.09<0.1$

Therefore, the consistency test is passed.

(2) The effect of the solution layer  $C_{2n}(n=1,2,3)$  on the customer dimension

First, the comparison of the discriminant matrix under the customer dimension is as follows:

Table.5. Comparison discriminant matrix table under customer dimension

$B_2$	$C_{21}$	$C_{22}$	$C_{23}$
$C_{21}$	1.00	1.61	0.84
$C_{22}$	0.62	1.00	0.83
$C_{23}$	1.19	1.20	1.00

Source: According to the questionnaire data

Second, the ordering and consistency check under the single criterion is as follows:

Calculate the weight vector of the customer dimension comparison discriminant matrix as:

$$W_2=(0.36, 0.26, 0.38)^T$$

Maximum eigenvalue:  $\lambda_2=3.02$

Consistency ratio:  $CI^{(22)}=(\lambda_2-3)/2=0.01$ ,  $CR^{(22)}=CI^{(22)}/0.58=0.02<0.1$

Therefore, the consistency test is passed.

(3) Impact of solution layer  $C_{3n}(n=1,2,3,4)$  on internal business process dimensions

First, the comparison of the discriminant matrix under the internal business process dimension is as follows:

Table.6. Comparison Discrimination Matrix Table under Internal Business Process Dimensions

$B_3$	$C_{31}$	$C_{32}$	$C_{33}$	$C_{34}$
$C_{31}$	1.00	0.29	2.84	0.21
$C_{32}$	3.45	1.00	3.09	1.00
$C_{33}$	0.35	0.32	1.00	0.27
$C_{34}$	4.76	1.00	3.70	1.00

Source: According to the questionnaire data

Second, the ordering and consistency check under the single criterion is as follows:

Calculate the weight vector of the internal business process dimension comparison discriminant matrix:

$$W_3=(0.13, 0.37, 0.09, 0.41)^T$$

Maximum eigenvalue:  $\lambda_3=4.20$

Consistency ratio:  $CI^{(23)}=(\lambda_3-4)/3=0.07$ ,  $CR^{(23)}=CI^{(23)}/0.90=0.07<0.1$

Therefore, the consistency test is passed.

(4) The impact of the solution layer  $C_{4n}(n=1,2,3)$  on the learning and growth dimensions

First, the comparison of the discriminant matrix under the internal business process dimension is as follows:

Table.7. Comparison Discriminant Matrix Table under Learning and Growth Dimensions

$B_4$	$C_{41}$	$C_{42}$	$C_{43}$
$C_{41}$	1.00	2.69	4.58
$C_{42}$	0.37	1.00	0.91
$C_{43}$	0.22	1.10	1.00

Source: According to the questionnaire data

Second, the ordering and consistency check under the single criterion is as follows:

Calculate the weight vector of the learning and growth dimension comparison discriminant matrix:

$$W_4=(0.64, 0.19, 0.17)^T$$

Maximum eigenvalue:  $\lambda_4=4.20$

Consistency ratio:  $CI^{(24)}=(\lambda_4-3)/2=0.02$ ,  $CR^{(24)}=CI^{(24)}/0.58=0.04<0.1$

Therefore, the consistency test is passed.

(5) The impact of program layer  $C_{5n}(n=1,2,3,4)$  on social and environmental dimensions

First, the construction of the comparative discriminant matrix under the social and environmental dimensions is as follows:

Table.8. Comparison Discriminant Matrix Table under Social and Environmental Dimensions

$B_5$	$C_{51}$	$C_{52}$	$C_{53}$	$C_{54}$
$C_{51}$	1.00	3.27	0.24	0.27
$C_{52}$	0.31	1.00	0.21	0.26
$C_{53}$	4.17	4.76	1.00	1.31
$C_{54}$	3.70	3.85	0.76	1.00

Source: According to the questionnaire data

Second, the ordering and consistency check under the single criterion is as follows:

Calculate the weight vector of the social and environmental dimension comparison discriminant matrix as:

$$W_5=(0.13, 0.07, 0.44, 0.36)^T$$

Maximum eigenvalue:  $\lambda_5=4.16$

Consistency ratio:  $CI^{(25)}=(\lambda_5-4)/3=0.05$ ,  $CR^{(25)}=CI^{(25)}/0.90=0.09<0.1$

Therefore, the consistency test is passed.

### 3.2.2.3 Comprehensive Weight

According to the weights of the indicators of the performance evaluation of the financial shared service center calculated in the previous section, the calculated comprehensive weights are as follows:

Table.9. Impact level of each indicator of the program layer

Solution layer indicator	Comprehensive weight
Cost profit margin ( $C_{11}$ )	0.019
Unit business cost ( $C_{12}$ )	0.006
Labor cost ratio ( $C_{13}$ )	0.055
Customer satisfaction ( $C_{21}$ )	0.120
Number of customer complaints ( $C_{22}$ )	0.087
Problem processing efficiency ( $C_{23}$ )	0.123
Business completion rate ( $C_{31}$ )	0.033
Business process standardization rate ( $C_{32}$ )	0.091
Business error rate ( $C_{33}$ )	0.021
Business processing efficiency ( $C_{34}$ )	0.105
Employee training completion rate ( $C_{41}$ )	0.197
Technology and management thought update rate ( $C_{42}$ )	0.059
Information system improvement rate ( $C_{43}$ )	0.054
Environmental awareness ( $C_{51}$ )	0.004
Prospects ( $C_{52}$ )	0.001
Innovation investment ( $C_{53}$ )	0.014
group Culture ( $C_{54}$ )	0.011

## 4. Empirical analysis

### 4.1 Analysis of Five Dimensional Indicators of Sustainable Balanced Scorecard

According to the calculated weight of the decision layer to the decision layer, the financial dimension occupies a weight of 0.08, the customer dimension occupies a weight of 0.33, the internal

business process dimension occupies a weight of 0.25, and the learning and growth dimension occupies a weight for 0.31, the social and environmental dimensions have a weight of 0.03. Therefore, the customer, learning and growth dimensions are important evaluation indicators in the performance evaluation of the Financial Shared Service Center. Relatively speaking, the financial, social and environmental dimensions have relatively small weight values, but their operability cannot be ignored.

#### **4.2 Financial Dimension Analysis**

From the weighting vector of the financial dimension of the solution layer, the labor cost ratio is the largest in the whole evaluation system, which is 0.68; the second is the cost profit rate, which accounts for 0.24 of the whole system; the last is the unit business cost, which accounts for 0.08. This means that in the financial dimension, the labor cost ratio is the most important indicator of the performance evaluation of the Financial Shared Service Center, and the unit business cost is not a valid evaluation index.

#### **4.3 Customer Dimension Analysis**

From the weighting vector of the solution layer to the customer dimension, the weight values of customer satisfaction and problem processing efficiency are similar and important, respectively 0.36 and 0.38. The weight of customer complaints is 0.26, which is weak compared to the other two indicators. However, the weights of the three indicators of the customer dimension are relatively balanced, and the customer satisfaction and problem processing efficiency indicators have a certain role in promoting the number of customer complaints.

#### **4.4 Internal Business Process Dimensional Analysis**

From the solution layer to the weight vector of the internal business process dimension, the most important indicator of the internal business process dimension is the business processing efficiency, the weight value is 0.41; the second is the business process standardization rate, and the weight value is 0.37. The service completion rate and the business error rate have small weight values of 0.13 and 0.09, respectively. Therefore, if companies have efficient business processing efficiency and standard business processes, it means that the Financial Shared Service Center has smooth internal business processes and can enhance its value through this process.

#### **4.5 Learning and Growth Dimension Analysis**

From the program layer to the weight vector of the learning and growth dimension, the employee training completion rate is the most prominent indicator in the whole learning and growth dimension, accounting for as high as 0.64. Secondly, the relatively weak is the technical and management thought update rate and information system improvement. The ratios are 0.19 and 0.17. This means that when the Financial Shared Service Center attaches importance to employee training, its growth rate will continue to accelerate and its learning ability will continue to increase.

#### **4.6 Social and Environmental Dimension Analysis**

From the program level to the weight vector of social and environmental dimension, the innovation input is the most prominent indicator in the whole social and environmental dimension, accounting for 0.44; the second is organizational culture, the weight value is 0.36, and the relatively weak is environmental awareness and development prospect indicators, accounting for 0.13 and 0.07. This means that innovation investment and organizational culture play an important role in the sustainable development of the Financial Shared Service Center and a powerful indicator for evaluating its ability to sustain development.

## 5. Conclusion and countermeasures

The continuous development of modern information technology provides strong technical support for the construction of Financial Shared Service Centers. More and more enterprises are building Financial Shared Service Centers to optimize their internal financial management. The construction of China's Financial Shared Service Center still needs to be further improved. Performance evaluation plays an important role in maintaining the effective operation of the Financial Shared Service Center. It is necessary to thoroughly study the performance evaluation system of the Financial Shared Service Center. Financial business processing under the financial shared service model is standardized process production. How to supervise and motivate the standardization and production process of the Financial Shared Service Center is the problem faced by performance evaluation. Based on the Sustainable Balanced Scorecard, this paper establishes the performance evaluation system of the Financial Shared Service Center, increases the social and environmental dimensions in the four dimensions of the original performance evaluation system, and establishes the theory for the transition of the Financial Shared Service Center from the cost center to the value creation center. According to the research results of this paper, the Financial Sharing Service Center should pay attention to the two dimensions of customer and internal business process in the process of performance appraisal, focusing on the proportion of labor cost, problem processing efficiency, business processing efficiency, employee training completion rate, and innovation investment.

The selection of performance evaluation indicators and the setting of weights in the Financial Shared Service Center may be unreasonable, and there are still differences in the Financial Shared Service Centers and strategic plans of different industry companies. The index system of this paper cannot be comprehensive. There may be deficiencies in the actual application of the company. In addition, when constructing the performance evaluation index system, the Sustainable Balance Scorecard and the analytic hierarchy process are used. The analytic hierarchy process mainly relies on subjective scoring of experts, which will affect the accuracy of the evaluation indicators to a certain extent.

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