



Research on the Strategies Analysis and the Mode of the Enterprise Accounting Informatization Based on Big Data

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There is direct relationship between enterprise economic benefit and the development of enterprise accounting informatization. Therefore, the improvement of the level and competence of enterprise accounting informatization plays a vital role in enhancing the competitiveness, maintaining strong market competitiveness and improving economic benefit of the enterprise. Under the support of big data, this paper analyzes the characteristics of accounting informatization and points out the problems and deficiencies existing in enterprise accounting informatization. Moreover, this paper also analyzes the application advantages of enterprise accounting informatization mode under the support of big data combining enterprise accounting informatization and real situation. On this basis, developing strategies of enterprise accounting informatization based on big data are discussed. The implementation system of enterprise accounting informatization under the support of big data is studied and corresponding implementation system structure and implementation measures of enterprise accounting informatization are given. Evaluation system and evaluation model are studied based on the effectiveness of the implementation of enterprise accounting informatization of big data and effective evaluation of the implementation of enterprise accounting informatization under the support of big data is achieved.

1. Introduction

The implementation of enterprise accounting model is an important guarantee of enterprise economic benefit and the most direct embodiment of enterprise financial competence. The enterprise financial competence is the key factor determining the sustainable development and competence of the enterprise. Therefore, the enterprise accounting level exerts profound impact on enterprise development (Li, 2010; Liu and Zhang, 2016). Especially with the rapid development of computer science and technology, network technology and information technology, it is very difficult for traditional accounting model to adapt to the enterprise development in the information age. For this purpose, a lot of researches on the enterprise accounting informatization have been carried out and corresponding implementation effect has been achieved (Tang, 2013; Chen and Zhang, 2007). However, because of the explosive growth trend of financial information of enterprise development and relative non-financial information, enterprise accounting information has presented a huge amount of data pattern. For this pattern, deficiencies and limitation can be found in the existing enterprise accounting informatization model and system. Many specialists and scholars have conducted researches on how to improve the enterprise accounting informatization level and competence (Wu, 2015; Chee and Rong, 2013). The advent of big data technology has provided effective support for the implementation of enterprise accounting informatization. Enterprise accounting informatization under the support of big data has gradually become an hot issue of research and a series of research achievements have sprung up, which have good effect in solving the problems exist in the process of enterprise accounting informatization implementation (Wang and Hong, 2012; Liang, 2013; Zhang, 2015; Lv, 2008). However, big data is an emerging intellectual technology. Although it has broad application prospects, on the one hand, development space exists in the technology itself and the theory, on the other hand, it calls for the combination with practical application background in specific application field, which means that the implementation of enterprise accounting informatization under the support of big data has wide space for research and improvement.

For this purpose, this paper is going to conduct on the strategies analysis and the mode of the enterprise accounting informatization based on big data.

2. Characteristics of enterprise accounting informatization and problem analysis

2.1 Analysis of characteristics of enterprise accounting informatization

With the development of enterprise accounting informatization technology, we can find distinct characteristics on enterprise accounting informatization technology, which can be summarized as follow:

- (1) Enterprise accounting informatization system is becoming more and more enormous and complex. The amount of financial information and relative non-financial information is becoming larger and larger and the integration level is becoming higher and higher.
- (2) The need for accounting information is agiler and more effective, which requires to acquire enterprise financial information accurately, precisely, quickly and timely.
- (3) The cost performance of enterprise accounting informatization is higher and higher. There exists striking contrast between the strong calculating and storage capacity of accounting informatization system and platform and the low design, application and maintenance cost.
- (4) The application of enterprise accounting informatization should not be limited to local links, but focuses on the coordination and optimization of full life circle during business process.
- (5) High process of the management of enterprise accounting informatization and high informatization of the execution body of relative enterprise financial planning and relative non-financial planning.
- (6) Accounting informatization data combination is more and more complex and there are more and more data categories. Accounting informatization data volume is large.

2.2 Analysis of problems exist in enterprise accounting informatization development

The author of this paper holds that there exist various problems in development of enterprise accounting informatization combined with the implementation of enterprise accounting informatization and through the analysis of existing research data.

- (1) Traditional accounting informatization system leads to incomplete information disclosure, which also has the characteristics of skewed popularity and asymmetry. Often hysteresis quality can be found in traditional accounting informatization system, which gives rises to the lack of timeliness of accounting informatization.
- (2) We can find the existence of Information Island, which means that information cannot integrate and fuse effectively. Non-financial information plays an increasingly important role in enterprise development, so guidance and objectivity will be lost if you rely solely on financial information.
- (3) The leakage, loss and omitting of accounting informatization data will lead to more and more severe security issues of accounting informatization.
- (4) Large amount of isomeric data coexists in accounting informatization. The diversification of accounting informatization system leads to ineffective sharing and utilization of financial information, non-financial information and data.
- (5) The insufficient capability of informatization system upgrading and platform construction, which is out of sync with development demand. What's worse, the importing, migration and updating of data have low efficiency and high cost.
- (6) The popularization and development of accounting informatization is limited by no universal standard of accounting informatization and imperfect related regulations.

3. Development strategies and model of enterprise accounting informatization under the support of big data

The big data technology has abroad application scope and has achieved good application effect in many engineering fields (Baker et al, 2016, Simone et al, 2016, Rodrigo et al, 2015; Amir et al, 2015). The application of big data technology has provided solution and method for the problems exist in the the development of enterprise accounting informatization. The enterprise accounting informatization level is improved through the digging, capture, storage, management, analysis, utilization and processing of valuable data during the process of enterprise accounting informatization.

3.1 Application advantage analysis of big data in enterprise informatization accounting model

The enterprise accounting informatization model under the support of big data can improve the enterprise accounting informatization management state and the level and competence of enterprise accounting informatization. Because of the application of intelligent technology, the ability and target of enterprise accounting informatization construction is improved, and then the enterprise accounting informatization efficiency is improved. The cost of enterprise accounting informatization is also reduced. Meanwhile, because of the successful digging, capture, storage, management, analysis, utilization and processing of mass

information source and data source, personalized service facing enterprise development can be provided to suit the individual requirements of enterprise development. Application approach and range of enterprise informatization accounting resource are expanded and the reliability of data and information of enterprise accounting informatization is enhanced. And then high-performance platform of resource sharing is provided, enriching the acquisition and utilization capability of enterprise accounting resource.

3.2 Development content of enterprise accounting informatization under the support of big data

To ensure the healthy development of enterprise accounting informatization, targeted application and launch of big data technology is carried out combining the practical conditions of enterprise. At present, the construction cost of enterprise accounting informatization under the support of big data is relatively high and the popularization of big data technology is not enough. The enterprise accounting informatization standard and regulations under the support of big data are imperfect and corresponding market development space has not opened yet. The security, stability, platform construction capacity and system development capability need to be further improved. From the practically perspective of enterprise, the author thinks that the development content of enterprise accounting informatization should include the following aspects:

- (1) Perfect the accounting informatization organization establishment, system planning and personnel allocation of enterprise development to provide effective manpower, physical and financial support for the implementation of accounting informatization under the support of big data.
- (2) Carry out the platform construction of enterprise accounting informatization selectively, including improving underlying infrastructure capability, finding appropriate joint point and mingling point and strengthening the flexibility of accounting informatization system under the support of big data.
- (3) Analyze the problems exist in the development of enterprise accounting informatization and find out bottleneck problem through concluding, summarizing and processing. Conduct targeted development of key link and key module and perfect the construction of accounting informatization database under the support of big data technology to achieve effective storage and utilization of data.
- (4) Conduct the training of big data technology and informatization technology for accounting informatization related personnel, including managers, organizers, technicians and users.
- (5) Select appropriate big data operator and service provider, reorganize the business process of enterprise accounting informatization and conduct the application of big data technology combining the business process of enterprise.
- (6) Accelerate enterprise accounting informatization process and establish effective mechanism for data compilation, storage, sharing and utilization.

3.3 Analysis of implementation strategies of enterprise accounting informatization based on big data

To guarantee the expansibility of development content, the enterprise accounting informatization under the support of big data needs to follow some strategies. The author conducts preliminary discussion for this. First of all, network information security needs to be strengthened and strong security protection measures need to be adopted, like firewall, data encryption and virus base upgrading. Risk assessment of enterprise accounting informatization needs to be carried out and security defending system needs to be strengthened. Secondly, combing the practical situation of enterprise, functions associated with enterprise accounting, like calculation, analysis, decision, prediction and service need to be perfected and the development of task customization function needs to be strengthened under information-based background. And then, the construction of enterprise accounting informatization platform needs to be strengthened and effective fusion with enterprise applications needs to be conducted to achieve resource sharing and strengthen the distributed role control function. The grade of enterprise accounting informatization risk assessment needs to be guaranteed and the security and secrecy capacity of enterprise accounting informatization under the support of big data need to be improved. In addition, mining and management of enterprise accounting informatization data needs to be conducted and the database of core data needs to be established to acquire richer enterprise development accounting information and achieve the effective management and application of mass data. Finally, standard and regulations of accounting informatization under big data need to be formulated and related rules and regulations need to be perfected to provide design criteria and legal basis for enterprise accounting informatization system design.

3.4 Systematic frame and structure of enterprise accounting informatization based on big data

The author thinks that the enterprise accounting informatization system should include three key components: client application part, technical support section, and environmental and systematic part. The systematic frame and structure is shown in Figure 1.

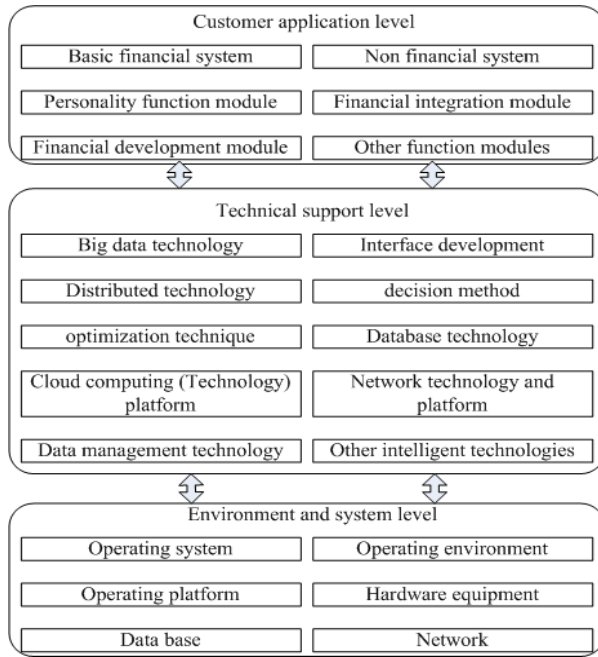


Figure 1: Systematic frame and structure of enterprise accounting informatization based on big data

4. Efficiency analysis of the implementation of enterprise accounting informatization model based on big data

4.1 efficiency analysis indicator set

To evaluate the implementation effect of enterprise accounting informatization model under the support of big data, efficiency analysis of the implementation of enterprise accounting informatization model under the support of big data needs to be conducted. This paper refers to existing research achievements, seeks expert opinion and then selects the efficiency analysis indicators of the implementation of enterprise accounting informatization model under the support of big data. The content and implication are shown in Table 1.

Table 1: Efficiency analysis indicator of the implementation of enterprise accounting informatization model under the support of big data

Indicator code	Indicator content	Indicator implication
C ₁	Informatization system quality	Accounting informatization system and related performance supporting system
C ₂	System operation efficiency	Agility and effectiveness of system operation results
C ₃	Basic platform building capability	Aspects including network, computers, database, office space and investment
C ₄	Data security	No leakage, loss and omitting of data, and repairability
C ₅	Cost	Overall investment of conducting enterprise accounting informatization construction
C ₆	Personnel quality	Informatization level, application ability and knowledge reserve of personnel
C ₇	Organization and management ability	Organization establishment, rules and regulations formulation, implementation of standard and regulations
C ₈	Data sharing	Sharing, timeliness, symmetry and utilization of data
C ₉	Satisfaction	Satisfaction of enterprise accounting informatization application

Then the efficiency analysis indicator set C of the implementation of enterprise accounting informatization model under the support of big data is:

$$C = \{ C_1, C_2, C_3, C_4, C_5, C_6, C_7, C_8, C_9 \} \tag{1}$$

4.2 Weight of efficiency analysis indicator

Acquire the weight of efficiency analysis indicator adopting AHP method and conduct two-two rating applying 1-9 ratio scale. The evaluation matrix P is:

$$P = \begin{bmatrix} p_{11} & \cdots & p_{1j} & \cdots & p_{1n} \\ \vdots & \cdots & \vdots & \cdots & \vdots \\ p_{j1} & \cdots & p_{jj} & \cdots & p_{jn} \\ \vdots & \cdots & \vdots & \cdots & \vdots \\ p_{n1} & \cdots & p_{nj} & \cdots & p_{nn} \end{bmatrix} \tag{2}$$

In this matrix, P_{ij} is the comparison value between indicator i and indicator j , satisfying

$$1 \leq p_{ij} = 1 / p_{ji} \leq 9, \quad p_{ii} = 1, \quad 1 \leq i, j \leq n \tag{3}$$

The specific selection and implication of P_{ij} is shown in Table 2:

Table: 2 Selection and implication of P_{ij}

P_{ij} Value	Implication
1	Indicator i as important as indicator j ,
3	Compared with indicator j , indicator i is generally important
5	Compared with indicator j , indicator i is more important
7	Compared with indicator j , indicator i is much more important
9	Compared with indicator j , indicator i is extremely more important
2, 4, 6, 8	Among the above-mentioned states
Reciprocal	$P_{ji} = 1 / P_{ij}$

Acquire the maximum characteristic root $\lambda_{max}(p)$ of evaluation matrix P , which is, then the weight of indicator is:

$$PW = \lambda_{max}(P) * W \tag{4}$$

And then conduct consistency ratio R_{CR} analysis, which is

$$R_{CI} = \frac{\lambda_{max}(P) - n}{n - 1} \tag{5}$$

$$R_{CR} = \frac{R_{CI}}{R_{RI}} \tag{6}$$

If $R_{CR} < 0.1$, then the weight w_j of indicator j is:

$$w_j = \frac{\sum_{j=1}^n P_{ij}}{\sum_{i=1}^n \sum_{j=1}^n P_{ij}} \tag{7}$$

Hence, we have

$$W = \{w_1, \dots, w_j, \dots, w_n\} \tag{8}$$

4.3 Establishment of efficiency analysis fuzzy model

Through the reasonable grading of enterprise accounting informatization model under the support of big data, assume that there are altogether m grading and then acquire the fuzzy membership of different efficiency analysis indicators, forming fuzzy membership matrix ψ , which is

$$\psi = \begin{bmatrix} \phi_{11} & \cdots & \phi_{1k} & \cdots & \phi_{1m} \\ \vdots & \cdots & \vdots & \cdots & \vdots \\ \phi_{j1} & \cdots & \phi_{jk} & \cdots & \phi_{jm} \\ \vdots & \cdots & \vdots & \cdots & \vdots \\ \phi_{n1} & \cdots & \phi_{nk} & \cdots & \phi_{nm} \end{bmatrix} \tag{9}$$

Then the comprehensive fuzzy membership between analysis objects and grading is

$$\varphi = \bigvee_{1 \leq j \leq m} \{\varphi_j\} = W * \psi \quad (10)$$

Hence, acquire the effectiveness grading of the implementation of enterprise accounting informatization model under the support of big data based on the value of comprehensive fuzzy membership

5. Conclusion

This paper discusses the development issues of enterprise accounting informatization under the support of big data and gives the development content of enterprise accounting informatization under the support of big data. This paper conducts research on the implementation strategies of enterprise accounting informatization based on big data and the establishment of systematic frame and structure. On this basis, the efficiency analysis model of the implementation of enterprise accounting informatization model is established, providing good support for the implementation of enterprise accounting informatization based on big data.

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