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On calculation of enterprise logistics cost with project accounting function of financial software

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Abstract: Many people regard it impossible to calculate logistics cost in the enterprise by single-track system unless reforming Chinese current business cost accounting system. Consequently, two-track system should be adopted in calculating logistics cost. That is to say, it is necessary to establish Secondary Accounts of logistics cost in order to obtain logistics cost information, which will bring about a great deal of extra work that accountants have to undertake and increase business running cost. A methodology for calculating logistics cost with Project Accounting function of Financial Software is presented in this paper, which directly extracts logistics cost information from accounting data of enterprise without secondary accounts of logistics cost. The process of this calculation methodology will be implemented by UFIDA ERP-U8. Enterprise can obtain logistics cost information by this method at low cost, so it is of important and realistic significance.

Keywords: Logistics Cost, Project accounting, Financial Software

1. Introduction

Find an efficient methodology is critical and difficult in the process of calculating enterprise logistics cost, which is the hot topic today in logistics management field. Up to now, three methods, namely, accounting approach, statistical approach and a combination of accounting and statistical approach, have been presented in order to obtain the information of enterprise logistics cost (Feng et al., 2007). It is recommended that a combination of accounting and statistical methods be adopted and Secondary Accounts of logistics cost be established according to National Standard GB/T20523－2006 for Logistics Cost Elements and Calculation of Enterprises (SAC, 2006). Logistics cost is

classified into explicit cost and implicit cost in GB/T20523－2006. Explicit cost can be separated from current business cost accounting system but implicit cost can't. Consequently, explicit cost can be obtained by accounting approach and implicit cost can only by statistical approach. In response to the views above, the community of scholars has the same opinion about the latter, but doesn't agree on the former. All disputes arising out of calculating explicit cost by accounting approach is epitomized in the dispute between single-track system and two-track one. The root cause of the divergences is that both approach have their own disadvantages, though it is possible to obtain the information of enterprise logistics cost by a single-track system or a two-track one. The implementation of single-track system is difficult because it is necessary to built up a complete set of cost accounting system to check product cost, responsibility cost, variable cost as well as logistics cost, which need reform severely the accounting voucher, account and statement that have been existing. Whereas the implementation of two-track system is expensive because it is necessary to set up Secondary Accounts of logistics cost in order to obtain logistics cost information, which may bring about a great deal of extra work (Du, 2008; Chen, 2009). Therefore, it is not an easy thing for a company whether to adopt single-track system or two-track one in practice.

We believe, it is a illiberal views that the dispute between single-track system and two-track one, which is subject to the traditional manual accounting while ignoring an important fact that financial software is widespread applied to deal with the daily accountancy in the company. It is an easiness to extract logistics cost from accounting data of enterprise in virtue of information technology, which is beyond the disadvantages of single-track system and two-track one.

In this paper, Section 2 elaborates on it possible to calculate logistics cost with project accounting function of financial software in the enterprise. In Section 3, the detailed process of the methodology is explained, based on UFIDA ERP-U8. The heed matters of implementing the project accounting function of financial software into calculating logistics cost is given in Section 4. In Section 5, conclusions are drawn.

2. Theory on Calculating Enterprise Logistics Cost with "Project Accounting" Function

It is necessary for operators to understand the enterprise running cost information from multi-angle, which demands accounting system can provide various information of costs, thus a dimension costing system has been formed

which included product costs calculating, responsibility costs calculating, standard costs calculating and variable costs calculating. Responsibility costs, standard costs and variable costs are management accounting methods from abroad. And when they were firstly introduced to China, it had aroused a conflict between single-track system and multi-track one in academic cycle: One believe that several cost accounting methods cannot be combined and each should be developed separately, that is to say, a "multi-track" costing system should be established. The other believes that these methods can be performed together, that is to say, a "single-track" costing system might be established (Lv, 1994). From the current situation, the above four costing methods have been achieved in a "single-track" system after several attempts to adjust accounting system and with the help of computer technology.

2.1. Essence of Multi-Dimensions Cost Accounting From Database Technology Perspective

In fact, different dimensionality costing methods classify the same original cost data based on various standards and gather them according to the different cost objects, which can reflect cost management problems in enterprises. From the perspective of database technology, the essence of multi-dimension costing is to classify, label and gather the same original data based on different standards. Therefore theoretically, once the group standard is defined, users can classify and gather the original data according to their needs with the powerful data processing capabilities of database technology. The assistant accounting functions such as department audit, personal account, customer's account, supplier's account, project audit etc can be seen as the application of database technology in finical software. For example, in order to understand the entertainment expenses in each department, enterprises may assign the classification item "entertainment expenses" subordinate to "management expenses" as "department audit", whenever making up the accounting vouchers which involve "entertainment expenses", it is necessary to input the corresponding assistant accounting information which department the entertainment expenses belong to. This process actually is classifying the "entertainment expense". When all of the vouchers related to "entertainment expenses" are verified and recorded, the entertainment expenses can be gathered according to the departments in the financial software system.

2.2. "Project Accounting" Function Can Be Used To Calculating Logistics Cost

“Project Accounting” function is an important assistant accounting function of financial software, whose exploitation depends on the features and advantages of computer in data processing. It provides for organizations a new approach to setting up subsidiary ledger, which is applied to engineering accounting, cost accounting and preparation of a cash flows statement etc. In fact, the scope of the application of “Project Accounting” function is much wider. Through this function enterprises can directly extract and gather logistics cost information without setting up logistics cost supplemental accounts.

From the perspective of accounting, different trades have their respective understandings about the project. For example, construction enterprises consider the Construction Engineering Projects which they shoulder as the project; the publishing house consider books or journals want to be painted as the project; and manufacturing enterprises consider their products; research institutions consider the research subjects they have been studying etc. Although the connotation and cost constitution of "project" are different for different accounting entities, but as the costing object, the expenses which “project” will calculate is similar in time limit and characteristics for one accounting entity. Hence “projects” can be defined as a series of costing objects which consist of the same or similar expenses. In the traditional handwork accounting system, in order to obtain the expenses for various projects such as Construction Engineering Projects, products and research subjects, enterprises usually need to set up multi-column subsidiary accounts. While in finical software system, enterprises may develop the "projects accounting" function to calculate the expenses for various projects, which append “project code” field in the voucher datasheet file to memory ‘project code” information, and establish link with project datasheet file index by “project code”, thus separate the calculation of “project” income and expenses from the traditional calculation of “accounting items”, which provide a new approach to organizing detailed accounting for the accounting entity.

It is a narrow view that “project accounting” is only applied to costing for accounting entities. In an electric account system, “project accounting” usually takes the exploiting method similar to “subject accounting”, which classifies and adds up the data of “project” by the “project code” stored in the voucher datasheet file. This processing mode enables users to set up multi-dimensions accounting system without establishing multi-levels classification items. Consequently, “project accounting” is not limited to calculating cost for the accounting entity, and it is applied to all the accounting objects which have the same or similar characteristics. In the electric account system, “project

accounting" is treated as the attribute of "accounting items", and with separate field identification voucher datasheet file, thus users enable to adjust the attribute to different accounting items in order to meet the special needs in accounting and management. For example, the project accounting is applied to cash inflows and outflows, which can achieve to prepare the statement of cash flows by computer (Zhang et al., 2006); the project accounting applied to the receivable and payable subjects, enterprises can subtotal the rights and debts in time according to the list of customers whom they have connections with; and the project accounting applied to the revenue and cost of main business, enterprises can compute the gross profit according to the varieties of commodities or services which they supply. Therefore in the finical software and electric account system, the generalized definition of "project" is a series of accounting objects having the same or similar characteristics among different accounting items. The concept of logistics cost conforms to the generalized definition of "project". Consequently, it may be considered as a large-scale "project" (Chao et al., 2009).

3. Detailed Processing

In this section, the detailed processing for calculating logistics cost with the project accounting function of financial software will be divided into four parts to elaborate separately, which is explained based on UFIDA ERP-U8.

3.1. Endow Related Accounting Subjects with "Projects Accounting" Function

In the manufacturing enterprise, in daily accounting, logistics costs are often dispersedly credited to the costing accounts, expense accounts, asset accounts such as the production cost, production charge and other operating cost, selling expenses, management expenses and financial expenses, non-operating expense and material procurement etc (Feng et al., 2007). Accordingly, all of the accounting subjects previously mentioned should be appointed as the assistant accounting subjects of logistics cost project. It is be required to endow them with "projects accounting" function while the enterprise set up accounting subjects in the financial software.

3.2. Establish the Logistic Cost Project Files

This part which includes four steps is the key of the methodology for calculating logistics cost with project accounting function of financial software.

3.2.1 Define "Logistics Costs" as a Project

In this step, we define "logistics costs" as a project. And the "logistics costs" project can be divided into two-level subclass projects with the aim of classifying by the elements of logistics cost item and logistics cost range given in GB/T20523－2006. For the elements of logistics cost item is more than 10 which need double-digit code, the parameter of the first subclass category is fixed 2, whereas the elements of logistics cost range is only 5 which need single-digit code that the parameter of the second subclass category is fixed 1.

3.2.2 Appoint Assistant Accounting Items

Appoint the production cost, production charge and other operating cost, selling expenses, management expenses and financial expenses, Non-operating expense and material procurement as the assistant accounting subjects of logistics cost project. Specifically, the aforesaid accounting items generally consist of classification items, should only appoint classification items associated with the logistics cost as the assistant accounting items. Once certain accounting item is appointed as the assistant accounting subject, whenever fill in the vouchers which involve the accounting item it will be forced to input the supplementary accounting information in UFIDA ERP-U8. Therefore, if exclude classification items irrelevant with logistics business, the accountant will be more efficient because they need neither judge which logistics cost project one business should be placed in nor input plenty of useless supplementary accounting information.

3.2.3 Define Two-Level Subclass Projects

The logistics cost project is classified into two-level subclass projects based on the Elements of logistics cost item and logistics cost range given in GB/T20523－2006 (Table.1). Besides subclass projects intercalate several “others” and one “non logistics cost”. “Others” be named specific items, which actually gather those outsourcing logistics cost unable to be precisely distinguished, need to be described in the primary statement of Logistics Cost Reports. For example, “11 others” represents the outsourcing logistics cost that cannot distinguish which logistics cost item category belongs to; “016 others” and “034 others” respectively represent the outsourcing transportation cost and packing cost that cannot distinguish which logistics cost range categories belong to; “116 others” represents outsourcing logistics cost that can neither distinguish which logistics cost item nor range category belongs to. It is important to establish “non logistics cost”, because it probably only a fraction belongs to the logistics cost

in the whole amount of an assistant accounting subject, those irrelevant to the logistics cost will be credited to “non logistics cost” while input the supplementary accounting information. For example, most of the incurred amount is the purchase price of material besides a little of delivery expense in the enterprise material procurement business, so it necessary to divide the incurred amount into two and be credited to “transportation cost- supply logistics cost” and “non logistics cost” respectively. Two-level subclass projects are described in Table 1.

Table1 Two-level subclass projects

The first category	The Second category
01transportation cost	011 supply logistics cost
	012 inner logistics cost
	013 sell logistics cost
	014 returned logistics cost
	015 castoff logistics cost
	016 others
02storage cost	021 inner logistics cost
03packing cost	031 supply logistics cost
	032 inner logistics cost
	033 sell logistics cost
	034 others
04 stevedoring and carrying cost	041 supply logistics cost
	042 inner logistics cost
	043 sell logistics cost
	044 returned logistics cost
	045 castoff logistics cost
	046 others
05 processing cost in circulation	053 sell logistics cost
06 communication cost of logistics	061 supply logistics cost
	062 inner logistics cost
	063 sell logistics cost
	064 returned logistics cost
	065 castoff logistics cost
	066 others
	071 supply logistics cost
	072 inner logistics cost

07 logistics management cost	073 sell logistics cost
	074 returned logistics cost
	075 castoff logistics cost
	076 others
08 cost of Current funds occupied	081 supply logistics cost
	082 inner logistics cost
	083 sell logistics cost
	084 others
09 risk cost of stock	091 supply logistics cost
	092 inner logistics cost
	093 sell logistics cost
	094 others
10 actuarial cost of stock	101 supply logistics cost
	102 inner logistics cost
	103 sell logistics cost
	104 others
11 others	111 supply logistics cost
	112 inner logistics cost
	113 sell logistics cost
	114 returned logistics cost
	115 castoff logistics cost
	116 others
12 non logistics cost	121 non logistics cost

3.2.4 Compile Final Project List

GB/T20523－2006 requires to showing the enterprise logistics cost from three dimensions. The logistics cost has been classified into two-level subclass project categories based on the elements of logistics cost item and logistics cost range. In order to show the enterprise logistics cost from three dimensions, the subclass projects will be classified further based on the pay forms, meanwhile mixing the specific items need to be described in the primary and subsidiary statements of Logistics Cost Reports, as a result the final project list contains 118 detailed projects. Due to plenty of the final projects only a small percentage of its listed in table 2. For example, there are 21 final projects associated with transportation cost because transportation cost occurs in the Whole Process of logistics; however there are only 4 associated with storage cost owning to it occurs in the inner. In addition, the final project list includes non logistics cost which needn't be reflected in the Logistics Cost Reports.

Table2 Final Project List

Item code	Item name	code of the Second category
0001	transportation cost-supply logistics cost-Outsourcing	011
0002	transportation cost-supply logistics cost-wage	011
0003	transportation cost-supply logistics cost- maintenance cost	011
0004	transportation cost-supply logistics cost- overhead cost	011
0005	transportation cost- inner logistics cost-Outsourcing	012
0006	transportation cost- inner logistics cost-wage	012
0007	transportation cost-inner logistics cost-maintenance cost	012
0008	transportation cost-inner logistics cost- overhead cost	012
0009	transportation cost- selling logistics cost-Outsourcing	013
0010	transportation cost- selling logistics cost-wage	013
0011	transportation cost- selling logistics cost- maintenance cost	013
0012	transportation cost- selling logistics cost- overhead cost	013
0013	transportation cost- returned logistics cost- Outsourcing	014
0014	transportation cost- returned logistics cost- wage	014
0015	transportation cost- returned logistics cost-maintenance cost	014
0016	transportation cost-returned logistics cost-overhead cost	014
0017	transportation cost-castoff logistics cost- Outsourcing	015
0018	transportation cost-castoff logistics cost- wage	015
0019	transportation cost-castoff logistics cost- maintenance cost	015
0020	transportation cost-castoff logistics cost- overhead cost	015
0021	transportation cost-others- Outsourcing	016
0022	storage cost-inner logistics cost-Outsourcing	021
0023	storage cost-inner logistics cost- wage	021
0024	storage cost-inner logistics cost- maintenance cost	021
0025	storage cost-inner logistics cost- general expense	021
…	…	…
0118	non logistics cost	121

3.3. Judge Which Final Project One Business Should Be Placed In

Whenever making up the accounting vouchers which involve the assistant accounting item, it is necessary to input the corresponding assistant accounting information. The incurred amount of the assistant accounting item is divided into two, which belongs to the logistics cost are credited to the corresponding

final project according to the character, those irrelevant to the logistics cost are credited to “118 non logistics cost”. However, what needs to be stressed is that it is difficult to judge which final project one business should be placed in and how much money should pay on earth. We shall specially discuss this problem in sections 4.

3.4. Prepare the Logistics Cost Reports

In UFIDA ERP-U8, enterprises can gain the detailed information of the logistics cost by checking the general ledger and subsidiary ledger of the logistics cost project in the general ledger system "project assistant account". Of course, we may also prepare the Logistics Cost Reports based on the report format recommended in GB/T20523－2006 with the function of user self-defining in UFO Reports system in order to make managers easy to understand multi-dimensions of the enterprise logistics cost. All of the assistant accounting items are costing & expense accounts except material procurement belongs to asset accounts. According to the principle of debit-credit bookkeeping technique, asset accounts have the same account structure with costing & expense accounts, which the debit records increases happening while the credit records decreases happening (Ren et al., 2007). That is to say, the increases happening of logistics costs are recorded as debit of the assistant accounting items in an enterprise. Consequently, in the preparation of the Logistics costs reports, the debit happening of the assistant accounting items only need to be counted.

4. Heed Matters

In our country, restrained by contents and method of "project accounting" and processing procedures of accounting work in the traditional handwork accounting system, much financial software have lots of restrictions on "Project Accounting" function which have prevented the user to apply this function in practice. For example, UFIDA ERP-U8 prescribe that each account title can be only assigned to only one project category (Wang, 2005), which restricts dimensionality of account. Such as once account title of production charge is assigned to project category of logistics cost, it can't be assigned to project category of production cost or any others, which unable to meet the user's various needs for enterprise cost information.

In addition, Project Accounting Function of Financial Software can only gather the tagged information, but cannot identify the original data. For example, while making up the accounting voucher about "material procurement", it is

necessary to input the corresponding assistant accounting information, but we don't know how much amount should be included respectively the "non logistics cost" and the "transportation cost-supply logistics cost-outsourcing" project until the price of materials and delivery charges have been marked respectively. Therefore, in order to obtain logistics cost information, enterprises should enrich the content of primitive proof. However, primitive proof probably comes from both interior and external of the enterprise, which would require the internal functional departments and the external partners closely to cooperate each other. For example, the supplier should separate transportation fees from the value of materials, and fixed assets management departments should classify fixed assets based on their application so as to confirm depreciation cost attributable to the logistics cost, also the human resources department should lead to verify and record working content of each department workers for the purpose of confirming whose salary attributable to the logistics cost.

5. Conclusions

In this paper, we proposed a methodology for calculating enterprise logistics cost by project accounting function of financial software, which can help the enterprise to obtain logistics cost information at low cost. Clear operation procedure about this method is given. In our view, it is thought necessary to adopt two-track system in calculating logistics cost under Chinese current business cost accounting system that people ignore an important fact which financial software have been largely applied to deal with daily accountancy in the enterprise. The application of computer technology in the accounting field is not merely a simple alternative to traditional accounting. Depending on powerful data processing capability, Computerized Accounting can reach many goals to meet the diverse needs of users, which are unachievable in traditional one. It can be achieved to calculate logistics cost with Project Accounting Function of Financial Software in a single-track system, which was demonstrated by a case of UFIDA ERP-U8.

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