

A SYSTEM OF MANAGEMENT INTEGRATION OF PRODUCT COSTING IN INDUSTRY

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Rezumat: *Controlul calității, inovația și managementul costurilor sunt vitale în contextul succesului activităților comerciale moderne, care implică automatizarea proceselor tehnologice într-un grad foarte înalt. La acestea se adaugă dinamica mediului de afaceri aflată în creștere, datorită mării nivelului automatizării, globalizării și mai ales a concurenței. Grație acestui fapt, devine crucială înțelegerea structurii modelului de costuri și reflectarea lui în produsul finit. Datorită competiției, managerii sunt forțați să dezvolte metode mult mai precise de calcul și integrare a costurilor. Acest tip de metode îl reprezintă și includerea costului în sistemul integrat de management. Avantajul acestei metode este acela de a furniza costurile complete și explicite, permițând în același timp estimări chiar în timpul procesului. De asemenea, sistemul integrat de management al costurilor le permite inginerilor să lucreze mai eficient cu ciclul de viață al produsului. În plus, acest sistem permite selectarea și optimizarea strategiilor de achiziții în scopul maximizării randamentului privind investițiile.*

Abstract. *Quality control, innovation and cost management are vital if any success is to be achieved in the modern business world with heavy equipment and machines running the industries. The business environment has been very dynamic, the reason for this being the globalization range, customization of equipment and the global market competition. It thus becomes of paramount importance that one should thoroughly comprehend the cost structure business model. The competition pushes managers to develop more accurate cost methods. These methods include detailed data of costing for the purpose of precision in estimations as well as forecasting proper figures. The essence of cost management integrated systems is to provide complete cost product management capable of spearheading the digital innovation with simple and accurate products and a process with tools for cost management in a system that is unified [11]. Integrated cost management systems design systems to allow engineers to accurately and efficiently work with the life cycle of a product. Additionally, the integrated system allows cost engineers to select and then optimize strategies for purchases for the sake of maximizing return on investment (ROI).*

Keywords: cost management, margin maximization, optimize, returns, information, business.

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1. Introduction

For a manufacturing business environment to be profitable, both manufacturing account and product cost are very critical. A company may decide to use the actual costing or the standard method, the next step being to set up and implement the manufacturing system [23].

The J.D. Edwards production suite model provides for both the manufacturing accounting system as well as the product cost a way to enable industries to handle the challenges presented by the dynamic business environment and control cost as well as ensuring transparency. Every business organization or any industry environment have to virtually ask whether they are operating at a profit or a loss, whether the business is as profitable as it can be [21]. Those are some of the fundamental questions that a business needs to ask and provide answers for.

For the listed questions to be answered, every business organization must have mechanisms of establishing cost of the business it is running [2]. The major unique feature characteristic of J.D. Edwards' model that is not observed in the traditional accounting system is first, account consolidation.

Account consolidation is a significant feature that enables a business unit to consolidate or group accounts for the purpose of online review and reports. The procedure is possible if the balances are similar and the fiscal data patterns of the companies are the same.

General accounting is online consolidation, high volume and multisite consolidations. However, the method business units decide to use depends on the disk space (this should be considered before the deployment or installation of J.D. Edwards' model).

To distinguish balance sheets and statement of accounts the J.D. Edwards models uses AAI items (Automatic accounting instructions and they define rules or instructions for chart in accounts and establishes how your system will create automatic entries)

Those are some of the features that make J.D. Edwards' models better than the traditional accounting systems [22]. Other key features that differentiate traditional accounting system from the modern J.D. Edwards system are speed, accuracy, considerations, back up (protection against information lost by demonstrations of nature, equipment or programming disappointment, or a human mistake. The reinforcement technique must adjust the level of security you require against the physical limitations of the framework, for example, data stockpiling limit) and cost.

2. Cost Tracking

Fundamentally, a business must track the cost incurred to the relevant functions. The tracking of cost is significant as it is an indication of whether the business is servicing appropriate cost as well as the specific methods of tracking unnecessary costs and how to rectify such costs. The setup of an organization has traditionally been one that operates as single distinct groups that are independent from each other [23]. Consequently, the information flows from one functional group to another without much integration. Hence, product costing methods and system integration methods are related by reducing cost and enhancing efficiency. An example are the departments such as production control, and planning, however information integration would benefit organizations that are related [21]. The rising competition in the business environment has forced organizations to reevaluate the mechanism of setting up processes as well as cost tracking mechanisms. The steps mentioned above affect the profits that are accrued from a business. In any business enterprise, one will find it hard to minimize or reduce the business running cost if the information on how the cost is generated is not clear. Organizations discovered the fact that the dynamics of the global market and completions are changing the traditional way of doing businesses. Flexibility has become an integral part in every business. To remain relevant in the competitive business, it is important that business identify potential strategic areas and invest their focus fully at the expense of other smaller trivial sections. To achieve that, quality management tools should be sort and implemented [16]. To improve operations, organization finds it's prudent to employ proper analysis control and tracking methods as well as the cause analysis strategies. The two very important aspects of the business: customer satisfaction and profit are influenced by the above-mentioned process. The aim of any business set up is to make profits. Consequently, to improve the financial statement, the organization must seek to obtain relevant information that will lead to the reduction of production costs. The gathered information should be beneficial to other departments of the firm so that they comprehend how each factor affects cost and how each factor can be managed appropriately. Each area in an organization is held accountable for the cost related cost of activities [9]. The actual cost of an item is a sum of various costs including: production cost, supplier cost, carrying cost as well as transportation cost. However, there are other costs associated with an item other than the cost discussed above. Likewise, each operation has its cost that needs tracking and be accounted for when determining the overall cost of the item. Upon defining a cost, the next step is to determine the distribution of the cost in the area of operation. The various costs associated with the manufacturing of an item are accounted for in the manufacturing accounting system [14]. The manufacturing account provides the management with a clear portfolio for the comparison of the actual cost versus the expected outcomes for the item [9]. For

comparison of baseline costs, the standard product cost method is used. Just like the concept implies, the standard cost is determined basically by the baseline cost [23]. After the manufacturing process, the actual cost is compared to the base cost. It is important since the comparison provides useful information on whether the incurred cost in the production process equals the management scope of the cost of the item. It is then possible to determine how the costs are obtained [23]. A company may find it hard to sort any discrepancies if the cost involved is not known nor their origins understood. Since any increase in cost affects the end consumer, specifically the customer, and any activity therefore, negative or positive that affects the cost however minimal should be analyzed. The importance of breaking and tracing costs enables any business firm to identify the business section that needs redefining or streamlining to enable the firm to remain operational on the market and establish its activity solidly.

3. Standard Costing System

The standard costing involves tracking of cost from purchase to production and finally to the inventory [21-23]. Normally in business establishment, the labour cost, the cost of material and any other overhead costs are not determined by any statistical approach rather its history. However, the method varies from activity based method of costing in that the latter uses current cost of an accomplished activity. Standard costing provides a strategy to identify every single cost associated with an item. The system is capable of calculating labour cost, cost materials and the general overhead costs. Another cost that needs to be identified and added to the items cost is royalty as well as electricity cost. When all the above cost is added up, a baseline cost is obtained. The importance of cost components lies in the significant role they play in establishing the strategies for future goals. After the completion of the production process, the variance between the actual costs in the production process versus the cost that was predetermined. More than one phase variance may be identified. The variance may be the materials cost and the standard values cost discrepancies [18-23]. The kind of a variance is described as engineering variance. It is also possible to identify planned variance. Planned variance is the discrepancy between the total costs of materials to the bill generated from part list which is a work order generation [7]. Actual variance is calculated by comparing the list from the original parts to the final list. The variance obtained enables the management to identify areas with cost value discrepancy and the possible areas where control is necessary. Manufacturing industries that are repetitive or rate based, find standard costing as the best option. Its importance lies in the possibility of tracking the cost of the item in the entire product life cycle. Organizations that use the standard costing method through tracking share the opinion that costs should closely be monitored as they occur [10]. Through the actual costing method, cost components that are

predetermined are associated with every step of the entire production process. There is no variance observed between the actual cost and the estimated cost solely because the actual cost is updated to the current cost. For the industries that create, make or assemble products based on order, the visibility becomes significant as the chance of having to deliver items that are identical is very low. In such a case, it is impossible to determine the standard cost for a product given that each product differs from the other products made by that industry in the past. Other reasons why actual costing would be preferred to standard costing by business organizations include the economic fluctuations and commodity used [15]. The commodity items have their prices varying from time to time. Through the use of actual cost, it is possible to revalue the inventory. The benefit of actual cost is the accuracy associated with them. Any change in cost, be it from the component or labour cost, is immediately reflected. For any additional transactions in the inventory, there is a costing of the inventory.

Importance of tracking cost externally

There are external forces that compel business entities to monitor some aspects of their operation. Such forces include the customers' taste and preferences or the regulatory bodies. However, through ISO registration, many organizations feel it's participatory enough. The ISO registration is a simple indication that an established business that it shows conformity to and possesses documentation. The registration of a business entity is not enough. It is critical for any business to determine whether it is in business to conform to or to achieve set goals. The reasons for monitoring processes implementation is to establish accounting methods and defining costs. Many self-improvements programs characteristic of many organizations is meant to identify production problems and identify and eliminate any wastes internally. Defining product costs and establishing methods for accounting for enterprise-wide activities are valid for justifications for implementations. The main objective is to acquire relevant information to keep the business strong in a competitive and dynamic environment. Below there is a systematic approach that uses actual costs to determine production. A company may want to know whether it is making profit or loss. All the cost recompiled in a single ledger. Through summary, the company manages to report on the financial performance of the organization [2, 5]. In such a business unit, the return on investment is that the system produces accounting records as well as product cost continuously. Consequently, it becomes easier for the management to make the right decisions. It is very important that all firm know the sources of their costs. After knowing the source of the cost, the firm now integrates the two types of costs: manufacturing accounting and the product cost.

The key feature of the system is the ability to reflect on every element that contributes to the cost of the item. Better management through improved decision making as well as improved visibility of cost are some benefits accrued from product costing. The cost to customers is then accurately determined. Automation of account processing for manufacturers is important for the accommodation of accounts as well as all other complicated accounts structure. Any other personnel who is non-accounting will have access to the accounts through the automated account instruction (AAI). The non-accounting personnel do not have to generate accounting record given that they are automatically available. The probability of generating inaccurate accounts is very low under product costing. The firm is in a better position to be the best decision that leads to determining the customers cost more precisely. Accounting records need to be well maintained. Considering the lifecycle of an item, it possible to design a database to store record for both the accounting structure and product costing. The ability to adjust costs and the accounting records to provide accurate history is the return for investment. Some configured items make pricing hard. Such items include electronics or high tech equipment. In such a case, the best pricing to use as a combination base configuration system and advanced pricing the pricing created is accurate as well as timely. To provide price quotes for products like car parts advanced pricing is applied. The return in this case is the visibility of cost to make the best decision. The company that deals with commodities need to compare standard performance and labour performance. The standard labour cost records are available from the manufacturing account records. It is then possible to carry out the comparison of the two factors during the production process or after the production process. It is clear that provision of comparison records timely, that increases accuracy of cost is the return on investments.

4. Product Cost and Manufacturing Account Overview

Today's businesses share one major concern: the maintenance of inventories that are accurate and complete. The fastest way to deplete profits is to hold on to stock that is not moving or poor methods of costing. The importance of product costing is to allow storage and retrieval of cost information. Additionally, it provides critical information on matters related to the business plan. When the product costing is flawless, various other factors may be assessed. The factors include: accounting, manufacturing design and manufacturing budget. The cost is established through product costing methods. The costing is followed by the tracking of the cost through the manufacturing account. Besides tracking the cost, the manufacturing account post system, where overhead was allocated to products daily transactions in the ledger and report of any variance.

System integration in product costing and manufacturing accounting

The supply chain management has two accounts that allow the tracking and accounting for both the manufacturing and product together with supply chain components. The supply chain management is critical in coordinating inventories, labour factors, raw materials and product delivery in accordance to a set schedule and has the advantage of fully integration that ensures information in the production and the whole operational process is accurate and current. Supply chain management is described as a system that formalizes the activities of a company, planning and lastly the plans executions. According to the J.D. Edwards system, there is an elaborate integration system. The system integrates factors including, payroll, general accounting, shop floor management, product management, enterprise management. The major features manufacturing account and product costing is flexibility in the accommodation of the accounting of business environment. The benefits of the production cost management system are:

- Cost extras: Cost that maintain cost components unlimitedly. Such cost includes taxes, freight, duty, electricity.
- Cost roll up method and cost factor rate: Cost that allocates specific cost to specific items. The cost is used together with cost extras. Cost variance used in the comparison of various costs more so before

5. Implementation of Changes

Bill of materials roll up retrieves materials to calculate the cost of materials. The cost is for all materials and components. Cost simulation is a cost that runs complete cost simulation before the frozen costs are updated. The manufacturing cost is for the maintenance of information at the plant level to give room for cost variance for identically manufactured products from different locations [2]. The variances discussed in this paper are of the following nature: engineering variance, actual variance that include labour and material and planned variance. Other notable entries include: journal entries that deal with the summary of all the journals entries for all the production process cost in situ or in completion. Tables for accounting instructions are tasked with charging specific amounts to specific accounts. Both rate schedules and work order variances are listed through report prints.

5.1 Product costing and standard accounting integration

In the manufacturing field, product costing plays major roles. First, the costs for the produce are set up before the implementation of the manufacturing account system. Before the costs are decided and set, the following significant factors are

considered. The cost of producing the item which is referred to as cost reporting [2-4]. The variance reporting that describes the standard cost versus the actual costs and lastly the job and product costing that gives details on the cost of material labour and all the overhead costs. The simulation mode is applied to calculate the cost components. After you are satisfied with the costs, frozen standard cost establishes simulated mode and are satisfied with the results, you must establish frozen standard components. Calculations using the standard mode are a feature of all floor shop. The frozen standard cost creates transactions in the ledgers and are used as the main inventory valuation basis. If a company shows little or stable costs from one run to the other then standard cost becomes the most applicable. Moreover, the companies with few numbers of workers apply the standard costing method. J.D Edward provides two solutions for the evaluation of the actual costs: manufacturing cost methods and the weighted average cost method. It is evidently possible to implement manufacturing accounting system with the actual costing without having to use produce costing method. The management systems of business that uses the J.D Edwards models would want to track as well as capture the manufacturing cost (Fig.1). If the actual costing is applied, the cost calculated includes the quantity of the parts that were issued and the actual hours that were used. This is because the manufacturing account costing uses the actual costing and not the product costing mode.

5.2 Application of management integration of product costing in industry

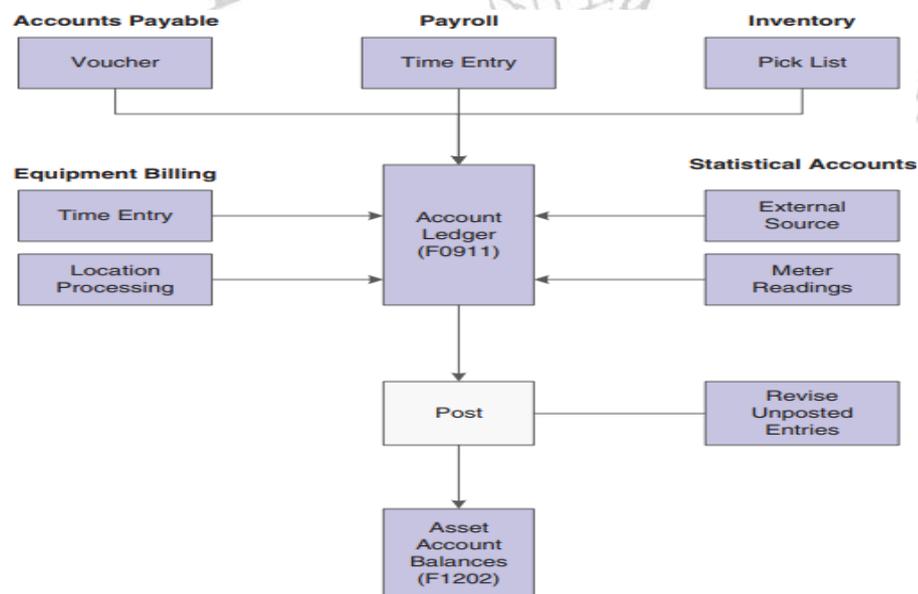


Fig. 1 Structure of J.D. Edwards application

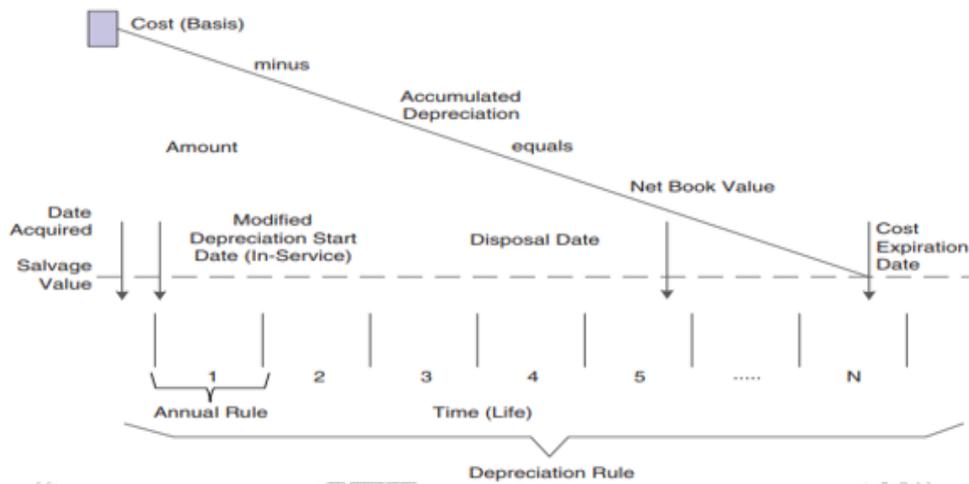


Fig. 2. Elements of assets depreciation.

Figure 2 represents the depreciation and the salvage value using the J.D. Edward’s model.

Table 1 Production schedule revision form as adapted from J.D. Edward application model

<i>Schedule number (number of activities in productions)</i>	<i>Grader (accounting feature)</i>
Ledger	AA (actual amounts)
Description	Motor grade hours
Unit of measure	HR
Units-original	10000.00
Units-prior year revision	-----
Units-current year revision	-----
Prior year’s production	4,500.00
Depreciation unit base	5,500.00
Ytd production	5,500.00
Current unit of production factor	1.000000000

The J.D. Edward’s production suite provides for both the manufacturing accounting system as well as the product cost a way to enable industries to handle the challenges presented by the dynamic business environment and control cost as well as ensuring transparency (Table 1) [11]. Every business organization or any industry environment has to virtually ask whether they are operating on a profit or a loss, whether the business is as profitable as it can be. Those are the fundamental questions that a business needs to ask itself and provide answers for. For the listed questions to be answered, every business organization must have mechanisms of establishing cost of the business that is running.

6. Conclusions

The management system integration for product costing is a wide concept. The objective of the business entities is to achieve particular set goals. To achieve the goal, integration of product costing comes to play. Every cent invested must timely deliver accurate and informed decisions regarding the creation of a product, associated costs, marketing promotions, pricing, sourcing and product launching to establish fair margin of profit and maintain the loyalty of customers and lastly remain relevant in the competitive environment. It is evident that for a manufacturing business environmental to establish a profit margin, both manufacturing account and product cost are very critical [17]. A business entity may decide to use actual costing or the standard method, the next step is to set up and implement the manufacturing system. The J.D. Edward's production suite provides for both the manufacturing accounting system as well as the product cost a way to enable industries to handle the challenges presented by the dynamic business environment and control cost as well as ensuring transparency [7-11]. Every business organization or any industry has to handle the challenges presented by the dynamic business environment and control cost as well as ensuring transparency [10], [12]. Every business organization or any industry environment has to virtually ask whether they are operating on a profit or a loss, whether the business is as profitable as it can be. Those are the fundamental questions that a business needs to ask itself and provide answers for. For the listed questions to be answered, every business organization must have mechanisms of establishing cost of the business it runs [11],[12]. Fundamentally, a business must track the cost incurred to the relevant functions [3-11]. The tracking of cost is significant as it is an indication of whether a business is servicing appropriate cost as well as specific methods of tracking unnecessary costs and how to rectify such cost. The setup of organization has traditionally been one to operate as single distinct groups that are independent of each other. Consequently, the information flows from one functional group to another without much integration. Hence, product costing methods and system integration methods. Considering the extensive nature of this research several concepts came to right. Vast business model, statistically, are overwhelmed by the management integration formulated from J.D. Edward's models. The efficiency, expanded profit margins, ease of data retrieval, proper cost tracking methodology, customer satisfaction, adherence to business regulation and ethics, compliant with ISO, product cost integration and different management systems are few benefits associated with business integration in product costing. Interestingly, when business units are run as a single entity with information flowing from the executive to the subordinate with no integration, efficiency growth or achievement of the business goals is impeded.

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