

PRIME COST MANAGEMENT ACCOUNTING FOR WOODEN HANDICRAFTS

Nahid Rahmanpour^a, Mohsen Karbasian^b

^a Department of Handicraft, AL-zhra university Address:handicraft department, Art faculty, AL-zahra university, vanak, Tehran-Iran

^bIslamic Azad University- South Tehran Branch Address: Faculty of management & accounting, zarabkhane, shariati St.Tehran-Iran

E-mail: nasen92@yahoo.com

ABSTRACT

At first glance, handmade art works are seen as a set of applied-artistic products with functional features, which express culture and art of a specific age. The artistic and cultural concepts are transferred from one generation to next generation by these works. Generally, people find art work as spiritual matters without physical life. However, handicraft arts with critical features such as high value added and dependence on locally available raw materials also represent profitable business. In light of this, profitable and entrepreneur art-industries can be developed using modern management methods to systematically survey the production process, cut the costs, and increase performance and quality. Different ways for cost management methods and how to employ them in handicraft art work production were studied using library study. Afterward, the results from artistic production projects were tested using applied-scientific method. The findings showed that the goals such as entrepreneurship, development of new sector align with modern life, and improving competitive power in national and international markets are achievable using modern cost management methods.

KEYWORDS: Cost management accounting, Handicraft products, Prime price accounting, Wooden works.

INTRODUCTION

Handicrafts refer to a set of arts-industries that represent national and cultural identity of a civilization via the artistic works. These products also transfer the cultural identity from one generation to next ones. In addition to spiritual features in production these artistic works, production and functional-oriented features, based on modern management methods, must be taken into account. Handicrafts are featured with high value added, no need to high techs, and dependent to locally available materials. These products are naturally art-industries featured with high profitability potential, entrepreneurial, and functional qualities and harmony with modern life. These products also have great potential to enter national and international markets and there is production capacity to meet the market demand. Surveys of handicraft workshop conducted by academic bodies have shown that managers of these producing units have failed to keep a balance between artistic features and economic/ physical aspects of these products. This is mainly due to unfamiliarity of these managers and craftsmen with modern management methods to cut the prime cost and other issues pertinent to effective management. In some cases, even, the workshops have stopped their business due to economic problems. These highlight necessity of research works on cost management accounting methods with emphasize on artistic products.

The present study is based on the hypothesis of necessity of using prime cost management accounting for handicrafts (wooden products) toward realizing economic goals of the production process. In this regard, following matters are tried to be examined:

- Prime cost management accounting can be a way to reach a reasonable price and a standard in artistic work production.
- While keeping the quality, management approaches can be used to reduce Prime price.
- Using modern techniques and tools is a way to cut the prime cost and keep artistic nature of the products.
- The extent to which modern management methods can be effective in creating a thriving market for handicrafts artist works.

MATERIALS AND METHODS

Cost management techniques and their potentials to be used in handicrafts production were first studied through library study. Afterward, the findings were put in practice to examine their effectiveness for artistic works settings with focus on design and production of a wooden artistic-applied product.

Management accounting and handicrafts products

By the definition of American National Accounting Association (NAA), management accounting is the process of determining, measuring, collecting, analyzing, preparing, interpreting, and representing financial information used for management activities such as programing, assessing, and controlling operation of an organization. Management accounting is mainly focused on preparing economic, financial, non-financial reports to be used for users in the organization such as managers of different mid and operational levels. Management accounting, also known as accounting for managers or managerial accounting refers to tools used by the manager for reaching better decisions and evaluating such decisions (Nourvash, 2012).

Taking into account that handicrafts production settings are semi-mass productions activities mainly managed by the artists-craftsmen who directly engage in the production process, there is a need to gear up management accounting relative to financial accounting and the features of this type of production. Tables 1 & 2 clearly represent compatibility and effectiveness of management accounting with artistic handicrafts.

Table 1: difference of financial accounting and management accounting

Management Accounting		Financial Accounting
Users inside the organization, operational managers	Main users of Reports	Users outside the organization
Reports as required	Types and number of reports	Financial statement (seasonal, annual)
Specific goals of specific decisions	Goals of report	General goals of the business unit
Any pertinent data	Content of the report	Prime cost data
No need for independent audit	Audit process	Audit by official auditors

Table 2: Features of the accounting method for handicrafts production management

Main users of the reports	Workshop management (artist, craftsman) within the organization
Types and frequency of reports	Internal reports based on projects and orders
Report goal	Project-based surveys and using the findings for future projects
Content of reports	All types of data pertinent to production and financial matters
Audit process	No need for independent audit

It is notable although management accounting is used in handicrafts art works, reporting end price of total produced and sold products need financial accounting.

Objectives of using management accounting for handicrafts art works

Traditional accounting systems have failed to establish a direct relationship between the consumed resources and the obtained results. These systems are limited to recording the costs. Thus, to measure expenditures based on the resources, we need to measure costs based on the outputs and results. The managements have more reliable reasons for making decision when they are provided with the data of operations costs, output costs per unit, and the results of the outputs.

To have an accounting system responsive to financial issues, first we need to develop a comprehensive knowledge of the nature of business. Understanding nature of business, the relationship between the data sets, and the reasons that have led to the status quo are critical in interpreting the computations. Financial analysis needs perception of products,

services, and features of business operations (Wilker and Bruke 2007). An expected outcome of developing a competitive business is more attention to external business environment while keeping the elements of internal environment in consideration (Jalali and Shakiba, 2011).

Accounting and financial reports are under influence of economic environment. For any financial activities dependent on economic factors of a business environment, accounting and financial reports must be adapted to that environment. The adopted accounting method is closely related to perception of economic environment and type of business. In light of this, the specific and considerable differences of handicrafts products from design to market level, handicraft businesses have specific needs in accounting management.

Production of handicrafts artist works entails the process of designing and producing artistic-applied products with specific characteristics as follows:

- Equal weight assigned to artistic, cultural, and applied aspects of the product;
- Cultural roots of the product must be taken into account in the design of new artistic-applied works;
- The production process depends on machine and craftsmanship;
- Artistic aspects of the products must be taken into account in using modern machineries and technologies;
- Despite traditional production methods that focus on products, there is a need to focus on research, design, production, and function of the products.
- The products must be modernized based on modern ways of life and native origins.

Management accounting in craftsman artistic fields must be aimed to observe and improve the above features. Along with changes in life style, artistic craftsman products have changed. Necessity to produce craftsman arts in harmony with modern ways of life is essential. Due to high cost and low capacity of traditional production methods, they cannot supply the market's demand. This is where management accounting comes in and facilitates realization of these goals.

What carries the weight in this field is to realize three goals:

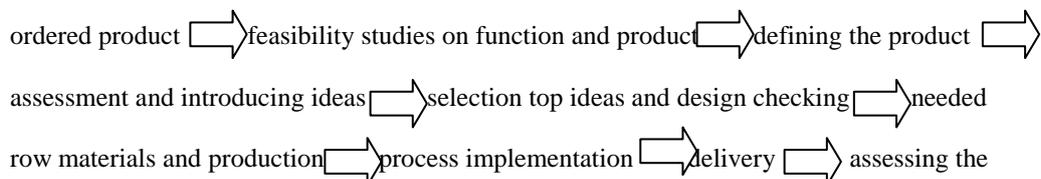
- Determining end and real price of the products;
- Improving the processes
- Assessing the options of outsourcing;

End price accounting management for wooden handicrafts product

By production, we refer to a set of activities and processes through which raw materials are processed into the final products (Noravesh, 2012) so that the end price of the product covers price of raw materials, work force salary, and expected profit. Each one of the above factors is under influence of economy environment or type of production in the economic environment to put it another way. Producing enterprises produce products by suing capital, human force, and production machineries and supply their products either to the market or other commercial institutes (Rouzbahani, 2003).

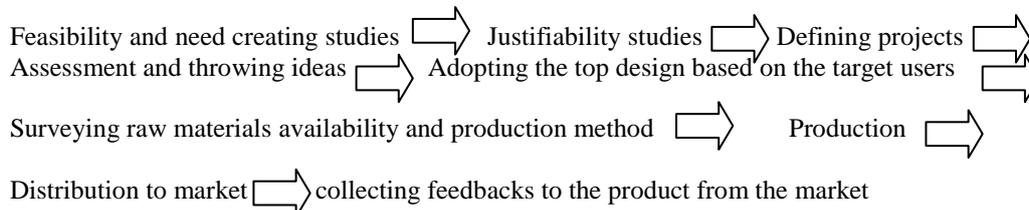
Due to specific nature of artistic products, the three factors of production process change as well. Direct salary that has direct with physical presence of the craftsman in the procedure or processing raw materials into final products is critical in producing handicrafts. Although, removing human forces in mainstream industrial products leads to considerable effects in production costs, keeping specific work forces in the case of artistic products production is a way to reach higher added value. Thus, there is a direct relationship, in artistic products cost management, between type of product, operation (structural, ornamental) and type of project. Wooden artistic products are supplied to market either with custom design or as mass production. The first step toward efficient management is to survey the main steps in the process of implementing different production process.

Table 3: the main steps in the process of implementing wooden artworks projects in costume design method



customer's satisfaction

Table 4: main stages in the process of implementing



Despite differences in some aspects of production and manufacturing process in the two mentioned method, main and secondary functions of the both methods are identical (Fig. 5).

Table 5: main and secondary functions in mass and customized wooden artworks production projects

Main functions: finding new applications and creativity in design and implementation, reducing production time and costs, increasing market sharing, creating production capacity

Second functions: profitability, creating job, value added

Determining the main stages of the work and expected functions enables the managers to make right decision at right time and relative to project goals.

Implementation of management accounting

Scientific management in its specific term is the method of orderly and logical reactions to issues in organizations, which are aimed to find the best solutions for doing tasks. Focus of management is on gleaning accurate and complete information of what is happening and the effects of any change in the environment. Management is highly dependent on the information pertinent to prime cost of the products and services, available resources, and production line capacity. The demand for financial information, in particular, is growing. Intensification of the role of financial information has led to improvement in the ways of estimating the costs of products, services, and activities. So that managers now have access to more information of different aspects of financial issues. In this way, management accounting emerged as an independent field of study in the early of 21st century (Wilder and Burke, 2007).

With changes in life style and increase of demand, traditional production techniques in producing handcraft no longer can cover the demand of national and international markets. Taking into account that handicrafts artistic products represents the life style of a nation while being an artistic-applied cultural product; they are more than consumable products by filling in the role as cultural messenger and representative of local cultures at international level. This highlights the necessity of an efficient management through which handcraft produces could lessen production costs and improve production process by employing modern technologies and management methods. Lack of proper cost estimating and standard pricing in handcraft artistic products is a threat to the customer's trust and a cause of poor decision making in production and supply process. Author tires to adopt an applied approach toward cost management and test the proposed method in practice to determine its effectiveness in wooden handicraft artistic works. It is notable that the proposed program was implemented in a wooden product workshop. The workshop was run by an artist-craftsman (with academic education) and all the positions in the workshop were filled by graduates of handicrafts products. A financial expert also helped us in doing the study.

At first, the primary data regarding production method, raw materials, participation, and required work force were collected. The results of assessment showed necessity of adopting approaches toward finding new applications for the products, cutting the cost and production process time while keeping quality and identity of the products, cultural marketing, and creating demand for the products in modern life style. Afterward, the members of production team were briefed regarding the issues and new approaches. The accepted ideas after primary evaluations were using artistic handicrafts in home furniture design, employing new technologies to cut the production cost and time, and holding exhibit to introduce applied and artistic features of the products.

At this stage, we needed to determine the applications and cost information, perform experiments regarding using new technologies and their efficiency in cutting the cost and production process, and preserve the quality of products. There is a persistent resistance against using new technologies in production of artistic handicrafts. However, the only way to meet the available demand, to improve economic performance, and to win more market share in national and international market is to accept new technologies and changes in the market. Thus, while using new technologies is not a threat to quality and identity of artistic works, avoiding using them in production process is not defensible. Invention of mechanical machines in wood works and wood art industries facilitated and shortened the production process. Introduction of new technologies such as CNC and laser machines have opened new ways to cut the cost and time of production while preserving identity of the products. A brief reports of different experiments to compare machine and man's performance in ornamental, carving and cutting the wooden works based on time, cost, and quality are listed in Tables 6, 7, 8, & 9.

Table 6: Comparison of performance of machine and manual process of shallow Wood carving works

	CNC	Manual
Type of wood	Plane tree	Plane tree
Thickness	15mm	15mm
Operation	Emptying background	Emptying background
Depth of background	7mm	7mm
Design	<i>Slimi</i> with design to surface rate of 2/3	<i>Slimi</i> with design to surface rate of 2/3
Dimensions	300*300mm	300*300mm
Workforce	One skilled worker	One skilled worker
Time	10min	17hrs.
Cost	8\$	85\$

Table 7: Comparison of performance of machine and manual process of embossed Wood carving works

	CNC	Manual
Type of wood	Walnut	Walnut
Thickness	25mm	25mm
Operation	Emptying background	Emptying background
Depth of background	15mm	15mm
Design	<i>Slimi</i> with design to surface rate of 2/3	<i>Slimi</i> with design to surface rate of 2/3
Dimensions	300*300mm	300*300mm
Workforce	One skilled worker	One skilled worker
Time	20min	40hrs
Cost	12\$	200\$

The resultant work is assumed less original when it done by machine. Therefore, in the case artistic works, CNC machine is only used to trim the work and empty the background of wood carving

Table 8: Comparison of performance of machine and manual process of carving

	CNC	Manual
Type of wood	Plane tree	Plane tree
Thickness	8mm	8mm
Operation	Carving	Carving
Depth of background	2mm	2mm
Design	Flower Tables with design to surface rate of 1/2	Flower Tables with design to surface rate of 1/2
Dimensions	100*100mm	100*100mm
Workforce	One skilled worker	One skilled worker

Time	25min	27hrs.
Cost	6\$	135\$

Table 9: Comparison of performance of machine and manual process *Moshaback work*

	CNC	Manual
Type of wood	Beech wood	Beech wood
Thickness	3mm	3mm
Depth of background	Latticed	Latticed
Design	Flower Tables with design to surface rate of 1/5	Flower Tables with design to surface rate of 1/5
Dimensions	70*30mm	70*30mm
Workforce	One skilled worker	One skilled worker
Time	2min 46s	30min
Cost	60 cent	2/5\$

At the end of this stage, applications that were worthy of consideration were selected based on experiments' results and used in developing ideas and designing. The results of the experiments above determine the useful functions in producing wooden art works while emphasizing artistic nature of the products. Given that artistic products are usually order-base, such products are usually custom made. Because of this, this type of production uses order value assessment system. The end price of the product in this system is determined based on the order or a series of products. A key feature of order value assessment system is that each order has its own features and characteristics. The main purpose of this system, indeed, is to determine and calculate the end price of each order. The end price of each product must be determinable at each stage of production process (Noravesh, 2012). The flow of elements of the end prices (raw materials, wage, and excessive production capacity) in order-based value assessment system is in parallel with physical flow of raw materials toward complete product (The same, 2012).

The nature of management accounting of end price of artistic products is comprised of all measures that the manager takes to achieve the users' satisfaction while keep cutting the prices and preserving the quality and artistic identity of the artistic-applied products. In light of this, using the new methods in wooden handicrafts artist goods projects, the practitioners can find approaches to reduce time and cost of production process while keeping the quality unchanged or even improve it. In this way, 80% of the production cost throughout design and development are determined (Ardakanian, 2011). Moreover, the key to reach lower prices is in production process and decision making based on measuring costs of final product. With increasing share of technology and other elements of excessive costs in product and service sectors, the traditional cost estimate method have lost their capacity to feed and share the right information. This is while the information of end price of products, services, and the customers are of the most critical financial information that can guide the traditional management systems toward activity-based cost measurement systems (Chen *et al.*, 2008). Activity-based cost measurement system is a novel cost estimate system for products and services that meet the needs such as calculating the end price of products, improving production process, cutting fruitless activities, detecting cost motivators, programing operations, and setting business strategies (McGuire *et al.*, 1997).

Traditional cost estimate systems known as volume-based cost estimate system measure the production cost based on volume elements such as number of products or sale data (Cooper, 1988). In case of artistic handicrafts products where value added of each product is directly related to type and time of production process, end price estimating based on time-based activity can be helpful. The system functions based on the main common elements (i.e. time and work) and uses time functions to take into account several source of costs in a business activity. The main element in increase of end price of artistic handicraft products is the time. In this way, the approaches toward reducing the production process while preserving the quality were tested. Cost estimate was done based on time-based activities. The proposed method uses time elements such as adjustment time, raw materials preparation time, and time needed to fulfill the orders (Everartet *et al.*, 2008). Regarding artistic handicrafts, the artistic identity of the product cannot be adjusted to reach more reduction of cost. Thus, the proposed method must think of the ways to shorten the production process and keep the quality at the same time. The results from Tables 6, 7, 8, and 9 confirm considerable reduction in procedure time comparing with traditional methods. In our experiment, some parts of the production process were carried out using machineries.

Features of the wooden product workshop are as follows:

Total registered capacity: 45500\$

Fix capital: 30300\$

Turnover capital: 15200\$

In addition, the workshop was equipped with semi-heavy wood machineries and small electrical and manual machines. Laser and CNC demands were outsourced. The production process is run by three skillful workers.

Table 10: Cost performance and work progress flow (handmade decorations)

Products	Specification	Type of decoration	annual capacity	Man/hr per product	Cost of each hour work\$
Drawer and mirror A	Less decorated	<i>Wook carving and latticed</i>	6	480	5\$
Drawer and mirror B	Highly decorated	<i>Wook carving and latticed</i>	4	864	5\$

Product	Fix cost		Variable cost	Profit rate (%)
	Raw material	Excessive capacity	Direct wage	
A	212\$	100\$	2400\$	50%
B	212\$	100\$	4320\$	50%

Product	Total cost of product	Selling price	Annual production price	Annual sale
A	2712\$	4068\$	16272\$	24408\$
B	4632\$	6948\$	18528\$	27792\$

Table 11- cost performance and work progress of a wooden handicraft product (part of decorations done by machines)

Products	Specification	Type of decoration	annual capacity	Man/hr per product	Cost of each hour work
Drawer and mirror A	Less decorated	<i>Wook carving and latticed</i>	10	264	5\$
Drawer and mirror B	Highly decorated	<i>Wook carving and latticed</i>	7	600	5\$

Product	Fix cost		Variable cost	Profit rate (%)
	Raw material	Excessive capacity	Direct wage	
A	212\$	45\$	1320\$	50%
B	212\$	45\$	3000\$	50%

Product	Total cost of product	Selling price	Annual production price	Annual sale
A	1577\$	2365\$	15770\$	23650\$
B	3257\$	4885\$	22799\$	34195\$

As listed in the tables above, using order-based cost estimate method based on time-based activity concentrates on reducing production time while preserving the quality of the products. This means lower cost of production and increase of production capacity. On the other hand, fruitless activities in the production process, which only induce physical burnout of the employees, were deleted. Computations based on the above data showed 66.7% increase of production, 41.9% reduction of price with less decorated products and 75% increase of production and 29.7% decrease of price with highly-decorated products.

RESULTS AND DISCUSSION

Based on the findings, following results were obtained regarding wooden handicraft art works:

With high value added and being dependent on locally available materials, handicraft industry is a highly profitable and entrepreneurial business.

To realize entrepreneurial purpose, finding new usages for the products, and meeting national and international market demand, production-centered approaches must be promoted in the industry.

Production and supply condition of handicrafts products can be improved by using cost management accounting and emphasizing on time-based cost estimate methods to cut the costs and time of production and increase quality and performance.

Modern technologies can pave the path toward realizing the business goals given their effects in cutting time and cost, increasing the quality, and preserving identity of the products.

Research, design, and production process of handicraft art work products must focus on the end user and the product at the same time.

The results of studies and experiments showed that cost management accounting approaches in handicraft art work production can reduce prime cost of the product and increase production capacity by shortening production process time.

The results based on performance and cost Tables indicated 66.7% increase of production, 41.9% reduction of price with less decorated products and 75% increase of production and 29.9% decrease of price with highly-decorated products. This indicates effectiveness of end price management accounting and time-based activity cost estimate methods and highlights necessity of using modern management techniques in handicrafts product industry.

REFERENCES

- Ardakanian H. (2011).** Cost reducing systems and designing for increasing production strategic management accounting. 1st ed. Rasa, Tehran. :17-24.
- Cooper R. (1988).** The rise of activity-based costing: what is an activity based cost system? *J. Cost Management*. 3:45-54.
- Everaert P. and Bruggeman W. (2007).** Time Driven Activity Based Costing: Exploring the Underlying Model, *Cost Management*. 15:16-20
- Chen Kong H., Blucher Edward J. and Leen Thomas W. (2008).** Cost Management a Strategic Emphasis. 2nd ed. Terme, Tehran. :170
- Jalali Farizhendi S. and Shakiba Jamalabad A. (2011).** Surveying the factors effective in strategic management accounting and its relationship with improvement of business performance. 2nd Conference of executive management.
- McGuire B., Kocakulah M. and Dague E.J.W. (1997).** Using ABC to identify cost Drivers in a Manufacturing Environment. *Cost of Management*. 9: 22-28.
- Noravesh E., Mashayekhi B. and Noravar F. (2012).** Management Accounting, 1st ed. Ketabno Publications. Tehran. :11-44.
- Rouzbehani Sh. (2003).** Industrial Accounting. First edition, Faraz Danesh Pub, Tehran. :1
- Vilex C. and Borke L. (2007).** Performance Assessment Management Accounting, 1st ed. Kiomars and Iran Expert Accountants Council publications. Tehran:305.