

## The Effect of Programme Costs in the Adaptation of Furniture Industry Accounting Information Systems on General Production Expenses and Recognition

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### Abstract

The subject of this study is the change of operational costs when accounting information system is used; and special cases in registering this change in accounting records and how the costs will change in case accounting information system is used in a business. To do this, Small and Medium Sized Enterprises (SMEs) operating in Turkish furniture industry was examined. Lowering the costs is an important objective in manufacturing businesses. In this respect, accounting information systems (AIS) provide significant contributions. The aim of this study is to explain this contribution, the new programme adaptation and its cost, the new programme purchasing accounting records and to offer solutions. At the end of the study, it was found that in case businesses carry out all their transactions over one single programme lowered their general production expenses significantly. In addition, this study shows that operational efficiency will be ensured in case AIS is used. Some other results are given in the study.

**Key words:** Accounting software; Software types; Intangible asset; Accounting valuation Turkish Accounting Standards (TAS)-38

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### INTRODUCTION

One of the subjects that manufacturing businesses put significant emphasis on today is lowering manufacturing costs or at least, making accurate estimations. In this respect, first of all, businesses should evaluate their costs well. There is an important measure in accounting literature. And that is the understanding that states that something that cannot be measured cannot be managed. In order to manage costs well, it is necessary to use good estimation methods. At this point, accounting information systems (AIS) is considered as an important tool. AIS provides important solutions in determining and managing general production expenses.

There are many academic studies on the profitability, costs and productivity of furniture industry both in Turkey and abroad. For instance, a study of Çolak and Ulucan (2012) focuses on determining the factors that effect profitability in furniture industry and on measuring the relationship between input and output used in furniture industry. In Gürpınar and Barca's (2008) study, it is stated that Turkish furniture industry will be a strategic sector due to such reasons as its place in domestic economy, the employment opportunities it provides, its share in exports and its increasing importance. Authors state that the furniture manufacturing around the world is almost \$220 billion and \$150 billion of this production is offered to the consumers in the country where they are manufactured and around \$70 billion is traded internationally. Authors also state that Turkey's furniture exports is quiet low. In a different study by Gürleyen (2012) how general production expenses could change when CNC (Computer Numeric Control) machines, which are important for companies operating in furniture industry, are used was discussed. The result of the survey revealed that there was an increase in the productivity and capacity of those businesses which buy this machine, the manufacturing process and periods shortened, wastages were reduced, costs were reduced and the area of the

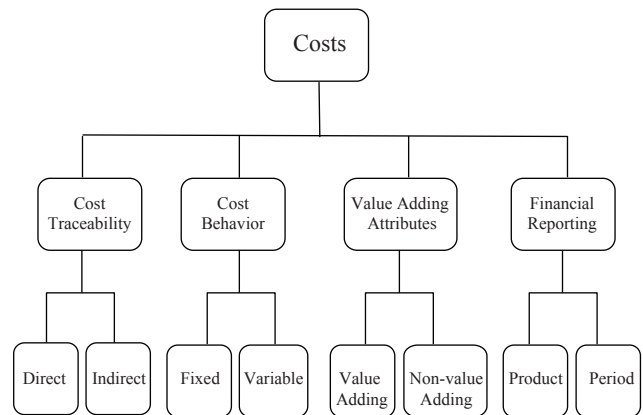
factory expanded in time. Dizdar et al. (2010), on the other hand, worked on changing scale and stated that the problems in the process of moving from small scale to large scale increased expenses and reduced profitability. Çınar (2005) stated that the relationship between furniture industry and furniture design education was important in the development of the current industry in Turkey and added that the Turkish government played a role by opening furniture design and production departments at faculties at universities in addition to industry vocational and technical high schools. Korkut et al. (2010) discussed the issue from the viewpoint of how bakery manufacturers and bakery user companies' survived during crisis and what kind of policies they followed. In addition, they stated that the technology management policies of user and producer companies were different and that they mostly preferred efficient cost control to be successful during crisis. In another study on the issue, Sümer and Erer (2010) have a different approach. Their approach is about how to follow the software (programme) that stands out in calculating and following furniture expenses in the accounting system. The authors showed accounting according to Turkish Accounting Standards in detail.

## 1. MANUFACTURING BUSINESSES AND ACCOUNTING SYSTEM

Until 1989, the structure of accounting system was not based on a legal ground. With "The Law Of Independent Accountancy, Independent Accountant Financial Advisorship And Sworn in Financial Advisorship" accepted in the same year and the Unified Accounting System which has been implemented since 1994 both the legal ground was set and the rights and obligations of members of the profession were organized. Until present day, some changes have been made on this law to make it up-to-date with the conditions of the present. Growing technological and economic conditions made the issue of recording remittances an important issue for accounting (Küçük et al., 2009).

Whatever the type is, accounting is a system used by all businesses. It is a system with certain rules and its uniformity in implementation is ensured largely by the practitioners. In this context, we should mention the economic units or in other words the businesses which use accounting system and the concept of business. Business is an economic entity established in order to carry out commercial, agricultural and service activities and to make changes on materials and equipment by making production. There are resources that shareholder(s) of a business allocate to the business. Accounting can be considered as the name of the system where all records of all economic activities in a business are kept and reported to beneficiaries as a summary. The values that a business has are called assets; and where and how these assets are

obtained is the balance sheet. In other words, if a business has certain assets, these are certainly given by other people (real or legal). Therefore, there is a relationship and equality in terms of value (amount) between the assets and the resource of these assets (Cemalcılar et al., 1997, pp.5). This equality is set in all periods of the financial year. All assets of a business should certainly have an equivalent. Assets owned are either procured by capital stock or by foreign resources in the event of insufficient capital stock.



**Figure 1**  
**Cost Classification** (Clinton and Van Der Merwe 2006)

In the cost classification Clinton and Merwe (2006) made in the field of management accounting, they explained costs under four main topics. It is seen that in two of them the costs are direct and indirect while in one of them the costs are stable and variable.

## 2. THE IMPORTANCE OF THE FUNCTION OF ACCOUNTING

Accounting is defined as the art of recording, classification, summary and reporting of financial processed and events which can be expressed with money (Kızıllı, 2009). Accounting is also defined as an information system which explains the increase and decreases to occur in resources and assets (Sevilengül, 2009). Accounting fulfills significant functions in business life.

Recording of transactions with an economic value enables such important functions as grouping the transactions that are carried out and interpreting the results of these transactions (Kızıllı, 2009). While performing such functions, accounting takes when the transaction has been carried out, which is one of the general principles, into consideration. Main task of accounting is to show both revenue and expenses in the relevant period they belong to (State Planning Organization, 1970).

There are many commercial and industrial activities in business world where business relations differ widely. These activities are both domestic and international activities. For example; while companies doing foreign trade use foreign trade operations accounting, others

which are not involved in foreign trade are not required to use this accounting. Although there are quiet a big number of commercial activities, the field of accounting should be limited with certain standards. The most widely used accounting types today are:

- a) Governmental accounting; it is used by public sector;
- b) Cost accounting; it is used by manufacturing businesses;
- c) General accounting;
- d) Bank accounting;
- e) Insurance accounting;
- f) Agricultural cost accounting etc.. These types of accounting are used properly.

Additionally, management accounting, which is efficient in planning activities, in various decision processes, in interpreting events, in reflecting them to the managers on time and with adequate information through reports, is an important type of accounting (Arkun, & Öcal, 1975). Although there are various types of accounting, it is general accounting that serves as a source to all other types of accounting. These accounting types take their data from general accounting, process them and transfer them to general accounting. These principles make up the theoretical structure of accounting. They are in unity with the main concepts of accounting and they help to establish a common system to be used by everyone. These principles explain how income and expenses will be transferred to nominal accounts, what should be taken into consideration in organizing balance sheets and presents general standards. According to the regulation, the aim of developing and implementing these standards is to clearly identify the financial states of stakeholders who invest capital to the business and later, leave the profit belonging to them to the business. A second aim is to explicitly reflect the accounting records of the assets that these people provide to the business.

According to General Communique on Accounting System, financial statement principles represent the rules to be implemented by businesses in organizing basic financial statements. In cases when Turkish Commercial Code, which is predicated on while preparing financial statements, and other provisions of relevant regulation include different practices, businesses do the necessary arrangements to provide demanded information in line with the provisions of the relevant regulation. However, these regulations do not change the uniqueness principle of the financial statements to be organized within the framework of the principles in this section.

Among financial statements, balance sheet and statement of income, along with their footnotes and annexes, form the main financial statements while others form the supplementary statements. Financial statements have the following objectives;

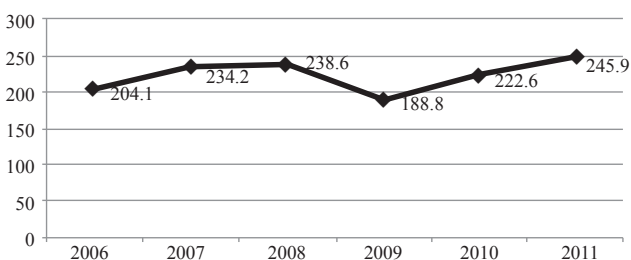
- a) To provide useful information to investors, creditors and other relevant bodies in decision-making;
- b) To provide useful information in evaluating future cash flow;

c) To provide information on assets, resources, the changes in them and on the results of the activities of a business.

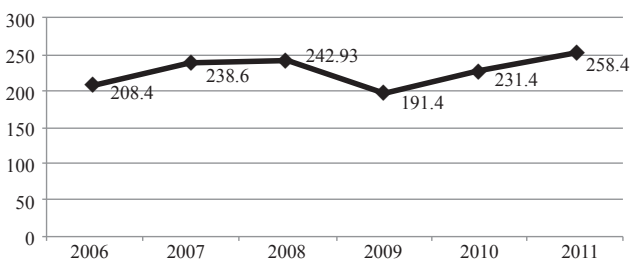
There is an equality of Active and Passive in balance sheet. There can be both a change of location of assets among active accounts and increases and decreases both from active to passive and passive to active. It is normal that there is equality between the assets of a business and the resources from where they are provided. Due to this equality, the table which shows the resources of a business and where these resources are used is called balance sheet which is derived from the Latin word “bilanx” Latin (Sevilengül, 2009).

### 3. GENERAL CONDITION OF FURNITURE INDUSTRY

In today’s world, the furniture industry is an outstanding dynamic market both in Turkey and around the world. According to the data from Faostat, the total wood product exports around the world in 2011 was US\$ 245 billion. This amount is \$6 billion for Turkey alone.



**Figure 2**  
General Condition of World Wood Product Exports  
Source: Faostat, 2013



**Figure 3**  
General Condition of World Wood Product Imports  
Source: Faostat, 2013.

When we look at the import structure of furniture industry, we see that the import trading volume is close to exports. According to world data, the total wood products import in the world in 2011 was US\$259,4 billion. According to CSIL (2011) data 25% of world’s total furniture production is produced by China, while 16% is produced by other high-income countries, 15% by the USA, 11% by other medium and low-income countries, 8% by Italy, 7% by Germany and 3% by each Japan, Canada and the UK. Turkey is not included in this list. And when it comes to consumption, China consumes 18% of the world’s furniture, while other high income countries

consumes 19%, the USA consumes 21%, other medium and low-income countries consumes 12%, Italy consumes

5%, Germany consumes 7%, Japan consumes 4%, Canada consumes 3% and the UK consumes 5%.

**Table 1**  
**Import and Export Values of Some Wood Products (1,000\$)**

HS Cod	Products	Export of first 8 month		Change	Import of first 8 month		Change
		2011	2012	%	2011	2012	%
4401	Fuelwood, chips and particles and wood processing residues	36	74	107	145.456	216.474	49
4403	Industrial wood	1.286	2.640	105	129.756	216.474	110.885
4407	Sawnwood	10.411	8.002	-23	144.985	140.013	-3
4408	Veneer sheet	16.525	19.100	16	25.126	25.538	2
4410	Particle board	44.603	46.336	4	65.194	68.803	6
4411	Fibre board	183.698	196.705	7	204.380	219.062	7
4412	Ply wood	10.048	9.183	-9	183.296	200.859	10
44	total	421.312	432.540	2,7	1.008.660	1.022.904	8

Source: Turkey Market Statement.

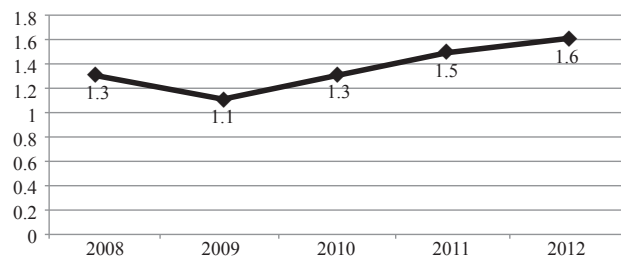
**Table 2**  
**Turkey Wood Furniture Export and Import Values (million \$), 2000-2010**

Years	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Exports	83	93	135	215	290	342	390	520	517	517	652	765
Imports	99	58	53	65	105	155	242	255	276	201	222	287

Source: Turkey Market Statement.

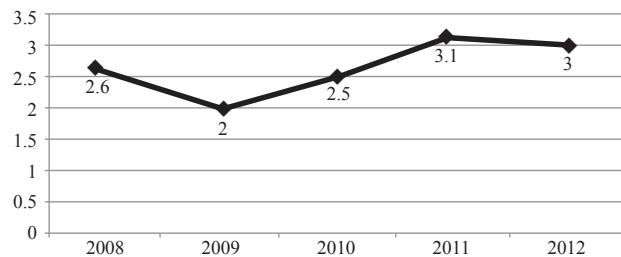
When the export and import structure of wood products in Turkey is analyzed, it is seen that Turkey is an important wood importer. On the other hand, it is seen that the export item of Turkey is fibre board. The leading export item isplying wood.

Turkey's furniture import and export volumes have increased year by year. It is seen that Turkey's export item is higher than its import or to put it in other words, Turkey is a furniture exporter country.



**Figure 4**  
**Turkey's Furniture Export Between 2008-2012 (US\$ Billion)**

Source: Turkish Statistical Institute.



**Figure 5**  
**Turkey's Furniture Import Between 2008-2012 (US\$ Billion)**

Source: Turkish Statistical Institute.

#### 4. GENERAL PRODUCTION EXPENSES IN FURNITURE INDUSTRY

Costs which are related to manufacturing but not included in labor and raw material costs and which are not directly included in direct production costs are called general production expenses. These costs differ from one sector to another but at the same time; they have common properties in all sectors. These costs can be listed as:

- Indirect material costs;
- Indirect labor costs;
- Employee costs and extras;
- Outsourced benefits and services;
- Various expenses;
- Tax, duties and charges;
- Depreciation allowance and accumulated depletion.

The share of general production expenses in total production costs is increasing every other day. Besides, general production expenses include the most convenient cost items in terms of cost reduction (Küçük, 1997). Garrison and Noreen (1997), who stated that cost items among general production expenses are costs that are born to keep factory in operation, emphasized that in case these were used for the sales and management functions of a business, they will not be grouped among general production expenses. They stated the reasons behind it under the below given topics;

A. General production expenses are indirectly attached to goods and service units. As a result, relating these expenses to certain work, service or goods becomes either very difficult or impossible.

B. Expense costs that make up general production

expenses are both too many and have different features from one another in terms of operating cost and variable costs.

C. Although there are fluctuations in the level of output due to climate and some other factors, general production expenses tend to be stable in general terms. The reason behind this is the fact that large part of general production expenses seems to be stable in general.

## 5. ACCOUNTING INFORMATION SYSTEMS (AIS) AND COSTING

The studies on AIS in the literature (Brynjolfsson and Hitt, 2003; Grande et al. 2011) focus on the efficiency of accounting programme and it was concluded that use of AIS increased efficiency and resulted in positive decreases in costs. Accounting information system is a system where businesses record and report their processes by utilizing the technological opportunities. These systems have become indispensable elements for businesses. There are many commercial software in Turkey. These software can be used with the permission of the Ministry of Finance. Also, such systems as SAP which could be grouped as expensive at international level are also used even a little. Such software as LOGO TIGER, MIKRO, ETA, BYTE in Turkey that are used in data flow in accounting information systems in Turkey.

## 6. IMPLEMENTATION

Business management might be hesitant about the cost of a new accounting programme while buying one. Management is supposed to make cost and profit analysis. The adaptation of a new system, its cost and the level of efficiency it will provide should be identified well. Therefore, the productivity to be provided via cash flow should be high for productivity. Besides, it is necessary to make a good analysis among programmes that can be used in decision-making and centralization of the business's activities. While choosing a programme, the ones with a low cost and which has a wide area of utilization and which are functional should be chosen. High-cost programmes should be avoided while there are programmes that could meet the needs of a business.

Decision-making processes with regards to purchasing a new programme is as follows: the sample business uses two programmes. One of these programmes belongs to the production department and the other belongs to the management. There are no connections between these programmes. Each programme makes report independently. However, the important point here is that business management evaluates these programmes altogether. In other words, decision making, formation of product tree and taking management decision are possible by using these programmes together. The problem is that each programme provides a report according to its own

system so more staff is employed. This situation effects decision making and the consistency of the decisions taken, negatively. And the solution to the problem is to collect the works done in two different programmes under one programme. There are programmes that easily do this in the existing applications. There are programmes that can be used by order, production, sales and accounting and management.

Our study aims to measure the cost advantage that could occur in case one programme is used. Lowering in the general production expenses and saving time will determine effect level of the result.

**Implementation:** The business has been using two different programmes for 5 years. These programmes are used in purchasing-accounting and production- sales departments. Amortization of the programmes has been carried out. Selling or returning these programmes is not possible. Eight people in purchasing - accounting departments and ten people in production-sales departments uses the programme. The total of fixed costs and variable costs in these departments make up 15% of the total labor expenses. Total general production costs make up 30% of the operating costs. The business operated with a total cost of 7.000.000\$ during the year. Accordingly, general production costs were 2.100.000\$. When labor costs in the departments where accounting programme is used is estimated to be 15%, it is seen that there is 315.000 \$ cost. The staff in this department carries out their works using the programme.

It is believed that it is possible to carry out all operations with an accounting and production programme and it will increase business volume by 20% and thus, the productivity. A domestic programme costing 21.000\$ is planned to be used. Now, let's see how costs will change with the adaptation of a new programme and how it will affect productivity. Let's test our research question "the use of the new integrated programme in production and management provides cost saving."

**Table 3**  
**The Use of the New Integrated Programme in Production and Management Provides Cost Saving**

	Old programme	New programme	Cost saving
General Production Costs	315,000	252,000	63,000
Cost of the new programme	-----	20,000	21,000
Total cost	315,000	272,000	42,000

The business can decrease its general production expenses by using new programme. The total of general production expenses that occur as a result of using old software together is 315.000 \$. When a new programme is purchased, an additional 20.000\$ will be provided. However, the increase in productivity that will occur as a result of business volume will be higher than this

cost. When general production expenses is included in the programme cost, which went down to 252.000\$ with the purchasing of a new programme in our example, total cost rises up to 272.000\$. Still in this case, there is 42.000\$ saving.

**Intangible Asset Purchase and Depreciation Record**

Accounting Information programmes are in intangible assets group according to Turkish Accounting System. These assets are discussed under Turkish Accounting Standards 38 Intangible Assets. Sümer and Erer (2010) looked into how accounting programmes can be recognized according to the provisions of “Turkish Accounting Standard 38: Intangible Assets”. According to that, in case the cost of an asset is measured credibly, it is recognized (Article 21-b) and an intangible asset is evaluated with its cost value during its first recognition. Besides, regarding software it is stated in the Standard that in case software is an integral part of hardware computer software will be considered as an intangible asset (TAS 38.4). According to TAS 38 operating system to be

activated and the accounting programme will be followed under different sub-accounts under “260<sup>th</sup> Rights” account.

As per the provisions and explanations provided above, economic assets purchased as a license will be subjected to depreciation for 15 years within the scope of intangible rights. Economic assets purchased as software, on the other hand, will be subjected to depreciation in 3 years.

**For example:** Our company purchased a Commercial Accounting Programme (Software) for the accounting department on 01-02-2014. The cost of the programme was 21.000,00 TL excluding 18% VAT.

Date:01.02.2014  
 Rights: 21.000,00  
 Software (Programme )  
 Deductible VAT: 3.780,00  
 Suppliers: 24.780,00

The purchased programme will be divided into depreciation as given below and will be changed into expense.

**Table 4  
 Purchased Programme**

Explanation	Assets income date	Assets income accumula- ted	2014 deprecia- tion	2015 deprecia- tion	2016 deprecia- tion	Accumula- ted deprecia- tion	Net Asset Value
Programme	01.02.2012	21.000	7000	7000	7000	21.000	0
Total		21.000	7000	7000	7000	21.000	0

Source: Depreciation Accounting Cost Record

Date :31.12.2014  
 Quantity Differences of Direct: 7.000,00  
 Raw Materials and Supplies  
 (Accumulated Depreciation(-)  
 Accumulated Depreciation (-): 7.000,00

Date:31.12.2015  
 Quantity Differences of Direct: 7.000,00  
 Raw Materials and Supplies  
 (Accumulated Depreciation(-)  
 Accumulated Depreciation (-): 7.000,00

Date: 31.12.2016  
 Quantity Differences of Direct: 7.000,00  
 Raw Materials and Supplies  
 Accumulated Depreciation (-)  
 Accumulated Depreciation (-):7.000,00

**RESULT AND CONCLUSION**

When furniture manufacturing and consumption in the world is compared, it is seen that particularly most of the developed countries consume more furniture than they manufacture. This condition is the exact opposite in developing countries. Besides, furniture manufacturing

ratio in medium and low income countries is around 40% while their consumption ratio is 32%. Turkey should look for opportunities to take share in this market more efficiently.

It is seen that the importance of general production expenses is growing for furniture businesses. This shows that it is necessary to focus on these expenses in order to enable cost saving. Another thing is that cost advantage strategy can be used in reducing general production expenses. Although there is an additional cost to be given to the new programmes, the increase in productivity in time could remove this cost. Particularly, in which account programme expenses in purchasing accounting programmes will be included is discussed and it is determined that such programmes will be monitored under 260 intangible assets account. Besides, it is seen that the paid amounts for these programmes will be depreciated within three years.

As a result, while integrated use of information systems in furniture industry lowers the general production expenses, on the one hand, it increases productivity, on the other hand. Besides, it is seen that the staff using these programme become more and more specialized in time and thus, increase efficiency.

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