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

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. Dizard 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, Sümür 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 (Çemalcılar 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.

![Cost Classification](https://example.com)

**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 (Kızıl, 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 (Kızıl, 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 Comminique 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.

![General Condition of World Wood Product Exports](Figure 2)

Source: Faostat, 2013

![General Condition of World Wood Product Imports](Figure 3)

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$)

<table>
<thead>
<tr>
<th>HS Cod</th>
<th>Products</th>
<th>Export of first 8 month</th>
<th>Change</th>
<th>Import of first 8 month</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>4401</td>
<td>Fuelwood, chips and particles and wood processing residues</td>
<td>36</td>
<td>74</td>
<td>107</td>
<td>145.456</td>
</tr>
<tr>
<td>4403</td>
<td>Industrial wood</td>
<td>1.286</td>
<td>2.640</td>
<td>105</td>
<td>129.756</td>
</tr>
<tr>
<td>4407</td>
<td>Sawnwood</td>
<td>10.411</td>
<td>8.002</td>
<td>-23</td>
<td>144.985</td>
</tr>
<tr>
<td>4408</td>
<td>Veneer sheet</td>
<td>16.525</td>
<td>19.100</td>
<td>16</td>
<td>25.126</td>
</tr>
<tr>
<td>4410</td>
<td>Particle board</td>
<td>44.603</td>
<td>46.336</td>
<td>4</td>
<td>65.194</td>
</tr>
<tr>
<td>4411</td>
<td>Fibre board</td>
<td>183.698</td>
<td>196.705</td>
<td>7</td>
<td>204.380</td>
</tr>
<tr>
<td>4412</td>
<td>Ply wood</td>
<td>10.048</td>
<td>9.183</td>
<td>-9</td>
<td>183.296</td>
</tr>
<tr>
<td>44</td>
<td>total</td>
<td>421.312</td>
<td>432.540</td>
<td>2.7</td>
<td>1.008.660</td>
</tr>
</tbody>
</table>

Source: Turkey Market Statement.

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

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

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 is plying 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.

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 all.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

<table>
<thead>
<tr>
<th>Programme</th>
<th>Old Programme</th>
<th>New Programme</th>
<th>Cost saving</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Production</td>
<td>315,000</td>
<td>252,000</td>
<td>63,000</td>
</tr>
<tr>
<td>Cost of the new</td>
<td></td>
<td>20,000</td>
<td>21,000</td>
</tr>
<tr>
<td>programme</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total cost</td>
<td>315,000</td>
<td>272,000</td>
<td>42,000</td>
</tr>
</tbody>
</table>

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 “260th 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
\(21.000\),\$ 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>
<thead>
<tr>
<th>Date</th>
<th>Quantity Differences of Direct</th>
<th>Raw Materials and Supplies</th>
<th>Accumulated Depreciation(-)</th>
</tr>
</thead>
<tbody>
<tr>
<td>31.12.2014</td>
<td>7.000,00</td>
<td></td>
<td>7.000,00</td>
</tr>
<tr>
<td>31.12.2015</td>
<td>7.000,00</td>
<td></td>
<td>7.000,00</td>
</tr>
<tr>
<td>31.12.2016</td>
<td>7.000,00</td>
<td></td>
<td>7.000,00</td>
</tr>
</tbody>
</table>

**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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