

## RESISTANCE TO ACCOUNTING CHANGES

**A Survey**

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### **Abstract**

Changing manufacturing environments have affected cost and management accounting techniques employed by companies. On the one hand, manufacturing companies have changed their costing and decision making systems, on the other they try to overcome the problems that occur as a result of employee resistance. A survey has been conducted to investigate cost accounting changes on “the largest 500” manufacturing companies in Turkey. This work also attempts to shed light onto underlying reasons of why employees resist to the changes in accounting systems used by those companies.

**Key words:** Employee resistance; resistance to change; changing manufacturing environments; cost accounting system changes.

### **Özet**

Değişen üretim ortamları, işletmeler tarafından kullanılan maliyet/yönetim muhasebesi tekniklerini de etkilemektedir. İşletmeler bir yandan maliyet ve karar verme tekniklerini değiştirirken, diğer yandan çalışanların direnci sebebiyle oluşan problemleri çözmeye çalışmaktadırlar. Bu çalışma Türkiyede faaliyet gösteren “500 büyük” üretim işletmesi üzerinde bir anket yapmak suretiyle, bu işletmelerde maliyet/yönetim muhasebesi tekniklerinin değişip değişmediğini araştırmaktadır. Çalışma aynı zamanda muhasebe tekniklerini değiştiren işletmelerde çalışanların direncinin temel nedenlerini de araştırmaktadır.

**Anahtar kelimeler:** Çalışanların direnci, değişime direnç, değişen üretim ortamları, maliyet muhasebesi sistem değişiklikleri.

### **Introduction**

Changing manufacturing techniques and technologies affected all manufacturing companies in many ways. Customers wanted better products and services that should have high quality, in time delivery and a variety of customisation. These demands resulted companies in finding themselves in a high and global competition. Then computerised technology, robotics and similar manufacturing systems have seemed to be a solution for the global competition. Therefore, this technological change in manufacturing has brought companies about to improve, modify or change their existing cost and management accounting systems.

The purpose of this study is to investigate employee resistance in manufacturing companies that have changed their production technologies and consequently their cost/management accounting systems. Some researchers (see, for example, Kaplan, 1988; Johnson and Kaplan, 1991) indicated that changing production technologies should accompany with a suitable cost system. Because new and advanced

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technologies require a different management philosophy than those of traditional ones and a cost system which takes into account shorter set-up times, engineering change orders, batch production and flexible manufacturing. To find out whether the findings of those researchers apply to Turkey, a research has been conducted on “the largest 500” manufacturing companies operating in this country. Therefore, this study investigates whether the companies surveyed have:

- changed their existing manufacturing systems with the advanced manufacturing technologies (AMT),
- changed their existing cost and management accounting systems,
- faced with any employee resistance as a result of changing their cost/management systems.

This study is composed of five sections. First and second sections review and discuss previous literature on the meaning, types and definitions of advanced manufacturing systems, existing and some new cost systems, and employee resistance. Third section explains the research method and methodology to be applied in this study. Fourth section shows answers given to questionnaire survey conducted. Final section discusses findings of the survey.

### **1. Other Studies**

The issue of organizational change and resistance to change have received a lot of attention over the past decade (Macri *et al.*, 2002:293). Similarly, technological change and its effects on cost and management accounting have attracted interest of accounting researchers to some extent. For example, a research study (Innes and Mitchell, 1989) concerning 10 electronic companies found that management accounting practices have changed and are continuing to change, particularly in three areas: costing, performance measurement, and decision support. According to the study, complexity is eliminated and simpler actual costing practices are developed; recognising the limitations of the traditional financial measures, non-financial measures are established for product quality, delivery performance, launch time for new products, and customer satisfaction. Also, new techniques that emphasise competitive analysis and design for cost (similar to Japanese applications) as well as “landing cost”, a term which is used for all costs from production to delivery, are adopted to support the decision-making process (Innes and Mitchell 1990:10).

Innes and Mitchell (1990:9-11) stated that the development of management accounting practices affected the firms that they studied in two different ways. Firstly, managers perceived some benefits as a result of changes; they received more timely, relevant and comprehensible new information for cost reduction, cost control, product quality, and performance measurement. Secondly, the role and status of management accounting also changed since new managerial policies facilitated the practical accounting changes that were the responsibility of management accounting.

On the other hand, Coates and Longden (1989:9-13) analysed twenty UK and five US high tech companies and revealed a wide range of developments in management accounting practices. The researchers found that traditional practices and absorption costing were still dominant in almost all the high tech companies they studied. New techniques such as MRP and JIT (materials requirements planning and

just in time) were introduced and these had an impact on management accounting methods. Moreover, quality costing was emphasised by the company managers as important. Nevertheless, many accountants were not aware of new management accounting techniques; and they did not feel that they needed new techniques to cope with the changing environments.

Another study revealed more detailed information about the UK manufacturing firms and their management accounting practices. Bright *et al* (1992:206), for example, surveyed 677 manufacturing firms operating in the UK and revealed that 68% of the companies had made significant changes in their management accounting systems within five years. Moreover, this percentage increases up to 82% if this period is extended to ten years. Among the respondents, 32% of the companies were identified as ABC users; however, the researchers considered this figure as somewhat exaggerated because of group pressure on accountants when they had completed the questionnaire. It was also reported (Bright *et al*, 1992:207) that the traditional cost systems employed by many manufacturers were modified to adapt existing conditions. The benefits that were expected by management of those companies from introducing new costing practices included (p. 207): product profitability improvement (65%), cost reduction (60%), and more timely and relevant management information (59%).

Bright *et al.*, (1992:209) also reported that the study found inconsistencies between manufacturing and advanced costing techniques and practices. Moreover, they revealed that inconsistencies also existed between advanced costing techniques and practices. For example, it was found that although 48% of the respondents would be using the JIT technique in three years time, only 24% of them would simplify their cost and stock accounting system. Furthermore, while 69% of the companies would be using TQM as a manufacturing technique in three years time, only 52% were going to support this system with Cost of Quality Reporting. Therefore, the researchers concluded that there was a need to understand management accounting innovations properly.

Another impact that has affected cost and management accounting is the development of activity based costing (ABC). ABC was first introduced as a cost finding technique between the years 1988 and 1990, then its managerial side was emphasised (Activity-Based Cost Management—ABCM), ie, its use in identifying value-added and non-value-added activities, cost driver analysis, and for budgeting purposes. Apart from its use for product costing, its managerial use resembles what Japanese manufacturers have done in their factories to eliminate non-value-added activities. Although it does not stop cost distortion itself, ABC cost information directs managers' attention to areas where non-value-added activities incur costs that can be reduced or eliminated. Since the Japanese success (Drucker, 1981; Hayes, 1981; Hiromoto, 1988) is a combination of their cultural values and their commitment to use flexible systems, ABC, particularly its use for managerial purposes (ie, ABCM), can help manufacturers to capture the essence of flexible systems. Therefore, they can cope with global competition and the requirements of the 20<sup>th</sup> century.

ABC has received a great deal of interest both from academics and practitioners since it was first publicised in the latter half of 1980s. Moreover, it has been reported (Innes and Mitchell, 1994:9) that the idea of implementing ABC is gaining more ground among manufacturing companies in the 1990s. According to their questionnaire survey research, Innes and Mitchell (1994:10) have reported that 60% of

the respondents had been involved in ABC; however, 13% did not implement ABC after an assessment had been performed. On the other hand, 27% of the respondents were currently considering implementation, and 19.5% had implemented ABC. The rate of implementation they found was higher than that found by Cobb *et al.*, (1992a), who reported that only 6% of the respondents had begun to implement an ABC system.

Through telephone interviews and visits, Cobb *et al.*, (1992a; 1992b) identified a number of reasons for failure to implement ABC. Among them were: implementing ABC would be costly and consume accountants' and managers' time; and ABC was not suitable for their business. These two basic reasons were confirmed in the later study by Innes and Mitchell (1994) who also investigated companies rejecting ABC in their survey. In addition, they found that some firms failed to implement ABC because they could not identify the benefits of ABC; and others claimed a variety of circumstances reduced the relevance of ABC to them.

## **2. Advanced Manufacturing Technologies and Resistance to Accounting Changes**

In this study, the following are considered as advanced manufacturing technologies (Bear *et al.*, 1994:20): numerical control machines (NC); computer-aided design (CAD) and computer-aided manufacturing (CAM); flexible manufacturing systems (FMS); and computer integrated manufacturing (CIM) and robotics.

### **2.1. Advanced Manufacturing Systems**

Advanced manufacturing technologies (AMT) are the essential tools that change manufacturing processes in today's world-class manufacturing companies, because, these systems enable companies to reduce set-up and throughput times; improve product quality; increase manufacturing flexibility; and reduce the number of defective products (Drury, 1992:620). Advanced manufacturing systems, with regards to the related literature (Drury, 1992:621; Bromwich and Bhimani, 1989:22-25), may be summarised as follows.

**Numerical control machines (NC):** These are programmable machines that use punched cards to store set-up or machining instruction for performing various manufacturing operations. Computerised versions (CNC) are also in use. These machines are accurate and able to perform repetitive actions with higher flexibility and they can be set up quickly for different types of products. By using these machines, set-up times can be reduced; quality can be improved; scrap, rework levels and number of workers can be decreased significantly.

**Computer-aided design and computer-aided manufacturing (CAD/CAM):** These systems refer to the use of computer and mechanical technology together for facilitating design and manufacturing of a product. CAD helps engineers and designers to make new products and to analyse them from different perspectives by examining alternative configurations. By using CAD, designers and production engineers can work together effectively at the design stage of a product. If the designers design a model that is difficult or expensive to produce, the production engineers are able to warn them at this stage and ask to change the design. Moreover, the system assists designers to reduce the number of parts required by displaying products from different angles and shapes. Furthermore, it allows them to see whether existing standard parts may be used in new

products and hence, helps them to reduce cost and to simplify new products. CAM systems, on the other hand, comprise numerically controlled machines, robotics, and flexible manufacturing systems. **Robots** in this system are used for certain environments in which tasks are relatively simple and repetitive, and where human intervention is not required. However, their flexibility may be limited (Drury, 1992:621).

**Flexible manufacturing systems (FMS):** These systems are able to produce a family of products in a flexible manner. An FMS consists of automated material handling, semi-independent work stations and a network of computers. The significance of an FMS over a traditional manufacturing system is that it has the capability of producing a variety of distinct parts automatically in different volume levels. The system also enables manufacturers to respond to customer demands quickly and reduces labour costs by cutting the number of workers required. Users of these systems may easily modify design of a product at any stage of its life and change product mix when the demand level changes (Gold, 1982:90-91). Moreover, short set-up times, improved product quality and machinery efficiency, low inventory levels and less space requirement may be counted as advantages of the system (Bromwich and Bhimani, 1989:25; Foster and Horngren, 1988). For example, when one Japanese company, Yamazaki Machinery, installed a flexible manufacturing system, it reduced the number of machines from 68 to 18; employees from 215 to 12; floor space required for manufacturing from 103,000 square feet to 30,000 and average processing time of a product from 35 days to 1.5 (Kaplan, 1986:87). Therefore, the company reduced its costs; gained higher flexibility; and shortened throughput times. As a result, it increased its response rate to customers, and hence its competitiveness.

**Computer integrated manufacturing (CIM):** Computer integrated manufacturing is regarded as the final step towards full automation in a manufacturing environment. By using CIM, many elements of advanced manufacturing technologies (AMT) can be integrated and run in harmony. Today's factories often require human bridges between work stations. Since they cause delay by performing non-value-added activities, the final aim in a CIM system is to eliminate the human bridges and replace them with fully automated, computerised machinery and robots.

## 2.2. Resistance to Accounting Changes

The implications of technological changes should be considered within the organisational and cultural contexts in which the change takes place (Hopwood, 1990:14), because the human factor has an important effect against change (Lammert and Ehrsam, 1991:445). Also from an organisational perspective, employee resistance can be a significant deterrent for an effective change (Folger and Skarlicki, 1999:35). As a matter of fact, major changes or innovations in organisations can anticipate resistance when those changes are perceived by the employees to alter values and visions related to the existing order (Leigh, 2002:138). Employee opposition may disturb and delay the change process, if not cause a failure. Managers should be aware of the four most common reasons employees resist change (Kotter and Schlesinger, 1979:107; Ford *et al*, 2002:105):

- a desire not to lose something of value,
- a misunderstanding of the change and its implications,

- a belief that change does not make sense for the organisation, and
- a low tolerance for the change fearing that they cannot develop new skills or behaviour required for the new system and become unsuccessful.

Thus, employee resistance should not be dismissed by considering it as illogical and emotional; instead, it should be analysed in detail to overcome further opposition (Scapens and Roberts, 1993:30).

Recent studies identified some of the reasons as the basic causes of resistance to change regarding product cost systems. For example Walley *et al.*, (1994:23), in their research conducted among 20 UK manufacturers, reported that many owners and managers (9 out of 20 companies) exerted a negative influence on change to existing cost systems. The researchers found that satisfaction with the existing system, shortage of resources, and inadequate information were among the reasons given for resistance.

Another study conducted by Leigh (2002:138—155) reported several factors as the underlying causes of resistance. Some of them that are considered as related to the subject discussed here are self interest, psychological impact, tyranny of custom, redistributive factor, and culture compatibility. These factors can be summarized as follows (Leigh, 2002).

**Self interest:** This factor suggests that individual concern is affected to the degree that interests are met. This means that the employees must see ways that they will benefit from change in order to support it. Otherwise a resistance will occur.

**Psychological impact:** This factor addresses perceptions of threat in the form of job security, one's professional expertise and the social status in the organization. Resistance behaviour reflects emotion that expresses people's feelings about how they personally experience the impact of change. Generally employees do not want change not because they think it is wrong, but they do not like how it will affect them.

**Tyranny of custom:** Employees who are in the managerial positions are often more content with the established order. They have more to lose if it is overturned. Therefore, the despotism of customs inhibits change.

**Redistributive factor:** This factor was marked in the study (Leigh, 2002) with statistically inverse relationships on the issues related to the loss of control, funding, policies and procedures, operational and political constraints.

**Culture compatibility:** Leigh (2002) found inverse relationships in this factor suggesting that there were conflicting currents at work. This means that some radically new approaches such as participation, accountability and customer driven policies conflict with bureaucratic structures that have been traditional monopolies.

On the other hand, similar to the above findings, managers and owners may consider that elaborate and advanced cost systems are not necessary while their existing and simpler cost systems are providing them with adequate information (Kellett and Sweeting, 1991:25). Also, many of them perceive that the cost of implementing more detailed cost systems may exceed the expected benefits (Hornigren, 1986). However, perhaps one of the most important aspects of resistance to change may stem from a manager's fear of becoming, or to be seen as being unsuccessful, since adopting a new cost system may change company profits and performance measures.

Shields and Young (1991:452—454), for example, state that changing cost systems or continuous improvement processes may reduce short term profits and earning per share in capital markets. Moreover, reported performance of employees may decrease as a result of implementing a new cost management system. Therefore, these changes may have great impact on employees. To reduce resistance to change, Shields and Young argue that employee training programmes should be started before changes occur. Thus employee training is very important for the changing process to be completed successfully. Training enables employees to demonstrate new concepts, build skills, and solve difficult interpersonal relationships and technical problems (Rusaw, 2000:249).

Also, performance measures should be revised; and short term performance measures should be replaced with long-term ones. Other specific organisational circumstances should be understood to penetrate basic motives of resistance (Scapens and Roberts, 1993).

### **3. Survey as a Research Method and Research Methodology**

Survey method has been adopted as a research method in this study. Thus, the following sections discuss this method shortly and its application in some detail.

#### **3.1. Survey Method**

Survey is an important method in the cost and management accounting research (Taniş, 1997:181). This type of research involves obtaining information directly from a group of individuals (Dane, 1990:120). It has been stated (Rea and Parker, 1992:3) that the survey method is the most appropriate way of searching information if generalisation of findings to a larger population is desired and if that type of information is not obtainable from other sources. Thus, a survey can be defined as a data collection technique that asks questions to a sample of respondents generally at a point of time, either with a self administrative questionnaire or with an interviewer (Bailey, 1978:439). Researchers who conduct surveys may use various methods to collect information. For example, postal and telephone questionnaires and face to face interviews are among the survey methods employed by researchers.

The survey method was adopted expecting to generalise the findings of this study. The study describes the use of advanced manufacturing technologies; new cost methods and employee resistance to these new methods. The postal questionnaire is used for surveying because of the potential benefits and its appropriateness.

#### **3.2. Research Methodology**

This study researches into, as previously indicated, “the largest 500 Turkish industrial companies” that were determined in the end of 1998. Service sector (including banks, tv and newspaper companies) is excluded from the research, because, it is assumed that only manufacturing companies, which export their products, are subject to global competition. Also, the manufacturing companies require and purchase advanced technologies for better competition. The ranking, addresses, phone and fax numbers of the companies were recorded on a CD given in the November 1998 issue of *Kapital*, a monthly journal. This information was used in the research that was commenced in February 1999, since it was the latest data received.

The survey was planned to address the accounting managers of the companies. Accounting managers were selected as respondents because it was assumed that they were the persons who had knowledge on both existing accounting systems and the technology in use. The respondent companies consisted of a wide range of areas, such as textile, electric/electronic, metal, automotive, forest/paper, chemistry, food, cement, machine parts and plastics.

A pilot study was conducted on the companies located in Adana to test the questions. Seven (out of 17) questionnaires were received back (41%) with personal suggestions of the respondents. In the light of these suggestions some questions were modified to enhance the understandability of the questions. In June 1999, self-administered questionnaires were posted to 453 companies with a return-addressed envelope and fax number. The questionnaire was sent only once because of the limitation of monetary resources. However, in July 1999, a reminder by fax was sent to a randomly—selected 100 company to increase the response rate. This was done as an application to increase the response rate suggested by Dillman (1978:183-191), who, in his studies, sent a postal reminder 15 days after the first questionnaires were posted.

One hundred and four fully completed questionnaires were received by the end of 1999; 11 returned since the companies addressed were not found; one company replied that the questionnaire would be completed later, but not received; and the remaining companies did not reply the questionnaires. However, some companies replied the fax reminder stating that they had not received the questionnaire before. Thus the researcher was convinced that some of the questionnaires posted to the respondents were lost and not able to reach to their addresses. These losses are believed to reduce the response rate which otherwise could have been higher. Return rate of the questionnaire is therefore computed as 23.53% [ $104/(453-11)$ ] (see for the theoretical background of the computation: Fowler, 1993:39; Dillman, 1978:49-50).

#### **4. Survey Findings**

First part of the questionnaire is about respondents and their companies. The result of a question about the level of education of the respondents revealed that 94 % of the respondents are either university graduates (mostly) or possessing a higher degree such as MBA or PhD. These respondents have worked for their existing companies as an average of 8.5 years; and 84 % of them occupy accounting—related positions; 7 % managing directors; and the remaining respondents are production department managers. Despite the fact that almost all sectors are included in the survey, slightly more than the half of the respondents belongs to three sectors, namely food and drink, textile, and otomotive parts. The survey also reveals that 21 % of the respondent companies, although they are manufacturers, do not have separate cost accounting departments.

The respondents state that Advanced Manufacturing Technologies (AMT), the ones which are defined and explained in the above sections, have been increasingly in use within the last 10 years (especially in the last five years). The existing AMT that are in use are as follow: CAD (50 % of the respondent companies), CAM (46 %), CIM (32 %), CNC (31 %), NC (23 %), Robotics (18 %), and FMS (14 %). However, thirteen percent of the respondents state that they do not use the AMT. The respondents also state that three incentives reported to be very important. Those which influences the



investments most on the AMT are as follow: product quality enhancements (75 %); product cost reductions (64 %); and expected increase in material productivity (57 %). After the installation of the AMT, the respondents report that the following issues have been observed to be at a very high level: production quality increase (72 % of the companies); decrease in lead time (72 %); production amount (63 %); decrease in throughput time (59 %); and decrease in the number of employees (42 %). Therefore, these results suggest that AMT increases the level of quality, efficiency and effectiveness in a production company.

Another issue has been investigated on whether the company changed its cost accounting system following the launch of AMT within the last ten years. An important number of respondents (50 %) stated that their existing cost accounting systems were revised and a new cost method was taken into consideration. Some of the respondents (26 %) stated that they completely changed their existing systems; and some others (13 %) used a new costing method together with their existing system. Statistical analysis proved that half of the companies that have AMT revised their existing cost systems. More importantly, 71 % of the companies that have flexible manufacturing (FMS) systems revised their cost systems and another 21 % switched to a new system. Therefore, it may be concluded that FMS systems are the ones that require cost system changes most. The following table shows the percentages of the new methods considered by the companies. (the letter “n” represents the number of respondents who answer that question).

**Table 1. New Methods Considered. (n:101)**

%	
17	Activity Based Costing (ABC)
34	Total Quality Management (TQM)
18	Just in Time (JIT)
5	Others
46	No new method considered

According to the above table, 34 % of the respondents considered TQM; 18 % JIT; and 17 % ABC methods. Forty-six percent of the respondents stated that they did not consider any new cost method. Approximately one third of the 46 respondents that answer “no new method considered” are statistically identified as the ones who are partly satisfied with their existing cost systems. The following table (Table 2) shows what action the above companies took as a second step about the methods they considered and evaluated.

**Table 2. Actions about the New Methods Considered (n:55)**

%	
36	Still in consideration
18	Activity Based Costing, in active use
40	Total Quality Management, in active use
18	Just in Time, in active use
4	Others, in active use

Although one-third of the respondents stated that they still evaluate a new system, two-thirds decided about one or more new systems and commenced to use them actively.

The last part of the survey is about the employee resistance as a result of employing a new cost method and its consequences. Among the 101 respondents 37 % replied that they faced with full or partial resistance from the employees as a result of employing a new cost and/or performance evaluation method. Crosstab analysis shows the following results which companies (depending on whether they employed a new method or revised an existing one) faced with an employee resistance: 39.2 % of the companies that revised their cost systems; 54 % of the companies that completely changed their cost systems; and 36 % of the companies that use both a new and their old method.

The respondents consider the reasons why they faced with an employee resistance in their companies. The following table shows the percentages that the respondents perceive as the reasons of resistance.

**Table 3. Reasons of Resistance**

(%)	
40	a misunderstanding of the change and its implications
40	a fear of being seen unsuccessful in the new system
40	a desire not to lose something of value, ie, their positions
29	a belief that change does not make sense for the organisation
60	a low tolerance for the change fearing that they cannot develop new skills
17	Other

According to the above table, 60 % of the respondents stated that “a low tolerance for the change fearing that they cannot develop new skills”. The reason for this fear is consequently losing the position or job in the company.

The questionnaire also asked about the consequences of resistance. As shown in Table 4, 60 % of the respondents state that information which is required for the new system to run has not been produced. As a result of this implicit sabotage, employees possibly want to spread the idea of “new system is useless and not appropriate”.

**Table 4. Consequences of Resistance with Regard to the Company**

(%)	
11	Slowdown in activities
60	Adequate new information could not be produced for the new system
34	Ideas about the new system was useless and not appropriate
23	Other

The last question in the questionnaire was about the precautions taken as a result of employee resistance experiences. The following table shows that none of the

respondents reported that they had given up the implementation of the new system. A great majority, 86 %, of the respondents stated that “orientation programs were applied to employees”, and 63 % stated “employees were given time to adapt the system”. As previously explained in the theoretical part, employee training is very important in the changing process. Therefore, both applications can be claimed to be appropriate to overcome the employee resistance.

**Table 5. Methods Applied to Overcome Resistance**  
(%)

0	Given up to use new system
20	The system was softened and then applied
63	Employees were given time to adapt the system
86	Orientation programs were applied to employees
14	Performance evaluation methods were revised
14	Other

### 5. Discussion of the Findings

This study researches into employee resistance to accounting changes in companies that alter its production technology and accounting system. Therefore, this study mainly investigates whether the companies surveyed have:

- changed their existing manufacturing systems with the advanced manufacturing technologies (AMT),
- changed their existing cost and management accounting systems,
- faced with any employee resistance as a result of changing their cost/management systems.

The answer to the first research question is very encouraging from the country’s development perspective since, within the last ten years, most of the Turkish manufacturing companies have been installing AMT systems to their factories. The systems that are regarded as the AMT such as CAD, CAM, CIM and CNC have greatly been preferred and installed by the Turkish manufacturing companies. Especially, almost half of the respondents have been using CAD and CAM systems. Only 13% of the respondents state that they do not have AMT systems. Therefore, it can be surely reported that the companies surveyed have mostly (87%) replaced their existing manufacturing systems with one or more advanced manufacturing technologies (AMT).

The respondents also reported that they received what they expected from those technologies. After the installation of the AMT, the respondents reported that the following benefits have been received to a very high level: production quality increase; decrease in lead time; production amount; decrease in throughput time; and decrease in the number of employees. Therefore, these results suggest that AMT increases the level of quality, efficiency and effectiveness in a production company. Although the underlying reasons why they required the above benefits were not investigated, however, the most logical answer could be to this is the global and european competition. As the global competition increases, those manufacturers who are able to adapt their production environments to new customer and commercial requirements will

be the ones that live and are profitable. Therefore, the largest 500 Turkish manufacturing companies, according to the above results, have attempted to do so.

The second research question investigates whether the largest 500 manufacturing companies changed their existing cost/management accounting systems after they replaced their production systems with AMT. Half of the respondents stated that they revised their existing cost systems rather than changing completely. However, these respondents reported that while they were revising their cost systems, they also considered a new cost method and/or philosophy such as ABC, JIT and TQM.

On the other hand, one fourth of the respondents stated that they completely changed their existing cost systems. Also, some others (13 %) used a new costing method together with their existing systems. Further investigation statistically proved that half of the companies that have AMT revised their existing cost systems. More importantly, 71 % of the companies that have flexible manufacturing (FMS) systems revised their cost systems and another 21 % switched to a new system. Therefore, it may be concluded FMS systems are the ones that require cost system changes most.

The last research question is whether those companies that changed their cost systems faced any employee resistance. Statistical analysis regarding the employee resistance showed that the resistance is generally faced by those companies that changed their cost system to some extent. This section has been analysed basically in three parts. The first investigates the basic causes of employee resistance; second the results of employee resistance; and finally the methods applied by the companies to overcome the resistance.

**Reasons of Resistance:** As the basic causes of the resistance that the respondents consider were:

- a low tolerance for the change fearing that they cannot develop new skills,
- a misunderstanding of the change and its implications,
- a fear of being seen unsuccessful in the new system,
- a desire not to lose something of value, ie, their positions.

The above statements that are theoretically identified in the related literature were generally experienced by the companies regarding their employees. Therefore, the results found in this study suggest that theory can explain the experiences very well. This means that, as the theory states, employee opposition may disturb and delay the change process, if not cause a failure. Thus, employee resistance should not be dismissed by considering it as illogical and emotional; however, it should be analysed in detail to overcome further opposition.

**Consequences of Resistance:** The study also investigates the consequences of resistance. As depicted in the Table 4, 60 % of the respondents state that information which is required for the new system to run has not been produced. As a result of this implicit sabotage, employees possibly want to spread the idea that “new system is useless and not appropriate”. These ideas while causing a non-confidence among the employees to the new system, they may also slowdown the activities and make the companies lose their competition against other companies. Losing competition will then

result in a decrease in profits and therefore, many jobs will be lost. Thus, employees are the ones who will suffer as a result.

**Precaution Taken Regarding Employee Resistance:** The last issue investigated in the study is about the precautions taken as a result of employee resistance experiences. The Table 5 shows that none of the respondents reported that they had given up the implementation of the new system. A great majority, 86 %, of the respondents state that “orientation programs were applied to employees”, and 63 % state “employees were given time to adapt the system”. These findings support the theory that states employee training is very important in the changing process. Therefore, it can be stated that companies are performing well in the treatment to overcome the resistance.

### **Conclusion**

This study investigates the Turkish ‘the largest 500’ manufacturing companies from a cost accounting and employee resistance perspective. Companies are investigated especially to find out whether they installed advanced manufacturing technologies, because, the related literature states that most of the companies that installed AMT required a cost accounting system change which result in an employee resistance. Employee resistance is very important for the companies since it has severe consequences if not overcome quickly. The researcher of this study has been convinced that although many companies have confronted employee resistance, they find ways, which certainly support the related theory, to overcome the resistance. Therefore, their treatment of the employee resistance will be expected to result in a commercial success.

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