

ORGANIZATIONAL STRUCTURE AND CHANGE:  
A CASE STUDY OF  
THE WAREHOUSE AND STOCK CONTROL SYSTEM  
IN TEPE CO.

By  
MEHTAPEMINE ONARCAN  
July, 1988

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THE WAREHOUSE AND STOCK CONTROL SYSTEM  
IN TEPE CO.

A THESIS  
SUBMITTED TO THE DEPARTMENT OF MANAGEMENT  
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MASTER OF BUSINESS ADMINISTRATION

By  
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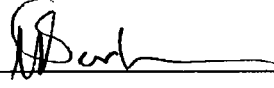
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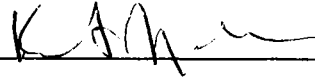
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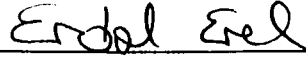
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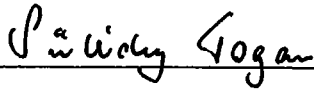
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## ABSTRACT

### ORGANIZATIONAL STRUCTURE AND CHANGE: A CASE STUDY OF THE WAREHOUSE AND STOCK CONTROL SYSTEM IN TEPE CO.

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M.B.A. in management  
Supervisor: Prof. Dr. Ümit Berkman  
July 1988, 75 Pages

A sophisticated information processing system can cause a change in the organizational structure. In this work, the Warehouse and Stock Control System in TEPE CO. is chosen as a case study to examine a planned organizational change by the implementation of an MIS.

Keywords: Organizational Struture, Planned Organizational Change, MIS., Sophisticated Information Processing System.

## ÖZET

### ORGANİZASYON YAPISI VE DEĞİŞİMİ ÖRNEK OLAY TEPE ŞİRKETLER GRUBUNDA AMBAR VE STOK KONTROL SİSTEMİ

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Tez Yöneticisi: Prof.Dr. Ümit Berkman  
Temmuz 1988,75 sayfa

Gelişmiş bilgi işlem sistemleri organizasyon yapısını değiştirirler.  
Bu çalışmada, TEPE Şirketler Grubunun Ambar ve Stok Kontrol  
Sistemi, MIS tarafından ortaya çıkan planlı organizasyon  
değişimlerinin incelenmesi için örnek olay olarak seçilmiştir.

Anahtar Kelimeler: Organizasyon Yapısı, Planlı Organizasyon  
Değişimi, Yönetim Bilgi Akışları, Gelişmiş Bilgi  
İşlem Sistemi

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## I. INTRODUCTION

Organizations can have similar goals and environments, but they differ significantly in the rate at which they initiate change. A growing body of evidence indicates that structure of these organizations may offer insights into how likely they are to change themselves. Organizations by their nature are conservative and actively resist change, because any change can be an actual threat to a group's power, prestige or security. Hence, the greater the threat, the greater the resistance.

Planned organizational change attracts lot more attention in theory than it does in practice. The reason for the difference between theory and practice is explained by the power-control perspective. Essentially, it can be explained as follows: those in power have little reason to initiate change. The current structure maintains control and furthermore increases the interests of the power-holders. The assumptions such as "changes in structure will be implemented as needed to ensure high performance" are probably more credible than myths. In reality, the structural changes that do occur are neither planned nor in response to facilitate technical efficiency or demands of environment.

Change is most likely a response to pressing demands created by internal and external parties interested in the organization. That



means, it is reactive rather than anticipatory. In practice, "planned change" is typically a process of "change", followed by "the planning" that legitimates and ratifies this change. So, while change is made in response to demands by powerful interest groups, it is packaged and sold in a more legitimate form, it is rationalized as being consistent with the goals of enhanced organizational effectiveness.

### **1.1. Purpose and Scope**

All corporations, whether large or small, must perform data processing. They do so manually or with computers and other devices such as calculators and adding machines. Often, managers of small business depend less on formal data-processing system and more on informal information sources in making their decisions. Since, a small business manager is very familiar with all aspects of the business, there is less need for a formal data-processing system. As a business grows larger, managers depend much more on data-processing systems for their information. Such an approach would be a disaster, since the higher-level managers are not close enough to day-to-day operations to have the necessary information for their decisions. This study aims to examine the relation between organizational structure and information systems within the context of planned organizational change.

Strategies that entailed a great deal of change had different implications on structure than did those that were essentially stable. Nonroutine technologies entail more change than do routine ones, and, to ensure effectiveness, the nonroutine type requires a more flexible structure. Similarly, organizations facing a rapidly changing

environment will look for flexibility in their structures.

Adhocracy was introduced as the model most compatible with change. Change demands flexibility, innovation, and rapid responsiveness. Organizations facing a high degree of change, it was argued, will be most effective with an adhocratic structure or at least a structure within a number of adhocracy's primary characteristics such as high in complexity, low in formalization and decentralized. After a brief review of the relevant literature, the question " How an organizational structure is affected and altered by the implementation of sophisticated information processing system?" will be studied by examining the Warehouse and Stock Control System in TEPE Co.

The Warehouse and Stock Control System is highly related with a sophisticated control mechanism, to provide the right information to the right people at the right time. Moreover, it needs a network and close contacts between the staff and the superiors for building the cooperation in the company. A failure or a delay in these aspects will probably cause big problems and unexpected results at the end. Basically, the purpose of this study will be examine, "How a problematic area of company can be analyzed and solved by the existing methods of Organizational Structure and Change." So, as an example, the Warehouse Stock Control problem of TEPE is chosen in the "case study" part.

## **2. AN OVERVIEW ON ORGANIZATIONAL STRUCTURE**

Organizational structure can be defined as the arrangement and interrelationship of the component parts and positions of a company. An organization's structure specifies its division of work activities and shows how different functions or activities are linked; to some extent it also shows the level of specialization of work activities. It also indicates the organization's hierarchy and authority structure, and shows its reporting relationship. It provides the stability and continuity that allow the organization to survive the comings and goings of individuals and to coordinate its dealings with its environment.

### **2.1. Elements of Organizational Structure**

It is useful to analyze organizational structure in terms of following five elements (16):

1. Specialization of activities,
2. Standardization of activities,
3. Coordination of activities,
4. Centralization and decentralization of decision making,
5. Size of the work unit.

Specialization of activities refers to the specification of individual and group work tasks throughout the organization (division of work) and the aggregation of these tasks into work units (departmentalization).

Standardization of activities refers to the procedures used by the organization to ensure the predictability of its activities. Many of these procedures are established by formalizing the activities of and relationships within the organization.

Coordination of activities refers to the procedures that integrate the functions of subunits within the organization. According to H. Mintzberg, standardization mechanisms make it easier to coordinate activities, especially in organizations with uncomplicated work patterns (13).

Centralization and decentralization of decision-making refer to the location of decision-making power. In a centralized organizational structure, decisions are made at a high level by top managers or even by a single individual. In a decentralized structure, the decision-making power is dispersed among more individuals at middle and lower management levels.

Size of the work unit refers to the number of employees in a work group.

## **2.2. Determinants of Organizational Structure**

If we had studied organization theory thirty years ago, the subject that we call as "strategy" would have been the only variable considered as causing "structure of an organization." Strategy is now just one, in a set of variables as determinants of organizational structure. Today, the four major determinants of organizational structure are; strategy, technology, people and size.

### **2.2.1 Strategy and Organizational Structure**

When management authors such as A.D. Chandler use the phrase "structure follows strategy", they mean that the mission and overall goals of an organization will help shape its design (4).

Strategy will determine how the lines of authority and channels of communication are set up between various managers and subunits. It will influence the information that follows along those lines, as well as the mechanism for planning and decision-making. The close relationship between organizational strategy and structure was demonstrated by Chandler in a classic study. After analyzing the administrative histories of such companies as Du Pont, General Motors, Standard Oil, Sears and Roebuck, Chandler concluded that changes in corporate strategy proceed and lead to changes in organizational design.

### **2.2.2. Technology as a determinant of structure**

The nature of the technology used in an organization to create its products (or the methods by which it offers its services) also influences the way the organization is set up, the coordination mechanism, the level at which decisions are made, and the size of organizational units.

J. Woodward categorized the firms as unit, mass or process production, according to the type of technology that they use (19). She threatened these three categories as unit being the least complex and process being the most complex from the perspective of the type of technology. She also found that there were distinct relationships between these technology classifications and the structure of

the firms. In addition the effectiveness of the organizations was related to the "fit" between technology and structure.

### **2.2.3. People as determinant of structure**

The people involved in the organization's activities affect its structure. Managers make decisions relating to the lines of communication and authority and the relationships between work units. In making these decisions, managers are influenced by their own needs and preferred work environments. The abilities and attitudes of subordinates, including their need to work with each other in specific ways, must also be taken into account when work units are set up and tasks allocated. In addition, people outside the organization influence its structure, which must provide for regular interactions with clients or customers, suppliers, and others in the external environment.

### **2.2.4. Size and structure**

Both the overall size of an organization and the size of its subunits influence its structure. Large organizations tend to have greater specialization of activities and more formalized procedures (greater standardization). Chandler has suggested that as organizations increase in size, they are forced to decentralize and to develop a greater variety of formal mechanisms to coordinate their activities.

P. Blau is also found that "size is the most important condition affecting the structure of organizations" (3). He concluded, if the size and differentiation are related with each other, then the rate of differentiation decreases with increasing size.



### **3. AN OVERVIEW ON ORGANIZATIONAL CHANGE**

Even if organization's design appropriate for its environment at a given time, the managers must anticipate changes in the environment that will require future adjustments in the organization's design.

This chapter will focus on systematic programs to bring about planned change in organizations or their subunits. The forces that create the need for organizational change, when to recognize that the time for change has come and how to overcome resistance to change will complete our discussion.

#### **3.1. Forces for Change**

Any factor in the external environment that interferes with the organization's ability to attract the human and material resources it needs, or to produce and market its services or products, becomes a force for change. Furthermore, any factor in the internal environment that affects the way the organization carries out its activities is also a force for change.

##### **3.1.1. External Forces**

There are numerous specific types of external forces for change. Increasing costs and scarcity of naturel resources, work-safety and antipollution regulations, consumer boycotts, higher

levels of education in the labor market, high interest rates are some of the environmental factors that have changed our lives in recent years. An enormous variety of external forces, from technological advances to competitive actions, can pressure organizations to modify their structure, goals and methods of operation.

### **3.1.2. Internal Forces**

Pressures for change may also arise from a number of sources within the organization, particularly from new strategies, technologies and employee attitudes and behavior. For example, a top manager's decision to seek a higher rate of long-term growth will affect the goals of many departments and may even lead to some reorganization.

External and internal forces for change are often linked. The link is particularly strong when changes in values and attitudes are involved. Persons with new attitudes enter the organization and cause it to change.

## **3.2. Managerial Responses to Pressures for Change**

Managers can respond to pressures for change in several ways, such as denying that they exist, resisting them or avoiding them.

To deal with change, managers use two major approaches. First, they "react" to the signs that changes are needed. At this stage, they make modifications to deal with particular problems as they arise. Second, they develop a "program of planned change." Here, they make significant investments of time and other resources

to alter the operations in the organization. In the latter case, they deal not only with present difficulties but with anticipated problems which has not clearly observable.

The first response which is simpler or less expensive than the second is necessary for the small, day-to-day adjustments integral to the manager's job. This type of response requires minimal planning because it can and should be handled in a quick and routine manner. We will not deal with this type of reactive response in this study, however mainly will focus on planned change.

The second response, a program of planned change, has been defined by J.M. Thomas and W.G. Bennis as "the deliberate design and implementation of a structural innovation, a new policy or goal, or a change in operating philosophy, climate, and style" (17). Such a response is appropriate when the entire organization, or a major portion of it, must prepare for or adopt to change.

Planned change is greater in scope and magnitude than reactive change. It is dealing with those changes that may crucial for survival. It involves a greater commitment of time and resources, requires more skills and knowledge for successful implementation, is unsuccessful. Planned change has become so important to many organizations in today's world.

### **3.3. The Four Basic Steps in Planning**

Step 1: Establish a goal or set of goals

Planning begins with decisions about what the organization or subunit wants or needs. Without a clear definition of goals, organizations can not allocate their resources effectively.

#### Step 2: Define the present situation

How far is the organization or the subunit from its goals? What resources are available for reaching the goals? Especially financial and statistical data is a necessity for this second stage.

#### Step 3: Identify the aids and barriers to the goals

What factors in the internal and external environments can help the organization reach its goals? What factors might create problems?

#### Step 4: Develop a plan or set of actions for reaching the goal(s)

This final step involves developing various alternative courses of action for reaching the desired goal or goals, evaluating these alternatives, and choosing from among them the most suitable or at least a satisfactory alternative for reaching the goal. This is the step in which decisions about future actions are made and where the guidelines for effective decision-making are most relevant.

### **3.4. The Role of The Change Agent**

The "change agent" is the individual who is responsible for taking a leadership role in managing the process of change. The individual, group or organization that is the target of the change attempt is called the "client system". Change agents can be members of the organization or they can be consultants brought in from outside. For complex change programs, it is often desirable that an outside change agent manage the process. Since specialized expertise and skills may required, freedom from the day-to-day operating responsibilities may be essential and the prestige of being an outsider can be helpful. Also, outsiders with no interests in the organization are often more likely to be listened to and able to form

objective judgements.

We should expect, that every change agent will bring along his or her own self-interests. What one manager considers a situation "in need of change" may be fully within the acceptable range for another.

The change agent also is in the position of choosing the role he will play. He may "view his role as boss with absolute authority and responsibility for making and implementing decisions or as a partnership collaborating with other employees in deciding on solutions to problems" (15).

### **3.5. Models of The Change Process**

The Lewin-Schein change model implies that planned change efforts may fail because too much energy is needed to bring the system to the point where change is desired or because those seeking change do not put energy into attempts to bring it about (12).

D.B. Gleicher has proposed a simple general formula to help managers determine whether an organizational change effort is likely to be successful (2):

$$C = (A \times B \times D) > X$$

Here, C= changes; A= level of dissatisfaction with the status quo; B= clearly identified desired state; D= practical first steps toward the desired state; X= cost of the change in terms of energy, emotions, financial costs, etc.; and the X denotes multiplication of A times B times D.

In other words, change takes place when the cost is not too high or if it is in the acceptable range. The cost of change will be too high unless dissatisfaction with the status quo (A) is quite strong, unless the desired state (B) is clearly evident, and unless practical steps can be taken toward the desired state (D). The multiplication signs indicate that if any of the factors A, B, or D is zero, there will be no change. For example, if we are satisfied with the status quo (A), we are not likely to change even if we can envision more desirable state (B) and we can take the practical steps to move toward it (D).

In addition to diagnosing how ready the system is for change and predicting how likely it is that change will take place, the formula can also suggest ways to bring the system more ready for change. For example, if dissatisfaction with the current state of affairs is strong on everyone's part, but there is no concrete notion of how things could be better, then a vision of a future ideal state needs to be created and communicated.

### **3.6. Resistance to Change**

A major obstacle to the implementation of new policies, goals or methods of operation is the resistance of organization members to change.

An outside change agent is often necessary for the success of change programs is an indication of how strong such resistance can be. There are three general sources of resistance to change (9).

1. Uncertainty about the causes and effects of change. Organization members may resist change because they are worried about how their work and lives will be affected by the proposed change.



Even if they have some appreciable dissatisfaction with their present work, they may still worry that things will be worse when the proposed changes are implemented. When the change is initiated by someone else, they may feel manipulated and wonder what is the "real" intention behind the change.

2. Unwillingness to give up existing benefits. Appropriate change should benefit the organization as a whole, but for some individuals, the cost of change in terms of lost power, prestige, salary, quality of work, or other benefits will not be sufficiently offset by the rewards of change.

3. Awareness of weakness in the changes proposed. Organization members may resist change because they are aware of potential problems that have been overlooked by the change initiators. Different estimations of the situation represent a type of desirable conflict that managers should recognize and make their change proposals more effective.

### **3.7. Overcoming Resistance to Change**

Resistance to a change proposal is a signal to managers that something is wrong with the proposal or that mistakes have been made in its presentation. Managers, therefore, must determine the actual causes of resistance and then remain flexible enough to overcome them in an appropriate manner.

Kotter and Schlesinger offer six ways of overcoming resistance to change (8). These techniques which may be used in any given situation are discussed below:

1. Education and communication. The need for and logic of the change are explained individually to subordinates, to groups in

meetings, or to entire organizations through elaborate audiovisual education campaigns.

2. Participation and involvement. According to a classic study by L. Coch and J. French, resistance to change can be reduced or eliminated by having those involved participate in the design of the change (5). P. Lawrence came to similar conclusions, suggesting that in order to avoid resistance, managers should take into account what he called to social effects of change (10).

3. Facilitation and support. Managers can also deal with resistance by providing support for those who are affected by the change process. Retraining programs, allowing time off after a difficult period, and offering emotional support and understanding may help.

4. Negotiation and agreement. It is sometimes necessary for managers to negotiate with potential resisters to change, and even to obtain written letters of understanding from the heads of organizational subunits that would be affected by the change.

5. Manipulation and co-optation. Sometimes managers co-opt an individual, perhaps a key person within a group, by giving him or her a desirable role in describing or carrying out the change process.

6. Explicit and implicit coercion. Managers may force people to go along with a change by explicit or implicit threats involving loss or transfer of jobs, lack of promotion, and the like. Such methods, because of carrying a risk, making it more difficult to gain support for future change efforts.

## **4. ORGANIZATIONAL STRUCTURE AND MANAGEMENT INFORMATION SYSTEM**

In this chapter, first a definition of MIS will be given to point out the importance of this subject in business life. Then, we will concentrate on the relation between MIS and Organization Theory. Following this topic, MIS and Formal Organization Structure will be discussed, before completing this chapter with the topic, Planning and Controlling For Materials Needs.

### **4.1. Definition of MIS**

A definition of a Management Information System., as the term is generally understood, is an integrated, user-machine system for providing information to support operations, management, and decision-making functions in an organization. The system utilizes computer hardware and software; manual procedures; models for analysis, control and decision-making; and a database (6).

A business simply could not service its customers or make higher level decisions without information to support customer service and decision-making. The use of computers in information processing has had several impacts on business. Among these are easier business growth, fewer clerical workers, reduced data processing costs, automation of some decisions, and the availability of different types and greater quantities of information (7).

Computers have become an essential part of organizational information processing because of the power of the technology and the volume of data to be processed. The current challenge in information processing is to use the capabilities of computers to support knowledge work, including managerial activities and decision making. The wide variety of computer resources to perform transaction processing, to provide processing for a formal information and reporting system, and to accomplish managerial-decision support are broadly classified as the organization's "management information system" or MIS.

#### **4.2. MIS and Organization Theory**

Since the MIS is a support system for organizational functions, it draws upon concepts of organization, organization behavior, management, and decision-making. The field of management (or organization behavior) and organization theory provide several important concepts which are key to understanding the function of an MIS in an organization. Some of these concepts are:

1. Behavioral theory of organizational and individual decision making
2. Individual motivation
3. Group processes and group decision making
4. Leadership techniques
5. Organizational change processes
6. Organizational structure and design

### **4.3. MIS and Formal Organizational Structure**

It has been predicted that information systems lead to increasing centralization, which generally refers to the level in the organization where decision-making occurs at the top of the hierarchy; the more decision-making authority is delegated to lower levels, the greater the decentralization. If it is true that information systems cause an increase in centralization then improved access to relevant information allows top management to act on a wider range of problems and thus retain centralized control of decision-making. This prediction was first made by Leavitt and Whisler in 1958 (11). There has been some evidence of increased centralization, primarily reported by Whisler in a study of insurance companies (18). Other studies have shown no change in centralization as a result of the computer. In a study of eight organizations reported by Robey, five of the organizations had no change in formal structures (14). Where changes did occur, the existing organizational structure was usually reinforced. Today, it is generally accepted that,

1. Information systems do not cause structural changes
2. Information systems can be designed to support increasing centralization or decentralization, depending on the objectives, strategies and goals of the organization. Factors other than the use of information systems are more crucial to the decision to centralize or decentralize.

### **4.4. Planning and Controlling For Materials Needs**

In recent years materials planning systems (eg. MRP) have replaced reactive inventory systems in many organizations. Computer

based techniques such as material requirement planning (MRP) are used to coordinate such activities as purchasing, production and inventory management. This concept used to be viewed as highly unstructured, requiring the skill and knowledge of an experienced production manager. It permits better control over materials flow and, by looking ahead to ensure that all materials are available when needed for product build up, it reduces order processing delays (1). By setting job completion dates, it gets job done on time, order promises are kept, and production lead times are shortened. This better customer service and inventory cost reduction, along with reduced efforts, come at a cost. They require an information system with accurate inventory and product build up information. They also require a planning orientation and a realistic master production schedule (MPS) to specify when various quantities of end items will be completed. Finally, and perhaps most important, they require a certain discipline, a commitment by schedulers, supervisors, managers and shop floor employees to make the system work.



## **5. A CASE STUDY OF THE WAREHOUSE AND STOCK CONTROL SYSTEM IN TEPE CO.**

### **5.1 Background of TEPE**

TEPE Furniture is a foundation of Hacettepe University which spends its revenue on educational purposes. BEYTEPE Prefabricated Buildings Co. Ltd and TEPE Marketing and Trade Co. Ltd. are also establishments within the same foundation. Until recently, these three companies had gathered under the name of "TEPE Group", one of the larger enterprises of Turkey that has been built on 50.000 square meters closed area. Moreover, with almost 1000 skilled workers, they produce for both domestic and foreign markets by implementing technologies in the contemporary standards of the world.

TEPE Furniture Production Complex, established in 1969, is provided with modern machinery and covers 25,000 square meters open and 18,000 square meters built-up space. Over 50 skilled workers are employed, for this section of the company.

The factory organization comprises,

- Research and Project Division
- Long-cutting Workshop
- Timber Drying Kilns
- Machinery Division
- Assembly Division
- Upholstery Division
- Varnish and Painting Division

- Metal Workshop
- Quality Control Section

BEYTEPE Prefabricated Buildings Co. Ltd., is another production complex of the company which manufactures prefabricated houses, school buildings, kinder-gardens, social and administration buildings for the industries and private sector. The factory complex shares the area of TEPE Furniture in Ankara. Internal demand and orders from abroad are met via time-saving production process.

The factory organization comprises,

- Planning and Architectural Division
- Panel Production Line
- Roof Structures Production Line
- Joinery Division
- Prefabricated House Structural Elements Production Division
- Erection Teams Programming Unit

TEPE Marketing and Trade Co. Ltd., is a complete marketing and full-furnishing organization. Many large turn-key furnishing projects are under way both in Turkey and abroad.

TEPE Group, which has organized its activities via Ankara, Aegean and Marmara Regional Directorates enlarging the field of activities on the Mediterranean and Middle East Countries.

The organization employs marketing experts, economists, interior architects, research teams and engineers project study and assessment is an important TEPE activity featuring the basis for "turn-key projects."

It's activity areas are as follows;

For hotels, motels, hospitals, schools, seaside resorts and for other private and public buildings,

- Production of betopan (concrete panel)

- Production of standard furniture
- Production of standard doors and door frames
- Production of window frames
- Full decoration and upholstery projects and applications
- Special orders for upholstery furniture, door and window frames
- Production of prefabricated building materials
- Production of prefabricated buildings with one or two floors for administration, health and education buildings and for industrial complexes.
- Steel sheds and for building constructor's supply areas
- Completed furniture, inside decoration projects and contract services

## **5.2. The Strategy of TEPE**

Since 1980, The Accounting and Stock Control System of TEPE has been operated and stored by personal computers. Then in March 1987, some executives of the company had gathered at a meeting to discuss "What should be done to make the computer usage more effective" in some of the systems listed below:

- Personnel
- The Warehouse and Stock Control
- Accounting
- Purchasing
- Marketing
- Production (Manufacturing)
- Computer Hard-ware System

First, a "team bulding" strategy was approved. This team was responsible of pointing out the main steps in a planned change process. The members of the team are expected to work together and to solve the problems related to the organizational structure of TEPE. The names of the members and their positions in the company are as follows,

Metin ARIKAN; civil engineer, experienced on directing Hardware Systems and MIS.

Cengiz SÜRÜCÜ; manager of the Warehouse and Stock Control Department.

Yılmaz EREN; computer engineer, working for The Computer Center of TEPE

Hakan AYTAÇ; coortinator of Finance and Administrative Affairs.

Acoording to M. Arıkan, the leader of the team, their planned change means;

"Our planned change will be including a group of activities and procedures consistent with our company objectives. As the word "planned" implies, our organizational change effort will start from the point where we can diagnose our problems. Then we can think about developing a strategy for an effective resource allocation among subunits, as a final task. We are really in need of a new generation of equipment which should offer us a faster, cheaper and a more reliable service than our existing Computer Department."

### **5.3. Initiation of The Planned Change**

TEPE Co. was planning an organizational change, involving the use of an advanced computer system in some of its departments.

Although it is difficult to draw significant conclusions from interviews, most of the executives shared the feeling that "The Warehouse and Stock Control System of the company can no more work with the existing procedures than a circle can have corners."

Actually, the starting point of changes in the previous Warehouse and Stock Control System were happened as, "key personnel with new attitudes entered the organization and caused it to change." In March 1987, a new manager was appointed to the Warehouse and Stock Control Department. The first thing that this new manager did, was to ask for a report, showing "how the existing system was applied and what was the problematic areas of this department. "However, no one seemed to be willing to take this responsibility or found himself qualified to arrange such a report. As a result, C. Sürücü, the new manager of this department decided, the problems of the system can only be solved by a re-organization study so he applied to the top manager of the company to develop a planned change.

As a matter of fact, in those days, Ali KANTUR, the company manager was thinking about starting a study on "negotiation." Because, he found it useful to get into close contacts with the heads of the organizational subunits in order to be informed by the resistance to the existing system of the company. The company manager also found it appropriate to search for a "Change Agent" or a consultant who could work for them, what means a top management did the strategy in the short-run. It is observed in TEPE, the first steps of the planned change started with a largely centralized decision making. Soon, the personal contact were made between the company and the two different consultancy firms. LİNK Bilişim became the consultant firm since it has been found superior with

respect to technical feasibility, background, the staff and references.

However, the main problem is, "from where to start." Both the client and the consultant put forward their own ideas and agree that the study should start with analyzing "the previous warehouse and stock control system."

#### **5.4. The Previous Warehouse and Stock Control System**

In this part we will attempt to deal with the question of "How to change the previous system."

LİNK Bilişim had spent around four months time, to sum up the data and the information that they were in need of to arrange their report. By that time, the team members and the representatives from the consultancy firm had gathered for several times, to discuss the main subjects of this report according to serve to the expectations of this department. Appendix A is showing the general principles of the report prepared on The Warehouse and Stock Control System.

At this stage, it will be helpful to give some information about the expectations mentioned above. First, we know that people who are involved with this system in TEPE are as follows; the personnel of Warehouse and Stock Control Department, the coordinator of Finance, Production and Sales managers. Therefore, if this planned change did not serve to the aims or goals of all these people and departments, then it would be only adding further problems to the existing ones. It is clear that after the necessary changes, the new proposed system would be used again by the same staff so they should be convinced that this new system would be superior than

the old one. At the same time, they would be the ones who were responsible of the problems or delays during the adaptation period. Thus, the consultancy firm stayed faithful to the procedures of the previous system but at the same time brought new changes which could solve the problematic areas and could provide convenience and comfort in usage.

The Warehouse System which has been working under the structure of TEPE Co. until March 1987, was confronted with a change from then on. Before, The Warehouse System showed a variation according to the production districts but now the whole system is conjoined to The Warehouse and Stock Control Department in the center of the company, in Ankara. It is expected that, this will allow a standardization of the procedures for all the warehouses of the company.

The Warehouse and Stock Control System worked as follows until the new organizational studies started just a year ago:

TEPE Furniture and TEPE Prefabric sections separately have their own Warehouses which they keep and store their raw materials. These separate Warehouses also served under the control of The Warehouse and Stock Control Department. There are also two more Warehouses for manufactured goods which work in cooperation with Sales Department.

Moreover, the materials are controlled on special cards. Warehouse of TEPE Furniture has about 1000-1500 of these cards for each type of materials. On the other hand, in TEPE Prefabric, these cards are about 3000. However, only 1800 of them are used as "active materials card." The most important problem of the previous system was the insufficient coding system. Although there is a special section on these cards for the case of an order it is usually

not used. In addition, the information about the origin of these materials has not been clearly mentioned on these cards. Due to an insufficient coding system, more than one type of material is being controlled on a single card.

Another problem is related with minimum stock levels of materials that TEPE Furniture was in need of. A study had been done but were paid few attention. Below, we will discuss the forms of the previous system together with the problems that they caused.

When the Workshop were in need of materials, they could apply to the Warehouse by a "Demand Form." However, the sections for the purpose of the request and the type of work are usually not filled carefully on this form. Two copies are filled, one stays at the Chief of the Workshop and the other goes the Chief of the Warehouse.

If the materials requested by a Demand Form does not exist in the Warehouse at the present time, then a "Materials Order Form" will be filled. It has some special sections such as, request date, origin of the request and an explanation section for the type of work demanded. It is clear that, if all the sections were filled, this document would serve to its purpose more fully. Two copies are sent to the Purchasing Department and the third one stays in the Warehouse. In addition an approval is expected both from the Chief of the Warehouse and from the Production Manager.

Then a "Material Delivery Form" should be prepared to indicate the amount of material delivered to the Warehouse. Usually, two copies are filled and one of them is sent to the Purchasing Department.

"Warehouse Entry Form" is filled when a material enter the Warehouse. The sections of this form for the quantity of material is



filled in the Warehouse. One copy stays there and the other two are sent to the Purchasing Department. Later, one of these two is sent to the Accounting Office to let them make their analysis on Cost Accounting.

Another form should be filled under the name of "Warehouse Exit Form" while the materials are being taken out of the Warehouse and the remaining sections are left to be filled in the Accounting Office. Moreover, it is a common rule that all the materials are delivered to the Chief of the Workshop who had requested them and an approval is taken by the Production Manager. Here again, three copies are prepared. One of them stays in the Warehouse, the other is sent to the Workshop and the last one is given to the Accounting Office.

Both of the two branches, TEPE Furniture and TEPE Prefabric are using the forms which are similar in content, as mentioned above.

Although, all these forms are defined in the recent studies, still several questions remain unanswered. It is obvious that the forms had not been designed carefully to serve their real purpose. Meanwhile, most of the executives who are related with the subject, found this system as a disaster. Most of the complaints that they put forward was about the conflict in stock numbers. It is mentioned that, some forms had the section for a stock number but there was not any similar section in the rest of the forms. If this was the case, then they would fill the forms carefully, especially the sections about the discrimination and the category of the material. However, we know that, most of the times the forms lacked, giving the right information or people did not spend sufficient time and effort to fill them properly.

As a last trouble, we can say the one in between the Warehouse and the Purchasing Department. There is a special section on the Materials Order Form about the "Request Date" which is showing, until what time this order should be delivered to the Warehouse. The problem here is, this information has never been written on the document in a systematical way. It is examined that the Purchasing Department faced with a conflict which had to deal with all these requests, in a certain period of time.

### **5.5. The New Proposed System**

The old system which was discussed above had been used until March 1987, and it was again the same system which had been used in the Warehouse during the re-organizational studies on a new system. At the end of all these studies, new regulations for the Warehouse and Stock Control Department were confirmed. Meanwhile, there were some outstanding changes for the forms that have been used for keeping the necessary information about the materials. As a matter of fact, some of these previous forms were replaced with the new ones which were different both in methodology and in content. Besides, some of the forms were found inconsistent with the new applications so they were ultimately approved not to be used any more. These forms which have been used in The Warehouse and Stock Control Department in the new proposed system are;

- Necessity Form
- Materials Provision Demand Form
- Warehouse Entry Form
- Materials Return Form
- Materials Transfer Form

- Materials Receipt Form
- Shipping Form
- Equipment Receipt Form
- Warehouse Stock Card

Moreover, a "Form Usage Instruction" was formed regarding to the which had been suffered with a change or prepared recently apart from the old ones.

One of the most important subjects which had been handled during the organizational studies of the planned change was to improve a "TEPE Stock Coddng System" to be used through the whole structure of the TEPE Group. At the end of these studies "NATO Stock Coddng System" was ratified and assumed to be the best system which has been consistent with the company objectives.

The main idea behind this NATO system is to distinguish the stock coddng number of a material into the levels in different lengths, and to provide a hierarchy between all these levels. The contribution of this structure is also to separate the materials into groups and classes according to their Stock Coddng Number. As a matter of fact, A TEPE Stock Coddng Number has been developed in a structure which has a length of nine digits, for its numerical information. The dispersion of the hierarchy of the stock coddng system is having the structure as shown in figure 5.5.

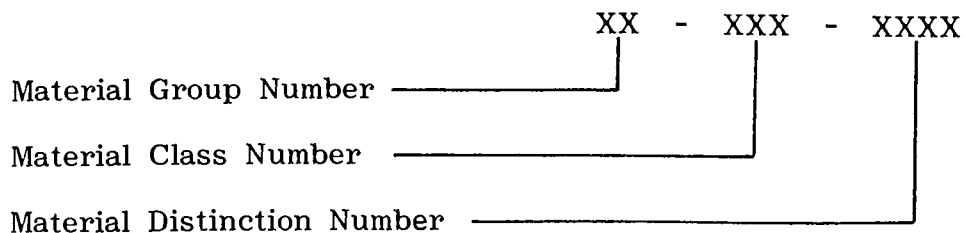


FIG. 5.5. The Structure of "NATO Stock Coddng System"

Material Group Number: This code number is used for grouping the materials in an upper level. At the same time, it is arranged in a way to form the stock numbers in the Accounting Plan.

Material Class Number: This code number is given to the materials which are in the same group. These groups form the classes to initiate where the material is being used and to show the category of this material. Thus, under a material group number some classes are formed according to the qualifications of the materials.

Material Distinction Number: This code number is put forward, in order to make a distinction of the material under the two previous coding number.

A small example can be given to clarify how a material is being distinguished with this coding system. For instance, if we take sand and gravel which are used materials for construction of a reinforced concrete building, how can we code these materials? First of all, a group number is chosen for these materials to indicate they are used for construction purpose. Then, a class number is assigned to indicate that they are being used in a reinforced concrete building and as a last procedure a distinction number is chosen, to inform the people that these materials are sand and gravel.

The new procedures were started mainly by the additional usage of forms such as the "Necessity Form." This document is filled by technical directorship and it should indicate the necessary information about the materials like the reason of demand, the amount of expenditure, stock levels and the amount of sales. In this way, when a demand occurs, a discrimination seems to be possible according to the reason of demand for this material. So far, if the information is filled entirely and correctly, there would be no anxiety about observing the reason of expenditures for the necessary

materials.

Some previous type of procedures on the other hand, clarified and became easier to use. Before, if a material had been delivered or entered to the Warehouse, two different forms would have to be prepared. Now, these two separate procedures and the two forms combined into a single new document.

Another new application is about the procedures for purchasing materials. A new term, "Materials Receipt Form" is started to be used as one of the recent forms. In this structure first a Necessity Form is arranged then Material Receipt Form needs to be filled and ratified in the subunit which requires for the material. After all these operations, the material will be ready to be sent to this subunit. As we all understand from the applications of the new system, a "reservation structure" has been trying to be formed. So, if the required material is available in the Warehouse, it will be never given to another subunit as it has already been reserved. There can be only some exceptions like special and urgent orders which posses a privilage. All these operations were planned on a purpose, to ascertain the demand for materials and make them available in the Warehouse to be ready for requirement.

TEPE CO. is also considering a "Cost Accounting System" as a long-term objective, which may be realized in the following years. In this instance, if the parts of a Materials Receipt Form are filled to show the distinction of the material to be used and if an explanation is written for the type of the material then this information would be a novice study for this Cost Accounting System which is expected to be executed, soon. So, the new type of forms are used not only for their own purpose in the system but also for different reasons for the company's long-term objectives.

Despite of all these facts, the organizational structure of TEPE needs an intensive usage of "Shipping Form" and this is the reason, a concept as "arrangement of a shipping form" has been put forward in the recent studies. In this way, the shipping forms could have the same files and volumes but the purpose for usage might be quite different.

Meanwhile, "Equipment Receipt Forms" are also carrying importance in the new applications. If the expenditure for an equipment is mentioned clearly on this form during the time of demand, then the style and the proportion of the equipment usage would be ascertained, later on. The structure of this form also plays the role of a base for an "Equipment Pursuit System" which is expected to happen soon.

It was also observed that, a material or an equipment was both used for construction in prefabric unit or for production in furniture unit but at the same time could also be marketable by the Sales Department. It is obvious that, these situations could be in conflict from the perspective of production and/or sales procedures. In order to eliminate this conflict and to cause a discipline, again a reservation structure has been brought for the equipments and materials which are offered for a sale. In this way, the amounts which were required by Sales Department could be set apart for this unit, for certain periods. Besides, all the other units which are dealing with the same materials and equipments would be informed about the reserved amount.

## **5.6. Implementation of MIS**

Since the beginning of 1980's TEPE has been involved with computers, mainly in Accounting and Payroll procedures and then for data storage in Stock Control System. All these applications were directed and controlled by The Computer Department whereas data storage was carried out by the computer operators.

The Warehouse and Stock Control Department was willing to standardize the duties of their staff and to accomplish this, they knew that they were in need of a control system which could be built by a network. By this system, they expected to computerize not only the basic data storage process but also some more applications such as the movements of a material into or out of the Warehouse and all the operations related to a Stock Control System. In addition, this new computerized system of the Warehouse and Stock Control Department was supposed to be an entire system but also could be integrated with the other units of the company.

The flow-chart as shown in figure 5.6.1., will be helpful to understand the integration between The Warehouse and Stock Control Department with the other units of the organization. Moreover, figure 5.6.2., will give the operations of the main system in a more detailed way.

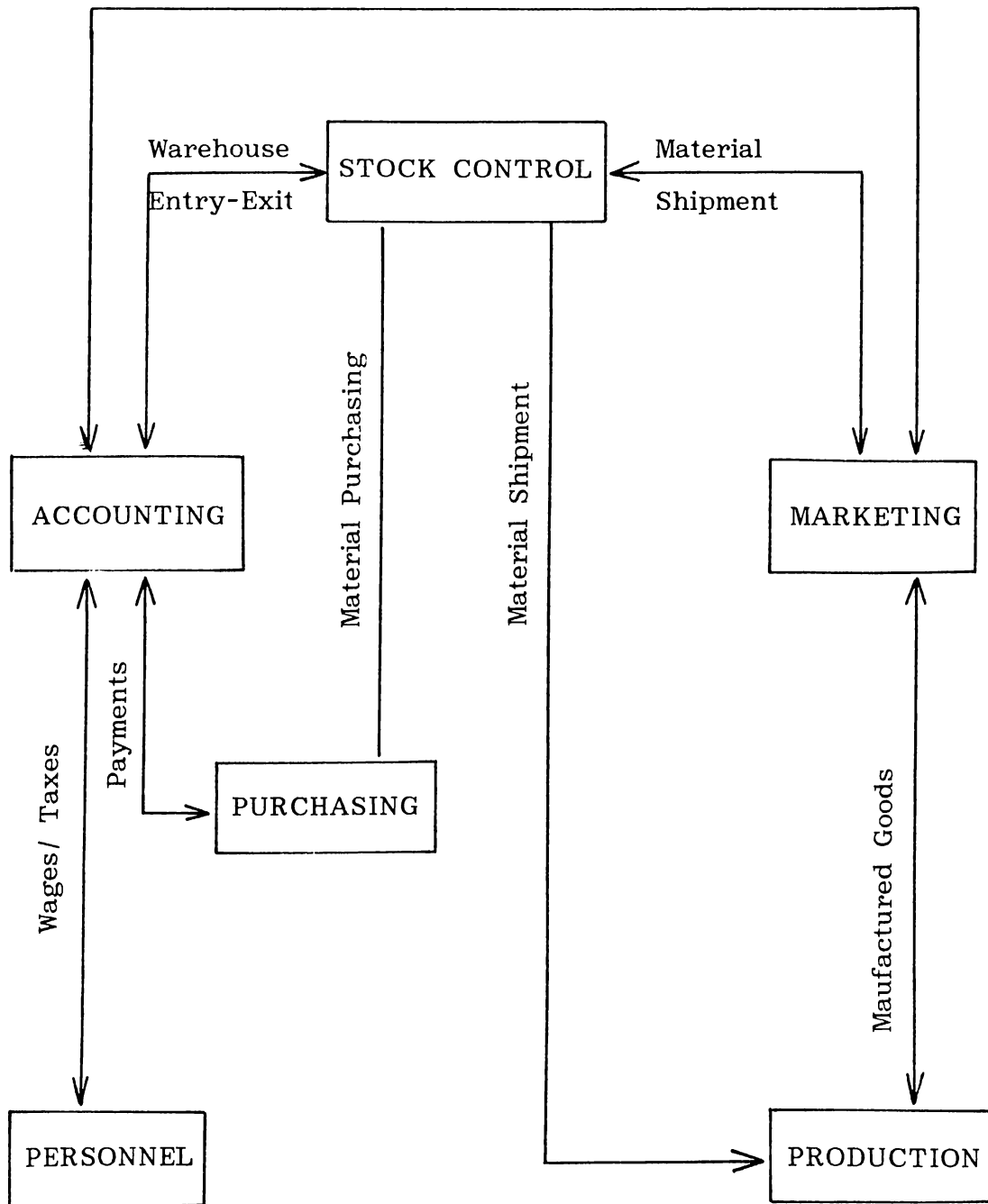


FIG. 5.6.1. The integration between the departments



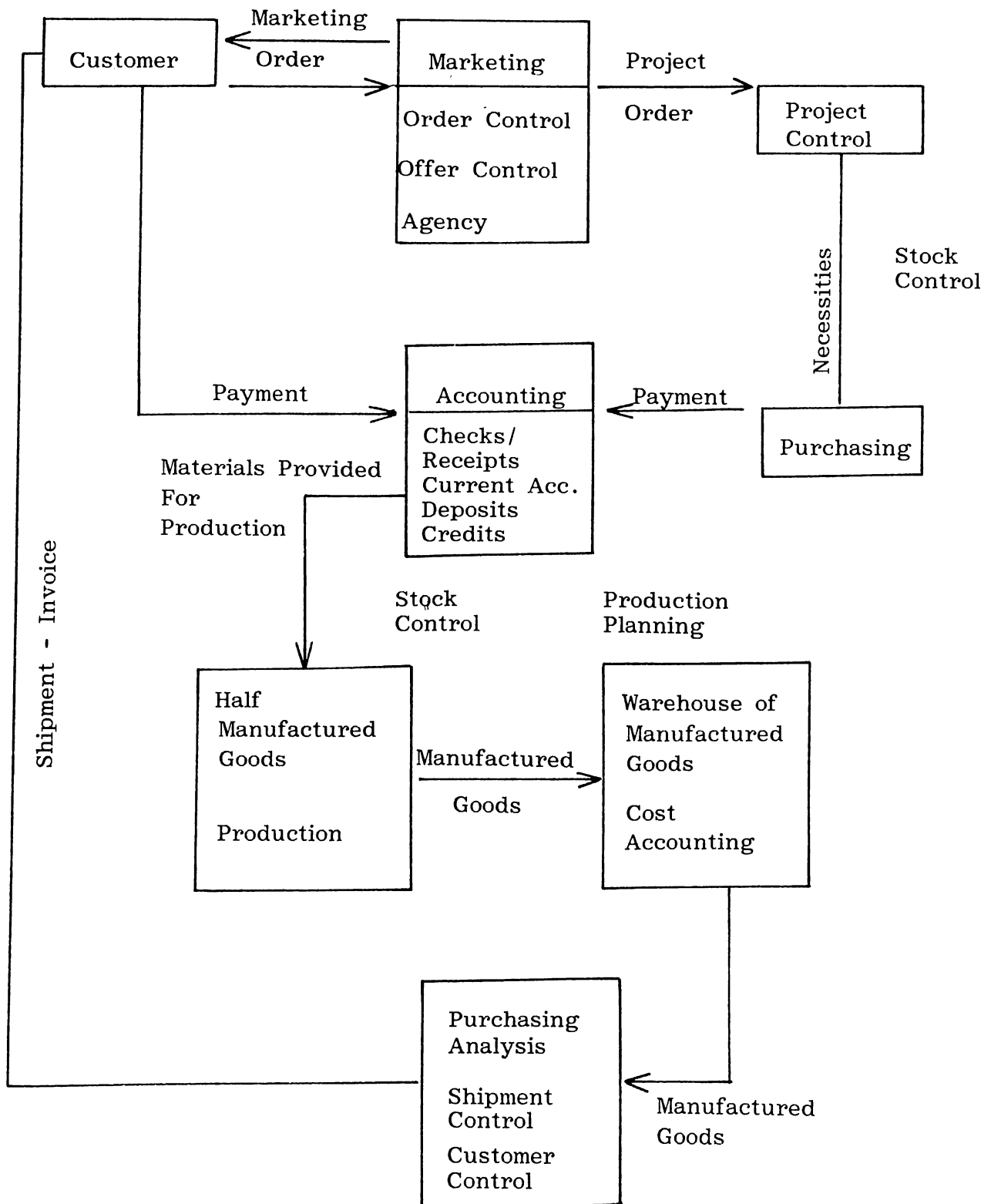


FIG. 5.6.2. The Operations of The Main System

We can conclude that the real intention behind, the planned change of TEPE was "altering the old system by giving a push to computer usage in the new applications." Accordingly, the purpose of the Warehouse and Stock Control Department was applying the procedures in a more healthy and a faster way with a computerized system, rather than doing all these manually, as before.

As a matter of fact, the team member and the consultant firm have started their study on building a computer system during the last months of 1987. They gave the priority to micro computers because introducing the mainframe would need at least one year. On the other hand, when it happens and TEPE starts to operate all its procedures by directing from a Computer Center, they will be looking forward to an MIS which can provide a network system for getting the right information at the right time. So, MIS will be a precise solution with its contribution to both subordinate and superior participation to the system at all levels of the hierarchy.

### **5.7. Evaluation of The Planned Change**

The important aspect of this topic is, to ensure that the chosen strategy and its implementation will meet the objectives of the organization. Also, usually some contingency and tactical plans used and explicit distinction is made between short-term and long-term goals.

At this stage of the planned change, some top managers of TEPE suggested to make a performance evaluation. In fact, they were willing to feel a confidence to their planned change process by examining the implemented strategies met at least their short-term objectives.

In March 1988, a feed-back had been suggested by the executives of the company. This suggestion was somewhat related with the fact that the top managers had taken decision by consensus to analyze how much of the organizational resources and financial values have been spent for this "change process."

Hereby, we are going to enumerate the resources and expenditures that have allocated for the change process, during in one years time:

1. Employing a new Warehouse and Stock Control Manager.
2. Team building with the cooperation of an outside consultant agency.
3. Arrangement of a report to analyze the problematic areas of the old system and to indicate the possible solutions for this case.
4. Employing a system-operator to direct the file process.
5. Purchasing one more micro-computer.
6. System analyze together with the other integrated systems of Stock Controlling.
7. Starting micro-computer operation for the new structure of Stock Control System.
8. Programming the Warehouse and Stock Control System for the mainframe as a long term objective.

In December 1987, the first part of the payment had been made to LİNK Bilişim for the registered report. This amount was around 4 million TL. Then some more had been spent for the rest of their service. Recently, LİNK has earned around 13 million TL. for their total consultancy service for TEPE, and they are still working for the company. Moreover, the top managers of TEPE indicated for several times, they would never take a risk of a change process, if

they had some doubts like, "the return might be less than the cost." They added that "a change can only take place when the cost of change is in the acceptable range."

The last point which is given importance at the evaluation step was the distinction between the short-term and long-term goals. The implementation of the strategies showed that the company is supposed to be successful to accomplish its short-term goals, in one year. This success is highly depending on the efficiency of the new applications with a computerized system. TEPE had already manage to operate its Warehouse and Stock Control procedures by micro-computers. The main distinction between the short-term and long-term goals of the organization is lying at this point. Because, TEPE is now working on transposition from micro-computers to the mainframe and to reach this aim they are thinking of a Computer Center (BİM - Bilgi İşlem Merkezi) as a long-term goal. Also, an MIS will provide a network between the subordinates and the executives then will allow the necessary information can be taken or sent in the fastest way without a delay. Therefore, control mechanism will expected to be exist spontaneously by the dealers of the system.

Meanwhile, the variation in the behaviors of some of the stock controllers has drawn the attentions of the team members from the objectives of the company over the subject know as, "resistance to change." Although it is usually inevitable to face with a situation like this while trying to implement a change within the organization, the superiors know very well that they should never go through the further steps before convincing the system-user about the necessity and the positive returns of the changes.

### 5.8. Resistance to Change and The Solutions

The resistance to change is mainly observed it between the stock controllers. From the programmers' point of view their tasks were very clear, to design a computer system for The Warehouse and Stock Control Department and to program and implement it. After all, data preparation was a rather routine clerical job. So, the Computer Department seemed to have no problems about the new applications. There was no reason for them to worry about the changes because, everybody knew in the company that the planned change would only being practiced for The Warehouse and Stock Control System.

However, when one is faced with change, the first question he is likely to ask is, "how will it affect me?" For the stock controllers, the computer represented a threat. They had no wish to become the victims of a change apparently imposed on them by a group of outsiders. They are thinking about the consultant firm as outsiders who knew little of their work and problems.

It was obvious that, the new system enabled producing computer output for The Warehouse and Stock Control Department. The only problem was that, some of the stock controllers, refused to accept it. A very expensive piece of machine was producing, from their point of view, irrelevant information.

One of the executive from The Warehouse and Stock Control Department was saying that the real distinction between the stock controllers and programmers was lying at the point where their department was not in a position to argue over technical details however the programmers were started to criticize the way the stock controllers were performing their job. The programmers on the other

hand were thinking that, what they wanted and what the stock controllers expected from the system is differed. They also mentioned, there should be no real technical arguments as they were the system analysts working with the consultants to implement the change.

After all these arguments, the team members decided to find a solution. They felt that, somebody had to act as a link between the programmers and the stock controllers. Someone had to translate the need of a change. A complete study of stock control should be done and determine what the officers of this department really wanted and what they did not. Because, this is where the main arguments came.

As a next step, the company managers decided to start a negotiation study for the stock controllers. From their point of view, it was necessary at that time to negotiate with potential resisters to change in order to understand in what points the resisters were finding themselves affected by the change. The managers gave importance to education and communication and the logic of the change were explained them step by step in several meetings.

When we make a feedback about the system operated since the beginning of the changes applied, one can easily see that none of the doubts of the stock controllers happened. The computer eventually took much of the routine tasks from their work and allowed them to utilize their skills more effectively. The status of their department has improved with the new computerized system. During the negotiation studies and at the meetings they were allowed to understand what computers could do or help in their daily business. So, the stock controllers were let to understand what was the real intention behind the change with the new operations.

Today, slowly they began to appreciate the style of the new operations. Because, now they have the information they needed in time to start making decision about future stock levels. Meanwhile, the programmers are still heavily committed on the technical problems of system design and programming for the mainframe. Research was going on all the time to simplify programming. However, the micro-computers appeared as a new generation of equipments that offered faster, cheaper, and a more reliable service.

## 6. RESULTS

If we observe the incidents happening recently within the organization, it will be a candid confession to say, TEPE has not already reached to the last step, "the results" of their change process. It is still early to see the results of the overall strategies which have been initiated since the beginning of the planned change. However, the feedback studies showed that the company is supposed to be successful in approaching its short-term goals.

From this point on, a brief summary of what has been done during the implementation of the change will be discussed. Actually, we will observe the situation of the company from today's point of view. Then the long-term strategies of TEPE will be mentioned together with the following methods of future.

It is planned that micro-computers would be sufficient until converting the existing operations into the application of a mainframe. But, even though all these computerized operations have been using the real data and information of the Warehouse and Stock Control System, there was an outstanding limitation as they were only pilot studies before building a central computer system. It is obvious that if TEPE is really thinking about starting, implementing and wishing to continue the operations with a mainframe, then a computer center should be formed, the necessary equipments should be decided and a system-analysis is need to be done.

In April 1988, the team members started to correspond with the firms which are dealing with computer sales for both software



and hard-ware systems. Up to now, TEPE has already applied to eight different firms in this field and each time sent a special document to state the requirements of their system. This document is shown in Appendix B. The two main factors which the team members are looking for, or expecting from these firms are the suggestions of these firms about the capacity and the cost of such a system like this. The leader of the team members pointed that their anxiety is mainly on "if the proposals of these firms may meet the requirements of their system and if they can decide or choose the firm which can bring the best solutions."

In June 1988, TEPE decided for the firm, to purchase the machinery and the equipment for its new hard-ware system. Table 1. is showing the expected capacity for the seven subunits of the organization which the team members decide to computerize by a mainframe.

<u>SYSTEMS</u>	<u>Disk (MB)</u>	<u>Terminal</u>	<u>Printer</u>
1. Personnel	5	1	1
2. The Warehouse and Stock Control	30	2	2
3. Accounting	30	2	2
4. Purchasing	5	1	1
5. Marketing	20	1	1
6. Production (Manufacturing)	20	1	1
7. Computer Center	30	2	1
<hr/>	<hr/>	<hr/>	<hr/>
TOTAL	140 MB	10	9
Beginning	200 MB	8	6
CPU (Central Processing Unit):	2 MB		
Extra data-set:	100 MB		

TABLE 1. The Expected Capacity for Mainframe (minimum)

Any how, in the first 4-5 years this capacity is expected to increase 40% for the whole system but this increase can only be observed for the disks and terminals. In this case, the monitors and the printers will be supplied according to this increase. It is inevitable that, the reason of the increase in the capacity is depending on the plans of a network system through the subunits of the organization. As noted before in the previous parts of this study, TEPE is also thinking about an MIS in order to make the executives and top managers to be involved with the daily procedures without any delay and make them ready for the decisions on time. So, the team members are talking about putting some monitors in the office of these people, in the nearest future.

Another important aspect is, the work capacity of these subunits and the financial limitations should take into consideration before establishing capacity which may chosen for today should be serviceable in the future but also should not require big amounts of investments for its service.

Even this computerized system can work regarding to the plans, a special team is ought to be established again to provide the cooperation between the departments. Moreover, some other types of structures such as a regulator and other devices to prevent the unexpected accidents of the system should be supplied for this computer center. Despite of these requirements, in order to operate the system, an additional personnel is needed with a preferable skill and talent to do his/her job.

This additional personnel consists of as follows:

1. An executive who can be responsible for this system
2. Software developers
3. System-operators

#### 4. System-analysts

Below as a last aspect, we will see the methods which is expected to be followed in the long term;

1. Analyzing the system and arranging the possible reports.
2. To discuss on the reports and to ratify them by the authorities.
3. Programing the system according to the required capacity of the devices.
4. Testing the programmed system.
5. Establishing a network in between the programmed system and the other systems of the organization.

## 7. CONCLUSION

In this last part of the study we will be concerned with the relation between the major components of organizational structure and computerized information systems. Thus, the question "How an organizational structure is affected and altered by the implementation of a sophisticated information processing system" will be answered.

As noted in one of the earlier chapters, adhocratic structure is introduced as the one, most compatible with change which is high in complexity, low in formalization and decentralized. At this point, TEPE is somewhat an appropriate organization to implement a change. It is large in size, high in complexity and tends to be close to decentralization. However, the center of conflict is, the degree of formalization changing rapidly depending on the type of job that each department is representing. Although larger organizations are predicted to develop more formalized procedures, it is difficult to observe this in a company like TEPE. The reason is, jobs in production are typically more formalized than are those in sales or research. On the other hand, TEPE is concerning with the activities not only in production but sales and research, as well. If this is the case, then it is sometimes difficult to conclude that "the size of the organization influences the degree of formalization." TEPE is supposed to be a larger organization according to the standards of Turkey, but this fact can not be enough to indicate that the level of formalization is higher than most of the others.

As production tends to be concerned with stable and repetitive activities, such jobs lend themselves to standardization. In

contrast, the sales and research departments must be flexible rather than formalized in order to respond to changing needs of customers. TEPE is also applying a nonroutine type of technology because of facing an environment which is changing rapidly. It is obvious that organizations which entail more change than do others can easily demand flexibility, innovation and rapid responsiveness.

In the Warehouse and Stock Control System of TEPE, the procedures repeat themselves, and, hence, management is motivated by a computerized information system in order to handle them more efficiently through standardization. In addition, an increased size comes with a greater internal confusion. Thus, the general desire is to minimize this confusion by the implementation of a change with this computerized system.

It is known that, increased size brings with it a complex organizational structure. The size of an organization can be tall or flat according to the span of control, which defines the number of subordinates between the top management and the operatives that a manager can direct effectively. Tall structures, with their narrow spans, reduce the manager's day to day supervisory responsibilities and give more time for involvement with the manager's own boss. However, a tall structure shows an increase in organizational hierarchy levels and makes it difficult to communicate, coordinate and control efficiently. As well as that, organizations which are high in complexity, need for devices such as committees, computerized information systems and reduction in formal policy manuals.

Information systems can support either increased or decreased spans of control, depending at the objectives, strategies and goals of the organization. Also, they can be designed to support increasing centralization or decentralization. In this case, a computerized

information system is supposed to be an efficient tool in order to implement a change in the organizational structure. When TEPE introduced a sophisticated information processing system as an organizational change activity, the centralization dimension of structure is typically altered. They expect this improved computerized system allows top management to decentralize authority yet at the same time maintain control. The real intention behind this planned change is, to develop a collaborative management strategy which requires subordinate participation in decision-making.

Briefly, the Warehouse and Stock Control System of TEPE is became more formalized with the implementation of micro-computers in the short-term. Later, in the long-run, when the system operates by the mainframe the structure of the company will be more decentralized and will allow both subordinate participation and control in decision-making.

## **APPENDICES**



## **APPENDIX A**

### **STOK KONTROL VE AMBARLAR YÖNETMELİĞİ**

TEPE GRUBU  
STOKLAR VE AMBARLAR YÖNETMELİĞİ

1 - GENEL ESASLAR

1. AMAÇ : Yönetmeliğin amacı TEPE GRUBU'na bağlı işletmelerde kullanılan hammadde, malzeme ve firmamızca imal edilen mamullerin stoklama ve muhafaza esaslarının, malzeme taleplerinin muntazam olarak karşılanmasına ilişkin yöntemler ile stokun lüzumsuz birikimine mani olacak tedbirlerin belirlenmesidir.
2. KAPSAM : Bu yönetmelik, Tepe Grubu'na bağlı işletme ambarlarını, genel amaçlı ambar hizmetlerini, stok kontrolünü ve malzeme ile ilgisi bulunan ünitelerin ambarlar müdürlüğü ile münasebetlerini kapsar.
3. PRENSİP : Yönetmelik, ihtiyaç konusu hammadde ve malzemenin asgari masrafla en iyi ve emniyetli muhafazasını, ihtiyaçların üretim aksamına meydan vermeden karşılanmasını, ambar hizmetlerini yeknesak bir sistemle yürütülmesini prensip olarak benimsemiştir.
4. TERİM VE TARİFLER :

a.Ambar : Bünyede mevcut hammadde, malzeme, yarı mamul ve

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mamullerin muhafaza edildiđi açık ve kapalı yerlerdir. Tepe grubunda ambarlar ait oldukları işletmeye göre tasnif edilmiş,

- i - Mobilya ambarları (A)
- ii - Prefabrik ambarlar (B)
- iii - Betopan ambarları (C), olarak kodlanmıştır.

**b. Tesellüm ve Kalite Kontrol Ambarları**

İşletme ambarlarına girecek hammadde ve malzemenin, kalite kontrol, ölçümleme ve diğer formalitelerinin tamamlandığı ve tesellümleri yapılmıyaya kadar muhafaza olunduđu yerlerdir.

Bu iş için müsait bir yer ayrılmadıđı taktirde, işletme ambarlarının müsait bir bölümü bu işe ayrılır ve buranın tesellüm ve kalite kontrolüne tahsis olunduđu bir levha ile belirtilir. Bu, tesellümü yapılmamış malzemenin kullanımını engeller.

**c. SEVK AMBARI : Bünyeden, muhtelif amaçlı çıkışların sevkiyatının yapıldığı ya da sevk formalitelerinin ikmal edildiđi mahallerdir.**

(Sevk formalitesi ifadesi, iç taşarılara ve işletmeler arası malzeme transferlerine istinaden ayrıca ifade olunmuştur. Bu işlemlerde sevkiyat olmadığı halde, diğer çıkışlarda olduğu gibi sevk işlemi yapılmaktadır.)

**d. HURDA VE DEKLASE AMBARI : Üretim yerlerinden ya da, şantiyelerden iade olunan malzemelerin, tasnifine tabi tutulmak üzere muhafaza olunduđu, tasnif olup ambara alınabilecek olanların**

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ambara transfer edildiđi, bakiyenin deęerlendirilmek üzere istif edildiđi mahallerdir.

- e. HAMMADE : Bünyede mekanik, kimyasal veya başka bir metodla şekli, bazen bünyesi deęiştirilerek mamul yapımında kullanılan maddelerdir (saç, tomruk, çimento gibi).
- f. MALZEME : Hammadenin mamul durumuna getirilmesinde, genel idare hizmetlerinin yürütülmesinde, cihazların bakım ve onarımında kullanılan mamullere denir.
  - i. Yardımcı Malzeme : Üretimde kullanılan, mamulun esas bünyesine teşkil etmeyen malzeme türüdür.
  - ii. İşletme Tüketim Malzemesi : İşletme faaliyetleri için lüzumlu enerji, buhar, basınçlı hava üretiminde kullanılan ve kullanılması ile teknik niteliğini yitiren yağ, yakıt gibi malzemeler ile kesim, delim, birleştirme ve yüzey düzeltmelerinde kullanılan testere ağzı, matkap, elektrot, tutkal ve zımpara gibi malzeme türleridir.
  - iii. Genel İdara Tüketim Malzemesi : İdari faaliyetlerin yürütülmesi için gerekli kırtasiye büro levazımatı, temizlik hizmetlerinde kullanılan deterjan gibi, malzeme türüdür.
  - iv. Yedek Malzeme : Üretim ve hizmet yerlerinde kullanılan makina, tezgah ve cihazların bakım ve onarımları için lüzumlu malzeme türüdür.
- g. TALİ ÜRETİM : Başka bir üretimde kullanılabilecek ebat ve vasıfta olan ana üretim artıklarıdır.

h. HURDA VE ARTIK : Bir üretimde kullanılmak üzere alınan malzemenin o üretimde ya da başka üretimde kullanılamaz hale gelen artıkları ile, kullanılma ömrü biten malzeme ve demirbaş kalıntılarıdır.

ı. KODLAMA : İşletmeler arasında müşterek olarak kullanılan malzemenin lüzumsuz alım ve birikimini önlemek amacı ile tek bir isim ve belirli bir stok numarası altında toplama işlemidir.

j. STOK KONTROL : Malzeme stoklarının en ekonomik düzeyde tutulması ve en etkin şekilde yönetimini sağlamak, neyin ne zaman ve ne kadar alınacağını tespit etmek için kurulan düzendir.

k. EMNİYET STOK (KRİTİK STOK) : İşletme faaliyetlerinde bir aksamaya meydan vermemek için daha altına inilmesi sakıncalı kabul edilen stok seviyesidir.

Aşağıdaki tabloya göre saptanır :

<u>İkmal Müddeti</u>	<u>Emniyet Stok Seviyesi</u>
12 Ay	1 Aylık Sarfiyat
6 Ay	1,25 Aylık Sarfiyat
3 Ay	1,50 Aylık Sarfiyat
1 Ay	2 Aylık Sarfiyat

1. AZAMI STOK : En kötü koşullar dikkate alınarak, sarfiyatı karşılamak için, elde bulundurulması zorunlu en üst stok seviyesidir.

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(Asgari stok seviyesine sipariş miktarının ilavesi ile ulaşılabilir.)

m. ASGARİ STOK : Emniyet stok seviyesine, ikmal süresinde kullanılacak miktarın ilavesi ile bulunan miktardır.

n. SİPARİŞ MİKTARI : Genellikle lüzum fişinde belirlenen miktardır.

o. SİPARİŞ ZAMANI : Satış siparişlerine dayalı üretimlerde lüzum fişinin intikal ettiği, periyodik ürünlerde asgari stok'a inildiği zamandır.

5. SORUMLULUK : Yönetmeliğin düzenlediği şekilde anlaşılmasından ve yorumlanmasından ambarlar müdürlüğü, uygulamasından ve tatbikinden ambarlar müdürlüğü ve malzeme ile ilgisi bulunan ünite amirleri sorumludur.

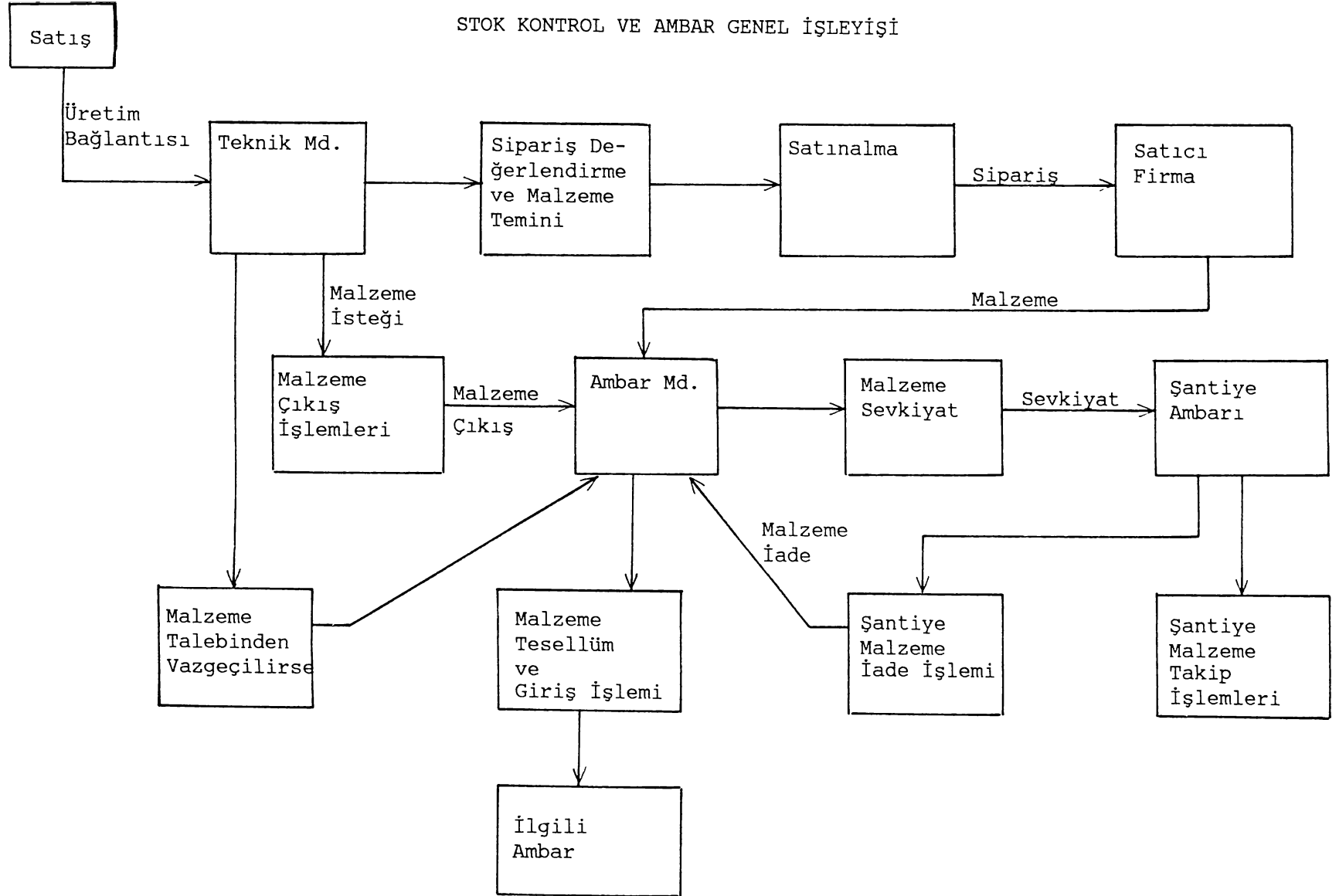
6. KONTROL : Yönetmeliğin iyi uygulanıp uygulanmadığı TEPE GRUBU üst yönetim ve/veya üst yönetimin belirleyeceği fert veya komisyonlar tarafından kontrol edilir. Üst yönetimden bu iş için görevlendirilenler, yönetime belirli dönemlerde rapor vermek zorundadır.

7. YÜRÜRLÜK : Bu yönetmelik TEPE GRUBU üst yönetiminin onayı ile yürürlüğe girer. Onayı takiben tüm teşkilata dağıtılır. Gizliliği yoktur.

8. TADİL : Yönetmelik her yıl Kasım ayında gözden geçirilerek tümü ya da bazı maddeleri onay alınmak suretiyle değiştirilebilir. Acil hallerde bu süreye tabi kalınmaz.

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# STOK KONTROL VE AMBAR GENEL İŞLEYİŞİ



## **APPENDIX B**

### **EDİNİLMESİ DÜŞÜNÜLEN BİLGİSAYAR SİSTEMİ**



## Edinilmesi Düşünülen Bilgisayar Sistemi (özet olarak)

Ana işlem birimi (1 adet)

Ana bellek (minimum 2MB)

Disk bellek (minimum 200 MB)

Ekranlı terminaller (başlangıçta 8 adet)

Teyp ünitesi (başlangıçta 1 adet)

Yazıcılar (başlangıçta 6 matriks yazıcı)

### 1. Ana İşlem Birimi

Sözcük boyu kaç bittir?

"Machine cycle time" nedir?

Kayan noktalı aritmetik özelliği nasıldır?

Kullanılan adresleme teknikleri nelerdir, doğrudan adreslenebilen bellek kapasitesi ne kadardır?

"Interrupt" tipleri ve düzeyleri nasıldır?

Veri transfer hızı ne kadardır?

"Error detection", "error recovery", "retry" özelliklerini belirtiniz.

I/O kanallarının sayısı, tipi, hızları ve bunlara bağlanabilecek donanım birimlerinin özelliklerini belirtiniz.

Güç kesilmesine karşı varsa önlemleri belirtiniz.

Görüntü bellek özelliği varsa belirtiniz.

Ana işlem birimine ilişkin diğer özellikleri belirtiniz.

## 2.Ana Bellek

Bellek kapasitesi başlangıçta en az 2MB olmalıdır.

Bellek birimine ilişkin özellikleri (bellek devir zamanı, bellek erişim zamanı ve diğer) belirtiniz.

Ana bellek büyüme adımlarını ve maksimum büyüme sınırını belirtiniz.

Erişim hızını etkileyen donanım özelliklerini ("cache memory", "dynamic memory", "memory interleaving" gibi) varsa belirtiniz.

Ana bellekte her bir kullanıcıya ayrılan bellek kapasitesini belirtiniz.

## 3.Disk Sürücü

En az 200 MB Sabit disk kapasitesi bulunmalıdır.

Disk kapasitesi asgari 1.000 MB ye kadar büyüebilmelidir.

Disk biriminin kapasite artış adımlarını ve maksimum disk kapasitesini belirtiniz.

Ortalama veri iletişim hızını ve disk birimlerinin özelliklerini belirtiniz.

## 4.Ekranlı terminaller

Kurulması planlanan sisteme başlangıçta 8 ekranlı terminal bağlanacak, bu sayı ileride ihtiyaç doğrultusunda artabilecektir (artış sayısının 40-45 terminale ulaşabileceği tahmin edilmektedir)

Terminallerin özellikleri ile önerilen sisteme maksimum kaç ekranlı terminal bağlanabileceğini belirtiniz.

Sisteme terminallerin modem ve modemsiz bağlanabilme koşullarını belirtiniz.

#### 5.Teyp Ünitesi

Sisteme bağlanabilen minimum ve maksimum teyp üniteleri sayısını "kartuş teyp" ve "streamer teyp" olarak belirtiniz.

Veri iletişim hızını ve teyp birimlerinin diğer özelliklerini belirtiniz.

#### 6.Yazıcılar

Sisteme başlangıçta 6 matriks yazıcı bağlanması düşünülmektedir.

Yazıcılara ilişkin özellikleri ve sisteme bağlanabilecek maksimum yazıcı sayısını belirtiniz.

Sisteme bağlanabilecek "line printer" ile ilgili teknik özellikleri belirtiniz.

#### 7.İletişim

Önereceğiniz sistem ile diğer sistemlerin iletişimlerini sağlayacak temel özellikleri belirtiniz.

Önereceğiniz sistem ile DOS işletim sistemi altında çalışan mikro-bilgisayarların iletişimini belirtiniz.

Sistem üzerinden sağlanabilecek diğer özellikleri belirtiniz.

#### 8.İşletim Sistemi

Önerilen sistemin işletim sistemi çoklu programlama, çoklu işlem

ve zaman paylaşımı özelliklerini sağlayabilen bir sistem olmalıdır.

İşletim sisteminin kullanıcılar, kütükler, bellek ve veri yönetimi açısından özelliklerini belirtiniz.

İşletim sisteminin diğer özelliklerini belirtiniz.

## 9.Yazılım

### Derleyiciler

Önerilen sistem üzerinde çalışan programlama dillerini belirtiniz.

Derleyiciler arası ilişki var mıdır? Buna ilişkin özellikleri belirtiniz.

### Hizmet programları

Sistemin üzerinde çalışan hizmet programlarını sıralayıp, özelliklerini belirtiniz.

### Paket Programlar

Sistemde bulunan metin düzenleyici, kelime işlemci, ekran formatlama gibi yazılım üretimine destek olan paket programları sıralayıp, özelliklerini belirtiniz.

Ofis otomasyonu sistemlerine ilişkin özellikleri belirtiniz.

### Veri Tabanı Yönetim Sistemi

Veri tabanı organizasyonuna ilişkin yöntemleri belirtiniz.

Veri tabanı organizasyonu ile programlama dilleri arasındaki ilişkinin niteliklerini belirtiniz.

Veri tabanı yönetim sistemine ilişkin diğer özellikleri belirtiniz.

#### 10. Altyapı ve montaj

Önerilen sisteme ilişkin montaj özelliklerini ve Bilgi İşlem Merkezi altyapısında gerekecek düzenlemeleri ve sisteme ilişkin teknik altyapı özelliklerini belirtiniz.

#### 11. Garanti ve bakım

Firmanız garanti ve bakım hizmetlerini ve koşullarını belirtiniz.

#### 12. Eğitim

Teklif edilecek sisteme ilişkin eğitim ve basılı yayın özelliklerini ve koşullarını belirtiniz.

#### 13. Süre

Önerilen sistemin kesin siparişten itibaren teslim süresini belirtiniz.

#### 14. Fiyat ve ödeme koşulları

Önerilen her bir donanım ve yazılım biriminin fiyatlarını ayrı ayrı, tüm birimlerin fiyatları üzerinden ödeme koşullarını belirtiniz.

**Not :** Konuya ilişkin sorunlarınız için Şirketimiz elemanlarından **Metin Arıkan**'ı aramanızı rica ederiz.