



Pathways to Higher Education Project

Center for Advancement of Postgraduate
Studies and Research in Engineering Sciences,
Faculty of Engineering - Cairo University
(CAPSCU)



Cairo University

Planning and Controlling

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**Cairo
2005**

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First Published 2005

Published by Center for Advancement of Postgraduate Studies and Research
in Engineering Sciences, Faculty of Engineering - Cairo University (CAPSCU)

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Deposit No. 2371/2005

ISBN 977-223-954-X

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Publisher Introduction

The Faculty of Engineering, Cairo University is a pioneer in the field of learning and continual education and training. The Center for Advancement of Postgraduate Studies and Research in Engineering Sciences, Faculty of Engineering - Cairo University (CAPSCU) is one of the pillars of the scientific research centers in the Faculty of Engineering. CAPSCU was established in 1974 in cooperation with UNIDO and UNESCO organizations of the United Nations. Since 1984, CAPSCU has been operating as a self-financed independent business unit within the overall goals of Cairo University strategy to render its services toward development of society and environment.

CAPSCU provides consultation services for public and private sectors and governmental organizations. The center offers consultation on contractual basis in all engineering disciplines. The expertise of the Faculty professors who represent the pool of consultants to CAPSCU, is supported by the laboratories, computational facilities, library and internet services to assist in conducting technical studies, research and development work, industrial research, continuous education, on-the-job training, feasibility studies, assessment of technical and financial projects, etc.

Pathways to Higher Education (PHE) Project is an international grant that was contracted between Cairo University and Ford Foundation (FF). During ten years, FF plans to invest 280 million dollars to develop human resources in a number of developing countries across the world. In Egypt, the project aims at enhancing university graduates' skills. PHE project is managed by CAPSCU according to the agreement signed in September 22nd, 2002 between Cairo University and Ford Foundation, grant No. 1020 - 1920.

The partners of the project are Future Generation Foundation (FGF), National Council for Women (NCW) and Faculties of Humanities and Social Sciences at Cairo University. A steering committee that includes representatives of these organizations has been formed. Its main tasks are to steer the project, develop project policies and supervise the implementation process.

Following the steps of CAPSCU to spread science and knowledge in order to participate in society development, this training material is published to enrich the Egyptian libraries. The material composes of 20 subjects especially prepared and developed for PHE programs.

Dr. Mohammad M. Megahed
CAPSCU Director
April 2005

Foreword by the Project Management

Pathways to Higher Education, Egypt (PHE) aims at training fresh university graduates in order to enhance their research skills to upgrade their chances in winning national and international postgraduate scholarships as well as obtaining better job.

Pathways steering committee defined the basic skills needed to bridge the gap between capabilities of fresh university graduates and requirements of society and scientific research. These skills are: mental, communication, personal and social, and managerial and team work, in addition to complementary knowledge. Consequently, specialized professors were assigned to prepare and deliver training material aiming at developing the previous skills through three main training programs:

1. Enhancement of Research Skills
2. Training of Trainers
3. Development of Leadership Skills

The diversity of activities and training programs offered by the project are numerous. These activities include:

1. Developing training courses to improve graduates' skills
2. Holding general lectures for PHE trainees and the stakeholders
3. Conducting graduation projects towards the training programs

Believing in the importance of spreading science and knowledge, Pathways management team would like to introduce this edition of the training material. The material is thoroughly developed to meet the needs of trainees. There have been previous versions for these course materials. Each version was evaluated by trainees, trainers and Project team. The development process of both style and content of the material is continuing while more courses are being prepared.

To further enhance the achievement of the project goals, it is planned to dedicate complete copies of PHE scientific publications to all the libraries of the Egyptian universities in order to participate in institutional capacity building. Moreover, the training materials will be available online on the PHE website, www.Pathways-Egypt.com.

In the coming phases, the partners and project management team plan to widen project scope to cover graduates of all Egyptian universities. It is also planned that underprivileged distinguished senior undergraduates will be included in the targeted trainees in order to enable their speedy participation in development of society.

Finally, we would like to thank the authors and colleagues who exerted enormous efforts and continuous work to publish this book. Special credit goes to Prof. Fouad Khalaf for playing a major role in the development phases and initiation of this project. We greatly appreciate the efforts of all members of the steering committee of the project.

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CU Cairo University

FF Ford Foundation

CAPSCU Center for Advancement of Postgraduate Studies and Research in Engineering Sciences, Faculty of Engineering - Cairo University

NCW National Council for Women

FGF Future Generation Foundation

Table of Contents

Course Objectives	1
Chapter 1: Basic Concept of Planning	2
1.1 Introduction	2
1.2 Planning: Its Meaning, Nature, and Importance	2
1.3 Planning Process	9
1.4 The Main Types of Plans and Applications	14
Chapter 2: Planning and Time	21
2.1 Gantt Charts	22
2.2 PERT (Program Evaluation and Review Technique)	23
Chapter 3: Controlling Process	27
3.1 Introduction	27
3.2 Prerequisites of the Control System	28
3.3 The Basic Control Processes	30
3.4 Most Common Methods and Techniques for Controlling	35
Chapter 4: Cases and Exercises	39
4.1 Case One	39
4.2 Case Two	39
4.3 Case Three	40
4.4 Case Four	41
4.5 Case Five	42
4.6 Case Six	42
Glossary	43
References	46

Course Objectives

Course Objectives



The general objectives of the course

After reading these materials, attending this course and absorbing its contents, you will be able to:

1. **Know what do we mean by objectives?** What are the main types of it? What is the importance of the organizational objectives setting? And how can we develop these organizational objectives?
2. **Understand planning;** its meaning, nature, and importance for both organizations and the people who are working in them.
3. **Practice planning** through following the main steps for developing a plan (the planning process and its steps).
4. **Figure out the main principles** for effective planning in organizations.
5. **Explain the interrelationship** of planning and controlling.
6. **Discuss the different types** of control and the major requirements for effective control, as well as its main barriers.
7. **Practice planning situations** and tasks for achieving the organizational and individuals objectives.
8. **Know the main tools** and techniques that can be used in planning and controlling.

Chapter 1: Basic Concept of Planning

When you study and understand this chapter, you will be able to:

- **Know** what we mean by planning.
- **Be familiar** with the nature of planning.
- **Know the necessity** and importance of planning.
- **Understand** and determine the main factors that affect the planning effectiveness level.
- **Distinguish** and figure out the main steps to be followed in planning.
- **Acknowledge** the planning subsystems.
- **Figure out** the different types of plans.

Introduction



1.1 Introduction

In recent decades, the term “**planning and controlling**” has become popularized widely in management circles. Most managers today – in business and service organizations – are at least familiar with this term and its general applications.

Planning and control are critical management activities regardless of the type of organization being managed. Modern managers face the challenge of sound planning and control in small and relatively simple organizations as well as in large, more complex ones, and in nonprofit organizations.

Planning: Its Meaning, Nature, and Importance



Definition of Planning

1.2 Planning: Its Meaning, Nature, and Importance

1.2.1 Definition of Planning

There are many definitions for the term “**planning,**” each person has his/her own ideas concerning the meaning of the term “**planning.**” Among the most common definitions for this term are

- **Planning is the process by which an individual or organization decides in advance on some future course of action** (Omran, 2002, p. 68).
- **Planning is the process of determining how the organization can get where it wants to go** (Certo, 2000, p. 126).
- **Planning involves selecting from among alternative future**

courses of actions for the organization as a whole and for every department or section within it. (Cook, Hunsaker, Coffey, 1999, p. 16).

The Nature of Planning



1.2.2 The Nature of Planning

The essential nature of planning can be highlighted by the four major aspects of planning: contribution to purpose and objective, primacy of planning, pervasiveness of planning, and efficiency of plans.

a) *Contribution to Purpose and Objectives,*

a) Contribution to Purpose and Objectives:

The purpose of every plan and all derivative plans is to facilitate the accomplishment of enterprise purpose and objectives. This principle derives from the nature of organized enterprise, which exists for the accomplishment of group purpose through deliberate cooperation. This was emphasized by koontz when he said:

“Plans alone can not make an enterprise successful. Action is required; the enterprise must operate. Plans can, however, focus on purposes. They can forecast which actions will tend toward the ultimate objective, which tend away, which will likely offset one another, and which are merely irrelevant. Managerial planning seeks to achieve a consistent, coordinated structure of operations focused on desired ends. Without plans, action must become merely random activity, producing nothing but chaos.” (Koontz et al., 1980, p. 157).

b) *Primacy of Planning,*

b) Primacy of Planning:

Planning is the primary management function, the one that precedes and is the basis for the organizing, influencing, staffing, leading and controlling functions of managers. This can be shown in Figure 1.1.

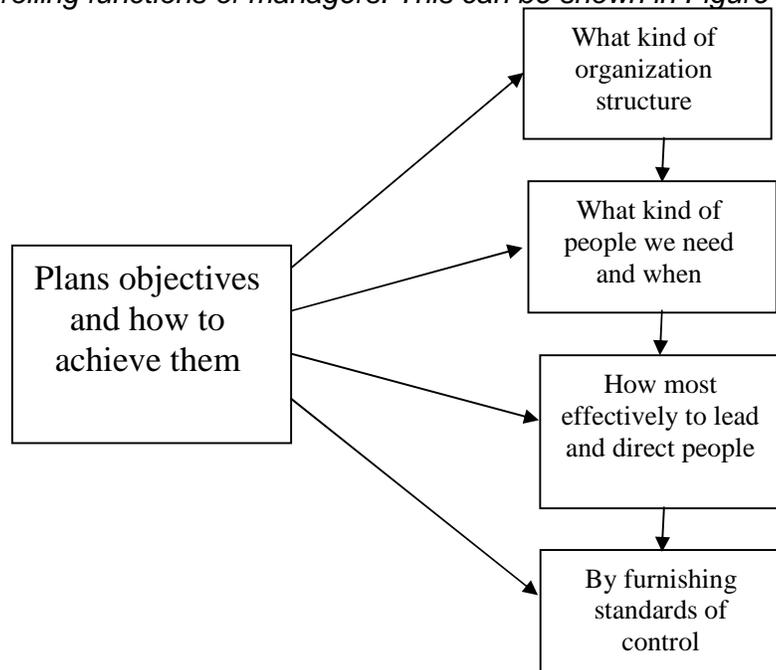


Figure 1.1: Planning precedes all other managerial functions

Although all the functions intermesh in practice as a system of action, planning is unique in that it establishes the objectives necessary for all group effort. Besides, plans must be made to accomplish these objectives before the manager knows what kind of organization relationships and personal qualifications are needed, along which course subordinates are to be directed and led, and what kind of control is to be applied. And, of course, all the other managerial functions must be planned if they are to be effective.

c) Pervasiveness
of Planning

c) Pervasiveness of Planning:

Planning is a function of all managers, although the character and breadth of planning will vary with their authority and with the nature of policies and plans outlined by their superiors. It is virtually impossible to circumscribe the area of choice where they can exercise no discretion, and unless they have some planning responsibility, it is doubtful that they are truly managers.

Recognition of the pervasiveness of planning goes far in clarifying the attempt on the part of some students of management to distinguish between policy making (the setting of guides for thinking in decision making and administration), or between the “manager” and the administrator” or “supervisor”.

One manager, because of his or her authority delegation or position in the organization, may do more planning or more important planning than another, or the planning of one may be more basic and applicable to a larger portion of the enterprise than that of another.

However, all managers – from presidents to supervisors – plan. The supervisor of a factory crew plans in a limited area under fairly strict rules and procedures. Interestingly, in studies of work satisfactions, a principal factor found to account for the success of supervisors at the lowest organization level has been their ability to plan.

d) Efficiency of
Plans

d) Efficiency of Plans:

The efficiency of a plan is measured by the amount it contributes to purpose and objectives as offset by the costs and other unsought consequences required to formulate and operate it. A plan can contribute to the attainment of objectives, but at too high or unnecessarily high costs. This concept of efficiency implies the normal ratio of input to output, but goes beyond the usual understanding of inputs and outputs in terms of pounds, labor hours, or units of production to include such value as individual and group satisfactions.

Many managers have followed plans, such as in the acquisition of certain aircraft by airlines, where costs were greater than the revenues obtainable. There have actually been some aircraft with which an airline was to make no money. Companies have inefficiently attempted to attain objectives in the face of the unsought consequence of market unacceptability, as happened when a motor car manufacturer tried to capture a market by emphasizing engineering without competitive advances in style.

Plans may also become inefficient in the attainment of objectives by jeopardizing group satisfactions. The new president of a company that was losing money attempted quickly to recognize and cut expenses by wholesale and unplanned layoffs of key personnel. This result in fear, resentment, and loss of morale led to so much lower productivity as to defeat his/her laudable objective of eliminating losses and making profits. And some attempts to install management appraisal and development programs have failed because of group resentment of the methods used, regardless of the basic soundness of the programs.

The nature of planning can be figured out from these four major aspects of planning:

- a. Contribution to purpose and objectives,
- b. Primacy of planning,
- c. Pervasiveness of planning, and
- d. Efficiency of plan

The Importance of Planning



a) To Offset
Uncertainty and
Change

1.2.3 The Importance of Planning

The planning function has four important goals:

- a) *To offset uncertainty and change.*
- b) *To focus attention on objectives,*
- c) *To gain economical operation, and*
- d) *To facilitate control.*

a) To Offset Uncertainty and Change

Organizational planning has two purposes: protective and affirmative. The protective purpose of planning is to minimize risk by reducing the uncertainties surrounding business conditions and clarifying the consequences of related management actions. The affirmative purpose is to increase the degree of organizational success.

Future uncertainty and change make planning a necessity. Just as the navigator cannot set a course once and forget about it, so the business manager cannot establish a goal and let the matter rest. The future is seldom very certain, and the further in the future the results of a decision must be considered, the less the certainty.

Even when the future is highly certain, some planning is usually necessary. In the first place, there is the necessity of selecting the best way to accomplish an objective with conditions of certainty; this becomes primarily a mathematical problem of calculating on the basis of known facts, which course will field the desired result at the least cost. In the second place, after the course has been decided, it is necessary to lay out plans so that each part of the organization will contribute toward the job to be done.

Even when trends indicating changes are easily discernible, difficult planning problems arise.

Ex: The manufacture of television sets is a case in point. The change away from black and white to color television did not take place overnight. The manufacturer had to determine what percentage of production should be assigned to color sets and what to black and white and how to retain efficient production of both lines

*b) To Focus
Attention on
Objectives*

b) To Focus Attention on Objectives

Because all planning is directed toward achieving enterprise objectives, the very act of planning focuses attention on these objectives. Considered overall plans unify interdepartmental activities. Managers, being typically immersed in immediate problems, are forced through planning to consider the future and even consider the periodic need to revise and extend plans in the interest of achieving their objectives.

*c) To Gain
Economical
Operation*

c) To Gain Economical Operation

Planning minimizes costs because of the emphasis on efficient operation and consistency. It substitutes joint directed effort for uncoordinated piecemeal activity, even flow of work for uneven flow, and deliberate decisions for snap judgments.

The economy of planning is plainly seen at the production level. No one who has watched the assembly of automobiles in one of the larger factories can fail to be impressed with the way that the parts and subassemblies come together. This implies extensive detailed planning without which the manufacture of automobiles would be chaotic and impossible costly.

Although every manager sees the imperative economy of importance in other areas, it is occasionally left to chance and too great individual discretion.

d) To Facilitate

Control

d) To Facilitate Control

Managers can not check on their subordinate accomplishments without having planned goals against which to measure. *There is no way to measure control without plans to use as standards.*

Read and think about this statement

“After I leave my office at five O’clock in the evening, I will not care what happen today, for I can not do anything about it; I will only care about what will happen tomorrow or the next day or next year, because I can do something about it.”

Factors that may
Make Planning
Effective

**1.2.4 Factors that may Make Planning Effective**

The research data indicate that under most circumstances planning is a positive force for organizational goal attainment. It is also true that a great many chief executives of large corporations view it as important. However, there are many factors that may make planning effective, among them:

- a) **Effectively done**, planning can contribute to reduced role ambiguity and role conflict. When policy planning has been carried out, and clear role prescriptions have resulted, individuals are more likely to know what they are supposed to do and the probability that conflicting forces will push them in two directions at once is considerably reduced.
- b) **Closely allied to the first point**, effective planning tends to limit arbitrary actions by individual superiors.
- c) **Because role prescriptions** are the ultimate result, planning leads to a reduction of uncertainty within the organization.
- d) **Planning produces a greater capacity** to deal with uncertainty in the environment external to a company, as well as internal uncertainty. Effective planning makes it much less likely that a company will be caught off guard and suffers accordingly. Thus positive adjustment to a sudden shift in market demand is much more likely if such a shift has been forecast and new role prescriptions established for dealing with this contingency.
- e) **The very process of planning tends** to lead to decision making that deals with more factors and takes more considerations into account. Systematic planning requires a look at a long list of variables which might influence events. Without such a systematic consideration of influences and alternatives, the likelihood that something of importance will be

overlooked is very high. Thus, planning by its very nature tends to force a manager to take into account factors that might not otherwise be considered, and to tie plans more closely to operative goals involving both task and maintenance.

- f) **Planning is important** in that it contributes to the performance of other management functions. Typically the tie between planning and control has been emphasized, as shown in Figure 1.2.

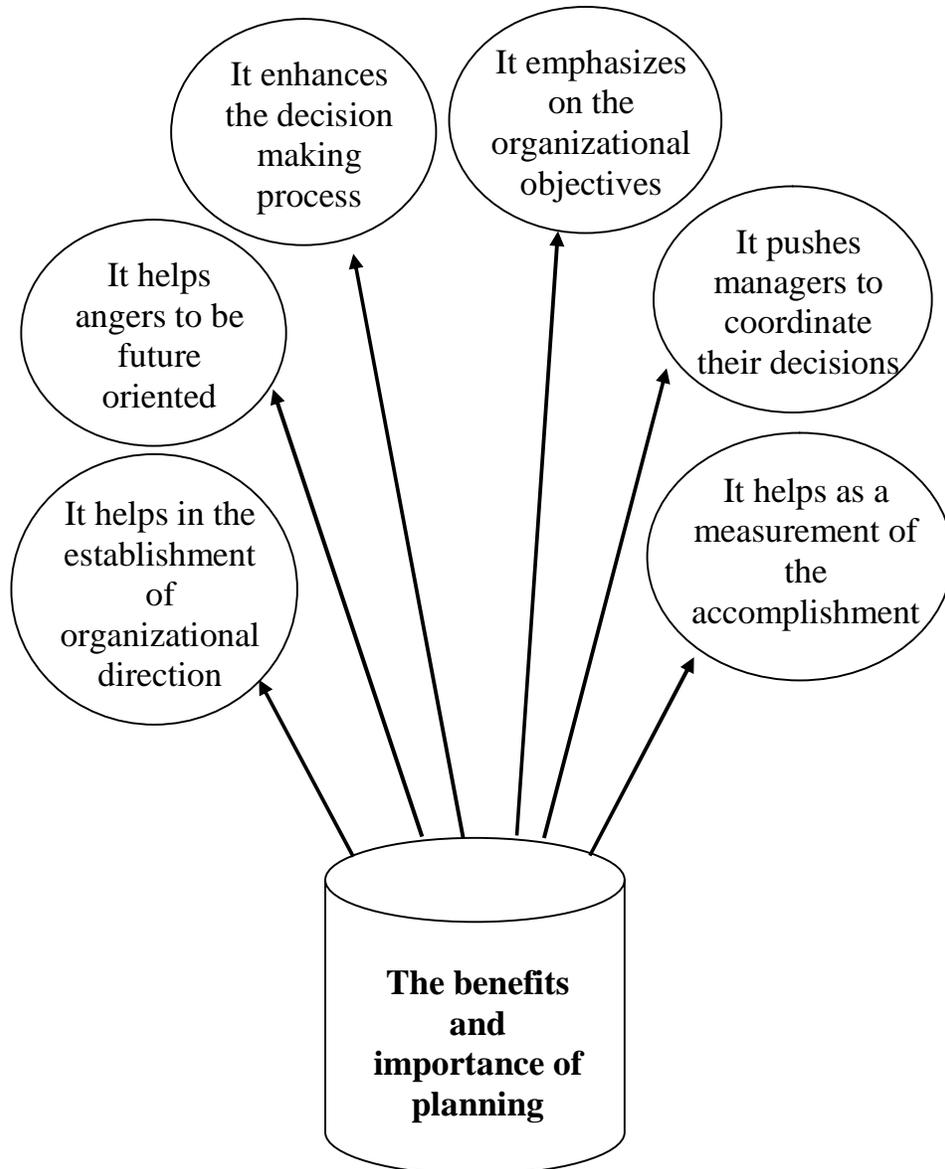


Figure 1.2: Why planning is needed?



1.3 Planning Process

How to set a plan? (Steps in planning process): The planning process consists of the following steps that can be shown in Figure 1.3.

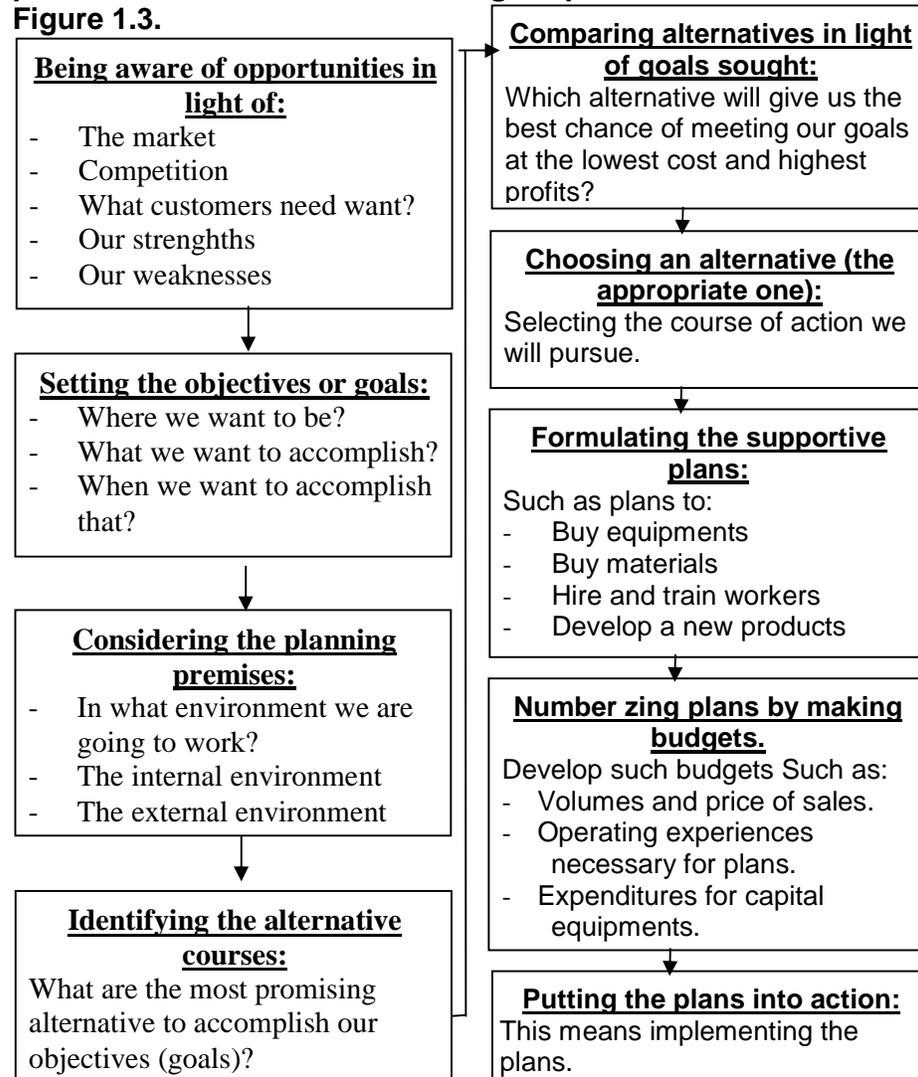


Figure 1.3: Main steps in the planning process

1.3.1 Being Aware of Opportunity

Being Aware of Opportunity

Although preceding actual planning and therefore not strictly a part of the planning process, awareness of an opportunity is the real starting point for planning. It includes a preliminary look at possible future opportunities and the ability to see them clearly and completely, knowledge of where we stand in the light of our strengths and weaknesses, an understanding of why we wish to solve uncertainties, and a vision of what we expect to gain. **Setting realistic objectives depends on this awareness. Planning requires realistic diagnosis of the opportunity situation.**

Establishing Objectives



1.3.2 Establishing Objectives

The first step in planning itself is to establish objectives for the entire enterprise and then for each subordinate unit. Objectives specifying the results expected indicate the end points of what is to be done, where the primary emphasis is to be placed, and what is to be accomplished by the network of strategies, policies, procedures, rules, budgets and programs.

Enterprise objectives should give direction to the nature of all major plans which, by reflecting these objectives, define the objectives of major departments. Major department objectives, in turn, control the objectives of subordinate departments, and so on down the line. The objectives of lesser departments will be better framed, however, if subdivision managers understand the overall enterprise objectives and the implied derivative goals and if they are given an opportunity to contribute their ideas to them and to the setting of their own goals.

An objective can be defined as the end point goal toward which management directs its efforts and resources. (Sisk, 1993, p. 112). The statement of an objective is in effect a statement of purpose, and when applied to a business organization becomes the statement of that firm's reason for existing.

However, there are four outstanding benefits that result from the statement of objectives, these are:

- a) Objectives provide direction
- b) Objectives serve as motivators
- c) Objectives contribute to the management process
- d) Objectives are the basis for management philosophy
- e) Objectives serve as a guide for organizational consistency

Meanwhile, the objectives can be separated into four categories: organizational, individual, internal, and external objectives.

Considering the Planning Premises



1.3.3 Considering the Planning Premises

Another logical step in planning is to establish, obtain agreement to utilize and disseminate critical planning premises. **These are forecast data of a factual nature, applicable basic policies, and existing company plans. Premises, then, are planning assumptions – in other words, the expected environment of plans in operation. This step leads to one of the major principles of planning.**

The more individuals charged with planning understand and agree to utilize consistent planning premises, the more coordinated enterprise planning will be.

Forecasting is important in premising; for example,

- What kind of markets will there be?
- What quantity of sales?
- What are the products and its prices?
- What are the technical developments required?
- What are the costs?
- What are the required policies?
- How will expansion be financed?
- What is the expected nature of political and social environment?

Planning premises include far more than the usual basic forecasts of population, prices, costs, production, markets, and similar matters.

- *A difficulty of establishing complete premises and keeping them up-to-date is that every major plan, and many minor ones, becomes a premise for the future.*
- *As one moves down the organization hierarchy, the composition of planning premises changes somehow.*

Because the future environment of plans is so complex, it would not be profitable or realistic to make assumptions about every detail of the future environment of a plan.

Since agreement to utilize a given set of premises is important to coordinate planning, it becomes a major responsibility of managers, starting with those at the top, to make sure that subordinate managers understand the premises upon which they are expected to plan. It is not unusual for chief executives in well-managed companies to force top managers with differing views, through group deliberation, to arrive at a set of major premises that all can accept.

Determining
and Identifying
the Alternative
Courses



1.3.4 Determining and Identifying the Alternative Courses

Once the organizational objectives have been clearly stated and the planning premises have been developed, the manager should list as many available alternatives as possible for reaching those objectives.

The focus of this step is to search for and examine alternative courses of action, especially those not immediately apparent. There is seldom a plan for which reasonable alternatives do not exist, and quite often an alternative that is not obvious proves to be the best.

The more common problem is not finding alternatives, but reducing the number of alternatives so that the most promising may be analyzed. Even with mathematical techniques and the computer, there is a limit to the number of alternatives that may be examined. It

is therefore usually necessary for the planner to reduce by preliminary examination the number of alternatives to those promising the most fruitful possibilities or by mathematically eliminating, through the process of approximation, the least promising ones.

Evaluating
these
Alternative
Courses



1.3.5 Evaluating these Alternative Courses

Having sought out alternative courses and examined their strong and weak points, the following step is to evaluate them by weighing the various factors in the light of premises and goals. One course may appear to be the most profitable but require a large cash outlay and a slow payback; another may be less profitable but involve less risk; still another may better suit the company in long-range objectives.

If the only objective were to examine profits in a certain business immediately, if the future were not uncertain, if cash position and capital availability were not worrisome, and if most factors could be reduced to definite data, this evaluation should be relatively easy. But typical planning is replete with uncertainties, problems of capital shortages, and intangible factors, and so evaluation is usually very difficult, even with relatively simple problems. A company may wish to enter a new product line primarily for purposes of prestige; the forecast of expected results may show a clear financial loss, but the question is still open as to whether the loss is worth the gain.

Because the number of alternative courses in most situations is legion and the numerous variables and limitations are involved, evaluation can be also exceedingly complex. Due to these complexities, the newer methodologies and applications of operation research and analysis are helpful.

1.3.6 Selecting the Appropriate Course of Action

Selecting the
Appropriate
Course of
Action



An evaluation of alternatives must include an evaluation of the premises on which the alternatives are based. A manager usually finds that some premises are unreasonable and can therefore be excluded from further consideration. This elimination process helps the manager determine which alternative would best accomplish organizational objectives.

1.3.7 Developing Plans to Pursue the Chosen Alternative

Developing
Plans to
Pursue the
Chosen
Alternative

*After the appropriate alternative has been chosen, a manager begins to develop **strategic (long range)** and **tactical (short-range)** plans.*

1.3.8 Numberizing Plans by Budgeting

Numberizing
Plans by
Budgeting



After decisions are made and plans are set, the final step to give them meaning is to numberize them by converting them to budgets. The overall budgets of an enterprise represent the sum total of income and expenses with resultant profit or surplus and budgets of major balance-sheet items such as cash and capital expenditures. Each department or program of a business or other enterprise can have its own budgets, usually of expenses and capital expenditures, which tie into the overall budget.

If this process is done well, budgets become a means of adding together the various plans and also important standards against which planning progress can be measured.

1.3.9 Putting the Plans into Action

Putting the
Plans into
Action



Once plans that furnish the organization with both long-range and short-range direction have been developed, they must be implemented. Obviously, the organization can not directly benefit from planning process until this step is performed.

The planning subsystem:

We can illustrate the planning subsystems in Figure 1.4.

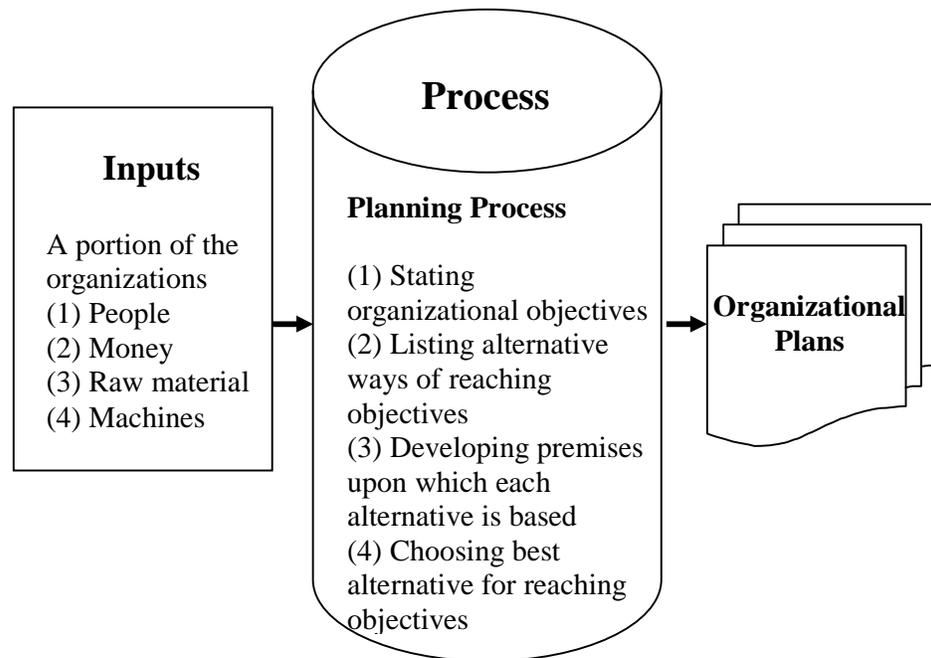


Figure 1.4: Planning subsystem

1.4 The Main Types of Plans and Applications

The Main Types of Plans and Applications



Before illustrating the main types of plans and applications, let us present the major dimensions of plans in Figure 1.5.

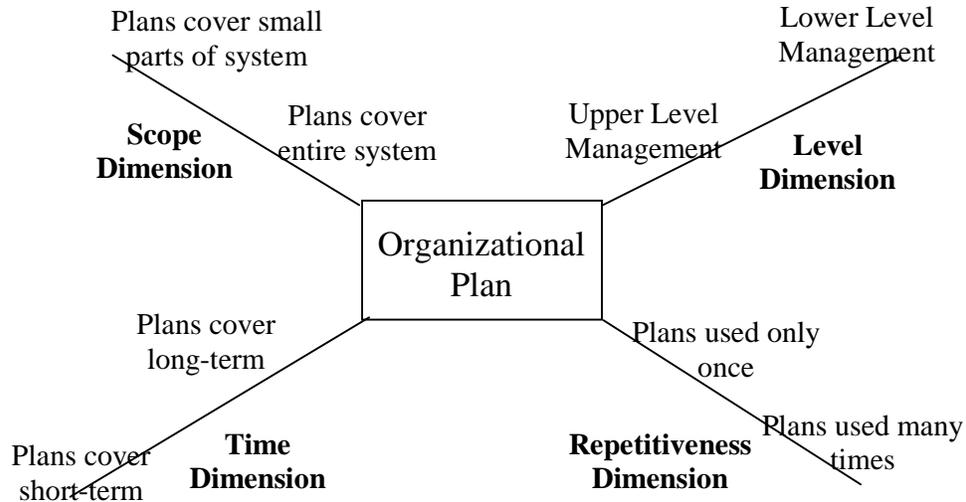


Figure 1.5: Major dimensions of plans

Where;

- a) Repetitiveness dimension of a plan
- a) **Repetitiveness dimension of a plan** refers to the extent to which the plan is used over and over again. Some plans are specially designed for one situation that is relatively short-term in nature. Other plans are designed to be used time after time for long-term recurring situations.
- b) The time dimension
- b) **The time dimension** refers to the length of time the plan covers. **Strategic planning** was defined as long-term in nature, while **tactical planning** was defined as short-termed.
- c) The scope dimension
- c) **The scope dimension** refers to the proportion of the total management system at which the plan is aimed. **Some plans are designed to cover the entire open management system.** This plan is often referred to as a master plan. Other plans are developed to cover only a portion of management system.
- d) The level dimension
- d) **The level dimension** refers to the level of the organization at which the plan is aimed. **Top level plans are those designed for the organization's top management,** whereas middle and lower level plans are designed for middle and lower management.

The plan's four major dimensions are:

- Repetitiveness
- Time
- Scope
- Level

Based on the previous discussion about the plan's dimensions; we can summarize the most common types of plans according to the repetitiveness dimension in Figure 1.6.

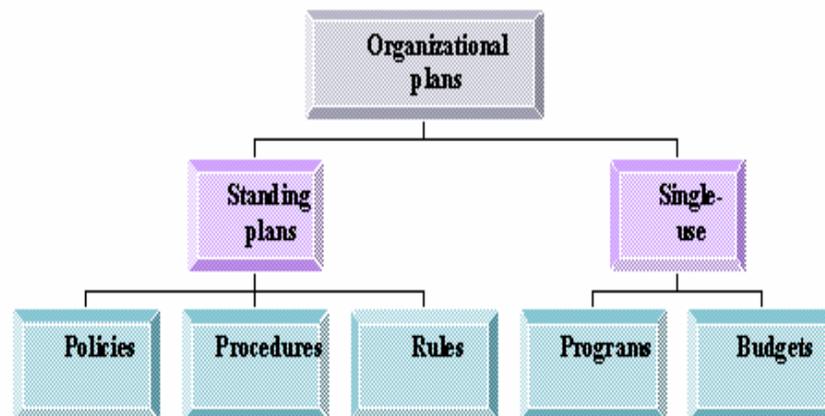


Figure 1.6: Types of plans

1.4.1 The Standing Plans

The Standing Plans



Those include plans that are used over and over again because they focus on organizational situations that occur repeatedly. Examples for them are

a) The policy

b) Procedures

c) Rules

- a) **The policy:** is a standing plan that furnishes broad guidelines for action, consistent with reaching organizational objectives.
- b) **Procedures:** are standing plans that outline a series of related actions that must be taken to accomplish a particular task.
- c) **Rules:** are standing plans that are designate specific required action. **A rule indicates what an organization member should or should not do and allows no room for interpretation.**

1.4.2 The Single Used Plans

The Single Used Plans



Single used plans such as:

- a) **Program:** is a single use plan designed to carry out a specific project within an organization. The project itself is not intended to remain in existence over the entire life of the organization. Rather, it exists to achieve some purpose. That if accomplished, will contribute to the organization's long-term success.

- b) **Budget:** is a single use financial plan that covers a specified length of time. It is a statement that expresses the expected results in numerical terms. It may be referred to as “a numberized program”.

Also, we can brief the most common types of plans according to the time dimension in the following;

a) Strategies:

a) *Strategies*

The strategy is the process of achieving a fit between an organization’s capabilities and its evolving environment to achieve a favorable position within the competitive marketplace.

Strategies pertain to those destiny-shaping decisions concerning:

- The choice of technologies on which products are based
- The development and release of new products
- The processes for producing products and services
- The way they are marketed, distributed, and priced
- The way the firm responds to rivals

However, the planning process cannot and should not cover every aspect of an individual’s job or an organization’s activity. Planning should cover the key elements of what is to be accomplished rather than the details which are not critical to the achievement of overall goals or objectives

b) Tactical or Operational Plan

b) *Tactical or Operational Plan*

This is concerned primarily with establishing short- term goals and action programs. Organizations usually carry out formal operational plans on a regular yearly basis however, **there are some differences between the strategic and the tactical plans, and we can show these differences in Table 1.1.**

Table 1.1: Major differences between strategic and tactical planning

Area of difference	Strategic Planning	Tactical Planning
• Individuals involved	• developed mainly by upper-level management	• Developed mainly by lower-level management.
• Facts on which to base planning	• are relatively difficult to gather	• are relatively easy to gather.
• Amount of detail in plans	• Plans contain relatively little amount of details	• Plans contain substantial amount of details.
• Length of time plans cover	• Plans cover long period of time	• Plans cover short period of time



Steps for
developing
strategy

How we can develop a strategic plan?

Strategic planning is a good example of the planning process. Basically strategic planning includes developing alternative courses of actions and choosing one of them. Thus, developing strategic plan involves the following steps:

Step one: Determine the current domain of the enterprise in terms of the scope (i.e., determining the products and services it offers and to whom).

Step two: What are the political, social, and economic trends we have to consider? What product and/or technological changes we anticipate will affect our organization?

Step three: Determine the current strengths and weaknesses. This means that management must analyze the organizations operational, financial, and managerial strengths and weaknesses.

Step four: Decide what target domain (or business) we want to be in and the best strategy for being there. This means, that management must develop alternatives and analyze each in light of the organization's strengths and weaknesses as well as the opportunities and threats it will face.

Step five: Set specific objectives. Once you have developed a new strategic plan, it should be quantified in terms of goals such as:

Ex.: Obtain a 20% share of the soft drink market within 5 years, and double advertising expenditures each year for the next 5 years.



Effective
planning
principle

What are the main principles for having effective planning?

There are many, among the most important of them:

- (1) *Develop accurate forecasts*
- (2) *Gain acceptance for the plan*
- (3) *Make sure the plan is sound*
- (4) *Assign responsibility for planning*
- (5) *Be objective*
- (6) *Keep the plan flexible*
- (7) *Revise your long- term plan every year*
- (8) *Make sure that the plan fits the situation*



Causes of failure

Why plans fail?

If managers know why plans fail, they can take steps to eliminate the factors that cause failure and thereby increase the probability that there plans will be successful. *Plans fail when:*

- (1) *Corporate planning is not integrated into the total management system,*
- (2) *There is a lack of understanding of the different steps of planning process,*
- (3) *Management at different levels in the organization has not properly engaged in or contributed to planning activities,*
- (4) *Responsibility for planning is wrongly vested solely in the planning department,*
- (5) *Management expects that plans developed will be realized with little effort,*
- (6) *In starting formal planning, too much is attempted at once,*
- (7) *Management fails to operate by the plan,*
- (8) *Management fails to grasp the overall planning process,*
- (9) *Financial projections are confused with planning,*
- (10) *Inadequate inputs are used in planning.*

Key Points to be Remembered

- Most managers – in business and service organizations today are at least familiar with the term planning and its applications.
- There is no completely agreement among the people - even the researchers – with regard the definition of planning, as each has his or her definition that represents his/her opinion.
- Among the most common definition for planning: planning is the process by which an individual or organization decides in advance on some future course of action.
- The purpose of every plan and all derivative plans is to facilitate

Key Points to be remembered



the accomplishment of enterprise purpose and objectives.

- Planning is the primary management function, but it is included in the other managerial functions.
- Planning is a function of all managers, although the character and breadth of planning will vary with their authority and with the nature of policies and plans outlined by their supervisors.
- The efficiency of a plan is measured by the amount it contributes to purpose and objectives.
- The nature of planning can be figured out from these major aspects of planning:
 - (a) Contribution to purpose and objective.
 - (b) Primacy of planning.
 - (c) Pervasiveness of planning.
 - (d) Efficiency of plans.
- The importance of planning can be figured out from the following points:
 - (a) Planning offsets uncertainty and change.
 - (b) Planning focuses the attention on the objectives.
 - (c) Planning gains economical operations.
 - (d) Planning facilitates control.
- There are many factors affect the effectiveness of planning.
- There are many steps for developing any plan (planning processes), they are:
 - (a) Being aware of opportunity.
 - (b) Establishing objectives.
 - (c) Considering the planning premises.
 - (d) Determining and identifying the alternative courses.
 - (e) Evaluating these alternatives.
 - (f) Selecting the appropriate course of action.
 - (g) Developing plans to pursue the chosen alternative.
 - (h) Number zing plans by budget.
 - (i) Putting the plans into action.
- There are many outstanding benefits that result from the statement of planning objectives, these are:
 - (a) Objectives provide direction.
 - (b) Objectives serve as motivators.
 - (c) Objectives contribute to the management process.
 - (d) Objectives are the basis for management philosophy.
 - (e) Objectives serve as a guide for organizational consistency.
- There are many types of plans; this depends on the major dimensions of plans.

- The major dimensions of plans are:
 - (a) Repetitiveness dimension.
 - (b) Time dimension.
 - (c) The scope dimension.
 - (d) The level dimension.
- Examples for plans: policies, procedures, rules, programs, budgets, strategies, tactical.
- There are many steps for developing strategy, they are:
 - (a) Determine the current domain of the enterprise.
 - (b) Determine the different trends (Social, economical.....)
 - (c) Determine the current strengths and weaknesses.
 - (d) Decide the target domain.
 - (e) Set specific objectives.
- The main principles for effective planning are:
 - (a) Develop accurate forecasts.
 - (b) Gain acceptance for the plan.
 - (c) The plan must be sound.
 - (d) Be objective.
 - (e) The plan must be flexible.
 - (f) It must fit the situation.
- There are many reasons for planning failure, among the most important of them:
 - (a) The plan is not integrated into the total management system.
 - (b) Management at different levels has not properly engaged in or contributed to planning activities.
 - (c) Management fails to operate by the plan.
 - (d) Using inadequate inputs in planning.
 - (e) The failure of management to grasp the overall planning process.

Chapter 2: Planning and Time

Objectives



The learning objectives of this chapter

After reading and completely understanding this unit, you will be able to know:

- The key factors which should be considered in determining how far into the future an organization should try to plan.
- Why the length of plans within organizations should vary depending on the job level of the person planning.
- The role of planning tools such as GANTT and PERT charts in aiding short-term planning.

How far ahead should we plan?

There is no fixed rule which says precisely how far into the future an organization should plan. There are, however, **a number of factors that should be considered carefully during the process of deciding the time span to be covered.** Among the most important are:

- (1) **The expected degree of organizational permanency**
- (2) **The size and complexity of the organization**
- (3) **The nature of the products or services offered**
- (4) **The resources needed to implement the plan**

The relationship between the job level and the timing of planning

The particular job level or responsibility of any individual within an organization has an important impact on the time period for which that person should plan.

We can illustrate the relationship between the job level (the hierarchy of the organizational structure) and the time spent in planning in Figure 2.1.

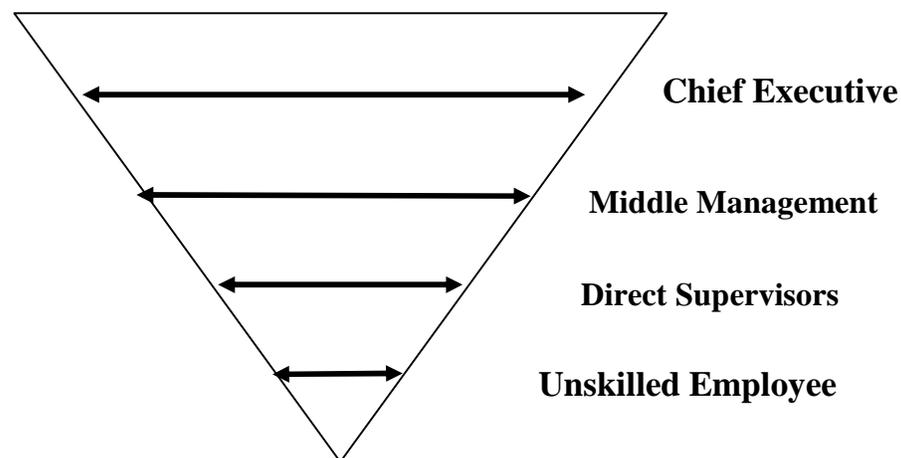


Figure 2.1: Relationship between job level and timing of planning

According to Figure 2.1, individuals at the top of an organization have to take a longer view than any other person. Conversely, those with the entry level responsibilities plan on very short horizons.

The chief executive of an organization is responsible for the survival and overall direction of the organization. The person in that role should be thinking about what could and should be done in the months, years, and possibly generations ahead.

The middle manager, who is often charged with the responsibility of one area or function within the organization, must interrelate planning with other units of the organization and with the organizational structure in which he or she reports.

The direct line supervisor or manager may have significant impact on the future of an organization but typically has little personal involvement with the decisions reached about the future.

The individual whose job requires specific skills will confine most of his job planning to hours, days, and at most weeks.

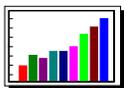
Methods / Techniques for Short-Term Job Planning

Among the most common are:

- (a) Gantt charts.
- (b) PERT system/charts.

2.1 Gantt Charts

Gantt Charts



Gantt charts are very helpful where there is little or no relationship between successive activities or where the times to complete a task have been established. Unfortunately, such ideal conditions do not always exist.

Gantt chart is essentially a bar graph with time on the horizontal axis and the resources to be scheduled on the vertical axis. It is used for scheduling resources, including management system inputs such as human resources and machines. We can illustrate this in Figure 2.2.

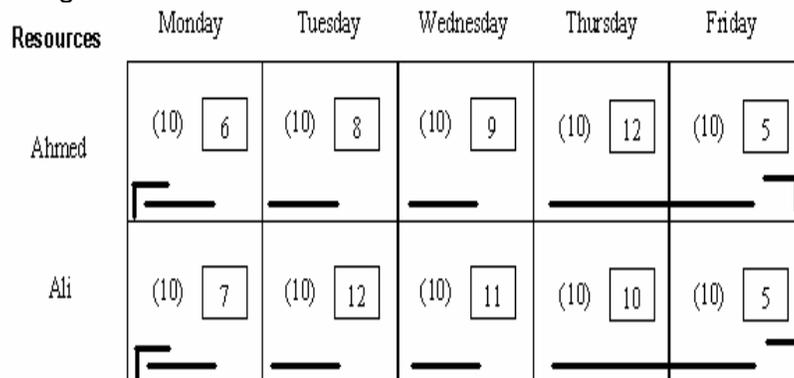


Figure 2.2: Work Week Second

$\hat{}$	= planned units of production for period,
\square	= actual units of production for period.
Γ	= when work is to begin.
\lrcorner	= when work is to end.
--	= percentage of work actually completed during a time period.

Figure 2.2 shows a completed Gantt chart for a work period. The resources scheduled over the five workdays on this chart were the human resources (Ahmed and Ali). During this week, both Ahmed and Ali were supposed to produce 10 units a day. However, the actual production deviated from planned production. There were days when each of the two workers produced more than 10 units, as well as days when each produced fewer than 10 units. Cumulative actual production for workweek shows that Ahmed produced 40 units and Ali produced 45 units over the five days.

Features: Although simple in concept and appearance, the Gantt chart has many valuable managerial uses, these are:

First: managers can use it as a summary overview of how organizational resources are being employed.

Second: from it, you can detect such facts as which resources are consistently contributing to productivity and which are hindering it.

Third: managers can use the Gantt chart to help coordinate organizational resources. The chart can show which resources are not being used during specific periods, thereby allowing managers to schedule those resources for work on other production efforts.

Fourth: the chart can be used to establish realistic worker output standards.



2.2 PERT (Program Evaluation and Review Technique)

The main weakness of Gantt chart is that it does not contain any information about the interrelationship of tasks to be performed. Although all tasks to be performed are listed on the chart, there is no way of telling if one task must be performed before another can be started. The program evaluation and review technique (PERT), a technique that evolved partly from the Gantt chart, is a scheduling tool that does emphasize the interrelationship of tasks.

PERT:
Definition

But, what do we mean by PERT?

PERT is a network of project activities showing both the estimates of time necessary to complete each activity and the sequence of activities that must be followed to complete the project.

The PERT network contains two primary elements, activities, and events. Activities are specified sets of behavior within a project, and events are the completions of major project tasks. Within the PERT network, each event is assigned corresponding activities that must be performed before the event can materialize.

PERT: Steps
for its design

Steps in designing a PERT network

When designing a PERT network, managers should follow four primary steps:

Step (1): List all the activities / events that must be accomplished for the project and the sequence in which these activities / events should be performed.

Step (2): Determine how much time will be needed to complete each activity / event.

Step (3): Design a PERT network that reflects all of the information contained in step (1) and (2).

Step (4): Identify the critical path. We can show this in Figure 2.3 that represents a PERT network designed for building a house.

However, managers need to pay close attention to the critical path of PERT network – the sequence of events and activities requiring the longest period of time to complete. This path is called critical because a delay in completing this sequence results in a delay in completing the entire project.

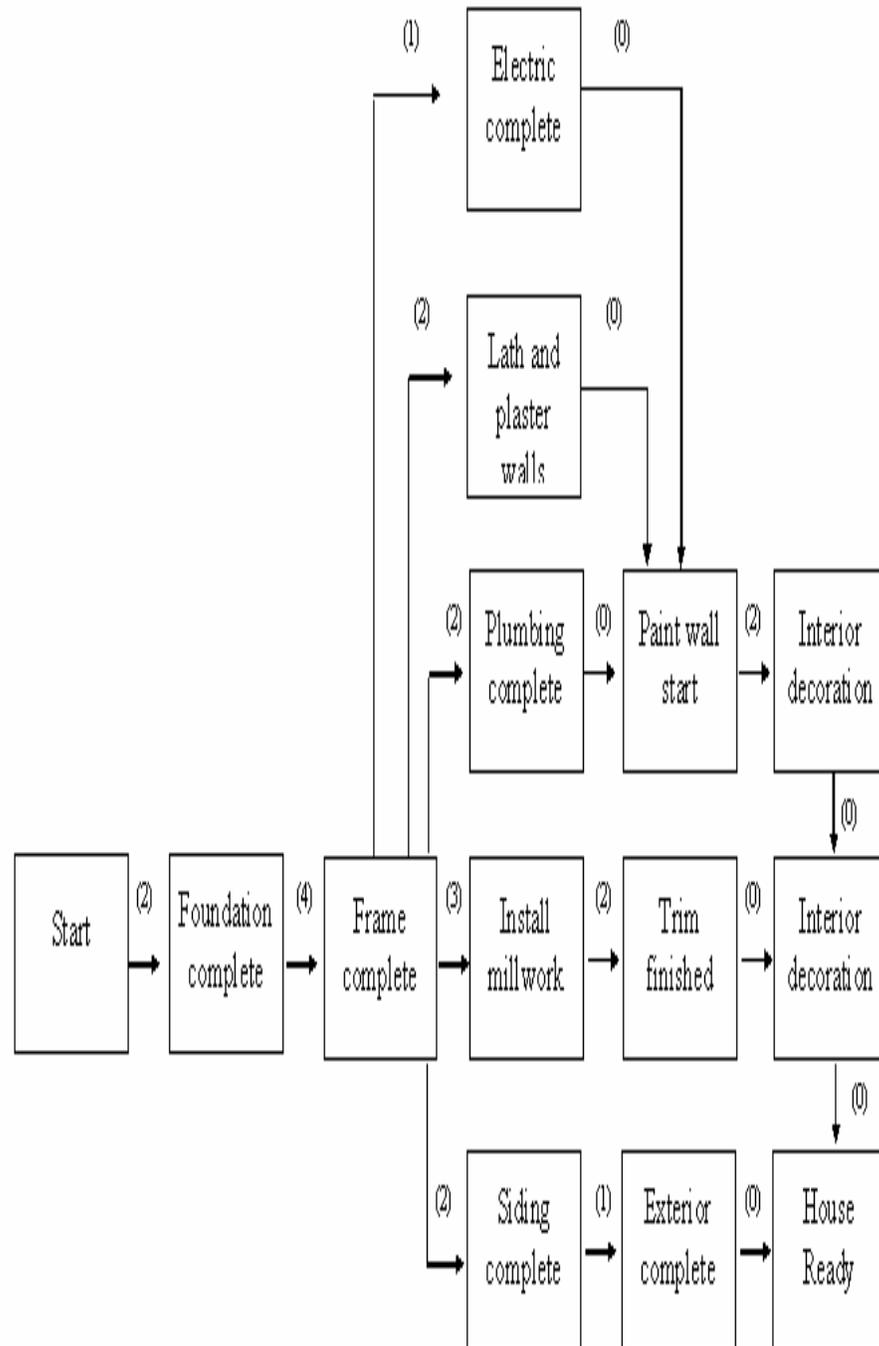


Figure 2.3: PERT network design for building a house

Key Points

**Key Points to be Remembered**

- There are many factors affect the time span of planning, among the most important of them:
 - (a) The expected degree of change.
 - (b) The size and degree of complexity.
 - (c) The nature of the product of service.
 - (d) The needed and the available resources.

- There is a relationship between the job level and the timing of planning.

- There are many methods and techniques for short-term planning, among the most important of them:
 - (a) Gantt chart.
 - (b) PERT system.

- Gantt chart is essentially a bar graph with time on the horizontal axis and the resources to be scheduled on the vertical axis.
- PERT = Program Evaluation and Review Technique: is a network of project activities showing both the estimates of time necessary to complete each activity and the sequence of activities that must be followed to complete the project.
- There are many steps to be followed for developing the PERT network.

Chapter 3: Controlling Process

Objectives



The learning objectives

When you study and understand this chapter, you will be able to:

- **Understand** the meaning (definition) of control
- **Understand** the controlling subsystem
- **Know** the main steps to be followed in order to develop an accurate and effective control
- **Distinguish** between the different types of control
- **Know** the various potential barriers that must be overcome to implement successful control
- **Know** the different methods and techniques for accomplishing an effective and efficient control
- **Understand** the relationship between the planning and controlling functions (processes)
- **Get familiar** with some areas of control

Introduction



3.1 Introduction

Setting plans, establishing the structure and directing the people do not guarantee that every thing in the organization is going well. We must make sure that all the work activities are going as they were determined in the plan and through the channels which have been established.

Thus, control process is very important for all types of organizations (profit or nonprofit, industrial, agricultural, commercial, or scientific, large or small, public or private).

What is control? (Meaning and nature)

The function of management control is regarded as one of the most difficult tasks that focus the executive functioning in the modern business world. Meanwhile, there are no common agreement regarding the definition of control as each researcher or writer has his/ her own definition. However, among the most **common definitions** are:

Control:
Meaning and
nature

Definition

Steps for
controlling

- **Control is making sure that something happen the way it was planned to happen. As implied in this definition, planning and controlling are virtually inseparable functions.** (Certo, 2000, p. 422).
- **Control is the task of ensuring that the activities are providing the desired results.** (Omran, 2001, p. 162).

Based on this, control involves:

1. **Setting a target (criteria),**
2. **Measuring the actual performance. and**
3. **Taking the corrective actions.**

The importance
of control

Why control is important (its necessity)?

If you could be sure that every task you assigned would be perfectly executed, you really would not need to control. **But things rarely go this smoothly. Most plans are executed by people, and people vary widely in their abilities, motivation, and honesty.** Furthermore, plans themselves become outdated and require revision. For these reasons and more, control is an important management function.

Control applies to controlling every task - whether it was large or small - you delegate. Thus, for every task you delegate, you should establish a control mechanism, and the way of ensuring that performance is in line with plans.

Prerequisites
of the Control
System



Control
Requires
Plans



3.2 Prerequisites of the Control System

Two major prerequisites must exist before any manager can devise or maintain a system of control. **These prerequisites are:**

3.2.1 Control Requires Plans

It is obvious that before a control technique can be used or a system devised, control must be based on plans, and that the clearer, more complete, and more integrated plans are, the more effective controls can be. It is simple as this:

There is no way that managers can determine whether their organizational unit is accomplishing what is desired and expected unless they first know what is expected.

This simple truth means several things in practice:

First: All meaningful control techniques are, in the first instance, planning techniques.

Second: It is fruitless to try to design control without first taking into account plans and how well they are made.

The relationship between planning and control can be shown in Figure 3.1.

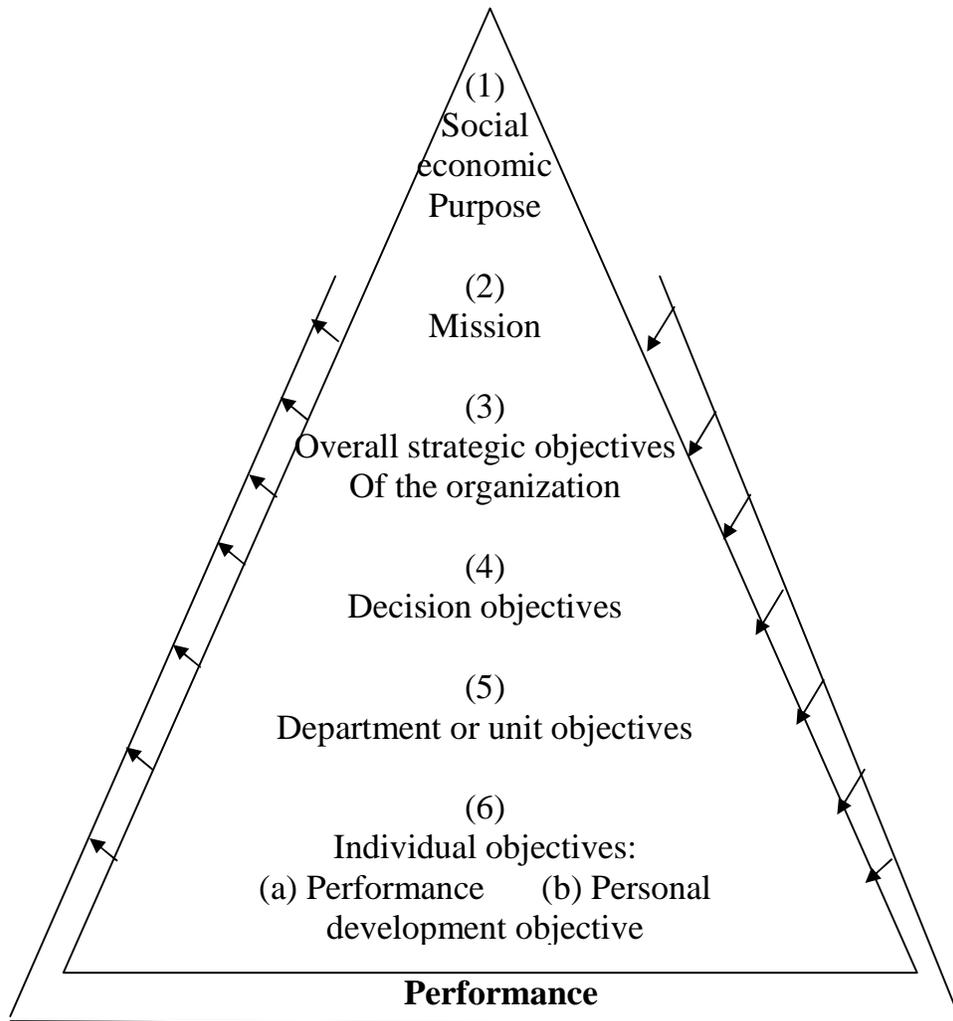


Figure 3.1: Relationship between planning and controlling

Controls
Require
Organization
Structure



3.2.2 Controls Require Organization Structure

Since the purpose of control is to measure activities and take action to assure that plans are being accomplished, we must also know where responsibility of an enterprise for deviating from plans and taking action to make corrections, lies. **Control of activities operates through people.** But we can not know where the responsibility for deviations and needs action are, unless organizational responsibility is clear and definite. Therefore, **a major prerequisite of control is the existence of an organization structure.** The clearer, more complete, and more integrated this structure is, the more effective control action can be.

One of the most frustrating situations managers can find themselves in is knowing that something is going wrong in their company agency or department and not knowing exactly where the responsibility for the trouble lies.

3.3 The Basic Control Processes

Control techniques and systems are essential for every thing done. **The basic control process involves mainly these steps as shown in Figure 3.2.**

The Basic
Control
Processes



The
Establishment
of Standards

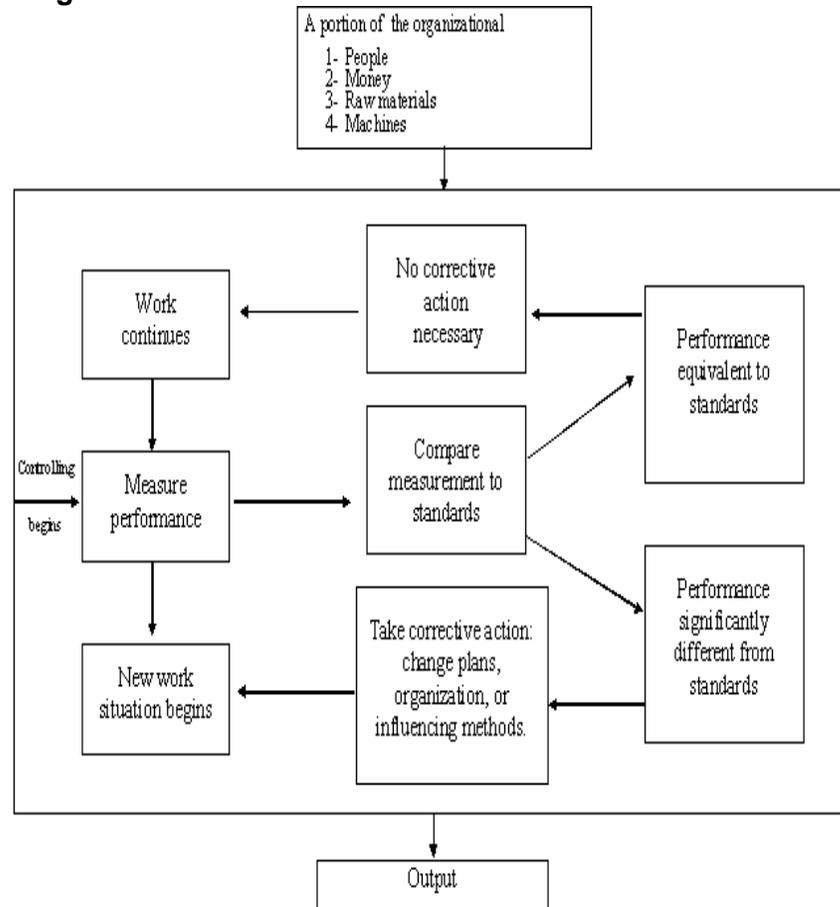


Figure 3.2: Controlling process and subsystem

3.3.1 The Establishment of Standards

Because plans are the yardsticks against which controls must be revised, it follows logically that the first step in the control process would be to accomplish plans. **Plans can be considered as the criterion or the standards against which we compare the actual performance in order to figure out the deviations.**

Standards are by definition is a simple criteria of performance. They are the selected points in an entire planning program where measures of performance are made so as to give managers signals as to how things are going without having to watch every step in the execution of plans.

Examples for the standards

- Examples**
- a) Profitability standards
 - b) Market position standards
 - c) Productivity standards
 - d) Product leadership standard
 - e) Employee attitude standards
 - f) Social responsibility standards
 - g) Long range goals

- a) **Profitability standards:** In general, *these standards indicate how much the company would like to make as profit over a given time period- that is, its return on investment.*
- b) **Market position standards:** *These standards indicate the share of total sales in a particular market that the company would like to have relative to its competitors.*
- c) **Productivity standards:** *How much that various segments of the organization should produce is the focus of these standards.*
- d) **Product leadership standards:** *These indicate what must be done to attain such a position.*
- e) **Employee attitude standards:** *These standards indicate what types of attitudes the company managers should strive to indicate in the company's employees.*
- f) **Social responsibility standards:** *Such as making contribution to the society.*
- g) **Standards reflecting the relative balance between short and long range goals.**

The Measurement of Performance



3.3.2 The Measurement of Performance

The measurement of performance against standards should be on a forward looking basis so that deviations may be detected in advance by appropriate actions. The degree of difficulty in measuring various types of organizational performance, of course, is determined primarily by the activity being measured. For example, it is far more difficult to measure the performance of highway maintenance worker than to measure the performance of a student enrolled in a college level management course.

Comparing Measured Performance to Stated Standards



3.3.3 Comparing Measured Performance to Stated Standards

When managers have taken a measure of organizational performance, their next step in controlling is to compare this measure against some standard. **A standard is the level of activity established to serve as a model for evaluating organizational performance.** The performance evaluated can be for the organization as a whole or for some individuals working within the organization. **In essence, standards are the yardsticks that determine whether organizational performance is adequate or inadequate.**

3.3.4 Taking Corrective Actions

Taking Corrective Actions



After actual performance has been measured compared with established performance standards, the next step in the controlling process is to take corrective action, if necessary. **Corrective action is managerial activity aimed at bringing organizational performance up to the level of performance standards. In other words, corrective action focuses on correcting organizational mistakes that hinder organizational performance.** Before taking any corrective action, however, managers should make sure that the standards they are using were properly established and that their measurements of organizational performance are valid and reliable.

At first glance, it seems a fairly simple proposition that managers should take corrective action to eliminate problems - the factors within an organization that are barriers to organizational goal attainment. In practice, however, it is often difficult to pinpoint the problem causing some undesirable organizational effect.

Once the problem has been properly identified, corrective action can focus on one or more of the three primacy management functions of planning, organizing and influencing.



What are the main types of control?

There are mainly **three types of control**, these are:

- Types of control
- a) Pre control
- b) Concurrent control

- a) **Pre control:** control that takes place before work is performed is called pre control, or **feed-forward control**. *Managers using this type of control create policies, procedures, and rules aimed at eliminating behavior that will cause undesirable work results.* For example, the manager of a small record shop may find that a major factor in attracting return customers is having salespeople discuss records with customers. This manager might use pre control by establishing a rule that sales people cannot talk to one another while a customer is in the store. This rule is a pre control because it is aimed at eliminating anticipated problems; salespeople can be so engrossed in conversation with one another that they neglect to chat with customers about records. **In summary, pre control focuses on eliminating predicted problems.**
- b) **Concurrent control:** this refers to **the control that takes place as work is being performed.** *It relates not only to employees performance but also to such nonhuman areas as equipment performance and department appearance.*
- c) **Feedback Control:** this refers to **the control that concentrates on the post organizational**

c) *Feedback Control*

performance. Managers exercising this type of control are attempting to take corrective action by looking at organizational history over a specified time period. This history may involve only one factor, such as inventory levels, or it may involve the relationships among many factors, such as the net income before taxes, sales volume, and marketing costs.



What are the requirements for adequate controls?

Requirements for adequate control

It is known that all managers want to have an adequate and effective system of control to assist them in making sure that events conform to plans.

Indeed, we can say that, if controls are to work, they must be tailored. In short, they must be tailored to:

- a) **Plans and positions**
- b) **Individual managers and their responsibilities**
- c) **The needs for efficiency and effectiveness**

Accordingly;

a) Control should be tailored to plans and positions

This means that, **all control techniques and systems should reflect the plans they are designed to follow.** This is because every plan and every kind and phase of an operation has its unique characteristics.

a) Control should be tailored to plans and positions

EX: controls for the sales department will differ from those for the finance department and those for the purchasing and personnel departments.

b) Control must be tailored to individual managers and their responsibilities

This means that **controls must be tailored to the personality of individual managers.** This because control systems and information are intended to help individual managers carry out their function of control. If they are not of a type that a manager can or will understand, they will not be useful.

b) Control must be tailored to individual managers and their responsibilities

What individual managers can not understand, they will not trust, and what they will not trust, they will not use

c) Control should point up exceptions as critical points

c) Control should point up exceptions as critical points

This is because by concentration on exceptions from planned performance, *controls based on the time honored exception principle allow managers to detect those places where their attention is required and should be given.* However, it is not enough to look at exceptions, because some deviations from standards have little meaning and others have a great deal of significance.

d) Control should be objective

d) Control should be objective

This is because when controls are subjective, a manager's personality may influence judgments of performance inaccuracy.

Objective standards can be quantitative such as costs or man hours per unit or date of job completion. They can also be qualitative in the case of training programs that have specific characteristics or are designed to accomplish a specific kind of upgrading of the quality of personnel.

e) Control should be flexible

e) Control should be flexible

This means that **controls should remain workable in the case of changed plans, unforeseen circumstances, or oversight failures.**

Much flexibility in control can be provided by having alternative plans for various probable situations.

f) Control should be economical

f) Control should be economical

This means that **control must worth their cost.** Although this requirement is simple, its practice is often complex. This is because a manager may find it difficult to know what a particular system is worth, or to know what it costs.

g) Control should lead to corrective actions

g) Control should lead to corrective actions

This is because a control system will be of little benefit if it does not lead to corrective action, control is justified only if the indicated or experienced deviations from *plans are corrected through appropriate planning, organizing, directing, and leading.*



What are the main barriers to successful controlling?

There are many barriers, among the most important of them:

Main barriers to successful controlling

- (1) Control activities **can create an undesirable overemphasis** on short-term production as opposed to long-term production.
- (2) Control activities **can increase employees' frustration** with their jobs and thereby reduce morale. This reaction tends to occur primarily where management exerts too much control.
- (3) Control activities **can encourage the falsification** of reports.

- (4) Control activities can **cause the perspectives of organization** members to be too narrow for the good of the organization.
- (5) Control activities **can be perceived as the goals of the control process** rather than the means by which corrective action is taken.

3.4 Most Common Methods and Techniques for Controlling

Most Common
Methods and
Techniques
for Controlling

Q: What are the most common methods and techniques for controlling?

3.4.1 The Traditional Control Devices (the Budget)

A widely used device for managerial control is the budget. Indeed, it has sometimes been assumed that budgeting is the device for accomplishing control.

The
Traditional
Control
Devices



Budgeting is the formulation of plans for a given future period in numerical terms. Thus budgets are statements of anticipated results, in financial terms - as in revenue and expense and capital budgets - or in no financial terms - as in budgets of direct- labor hours, materials, physical sales volume or units of production.

Through numerical statement of plans and breaking of these plans into components consistent with the organization structure, budgets force and correlate planning and allow authority to be delegated without loss of control.

However, there are many types of budgets such as:

- Revenue and expense budgets
- Time, space, material, and product budgets
- Capital expenditure budgets
- Cash budgets
- Balance sheet budgets
- Budget summaries
- Zero- base budgeting

3.4.2 The Traditional no Budgetary Control Devices

The
Traditional no
Budgetary
Control
Devices

There are, of course, many traditional control devices not connected with budgets, although some may be related to, and used with, budgetary controls. Among the most important of these are: statistical data, special reports and analysis, analysis of break- even points, the operational audit, and the personal observation.



i) Statistical data

i) Statistical data:

Statistical analyses of innumerable aspects of a business operation and the clear presentation of statistical data, whether of a historical or forecast nature are, of course, important to control. *Some managers can readily interpret tabular statistical data, but most managers prefer presentation of the data on charts.*

ii) Break- even point analysis:

An interesting control device is the break even chart. **This chart depicts the relationship of sales and expenses in such a way as to show at what volume revenues exactly cover expenses.**

ii) Break- even point analysis

Break- because it emphasizes the marginal concept.

iii) Operational audit:

Another effective tool of managerial control is the **internal audit** or, as it is now coming to be called, the operational audit. *Operational auditing, in its broadest sense, is the regular and independent appraisal, by a staff of internal auditors, of the accounting, financial, and other operations of a business.*

iii) Operational audit

iv) Personal observation:

In any preoccupation with the devices of managerial control, one should never overlook the importance of control through personal observation.

iv) Personal observation

3.4.3 The Advanced and Quantitative Techniques and Devices:**The Advanced and Quantitative Techniques and Devices****a) Program Evaluation and Review Technique (PERT)****b) Control Through Return-on Investment (ROI)****c) Just-In-Time Inventory Control (JIT)**

It is a technique for reducing inventories to a minimum by arranging for production components to be delivered to the production facility “just-in-time” to be used. JIT works best in companies that manufacture relatively standardized products for which there is consistent demand.

a) PERT

b) ROI

c) JIT

d) Ratio Analysis

A ratio is a relationship between two numbers that is calculated by dividing one number into the other. **Ratio analysis is the process of generating information that summarizes the financial position of an organization through the calculation of ratios based on various financial measures that appear on the organization’s balance sheet and income statements.**

d) Ratio Analysis

e) Management by Objective and Appraisal by Results (MBO)

In MBO, the manager assigns a specialized set of objectives and action plans to workers and then rewards those workers on

e) *MBO* the basis of how close they come to reaching their goals. *This control technique has been implemented in corporations intent on using an employee-participative means to improve productivity.*

f) Decision Tree Analysis

It is a statistical and graphical multi phased decision making technique that can be used in controlling.

f) *Decision Tree Analysis*

g) Computer-Aided Design (CAD)

h) Computer-Aided Manufacturing (CAM)

g) *CAD*

i) Total Quality Management (TQM)

Refers to a quest in an organization, **TQM expands the traditional view of quality—looking only at the quality of the final product or services – to looking at the quality of every aspects of the process that produces the product or service.** *TQM systems are intended to prevent poor quality from occurring. Successful TQM programs are built through the dedication and combined efforts of everyone in the organization.*

h) *CAM*

i) *TQM*

Key points to be remembered

Key points to be remembered



- **Control is the task of ensuring that the activities are providing the desired results.**
- **The control process involves:**
 - (a) **Setting the target (criteria).**
 - (b) **Measuring the actual performance.**
 - (c) **Taking the corrective actions.**
- **There are many prerequisites for developing any controlling system, among them is that the important of:**
- **Control requires plans, as plans become the standards by which desired actions are measured.**
- **The basic control processes are:**
 - (a) **The establishment of standards.**
 - (b) **The measurement of performance.**
 - (c) **Comparing measured performance to stated standards.**
 - (d) **Taking corrective action.**
- **There are many types of control, among them:**
 - (a) **Pre control.**
 - (b) **Con current control.**
 - (c) **Feedback control.**

- **Pre control or feed-forward control** refers to the control that takes place before work is performed.
- **Concurrent control** refers to the control that takes place as work is being performed.
- **Feedback control** refers to the control that concentrates on the past organizational performance.
- **Control must be tailored to:**
 - (a) Plans and positions.
 - (b) The individual managers and their responsibilities.
 - (c) The needs for efficiency and effectiveness.
- **Control should be objective, flexible, and economical.**
- **There are many barriers to successful controlling:**
 - (a) Control activities can create an undesirable overemphasis on short-term objectives.
 - (b) Control activities can increase employees frustration with their jobs and this in turn will decrease the morale level.
 - (c) Control activities can encourage the falsification of reports.
 - (d) Control activities can be perceived as the goals of the control process rather than the means by which corrective action is taken.
- **The most common methods and techniques for controlling.** Among the traditional control devices the budget.
- **Among the most non budgetary control devices:** the statistical data, the break even point analysis, the operational audit the personal observation.
- **The advanced and quantities techniques and devices for control are:**
 - (a) PERT (program evaluation and review techniques)
 - (b) Control through return on investment (ROI)
 - (c) Just in time (JIT) system.
 - (d) Ratio analysis.
 - (e) Management by objectives and appraisal by results.
 - (f) Decision Tree analysis.
 - (g) Computer aided design (CAD).
 - (h) Computer aided manufacturing (CAM).
 - (i) Total quality management (TQM).

Chapter 4: Cases and Exercises

Objectives



The main objectives of this chapter are:

- Develop the individual conceptual skills through joining the theoretical concepts with the applications
- Develop the practical and technical skills regarding the planning and controlling processes
- Be able to apply what mentioned in units one, two and three in the real life in any of the business or non business areas

Case One



4.1 Case One

Ahmed Ali is the purchasing director of Technosales Company, a rapidly growing distributor of high technology products to the semiconductor industry. When a planning system was introduced to the firm last month, Ahmed said “I can understand how planning could be helpful to other departments such as Marketing and finance, but in purchasing we must stay up with constant product changes offered by our suppliers. We have trouble deciding what we will buy today much less than what we will be buying next month or next year.

- 1) Do you agree or disagree with Ahmed?
- 2) What reasons would you use to substantiate your opinion?

Case Two



4.2 Case Two

Yara Khaled was promoted to a case work supervisor in the social services department of a large and growing county government. Yara had been a case worker in the department for eight years, during which time the number of case workers had grown from 25 to 27. Having taken on a new job, Yara was asked by her supervisor to develop a plan for her group which consisted of 15 people. She began by listing each case worker’s area, the number of visits each would make to clients, and the amount spent on each case.

She subsequently asked each case worker to send her a breakdown of the number of cases each expected to make by week and by month. In addition, she also obtained from each a calendar of steps to be taken for each of the 50 individual clients assigned to each case worker. After compiling this information, Yara presented it to her supervisor, stating that she now had a plan.

Required:

What comments would you make about Yara's plan? According to what you got and understood in chapters one and two. (Hint: you can take in your consideration the Figure 4.1).

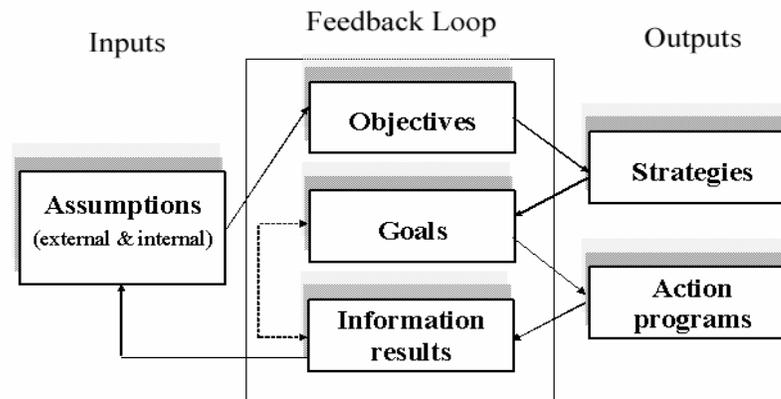


Figure 4.1: Planning model

Case Three



4.3 Case Three

As a highly motivated young entrepreneur Mohamed decided it was time to start his own enterprise. Having sold many private residences as a sales representative, Mohamed felt that the logical move was to build and sell individual homes. After much thought and with the knowledge that he could borrow some capital from his father, Mohamed decided to build two houses on speculation. He planned to start one in six months and the second when the first house was nearly completed. He obtained a contractor's license, necessary building permits, secured the land, had plans drawn, and set a goal of making L.E. 8000 profit on each house. He obtained price lists on lumber supplies and investigated pay scales for labor. Using appropriate formulas for figuring labor and material costs he felt he would be ready to begin construction when the ground thawed by mid April which was still five months hence.

- (1) What important aspects of the planning process might he have overlooked?
- (2) What impact could this oversight have on Mohamed's ability to reach his profit goal?

Skill developers

Skill developers

*1) understanding
planning
process*

- (1) Understanding of the planning process is still quite limited, although in some organizations many people have a working knowledge of the process. To determine the extent of knowledge in your area, do the following:
 - (a) Select five persons from among your friends, coworkers or acquaintances.

- (b) Ask them to write down in three or four sentences what they think planning is.
 - (c) Compare in one paragraph for each person their ideas with the model described, what parts are similar? What steps are missing?
- 2) *Locate formal planning process*
- (2) Locate one organization that claims to have a formal planning process (company, government organization, school, university system...etc). Discuss their planning process with someone who is involved in the process. Compare their process with the model described.

Case Four



4.4 Case Four

Nader Ahmed owns the Rex Shoe store. Rex is located in the downtown area in a medium sized Midwestern city and sells a broad line of shoes for all members of the family. Nader, who is 35 years old, had started the business after returning from military service 15 years previously. His success in the business was the result of his ability to anticipate changing shoe style.

In the past three years his sales have held constant although the total sales of shoes in the entire metropolitan area (central city and suburbs) have grown substantially. To stimulate business he tried special sales, staying open occasionally until 9 pm., but results did not improve. Large shoe chains have been taking a greater share of sales in the area and a typical chain shoe store does, in each of its locations, about three times the amount of business that Nader does.

Nader is a good friend of yours and comes to you for advice.

- (1) **What strategy might you suggest that he consider?**
- (2) **What are your reasons for your recommendations?**

		Shoe sales in metropolitan areas	Average chair store sales per location	Shoe company
Previous year		L.E. 4,100,000	L.E. 600,000	L.E. 179,000
2 nd year	Previous	L.E. 3,700,000	L.E. 540,000	L.E. 178,000
3 rd year	Previous	L.E. 3,500,000	L.E. 500,000	L.E. 175,000

Case Five



4.5 Case Five

Seventy percent of the business volume of the Osman construction company is in the building of state and federal highways. Competition in highway construction predominantly comes from firms within 50 to 75 Km of the city in which Osman company is located. This is primarily because the high cost of moving concrete or asphalt products to the job site prevents economical long distance hauling of materials or equipment. Osman has its own sand and gravel pits a few Km out of town and sells both to itself and competitors.

Selection of the bidding contractor is usually made six months to a year before work is begun and major jobs take about three years to complete once started.

What are the key factors Osman's highway division should consider in determining how far into the future it should plan? What would your recommendations be and how would you support those recommendations?

Case Six



4.6 Case Six

El-Arabi Electronics Manufacturing Company is well known for the quality of the internal and attachable antennae it makes for the manufacturers of high fidelity and stores receiving equipment. Kamel Omran, quality control director, was very concerned about limiting antennae rejects and established an annual department-wide objective of having no more than 8 percent of department production rejected because of mistakes or errors in manufacture. Kamel realized that too few rejections might mean an excessive attention to detail rather than production. Too many rejections, of course, would become very costly.

Required:

Describe or outline what control and feedback procedures you feel might be needed for Kamel plan to be effectively tracked and measured.

Glossary

Glossary



Accountability: refers to the management philosophy whereby individuals are held liable, or accountable for how they use their authority.

Activity: are specified sets of behavior within a product.

Authority: is the right to perform, give orders and commands for others.

Break–Even Analysis: is a control tool that summarizes the various levels of profit or loss associated with various levels of production.

Budget: is a control tool that outlines how funds will be obtained and spent in a given period.

Computer–Aided Design (CAD): is a computerized technique for designing new products or modifying existing ones.

Computer–Aided Manufacturing (CAM): is a technique that employs computers to plan and program equipment used in the production and inspection of manufactured items.

Control: is making something happen the way it was planned to happen.

Controlling: is the process managers go through to control. It is a systematic effort to compare performance to predetermined standards, plans, or objectives to determine whether performance is in line with those standards or needs to be corrected.

Concurrent Control: refers to control that takes place when work is being performed.

Corrective Action: is managerial activity aimed at bringing organizational performance up to the level of performance standards.

Decision: is a choice made between two or more available alternatives.

Decision Tree: is a graphic decision making tool typically used to evaluate decisions involving a series of steps.

Feedback Control: refers to control that concentrates on the past organizational performance.

Gantt Chart: is a scheduling tool composed of a bar chart with time on the horizontal axis and the resources to be scheduled on the vertical axis. It is used for scheduling resources.

Forecasting: is a planning tool used to predict future environmental happenings that will influence the operation of the organization.

Just-in-Time (JIT): is a technique for reducing inventories to a minimum by arranging for production components to be delivered to the production facility, Just in time to be used.

Management: is the process of reaching organizational goals by working with and through people and other organizational resources. **Management by Objective (MBO):** is a management approach that uses organizational objectives as the primary means of managing organizations.

Operations Control: is an operational plan that specifies the operational activities of an organization.

Plan: is a specific action proposed to help the organization achieve its objectives.

Planning: is the process of determining how the management system will achieve its objectives. In other words, it determines how the organization can get where it wants to go.

Policy: is a standing plan that furnishes broad guidelines for channeling management toward taking action consistent with reaching organizational objectives.

Pre control: refers to the control that takes place before work is being performed.

Program: is a single use plan designed to carry out a special project in an organization.

PERT: program evaluation and review technique – is a scheduling tool that is essentially a network of project activities showing estimates of time necessary to complete each activity and the sequence of activities that must be followed to complete the project.

Ratio Analysis: is a control tool that summarizes the financial position of an organization by calculating ratios based on various financial measures.

Rule: is a standing plan that designates specific required action.

Standard: is the level of activity established to serve as a model for evaluating organizational performance.

SWOT Analysis: is a strategy development tool that matches internal organizational strengths and weaknesses with external opportunities and threats.

Time Dimension: of a plan is the length of time the plan covers.

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