PROJECT MANAGEMENT

IN INTERIOR DESIGN SERVICES

A THESIS

SUBMITTED TO THE DEPARTMENT OF

INTERIOR ARCHITECTURE AND ENVIRONMENTAL DESIGN

AND THE INSTITUTE OF FINE ARTS

OF BİLKENT UNIVERSITY

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE OF MASTER OF FINE ARTS

By

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January, 1997

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ABSTRACT

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IN INTERIOR DESIGN SERVICES

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M.F.A. in Interior Architecture and Environmental Design

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January, 1997

In this study, the concept of project management is analyzed within the framework of interior design services. Project management has been defined as the managing and coordination of all human and physical resources, in order to accomplish the predetermined goals (aim of the project, time, cost, quality), during the process of the project. Initially, the application of project management to interior design services has been discussed, defining the structure and service areas of the work and service units within the profession. Moreover, the processing of the phases of the interior design services within the project life cycle is analyzed upon the interior design profession. Thus, using modern project management techniques and procedures; the planning, execution, monitoring and control of different components of a project, such as time, communications, human resources, materials, cost has been discussed within the project life cycle. Furthermore, a research is conducted about the utilization of project management notions by the interior design firms in Turkey. The main objective of the research was analyzing the verification of use of project management notions for the interior design business upon the sample firms. The findings through the research are analyzed and further studies are proposed.

Keywords: Project Management, Interior Design Services

ÖZET

İÇ MEKAN TASARIM HİZMETLERİNDE PROJE YÖNETİMİ

Alp Şahinoğlu
İç Mimarlık ve Çevre Tasarımı Bölümü
Yüksek Lisans
Tez Yöneticisi: Prof. Dr. Mustafa Pultar
Ocak, 1997

Bu çalışmada, proje yönetimi kavramı, iç mekan tasarım hizmetleri çerçevesinde ele alınmıştır. Proje yönetimi, her türlü insan ve malzeme kaynağının, proje başlangıcında saptanmış hedefler (proje amacı, maliyeti, zaman, kalite) doğrultusunda ve proje süreci içerisinde, idare ve koordine edilme fonksiyonu şeklinde tanımlanmıştır. Çalışmada ilk önce, proje yönetiminin iç mekan tasarım hizmetlerine uygulanabilirliği bu tanım paralelinde ortaya konulmuş; iş veya hizmet birimlerinin hizmet alanları tanımlanmış; bir iç mekan tasarım hizmetinin safhalarının proje hayat döngüsü içinde süreçlendirilmesi gerekliliği meslek üzerinde incelenmiştir. Böylece, proje hayat döngüsü içerisinde, projenin zaman, iletişim, insan kaynakları, malzeme, maliyet gibi farklı birimlerinin planlama, yürütme, izleme ve kontrolü modern yönetim teknikleri dikkate alınarak tartışılmıştır. Bunun yanısıra, proje yönetimi kavramlarının Türkiye'de iç mekan tasarım hizmeti veren firmalar tarafından uygulanabilirliği araştırılmıştır. Araştırmanın temel amacı, iç mekan tasarım işinde, proje yönetiminin bu firmalar için geçerliliğinin aranması olmuştur. Araştırma sonucunda elde edilen veriler değerlendirilip, yeni çalışmalar için önerilerde bulunulmuştur.

Anahtar Sözcükler: Proje Yönetimi, İç Mekan Tasarım Hizmetleri

ACKNOWLEDGEMENTS

I would like to thank, first of all, my supervisor Prof. Dr. Mustafa Pultar for his great patience, and guidance throughout this project.

I also would like to thank Bülent Altay from Altay & Altay İç Mimarlık, Mobilya, ve Ticaret Limited Şirketi; Onur Sayın and Zeynep Ünlü from Ceylan İnşaat, Taahüt, İthalat ve İhracat Limited Şirketi; Murat Öztürk from Homestore LP Dekorasyon, Sanayii ve Ticaret Limited Şirketi; and Yelda Sarıçetin for their contribution to the research phase of the thesis.

Finally, I appreciate all of my friends and colleagues, especially Burçak Serpil and Deniz Hasırcı, for their invaluable support throughout the implementation of this study.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1. INTRODUCTION

In this study, the definition and procedure of project management for the interior design services has been studied, emphasizing the significance of the project management in the interior design profession. The main aim of the study has been to compile information from a number of sources, in order to form a basic framework in which application of project management to the totality of interior design services, comprising of many different components with unique properties and characteristics, is examined.

Initially, the project concept and project management concept have been introduced in general. Thus, project management has been defined as the coordination of all kinds of human and material resources (through the aims and goals of the project including cost, time, and quality), by general management methods implemented carefully before and during the development of the project (PMI Standards Committee, 1996). After a discussion of the importance of management in interior design services, the application of project management within interior design profession is introduced, along with the factors that influence the project management such as the professional divisions in interior design services, the business types and structures in the profession, etc.

The concept of project life cycle, which includes the entire processes of the project from the initiation until the end, is introduced, followed by the investigation of the activities in an interior design project within the life cycle. This entire activity sequence; the planning of the project, the design management and its realization, the coordination of the project phases after it's being designed, the organization of the project team, scheduling of the project and the activities being defined and their control throughout the life of the project, the execution of all project contracts and documentation work with their individual techniques and standards, management and controlling of time, cost, human resources ,etc., and the coordination of all these components are studied, based on the major headings and concepts of project management.

The verification of utilization of project management notions and instruments are also analyzed in this thesis, by a case study, upon the sample interior design firms in Turkey based on the knowledge and notions presented in the thesis context.

This thesis is the implementation of all the above stated information in detail and is likely to be a initiating reference about project management notions for the interior design business and services in Turkey.

2. PROJECT AND PROJECT MANAGEMENT

2.1. The Project Concept

The term **project** is defined, as it's dictionary meaning, in Webster's New World Dictionary (594) as "1. a proposal or a scheme 2. an undertaking 3. to throw forward". It is this second meaning which constitutes the subject matter of this thesis.

The PMI (Project Management Institute) Standards Committee, on the other hand, defines project from the management point of view as follows: "Project is a temporary endeavor undertaken to create a unique product or service" (1996: 4,5).

The term **temporary**, as used in the PMI Standard Committee's definition for the project means that every project has a definite beginning and a definite end (1996). **Unique** means that the product or service is different in some distinguishing way from all similar products or services. These properties are the major distinctions that differentiate projects from other operations. Projects and operations share the common characteristics of being **performed by people, constrained by limited sources, planned, executed**, and **controlled**, where operations are ongoing and repetitive actions.

Cleland and King characterize a project as follows: "A project is a one time activity involving human and non-human (physical) resources pulled together to achieve a specific purpose and desired results" (cited in Şahmalı, 1985: 3).

In this content, a project is an organized activity assigned to an organization which has a limited time frame or a life cycle. The project life cycle involving several processes is going to be studied in Chapter 4 in detail.

Projects are usually performed by the teams assigned for the main goal of performing the project. The project team is disbanded and members are reassigned to a new project within the organization when the project is completed. The basic purpose of initiating a project is to achieve desired goals.

Projects, through these definitions, have some identified and distinguishing characteristics beyond the other management facilities and operations. The characteristics of projects are as follows:

1. Projects have specific starts and specific end points.
2. Projects are unique and non-repetitive activities.
3. Projects have well defined objectives.
4. Projects are implemented by the organizations.
5. Projects are constrained by limited sources.
6. Projects are planned, executed and controlled.

2.2. The Project Management Concept

The term **management** in general, means the effective and efficient use of resources. Management is also defined as the process of setting and achieving goals. The project management notion, as a management tool for coordinating complex functions and resources precisely, is an activity relevant to a broad range of disciplines including engineering, architecture and

construction facilities (or simply the construction of a building or a facility) and product design that require a systematic and functional planning, directing, and controlling of all resources (Brunies, 1989).

The PMI Standards Committee's definition for project management is as follows: "Project management is the art of directing and coordinating human and material resources throughout the life of a project by using modern project management techniques to achieve predetermined objective of scope, cost, time, quality and participation, and the satisfaction" (cited in Hendrickson and Au, 1989: 26). **Modern project management** is a term used to distinguish the current broad range of project management (scope, cost, time, quality, risk) from narrower, traditional use that focused on cost and time.

Kimmons and Loweree define project management as an approach that an organization may use to accomplish a relatively short-term objective in an efficient manner (1989: 1).

Kerzner's definition for project management is the planning, organizing, directing, and controlling of resources for a relatively short-term objective that has been established to complete specific goals and objectives. Furthermore, project management utilizes the systems approach to management by having functional personnel (the vertical hierarchy) assigned to a specific project (the horizontal hierarchy) (Brunies, 1989: 5).

Cleland and King present project management as the application of the systems approach to the management of technologically complex tasks or

projects whose objectives are explicitly stated in terms of time, cost and performance parameters (Brunies, 1989: 5).

The project management concept is also defined as a matrix of planning, directing, controlling a project (project management functions), as applied to time or period, resource and cost (the project elements) (Şahmalı, 1985: 42). Project elements are the three restrictions or the limitations of the projects which all the activities in a project are dependent on. Any corresponding project management function to project element in this matrix can be a manageable section of a project within the project life cycle.

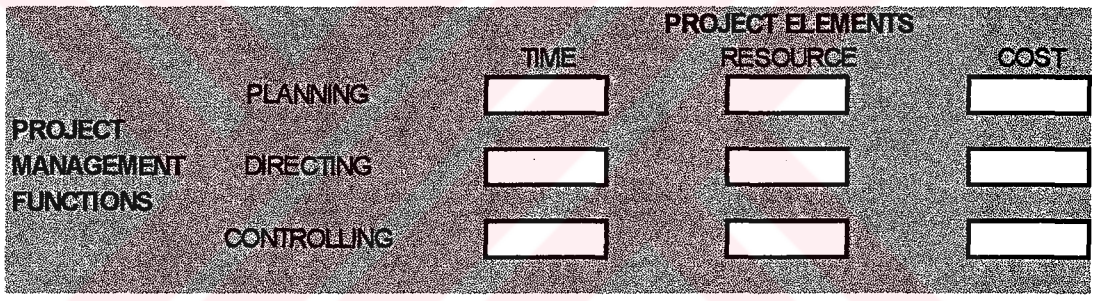

Figure 1. Project Management Matrix.
(From Şahmalı, Ferda. 1985. "Proje Yönetimine Bütüncül Bir Bakış." Master's thesis Ankara U. p. 42)

The PMI Standards Committee's (1996) updated definition for the project management as follows: "Project management is the application of knowledge, skills, tools, and techniques to project activities in order to meet or exceed stakeholder needs and expectations from a project" (6).

The term **stakeholders** in PMI Standards Committee's definition, stand for the participants, individuals and organizations, who are involved in or may be

affected by project activities. Meeting or exceeding the project participants' needs and expectations invariably involves balancing competing demands among:

-Scope, time and quality.

-Project participants with different needs and expectations.

-Identified requirements(needs) and unidentified requirements (expectations).

In a project organization, the project management team identifies the stakeholders related to the project, determines what their needs and expectations are, and then manages and influences those expectations to ensure a successful project.

The key or constant participants on every project are the project manager, customer, and the performing organization.

1. **Project manager** is the individual responsible for managing the project.
2. **Customer** is the individual or organization who will use the project product.
3. **Performing organization** is the enterprise whose employees are most directly involved in doing the work of the project.

The project team and the other participants, performing or implementing a specific project may execute several activities. These activities, within the project life cycle, are generally performed through the context of several management scopes. General management skills, a broad subject, is the most crucial and contributing element to the project management for implementing these activities. General management skills are:

-Finance and accounting, sales and marketing, research and development, manufacturing and distribution.

-Strategic planning, tactical planning, and operational planning.

-Organizational structures, organizational behavior, personnel administration, compensation, benefits, and career paths.

-Managing work relationships through motivation, delegation, supervision, team building, conflict management, and other techniques.

-Managing oneself through personal time management, stress management, and other techniques.

Project success depends on a number of factors. Thus, Nicholas (1989) states that several factors in project management are essential driving forces to project success. He presents a model of "Project Success Causes", and this model classifies the causes of success, depending on the author's surveys on several firms and companies, into three categories: 1. Participants involved in project (Top management, Project manager, Project Team, User/Client), 2. Communication and information sharing and exchange, 3. Project management systems, the development process (Definition, Planning, Control, Implementation). These categories and components of these categories are involved in this study.

Norko (1986) presents almost similar project functions and elements for the success of the project. The identified notions for the project success are developing good plans and schedules, using reliable standard approaches in different situations in project according to the project progress, and letting staff implement their own tasks and trusting the skills of the staff.

3. PROJECT MANAGEMENT IN INTERIOR DESIGN SERVICES

The term "service" used for the interior design services in this study, stands for the scope of assistance that can be provided to the participants of the project, especially for the clients, drawing the scope of need for project management that will be discussed.

3.1. The Necessity of Project Management in Interior Design Services

Construction is the implementation of a design envisioned by the designers, architects, and engineers. The management of design projects and construction projects requires knowledge of modern management techniques as well as an understanding of design and construction processes for the execution of the whole project (Clough and Sears, 1991).

Project management, through the scope of designing a product and/or as a service and the construction activity, are stated as one of most important activities of an interior designer. A project manager, whether a designer or a consultant assigned for this job, coordinates the entire process of a job from its inception to the final step within the project life cycle in interior design business (Ballast, 1992).

Knackstedt (1992) establishes the project management notion as one of the important tools for executing interior design projects and interior design business. Project management, as a tool for implementing the interior design business and projects, requires the complete understanding of various crafts including several management skills. Moreover, Siegel (1982), states that the designers involving interior design services are not only the conceptualists of the past, but also today, they are assigned the role of a project manager, a project planner.

The "Strong Project Manager Organization" (SPM) is a concept that has been presented by Burstein and Stasiowski (1991) for the design professionals, concerning architects, engineers and interior designers. This is a specific study for project management applications. In this study, the designer, architect or the engineer is assigned the work of project manager in a matrix organization and presented how the project management is applied for design professionals. The PMI Standards Committee (1996) states that the project management, as a tool for implementing projects, can be applied to several disciplines including the disciplines which produce a unique product or a service.

Thus project management can be used as an instrument to facilitate projects in the interior design services by the use of other management disciplines to create a unique product, or a service.

3.2. Professional Divisions in Interior Design Services

The division of the profession in interior design is a significant property of business conduct that shapes the project management scope and the project

implementation (Siegel, 1982). The main divisions in interior design business are classified as residential design, non-residential design, product design, and the association in architectural, engineering, and other firms.

Residential interior design is the branch of interior design services concerned with the designing, planning and/or specifying of interior materials and products used in private residences. A residential interior design project breakdown is presented by Siegel (1982) in six major steps. These steps are:

1. Establishing the client's program and budget.
2. Development of a design concept.
3. Client approval.
4. Estimations.
5. Purchasing.
6. Supervising and installation.

Non-residential interior design is the branch of interior design concerned with the designing, planning and specifying of interior materials and products used in public spaces, and is also called the contract interior design. The breakdown for non-residential interior design job consists of the following stages:

1. The initial approach to the client.
2. Understanding the job.
3. The presentation.
4. Determining the fee or compensation base.
5. The letter of agreement.
6. Responsibility for purchases.
7. Installation.

Product design involves the market product; and residential and non-residential design projects from the point of production of a single unit of design or the mobile or stable furniture and accessories. Product design can also be accepted as a sub-project within the interior design.

Association in architectural, engineering, and other firms relates to the work to be done in the content of contracting or sub-contracting position.

3.3. Types of Business Organizations in the Interior Design Profession

Organizational needs are the factors which can affect the project management scope and processes, through which interior design business can be conducted in different legal forms. These legal forms of business structures are classified as the sole proprietorship, limited partnership, general partnership and the corporation (Loebelson, 1983). The joint venture organization is included in this classification by Piotrowski (1989) for the temporary business organizations in interior design services.

All these legal forms of business structures vary in their characteristics, in terms of organizational requirements, costs of start-up, costs of maintaining the organization, the personal liability of the owners, the continuity and transferability of the firm, the ease of raising the capital, and the taxation of profits.

A sole proprietorship is the simplest form of ownership, the easiest and cheapest to establish. The owner has the total authority over and unlimited

liability for the business operation. The enormous freedom necessitates responsibility and brings high risk.

A partnership is an association of two or more persons, formed to operate a business for profit. Authority, responsibility, risk, profits and losses are shared. There are two types of partnership: general partnership and limited partnership. In a general partnership, all partners have unlimited liability for partnership debts. On the other hand, in a limited partnership, the limited partners are liable only to the extent of their investment in the partnership.

A corporation is a complex legal entity which is considered to be constructed upon an "artificial person". The management of a corporation is achieved by the board of directors as elected by the stockholders. A corporation has limited liability. A shareholder is liable for business debts only to the extent of his or her investment, also resulting in easier transfer of ownership. The corporation is one of the most advantageous forms of a company to raise capital with.

The larger projects are almost undertaken within the corporations or the joint ventures, which are the temporary organizations. The organizational and financial capacities of these entities are higher than the other entities.

3.4. Types of Business Structures in the Interior Design Profession

The interior design profession includes a wide range of services and product related specialties. The management philosophy of a firm determines the size, organization and service requirements of a firm. These components have direct effects upon the management of staff, financial resources, and physical facilities.

In a typical design business conduct for the interior design firms, Jones classifies three different operation categories of firm sizes as small firms, medium-sized firms, and large firms (cited in Thompson, 1992).

A small firm's ownership can vary from a sole proprietorship to a partnership or a business corporation depending upon the number of principals, specific services provided, and risk aversion. Regardless of the size of the firm, a business plan is important. In a small firm, a flexible business plan means a flexible business development and marketing plan. The small interior design firm may carry out a number of small projects at the same time.

Concerning the efficiency of project management, Lustman (1983) has conducted an experiment using project management techniques in a small company. The general definition or the concept that he monitors about the work plans of the small companies are generally "shortsighted". The term shortsighted, for this small company, means that the management is involved in daily operations and that there are no long-term strategies used in that company for the projects that they involve. Through the work process of the company, Lustman has composed a model for a specific project by using project management techniques. For understanding the effectiveness of the work performance of company about the projects they involve, he has made estimations (the reliability of this step can be argued) through the previous projects available. This estimation is done for the comparison of previous projects and the sample project. At the end of that specific project in which the project management techniques are utilized, the project has resulted with %4 effective total man hours spent in that company throughout that specific project.

Organizationally, **a medium size firm** can be a sole proprietorship, a partnership, or a legal corporation. As a firm grows, the resources required and the revenues generated are larger and must sustain a larger staff and cash flow. The medium-size firm often focuses on larger projects requiring specialized expertise. In medium-size firms project managers begin to take the place of principals managing projects.

Large interior design firms are generally architecturally or corporately oriented. The business organization in large firms may be a partnership or a corporation. Large interior design firms have multiple owners and have the most formalized business. Formal documentation of office standards, quality control procedures, project management procedures, and human resources standards become important for large interior design firms. In large firms, a project manager's role becomes more important than his role medium-size firms.

Jones states that the key to a profitable interior design firm can not be accepted as the size. Conscious planning and management, and the performance throughout the undertakings can make any firm successful. A successful firm is judged by its achievements and by meeting its goals and objectives, both professionally and financially (cited in Thompson, 1992).

These firm structures are indicated on a comparison table which defines the scope of each different size categorized firm with its operational categories as business structure, business plans, business development as approach and client types, business management, design management and financial management. This comparison chart (Table 1) provides a simplified reference

guide to the basic similarities and differences of small, medium-sized, and large interior design firms within the content of the definition for the design firms.

Table 1. Comparison Chart for Interior Design Firms of Different Sizes.

Operation Categories	Small Firms	Medium-Size Firms	Large Firms
Business Structure	• Sole proprietorship • Partnership • Corporation • Approximate firm size 1-7 staff	• Sole proprietorship • Partnership • Corporation • Approx. firm size 7-20 staff	• Sole proprietorship • Partnership • Corporation • Approx. firm size 21-up staff
Business Plans	• Follows the opportunities in the market.	• Verbal consensus of direction among principals shared with the associates. Sometimes loosely documented.	• Formal long- and short-range statement of goals, objectives, and strategies at various stages of elaboration.
Business Development (Approach)	• No marketing plan • Proprietor responsible for getting clients through personal contacts for staff. • Each professional firm member is responsible for getting own work through personal contacts.	• Verbal marketing plan based on general consensus, following opportunities, and occasionally targeting new markets. • One principle allocates majority of time to the marketing while others produce. • Majority of principles responsible for marketing. • Frequently in both cases staff includes a part-time marketing coordinator to assist principals in management effort. • May have consultant lead finder.	• Formal marketing plan. • Director of business development responsible for market strategic planning and coordination. One or more principals participate heavily in marketing effort. Each responsible for definite client types. In-house and/or consultant lead-finding program. Full time marketing coordinator and staff responsible for proposal preparation and marketing material production.
Business Development (Client Types)	• End users with informal selection process, i.e., referrals, repeat business, or short qualification proposals. • Team with other professionals for clients in comprehensive and formalized selection procedure (less frequently)	• Team with other professionals for clients in comprehensive and formalized selection procedures. • End users with comprehensive and formalized selection procedures.	• Team with other professionals for clients in comprehensive and formalized selection procedure. • End users with comprehensive and formalized selection procedures.

Table 1. *(cont'd)*

Operation Categories	Small Firms	Medium-Size Firms	Large Firms
Business Management	• Size gives ability for loosely structured management. • Informal communications. • Decision-making process either autocratic or democratic depending on sole ownership or partnership. • Decision-making process for design and business problems are responsibility of same person.	• More structured management (matrix). • Combined informal and formal lines of communication. • Decision-making process more commonly is either autocratic or consultative. • Business decision maker may be different from design decision makers. • Need for workload forecasting and progress reporting. • Automated progress reporting.	• Highly structured management hierarchical or matrix. • Decision process tends to be bureaucratic or consultative. • One principal responsibility solely lies in administration of the firm. • One principal is responsible for office production. • Formal documentation of office standards, quantity control, and project management procedures. • In-house training and development programs. • Formal performance review. • Formalized firm continuation plans. • Automated progress reporting.
Design Management	• Design is usually controlled by client more than by professionals. • Ability to produce as one design team for unusually large projects or short time frames • Flexibility to break down to single-person teams for typically smaller projects. • CAD use improbable.	• Project managers begin to take place of principals managing projects. • Designs are executed by teams appropriate to size of task. • Principals may delegate design authority and become more responsible for quality control. • Possible CAD use.	• Project managers control project with minimal principal involvement. • Designs are executed by teams appropriate to size and duration of project or through departments with separate production staff. • CAD use.
Financial Management	• Automated accounting probable. • May be somewhat unstructured and flexible in accounting for time spent on projects and associated reimbursable costs. • Usually has low overhead cost ratio.	• Automated financial management. • Structured billing system for professional hours spent and reimbursable costs. • May have less efficient overhead cost ratio than smaller or larger firms because of physical plant or technology.	• Highly structured automatic financial system. • Efficient billing systems and procedures for gathering cost data. • Efficient overhead ratio.

(From Thompson, Jo Ann Asher. 1992. ASID (American Society of Interior Designers) Professional Practice Manual. New York: Whitney Library of Design. p. 57-58)

4. PROJECT LIFE CYCLE AND PROJECT PROCESSES

4.1. Project Life Cycle Concept

A project begins and ends depending upon several factors. Between the beginning and the end of an estimated project, several activities and processes take place. The entire cycle of this process from the beginning to the end of the project is defined as the "project's life cycle" (Dinsmore, 1990).

The Project Management Institute (PMI) identifies project life cycle as the collection of generally sequential project phases whose names and numbers are determined by the control needs of the organization or organizations involved in the project. Each project phase involves a set of defined work products, designed to establish the desired level of management control. In a project, many sub-projects can also be executed with distinct project life cycles. Sub-projects are the divided, more manageable sections and components of the projects (cited in PMI Standards Committee, 1996).

The project's life cycle generally defines, what technical work should be done in each phase, and who should be involved in each phase. A project's life cycle has different phases that are classified according to the progressive development. This progress is associated by the start of the project, being slow at the beginning, building up to a peak and tapering off at it's conclusion.

A sample project life cycle diagram presented by PMI Standards Committee clarifies the main progress of a project (1996). On the vertical axis, cost and staffing level is indicated as the sample activity of a project. As the project reaches to the execution level, the intermediate phases, on the horizontal axis of time; the sample activity, cost and staffing level, builds up a peak point where the activity is in highest level on the level of activity and tapers off at the end.

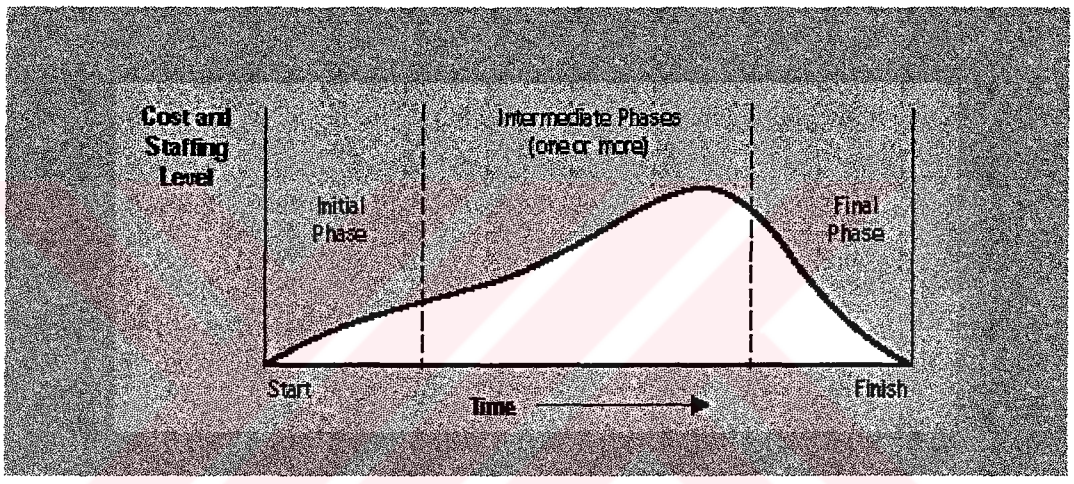

Figure 2. Sample Project Life Cycle.
(From PMI Standards Committee. 1996. A Guide to the Project Management Body of Knowledge (PMBOK). Charlotte: Automated Graphic Systems. p.12)

4.2. Project Processes

The levels of the project life can be broken down into several phases, or to the interacting processes. The dominant phases of all projects are the conceptual phase, the planning phase, the execution phase and the termination phase (Dinsmore, 1990).

The **conceptual phase** is the level where the needs are identified, feasibility is established, alternatives are searched, proposals are prepared, and basic

budgets as well as the schedules are developed. The **planning phase** involves the implementation of the schedules, conduction of the studies and examinations, the design of the systems and pre-production stages. The **execution phase** relates to the operations in a project. The **termination phase** is the last step where all the elements of project are disbanded.

PMI Standards Committee (1996) classifies the projects into five levels as; initiating, planning, executing, controlling, and closing processes. This classification can be applicable to several disciplines.

Initiating processes involve recognizing that a project or phase should begin and committing to do so. **Planning processes** involve devising and maintaining a workable scheme to accomplish the business need that the project was undertaken to address. **Executing processes** include the coordination of the people and other resources to carry out the plan. **Controlling processes** involve the ensuring levels that project objectives are met by monitoring and measuring progress and taking corrective action when necessary. **Closing processes** involve the formalizing acceptance of the project or phase and bringing it to an orderly end.

The phases of the projects besides the whole activity, have several properties within their scopes.

- Each level or the process of a project has got its own five major project process levels. In Figure 3, this interaction is presented on project phases. The process groups are linked by the results they produce. The arrows presented on each sub-phase stand for the flow of documents and items which can be documented within a project.

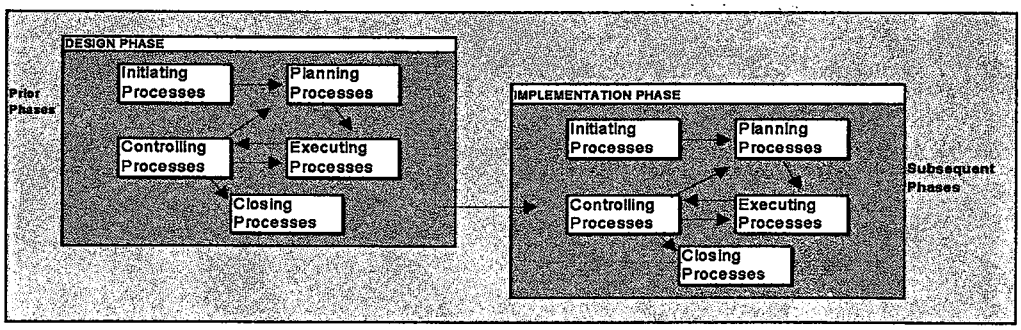

Figure 3. Interaction Between the Phases of a Project.
(From PMI Standards Committee. 1996. A Guide to the Project Management Body of Knowledge (PMBOK). Charlotte: Automated Graphic Systems. p. 29)

- Each level or the process of a project has got the property of building up a peak point of activity level in its execution.
- Process groups or the activities concerning them may overlap each other according to the functioning and sequence of the projects. The overlap of process groups is presented in Figure 4. On the horizontal axis the activity level is indicated. Among the execution of the project, time is presented on vertical axis, and the project phases, the total activity level reaches to a peak point.

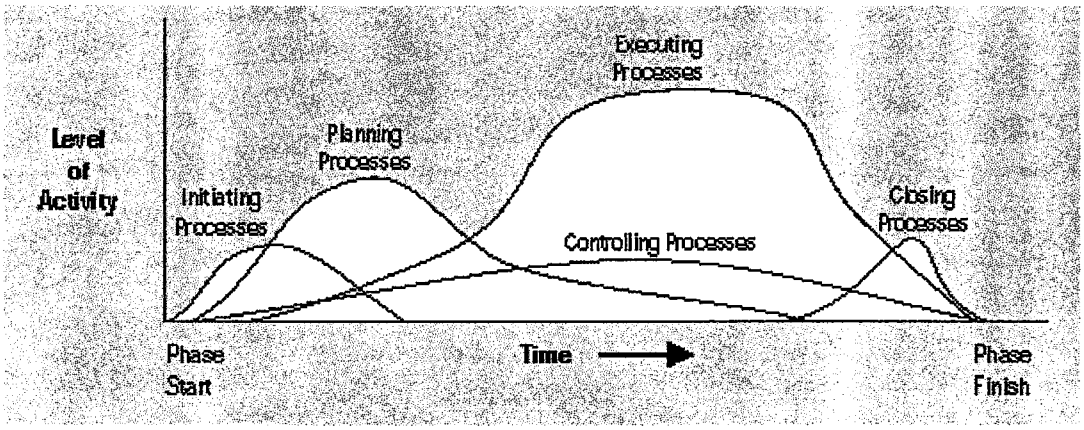

Figure 4. Overlap of Process Groups in a Phase.
(From PMI Standards Committee. 1996. A Guide to the Project Management Body of Knowledge (PMBOK). Charlotte: Automated Graphic Systems. p. 29)

The PMI Standard Committee presents the major relationships among the processes as shown in Figure 5. While every main group of project process interact with each other in a descending way (represented by the arrows), they also interact sub-processes, as core or the facilitating, in their content. The only process that continuously interacts with planning and executing phases is the controlling process. All these phases are shown within the context of the study, presented in Figure 6 and Figure 10.

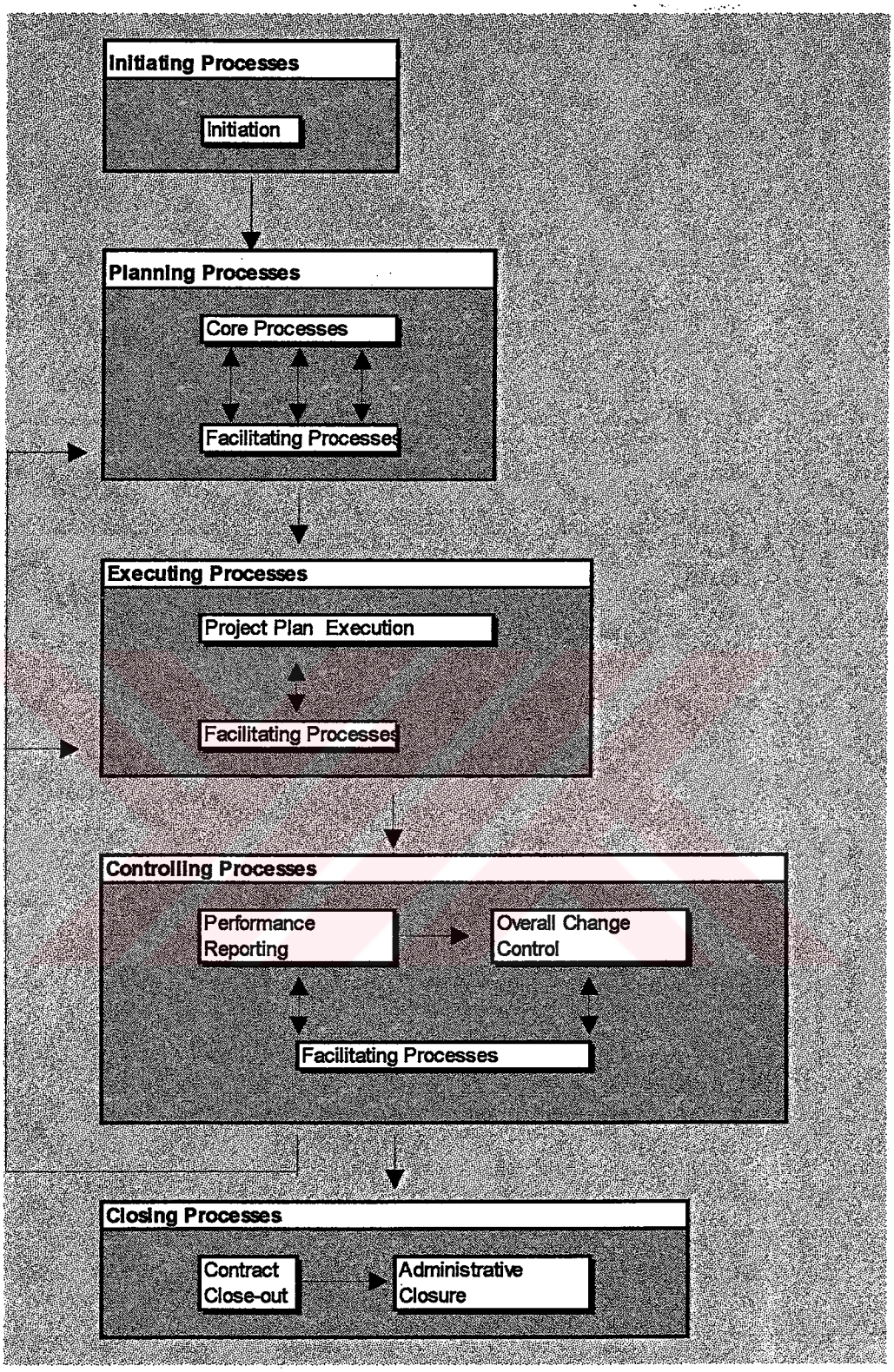

Figure 5. Relationships Among the Project Processes.
(From PMI Standards Committee. 1996. A Guide to the Project Management Body of Knowledge (PMBOK). Charlotte: Automated Graphic Systems. p.30, 31, 33, 34)

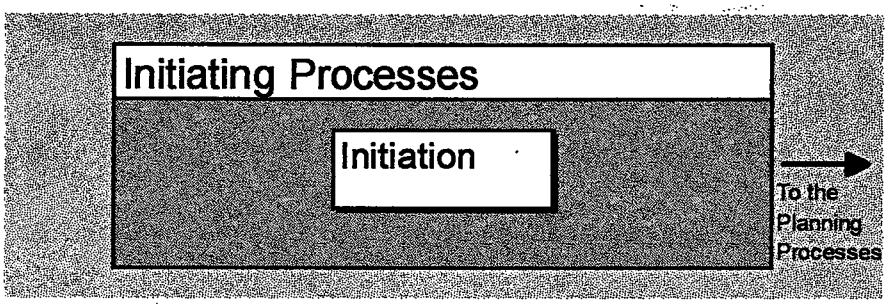

Figure 6. Relationships Among the Initiating Processes.
(From PMI Standards Committee. 1996. A Guide to the Project Management Body of Knowledge (PMBOK). Charlotte: Automated Graphic Systems. p.30)

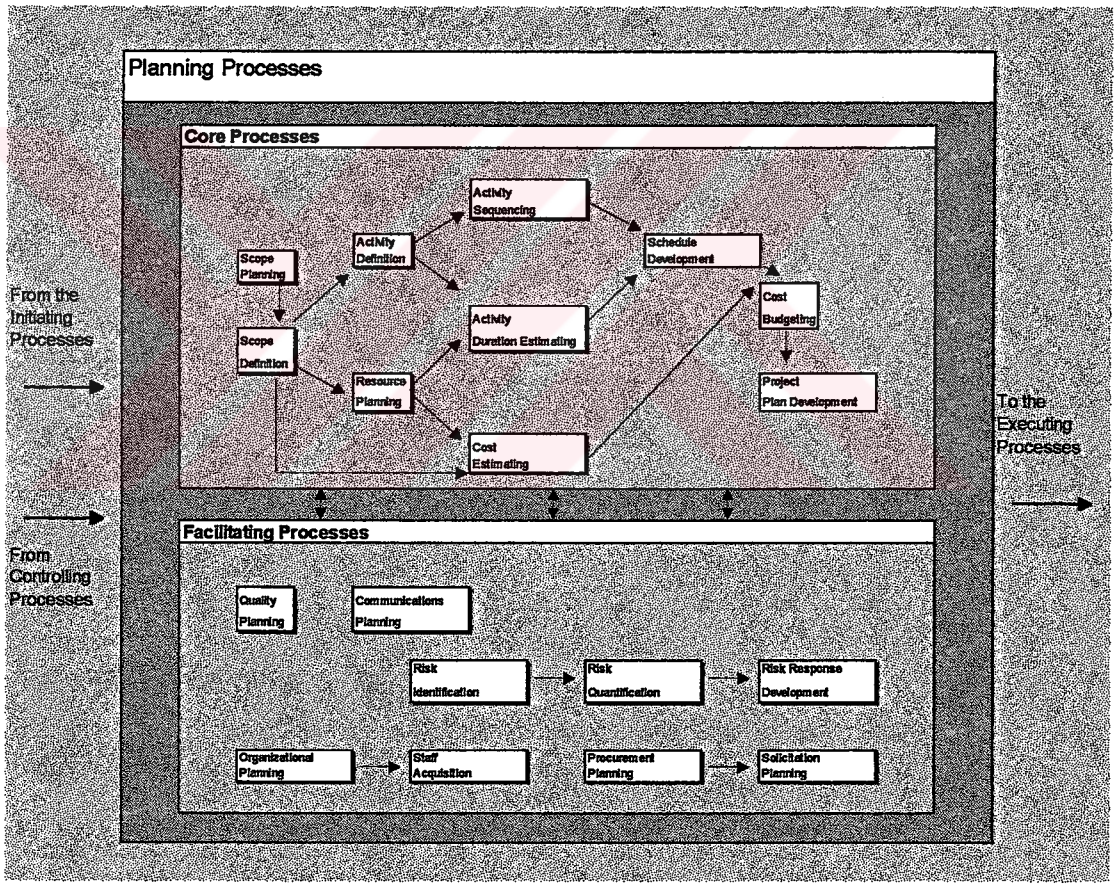

Figure 7. Relationships Among the Planning Processes.
(From PMI Standards Committee. 1996. A Guide to the Project Management Body of Knowledge (PMBOK). Charlotte: Automated Graphic Systems. p.31)

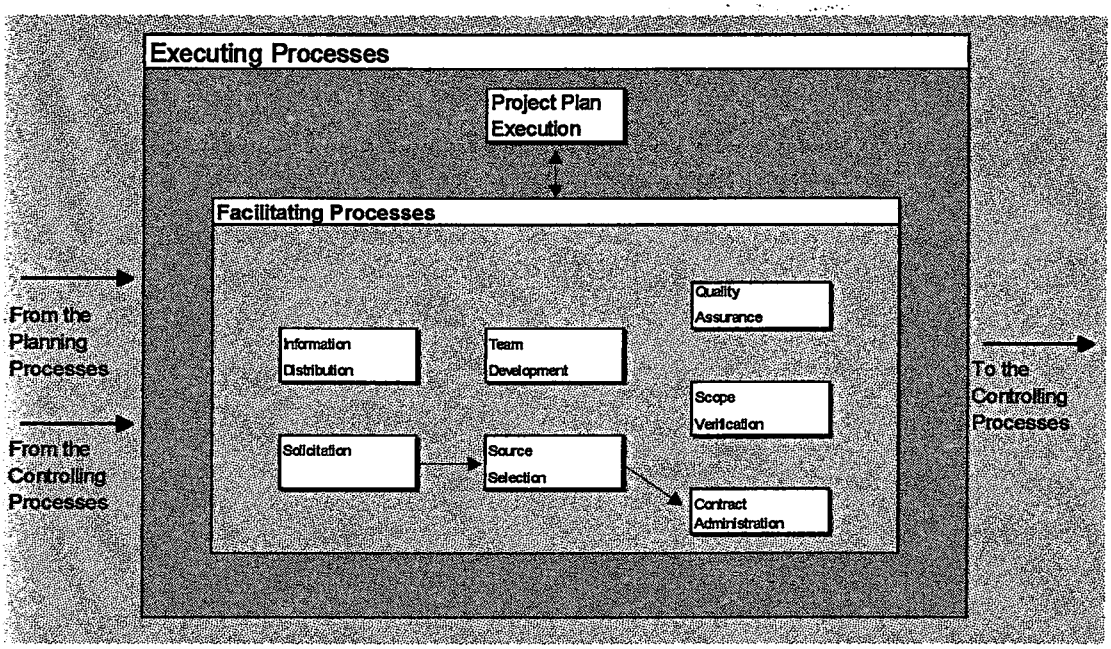

Figure 8. Relationships Among the Execution Processes.
(From PMI Standards Committee. 1996. A Guide to the Project Management Body of Knowledge (PMBOK). Charlotte: Automated Graphic Systems. p.33)

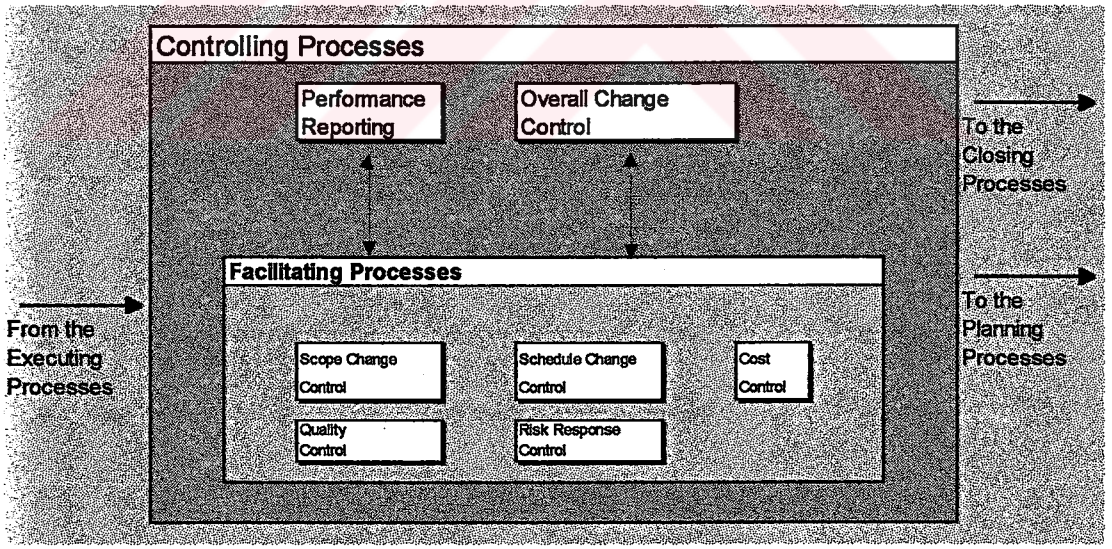

Figure 9. Relationships Among the Controlling Processes.
(From PMI Standards Committee. 1996. A Guide to the Project Management Body of Knowledge (PMBOK). Charlotte: Automated Graphic Systems. p.34)

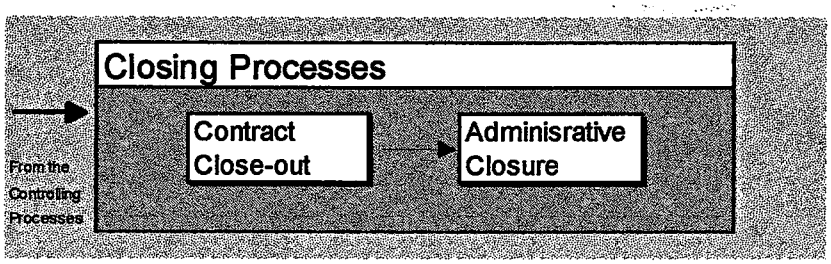

Figure 10. Relationships Among the Closing Processes. (From PMI Standards Committee. 1996. A Guide to the Project Management Body of Knowledge (PMBOK). Charlotte: Automated Graphic Systems. p.35)

Construction projects have some phases, which also concern the scope of main services for the construction activities, that are more dominant than the other project or product implementation. They closely interact with the interior design projects. An interior design project can be a sub-project of a construction project. The main differences between a construction project and an interior design project lies in the resource requirements.

Morris samples a construction project life cycle and its processes in four levels. Figure 11 relates to the percentage complete of the activities throughout the time within the project life cycle (PMI Standards Committee, 1996).

Feasibility—project formulation, feasibility studies, and strategy design and approval. A go/no-go decision is made at the end of this phase.

Planning and Design—base design, cost and schedule, contract terms and conditions, and detailed planning. Major contracts are let at the end of this phase.

Production—manufacturing, delivery, civil works, installation, and testing. The facility is substantially complete at the end of this phase.

Turnover and Start-up—final testing and maintenance. The facility is in full operation at the end of this phase.

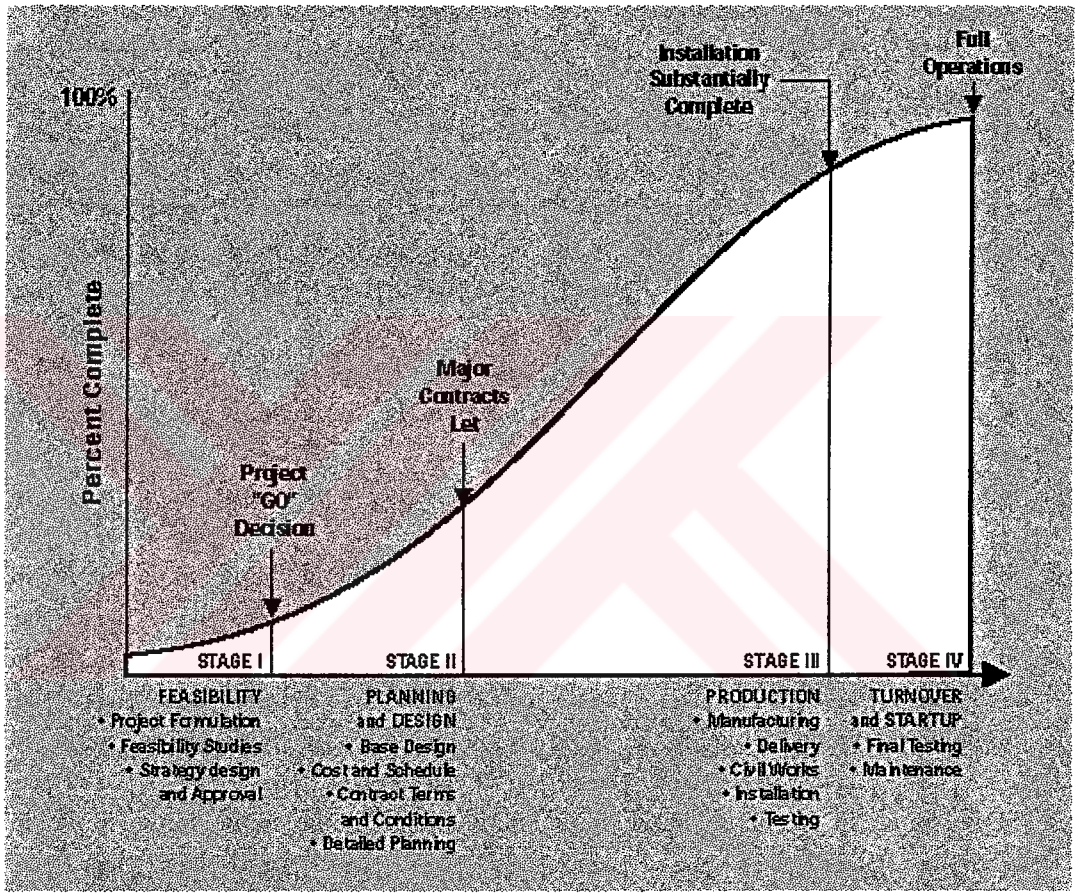

Figure 11. Representative Construction Project Life Cycle. (From PMI Standards Committee. 1996. A Guide to the Project Management Body of Knowledge (PMBOK). Charlotte: Automated Graphic Systems. p.14)

4.2.1 Interior Design Project Management Processes

All the processes presented by PMI Standards Committee in the previous section are the major project management processes (1996). The PMI Standards Committee states that all these phases can be applicable to several

disciplines by extensions of management tools. Through the context of interior design profession and services, the breakdown of a project life cycle into project processes or phases for the interior design projects are presented as follows, based on a number of classifications. All these similar processes can be utilized by the project activities presented in Chapter 5.

Loebelson 's (1983) classification includes five phases, as follows:

1. **Programming**: The programming phase determines what real spatial problems are to be solved by the designer and the client in order to effectively run the client's business.

2. **Design conceptualization**: The purpose of this phase is to determine the specific design solutions (basic, not decorative) to the problems defined during the programming phase. This phase should begin with a further refined statement of the desired image, both applied internally to the employees and applied externally to the customers of the business.

3. **Decoration**: The decoration phase includes the design concept statement, budget, and plans and produces the choice of finished items that will meet those criteria.

4. **Construction Documentation**: The sole purpose of this phase is to produce all the necessary documents so the interior design can be executed exactly as conceived at the lowest possible cost.

5. **Construction Supervision**: The prime objective of the construction supervision phase is to maintain budget, quality, and schedule.

Ballast (1992) classifies the interior design project's management processes into four main sections as; planning, monitoring, coordinating and directing, documenting and closing out the job.

1. Planning: The project manager should be involved from the first determination of the scope of work and estimating fees to the final follow-up. Planning involves setting requirements in three critical areas: time, fees, and quality. Time planning is scheduling the work required and making sure there are enough fees and staff to complete it.

2. Monitoring: Monitoring is keeping track of the process of the job to see: the planned aspects of time, fee, and quality are being accomplished. The original fee projections can be monitored by comparing weekly time sheets with the original estimate.

3. Coordinating and Directing: During the job, the project manager (or whoever is responsible for managing the job) must constantly coordinate the various people involved: the design firm's staff, the consultants, the client, the building code officials, and the firm management. The individual efforts of the staff must also be directed on a weekly or even daily basis to make sure the schedule is being maintained and the necessary work is getting done.

4. Documenting: Everything that is done on a project must be documented in writing. This is to provide a record in case legal problems develop as well as to create a project history to use for future jobs. Documenting is also a vital part of communication.

Programming management has separate and distinct stages: the programming phase; the schematic design phase; the design development phase; the contract documents phase; and the installation or contract administration phase. The size and type of work can determine the client-designer relationship for each of these phases; however the basic purpose of each step of the process remains the same (Knackstedt, 1992).

1.The programming phase: The programming phase will define the project and beginning contractual agreement between the client and designer.

2.The schematic design phase: The schematic design phase, the concept stage of a design, is for preliminary design of space allocation and locations for partitions, furnishings and equipment; establishing concepts of types and qualities of finishes and materials; and preparing a budget and estimated schedule for project completion.

3.The design development phase: This phase includes finalizing all design layouts; details of all interior construction; specifications for all products, materials and equipment; work methods and standards, plus another document preparation needed prior to the owners' review and approval of this stage.

4.The contract documents phase: This is the point at which decisions must be finalized for the execution or installation of the project. How the work will be managed by the design firm and the client, whether by one or more contracts or purchase orders between the owner and contractor or supplier for the products, must be determined and mutually agreed upon. It is a time of preparing and executing the bidding, contracting, and procurement documents in preparation for the next step of the process.

5.The contract administration phase: The last phase, also called the installation phase commences with the award of one or more contacts or the insurance of purchase orders and formally terminates when the final payments to the contractors or suppliers have been certified. This step involves the actual procurement, the construction, the installation, and final finishing and placement of all elements of the total project.

5. ACTIVITIES IN AN INTERIOR DESIGN PROJECT WITHIN THE PROJECT LIFE CYCLE

This phase of the study involves project management activities for the interior design services and practice in terms of knowledge and component processes within the project life cycle. The majority of the subheadings in this chapter are detailed issues in management, and they may be analyzed separately from the viewpoint of structure and execution. The intention here is to show that these issues are components of project management within the interior design services, changing in relation to the size of the work to be executed and the structure of organization. Thus, basic definitions and the process of how these activities are carried out will be presented.

In the following sections; project integration management, project scope management, project design management, project contract management, project time management, project cost management, project quality management, project human resources management, project communication management, project risk management, project procurement and materials management and the computer-aided project management are going to be presented as the executable activities within a project life cycle.

5.1. Project Integration Management

Project integration management involves the processes required to ensure that the various elements of the project are properly coordinated. It involves finding common points among competing objectives and alternatives, in order to meet

or exceed project participants' needs and expectations. The project integration can be done among the various steps or within the processes of project. It can also be used for the integration of deliverables from the different functional specialties, such as civil, electrical, mechanical and interior design drawings. The integration management includes the major processes of project plan development, project plan execution and overall change control (PMI Standards Committee, 1996).

5.1.1. Project Plan Development

Project plan development, as a process, is taking the results of other planning processes and putting them into a consistent, coherent document by any structured planning system with the paperwork or electronic format. The primary data of the project plan development are the planning outputs of all other levels of the project, like scope, time, fees, quality and other sub-processes, historical information or records from the past projects, organizational policies and assumptions about the other projects.

The output of the project plan development is the project plan. Project plan is a formal, approved document used to guide both project execution and project control phases. The primary use of the project plan is to document planning assumptions and decisions, to facilitate communication among project participants, and to document approved scope, cost, and schedule baselines. Project plans usually include all the processes and their outputs, obtained at the end of each process, as in a summary form or in detailed format.

Harrison states that different levels of plans can be used in projects according to the needs of the project. The main three types of plans used for projects are;

summary plan, medium-sized plan and the detailed plan. According to this classification, the activities on summary plans can be broken down into sub-activities in a descending sequence (cited in Şahmalı, 1985).

5.1.2. Project Plan Execution

Project plan execution is the process of carrying out the project plan by performing the activities included in the project plan. The project manager, supervisor or the consultant may coordinate and direct the various technical and organizational interfaces which exist in the project, upon the project resources and managerial skills.

A project plan can be executed by work authorization systems, meetings, and project management information systems (MIS). A work authorization system is a formal procedure for assigning project work to ensure that the work is done in its scope. On smaller projects, verbal authorizations can be a tool for communication. Meetings are scheduled activities that are held to exchange information about the project between the participants. Project management information systems (PMIS) consist of the tools and techniques used to gather, integrate and distribute the other outputs of the project management processes.

5.1.3. Overall Change Control

Project overall change control is the activity of coordinating and controlling all the changes across the sub-processes of the project. This process may involve the contract administration changes, and scope, schedule, cost, quality changes in a project. Control systems, both manual and electronic, are the

tools for implementing this activity that can be resultant with the project plan updates.

5.2. Project Scope Management

Project scope consists of all the work that must be done in order to deliver a product or a unique service with the specified features and functions. Project scope management includes the processes required to ensure that the project includes all the work required to complete the project successfully . It is primarily concerned with defining and controlling what is or is not included in the project. The major processes of project scope management are; initiation, scope planning and scope definition, scope verification and scope control (PMI Standards Committee, 1996).

5.2.1. Initiation

Initiation is the process of committing the organization to begin the next phase of the project. In the initiation phase, the project manager or the supervisor of the project is assigned to the selected project and the undertaken project is presented to the performing organization in a firm or to a new organization.

5.2.2. Scope Planning and Scope Definition

Scope planning is the process of developing a written statement as the basis for future project decisions. Generally, this statement includes the project deliverables and project objectives. Project deliverables are the summary list of sub-factors, whose full and satisfactory delivery marks the completion of the project.

Scope definition is discussed as a process of subdividing the major project deliverables into smaller, more manageable components. The project has to be divided into more manageable sections in order to improve the accuracy of cost, time and resource estimates, and for facilitating clear responsibility assignments. The decomposition of the project deliverables into more manageable components can be obtained by the work breakdown structures.

5.2.2.1. Work Breakdown Structure

Work breakdown structure (WBS) is a deliverable-oriented grouping of project elements which organizes and defines the total scope of the project. Each descending level represents an increasingly detailed definition of a project component. Project components may be products or services (PMI Standards Committee, 1996).

Work breakdown structure is also defined as a classical hierarchical format for splitting projects into measurable and controllable activities. The activities that constitute a project are the "works" or the "tasks" to be done for the specific projects. The term "hierarchical format" relates the number of levels in a WBS that depends on the project's size, complexity, and management's philosophy. An overall project concludes when these manageable sections, the tasks and levels that establish the project are completed (Dinsmore, 1990).

The work breakdown structure system has to be constructed as broken subsequent phases until the size of the activities corresponds to the size of manageable tasks, defined as the work packages. Work packages are the specific tasks to be performed within the overall work breakdown structure framework. A work package can also be identified as a **deliverable** at the

lowest level of the work breakdown structure. A work package may be divided into certain activities. They may be characterized by the design, physical equipment or material, or services to be performed. The tasks that form the work packages of a specific project have to be defined in small segments, so that, all composite details of the project are handled depending on the factors indicated as the characterization of the work packages. The main risk factor related to the small segments is the detailing levels. Minor details can cause conflicts in the work breakdown structure, so the structure must be constructed upon the work package identification.

The criteria of the work breakdown structure through the scope varies from project to project. The main reference for breaking a project into work packages can be dependent on several notions of work package identification. Systems and subsystems of the interrelated systems, technological possibilities upon the discipline, vendor specifications according to the product packages, physical space as operating facilities of the project, and the organizational requirement depending on the management, resource-cost-time, strategy are the factors that shape the work package identifications (Dinsmore, 1990).

5.2.2.2. Scope Verification and Scope Control

Scope verification is the process of formalizing acceptance of the project scope after the work breakdown structure is concluded. The project scope has to be accepted by the project participants in order to prevent conflicts in the further stages of the project.

Scope control is the process of controlling changes to project scope. It is an activity done in the beginning of the project to obtain the approval of project

participants for the items documented in work breakdown structure. If any modification or changes are required the scope of the project can be revised or updated.

5.2.3. Analysis of Scope of Services for Interior Design Projects

The scope of services to be performed for the interior design projects, and their analysis, definition and planning at the planning phase, are the most significant components in a project, influencing the overall performance. The basic scope of services according to professional divisions are revised in section 3.2. The classification and analysis of the basic scope of services for the design business is fundamental for a project to avoid confusions, conflicts and unnecessary costs.

The extent, nature and types of services that can be accomplished are in such a broad range that, without defining and knowing what the client wants or needs, there can not be a logical approach to accept an assignment, design concept, service requirements, budget requirements, the fee or compensation base, and most importantly the contractual relationship (Siegel, 1982).

The client's view of various elements, the designer's requirements for developing a successful aesthetic and financial result are the basic data of scope definition in interior design projects. The client's wants, needs, and compensation ability must be calculated in order to obtain information for the scope planning. In these phases conceptualized by Siegel (1982), the designer analyzes the following parameters which are the basic factors concerning the definition and planning of the scope of an interior design project.

The design concept and the analysis of the feasibility of design concept, whether it is executable or not by using all possible resources, are the major parameters for defining the scope of interior design projects.

The service requirements (the project may require outside services) is the second notion that must be considered in the analysis of scope of interior design projects. The budget base, compensation base, the geographical availability of the services (classified in two groups as architectural services and general contractor's services, like a construction activity or a product design) are the services within the scope of interior design projects.

The budget requirements and the budget of the client is another parameter that has to be considered within the analysis of scope of an interior design project. The budgets has to be realistic and must be predetermined depending upon the scope of works to be done. The designer's historical information about the project costs and the reference information can be a useful tool for the client to develop his budget.

Fees and determination of compensation methods is another important factor concerning the analysis of the scope of an interior design project. The scope of services to be performed in a project and the information obtained from the work breakdown structure are the tools for determining the fees and the compensation basis.

Terms and conditions of contractual relationships between the designer or contractor, with the client are the most important features to clarify the whole scope of the project. Scope of services and their identification which the

project will revolve, has to become the body of letters of agreement between project participants to prevent the misunderstandings. This step is also accepted as the scope verification and scope control.

5.3. Project Design Management

5.3.1. Design Process

"Design is a process of creating the description of a new facility, usually represented by detailed plans and specifications" (Hendrickson and Au, 1989: 48). Projects, especially the construction projects are intricate and time-consuming undertakings. The total development of a project normally consists of several phases, requiring a diverse range of specialized services. In the evolution from initial planning to project completion of a construction, project stages can be analyzed in three main groups such as:

- Planning and Definition
- Design
- Procurement and Construction

The design phase simply involves the architectural, and engineering design of the entire project. It culminates with the preparation of final work-drawings and specifications for the total construction program (Clough and Sears, 1991).

The design phase, in content, includes the features indicated above, but also from the technical side of the situation. It includes a management system and information flow in its scope within the communication systems and management.

5.3.2. Design Methodology

According to Jensen and Tonies (cited in Hendrickson and Au, 1989), a conceptual design can be characterized by several actions like formulation, analysis, search, decision, specification and modification. These actions are all active responses or procedures to a new problem. Simply, **formulation** refers to the definition or description of a design problem in broad terms through the synthesis of ideas and describing alternative facilities. **Analysis** refines the problem definition or description by separating the important from the general information by using details. **Search** stage involves gathering a set of potential solutions. **Decision** is the evaluation of potential solutions that are compared to the alternatives until the best solution is obtained. **Specification** is the description of the chosen solution that contains enough detail for implementation. **Modification** refers to the change of solution or redesigning phases. These are interactive processes within the design process.

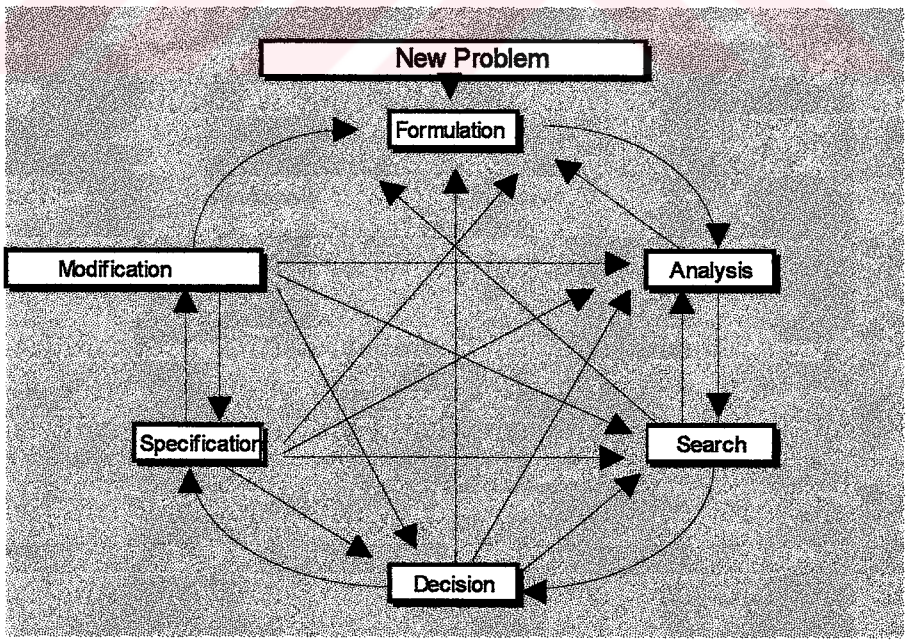

Figure 12. Conceptual Design Process.
(From Hendrickson, C. and Tung Au. 1989. Project Management for Construction. New Jersey: Prentice Hall Inc. p.58)

5.3.3. The Construction and Design Integration

Design and construction activity are two important features as interacting processes in the planning of a project. Planning, for a construction activity, is a process of identifying activities and resources required to make the design a physical reality (Hendrickson and Au, 1989). Construction is the implementation of a design envisioned by the designers, architects, and engineers. In this approach, design and construction both form an integrated system. The planning for both design and construction must be considered as a common problem at the methodological stages of a the design and construction project.

5.3.4. The Designer's Coordination with other Parties

Beyond the technical side of the construction phase for design formulation, implementation stages of a construction, relationships are the decision mechanisms or components of the management of the systems (Lawson, 1990). Calvert (1986) assigns architects, designers and builders as the interfaces for the clients needs to realize the imaginary to the real. The cooperation between these three parties is the most important fact determining the success notion. Architects and designers ought to be in a harmonious cooperation with the client and the constructor (from the first meeting to the final sketches), and constructor has to work in collaboration with the architect and designer through a certain project activity.

5.4. Project Contract Management

In architectural, engineering and design projects, the contractor side of the work must develop three basic documents depending on the contract between the client and the contractor. The basic three documents are the drawings, the

conditions of contract and the specifications. Together with certain additional documents they constitute the contract documents (Rosen and Heineman, 1990).

The contract documents, quite often called the construction documents, consist of the following instruments as; agreement, conditions of contract, construction drawings, specifications, addenda, and modifications.

5.4.1. Construction Documents

One of the most important tools of the contract documents is the set of construction drawings, also presented as the working drawings, that describe, in detail, the extent of the work, location, dimensions and relationships of the various construction elements.

Wakita and Linde present construction documents as a set of legal contract documents of drawings and specifications that graphically and verbally describe what is required for a specific construction project. These drawings are used by the contractors and subcontractors along with the construction specifications, to implement the project (cited in Ballast, 1992).

Construction drawings can be prepared in several formats depending upon the standards. The use of standards for construction drawings is making the documents as understandable as common for the project team or organization.

5.4.2. Construction Specifications

Any interior design project that involves construction activity requires written specifications as well as construction drawings in order to determine the

contents of unique products or services. The basic specification types are presented below (Rosen and Heineman, 1990).

Performance specifications are used primarily when the other project participant specifies requirement from the contractor to match or to obtain a result consistent with an existing situation. Specifying in this manner constitutes a performance specification. **A descriptive specification** can be defined as one that describes in detail the materials to be used and the workmanship required to fabricate, erect, and install the materials. **The reference specification** is one that refers to a standard established for either a material, a test method, or an installation procedure. **A proprietary specification** is one in whom the project participant specifies, states outright the actual make, model, catalog number and so on, of a product or a installation instructions of a manufacturer.

5.4.3. Letters of Agreement

In interior design services the scope of the whole specific project, financial responsibilities upon the project participants can all be the content of the letters of agreement.

5.5. Project Time Management

Project time management is a subset of project management, including the processes required to ensure the timely completion of the project. It consists of activity definition, activity sequencing, activity duration estimating, schedule development, and schedule control. These processes of time management interact with each other in a sequence (PMI Standards Committee, 1996).

Piotrowski (1989), while discussing the importance of time management for an interior designer, states that an interior designer has to be able to manage his time and the time of the firm's employees. Tracking time with automated scheduling systems and with manual tools like the control books, are the most common methods of controlling time in interior design projects.

5.5.1. Activity Definition

Activity is a specific job or task that has to be performed. **Activity definition** involves identifying and documenting the specific activities that must be performed in a project, to produce the deliverables and sub-deliverables identified in the work breakdown structure. The work breakdown structure is the main input of the activity definition for a project. In this phase, the project elements are subdivided into smaller and manageable sections in order to provide better management control. The following step is preparing an activity list. The historical information from similar or previous projects, assumptions about the services to be performed, the project team's constraints, and the scope of the project are the primary data for activity definition (PMI Standards Committee, 1996).

5.5.2. Activity Sequencing

Activity sequencing involves identifying and documenting the dependencies. The dependencies are the logical relations between the activities. The dependencies are found in two major types in a construction facility, namely the **physical dependencies** and the **strategic dependencies**. The installation of a window frame without a wall is an impossible activity, so they are physically dependent, but when to install the window frame to the constructed wall is a strategic dependency, like making the decision to install the window frame

before or after the floor finishes are installed. This classification depends upon the work sequences of the special activities.

Activities, in the content of relationships, must be sequenced accurately in order to support the later development of a realistic and achievable schedule. The main output of this process is to create a network diagram, which is a schematic display of the project's activities and the logical relationships (dependencies) among them. Sequencing can be performed with the aid of a computer (by using project management software) or with manual techniques. Manual techniques are often more effective on smaller projects and in the early phases of larger ones when little detail is available. Manual and automated techniques may also be used in combination.

Activities can be sequenced in two major ways: the precedence diagramming and arrow diagramming methods. These methods are used to construct a project network diagram (PMI Standards Committee, 1996).

Precedence diagramming method is a method of constructing a project network diagram using nodes to represent the activities and connecting them with arrows that show the dependencies. Figure 13 presents a project network diagram, drawn using the precedence diagramming method. This technique is also called activity-on-node, which can be found in most project management software packages. Precedence diagramming method can be done manually or on a computer. It includes four types of dependencies or precedence relationships:

1. Finish-to-start—the "from" activity must finish before the "to" activity can start.
2. Finish-to-finish—the "from" activity must finish before the "to" activity can finish.
3. Start-to-start—the "from" activity must start before the "to" activity can start.
4. Start-to-finish—the "from" activity must start before the "to" activity can finish.

In precedence diagramming method, finish-to-start is the most commonly used type of logical relationship.

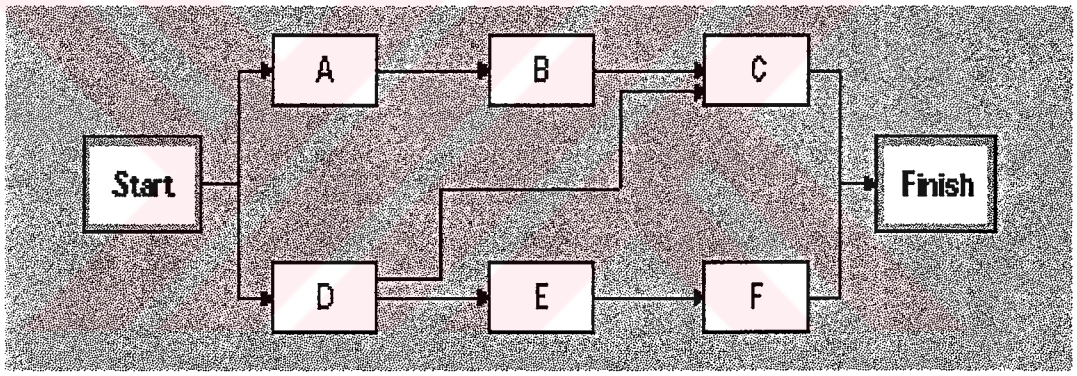

Figure 13.
Network Logic Diagram Drawn Using the Precedence Diagramming Method. (From PMI Standards Committee. 1996. A Guide to the Project Management Body of Knowledge (PMBOK). Charlotte: Automated Graphic Systems. p.69)

Arrow diagramming method is a method of constructing a project network diagram using arrows to represent the activities and connecting them at nodes or events to show the dependencies. Figure 14 illustrates a simple project network diagram, drawn using arrow diagramming method. This technique is

also called activity-on-arrow and, arrow diagramming method can be done manually or with a computer (PMI Standards Committee, 1996).

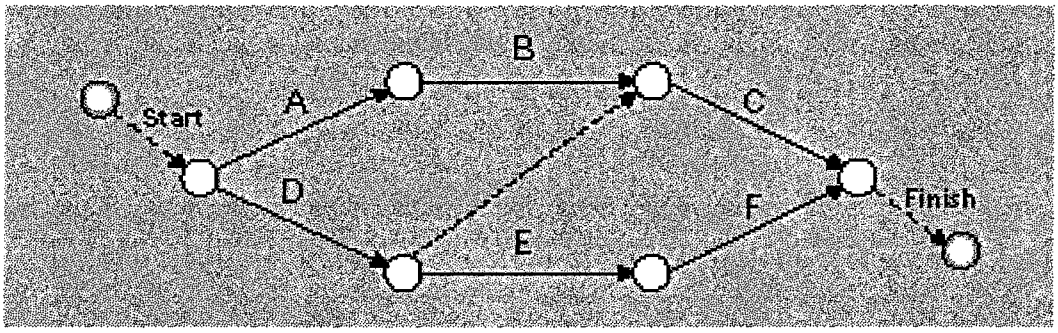

Figure 14.
Network Logic Diagram Drawn Using the Arrow Diagramming Method. (From PMI Standards Committee. 1996. A Guide to the Project Management Body of Knowledge (PMBOK). Charlotte: Automated Graphic Systems. p. 69)

5.5.3. Activity Duration Estimating

Activity duration estimating involves assessing the number of work periods likely to be needed to complete each identified activity. The person or group on the project team who is most familiar with the nature of a specific activity, or familiar to a construction execution, or an interior design project implementation should make or at least approve, the estimate. The activity list, constraints of the project, assumptions, resource requirements and capabilities, and historical information about the previous projects are the basic data for the activity duration estimating (PMI Standards Committee, 1996).

5.5.4. Project Schedule Development

Project schedule consists of the planned dates for performing activities and the planned dates for meeting milestones. The project schedule may be presented in a summary form as the "master schedule".

Scheduling activity is the conversion of a project action plan into an operating timetable. Scheduling systems are used to control all kinds of projects. Projects can be scheduled using a method that is suitable for that specific or particular project's scope and complexity. Project scheduling is an activity of project time management (PMI Standards Committee, 1996).

In the design market, the types of projects typically performed by the design firms share a number of characteristics that can be used to narrow the choice of the scheduling method. These characteristics are: **scope of the work, number of disciplines involved, number of staff involved, duration of the project, amount of fee**, and **project leadership** (Burstein and Stasiowski, 1991).

In an interior design project, two major parts of project schedule are found to be scheduled as **the design time** and **the construction and the installation time** (Ballast, 1992).

The interior designer can be responsible for developing the schedule for the design of the job and the production of contract documents. Ordering, delivery and installation of the furniture can also be under the responsibility of the interior designer depending on the agreements. Construction scheduling in an interior design project is the responsibility of the contractor or the subcontractor. The contractor in an interior design project can be the designer of the same project, where as construction supervisor or a subcontractor can also be assigned to this job (Ballast, 1992).

Depending on the size and complexity of the project, any one of the following scheduling methods can be used to provide effective project planning. Loebelson (1983) states that scheduling becomes a more important activity for the larger design firms rather than the small design firms. While medium and large size firms schedule all the resources through the project, the small firms closely schedule the time and the related critical dates of the design projects according to their project implementation capabilities.

5.5.5. Project Scheduling Systems

By implementing the pre-phases for the project network diagrams and activity duration estimates, a suitable project schedule system can be applied to the selected project. The schedules can be developed as Milestone charts, Bar (Gantt) charts, Project Network Diagrams and Time-scaled Network diagrams (Burstein and Stasiowski, 1991).

Table 2 illustrates the main criteria scheme for selecting the proper scheduling method from the common systems implemented in interior design projects. The wall scheduling system that is presented on this chart is a visual presentation and implementation system, in which the project tasks are indicated on index cards, with project information, on a vertical weekly divided (as workweeks) wall and attached according to the project activity sequence (Burstein and Stasiowski, 1991).

Table 2. Criteria for selecting the best scheduling method.

Evaluation Criteria	Milestone Charts	Barchart	Cpm Diagram	Wall Schedule
Cost to prepare	Minimal	Minimal	Extensive	Moderate
Cost to update	Minimal	Minimal	Moderate	Moderate
Degree of control	Fair	Good	Excellent	Good
Applicability to large projects	Poor	Fair	Excellent	Good
Applicability to small projects	Excellent	Good	Poor	Good
Commitment from project team	Fair	Fair	Excellent	Excellent
Client appeal	Fair	Good	Excellent	Excellent

(From Burstein, David and Peter Stasiowski. 1991. Project Management for the Design Professional. New York: Whitney Library of Design. p. 50)

In the following part of the study, the main outline of these scheduling system types and their main scope is presented. Building up a schedule program for a project requires more detailed information about each specific system and knowledge, about the presentation, and use of dependencies on activities in the scheduling systems and networks.

5.5.5.1. Milestone Charts

Milestone is a significant event in the project, usually completion of a major deliverable. This method of the project scheduling consists of identifying the target completion of the date for each activity in the task outline. Milestone charts, in Figure 15, are generally picked out because of the advantage of their ease of preparation and emphasis on target completion dates. The milestone charts can also be presented in different formats. The best applications for the milestone charts are short projects with few participants and little interrelationship between activities (Burstein and Stasiowski, 1991).

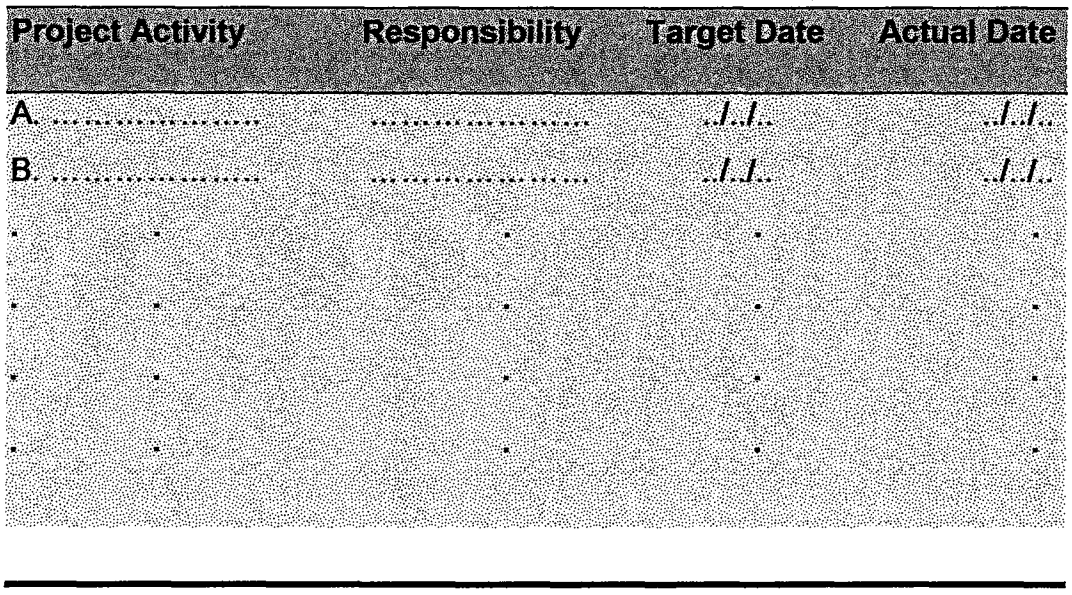

Figure 15. Milestone Chart.
(From Burstein, David and Peter Stasiowski. 1991. Project Management for the Design Professional. New York: Whitney Library of Design. p. 29)

5.5.5.2. Bar Charts (Gantt Charts)

Bar chart is the graphic display of schedule-related information. In a typical bar chart, list of activities, tasks or other project elements are listed down beginning from the left side of the chart continuing to the right side, dates are shown across the top, and each activity duration is shown as date-placed (scheduled start and finish dates for each task) horizontal bars.

The bar chart, presented in Figure 16 is the most common used system of project scheduling for the design professionals. The primary drawback of the bar chart is that, it neither indicates the interrelationship through various tasks, nor indicates which activities are most crucial for completing the entire project on schedule. It is relatively easy to read and is frequently used in management presentations (Burstein and Stasiowski, 1991).

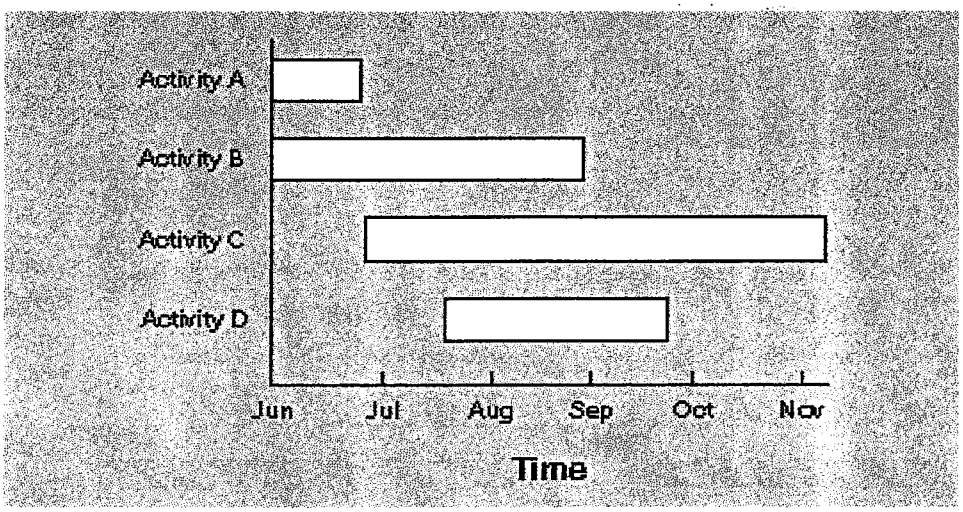

Figure 16. Bar Chart (Gantt Chart).
(From PMI Standards Committee. 1996. A Guide to the Project Management Body of Knowledge (PMBOK). Charlotte: Automated Graphic Systems. p. 69)

5.5.5.3. Project Network Diagrams

Project network diagrams, implemented by the precedence diagram and the activity-on-node diagramming methods, are the charts which usually show both the project logic and the project's critical path activities. Critical path is the series of activities which determines the earliest completion of the project. The critical path generally changes from time to time as activities are completed ahead of, or behind the schedule. The date information can be added to project network diagrams (PMI Standards Committee, 1996).

5.5.5.4. Time-scaled Network Diagrams

Time-scaled network diagrams are a blend of project network diagrams and bar charts in that they show project logic, activity duration, and schedule information (Fig. 17).

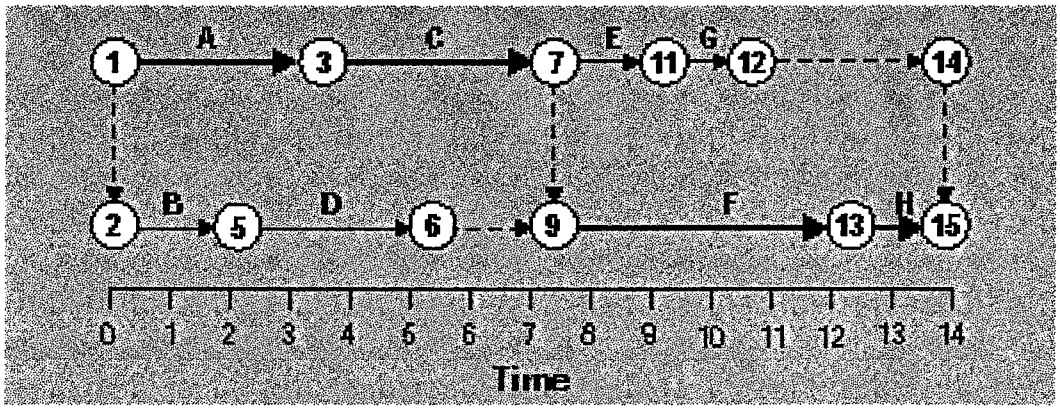

Figure 17. Time-scaled Network Diagrams.
(From PMI Standards Committee. 1996. A Guide to the Project Management Body of Knowledge (PMBOK). Charlotte: Automated Graphic Systems. p. 70)

5.5.5.5. The Critical Path Method

Critical path method (CPM) is a network analysis technique used to predict project duration by analyzing which sequence of activities (which path) has the least amount of scheduling flexibility (the least amount of float). Early dates are calculated by means of a forward pass using a specified start date. Late dates are calculated by means of a backward pass starting from a specified completion date (usually the forward pass is calculated according to project's early finish date).

This system of project scheduling is commonly used to overcome the drawbacks of the bar chart scheduling. The critical path method simply defines the interrelationships and the schedules between the tasks (Burstein and Stasiowski, 1991).

5.5.5.6. Program Evaluation and Review Technique (PERT)

Program evaluation and review technique (PERT) is an event-oriented network analysis technique, used to estimate project duration when there is a high degree of uncertainty with the individual activity duration estimates. PERT applies the critical path method to a weighted average duration estimate.

5.5.5.7. Schedule Control

Schedule control is a continuous activity from the beginning of the schedule development until the close out of the project. Understanding whether the project is executed according to the planned schedule or not, is an important issue to take precautions and decide on revisions. Schedules are generally revised or updated by the performance reports and change requests obtained from the project participants. In general, the paperwork and automated tracking systems, and in large projects the performance measurements and additional revised planning are the tools and techniques for schedule control process.

5.6. Project Cost Management

Project cost management simply includes the processes required to ensure that the project is completed within the budget. The major processes within the cost management are resource planning, cost estimating, cost budgeting and cost control. Project cost management is primarily concerned with the cost of the resources needed to complete project activities (PMI Standards Committee, 1996).

Project cost is also defined as the total cost or estimated cost to the owner of all components of the project, including items designed or specified by the

interior designer; labor; materials, furniture, and equipment furnished by the owner if it was designed or selected by the designer; and a reasonable allowance for the contractor's overhead and profit. The project costs also include the costs of fees, taxes, managing or supervising, and installation (Ballast, 1992).

5.6.1. Resource Planning

Resource planning is determining what resources (people, equipment, materials) and what quantities of each should be used to perform project activities. Resource planning is closely associated with cost estimating. The general resource needs of the projects are identified within the framework of the work breakdown structure of the specific project. The historical information regarding what types of resources were required for similar work on previous projects, the organizational policies and the project objectives are the main inputs of the resource planning in order to obtain the resource requirements.

5.6.2. Cost Estimating

Cost estimates are the quantitative evaluation of the resources required to complete project activities. Cost estimating is developing an approximation (estimate) of the costs of the resources needed to complete project activities. Cost estimating is a different activity then the pricing. It involves developing an assessment of the likely quantitative result of how much performing organization will cost, to provide the product or service involved. Pricing is a business decision which includes the amount that is charged by the performing organization for the product or service. Cost estimates are generally expressed in units of currency. The other way of cost estimation depends on the staff hours or staff days previously expected or standardized.

The data obtained from the work breakdown structure is the major tool for cost estimation. The activities determined in the work breakdown structure, their resource requirements and activity duration, the data from the previous projects and the expertise knowledge are the other inputs for the cost estimation (Dinsmore, 1990)

In management, three major techniques are used in cost estimation. **Analogous estimation** is executed by the actual costs of previous, similar projects. Analogous estimation requires expertise knowledge. **Parametric modeling** involves using project characteristics in mathematical model to predict costs like, the residential home construction cost a certain amount per square meter of living space and cost to construct it. **Bottom-up estimation** is the last method which involves the cost of individual work items, or services. To implement these estimation techniques, computerized tools such as project management software spreadsheets can be used.

5.6.3. Cost Budgeting and Cost Control

Cost budgeting involves allocating the overall cost estimate to individual work items. All the inputs obtained from cost estimates, work breakdown structure and project schedule are combined by the cost estimating tools and techniques to provide a cost baseline which is a time-phased budget that will monitor the cost performance. It can be developed by summing the estimated costs by period and can be illustrated on an S-curve. In Figure 18, cost baseline is illustrated. The expected cash flow and the cost performance baseline is indicated as S-curves on the time and cumulative values axis. Cumulative values axis stand for the costs increasing in quantity. The possible

intersection areas where the expected cash flow curve can go below the cost performance baseline presents the unexpected costs that requires more cash. Larger projects can have, according to their scopes, many different cost baselines for different activities or processes.

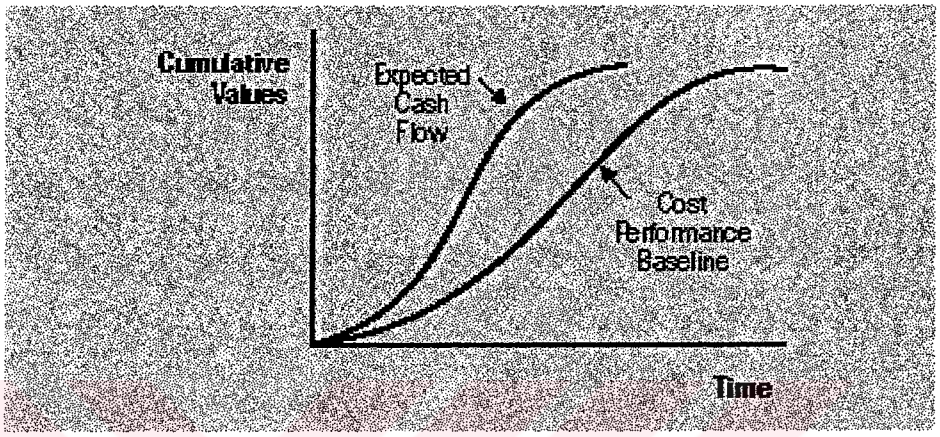

Figure 18. Illustrative Cost Baseline Display.
(From PMI Standards Committee. 1996. A Guide to the Project Management Body of Knowledge (PMBOK). Charlotte: Automated Graphic Systems. p.79)

Cost control is the activity of controlling changes to the project budget. Some variable or even constant factors, and the participants' revisions upon the project determined at the scope definition of the project may create cost changes within the project budget. Cost controlling is the monitoring and implementation of those changes within the authorization of participants. The paperwork and tracking systems are the useful tools which can be used for cost controlling. Through the data provided by these tools, an additional planning can be implemented, cost estimates can be revised, and the budgets can be updated for the cost over the project. All these revisions can be tracked through a project management software, like the spreadsheets, within the two concerns of cost analysis, namely the planned cost and the actual cost.

5.7. Project Quality Management

Project quality management includes the processes required to ensure that the project will satisfy the needs for which it was undertaken. The definition of "need" for quality by the International Organization for Standardization includes "all activities of the overall management function that determine the quality policy, objectives, and responsibilities and implements them by means such as quality planning, quality control, quality assurance, and quality improvement, within the quality system" (cited in PMI Standards Committee, 1996).

According to American National Standards Institute (ANSI) / American Society for Quality Control (ASQC) Standard A3-1987, quality is the totality of the features and characteristics of a product or a service that bears on its ability to satisfy implied or stated needs (cited in Banks, 1989). Quality is also defined as meeting or exceeding the customer's expectations. The term "stated needs" in the first definition is commonly determined by the contract, whereas implied needs are a function of the market or a service, and it must be identified and defined. The quality has nine different dimensions for a product or a service. These are stated as:

1. Performance- Primary product characteristics
2. Features- Secondary characteristics
3. Conformance- Meeting specifications
4. Reliability- Consistency of performance over time
5. Durability- Useful life
6. Service- Resolution of problems and complaints
7. Response- Human to human interface

8. Aesthetics- Sensory characteristics
9. Reputation- Past performance and other intangibles

Quality management is classified into three major steps by the PMI Standards Committee (1996) as quality planning, quality assurance and quality control.

Quality planning involves identifying which quality standards are relevant to the project and determining how to satisfy them. The standards and regulations must be considered by the project team while implementing the project. **Quality assurance** is all the planned and systematic activities implemented within the quality system to provide confidence that the project will satisfy the relevant quality standards. Finally, **quality control** involves monitoring specific project results to determine if they comply with relevant quality standards and identifying ways to eliminate causes of unsatisfactory results. Inspection is a basic activity that an organization may perform at any level of the project. Inspection includes activities such as measuring, examining and testing undertaken to determine whether results conform to requirements. Other tools or techniques can also be used for the quality control to obtain the quality improvement.

5.8. Project Human Resources Management

Project human resources management is a subset of project management that includes the processes required to make the most effective use of the people, participants, involved with the project. It consists of organizational planning, staff acquisition, and team development, as discussed by PMI Standards Committee (1996).

5.8.1. Organizational Planning

Organizational planning involves identifying, documenting, and assigning project roles, responsibilities, and reporting relationships. Organizational planning simply depends on the staffing requirements and project interfaces in a project. An organizational structure can be based on the organizational theory according to the structure of a project. In a strong matrix organization in the projects, project manager has a relatively stronger role " (PMI Standards Committee, 1996).

The "Strong Project Manager Organization" (SPM), the concept that has been presented previously, is a sample type of strong matrix organization. The SPM is a matrix system in which the project manager has no permanent staff, but rather is assigned to an interdisciplinary project team for assistance in performing a specific project. When the project is completed, the team is disbanded, and each team member is reassigned to another project. This matrix system can be adaptable for either a single discipline firm or a multidisciplinary firm. Figure 19 indicates direct and indirect relations of hierarchical format of a project matrix organization, between the participants of a project.

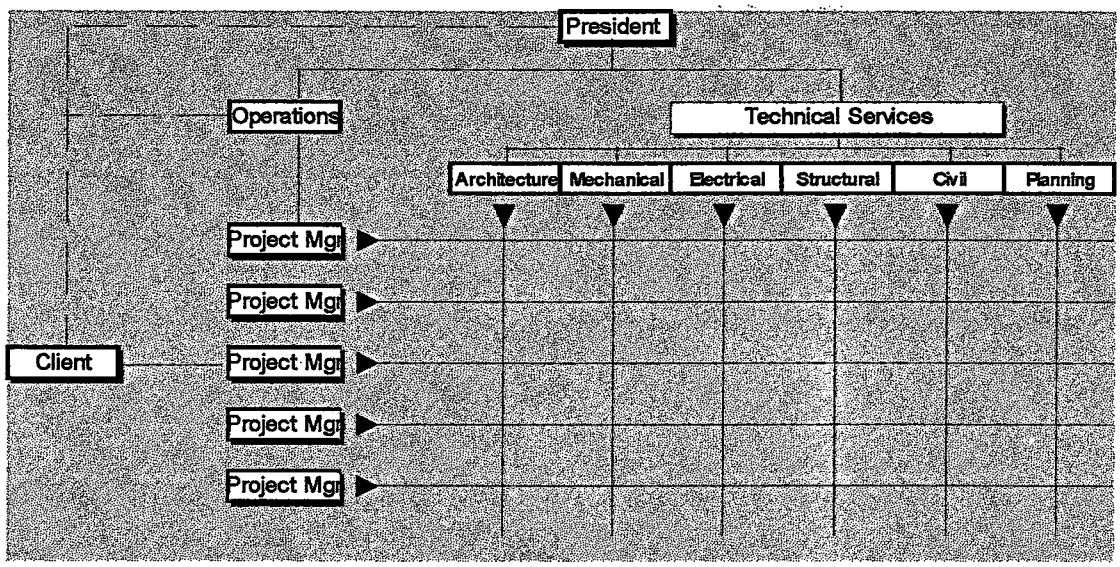

Figure 19. Typical Matrix Organization.
(From Burstein, David and Peter Stasiowski. 1991. Project Management for the Design Professional. New York: Whitney Library of Design. p.12)

The results of the planning are the role responsibility assignments through the organization. The data obtained in this stage can be turned into to a staffing management plan and an organization chart, which is a graphic display of project reporting relationships, can be utilized.

5.8.2. Staff Acquisition and Team Development

Staff acquisition involves getting the human resources needed, assigned to and working on the project. The staffing plan previously implemented can be used in this stage. The capabilities of the individuals or the groups are other tools for staff acquisition. Team development is gathering the individual and group skills to enhance project performance.

5.9. Project Communications Management

Project communications management includes the processes required to ensure timely and appropriate generation, collection, dissemination, storage, and ultimate disposition of project information (PMI Standards Committee, 1996). It provides the critical links among people, ideas, and information which are necessary for success. Everyone involved in the project must be prepared to send and receive communications in the project "language" and must understand how the communications they are involved in, as individuals, affect the project as a whole. **Communications planning** involves determining the information and communications needs of the project participants: who needs what information, when will they need it, and how will it be given to them. **Information distribution** involves making needed information available to project participants in a timely manner. Performance reporting involves collecting and disseminating performance information. This includes status reporting, progress measurement, and forecasting. **Administrative closure** involves generating, gathering, and disseminating information to formalize phase or project completion (PMI Standards Committee, 1996).

5.10. Project Risk Management

Project risk management includes the processes concerned with identifying, analyzing, and responding to project risk. It includes maximizing the results of positive events and minimizing the consequences of adverse events (PMI Standards Committee, 1996)

Risk identification is determining which risks are likely to affect the project and documenting the characteristics of each. The risks for a project can be

identified in two groups, as the internal and external risks. Internal risks are the affairs that the project team can control or influence, such as the cost control or a delay in the project schedule. External risks are the affairs beyond the control of the project team, such as a government action that can affect the project. The internal risks can be often eliminated by the control mechanisms of each project process level. Risk sources and potential risk events can be identified by using checklists about the projects or by risk-oriented interviews through the scope definition of the project.

Risk quantification is the process of evaluating risks and risk interactions to assess the range of possible project outcomes.

Risk response development involves defining enhancement steps for opportunities and responses to threats. A risk can be eliminated, can be pursued and responded, or can be reduced and accepted in a project.

Risk response control involves executing a risk management plan in order to respond to risk events over the course of the project.

Wardle (285) states that none of the business enterprises are free of risks and classifies risks in two groups. The dynamic risks are the ones related to the capital side of the project that require the process control mechanisms, whereas the static ones are the physical risks that may be controlled or compensated by the insurance. The important fact that must be undertaken is the definition and evaluation of several risks in the scope of a project.

Ballast (1992) discusses the insurance concept in interior design services from the point of participants in a project. Different insurance types are necessary for different risks in interior design projects. The insurance concept for the interior design profession involves the designer, owner and the contractor to protect them against liability, property loss and personal loss. The insurance types for the project participants are:

1. **Interior designer's insurance** includes professional liability insurance, general liability insurance, property insurance, personal injury protection, and worker's compensation.
2. **Owner's insurance,** generally in "all risk" type includes liability insurance, property insurance against physical loss or damage.
3. **Contractor's insurance** includes all the physical resources.

5.11. Project Procurement and Materials Management

Project procurement and materials management are components of project management, including the processes required to acquire goods and services from outside the performing organization (PMI Standards Committee, 1996). As Zenz (1987) states, the complexity of product evaluations combined with the wide range of procurement probabilities requires a high level of talent within the procurement organization.

Knackstedt (1992), in her classification of specialization in interior design profession, assigns procurement or the purchasing activity to the designer, construction supervisor, or to the purchasing specialist in an interior design firm. Loebelson (1983) also discusses the responsibility of purchasing or the procurement activities and the materials management activities in small and large interior design business firms, in a classified approach according to the

sizes of the firms. In small sized firms, procurement activity is commonly assigned to the interior designer. In large organizations, construction supervisors, purchasing agents or purchasing organizations outside the performing organization can be assigned for this job.

The seller in procurement activities can be called a contractor, a vendor or a supplier. The buyer is the performing organization which procures. Procurement activity generally involves procurement planning and solicitation.

5.11.1. Procurement Planning

Procurement planning is the process of identifying which project needs can be best met by procuring products or services outside the project organization. It involves consideration of whether to procure, how to procure, what to procure, how much to procure, and when to procure it (PMI Standards Committee, 1996).

The scope of statement provided at the beginning of the project is the main input for procurement planning. The product or service description, their detailed information is the second input for procurement planning. The procurement resources and market conditions are the identifying facts for procurement planning from outside the performing organization.

Gilan and Yessian (1989) point out the three major procurement fields to be planned and executed as commodity procurement, equipment procurement and subcontracting procurement planning.

Equipment procurement is simply based on the type of project control estimate prior to the detailed design studies. The preliminary data that are produced parallel with the design and pre-design phase can be an output for the equipment needs and equipment procurement planning, for a specific project within the construction activities.

Commodity procurement planning (the need for material related with the selected project) is also based on the same requirements, but the most important concept in commodity is the joint effort between the contractor and the designer. The flow of, or more definitely the piping (spreading a plan into an efficient time and implementation schedule) of the needs, material and requirements have to be obtained for the project execution.

Subcontract procurement is also another procurement activity that must be considered according to cooperated work between the engineer, architect, designer, contractor and subcontractor. The objectives of the procurement program can be dependent on both sides according to the specifications of the project.

The three major types of contracts are used for implementing these procurement activities; fixed price or lump sum contracts, cost reimbursable contracts, and unit price contracts.

1. **Fixed price or lump sum contracts** involve a fixed total price for a well-defined product.
2. **Cost reimbursable contracts** involve payment (reimbursement) to the contractor for its actual costs. Costs are usually classified as direct costs

(costs incurred directly by the project, such as wages for members of the project team) and indirect costs (costs allocated to the project by the performing organization as a cost of doing business, such as salaries for corporate executives). Indirect costs are usually calculated as a percentage of direct costs.

3. **Unit price contracts** are the contracts which the contractor is paid a preset amount per unit of service and the total value of the contract is a function of the quantities needed to complete the work.

Procurement is not a single process of buying a service, it also includes the expediting and inspection functions through the end of the process. The objective of **expediting** is to provide an adequate flow of equipment and materials to a job-site at the required time and in a proper sequence. An inherent part of this objective is the task of ensuring that suppliers meet the schedule promised when accepting the purchase order or contract. Delay, in any phase, is the most unwanted situation to be faced in a project that can cause losses or make project run out of previous estimations. Trusting the suppliers can be a problem in those delays beyond the features of the letter of agreements. To prevent this risk the expediter is a professional troubleshooter, concerned specifically with keeping production on schedule and assuring that materials and equipment arrive at the point of use on time (MacMillan, 1989).

Inspection is the key in enabling a project to meet its quality assurance objectives and to provide for subsequent successful startup and operation. Quality assurance must be a multifunctional effort to the owner, the contractors, and vendors each striving to assure that the project fully meets the planned end use. Shop inspection (mostly takes part at the vendor's production and

fabrication facility by specific tests of hardware, mechanics, durability, etc.) and field inspection (by standards, codes, practices and workmanship) are the two key ingredients in a quality assurance program for a successful project by the qualified inspectors. Inspection plans should be aimed at preventing defects. Even if the defects occur, the inspection plan should make sure that they are caught early to avoid costly rework and disruptive schedule delays. A successful quality assurance program relies on the cooperative, proactive and coordinated actions of many parties, to assure that potentially damaging defects are caught before the project is put into operation according to the project.

5.11.2. Solicitation

Solicitation planning is the process of documenting the product requirements and identifying potential sources. The project procurement management plan is the basic input for the solicitation planning (PMI Standards Committee, 1996). Solicitation, also called the bidding, involves obtaining quotations, bids, offers, or proposals as appropriate.

By the request for the bids, the bidding process begins. Once the bids have been received, their distribution has to be made by appropriate personnel by a distribution program. The most important aspect of the bidding is the price and quality policy of materials, again according to the content and size of the project. The **meetings** will follow the system by the selection of several bidders. The agenda for the meetings must be coordinated by the purchase order content. Questions to the bidders must include: technical, purchasing, inspection, expediting questions and specifications. These meetings must be held by the representatives of purchasing, project engineering, the engineering

disciplines involved, the vendor and the client. Any specifications in the meeting, as well as agreements, must be recorded. After all the practicable approvals have been given, the purchase order must be sent to the vendor. The original bid can be accepted, but additional features can also be included in the letter of agreement according to the decisions that are taken in meetings.

5.12. Computer-Aided Project Management

A computer aided project management (CAPM) system which can facilitate the basic fundamentals of the project management processes (to plan the work, to work the plan, to monitor progress, to control the work) can offer many benefits within the project life cycle, such as:

-The ability to process large amounts of information,

-Quick adjustment to project plans during both the planning and execution phases,

-Capability of generating status reports for the levels of management,

-Possibility of comparing alternative "what if", possible scenarios,

are some of these benefits (Humprey and Mc Cauley, 1989).

"Project management software is the class of computer applications specifically designed to aid with planning and controlling project costs and schedules" (PMI Standards Committee, 1996: 167). Through the right selection of the computer software, that is capable of processing the of data about the project, and by the work start, computers can be useful tools for managing and tracking the progress of the work. Swain (1992) states that the computer, both database and computer-aided design (CAD), allows decisions and contemplation to be done at a significantly increased rate for the design business.

5.12.1. Users of Computer-Aided Project Management Software

The applications of project management are extensive and diverse. Each project is unique, and every organization has developed policies and procedures for project execution. Project management is most frequently used by one of the two groups involved in the project cycle: 1. Those performing the work (the contractor or the consultant) 2. Those overseeing the work (the owner or operator). These two groups comprise the majority of the project management users according to the scope of the work, even they may have slightly different and sometimes conflicting goals and diverse reporting requirements. Inspite of these differences, or possibly because of them, it is essential that both make effective use of computer-aided project management in order to achieve and maintain a high level performance (Humphrey and Mc Cauley, 1989).

The constructor has to perform actual work after he is assigned to that work by bidding or a contract without bidding. In order to manage the processes after the first phase of the project for maximizing the efficiency and the profit, the efficient use of a CAPM system can be probable.

5.12.2. Computer-Aided Project Management Software

The contractor can use shelf software including: scheduling, resource management, spreadsheet, database, and computer-aided design (CAD). Among these application packages, packages for preparing bids are available. These programs have different data processing facilities according to their structures as exemplified below;

Scheduling programs calculate the amount of time a project will take, given the activities that need to be performed, the length of each activity, and the interrelationships between the activities. These scheduling programs are mostly compulsory for the large projects where high number of construction activities take place in order to simulate the variations of the possible variable conditions. Some of the scheduling programs include resource management capabilities overlapping with the time management capabilities of the program.

Electronic spreadsheets are the computer software which use a grid of rows and columns made up of individual cells to present the various configurations of data. Data is entered into each cell in different formats to produce understandable reports. Spreadsheets are used in accounting, also can be used for the analysis of "what if data".

A database program enables the user to keep historical costs and labor and equipment requirements. Estimates for a new work can be prepared more readily with access to historical information. Storing the data in easily retrievable form increases the organization's ability to produce a rapid and accurate estimate.

Digitizing equipment and Computer-Aided Design (CAD) systems calculate the quantities of material required to the complete job, in order to prepare the cost estimate, more quickly than the manual take-offs.

The contractor by using these programs has an opportunity to determine the long or short range schedule effects of design changes quickly. Expenditures can be tracked by the electronic spreadsheets, and the actual costs can be compared against the plan or if there is the bid estimates.

6. UTILIZATION OF PROJECT MANAGEMENT NOTIONS BY INTERIOR DESIGN FIRMS IN TURKEY

6.1. Introduction

The definitions and knowledge introduced through the whole content of previous sections of this thesis are related to the project management concept which has been introduced as the coordination (planning, directing, controlling) of all kinds of human and material resources (through the aims and goals of the project including cost, time and quality). The term "service", used for the interior design services considered in this thesis, stands for the scope of assistance that can be provided for the participants of the project. To investigate the nature and extent of the use of project management notions by interior design firms in Turkey, a case study has been conducted in sample interior design service firms according to their operational categories. Whether project management notions are utilized by the consultants of these firms or not, or how these notions are utilized or being utilized upon the implemented or ongoing projects, and the important notions about the management of projects for the sample interior design service providing firms, within the interior design services context are studied as the main objectives of the research. The scope and analysis of utilization of project management concepts for the sample firms, according to their firm characteristics, is another main research objective through the differentiation of samples.

6.2. Methodology for the Research

A non-experimental research in the form of a survey (a questionnaire within the interviews) has been conducted to clarify the selected research objectives. In this study, parties involved in interior design projects and services have been selected according to the classifications which are based on the knowledge provided from the Chapter 3 "Project Management in Interior Design Services". These are the possible business structures (the business conduct) that can be utilized for the interior design firms, and the operational categories (small, medium, and large firms) of the firms. As the complexity of the projects change, the operational structure of the firm or the organizational requirements differ in context. This is the basic constant factor to limit the case study with the operational categories of the firms and for the analysis of utilization of project management notions at differentiating context through the firms. The search for the validity of this statement can be also accepted as one of the objectives of the study. The answers to the research questions, that are gathered from the interviews, are concluded by the differentiating data obtained from the firms according to their classification in a comparative way.

The survey has been prepared according to the project management notions for the interior design services presented in the study. The structure of the questions is also constructed upon these project management notions for the interior design services. In the following section, the relation of the survey questions to the project management notions within the context of interior design service firms is presented.

The questionnaire prepared for the survey was used in interviews, held with the consultants of the selected interior design firms or departments, according to the managerial responsibility of the individuals and the project participants upon the interior design projects. The interviews with the respondents were held in last month of 1996 and lasted about one or two hours for each. Written permissions were obtained from these firms and respondents for publishing the information gathered from the research. The limited sample size, depending on the referred classification, has provided some advantages and disadvantages that are discussed in further sections.

The most significant phase in this research was the preparation of the questions. The questions were prepared to investigate the whole context of project management notions in order to obtain more detailed answers with an open ended structure that relate to the respondents' managerial approach or the relation to analyze the execution of projects for the sample firm. This system has been preferred to provide detailed information about the situations presented in the study, in order to analyze whether the research objectives are really valid, for these interior design firms in Turkey, or not is studied in detail.

6.3. Research Phases

The research phases of this study are **pre-research phase**, **questionnaire structure**, **research phase**, and **findings**.

The pre-research phase, the beginning of the study, involves the pre-selection of the sample firms for the research.

After pre-research phase, a questionnaire was planned for use in the interviews. The structure of this questionnaire is as follows:

The first section of the questionnaire, "**general information about the firm**", is for analyzing and selecting available sample for the research meeting the constraints of analysis of utilization of project management notions in interior design service providing firms. The general information about the firm is analyzed in this section. As discussed in the third chapter of this thesis, the business organization, business structure and the project implementation fields according to the professional divisions in interior design services, is examined. In this phase of the research the respondents' approach and understanding of **project and project management concept** for their organization is also observed.

In order to execute this research, the pre-research interviews which were conducted with the firms for the sample selection have some distinctive characteristics. The criteria or the classification obtained from the third chapter of the study, the operational categories of the American Society of Interior Designers' for interior design service firms was used as the basis of the study. As there is no more corresponding classification available for the interior design service firms in

Turkey, the matching data obtained from this classification is used in this study for the interior design service providing firms for the analysis of their intention to manage their projects within the framework of project management notions. The verification of this classification is also studied by the obtained data from the research.

In the second phase of the questionnaire, **activities in an interior design project within the project life cycle** and their execution is analyzed within the context of selected sample interior design service providing firms.

In the third phase a **free interview** was held with the respondent to analyze the overall case.

By the completion of the interviews, implementation of the questionnaire, the findings are analyzed for evaluation and, through those findings some proposals or suggestions are presented for the further studies which relate to the current case.

6.3.1. Pre-Research Phase

6.3.1.1. Preliminary Sample Selection

The data obtained from this section of the study is a necessity for sample firm selection. As the project management notion is a relevant activity related to the business structure of a firm in interior design profession, the management philosophy of a firm determines the size, organization and service requirements of a firm. Since the main aim of the research is to present the range of utilization of the project management notions for the interior design services, three categories of business structures in interior design profession in the study have been used to present the complexity level of projects and respondents' approaches to their projects. This approach in the research was expected to provide and state the basic differences between the management philosophies through the projects for the three types of interior design firms according to their operational categories.

This preliminary sample selection was done by the information provided from the firms by pre-interviews and matching information from the classification of operational categories of interior design firms. The verification of the correct sample selection was obtained by the data collected from the firms by the implementation of preliminary phase of the questionnaire, "**the general information about the sample firm**" section, and the interviews. This phase depends upon the assumptions through the data that has been obtained from the third chapter of the study.

6.3.1.2. Preliminary Sample Data

The first sample firm which was interviewed and selected as a subject of this study is a small interior design firm which is run by Yelda Sarıçetin and Murat Akakçe (Gülden Sok. 11/2 A. Ayrancı/ANKARA). This firm is referred to **"Firm A"** in the study for the technical ease of evaluation of findings in the comparisons. The firm is a recent one, built on a base of two years of experience and which will have a new legal identity of limited partnership with two owners in 1997. This firm is generally involved in residential and non-residential projects from the market and through their business plans. They usually follow the opportunities in the market through those plans. The staff of the firm is limited to the two owners and they generally work with sub-contractors for their projects, or they work in a subcontracting position with other, medium-sized interior design service firms. They do not have a permanent technical staff assigned for their projects but they prefer to work with the same people in all of their projects. They are involved in different phases of projects according to the scope of the projects from their design phase to the execution and controlling of them. The research respondent was Yelda Sarıçetin, a designer who is also one of the owners of the firm.

The major projects implemented or being implemented by this firm are limited in number and limited to residential and non-residential projects as follows:
Alabanda Turizm ve Ticaret Limited Şirketi Office Design (as subcontractor for the execution and control for the project); Yeşim, Levent Erdemir Residence; a children's boutique in Karum İş Merkezi-Ankara, and the Xcess Nightclub-Ankara. Projects being implemented are the Kent Optik Showrooms in Bilkent Plaza and Bahçelievler; Optik Lenti Showroom, Kızılay-Ankara; and a residential floor design

for Ekol Limited Şirketi. They do not have specific plans for the following years on the project basis but they plan, informally, to be involved in product design and execute a retail store for this business with their design office department.

The second sample firm selected for the case study is a medium-size firm, Altay & Altay İç Mimarlık, Mobilya ve Ticaret Limited Şirketi (Uğur Mumcu Cad. 27/1 Gaziosmanpaşa/ANKARA). The director of the firm, who is also the owner and respondent of the research, was Bülent Altay. This firm is referred to **"Firm B"** in the study for the technical ease of evaluation of findings in the comparisons. This sample firm has been providing interior design services for their clients since 1976. The main approach of this firm in the market involves residential and non-residential designs and executions of them besides their operational activities such as product, furniture design and execution of them including the marketing. They provide a wide a range of services within their residential and non-residential project framework, from designing to execution of several projects according to their project constraints obtained by the project participants. This firm also provides services for architectural and engineering firms within the framework of large projects as providing interior design services in a sub-contracting position.

The major projects implemented by this firm are large in number within a residential and non-residential project framework, with about 120 projects since 1976. The major implemented projects, partially or complete designing, execution, and control of the projects in association with architectural firms are wide in range.

Some of these major large projects follow as:

Beykoz Konakları-İstanbul (in association with TEPE İnşaat Limited Şirketi); İber Otel, Belpark-Antalya; Bayındır Hastanesi-Ankara; Simena Tatil Köyü, Kemer-Antalya (association with Ceylan Group); Hilton-Ankara; and Merkez Bankası İnşaat Dairesi-Ankara. Today, they have no ongoing projects, and no designers are assigned to projects in the firm except Bülent Altay, according to their business plans. They are disbanding their workshop because of their preference to work with sub-contractors for constructing their designs for the projects. The main reasons of this situation are going to be presented in the further sections of the study. The firm is planning to be involved in only project designing and project control and furniture production in the future, not in executing the projects.

The third organization selected as a sample firm is a large, but not architecturally oriented firm: Homestore LP Dekorasyon, Sanayii, ve Ticaret Limited Şirketi (Homestore-Akmerkez, Etiler/İSTANBUL). This firm is referred to "**Firm C**" in the study for the technical ease of evaluation of findings in the comparisons. This firm has been included in the study for understanding the utilization of project management notions in a non-architecturally oriented large-sized interior design service providing firm. This additional data is also evaluated within the project framework of a large-sized firm. The owner of the firm is Levent Penso and the research respondent was the interior design department coordinator Murat Öztürk. The firm has been involved in several residential and non-residential projects, since 1984 and has a certain preference for these. The firm has been operating retail stores for home decoration, which export, mobile products such as home furniture and accessories. They also have a workshop for production, which

supports the execution of the projects. Besides, the retail department also supports the interior design department for the projects according to the project and client demands. The interior design department is coordinated by a chief designer while four interior designers work simultaneously with him. The technical staff of the firm consists of 30 permanent people who give support to the interior design department.

The firm has implemented over 100 residential and non-residential projects. The important projects follow as:
Homestore Showroom Akmerkez-İstanbul; Bayındır Holding-İstanbul; renovation and interior design of the Savarona Yacht; Ekinciler Holding Headquarters Design; and Alarko Residence Design. Projects being implemented are Öziştekstil Showroom, Büyülçekmece-İstanbul; a restaurant project in İstanbul; and three residence projects in İstanbul. For the coming years, the firm and the interior design department are planning to construct a showroom and headquarters for their firm.

The fourth and largest organization selected for the case study is a large firm, Ceylan İnşaat Taahüt İthalat ve İhracat Limited Şirketi (Uğur Mumcu Cad. No: 28 Gaziosmanpaşa/ ANKARA). This firm is referred to **"Firm D"** in the study for the technical ease of evaluation of findings in the comparisons. This firm is implementing several large projects with complex organizational structures within their construction facilities, mostly international projects which are being constructed in Turkey, and they manipulate their projects simultaneously with their architectural and interior design department. The firm generally works in a

contractor position in those situations for their own projects. Their investments are based on the franchising system in Turkey so that their projects have got standardized characteristics in the conceptual design phase, while details are being solved here, executed and controlled by the interior design department. Their business plans are also dependent on this franchising system of project implementations for the firm. As it is stated earlier, the firms matching the large organization classification are generally architectural and construction firms. Their organizational system is based upon a hierarchical matrix of task distribution depending on several project managers assigned to different projects by a chief or a head construction manager. In this firm, the interior design service department, which is under the control of several project managers, supports several interior design services depending upon the project requirements and project plans provided by the construction department and main project manager, Şefik Bayer. The interior design department provides assistance for the "service building" constructions for Ceytur Anonim Şirketi and Ceyteks Anonim Şirketi which are the part of Ceylan Group. The interior design department has recently finished the execution and control of the Ceylan-InterContinental Hotel project (1994-1996), and design and execution of fourteen shop designs in the hotel; and was involved in the Gianni Versace Boutique (with Gianni Versace Project Office) and Iceberg Flagship Store at Nişantaşı-İstanbul. All of these projects are based on this franchising system. The technical staff (about 85 people including, 15 engineers from different disciplines and 2 architects) that supports the interior design department for this firm differs according to the project organizations, but over 30 persons are assigned through these ongoing projects. The interior design department, through the ongoing projects, coordinates different phases of these

interior design projects, implementing the conceptual designs into real, and provides links between the contractors or sub-contractors for the execution of the firm's interior design projects and control of these projects. The research respondents were the interior design service department coordinators of the firm, also the designers, Onur Sayın and Zeynep Ünlü.

6.3.2. Questionnaire Structure

This section discusses the details of the questionnaire used, which is appended in Appendix A.

6.3.2.1. Section 1- "General information about the firm"

In this preliminary phase, the questionnaire was conducted in order to obtain **general information** about the pre-selected interior design service providing firms. As mentioned above, their correspondence to the matching criteria or assumptions, and the sample responds to the questionnaire or the interviews were obtained by the preliminary phase and used as the inputs of the research.

The presentation of these pre-selected firms in this section is provided by the firm name, firm address, owner name, major projects implemented by the firm and projects being implemented by the firm. Ballast (1992) states that a project manager, whether the designer or a consultant assigned for this job, coordinates the entire process of a job from its inception to the final step within the project life cycle. The respondent, depending on his managerial responsibility upon the project, is selected according to the organizational structure of the firm and

presented and selected in this section as the respondent for the questionnaire and interview.

In questions 1, 3, 4, and 4a the business organization choice of the sample firms, the reason or the main criteria for selection of this type organization, and the question whether this selection has any relationship with the projects or not, were included to investigate this relationship. Different legal forms of business structures vary in characteristics, and several notions which are also presented in the questionnaire, such as organizational and financial capacities have direct effects for the firms' approach to several projects. The situation's validity is examined upon the sample firms.

The staff number inside the firm is sought in this section of the questionnaire in question 2 in order to understand the organizational capacity, also the organizational structure, of the firm including staff positions in the firm. The staff number provides additional information about the business structures of the firms.

Question 5 is asked for analyzing business plans of the firms. The business plans of the firms are directly related with the firm sizes. Generally small sized firms have short-sighted plans, on the other hand, the medium and large sized firms have more formal plans according to the classification obtained from Chapter 3 from the study. This property is examined with this question.

Questions 6, 7, and 8 are included in order compile information about the firms' attitudes towards the services which they are providing, according to the professional division in interior design services in different organizational positions. This question has got two main objectives. First, the data obtained from this question will provide data for their business structure classification. In the study, the key to a profitable interior design firm is presented as not the size of the firm. All processes of the project management notion have direct result on the success of a firm, that their success through their projects are neither asked nor evaluated. In the further questions the data obtained from these question provides an input about the firms' approach to their project breakdown and how they implement it according to the professional divisions and project requirements.

In the second phase of the questionnaire, the important point that has to be analyzed is **the project and project management concepts**. As the projects are unique and temporary activities in order to provide a product or a service, they have to be differentiated from the non temporary activities, operations, held within the firms for the framework of the study. These differences are sought by the questions 9, 9a and 11 by asking the scope and implementation of their interior projects within the project management context. Question 10 is conducted in order to understand whether a manager is responsible for this activity or not.

6.3.2.2. Section 2- "Activities in an interior design project within the project life cycle"

In this section, the questions provided for the analysis of project activities are conducted according to the project activities and their context which are identified

in the study. The main purpose of all these questions is the analysis of implementation of these activities by the questions " how are they implemented, in which context are they implemented?" and " who implements these activities in the sample firms?" The detailed data obtained from the firms is used to provide information about the utilization of project management notions for the interior design service providing firms according to the classifications stated in previous sections.

Questions in this section are as follows:

- Questions 12, 13, 13a, 13b, and 13c relate to project integration management.
- Questions 14, 15, 15a, 16, 16a, and 17 relate to project scope management.
- Questions 18, 19, 20, and 21 relate to project design management.
- Questions 22, 23, 24, 25, and 26 relate to project contract management.
- Questions 27, 27a, 27b, 28, 28a and 28b relate to project time management.
- Questions 29, 30, 31, 32, and 33 relate to project cost management.
- Questions 34, 35, 35a, 36, and 36a relate to project quality management.
- Questions 37, 38, and 39 relate to project human resources management.
- Questions 40, 40a and 41 relate to project communications management.
- Questions 42, 43, 44, 45, 45a, 46, and 46a relate to project risk management.
- Questions 47, 47a, 48, 49, 50, 50a, 51, 52, and 52a relate to project procurement and materials management.
- Questions 53, 53a, 54, 55 and 56 relate to computer aided project management.

6.3.2.3. Section 3- "Free interview"

In this section of the research the respondents' approach to project management notions, their problems in their projects from the management point of approach, and their recommendations were asked and the information obtained from this section is used for recommendations.

6.4. Findings of the Study

By the implementation of the questionnaires within the interviews the data is gathered depending upon the sections presented in the questionnaire. The following subsections of the thesis are devoted to these findings and the important notions that are obtained from the free interview section.

6.4.1. Findings from "General information about the firm" Section

Most of the data obtained from this section of this study are presented in the previous sections in 6.3.1.1 and 6.3.1.2 as "Preliminary Sample Selection" and "Preliminary Sample Data". The Firm name, firm address, owner of the firm, research respondent, respondents' positions in the sample firms, brief firm history, major projects implemented and ongoing projects of the firms are collected in those sections.

In question 1 the business organizations of the all firms are examined and observed that all sample firms A, B, C, and D have chosen limited partnership for their organization. Furthermore firm D is involved in joint venture projects for their international investments. The checklist in question 3 was used for examining the specific reasons of business organization selections of the firms . Approximately

all the criteria presented in the checklist seems to be valid for all the sample firms. These selections' relationship to the implementation of their projects or ongoing projects, question 4 and question 4a, seen as "none" for all the sample firms except the factors searched in question 3. Only for firm D, from legal point of business conduct and projects being implemented for the government, it is observed that legal identity has got an advantage for implementing construction projects.

The firm size from the staff point of view, business plans of the firm, service range of the firms, positions of the firms in projects and their general client profile is asked in questions 2, 5, 6, 7 and 8. The data gathered from these questions are presented in section 6.3.1.2. in "Preliminary Sample Data" section. These questions are utilized to find the distinctions between the sample firms and when it is compared to the information and comparison presented in the study, firms were mostly matching that classification. This matching can not be accepted as an important factor for the execution of the projects by the sample firms as it is stated in the study but, their organizational capacity seems to have a direct effects on the scope of projects that they initiate.

The sample firms' understanding and implementation of **projects and project management concept**, as it is stated, is also examined in this section. For the question 9, all answers were "Yes" and in the following question (10) they all informed that their firms were involved in all these activities in the projects according to the project scope. Concerning the project management definition related to this matrix, as any of these activities can be accepted as project

management activity, it can be concluded that all firms manage their projects in differentiating contexts. In firms A, B, and C these activities are mostly coordinated by the designers assigned to the projects. For firm D, as the context of their projects differentiate according to firm structure, business plans, organizational structure and varying number of projects; they work in coordination with a main project manager assigned for managing all projects for the firm.

In question 11, the firms' breakdown of interior design projects within the content of projects management processes was examined. The presented models in the question content has been referred to the study and asked whether they use similar ones or not. Each firm's approach to interior design project processes is presented in Figure 20 as flow charts.

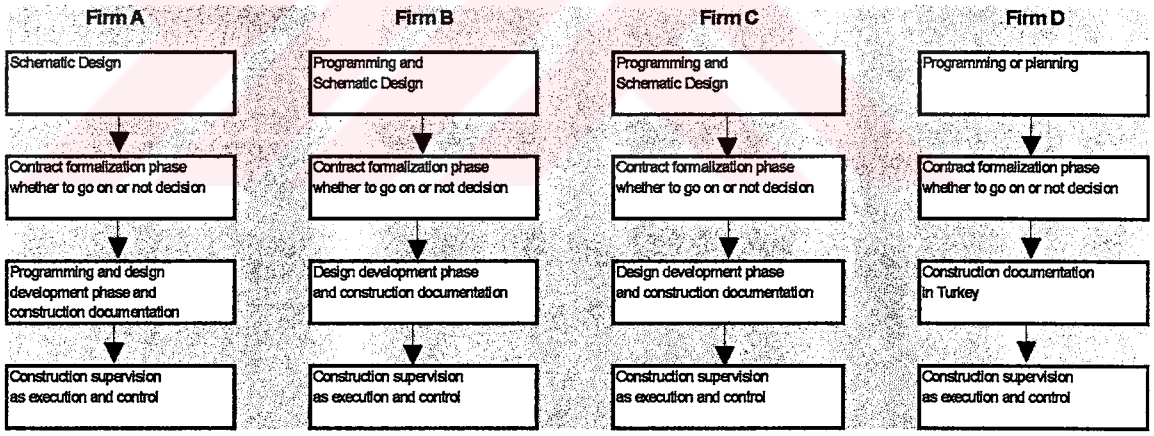

Figure 20. Project Management Processes for the Sample Firms

The information obtained from this question presents that, all these procedures or the processes seem to be like each other for the sample design firms according to their scope of services. Only there is differentiating point for the case of firm A that

because of their organizational and financial capacity, they do not make a detailed programming for their projects until they make initial contract with the client for reducing the risks.

6.4.2. Findings from "Activities in an interior design project within the project life cycle" Section

In this phase of the questionnaire, several activities that can be implemented within the projects or organizations are examined. According to the scope of projects and business structure and operational categories of the organizations they are differentiating in context or scope, but most of these activities are observed to be utilized by the sample interior design service providing firms.

In the following part of this section the activities within the life cycle of projects for the respondent firms are presented by comparative charts and in text form depending upon the questions in that specific context and objectives that are investigated by the questions.

Table 3. Analysis of Project Integration Management Notions

Objectives	Firm A	Firm B	Firm C	Firm D
Feasibility studies for new proposals or new projects before initiating them	No specific feasibility studies	No specific feasibility studies	No specific feasibility studies	Specific feasibility studies depending upon the investment strategies related to the projects
Preparation of project plans at the early phases of your projects, through the obtained data from those feasibility studies.	No specific plans	Yes, summarized plans according to project scope	Yes, summarized plans according to project scope	Yes, detailed plans coordinated by the project team
Responsible person from making those project plans		Design coordinator of the firm	Design coordinator of the firm	Construction supervisors and project managers
Control of these project plans with any tools		Manual Control	Manual Control	Automated control and manual control

Table 4. Analysis of Project Scope Management Notions

Objectives	Firm A	Firm B	Firm C	Firm D
At the initiation of projects, introduction of the new project to your organization	Yes, verbal introduction	Yes, verbal introduction and meetings	Yes, verbal introduction and meetings	Yes, verbal introduction and meetings, documentation by paperwork distribution
Scope of services, as an organization, provided to clients for interior design projects	• Designing the project • Providing service requirements outside the organization • Developing a budget for the client • Contract Documentation • Execution and control of the projects	• Designing the project • Providing service requirements outside the organization • Developing a budget for the client • Contract Documentation • Execution and control of the projects	• Designing the project • Providing service requirements outside the organization • Contract Documentation • Execution and control of the projects	• Contract Documentation • Execution and control of the projects
Differentiation in scope of services according to the job within the framework of professional divisions in interior projects	No	No	No	Yes, depending on the project scope according to the project constraints
Making work breakdowns by identifying works and tasks in a project hierarchical format	Yes	Yes	Yes	Yes
Use of a formal work breakdown structure	No	No	No	Yes, prepared by the project managers and designers
Verification and control of the scope of projects between the project participants through the project life	Yes, by verbal meetings	Yes, by verbal meetings and formal documentation	Yes, by verbal meetings	Yes, by verbal meetings and formal documentation

Table 5. Analysis of Project Design Management Notions

Objectives	Firm A	Firm B	Firm C	Firm D
Implementation of the design phase of the projects	Yes, by the designers	Yes, by the designers and controlled by the design coordinator	Yes, by the designers and controlled by the design coordinator	Conceptual design is executed outside the organization, the details are solved by the designers
Cooperation and coordination with other disciplines in the design phase	Yes, with temporary organizations	Yes, with temporary organizations	Yes, with permanent technical staff, also a sub-contracting firm	Yes, with permanent technical staff
Use of automated systems for the design phase of the projects	No	Yes, computer-aided design software	No	Yes, computer-aided design software

Table 6. Analysis of Project Contract Management Notions

Objectives	Firm A	Firm B	Firm C	Firm D
Documents that are generally developed and manipulated in interior design projects by the organization	• Design and construction drawings • Contracts, agreements	• Design and construction drawings • Contracts, agreements • Specifications	• Design and construction drawings • Contracts, agreements	• Design and construction drawings • Contracts, agreements • Specifications
Any specific standard used for the construction drawings	No, format developed by the firm is being in use	No, format developed by the firm is being in use	No, format developed by the firm is being in use	No, format developed by the firm is being in use
Use of specifications and referring these specifications in projects	No	Yes	Yes	Yes
Any standards for the contents of letters of agreements, major notions in the letter of agreements	No, standards; liability of project participants by legal constraints	No, standards; liability of project participants by legal constraints	No, standards; liability of project participants by legal constraints	Prepared by the specific staff, in highly detailed content, assigned for this job, formal and legal constraints with liability of participants

Table 7. Analysis of Project Time Management Notions

Objectives	Firm A	Firm B	Firm C	Firm D
Use of any scheduling tools for your projects for planning, executing and controlling projects for planning and monitoring projects	Yes, job control books for time and resource planning and control	Yes, job control books for time and resource planning and control	Yes, job control books for time and resource planning and control	Yes, manual and automated scheduling systems, job control books for time and resource planning and control
System used for the manual or automated scheduling system	None	None	Milestone Charts	Bar Charts are prepared by project managers and an industrial engineer for all activities and for interior design department activities, the designers used to prepare Bar Charts
Specific reason for using the selected scheduling system			Ease of understanding by the project participants	Ease of understanding by the project participants

Table 8. Analysis of Project Cost Management Notions

Objectives	Firm A	Firm B	Firm C	Firm D
Preparation of a resource planning at the early phases of the projects, and the resources planned	Yes, people and materials	Yes, people and materials	Yes, people and materials	Yes, people, materials, and the equipment needed for the project
Cost estimations at the planning phase of the projects	Yes, executed by the designer	Yes, executed by the design coordinator and designers	Yes, executed by the design coordinator and designers	Yes, executed by all the participants and departments involved in the project
Costs, planned and charged for the projects	Depends on the project scope or factors in question 31	Depends on the project scope or factors in question 31	Depends on the project scope or factors in question 31	Depends on the project scope or factors in question 31
Cost estimation techniques used in projects	Depends on the project scope or techniques in question 32	Depends on the project scope or techniques in question 32	Depends on the project scope or techniques in question 32	Depends on the project scope or techniques in question 32
Tracking of actual costs	Yes, paperwork by the designer	Yes, automated system by the designers and coordinator	Yes, automated system	Yes, by automated and manual system

The approach to **project quality management** for the interior design projects by the selected sample firms were close in understanding to each other. The most common quality notions were stated as the performance and the service for the question 34. As the scope of interior design service for the firm D is in international context and quality standards are identified and controlled by the contractors, they claimed that the firm has to meet all these quality dimensions for their projects.

For **project human resources management**, the data obtained from this section was mostly related to the firm D. For firm D, according to their project scope and organizational capacity, they are mostly making organizational plans for every project while the other firms, A, B, and C are having permanent structures. In firm D the human resources are also being tracked by the project or construction managers, while this is a verbal activity with limited person for the firms A, B and C.

Table 9. Analysis of Project Communications Management Notions

Objectives	Firm A	Firm B	Firm C	Firm D
Execution of timely, periodic, meetings and performance analysis of projects	Whenever it is needed to communicate, coordinated by the project participants	Whenever it is needed to communicate, coordinated by the project participants	Whenever it is needed to communicate, coordinated by the project participants	Formal, periodic meetings and performance analysis, coordinated by project participants. Results are distributed to all participants by paperwork

Table 10. Analysis of Project Risk Management Notions

Objectives	Firm A	Firm B	Firm C	Firm D
Possible internal risks for the sample firms during the management of an interior design project	Problems in delays in schedule and cost	Problems in costs and changes in the scope of the projects	Problems in cost, time and transportation	Problems in delays in schedules
Approach to possible internal risks	Solutions produced when risk is identified or when it occurs	Analysis in the initiation and all phases of the projects	Solutions produced when risk is identified or when it occurs	Analysis, risk quantification at the initiation and all phases of the projects
Possible external risks for the sample firms during the management of a project and precautions	No certain control mechanism	Most of the external risks (physical risks) are reduced by the insurance mechanism	Most of the external risks (physical risks) are reduced by the insurance mechanism	All external risks (physical risks) are reduced by the insurance mechanism

Table 11. Analysis of Project Procurement Management Notions

Objectives	Firm A	Firm B	Firm C	Firm D
Involving procurement (purchasing) and materials management processes according to the scope of projects within the organization, and responsible for this activity	Yes, the designer's responsibility	Yes, the designers' responsibility	Yes, there is a purchasing department in the firm	Yes, there is a purchasing department in the firm
Procurement fields	Commodity Subcontract	Commodity Subcontract	Commodity Subcontract	Equipment Commodity Subcontract
Making formal and documented contracts for material purchasing and type of contracts	Yes, depends on the project scope	Yes, depends on the project scope	Yes, depends on the project scope	Yes, depends on the project scope
Implementation of expediting and inspection functions as the processes of procurement activity and, assigned person	Yes, designer's responsibility	Yes, designer's responsibility	Yes, designer's responsibility and purchasing department control this activity	Yes, expediters and inspectors assigned for this job
Purchasing by bidding	No	No	No	Partially, major three proposals evaluated by the firm

Table 12. Analysis of Computer-Aided Project Management Notions

Objectives	Firm A	Firm B	Firm C	Firm D
Use of computer-aided project management software for the projects	Yes, electronic spreadsheets	Yes, computer-aided design, electronic spreadsheets	Yes, electronic spreadsheets	Yes, scheduling programs, electronic spreadsheets, a database program
Users of computer-aided project management software for the projects	Designer	Designer and office personnel	Designer and other departments involving the projects	Designer and other departments involving the projects

6.5. The Discussion of Findings

In this section the findings of the research has been discussed through the data which has been collected from the sample interior design firms.

The findings of the research are similar to the information which has been presented in the thesis for the utilization of project management notions by interior design service firms. All sample firms, A, B, C, and D, manage their projects within the context of project management notions at differentiated levels. The classification referred to earlier, regarding the operational categories of the interior design firms as small sized, medium sized, and large sized firms, seems to be valid for most of the project activities for the sample interior design firms. Since the scope of the projects change, the organizational requirements have to change in the interior design business. Thus, the activity level and instruments used for managing the interior design projects has been observed as variable in context, but going from simpler to complex through the organizational capacities of the sample firms.

Another important notion that has been discussed as the most important factor in the execution of interior design projects was the designer. The designer has several roles, in a wide range from designing the projects to managing different processes and activities in a project life. Disregarding the classifications about the firms, the project size and the project scope for the sample firms, the designer, as an individual, has been assigned many responsibilities in the projects for

management by using the instruments presented in the thesis and several management skills.

The limited number of firms in the sample selection and the detailed questionnaire objectives for this research, have provided some useful information about the selected firms. The detailed questions and answers to the research have provided a clear distinction for the need of organizational and resource requirements for a project for interior design firms in interior design business in Turkey. The limitation in sample size, a disadvantage for the research, has also limited the identification of problems in case of number of sample firms for the analysis of utilization of project management notions and creating proposals or recommendations. While firm B has been disbanding its organization because of organizational problems, project time management and project cost management has been observed as the major problems or risks for firm A and firm C.

The interviews were useful instruments for analyzing and verifying the situations presented in the thesis for the case study. Further studies are suggested in Chapter 7 related to this case study, as proposals arising from the situations observed in the sample firms in Turkey.

7. CONCLUSION

In this thesis, the definition and scope of project management in general, and its application to interior design services has been studied. To understand this topic in detail, the concept of project and project management has been explained. To clearly state the significance of the subject in the field of interior design, the professional divisions, types of business organizations and business structures have been articulated. The carrying out of different sizes and branches inside the profession are unique and have individual processes and solutions, so the profession and the related organizational capacities have been explained. According to the project being residential or non-residential, whether a product or not, whether small, medium or large, or due to the organizational requirements as business size and type such as a sole proprietorship, general partnership, a limited partnership, or a corporation for example, different project management processes have to be applied. These also affect the processes within life cycle of the project which consists of all the coordination methods and the related processes included throughout the duration of the project.

The content of the thesis included the components comprising project management, from the viewpoint of interior design services. The analysis of different components and phases of project management is of crucial importance in all professions, including the interior design profession. Thus, in order for an interior design project to be successful, it's management should be applied,

considering all of the issues, from resources management, to coordination of time, materials and finance, to controlling of all the activities carried out during the project life cycle, each of these requiring specific management techniques and skill.

The case study for the analysis of utilization of project management notions by interior design firms in Turkey, has provided the verification of utilization of project management notions and instruments in the sample interior design firms in which the management activities and instruments are in relation with the professional practice which has been presented in the thesis.

As a result of the findings from the case study, it can be suggested that a case study be made with a large sample size, in order to search for the identification of a wide range of scope of problems in interior design firms, for providing solutions or models for the utilization of management notions in common. Concerning the responsibility of the designers in interior design business, the utilization of project mangement notions in interior design business, can also be studied as a subject matter upon the educational level in the further studies.

The intention of this thesis was not only to examine project management within the interior design services, but also to provide a basic guideline for designers, architects and other professionals concerned with project management in interior design services, so that the importance of this issue is understood in the profession, and the concepts, tools and techniques introduced in the study are applied in practice.

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APPENDIX

APPENDIX A

INTERVIEW QUESTIONNAIRE

Interviewer: ALP ŞAHİNOĞLU

DATE:...../...../.....

General information about the firm

FIRM NAME: .....

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FIRM ADDRESS: .....

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OWNER(S): .....

RESEARCH RESPONDENT: .....

RESPONDENT POSITION: .....

BRIEF FIRM HISTORY: .....

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MAJOR PROJECTS IMPLEMENTED:.....

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ONGOING PROJECTS:.....

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1. Type of business organization of the sample firm

A sole proprietorship	
Partnership General or Limited	
Corporation	
Joint Venture(according to project scope)	

2. How many people or staff assigned or occupied in your firm or department and what are their positions?

Firm size 1-7 staff	
Firm size 7-20 staff	
Firm size 21-up staff	

(please explain).....
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3. What is the main criteria for selecting the preferred type of business organization?

Organizational requirements	
Costs of start-up	
Costs of maintaining the organization	
Personal liability of the owners	
The continuity and transferability of the firm	
Ease of raising the capital	
The taxation of the profits	

(please explain).....
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4. Do this selection relate to your firm's implementation of the previous projects or ongoing projects?

Yes ☐ No ☐

4a. If the answer is "yes", why and how does it relate?.....
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5. Does your firm have any business plans on the project basis for the future?

a. No plans, the firm follows the opportunities in the market.
b. Yes, there are several plans for the future.

If the answer is "yes" are any business development plans or approaches, what are these plans and how are they planned?

a. Informal short-range plans depending on verbal consensus within the firm.
b. Formal long and short range statement of goals.
(please explain).....
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6. In which professional division of the interior design business does your firm provide service?

a. Residential design	
b. Non-residential design	
c. Product design	
d. Association with or in architectural or engineering firms	

Other.....
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7. In which contractual positions does your organization execute these projects?

Contractor position	
Sub-Contractor position	
Both, depending on the project scope	

Other:.....
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8. What is your general client profile?
(please explain).....
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Project and Project Management Concept

9. Do you plan, execute and control your projects?

Yes ☐ No ☐

9a. If the answer is "yes", from the project management point of approach, which activities does your organization perform through the projects in the following matrix?

PROJECT MANAGEMENT FUNCTIONS	PROJECT ELEMENTS: TIME	RESOURCE	COST
PLANNING	☐	☐	☐
DIRECTING	☐	☐	☐
CONTROLLING	☐	☐	☐

10. Is any project manager responsible for your projects according to scope of the projects which you involve?

Yes ☐ No ☐

11. Do you use such classification of similar project management processes like which are indicated above for your interior design projects?

Programming	Planning	Programming
Design Conceptualization	Monitoring	Schematic Design
Decoration	Coordinating and Directing	Design Development
Construction Documentation	Documenting	Contract Documentation
Construction Supervision		Contract Administration

Yes ☐ No ☐

(please explain).....

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Activities in an interior design project within the project life cycle

Project Integration Management

12. Do you make feasibility studies for new proposals or new projects before initiating them?

Yes ☐ No ☐

13. Does your organization make project plans at the early phases of your projects, through the obtained data from those feasibility studies?

Yes ☐ No ☐

13a. If the answer is "yes", depending on the projects' scope, what kind of plans do you make?

Summarized plans	
Medium-sized plans	
Detailed plans	
No plans	

13b. Who is responsible from making those plans?

a. Designers	
b. Construction supervisors or project managers	
c. Project organization with other project participants	

13c. Do you control these project plans with any tools indicated above?

Automated control	
Manual control	
No control	

Project Scope Management

14. At the initiation of your projects, do you introduce the new project to your organization, and how? Do you arrange meetings or other activities?

Yes ☐ No ☐

(please explain your system).....

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15. Which scope of services, as an organization, do you provide to your clients for your interior design projects?

Designing the project	
Service requirements outside the organization	
Developing a budget for your client	
Contract documentation, like drawings	
Execution and controlling of the project	

15a. Does your scope of services differ according to the job within the framework of professional divisions in interior projects like the residential design or non-residential design?

Yes ☐ No ☐

(please explain your system).....
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16. To identify required scope of services for your projects and for planning them, do you make work breakdowns by identifying those works and tasks in a hierarchical format?

Yes ☐ No ☐

(please explain your system).....
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16a. Do you identify these work packages from those work breakdown structures (WBS) in a hierarchical format according to the project scope?

Yes ☐ No ☐

17. Do you make verification and control of the scope of your project between the project participants through the project life and how do you inform this activity?

(please explain).....
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Project Design Management

18. Does your organization execute the design phases of the projects that you are executing or controlling or does this activity assigned to another party according to the project scope and firm position in the project, how?
(please
explain).....
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19. Who is assigned for design phase of the projects and who is responsible from these design phases and design coordination, control in your organization?
(please explain).....
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20. In the design phase of the projects, do you cooperate with other disciplines from your organization or outside your organization? How do you communicate with them, what are your coordination tools, do you organize meetings or other activities?
(please explain).....
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21. Do you use automated systems for the design phase like computer-aided design software (CAD)?
Yes ☐ No ☐
(please explain).....
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Project Contract Management

22. Which of the following documents does your organization develop and manipulate in your projects?

Design and construction drawings	
Contracts, agreements	
Specifications	
Depends on the project scope	

If it depends on the project, please explain your system:.....
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23. Do you use any specific or standard format(s) for your construction drawings?
(please explain).....
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24. Do you used to refer specifications in your projects, if the answer is "yes" which of the following specifications do you refer?

Yes ☐ No ☐

Performance specifications	
Descriptive specifications	
Reference specifications (standards)	
Proprietary specifications	

25. What are the content of letters of agreements for your firm, according to the service you are providing and, according to the scope of the work? Does it differentiate according to the branch of interior design service which you are providing?
(please explain).....
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26. Do you use any specific standards or legal constraints within the content of letters of agreements for your projects?
(please explain).....
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Project Time Management

27. Do you use any of the following scheduling tools for your projects for planning, executing and controlling your projects?

	for Planning	for Monitoring
a. Automated scheduling systems		
b. Manual oriented scheduling systems		
c. Job Control books		
d. No, we do not use any of these scheduling tools		

27a. If you use any of these scheduling tools, which project elements do you schedule?

a. Time	
b. Resources	

27b. What is your system to schedule time and resources for a project, do you follow the steps indicated above or which steps do you follow?

Activity defiition	
Activity sequencing	
Activity duration estimation	

(please explain).....
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28. If you use any systems stated above, which type of scheduling systems, manual or automated, do you use for your projects?

a.Milestone charts	
b.Bar charts or Gantt charts	
c.Project network diagrams	
Time scaled network diagrams	
The critical path method (CPM)	
Program Evaluation and Review Technique (PERT)	

28a. Does your firm have any specific reason for using the selected scheduling system?
(please explain).....
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28b. Who is responsible for this scheduling activity in your firm?
(please explain).....
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Project Cost Management

29. Do you make a resource planning for at the early phases of the projects, if your answer is "yes" which resources do you plan?
Yes ☐ No ☐

People	
Equipment required for the project	
Materials	

30. Do you make cost estimations (predicting the resources needed to complete projects) at the planning phase of your projects, if the answer is "yes" is who is specifically assigned for this job?

Yes ☐ No ☐

(please explain).....

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31. Which of these costs (the charge for the organization's income for a product or a service) do you plan and charge when your organization executes the projects ?

Costs of fees	
Taxes	
Managing or supervising	
Installation	
Depends on the project scope	

32. Which following cost estimation techniques does your firm use?

a. Analogous estimation (actual costs of previous projects)	
b. Parametric modelling (predicted costs)	
c. Bottom-up estimation (cost of individual work items or services)	
d. Depends upon the project scope	

(please explain).....

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33. Do you track and monitor the actual cost of your projects, if the answer is "yes" which tools do you use?

Yes ☐ No ☐

Paperwork	
Automated systems	
Both	

Project Quality Management

34. From project participants' point of approach, what are the quality dimensions or criteria for an interior design project and which of these quality dimensions are mostly valid for or expected from your organization and how?

Performance- Primary product characteristics	
Features- Secondary characteristics	
Conformance- Meeting specifications	
Reliability- Consistency of performance over time	
Durability- Useful life	
Service- Resolution of problems and complaints	
Response- Human to human interface	
Aesthetics- Sensory characteristics	
Reputation- Past performance	

(please explain).....
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35. Does your firm, or the other project participants identify or look for these quality standards, dimensions that is relevant to a specific project in the planning and execution phases of projects?

Yes ☐ No ☐

35a. If the answer is "yes", how do they identify those dimensions, and what are the main constraints or basis of these identifications, what kind of standards do you refer?
(please explain).....
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36. Do you plan and monitor the quality expectations of your projects or inspect them from the expected quality point of view within the project life?
Yes ☐ No ☐

36a. If the answer is "yes" please explain how do you plan and monitor?
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Project Human Resources Management

37. How does your firm coordinate human resources for the projects? Do you make an organizational planning and what are the constraints or limitations of your organizational plans in your projects (according to the project complexity), like the cost or limiting resources of the project?
(please explain).....
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38. Do you make staff acquisition plans at the initiation and planning phase of the projects for developing a team for your projects to compensate the organizational or resource needs of the organization?
(please explain).....
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39. How does your firm track these human resources in all phases of your projects? what is your system, who are responsible for this activity in your organization?
(please explain).....
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Project Communications Management

40. In your organization how do you communicate with the project participants, do you have timely, periodic, meetings and do you make performance analysis of your projects and distribute them with the project participants?
Yes ☐ No ☐

40a. If the answer is "yes" can you please explain your system, who is assigned for this task?.....
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41. Do you plan these communicative activities at the initiation and planning phases of the projects and execute them among the project life? How do you conduct them and do you have other tools used to constitute communication between the project participants?
(please explain).....
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Project Risk Management

42. From your firm's point of approach, what are the possible risks during the management of a project?
(please explain).....
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43. How do your organization approach to these possible risks within the scope of specific projects?

Analysis in the initiation and all phases of the project	
No preliminary analysis, solutions produced when risk is identified or occurs	
Depends on the project scope	

(please explain).....
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44. Do you specially analyze the risks within the content of specific projects at the initiation phase and at other phases of the project within your organization?
Yes ☐ No ☐

45. Does your organization be aware of internal risks; (also can be classified as the dynamic risks), which can occur within the organization such as the delays in project schedule or problems in cost, budget control?
Yes ☐ No ☐

45a. If the answer is "yes", then do you have a system or a method to reduce these risks? For internal risks do you make a risk quantification at the early phases of the projects do you have control tools or systems?
(please explain).....
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46. Does your organization be aware of the external risks; like affairs beyond the control of the project that are not manageable such as the physical risks within the projects that you involve?

Yes ☐ No ☐

46a. If the answer is "yes", then do you have a system to reduce these risks? For external risks or for the physical risks, do you provide insurance for the participants involved in the project like:

a. Insurance for your firm	
-professional liability insurance	
-general liability insurance	
-property insurance	
-personal injury protection	
-workers'liability insurance	
b. Insurance for the owner of the project	
-all risk type liability insurance	
-property insurance against physical loss or damage	
c. Contractor's insurance including all the physical resources	

Project Procurement Management

47. Does your firm or organization involve procurement (purchasing) and materials management processes according to the scope of projects within your organization?

Yes ☐ No ☐

47a. If the answer is "yes", who is or who are responsible for the purchasing activity in your projects for your firm?

a. Designers	
b. Construction supervisors	
c. Purchasing specialists or purchasing agents	
d. Purchasing organizations	

Other (if there are any please explain):.....

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48. Which procurement fields does your firm generally plan and execute for the projects?

a. Equipment procurement	
b. Commodity procurement (the need of material relate to the project)	
c. Subcontract procurement	
d. Depends upon the project scope	

(please explain).....
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49. Do you make formal and documented contracts for material purchasing, if your answer is yes then which of these contract types do you use for your procurement activities for your projects?

Yes ☐ No ☐

a. Fixed price or lumpsum contracts	
b. Cost reimbursable contracts	
c. Unit price contracts	
d. Varies according to the project	

If it varies, please explain why and how?.....
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50. Considering expediting, and inspection functions as the processes of procurement activity, does your firm implement those functions?

Yes ☐ No ☐

50a. If the answer is "yes", is anybody or who is assigned for these tasks in your firm, what is the position of this person?

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51. Do you work with specialists or with other organizations for expediting and inspection functions for the materials which are purchased?

Yes ☐ No ☐

(please explain).....

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52. Does your firm purchase materials by bidding?

Yes ☐ No ☐

52a. If the answer is "yes", what procedures or standards does your firm follow for bidding or solicitation activity?

(please explain).....

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Computer-Aided Project Management

53. Does your firm use computer-aided project management software for their projects?

Yes ☐ No ☐

53a. If the answer is "yes", which of these computer-aided project management software does your firm use?

a. Scheduling programs (for planning, controlling the time and resources about the project)	
b. Electronic spreadsheets (for project documentation and accounting)	
c. A database program (for keeping historical costs and labor, and equipment requirements)	
d. Digitizing equipment and computer-aided design (CAD) (for preparing cost estimates, and calculating the quantities of material required)	

Other:.....
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54. Who are the users of computer-aided project management software in your organization?

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55. In which project phases does your firm use computer aided project management, can you identify in the specific processes within those phases, you use computer aided project management software?

Planning processes	
Executing processes	
Controlling processes	
Closing processes	

(please explain).....
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56. What are the advantages or disadvantages and, problems of using computer-aided project management software for your firm?
(please explain).....
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Free Interview Notes.....