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## FACTORS IMPACTING THE PROJECT'S LIFE CYCLE



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### ABSTRACT

All Projects have phases that start with a concept and end with utilization. These phases are known as the Life Cycle. The length and timing of the Life Cycle varies with each Project and is dependent on the degree of complexity and the resources available. Phases may occur in sequence or overlap. Each phase can be treated as a mini Project. The end of each phase is characterized by a "Go / No Go" decision.

Each phase achieves a major milestone:

- Approval of the concept.
- Approval of the functional design.
- The completion of the phase.

Understanding the management techniques in detail will reduce the level of risk in delay. Major coordination is required between the three Parties involved in the Project's Client, Consultant and Contractor.

The culture in a construction industry is a shared understanding about what is expected to be done by all Parties and the cultural objectives must be very clear to avoid disputes between the Parties involved.

The use of effective words in the correct content and the tone of voice play an important role in gaining the cooperation of the stakeholders although they might be disagreeing on a particular issue.

### INTRODUCTION

One common attribute of all Projects is that they eventually end. The Project started with a desire to change something within an Organization until someone with the power to move forward and implement the Project. Specifically, there are three constraints that a Project will encounter:

1. **Project Scope:** Constitutes the parameters of what the Project will and will not include.
2. **Schedule:** It is the expected time when the Project will be completed, however, realistic schedules do not come easily.
3. **Cost Budgets:** Find a method to accurately predict the cost of completing the Project within a given time line and then control the Project to stay within the given budget.

4. along with the consideration to **Project Risk**: Some risks are worth taking while others are worth the extra cost to avoid.
5. and the expected **Quality**: Poor quality of the deliverables makes it unusable, quality is needed but an exact target of the expected quality is demanded.

There are other factors which are impacting the Project's Life Cycle in the construction industry, they are related areas encountered and are actively participating in, which prompted me to choose this topic. Design Management, Project Management Guidelines, Cultural Factors and Communication.

Awareness of the potential influences of these topics will help project finish and makes possible application of the results of the similar work from the internal or external sources, allows planning how to react to these influences in order for the Project to succeed.

These factors must be in alignment with the Organization's vision, strategy, tactics and goals. Projects that are not in alignment with the higher vision of the Organization would not be around for long or at best, they are doomed to fail as the Organization's environment will influence the success and completion of the Projects and benefits of such implementations will be as follows:

- Project Management Guidelines helps the Organization get on track to more successful Projects.
- Cultural Objectives must be very clear to avoid any disputes between the Parties involved and understanding of the culture is the ideology, belief system, behavior and social order which compose the society and traditions reflected on the behavior of the Project's stakeholders.
- Effective communication play an important role in gaining the cooperation of the stakeholders, reduce the monotony of the conversation, make the receivers more proactive and thus, achieving the Project's objectives.

#### **IV. BODY OF THE PAPER**

- Chapter I - The Construction Project's Life Cycle**
- Chapter II - The Impact of Design Management**
- Chapter III - The Impact of Cultural Factors**
- Chapter IV - The Impact of Communication**

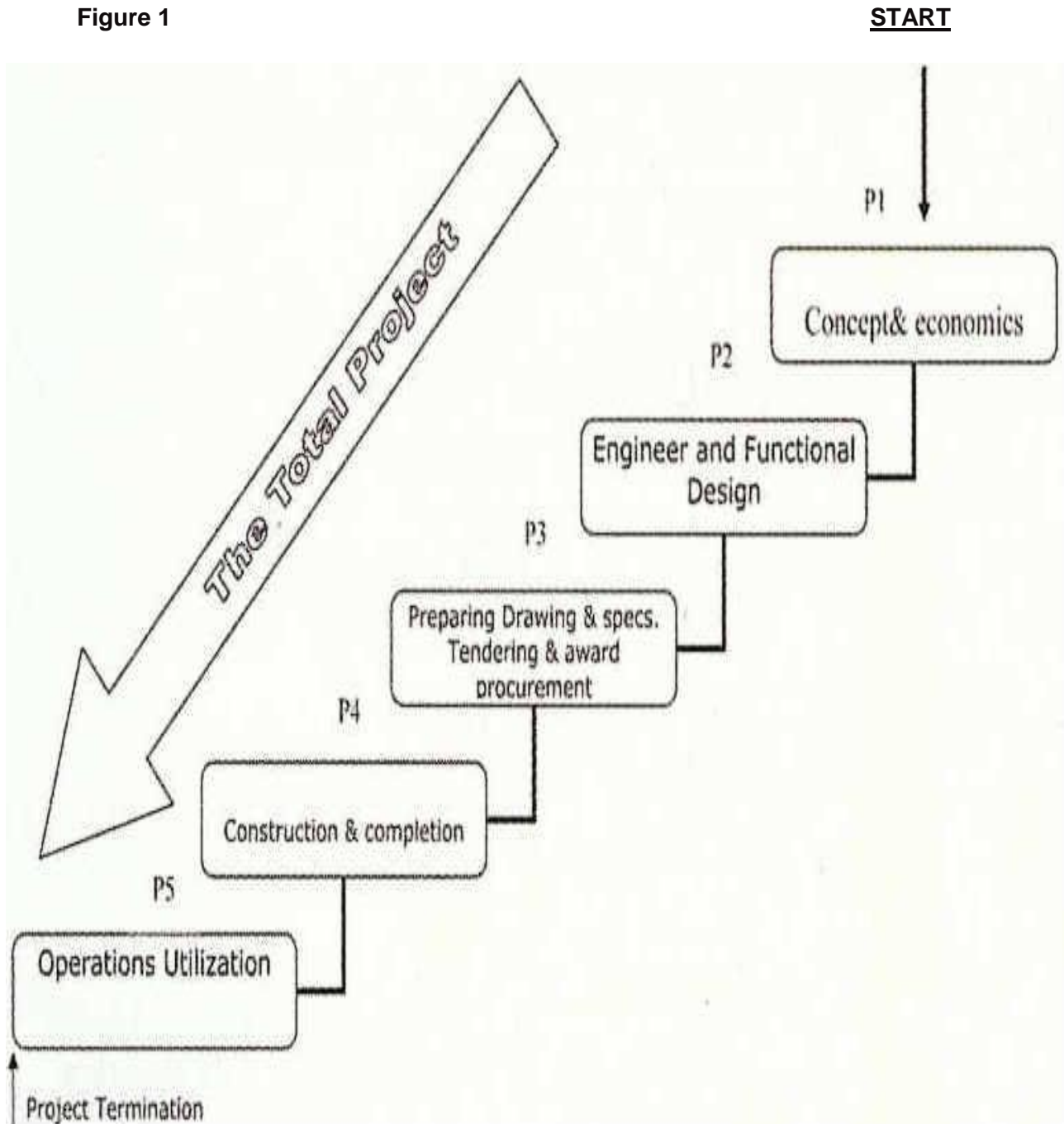
## CHAPTER I - THE CONSTRUCTION PROJECT'S LIFE CYCLE

Every construction project has certain phases of development. The phases of development are known as life cycle phases.

The Project's life cycle has identifiable start and end points which can be associated with time scale [1]\*, [2]\*.

A Project passes through several distinct phases as it matures, as illustrated in Figure 1 and Figure 2 is a bar chart showing a typical chronology for these phases, the degree of overlap among phases, in both times another varies widely from one Project to another.

**Figure 1**



**Figure 1 showing Project phase's overview, phases may occur in sequence or overlap.**

\* [1] A Guide to the Project Management Body of Knowledge "PMBOK Guide" – Third Edition

\* [2] Heldman, Kim, Project Management Professional Study Guide – Third Edition

### Total Project's Life Cycle

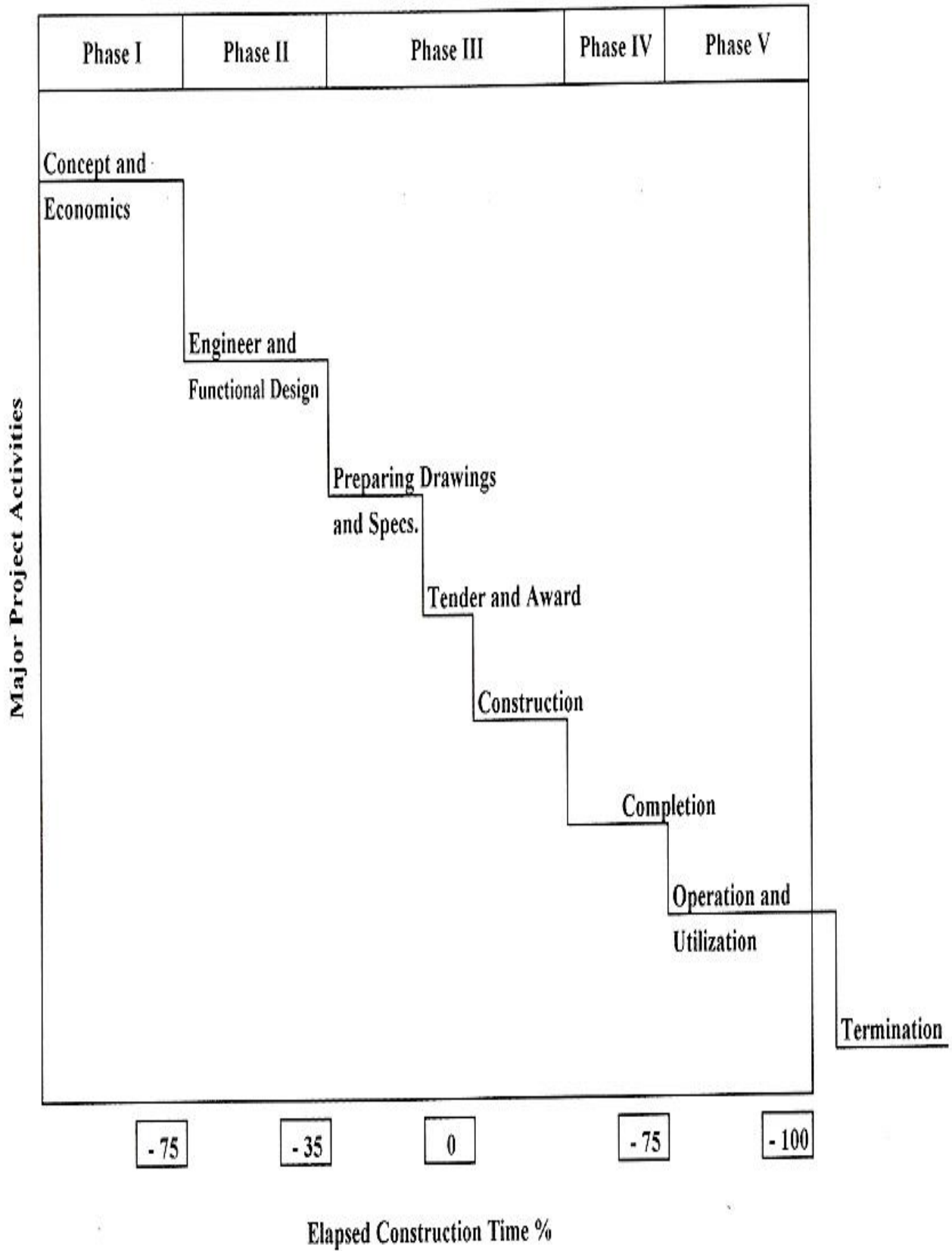


Figure 2 is a Bar Chart showing the typical chronology for these phases, the degree of overlap among phases, in both times another varies widely from one Project to another.

**These figures show the sequence of five phases:**

- 1. Conceptual Planning and Economics (Feasibility Study) Phase**
- 2. Engineering and Functional Design Phase**
- 3. Phase 3**

**This phase includes three sub-phases:**

- a) Preparing Drawings and Specifications**
- b) Tender and Award**
- c) Procurement**

- 4. Construction and Completion of the Project (Implementation) Phase**
- 5. Operation and Utilization Phase**

### **Phase I - Conceptual Planning and Feasibility Study**

Most construction projects begin with the recognition of a need for a new facility. Long time before designers start preparing drawings and before field construction can commence, considerable thought must go into broad scale planning. Element of this phase include conceptual analysis, technical and economical feasibility studies and environmental impact reports.

The conceptual planning and feasibility study must be applied for any new Project. Buildings, transportation, facilities such as highways, bridges, airports, water supply systems, waste water treatment plants and new or more Projects [2]\*, [3]\*.

### **Phase II – Engineering and Functional Design**

Engineering and Design has two main phases:

#### **1. Preliminary Engineering and Design**

Preliminary Engineering and Design stress architectural concepts, evaluation of technological process alternatives, size and capacity decision and comparative economic studies. To a great extent, these steps evolve directly from the concept and feasibility stage and it is sometimes difficult to see where one leaves off and the other begins.

#### **2. Detailed Engineering and Design**

Detailed Engineering and Design involve the element process of successive breakdown, analyzing and designing the structure and its elements it complies with the recognized standards of safety and performance while rendering the design in the form of a set of explicit drawings and specifications that will tell the constructors exactly how to build the structure in the field. This detailed phase is the traditional realm of design professionals, including Architects, Interior Designers, Landscape Architects, and several engineering disciplines, including Chemical, Civil, Electrical, Mechanical and other Engineers as needed. The types of Design Professionals involved vary by types of work (building, heavy or industrial) are much the same as in the preliminary design phase but the staffs become much larger and are generally augmented by various people at the technician and technology level.

These phases are traditionally the domain of Architects and design-oriented Engineers. The owner's operations and utilization knowledge and the field construction's experience are being more strongly injected at this stage through both direct participation and stringent review procedures.

## **Phase III**

- a) Preparing Drawings and Specifications**
- b) Tender and Award**
- c) Procurement**

After the Second Phase (Preliminary and Detailed Engineering Design) is completed and got acceptance from the Client and formally authorizes a Project, the Designer will start up and prepare all contract documents which named in this case, tender documents, then after awarding to the Contractor, it will be called as contract documents **[2]\***.

The tender documents' phase includes the following:

- Project Charter
- Project Scope Statement
- Project Management Plan
- General Conditions
- Supplementary Conditions
- Technical Specifications (Civil, MEP and others)
- Fully Detailed Drawings

## **Procurement**

Procurement involves two major types of tasks. One is contracting and sub-contracting for the services of general and specialty construction Contractors. The other is obtaining the materials and equipment required to construct the Project **[2]\***.

## **Phase IV – Construction (Execution)**

Construction is the process whereby the Designers' plans and specifications are converted into physical structure and facilities. It involves the organization and coordination of all the resources for the Project, labor, construction equipment, permanent and temporary materials, supplies and utilities, money, technology and methods and time to complete the Project on schedule within the budget and according to the standards of quality and performance specified by the Designer.

The key team at this stage is played by the Contractors and Sub-contractors and their employees from the building trades and considerable input for the inspection and interpretation from the Architect/Engineer also **[3]\***.

## **Completion (Closing the Project)**

Most structures involve the closing the Project phase, in both simple and complex cases, much testing of components is done while the Project is underway. Nevertheless, as the Project nears completion, it is important to be sure that all components function well together as a total system. Often, this phase also involves a warranty period during which the Designer and the Contractors can be called back to correct problems that were not immediately evident upon initial testing. Also, the team project should make sure that the Project is tightly closed (Close Project, Close Contract), obtain Client's acceptance, deliverables, document the Project **[1]\***, issue final report, project post implementation audit.

## **Phase V – Operation and Utilization**

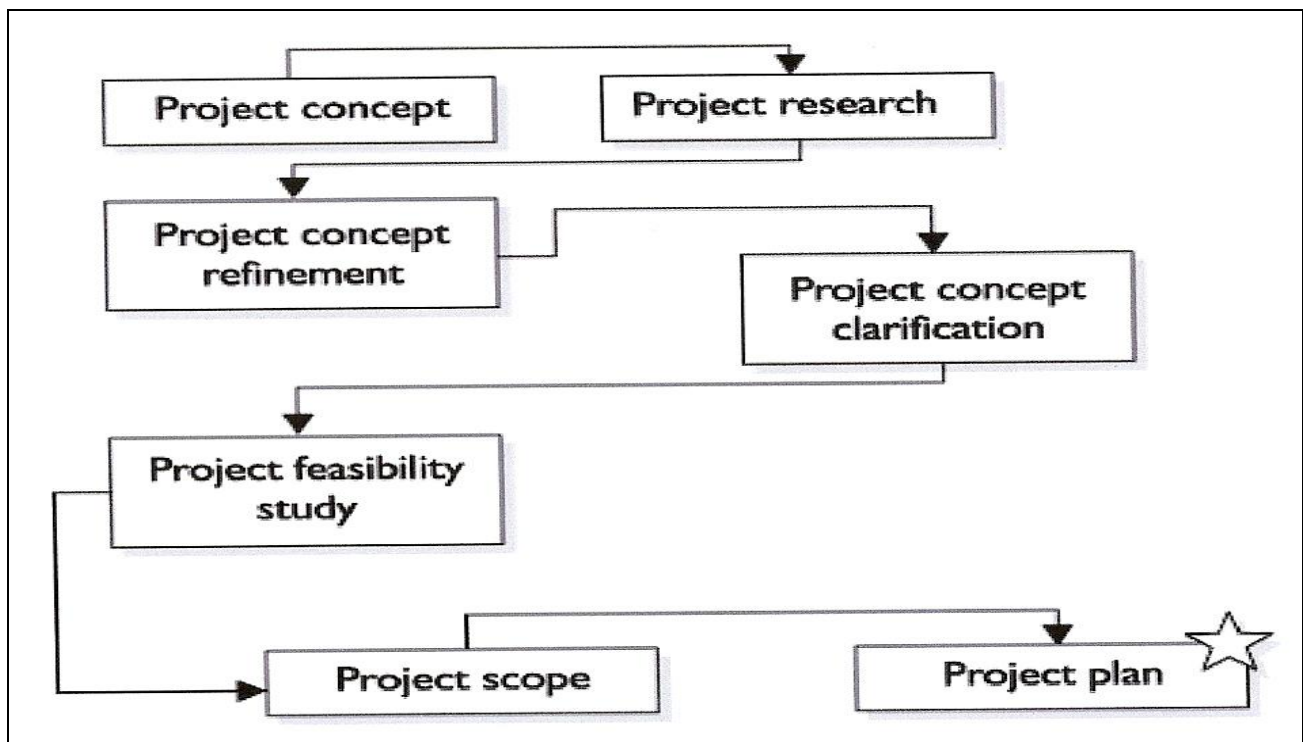
The functional value of the Project will depend upon the decisions and implementation of the objectives developed during the preceding phases. This is a projected operational life of 20 to 25 years or more, it is evident that the over-all cost and value to the Owner throughout the operating life are determined largely during the period from conception through start up. Parties involved at this phase range from the home owner doing the regular maintenance in construction **[6]\***.

## Progressive Elaboration – Figure 4\*

All projects begin as a concept. A Project's concept, to create a new product or service, typically includes a broad vision of what the end result of the project will be. The temporary Project results in the unique product or service through progressive elaboration. Progressive elaboration is the incremental design and refinement of the initial concept toward the Project's plan [1]\*.

As a Project moves closer to completion, the identified needs that launched the Project are revisited and monitored. Complete understanding of the needs and the ability to fulfill those needs comes from the progressive elaboration. Progressive elaboration is an interactive process designed to correctly and completely fulfill the Project's objectives. This is evident in how the planning and execution processes each contribute to one another. A similar example can be seen in the process to create a Work Breakdown Structure (WBS). The WBS begins with the Project's vision which is then elaborated upon to create the Project's scope and then expanded again into the WBS and so on [2]\*.

Consider a concept to build a new building that would handle the manufacturing and shipping of blue jeans. It would begin broadly, with materials delivered, the assembly equipment, and the outward-bound shipping bays. As the Project team continues to research the needs and expectations of the Project, the Project's vision would be refined, honed and polished to a detailed outline of what the Project would deliver. As you can see in Figure 5, through incremental steps, the Project's plan is developed and the unique Project deliverables are created [1]\*.



### \* Figure 4

\* [1] A Guide to the Project Management Body of Knowledge "PMBOK Guide" – Third Edition

\* [2] Heldman, Kim, Project Management Professional Study Guide – Third Edition

\* [3] Atout, Mamoon, *The Benefits of Managing the Design Process in Construction Projects*, World Engineering Magazine

\* [6] Bonhomme-Delprato, Danielle, *Pricing Cumulative Impacts of Different Site Conditions and Design Changes in Construction*, Cost Engineering Vol. 50 No. 3



## **CHAPTER II - THE IMPACT OF DESIGN MANAGEMENT**

Design is a compound system, which continues to increase in complication because of the remarkable development in specialist knowledge and available methods of computer analysis. There are now many sources to the design of a Project from a wide assortment of Organizations. This gives rise to a design procedure, which consists of a ceaseless exchange and alteration of information and details [3]\*. Even the most competent design teams can fail to cope with this complex process and provide information at the wrong time and of the wrong quality to members of the production team. This may affect the Project's guidelines and in other words, it is one of the reasons behind the impediment in the construction stage of the Projects.

The Benefits Today, a very large allocation of the building's mechanism are equipped in the factories and assembled on Site. This is completely dissimilar from the handcrafted, site-based modes on which architectural custom in this Country was established. This indispensable change has influenced the designers to identify or depict every facet of the Project to a degree of attributes which eliminates all uncertainties in the design intent from the manufacturing and site assembly processes. This in turn has led to an apparently keen demand for information in the form of drawings. As a consequence, building design has now become a crucial part of a complex industrial process and there is a requisite to recognize the management task and to administer it efficiently. Therefore, it is required for the Designer and the Contractor, to supervise and regulate the design process and construction procedures, noting that the participation and consent of the Client or his Representative is a prerequisite if delays are to be evaded.

In all circumstances, thorough assimilation of the design process with the procurement and construction of the Project is of vital importance. However, for the effective stipulation of the design information, it may be mandatory to lower the interests of the individual Organizations to the demands of the Project as a whole. A reliable design management aids Designers to focus on the Project's needs and to be responsive of the controlling activities. In practice, each member of the Project Team, which may consist of Consultants, Specialist Trade Contractors and Project Managers, will carry out a design management purpose, which should be manipulated by a Manager from within each Organization. There has to be a single point of responsibility, however, on any Project for the final deliverance of the production information approved for construction. The responsibility for this should be settled at the outset and the appropriate Authority established.

Two concerns should always be addressed: the provision of accurate, fully coordinated and complete information and the timely provision of the information. The first concern is the responsibility of the lead Designer and the second is that of the management. Ideally, they should be identical but the complexity of the management's task now necessitates that it is identified as a fundamental need in modern Projects and vested in individuals or Organizations that are certified in, and recognize the incorporated process of design and construction.

To attain the above assertion, some principles and basic techniques of planning, monitoring and control appropriate for handling the specific requirements of the design process must be deliberated by the three involved Parties during the design and execution. Agreement at this stage is a good approach to limit the future causes of delay. Understanding the design, design process and design management principles will alleviate the probable predicaments during the design completion and the operation process of the Project.

### **Section I – About the Design**

Design is a combination of the inner drives and manifestations of individuals. It is also viewed by the separate members of the Project Teams from several diverse directions and in particular with regards to how well it will accommodate their own needs and wishes.

These views must be explored, understood and taken into account by the Client and the Project Management, so ensuring that the Designer's intentions and expectations are met within the terms of the design brief.

## **Section II - The Building Design Process**

Design is an imaginative and a very personal activity. It is imperative, however, to comprehend how Designers contemplate when defining and realizing their objectives and their respective priorities. Only when the design is finalized can the outcome of their intense intellectual activity be perceived. This is at the heart of the problem of managing the design. It is why Managers need to understand the methods by which a typical design is utilized and the characteristics of the Designers so that a level of tolerance is reached which allows them to be supportive of the process.

In essence, the Architect takes the Client's instructions and applies design abilities to develop a three dimensional analysis which other Designers use as the core of their own work. This is not a firm and hasty directive, as on any Project, the formative or concept design stage is both interactive between the many design exercises as well as between the Architect and the Client. The Designer or the Consultant Designer must think about the build competence of his Design by having a very efficient and creative resolution to any problem while execution.

## **Section III - The Engineering Design Process**

This is influenced by examining the function in full detail and applying technology to the subject of the design concept using technical procedures, quality standards and codes of practices. Many details will be delivered at this stage and the Consultant should verify whether these details are suitable to the Project's construction or not. This may be confirmed through a system of tasks and responsibilities allocated to the teams.

## **Section IV - Rates and Responsibilities**

Each work activity in Construction will be based on the approved thorough drawing, which itself is based on the developed and prepared brief, conceptual and scheme design. At this stage, the Design Team, Specialists and Client Representatives must be engaged and aware of all technical aspects because the type of procurement at this stage may well be based on the approved details. This is the ground why Design Management and Procurement's preferences are inter linked and can affect in the later stages of the Project.

## **Section V - Managing the Design Process**

While the drawings and Bill of Quantities are being processed in line with the Procurement Contract type selected, the Consultant has to manage his design to make sure that no failure will arise that will have an impact on the construction. The Design Staff must be structured and they have to be accustomed on how to convene Agreements and how to assess the level of the Contractor's commitment. Generating a pleasant working atmosphere and keeping amenable internal relationship between the Staff of each Organization and of each section in the Project will initiate a spirit of collaboration and ensure compassion with the succeeding construction process.

To reduce the future hindrances, the Consultant must liaise with the Client while organizing the design and set up a synchronized briefing process to the understanding of the Engineering aspects of the design, making sure that all required information is complete and is compatible with the drawings issued.

Periodic Evaluation of information is essential during the design management such as design review, component specifications, value engineering, project build ability and life cycle costing. This increases the probability of reducing any subsequent modification of designs which would have an impact on the construction stage and hence, lessen the causes of viable impediment.

## **Section VI - Planning, Monitoring and Control**

Planning the design activity is elemental to a design management. A unique approach must be pondered for each stage of the design. At the outset, there is a need for tactical general plan which considers all stages of the works, the interface to the construction process and the input of the key contributors to the design, including the work Specialists, Contractors and nominated Subcontractors.

Meantime, when planning is finalized with the Contractor and the Client, a Procurement Schedule has to be arranged, noting that any amendments or variation must be considered or administered through a proper procedure so as to avoid problems which could lead to major delays in the future [1]\*, [2]\*.

## **Section VII - Successful Design Management**

It is significant to comprehend the essential composition of the design process and design problems and how it influences the work development in the construction projects. Stages of the design have to be attained for good management together with meeting the Client's requirements and Project's build ability.

The following elements are the major steps to reduce the occurrence of future problems with the Client or the Contractor during the tender stage of the Project's construction.

If the design group successfully implemented the following listed steps, 80% of probable construction problems can be considerably reduced. This will improve the construction stage of the Project and reduce delays:

- Understand the Complexity of the Design
- Manage the Designer Selection Process
- Recognize the Changing Design Leadership Role as the Design Progress
- Integrate Information Supply with Construction Need
- Obtain Agreement at Key Decision Point
- Manage the Integration of Contributions
- Re-plan to Avoid any Doubts
- Manage the Interfaces
- Control Design Development
- Agreement

\* [1] A Guide to the Project Management Body of Knowledge "PMBOK Guide" – Third Edition

\* [2] Heldman, Kim, Project Management Professional Study Guide – Third Edition

\* [3] Atout, Mamoon, *The Benefits of Managing the Design Process in Construction Projects*, World Engineering Magazine

## CHAPTER III - THE IMPACT OF CULTURAL FACTORS

The growth of the construction industry has led to many international Contracting Companies and Design Offices becoming established. Some of those firms appoint a local Project Manager to run the Project and some prefer to have their own Project Managers familiar in the company roles, company policy and procedures. The foreign Project Manager and local Project Manager do not have the same way of thinking but both have the same target (which is handing-over the Project on time). Because they don't have the same background of cultural factors they have the differences in behavior, belief, attitude and values which is reflected how they run the Project. The Project Manager need to know how to deal with individuals such as the Client, Consultant, Contractor, Local Authorities and the rest of the Organization who are from the other different cultures. He must also understand and develop the communication skills, leadership skills, interpersonal skills, flexibility and the technological skills to overcome all the problems. Project Managers who are unable to deal effectively with the society or environment where they are working in, due to multi-cultural factors or differences in legislation should be aware of the implications of the cultural differences and essential aspects of management and execution skills to avoid the Project's progress delay [1]\*, [5]\*.

Culture reflects the human aspect of the Engineers Environment; it consists of beliefs, morals, habits and customs learned from other regardless what education they have. Some rules should be established of how one should behave when applying the concept of different society to the concept of design and execution. A different society usually means different culture. When analyzing the different culture, we find that the personality of the Project Manager is already affected by the common elements such as the family traditions, response to change, level of education, understanding religion, level of culture adoption and level of understanding the communication aspects. Those elements are very important factors and they directly affect the Project's effectiveness. In each Project, there are three main Parties involved i.e. the Client, Consultant and Contractor, each of them is already affected culturally and this will impact on the effective decision making, which will affect the Project's progress in terms of time, cost and quality.

Historically, many disputes and contractual problems remain even after handing-over the Projects because of the cultural factors not being considered during the design or execution which affects the progress of the Project [5]\*. Therefore, it is very important for each and every Engineer who is working in private and government sector as Client's Representative, Consultant or a Contractor to concentrate and understand the following key influences:

- 1. Law of the Country:** it is essential to consider the religion because the law is based on religion. In some conflicts during the execution, the Project Manager and team may not take action may be limited due to the religious factors and can affect their career or future in the Organization. Sometimes, conflicts may not be problem without raised with top management and it will be discovered at a later stage which may affect the handing-over of the Project.
- 2. Mixing of Nationalities:** the work force employed on a Project is always of mixed nationalities. This means a lot of traditions, rues, habits linked directly to the religion such as regular holidays, and festivals for different traditions of other in the work force. This mix cultural will affect the duration and time of the execution of the Project. We have to note that once it comes to religious holidays of multi-national people, the Project Manager can not force the group of work since the government rules respect other religious traditions.
- 3. Procedures and Formalities:** depends on the legislation which was derived from the Country's Law and it has to go through a systematic procedure. During the design or execution, some points have to be rectified or verified through the authorities for the proposed Project; these points have to go through formalities which take a lot of time because of the designated procedures. This, of course, has a negative time effect on the Project.

**4. Awareness of the Local Language:** The contract language, most of the Clients, Consultants and Contractors prefer to speak and write in their own language and they don't like to appoint or employ qualified interpreters which affect directly the communication, progress and quality of work. Using the Country's language in the contract documents is an important aspect and most construction Organizations had not resolved this problem.

Many cultural factors have to be considered by the Project Managers and team members. It is a big challenge but the main challenge is to cooperate and understand the rules of the environment and place of work to enable them to understand how to effectively deal with the work force of that Project. Meantime, understanding the reason behind each factor and from where it originates as well as understanding the local language will enable them to implement their contractual obligations. It is very important to understand clearly the history, topography, religion, language and tradition of the Parties who are involved in the Project whether they are Client, Consultant and Contractor. The culture in the construction industry is a shared understanding about what is expected to be done, by all Parties and the cultural objectives must be very clear to avoid any disputes between the Parties involved. The understanding of culture in this sense is the ideology, belief system, norms or behaviors and social order which compose the society and traditions which could be reflected on the behavior of the Project's stakeholders. The Project Manager and team must clearly be prepared for understanding the following points to avoid stress and tension and to control the cultural aspects which can confuse them during the design and construction of the Project:

- Learn local communication.
- Mix the host and nationals.
- Be creative and experimental.
- Be culturally sensitive.
- Understand the complexities of the work force.
- Be more realistic in expectations.
- Be curious about the culture.
- Be friendly and avoid nervousness.

\* [1] A Guide to the Project Management Body of Knowledge "PMBOK Guide" – Third Edition

\* [5] Ajmal Mian, *Knowledge Transfer in Project-Based Organizations*, Project Management Journal

## CHAPTER IV - THE IMPACT OF COMMUNICATION

Effective communication is one of many skills that a successful Project Manager should master. This is why, not surprising, the PMBOK [1]\* has listed communication as a process group, is considered as an independent subject. Inspire the fact that a Project Manager should have other technical and business skills such as leadership, problem solving, management, etc. possessing effective communication skill plays an important role in the success of the project. Some of the important elements that the Project Manager should consider when communicating with stakeholders to encode message(s) easily and correctly from the receiver (Figure 4 shows the sender models). Effective communication builds a bond and trust between Parties.

Effective verbal communication and corrective use of words are skills that Project Managers should focus on and build upon. We all get exposed to new words and synonyms that sound expressive to ears of others. Each industry has its own terminologies that the Project Manager is familiar with but do all of the stakeholders know all of this technical vocabulary? The answer is simply No.

For example, an IT Specialist who has been asked by a Manager about an error message that keeps appearing on his laptop, while he is running an application, the IT Specialist responds using technical terminologies that the Manager can not understand. As a result, the Manager was in doubt that the Specialist was capable of tackling the error. Although the specialist has described the procedure correctly, the Manager could not understand his response. This example illustrates that we should not assume that stakeholders are aware of the technical jargons that we know. Words are considered abstract or concrete, emotional and, natural. Abstract words have fewer directives than concrete fact oriented words.

Words are tools that need to be used in an artistic way to convey the message that we need to send. The art of wording has the power to be soft and appealing or strong and powerful. Project Managers can use short words to convey either a message of strength and force or charm and grace. With practice you will feel that the flow of words would come out like you are playing a musical instrument. I would advise any one who is interested in broadening his vocabulary to carry a small note book in his pocket or use his PDA to record any new word that may come across. The next step would be to get its meaning and start using it in conversations and correspondences [2]\*.

We should use words to build sentences and not the opposite. Personally, I would also discourage the use of off-color language, slang, and foul language while communicating with stakeholders. You never know when a certain word is going to make someone feel uncomfortable. Why take the risk?

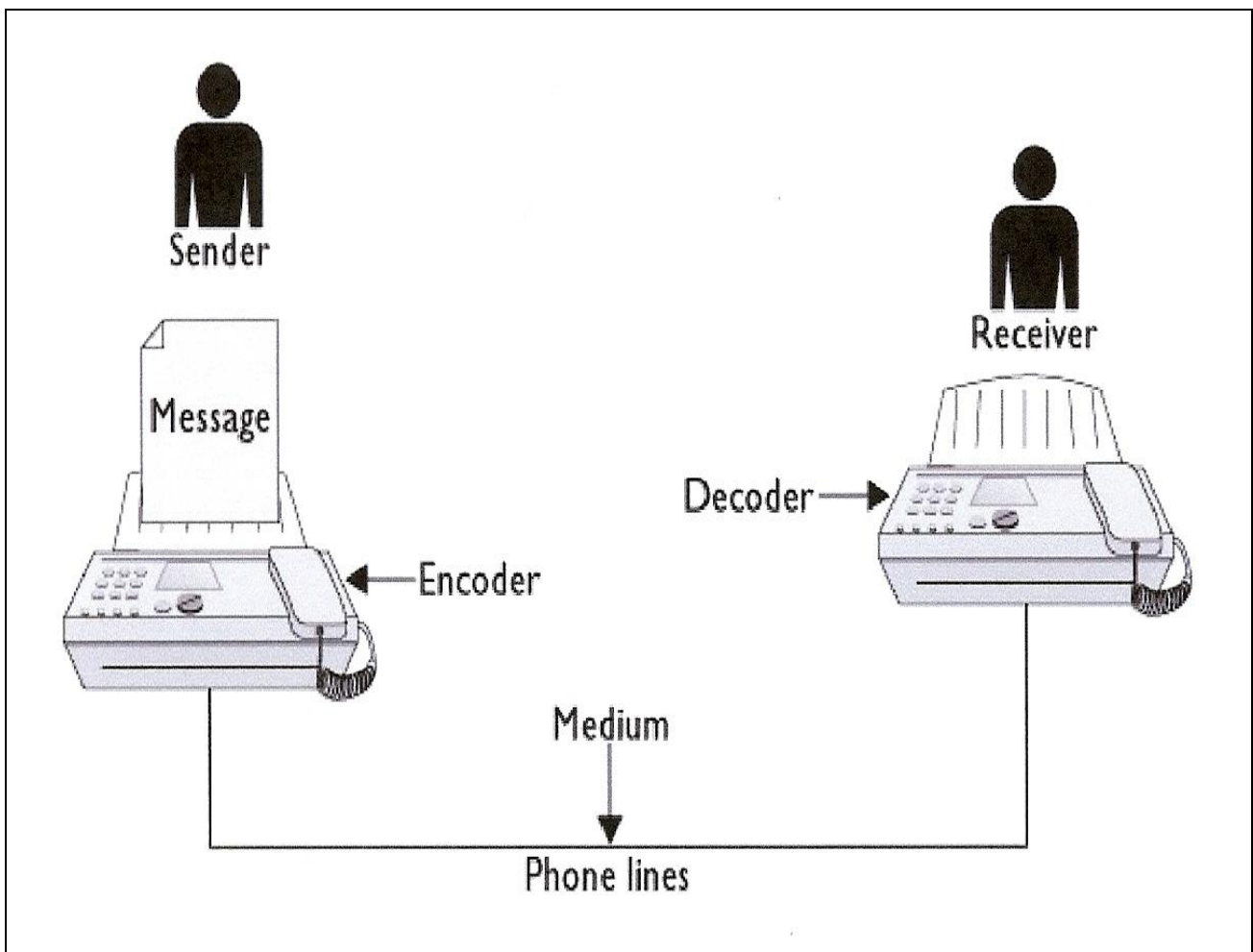
The word picture is a story designed to aid the recipient to visualize a point. Although people have different communication styles with others, tailoring words and adaptive communication to the stakeholders will result in a healthier situation in case of disagreements. Communication can be reflective either a visual mode, an auditory mode, or a feeling mode. Project Managers need to adapt their choice of words to the stakeholders preferred communication style [4]\*. People with visual style would prefer words like see, observe, demonstrate, vivid, and clarity. While people with auditory communication style would prefer words like announce, hear and mention. People with feeling mode would prefer words like touch, sensitive, hold, and grasp. The objective of effective communication is to use words that catch and preserve the interest and attention of the listeners.

Vocal communication is another important element such as words. The Project Manager's delivery of words and voice affect the receiver's impression and judgment of the situation that is being discussed. Poor vocal communication and speech habits make the situation difficult for the stakeholder to understand the message. Voice characteristics include rate of speech, loudness, inflection, and articulation. How many of us attended speeches, presentations, or even talk shows where we felt inattentive, bored, and wanted it to end.

Probably all of us have been in such situations before. Although the subject may be important, the vocal tone of the presenter may distract the audience concentration. The main reason behind this relies on the presenter's voice characteristics. The normal rate of speech is 140 words per minute. If the person speech rate is above or below this average rate, he is considered fast or slow speaker. An effective communicator should know when he should increase the speech rate and when to slow down in order to emphasize the important points of the speech. For example, while talking over the phone the person should slow down his speech rate simply because the listener is lacking visual information. Moreover, Project Managers working in on-sites would also tend to speak slower due to noise distortion.

Loudness needs to be tailored to the communication situation. Loudness should be used to emphasize certain parts and issues while speaking. If the listener is backed away, the speaker should higher his voice to catch his attention. At the end of the speech or conversation, the speaker's tone should decrease hinting the completion of the conversation. This is what is meant by inflection.

Articulation is best when the speaker opens his mouth properly, then the movements of the lips and tongue are unimpeded [2]\*.



**Figure 3 showing sender models can vary based on the modality of the message.**

## VI. CONCLUSION

Developing a design that produces a complete information base will provide the cost effectiveness and simplicity in the construction and long-term customer satisfaction.

Project Management guidelines will help the Organization get on track to more successful Projects.

Clear cultural objectives will lead to dispute avoidance between the Parties involved and could be reflected on the behavior of the Project's stakeholders.

Organizational structures affect the level of communication and effective communication will reduce the monotony of the conversation and make the receivers more productive.

All Projects begin as a concept, typically includes a broad vision of what the end result of the Project will be. The temporary Project results in the unique product or service through progressive elaboration. The results of the discussed topics in my paper can be used in Projects and operations. There is a fine line between Projects and operations and often, these separate entities overlap in function. The end result of the project is the business operation.

The following will be expected when implementing the discussed influences and the outlined recommendations:

- The improved management of the design process is a part of an integrated system which will provide the total quantity approach to the management of the design.
- A lack of the general Project knowledge within an Organization can be almost as dangerous as a lack of Project Management, project management guidelines help the Organization combat this issue.
- The culture in the construction industry is a shared understanding about what is expected to be done by all Parties, understanding of the culture is the ideology, behavior, belief system and social order which compose the society and tradition [5]\*.
- Effective communication will aid the Project's stakeholders in conveying their message across and achieving their objective.
- Understand the essence of the design process and design problems and how it affects the work progress in the construction Projects. Stages of the design have to be achieved for good management together with meeting the Client's requirements and Project build activity.
- Project management guidelines describe the policies, procedures, techniques and artifacts for the uniformed management of Projects throughout the Organization. By combining the standardization with responsive flexibility and best practices, these measures are designed to achieve on-budget, on-schedule performance while carefully managing the scope, quality and risk for all Projects.
- Local communication to be learned, host and nationals to be mixed, understanding the complexities of the workforce, more realistic in expectations, culturally sensitive, creativity and experimental will be required to control the cultural aspects during the design and construction of the Project.
- Communication is a two-way street, an effective communicator should know when increasing the speech rate and when to slow down in order to emphasize the important points. Communication skill plays an important role in the success of the Project.

\* [5] Ajmal Mian, *Knowledge Transfer in Project-Based Organizations*, Project Management Journal



## VII. REFERENCES

- [1] **A Guide to the Project Management Body of Knowledge “PMBOK Guide” – Third Edition**, (2004), pg. 13-15, 19-24, 39-41, 43, 67-69, 81-83, 94, 95, 212-218, 223-224, 227-229, Pennsylvania, USA, Project Management Institute (PMI)
- [2] **Heldman, Kim, Project Management Professional Study Guide – Third Edition**, (2005); pg. 20-27, 327-330, 349-357, USA, Wiley Publishing, Inc.
- [3] **Atout, Mamoon, *The Benefits of Managing the Design Process in Construction Projects*, World Engineering Magazine**, (August 2007), pg. 10-13, UAE, UAE Society of Engineers
- [4] **Zambruski, Michael, *Establishing Clear Project Management Guidelines*, Gulf Project Management Magazine**, (September 2007), pg. 49-52, Arabian Gulf Chapter, Project Management Institute (PMI)
- [5] **Ajmal Mian, *Knowledge Transfer in Project-Based Organizations*, Project Management Journal**, (March 2008), pg. 7-13, Project Management Institute (PMI)
- [6] **Bonhomme-Delprato, Danielle, *Pricing Cumulative Impacts of Different Site Conditions and Design Changes in Construction*, Cost Engineering Vol. 50 No. 3**, (March 2008), pg. 13-15