

FACTORS IMPACTING THE PROJECT'S LIFE CYCLE

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SELF INTRODUCTION

Name: Akram Saad
I'm basically a Civil Engineer

Credentials

MBA in Project Management from US.

"PMP", Project Management Professional by PMI "Project Management Institute" of US.

"CCE", Certified Cost Engineer by AACE "Association for Advancement of Cost Engineers - US.

"PCS", Protective Coating Specialist by NACE International, the Corrosion Society of US.

Experience

30 years in Projects Construction and Project Management

About today's Presentation

Factors Impacting Project Life Cycle

It will give an overview and conclusion with an exploration *of the project life cycle phases: Impact of Design Management, Cultural Factors and the Communication in the Project Life Cycle.*

The paper analyzes five typical phases that are important to understanding the dynamics of the project life cycle as well as the impacts of these drivers on the future of the project life cycle in addition to draw some lessons learned in international projects.

Before the start of the presentation I know that each of you have their specialties in certain fields and would like to know how many having: (by raising hands)

Engineering background
Scientific background
IT and Banking background
University Staff
Administrative
Students

I would to ask you from the real life experience which is more important for projects success,
Is it?

Time

Cost

Quality

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 moves forward and implements the Project. Specifically, there are three constraints that a Project will encounter:
 - **Project Scope:** Constitutes the parameters of what the Project will and will not include.
 - **Schedule:** It is the expected time when the Project will be completed, however, realistic schedules do not come easily.
 - **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.
 - along with the consideration to **Project Risk:** Some risks are worth taking while others are worth avoiding.
 - 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.

INTRODUCTION

- 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, 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.

INTRODUCTION

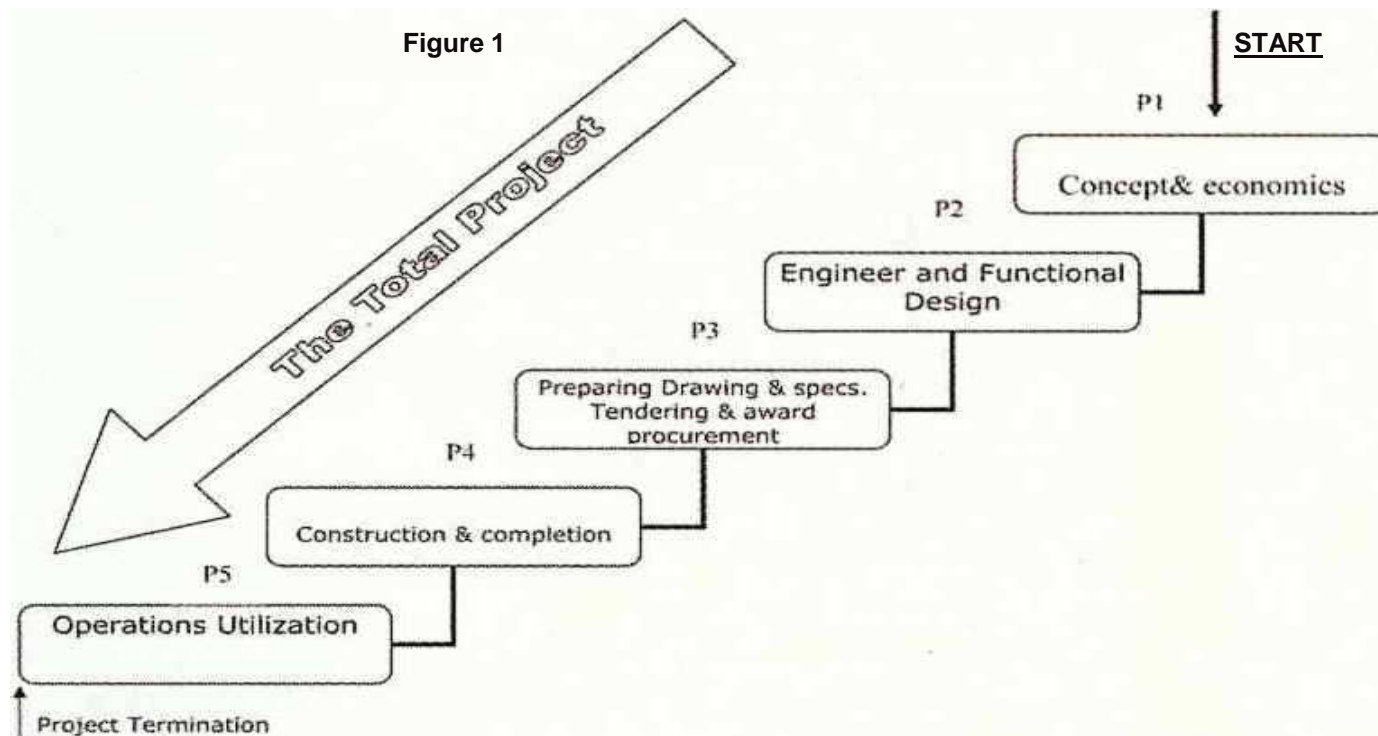
- These factors must be in alignment with the Organization's vision, strategy, tactics and goals. Projects that are not in alignment with the higher vision of the Organization would not be around for long or at best, they are doomed to fail as the Organization's environment will influence the success and completion of the Projects; benefits of such implementations will be as follows:
 - Understanding the design process and management techniques in detail will reduce the level of risk in delay and major coordination is required between all Parties involved in the Project.
 - 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.

BODY OF THE PAPER

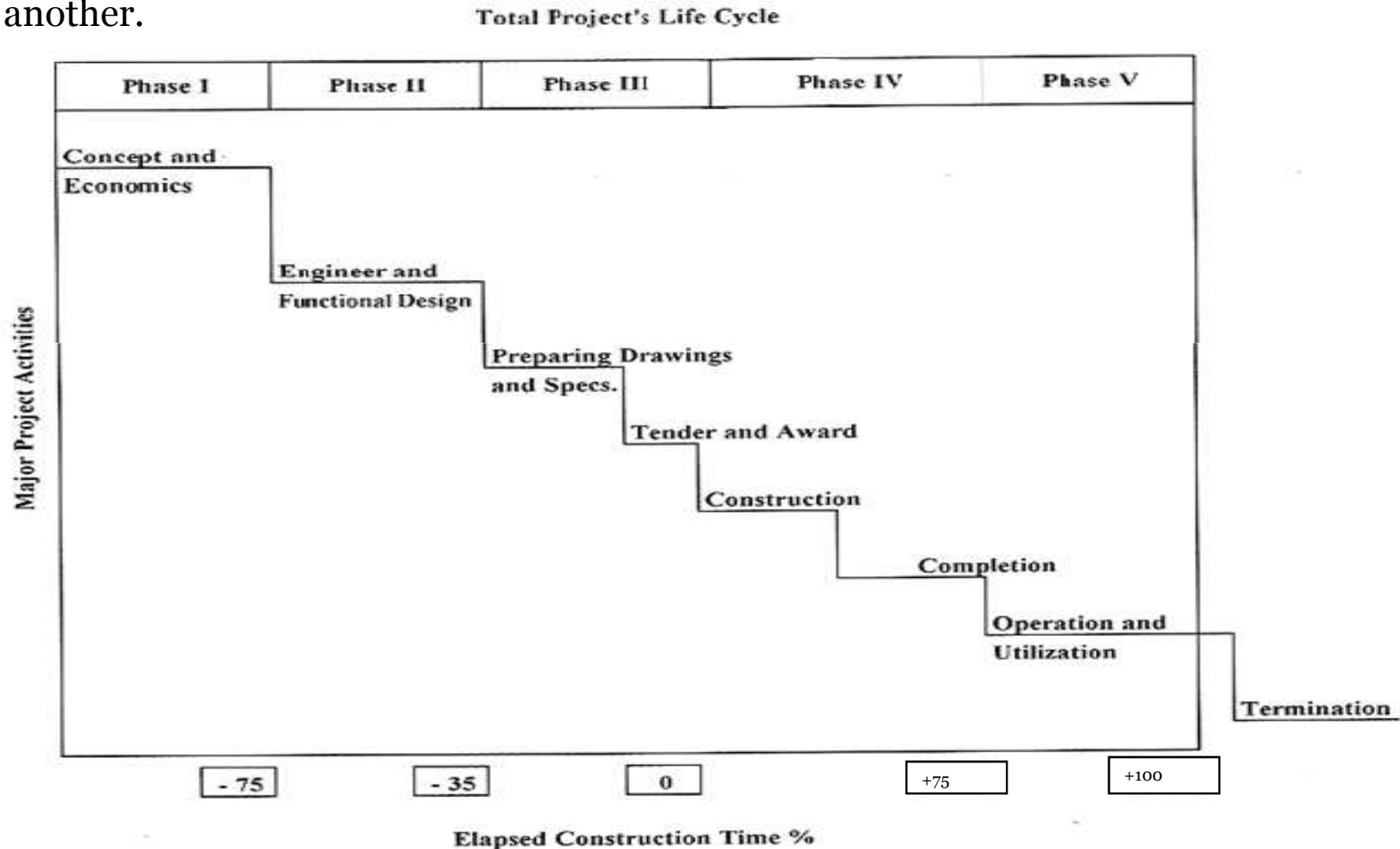
- **Chapter I - The Project's Life Cycle**
- **Chapter II - The Impact of Design Management**
- **Chapter III - The Impact of Cultural Factors**
- **Chapter IV - The Impact of Communication**

CHAPTER I - THE PROJECT'S LIFE CYCLE

- Every 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.
- 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.



These figures show the sequence of five phases:

Phase1: Conceptual Planning and Economics (Feasibility Study) Phase

Phase2: Engineering and Functional Design Phase

Phase3: This phase includes three sub-phases:

3-1 Preparing Drawings and Specifications

3-2 Tender and Award

3-3 Procurement

Phase4: Construction and Completion of the Project (Implementation) Phase

Phase5: 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. Element of this phase include conceptual analysis, technical and economical feasibility studies and environmental impact reports.

PHASE II - ENGINEERING AND FUNCTIONAL DESIGN

Engineering and Design has two main phases:

1. Preliminary Engineering and Design

Architectural concepts, evaluation of technological process alternatives, size and capacity decision and economic studies.

2. 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 set of explicit drawings and specifications that will tell the constructors exactly how to build the structure in the field.

PHASE III

- **PREPARING DRAWINGS AND SPECIFICATIONS**
- **TENDER AND AWARD**
- **PROCUREMENT**

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

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 .

PHASE IV - CONSTRUCTION (EXECUTION)

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.

Completion (Closing the Project)

Most structures involve 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, 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.

PHASE V - OPERATION AND UTILIZATION

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.

PROJECT LIFE CYCLE PHASES - PRELIMINARY TIME SCHEDULE

Stage	Task	Duration
Phase 1	Concept Design "CD"	3 weeks from award of Consultancy Contract
Phase 2-1	Schematic Design "SD"	4 weeks from approval of Concept Design
Phase 2-2	Design Development & Construction Documentation "DD"	8 weeks from approval Schematic Design
Phase 3	Tender Documentation & Analysis "TD"	2 weeks for Tender Documentation 4 weeks for Tender & Tender Analysis
Phase 4	Construction Supervision Stage "CS"	18 Months from Start of Construction

CHAPTER II - THE IMPACT OF DESIGN MANAGEMENT

□ 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

SECTION I - ABOUT THE DESIGN

Design is a combination of the inner drives and manifestations of individuals. ensuring that the Designer's intentions and expectations are met within the terms of the design brief.

SECTION II - THE BUILDING DESIGN PROCESS

To comprehend how Designers contemplate when defining and realizing their objectives and their respective priorities.

SECTION III - THE ENGINEERING DESIGN PROCESS

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.

SECTION IV - RATES AND RESPONSIBILITIES

Each work activity in Construction will be based on the approved thorough drawing, conceptual and scheme design. Procurement's preferences are inter linked and can affect in the later stages of the Project.

SECTION V - MANAGING THE DESIGN PROCESS

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.

SECTION VI - PLANNING, MONITORING AND CONTROL

Planning the design activity is elemental to a design management. 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.

SECTION VII - SUCCESSFUL DESIGN MANAGEMENT

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

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.

CHAPTER III - THE IMPACT OF CULTURAL FACTORS

□ 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.

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.

2. Mixing of Nationalities: the work force employed on a Project is always of mixed nationalities. This means a lot of traditions, rules, 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.

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.

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. 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 cultural objectives must be very clear to avoid any disputes between the Parties involved.

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.

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 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. 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.

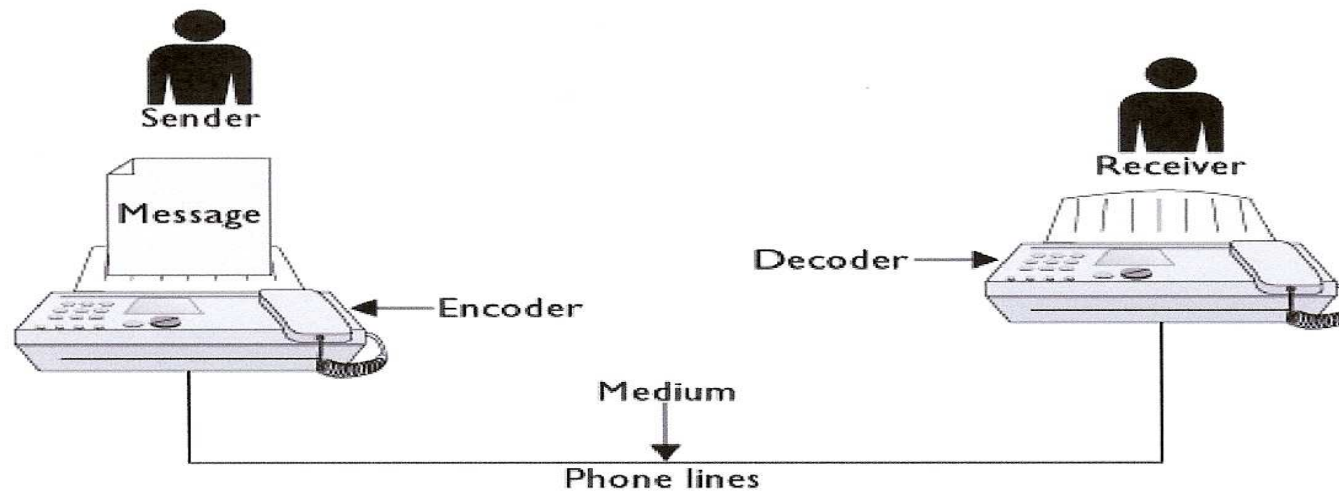


Figure 3 showing sender models can vary based on the modality of the message.

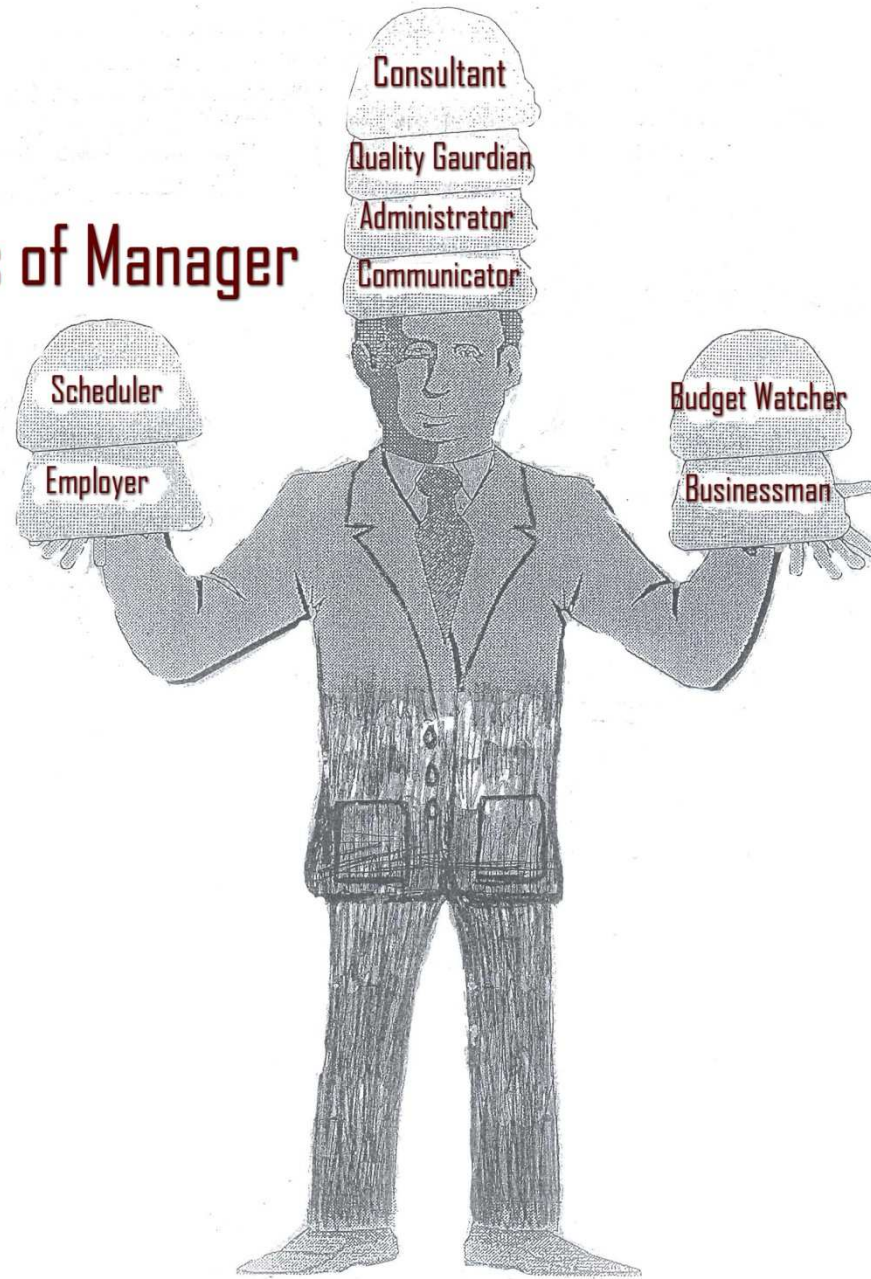
CHAPTER IV - THE IMPACT OF COMMUNICATION

- ❑ 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.
- ❑ 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. 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. Voice characteristics include rate of speech, loudness, inflection, and articulation. Loudness needs to be tailored to the communication situation.

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

Hats of Manager



THANK YOU