إدارة المشروعات الهندسية

الفصل الخامس: هات 213

Engineering Project Management

What is Engineering Management?

▸ Engineering Management is the management of activities and tasks needed to define and deliver specific products.

▸ The goal is to deliver what the customer wants **on-time** and **on-budget** while meeting the required **quality** goals.

What is a Project Management?

منظمه أو مجهود مؤقت حل

- **A Project Is A Problem Scheduled For Solution.**

- **A project is a temporary endeavour undertaken to create a unique product or service.**

تطبيق

- **Project management is the application of knowledge, skills, tools and techniques to project activities to meet project requirements,**

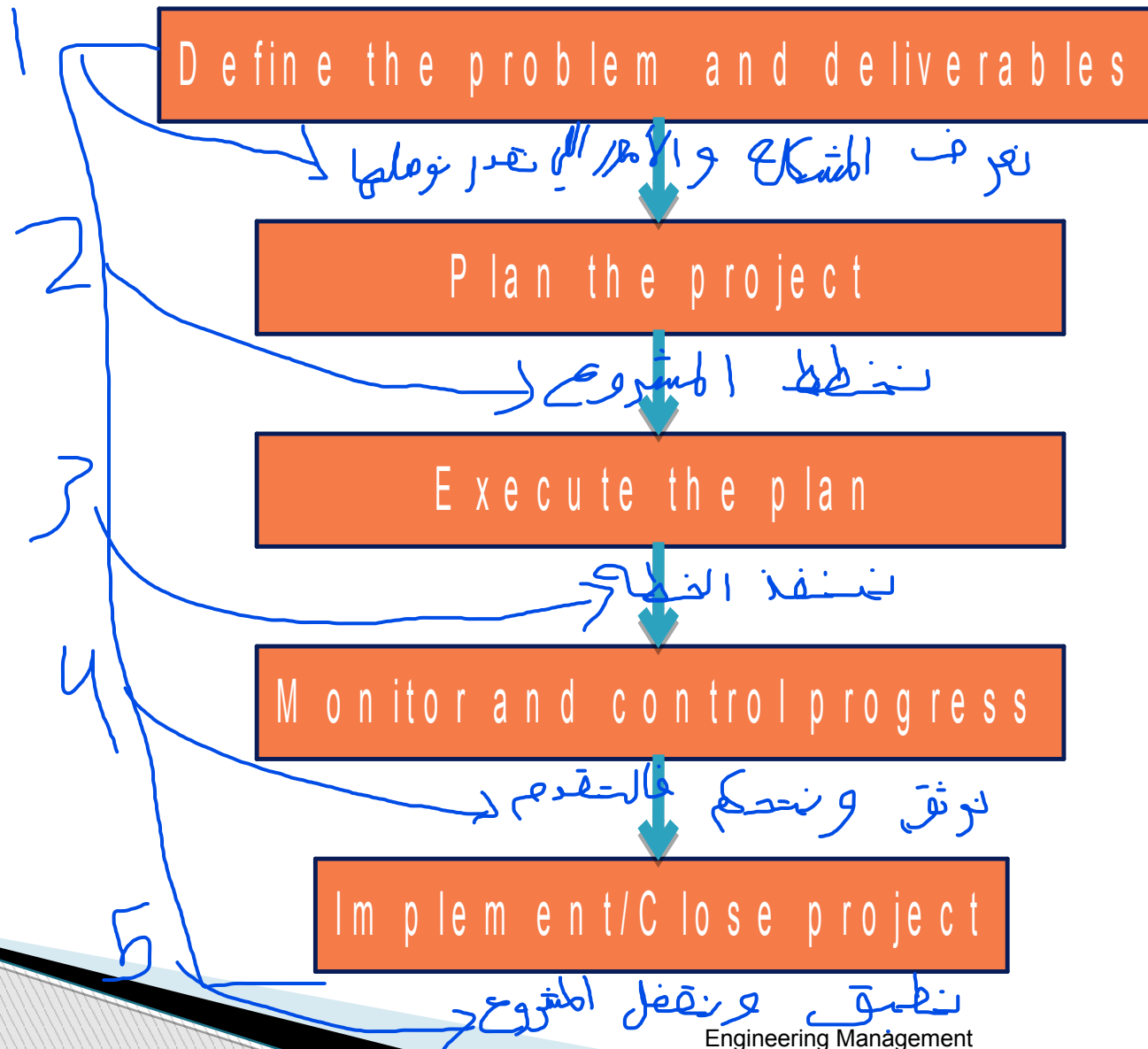نشاطات إدارة المشروع   لتلبي   متطلبات المشروع

Why EM? (Objectives)

- To teach students about the measurement of technical, business, and human performance processes required in engineering environments

- To enhance the student's perspective on leadership and management of technology organizations;

- To give students the knowledge and skills to manage projects and processes effectively;

- To teach students to identify and balance the risks associated with technology development;

- To broaden the engineering manager's perspective on the potential success or failure of an engineering project with respect to financing

Engineering Management

4

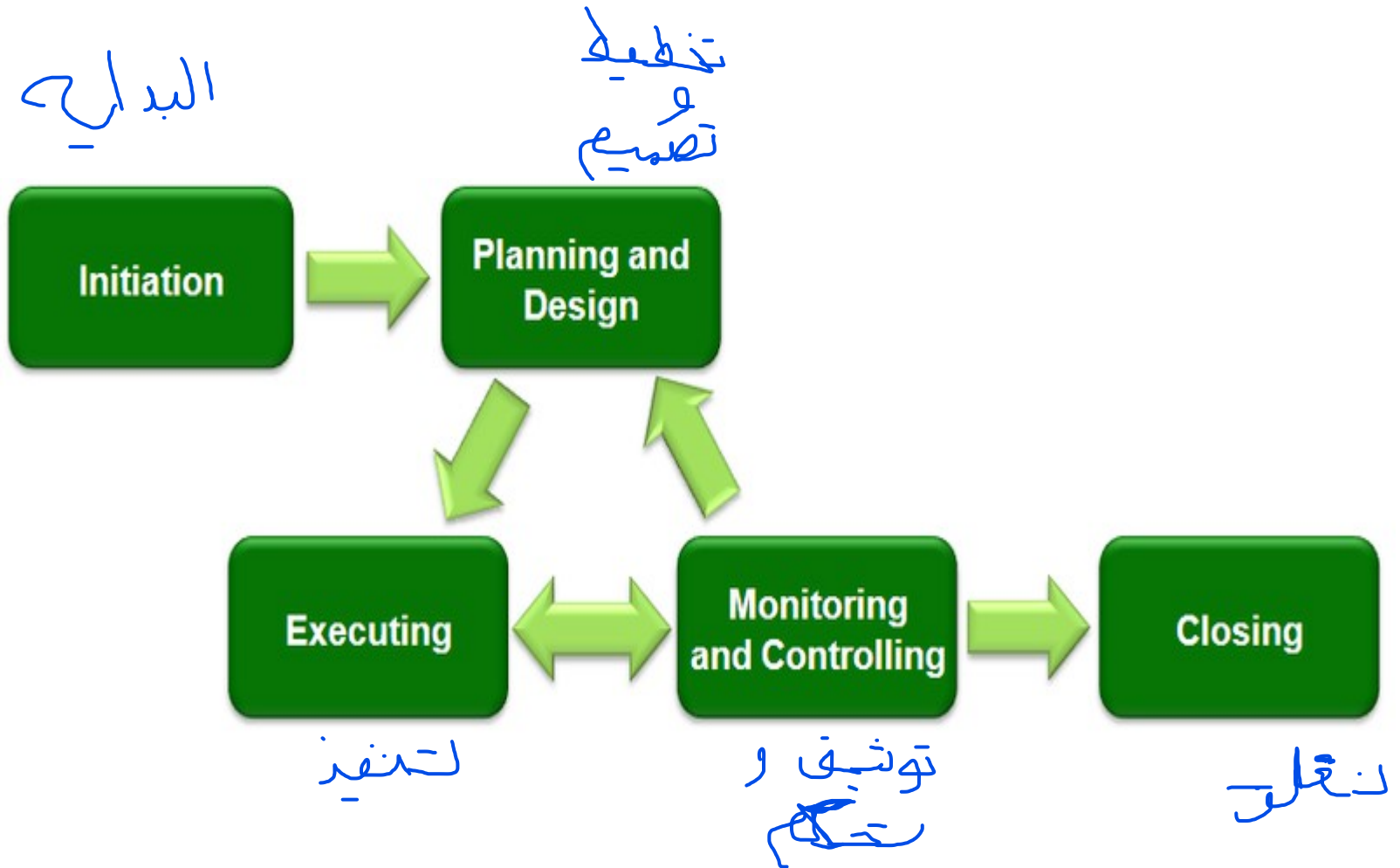# Your projects Cannot Afford to Fail !

Succeed 34%
Fail 15%
Over time or over budget 51%
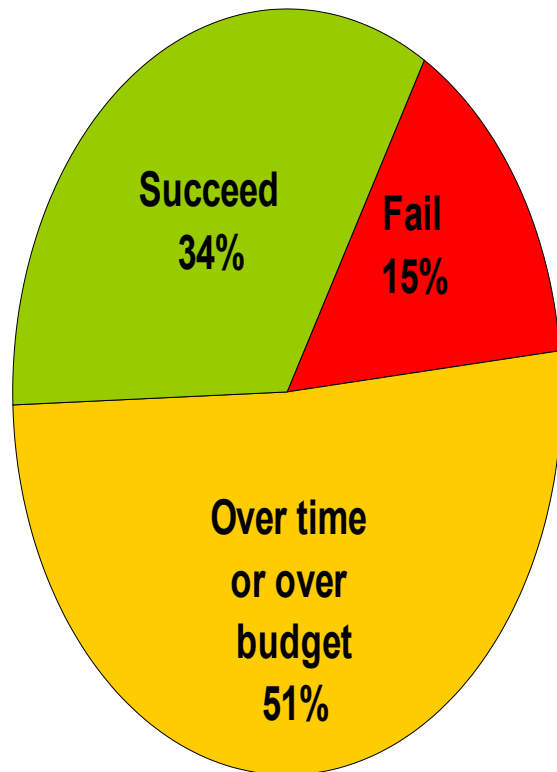
- 66% of all IT projects fail, come in over budget or run past the original deadline
- Every year, $55 billion is wasted on failed IT projects in the U.S.

Project Phases

مراحل

Define the problem and deliverables

نعرف المشكلة والأمور التي نقدر نوصلها

Plan the project

نخطط المشروع

Execute the plan

ننفذ الخطة

Monitor and control progress

نوثق ونتحكم بالتقدم

Implement/Close project

نطبق ونقفل المشروع

البداي

تخطيط و تصميم

التنفيذ

توثيق و تحكم

نغلق

Project Management Triangle

scope,cost,schedule lead to quality

SCOPE

QUALITY

COST

SCHEDULE
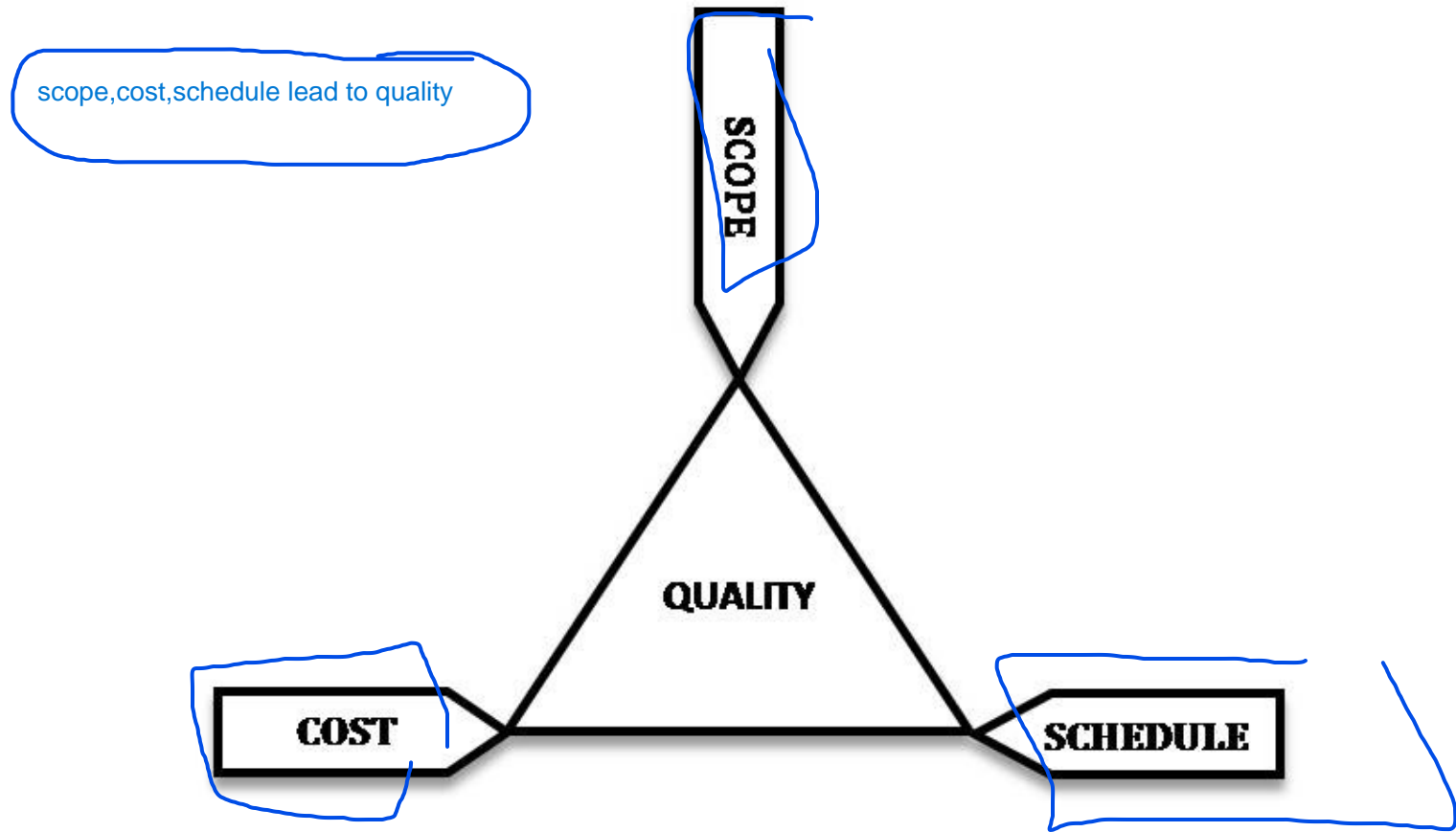
Project Management Body of Knowledge

scope
time
cost
quality
human resources
communications
risk
procurement
integration

general management practices

application area practices

Who is a Project Manager?

مهارة

Project Management is a skill as much as it is a profession.
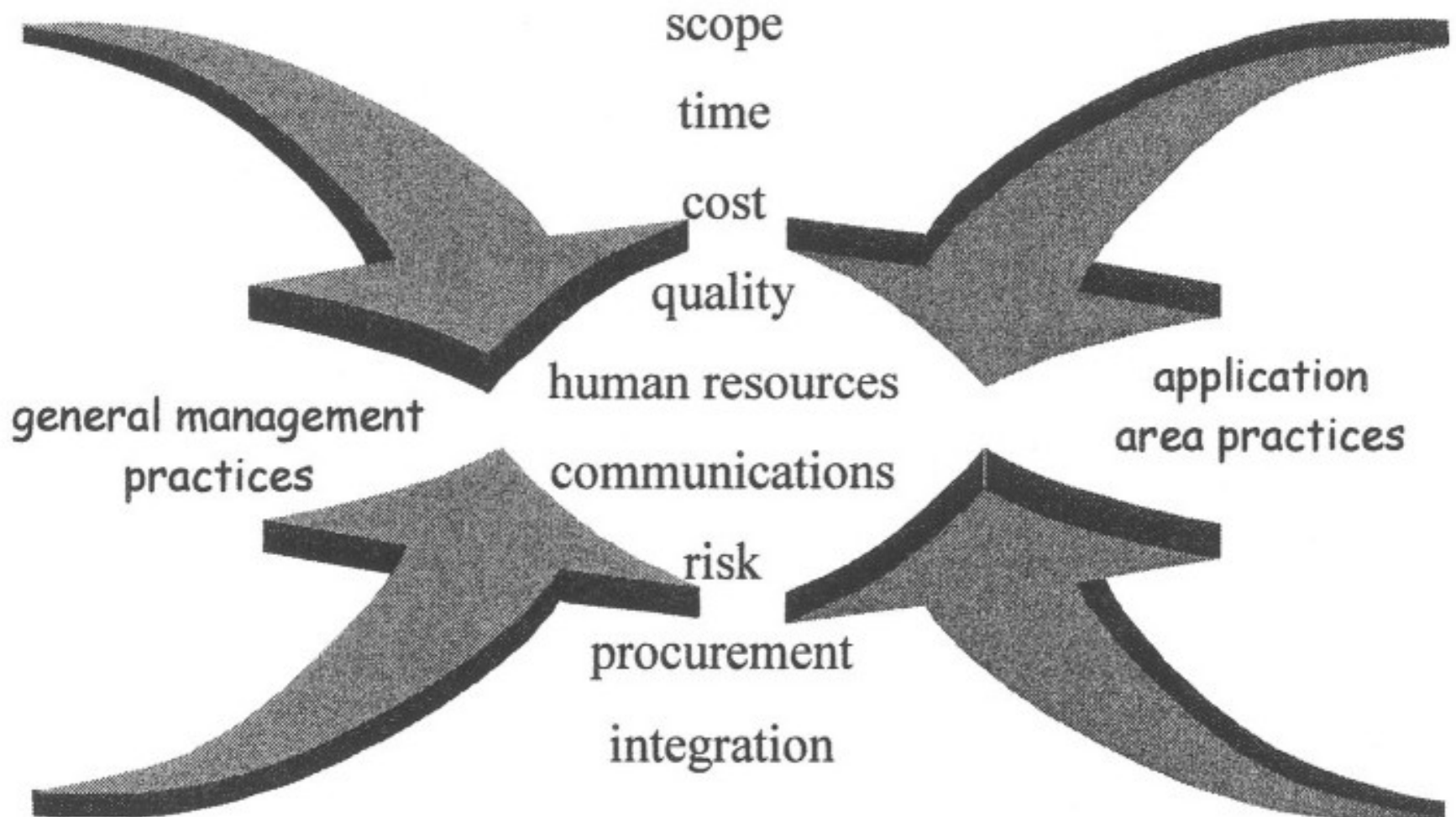
مسؤول عن إدارة المشاريع في نطاق

- Project Manager - responsible for managing project within constraints of:

- **Scope, Quality, Time & Cost**

- To deliver specified requirement & meet or exceed Customer Satisfaction.
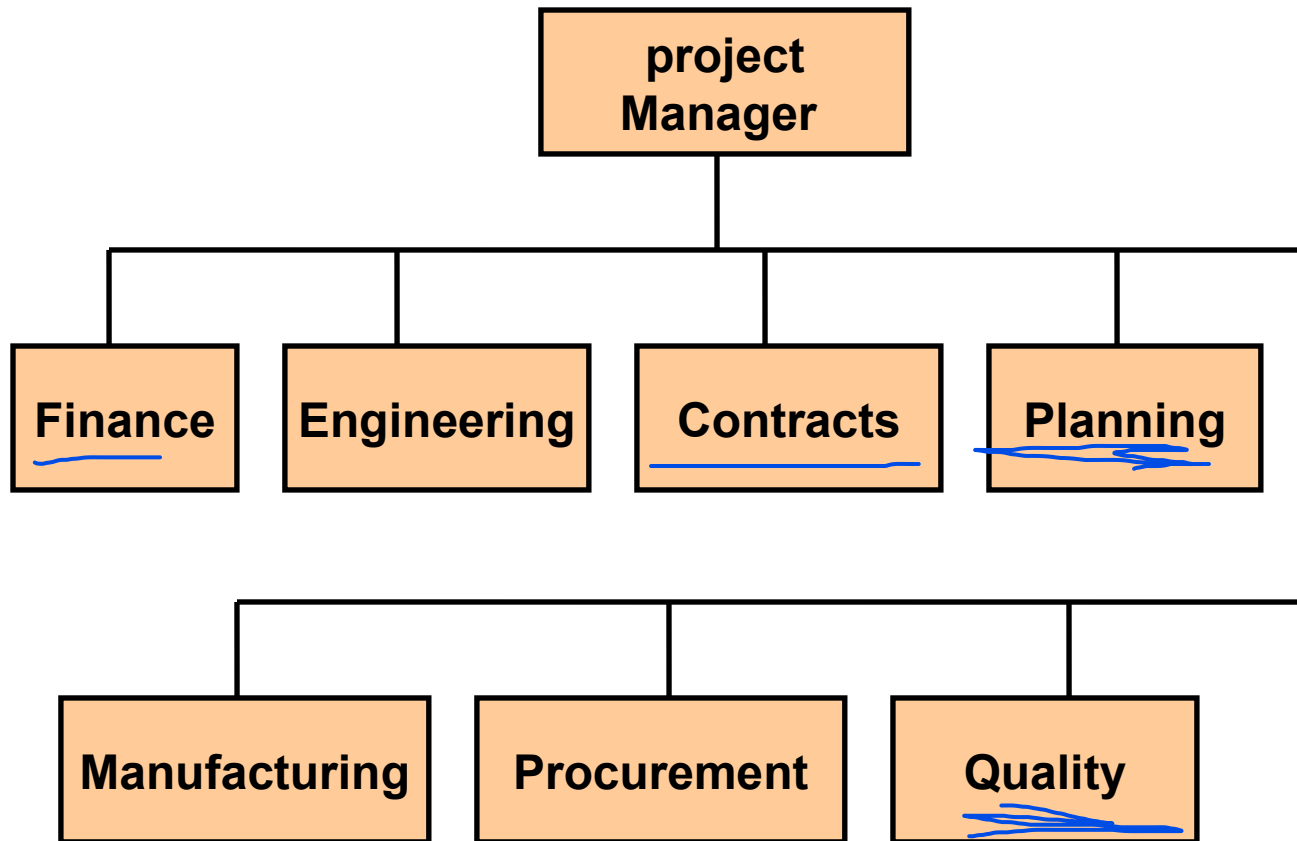
الوصول إلى الطلبات المحددة و نوصل لرضى العميل

Functional Mgr Vs. Project Manager

◦ PM vs functional Mgr (FM, marketing, engineering, or finance)
◦ FM -administratively responsible for deciding:
  - **How Something** done,
  - **Who will do it**,
  - **What Resource** to accomplish Task.
◦ PM general starts career as a specialist
◦ PM, to oversee many functional areas.

Project management. Organization showing typical responsibilities of a project Manager

```
                    ┌──────────────┐
                    │   project    │
                    │   Manager    │
                    └──────┬───────┘
       ┌────────┬──────────┼──────────┬──────────┐
       │        │          │          │          │
  ┌─────────┐┌──────────┐┌──────────┐┌──────────┐│
  │ Finance ││Engineering││Contracts ││ Planning ││
  └─────────┘└──────────┘└──────────┘└──────────┘│
                                                  │
              ┌──────────────┬─────────────┬──────┘
              │              │             │
       ┌──────────────┐┌──────────────┐┌──────────┐
       │ Manufacturing││ Procurement  ││ Quality  │
       └──────────────┘└──────────────┘└──────────┘
```

Qualities of Project Manager

- ➤ **Can Work with large no. of groups & understands their demands & concerns**
- ➤ **"Control & Evaluate project Performance"**
- ➤ **Build Spirit of Cooperation**
- ➤ **Relate, compare, classify, & evaluate facts**
- ➤ **Distinguish Essential vs Non-essential**

يو ضح الاساسيات ونفي الاساسيات ✳

لتحكم و تطور في اداء المشروع ✳

يشتغل في عدد كبير ✳

بناء روح التعاون ✳

Selecting Project Manager

Selection of PM -most important decisions.

Most popular attributes, skills, & qualities for Project Manager:

- ✓ Strong technical background
- ✓ Hard-nosed manager
- ✓ Mature individual understand culture
- ✓ Good terms with senior executives
- ✓ Can keep project team happy
- ✓ One who has worked in several different departments
- ✓ Person who can walk on (or part) waters

خبره فالتقنيه

ينظم المجتمع وتفاعلات

للمعيدين

التشغل في اكثر من قسم

Characteristics for Project Manager

- **Flexibility & Adaptability**
- Significant initiative & Leadership
- Aggressiveness, confidence, persuasiveness, verbal fluency
- Ambition, activity, forcefulness
- Effectiveness as a communicator & integrator
- Broad scope of personal interests
- Poise, enthusiasm, imagination
- Balance technological solutions with: **Time, Cost, & H- factors**

Time, Cost, & H- factors

توازن في الوقت

> Balance in **"Use of Time"**

تنظيم جيد

> Well Organization & disciplined

عمومي

> Generalist not a specialist

> Devote most of his time-**"Planning & Controlling"**

تخطيط وتحكم

Other factors

تحديد المشاكل

> Identify Problems

اتخاذ قرار

> Willing to make decisions

> Personal attributes- either attract or deter highly desirable individuals.

يحب المشاكل

> Project Manager Must like trouble.

> Capable of evaluating risk & uncertainty.

Basic characteristics:

- <mark>Honesty</mark> & integrity صدق
- <mark>Personnel problems</mark> متكاكل المطفن
- <mark>Know project technology</mark> اهم شنين -> تقنية المشروع
- Business Mgt Competence
  - ⬜ Mgt principles مبادئ
  - ⬜ Communication التواصل
- <mark>Alertness Quickness</mark> السرعه
- <mark>Versatility</mark>
- <mark>Energy</mark>, Toughness الطاقة
- <mark>Decision-Making Ability</mark> اتخاذ القرار