



Delivering Successful Projects through Effective Project Management

Session 1: Project Management Framework

Presenter:

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About Myself...



Education

- B.E. Engineering (Civil) NED, Karachi 1998
- M. Eng. (Structures & Construction) NUS, Singapore 2000
- Ph.D. (Const. Proj. Management) FIU, USA 2011

Experience

Over 15 years of academic and industry experience by working in Singapore, UAE, USA, Ethiopia, and Pakistan.

Research Interests

Construction Procurement, Contracts and Claims, Construction Safety, Risk Management, Quality Management, Building Information Modeling, Sustainable, Green & Energy Efficient Construction.

Agenda

1. Project and Project Management
2. Organizational Influences on Project Management
3. Principal PM Organizations and Certifications
4. Building PM Capacity in Pakistan via Academia-Industry Integration



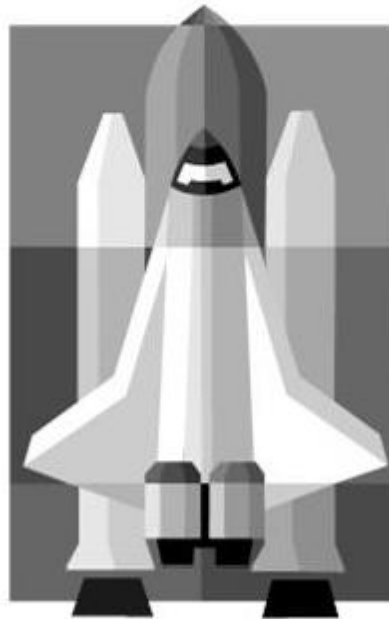


PROJECT AND PROJECT MANAGEMENT

What is a Project?

A complex, non-routine, temporary endeavour limited by time, budget, resources, and performance specifications undertaken to create a unique product, service or result designed to meet customer needs.

Projects are Everywhere....



Projects and Strategic Planning

- Projects are means of:
 - Achieving organization's strategic goals & objectives;
 - Implementing strategic changes
- Projects are often the result of strategic considerations that include:
 - Specific Market demand (e.g. Earthquake-Resistant Housing)
 - Strategic Opportunity/ Business need (e.g. Solar Panels)
 - Specific Customer request (ERP for Construction Business)
 - Technological advancement or Breakthrough (e.g. BIM)
 - Legal requirement (e.g. Boeing)
 - Ecological/ Social need (e.g. Green Buildings)

Project Constraints

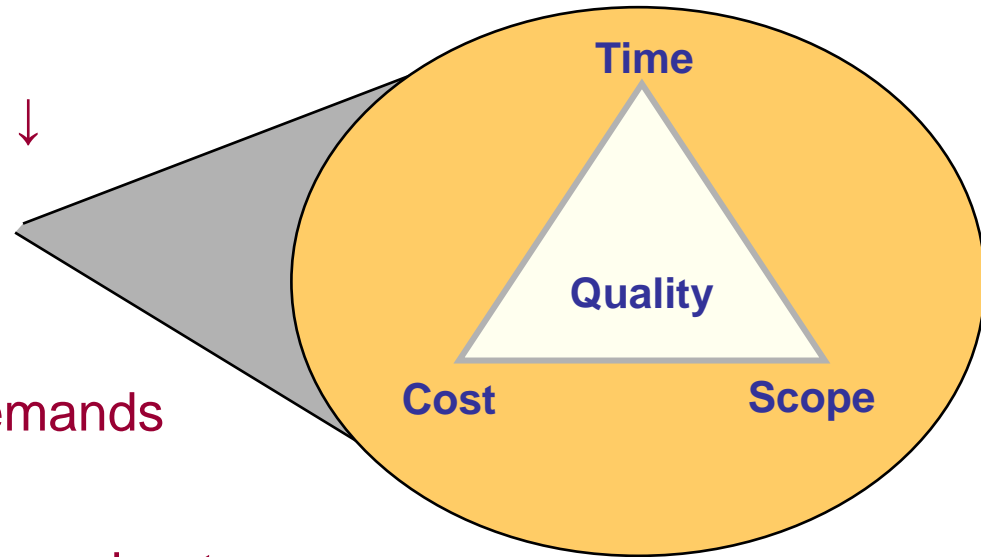
Tradeoffs:

- **Scope** ↑ = Time ↑ + Cost ↑
- **Time** ↓ = Cost ↑ + Scope ↓
- **Budget** ↓ = Time ↑ + Scope ↓

Constraints:

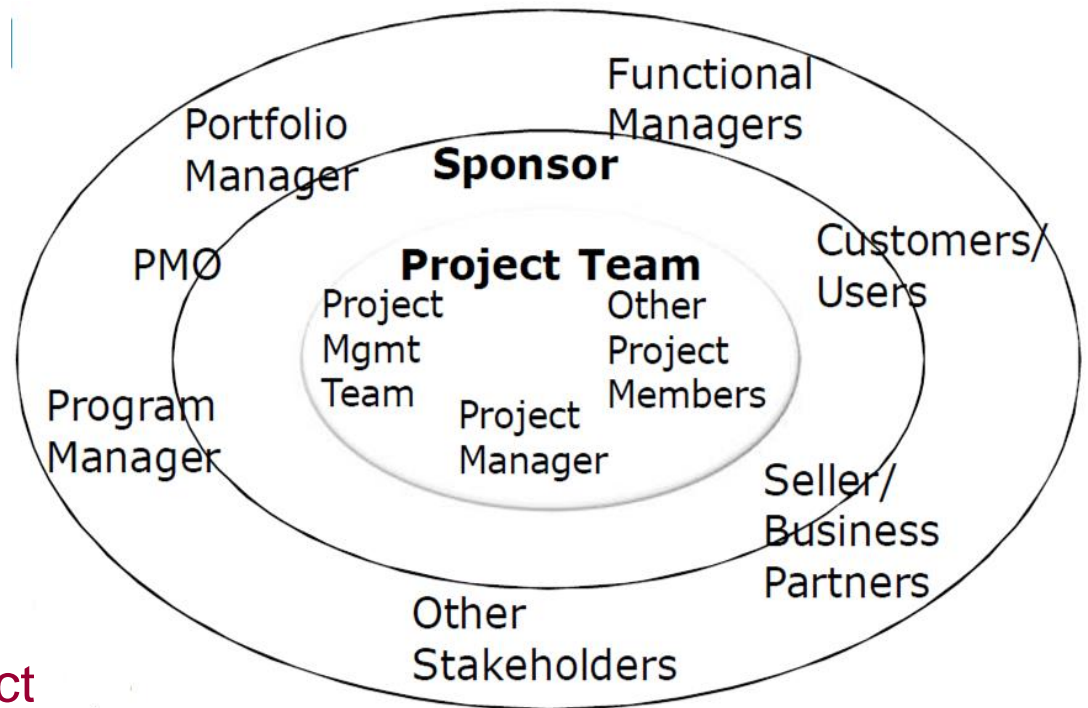
- Help evaluate competing demands
- Facilitate prioritization
- Help use the prioritization throughout
- Aid analyzing impact of changes

The Triple Constraint

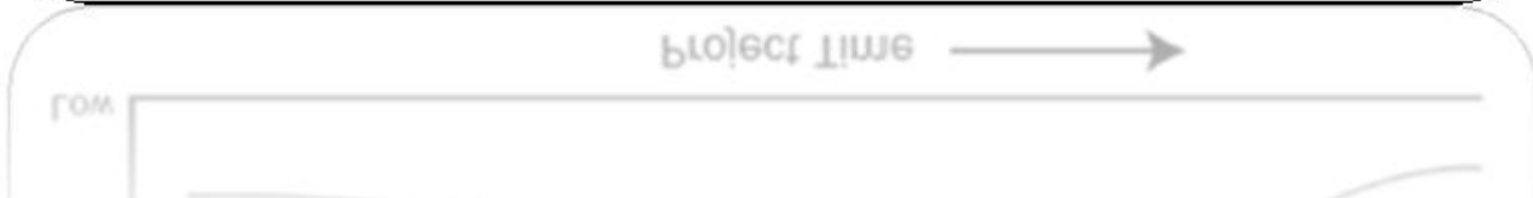
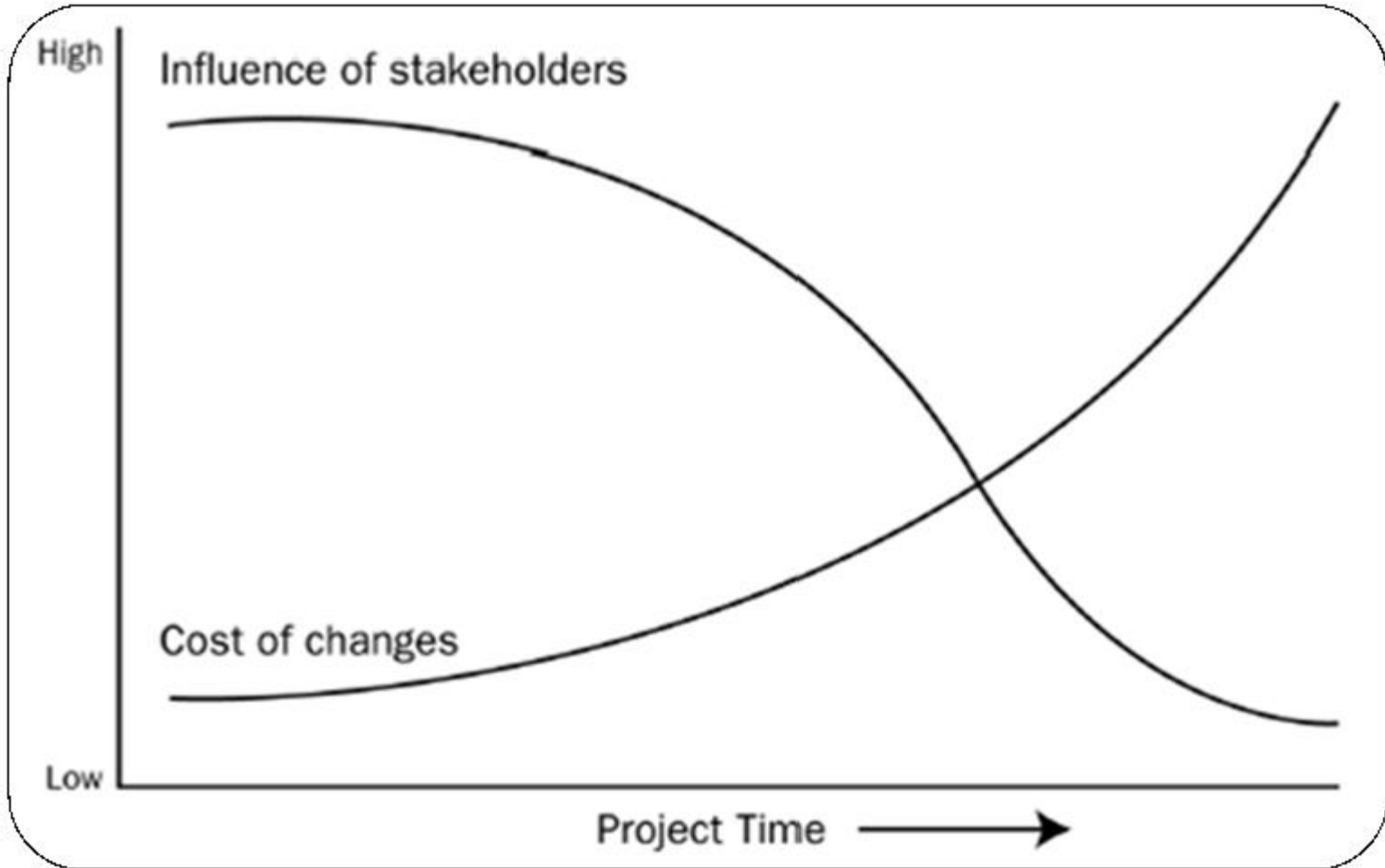


Project Stakeholders

- Stakeholders are:
 - People involved in or affected by project activities
 - People who may exert influence over the project and its results
- Stakeholders include:
 - The project sponsor
 - Project team
 - Support staff
 - Customers
 - Users
 - Suppliers and vendors
 - Opponents to the project



Stakeholders' Risk, Influence and Uncertainty



Project Success

- There are different ways to define project success:
 - The project met scope, time, and cost goals.
 - The project satisfied the customer/sponsor.
 - The project produced the desired results.



Projects Vs. Operations

- Projects and Operations sometimes overlap & they share many of the same characteristics:
 - Performed by people
 - Constrained by limited resources
 - Planned, Executed and Controlled

Projects Vs. Operations

Projects

- To attain its objectives & terminate
- Catalyst for change
- Unique product or service
- Heterogeneous teams
- Temporary

Operations

- To sustain the business
- Maintain status quo
- Standard product or services
- Homogeneous teams
- Ongoing

Examples

- Writing and publishing a book
- Implementing a LAN
- Arrange for a conference
- Opening for a new shop

Examples

- Writing a letter to a Prospect
- Hooking up a Printer to computer
- Attending a conference
- Opening the shop

Exercise

- Which ones are NOT projects?
 1. Building an extension to a house
 2. Shelving books at library
 3. Baking a wedding cake
 4. Designing a new automobile
 5. Routine manufacture of an Apple iPad Air
 6. Taking class Notes
 7. Writing a term paper
 8. Responding to a supply-chain request
 9. Developing a supply-chain information system
 10. Watering your plants twice a week.

Project Reality Check 1:

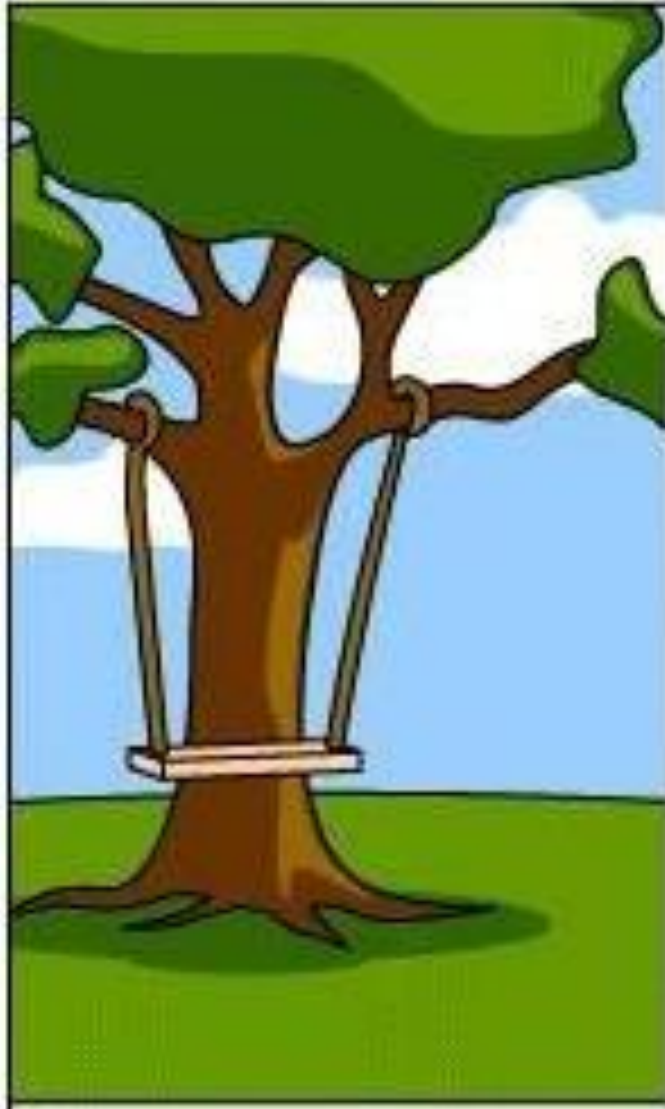
Who Sees What?....



What the Client Wanted



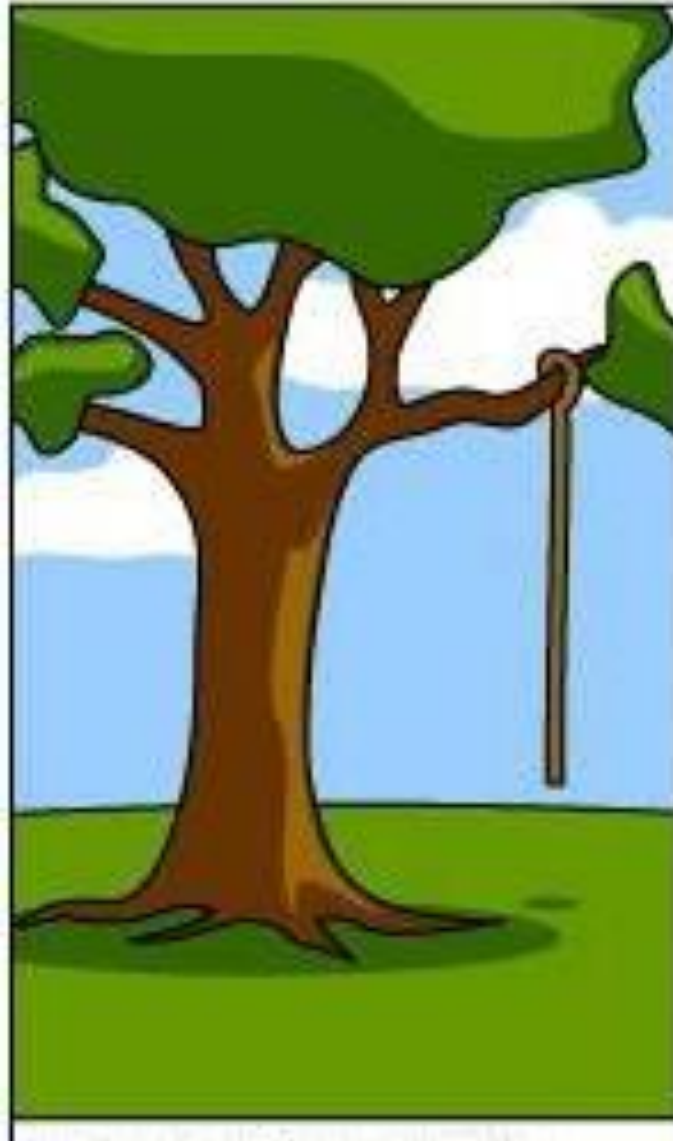
As the Architect Saw It



As the Engineers Designed It



As the Builders Built it



Project Reality Check 2:

The Beginning and the End!!!..



Beginning of Projects



End of Projects

- Condition of the Parties if the Project was not Managed Efficiently or the Risks were not Managed Effectively!!



- Project Over-budget, poor quality, delays, safety issues, unsatisfied client, disputes, litigation, loss of reputation, sore relations.

Why Projects Fail?

- Only 34% of projects Succeed! *(ref. Standish group)*
 - Poor Communications
 - Scope Creep
 - Poor Planning
 - Weak Business Case
 - Lack of Management Direction and Involvement
 - Incomplete Specifications
 - Mismanagement of Expectations

What is Needed to Make Projects Successful?

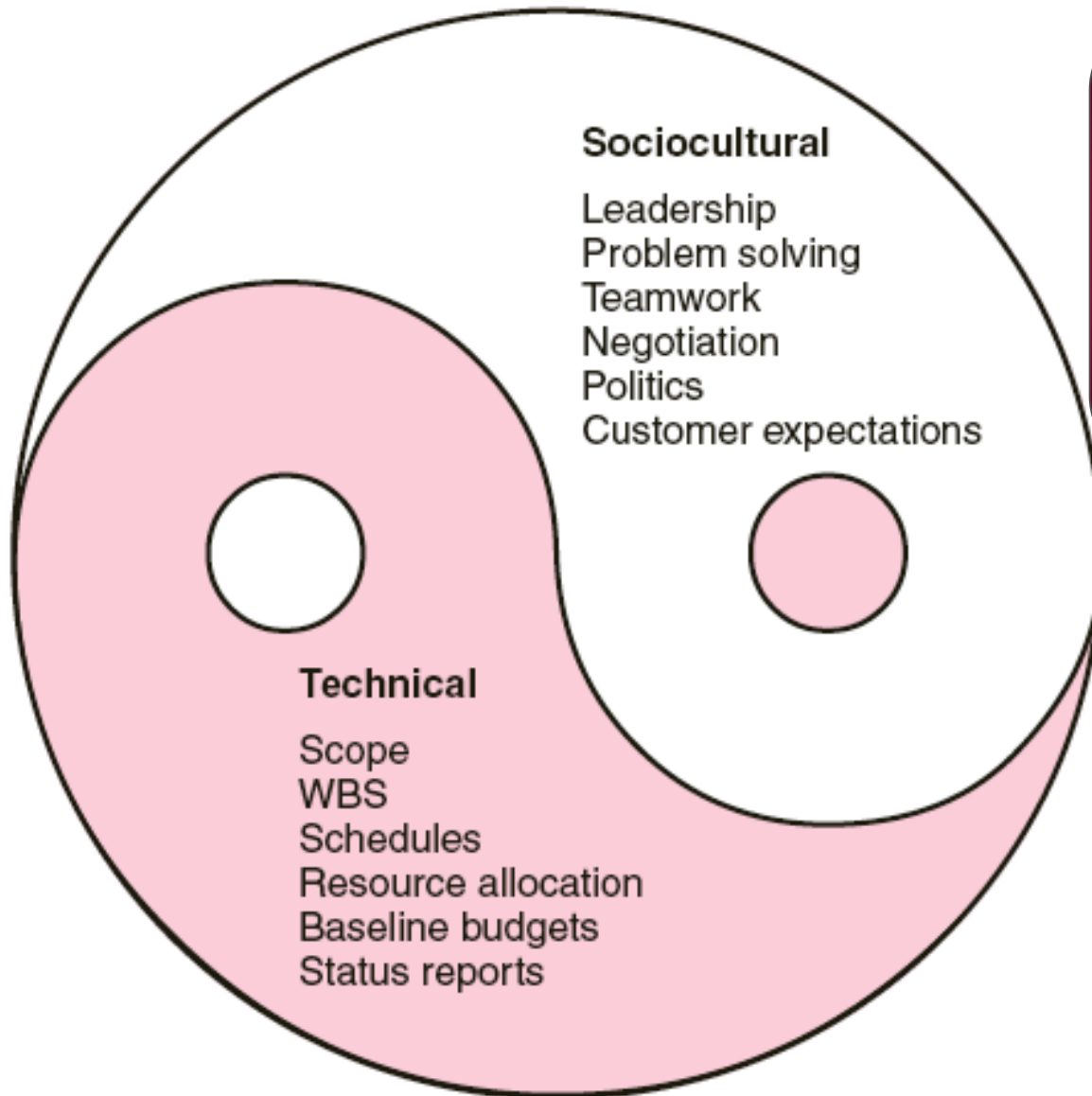


What is Project Management?

The application of knowledge, skills, tools, and techniques to project activities in order to meet or exceed stakeholder needs and expectations from a project.

- ❖ The purpose of Project Management is **prediction and prevention**, NOT **recognition and reaction**.

Project Management – a Science or an Art?

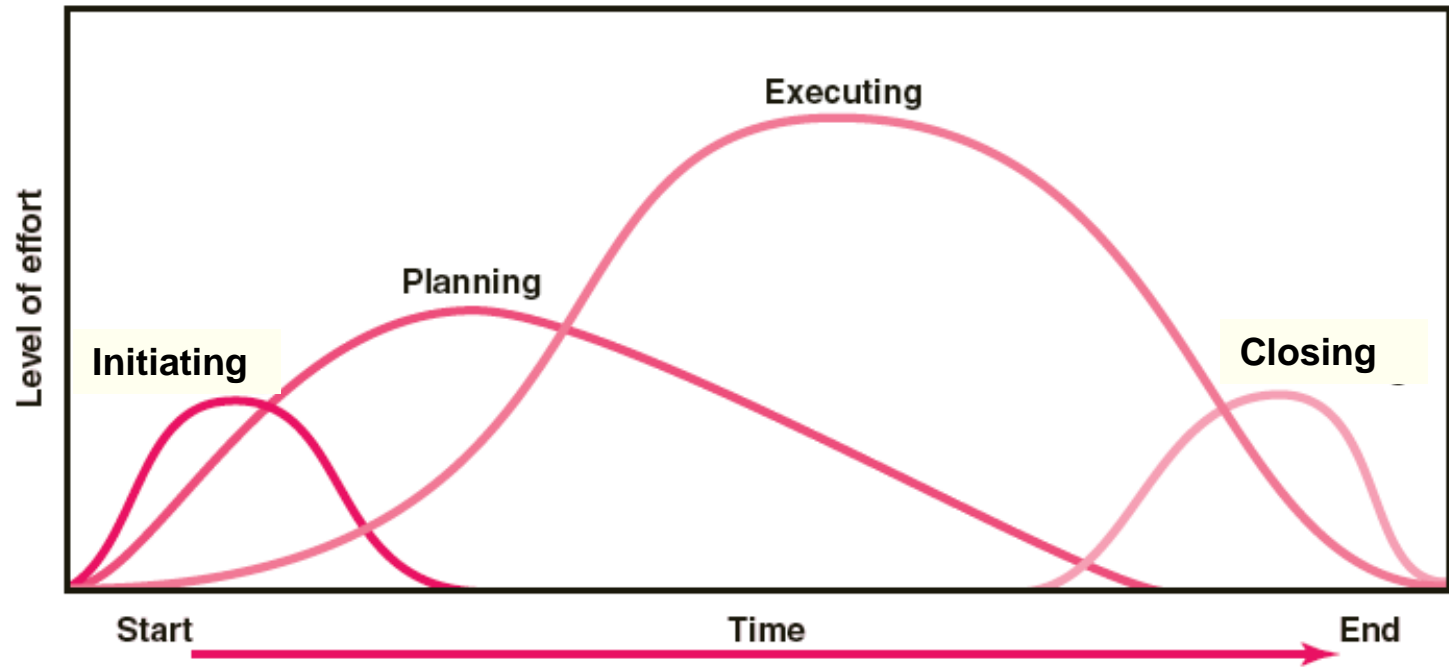


The Technical and Sociocultural Dimensions of the Project Management Process

PMI Project Management Process Groups

- PMI defines the following process groups:
 1. Initiating
 2. Planning
 3. Executing
 4. Monitoring and Controlling
 5. Closing
- Due to the nature of change, managing project is
 - **iterative** and
 - goes through **progressive elaboration** throughout the project's lifecycle

Project Management Life Cycle



Initiating

1. Goals
2. Specifications
3. Tasks
4. Responsibilities

Planning

1. Schedules
2. Budgets
3. Resources
4. Risks
5. Staffing

Executing

1. Status reports
2. Changes
3. Quality
4. Forecasts

Closing

1. Train customer
2. Transfer documents
3. Release resources
4. Release staff
5. Lessons learned

PMI Project Management Knowledge Areas

1. Project **Scope** Management
2. Project **Time** Management
3. Project **Human Resource** Management
4. Project **Cost** Management
5. Project **Quality** Management
6. Project **Risk** Management
7. Project **Procurement** Management
8. Project **Communications** Management
9. Project **Integration** Management
10. Project **Stakeholder** Management
11. [Project **Safety** Management]

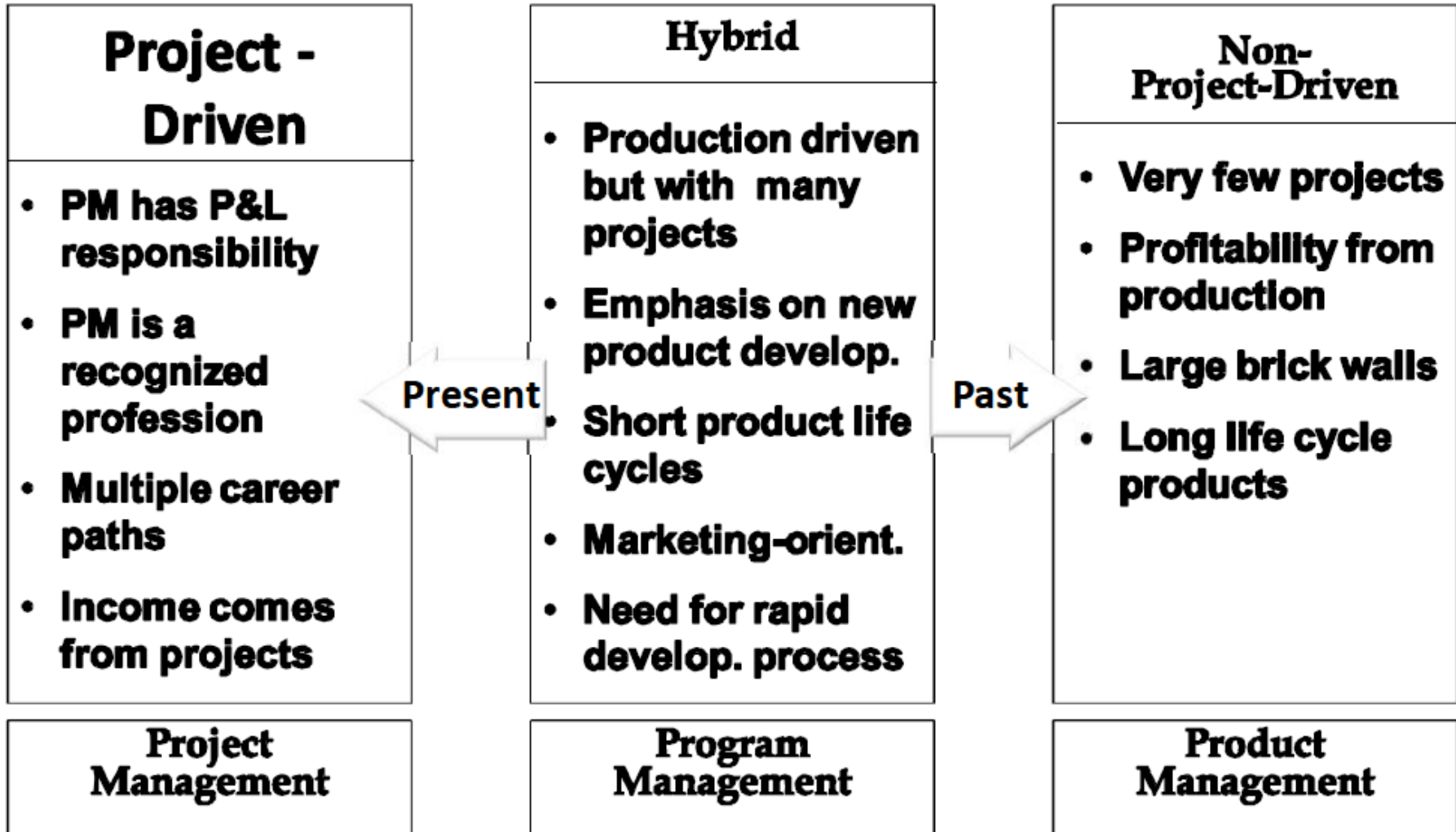
Knowledge Areas	Initiating (2)	Planning (24)	Executing (8)	Monitoring & Controlling (11)	Closing (2)
4. Integration Management	4.1 Develop project charter	4.2 Develop project management plan	4.3 Direct & manage project execution	4.4 Mon & Cntrl Proj work 4.5 Perf Intgrtd Chng Cntl	4.6 Close Project or Phase
5. Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope	
6. Time Management		6.1 Plan Schedule Managem't 6.2 Define Activities 6.3 Sequence Activities 6.4 Est Activity Resources 6.4 Est Activity Durations 6.5 Develop Schedule		6.6 Control Schedule	
7. Cost Management		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs	
8. Quality Mgmt		8.1 Plan Quality Management	8.2 Perf Qual Assurance	8.3 Control Quality	
9. Human Resources		9.1 Plan Human Resource Management	9.2 Acquire Proj Team 9.3 Develop Proj Team 9.4 Manage Proj Team		
10. Communications		10.1 Plan Communications Mgmt	10.2 Manage Communications	10.3 Control Communications	
11. Risk Management		11.1 Plan Risk Mgmt 11.2 Identify Risks 11.3 Qual Risk Analysis 11.4 Quant Risk Analysis 11.5 Risk Responses		11.6 Control Risks	
12. Procurement		12.1 Plan Procurements	12.2 Conduct Procurements	12.3 Control Procurements	12.4 Close Procurements
13. Stakeholders	13.1 Identify Stakeholders	13.1 Plan Stakeholder Management	13.3 Manage Stakeholder Engagement	13.4 Control Stakeholder Engagement	

The Challenge of Project Management

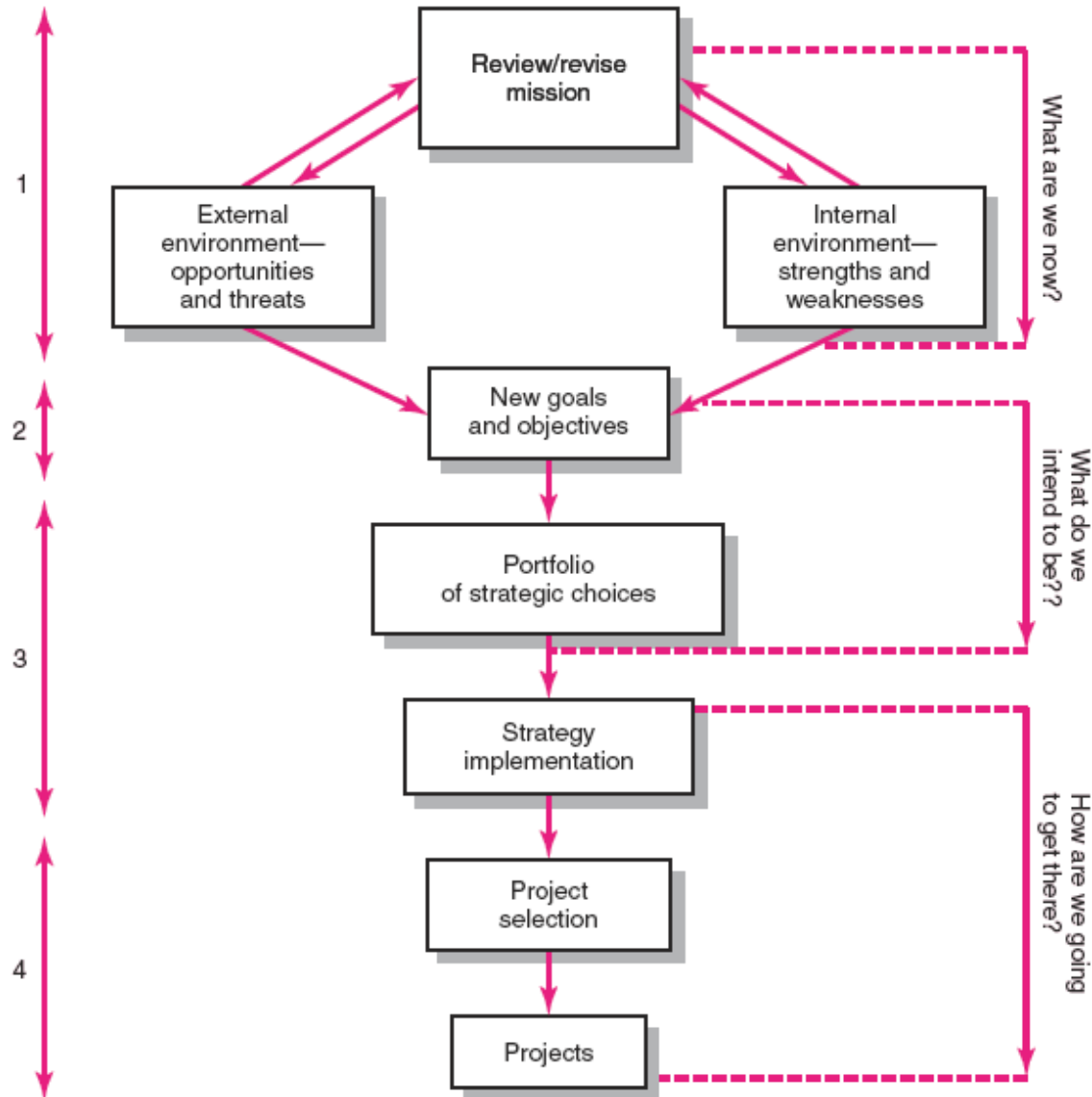
- The Project Manager
 - Must induce the right people at the right time to address the right issues and make the right decisions.

Industry Classification

(By Project Management Utilization)



Organizational Context of Project Management

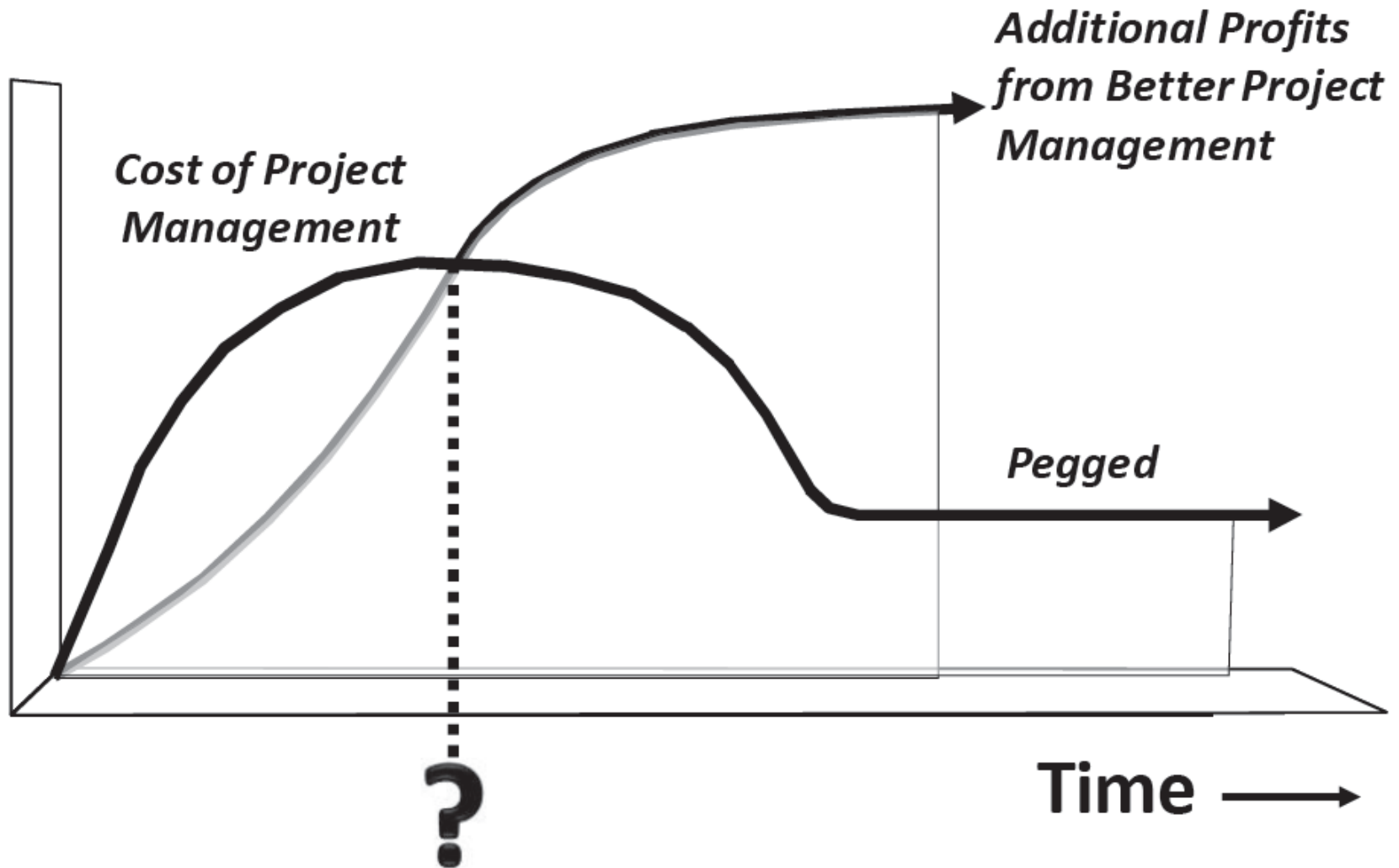


Portfolio of Programs/
Projects as
Means of
Strategy
Implementation

PMO

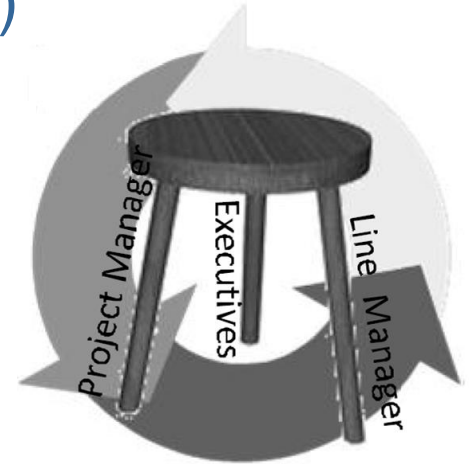
- A department/ unit that takes the responsibility of ***centralized*** and ***coordinated management*** of projects.
- A PMO usually takes one or more of the four roles:
 - Project Support**: Provide project management guidance to project managers in business units.
 - Project Management Process/Methodology**: Develop and implement a consistent and standardized process.
 - Training**: Conduct training programs or collect requirements for an outside company
 - Direct Management of Projects**: Provide project managers for different projects

PM: Costs vs. Benefits



Maturity in Project Management

- Is like a THREE-LEGGED STOOL (Tripod)
- Legs represent:
 - Project Manager
 - Line Manager(s)
 - Executive Management (including sponsor)
- Maturity cannot exist without maturity
- OPM3 (Organizational PM Maturity Model)
 - PMI's Model that is designed to help organizations determine and improve their level of maturity in PM



Top of the Three-Legged Stool

Effective PM



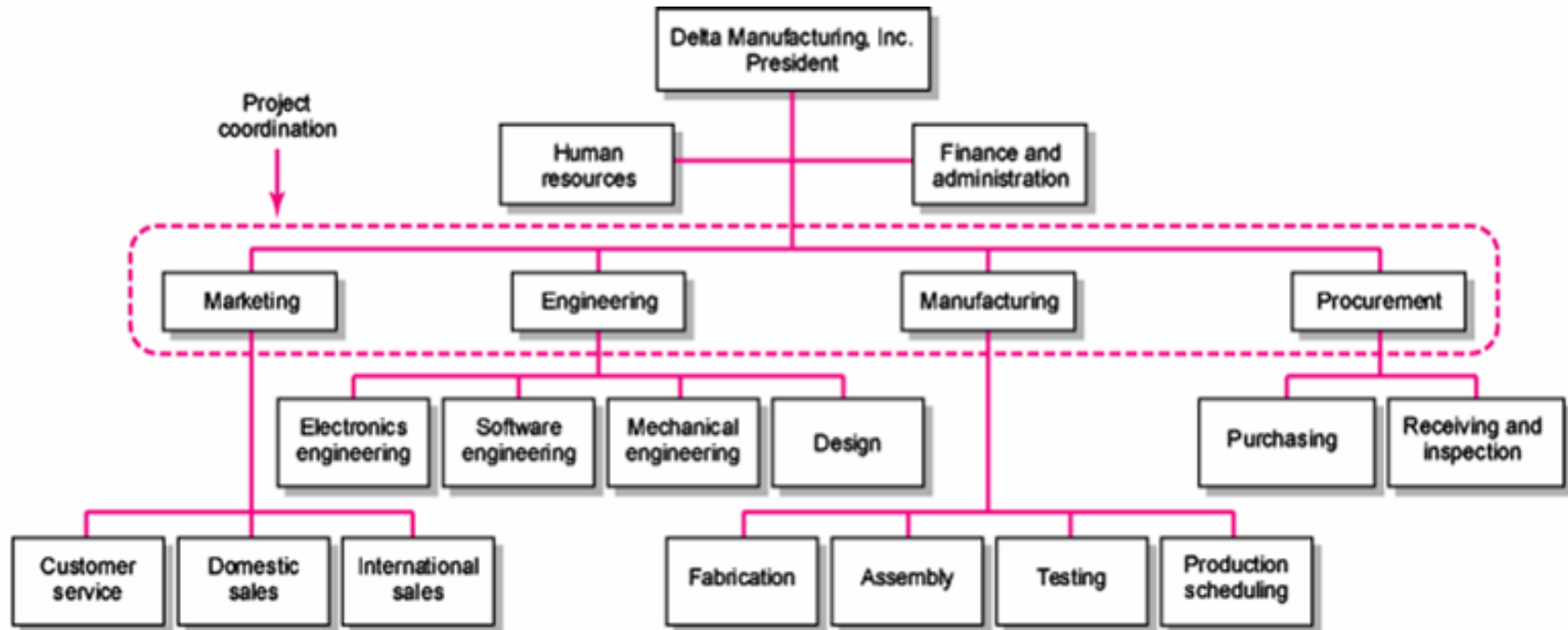


**ORGANIZATIONAL
INFLUENCES ON
PROJECT MANAGEMENT**

Organizational Structures

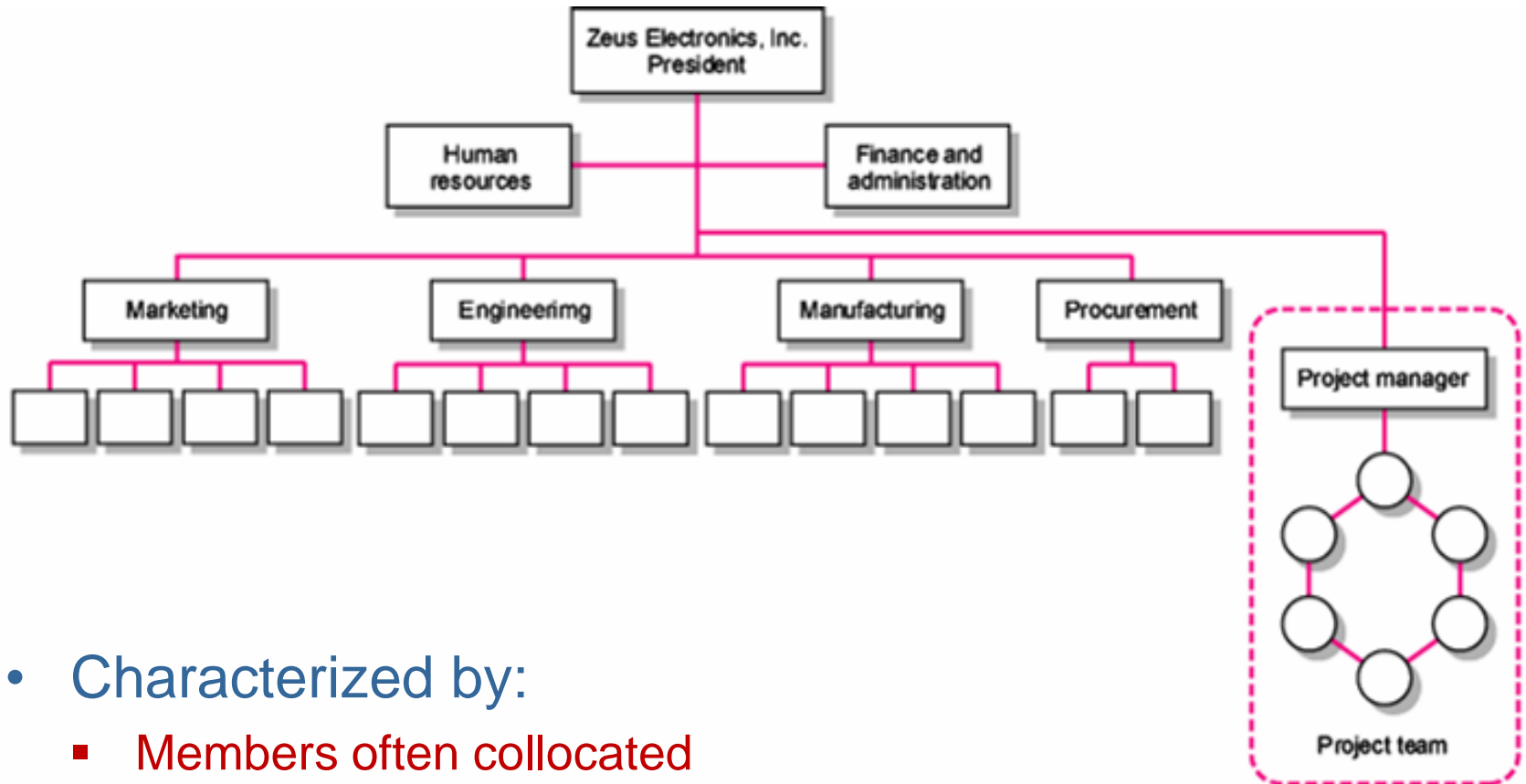
- Functional organization
- Projectized Organization – *“No Home”*
- Matrix organization – *“More than 1 Boss”*
 - Weak
 - Balanced
 - Strong

Functional Organizations



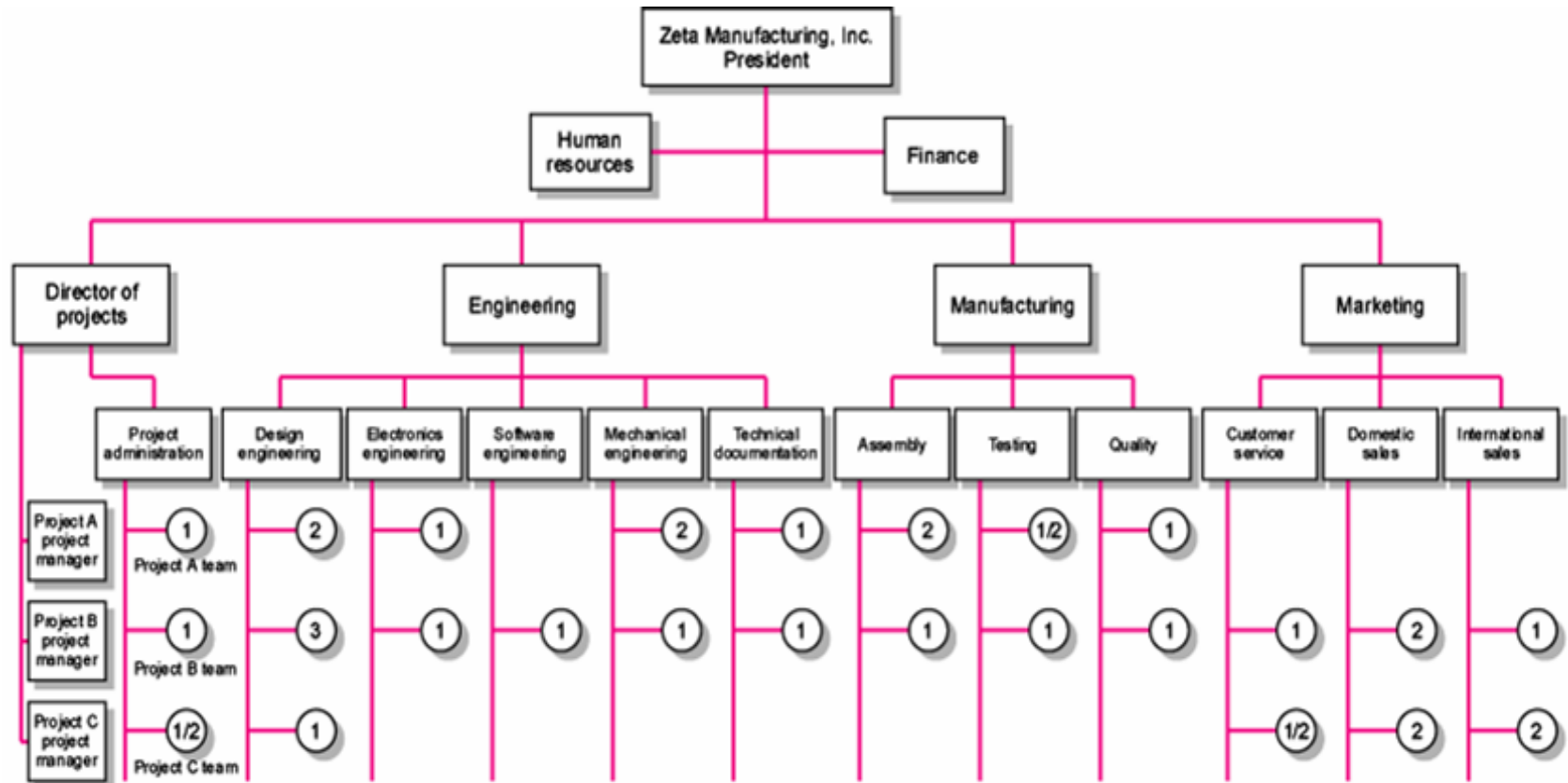
- Characterized by:
 - One superior
 - Members grouped by specialty
 - PM has little or no authority (if at all exists)
 - Perceived scope of project limited to boundaries of function

Projectized Organization - Dedicated Project Team



- Characterized by:
 - Members often collocated
 - Most organization resources are involved in project work
 - PM has great deal of independence and authority
 - No “home” when project is completed

Matrix Organization Structure



Division of Project Manager and Functional Manager Responsibilities in a Matrix Structure

Project Manager

What has to be done?

When should the task be done?

How much money is available to do the task?

How well has the total project been done?

Negotiated Issues

Who will do the task?

Where will the task be done?

Why will the task be done?

Is the task satisfactorily completed?

Functional Manager

How will it be done?

How will the project involvement impact normal functional activities?

How well has the functional input been integrated?

Project Organization: Matrix Form

- **Weak Matrix**

- Many of the characteristics of Functional Organization
- PM role more of a coordinator/ expeditor

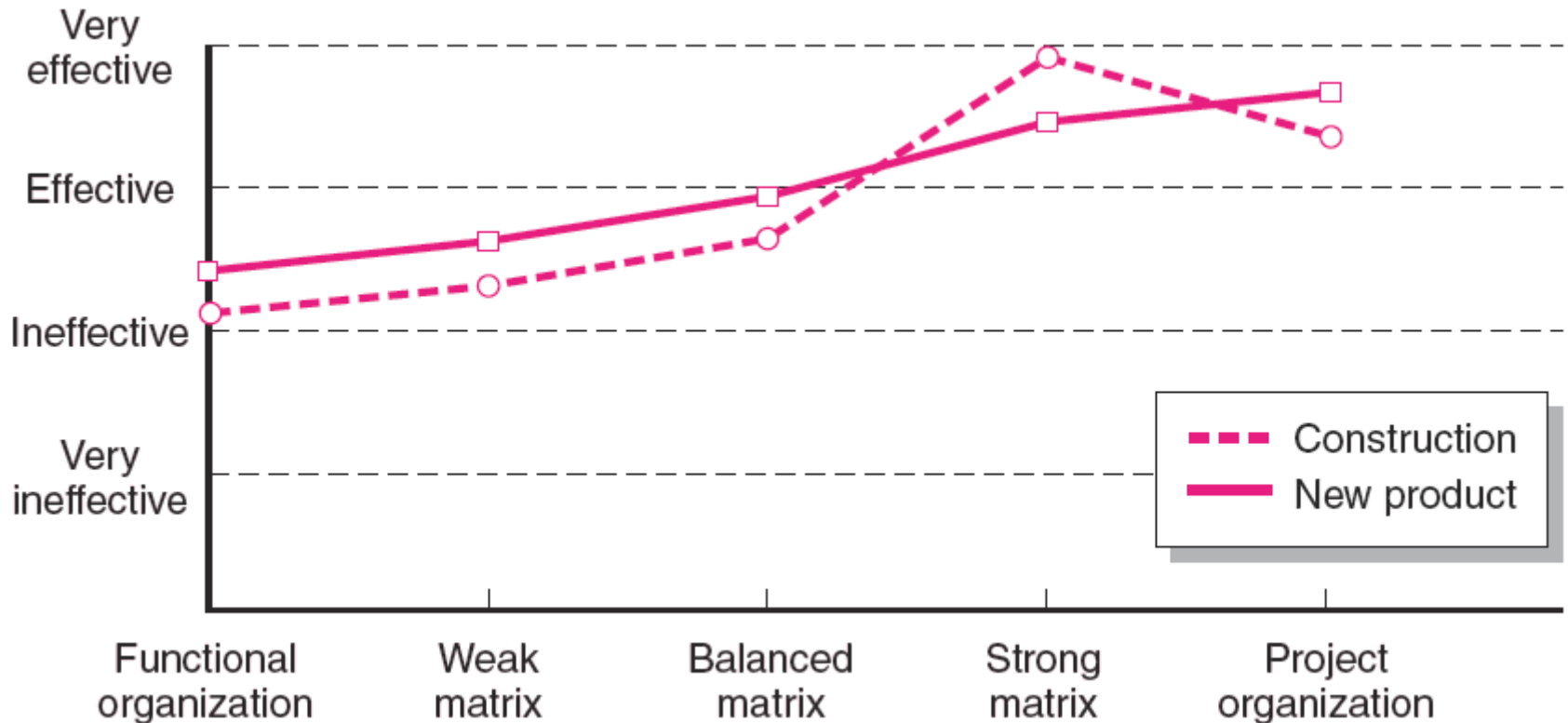
- **Balanced Matrix**

- Full Time PM
- Shared authority and budget

- **Strong Matrix**

- Many of the characteristics of Projectized Organization
- Full Time PM role with considerable authority

Rated Effectiveness of Different Project Structures by Type of Project



Source: Larson, E. W., and Gobeli, D. H., "Matrix Management: Contradictions and Insights," *California Management Review*, vol. 29, no. 4 (Summer 1987), p. 137.

Choosing the Appropriate Project Management Structure

- Organization (Form) Considerations
 - How important is project management to the firm's success?
 - What percentage of core work involves projects?
 - What level of resources (human and physical) are available?
- Project Considerations
 - Project characteristics?
 - Project Risk Level?

Organizational Culture

- Organizational Culture Defined
 - A system of shared norms, beliefs, values, and assumptions which bind people together, thereby creating shared meanings.
 - The “personality” of the organization that sets it apart from other organizations even in the same industry.

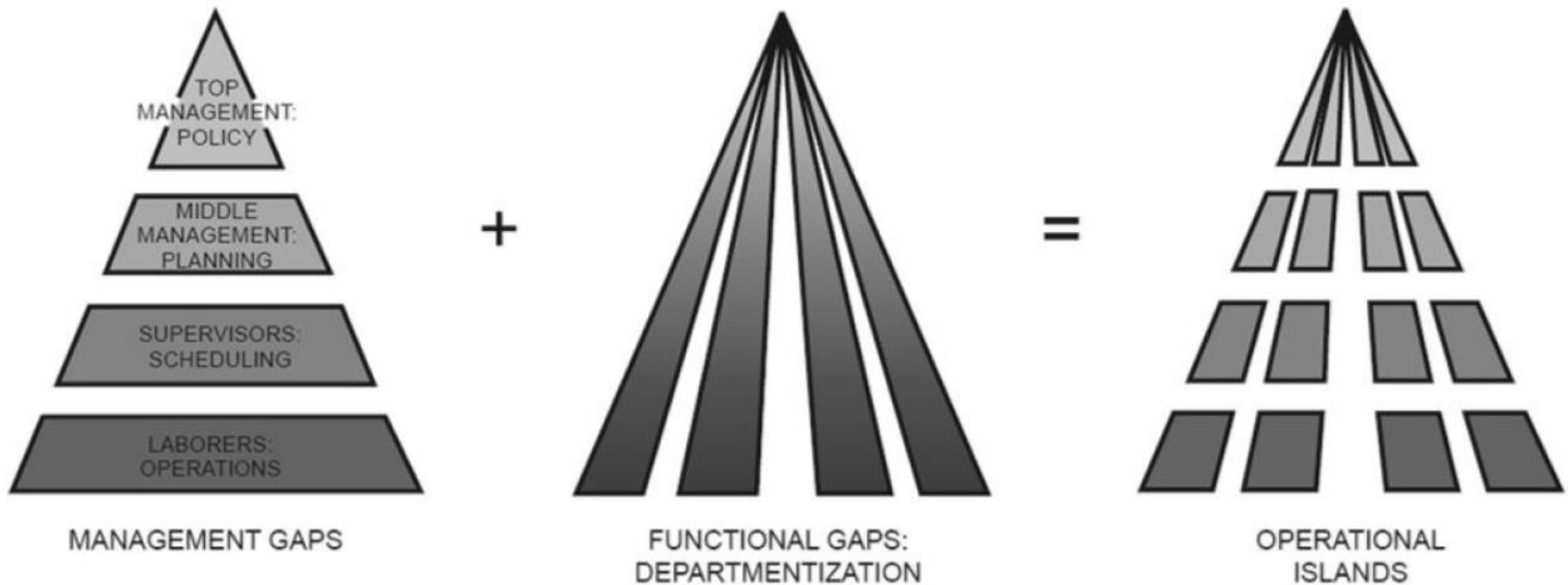
Key Dimensions Defining an Organization's Culture

Job	1. Member identity	Organization
Individual	2. Team emphasis	Group
Task	3. Management focus	People
Independent	4. Unit integration	Interdependent
Loose	5. Control	Tight
Low	6. Risk tolerance	High
Performance	7. Reward criteria	Other
Low	8. Conflict tolerance	High
Means	9. Means-ends orientation	Ends
Internal	10. Open-system focus	External

Cultural Dimensions of an Organization Supportive of Project Management



PM System – Why Necessary?



- Always “class or prestige” gaps between various levels of management
- Companies are made up of small operational islands that refuse to communicate for fear of giving up info; may strengthen their “opponents”
- **Project Manager’s responsibility is to get these islands to communicate cross-functionally toward common goals and objectives.**

Ideal Project Manager

- Probably have doctorates in
 - Engineering
 - Business, and
 - Psychology
- Have experience in 10 different companies
- Have worked in a variety of project office positions
- Would be about 25 years old



Best PMs are willing and able to identify their shortcomings and know when and whom to ask for help.



**PRINCIPAL PM
ORGANIZATIONS AND
CERTIFICATIONS**

Movers and Shakers in the Field of PM

–PMI (Project Management Institute)

- USA and many other countries
- 400k members in 185 countries; Since 1969; >500k PMPs; 260 chapters; 38 virtual communities of practice
- PMBoK (Project Management Body of Knowledge)

–IPMA (International Project Management Association)

- Federation of 55 member associations from Europe & region
- ICB (IPMA Competence Baseline)

–APM (Association for Project Management)

- UK
- PRINCE2 (PRojects IN Control Environments)
- Process Based; Since 1989

–AIPM (Australian Institute of PM)

PMI

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PMI Standards



PMI Credentials

Certified Associate in Project Management (CAPM)[®]

- Certifies knowledge of the *PMBOK Guide*[®]

Project Management Professional (PMP)[®]

- Certifies expertise in leading and directing project teams

Program Management Professional (PgMP)[®]

- Certifies expertise and demonstrated history of performance in the oversight of multiple, related projects aligned to organizational strategy

PMI-Risk Management Professional (PMI-RMP)[®]

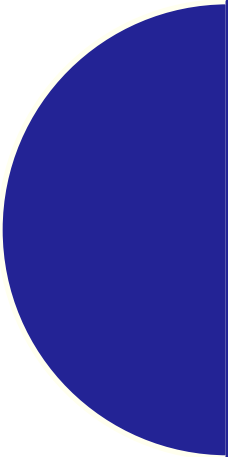
- Certifies expertise in assessing/identifying risk, mitigate threats, and capitalize on opportunities

PMI-Scheduling Professional (PMI-SP)[®]

- Certifies expertise in developing/maintaining the project schedule

PMI Agile Certified Practitioner (PMI-ACP)[®]

- Validates the practitioner's ability to understand and apply agile principles and practices



**BUILDING PM CAPACITY IN
PAKISTAN VIA ACADEMIA-
INDUSTRY INTEGRATION**

How to Build PM Capacity in Pakistan?

- Formalized Industry Awareness Programs
- Develop Strategic Framework for Enhancing PM in Pakistan
- Groups that develop Industry-Academia Relationship
- Action Research to assess Knowledge Areas
- Curriculum improvements to include Technical as well as Managerial knowledge

Role of Academic Institutions

- Education and Training for producing skills at various Hierarchical Levels of Industry Positions
- Providing Technical Work force (at the tertiary and apprenticeship levels of education)
- Providing Engineers, Managers and Leaders
- Undertaking research for industry improvement
- Exploring missing links in the industry value chain and providing sustainable solutions
- Promoting Standardized PM Practices in the industry

How NED is Contributing?

- Degree Programmes:
 - B. Tech and B. Tech. Conversion for uplifting of tertiary workforce into engineers
 - Master's in Construction Management
 - Bachelor's in Construction Engineering
 - Master's in Transportation Infrastructure Management
 - Master's in Disaster Management
- Value Added Trainings/ PEC CPD Trainings
- Seminars, Symposiums, Workshops
- National and International Conferences
- Research Projects with National and International Agencies for Socio-Economic Uplifting
 - HEC-USAID support for developing Strategic framework for Construction PM Education, Research and Practice
- Collaboration with PMI-Karachi Chapter
- Planned Masters in Project Management

How Industry Can Collaborate to Improve Role of Academic Institutions?

- Advisory Role
- Joint Research
- Industry Support/ Funded Projects
- Research Groups
 - Construction Engineering and Management Group (CEMG)
 - Construction Materials Research Group (CMRG)
 - Network for Energy Efficiency and Demand (NEED)
 -

Entrepreneurship Plan

Centre for Entrepreneurship, Incubation and Innovation (CEII), NED University of Engineering and Technology

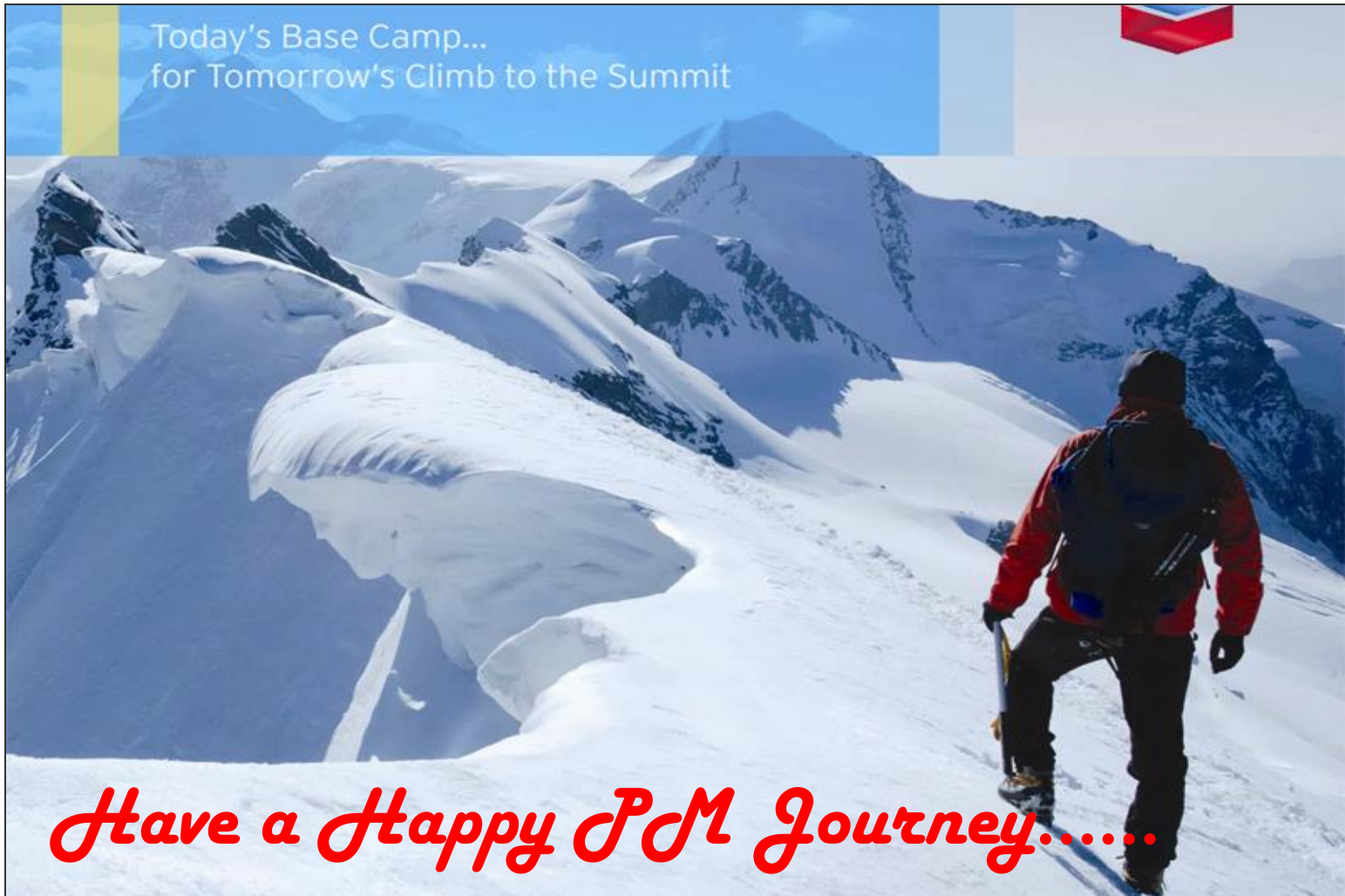
Thematic Area: Entrepreneurship training

Collaborator: Carnegie Mellon University

**Carnegie MellOn – NED InnovAtive Research Development
FuNd: COME – EARN**

Questions, Comments?

Today's Base Camp...
for Tomorrow's Climb to the Summit



Have a Happy PM Journey.....

Future Coordination....

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