Week 4

Lecture 4.1

Projects within Organisations

GSOE9820 Engineering Project Management

Term 1 2025

Bernard Hayes

UNSW SYDNEY

Bernard Hayes BE (Hons II) *NSWIT;* MEngSc *UNSW*

Bernard Hayes has a background in **Mechanical Engineering**; with over 38 years professional experience, primarily in the **power generation**, as well as in allied process industries such as steel and petrochemicals.

He began engineering career in design and operations, moved through project management, business development and contract negotiations; before taking senior management positions.

Project Management experience included execution of both large and small process industry projects before moving into negotiating large international contracts for power plants.

Geographically, involved with projects in Australia/NZ, SE Asia, China, India, Middle East, Europe and USA.

PACIFIC POWER

wesmith

ALSTOM

ROLLS ROYCE

Projects within Organisations:

A simplistic but essentially true observation:

"**An organisation only does two things**:

1. ***It runs its normal operations;***

and

2. ***It runs projects when it wants to make changes to its normal operations"***

Why think about Projects in Organisations? :

The PM processes and techniques we learn on this course could equally be applied to any project you may decide to undertake as an individual.

Nevertheless, most projects undertaken in the Engineering/IT context are undertaken *by* Organisations and *for* Organisations.

Therefore, it is relevant we consider Project Management within the context of Organisations; and how Organisations affect the way projects they undertake are managed.

Projects within Organistions – recall the Purpose Statement

So, this evening we will consider several aspects of projects being undertaken within organisations:

- Organisational strategy – WHY they run projects;
- Project selection to deliver on that strategy within constrained resources
- Impact of Organisational Culture on project delivery
- Impact of Project Team Structure & Project Team Staffing on project delivery

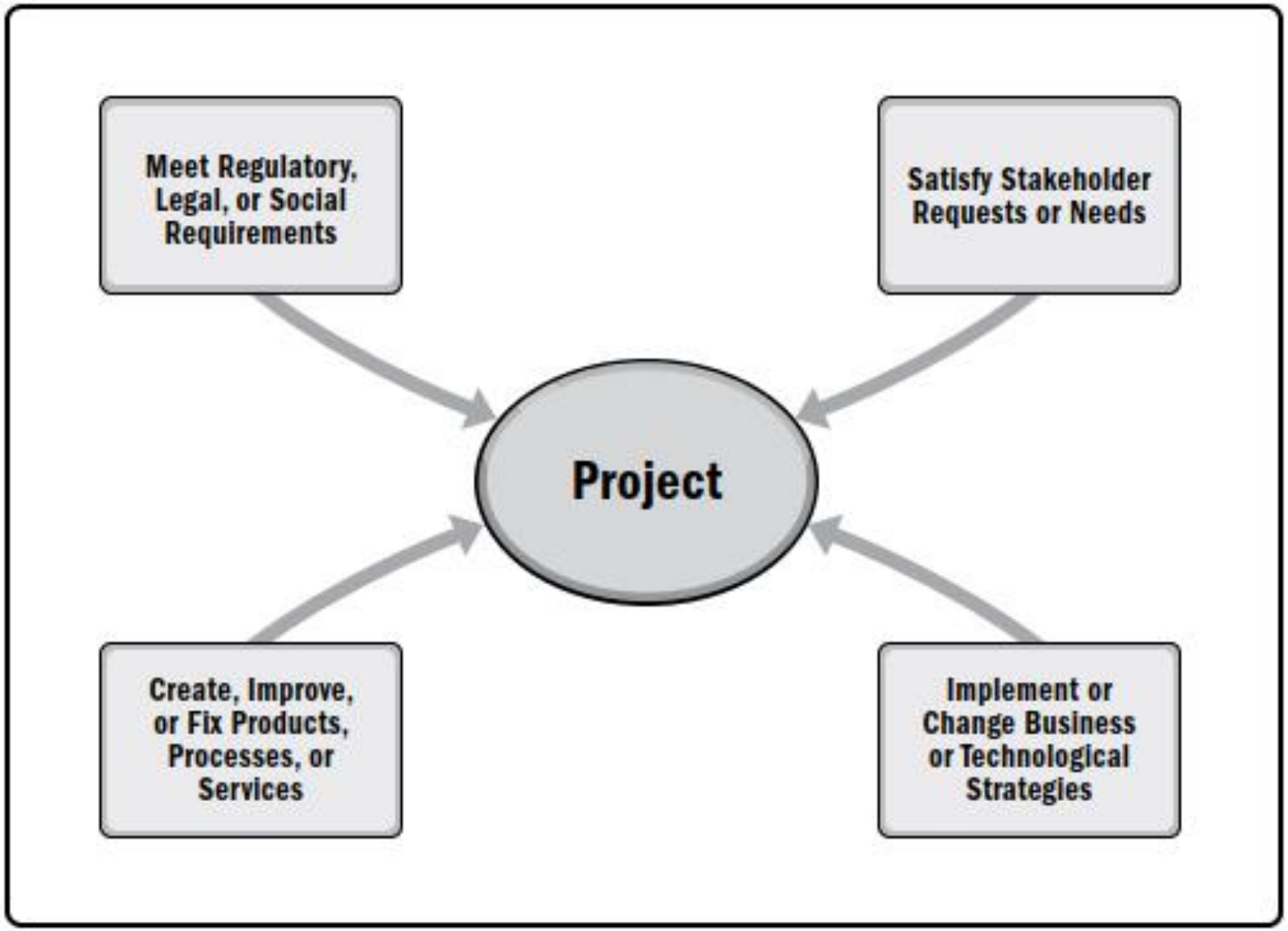
Why Organisations undertake Projects:

A large part of this course explores **WHAT** organisations do to manage a project and **HOW** they do it – time, cost, scope, risk etc ie Planning and Executing Projects

However, before looking at the WHAT & HOW, we firstly need to consider **WHY** an organisation wants to run a particular project in the first place ie

- what are the organisation's strategic objectives
- how does the organisation turn those objectives into project deliverables that a PM then works to fulfil

Typical Reasons WHY Organisations Initiate Projects:



From PMBOK

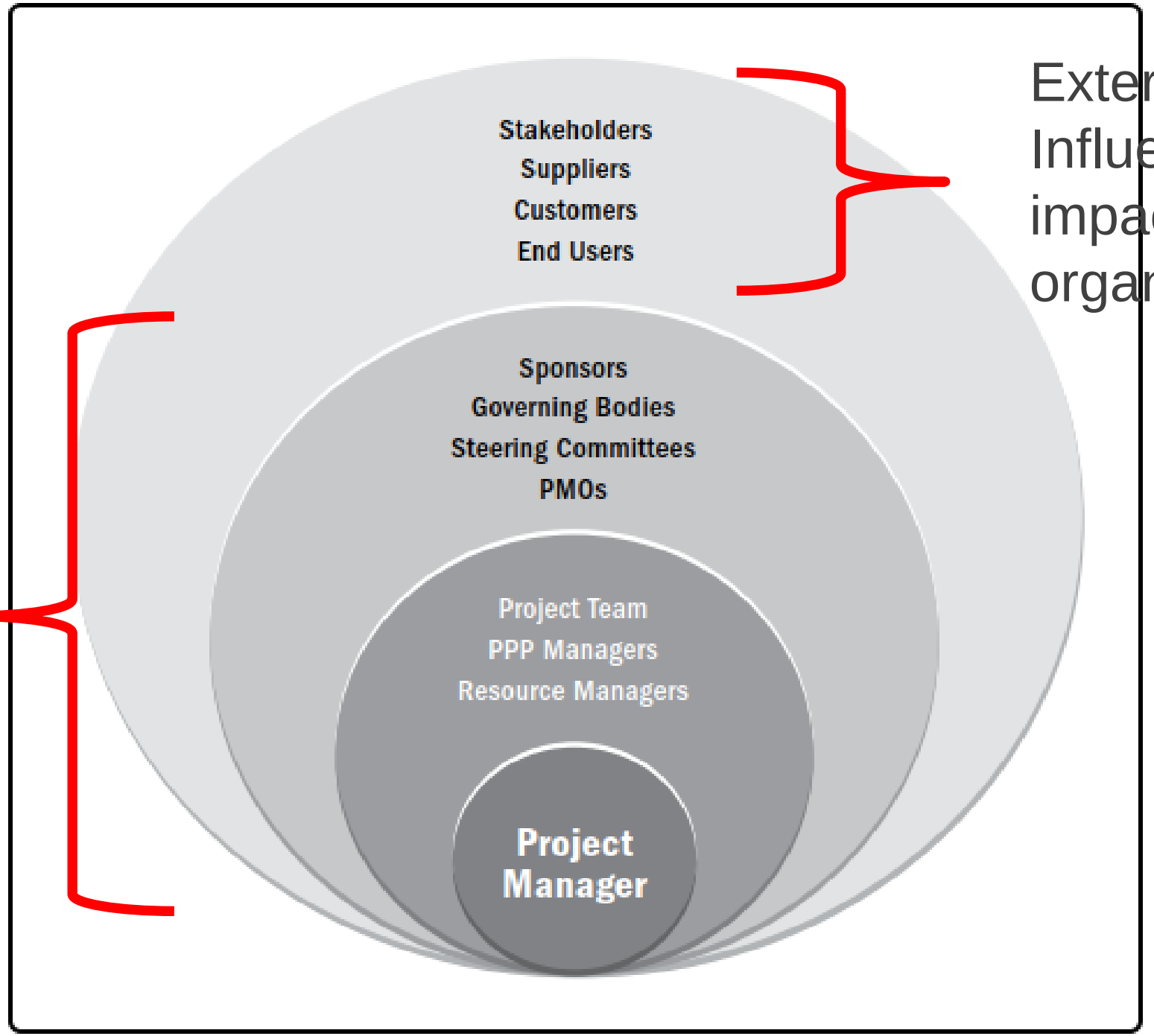
WHY Organisations undertake projects?

Strategic Management

What is Strategic Management ?

- Strategy is fundamental in determining **HOW** an organization will compete **with the resources** in its **existing** and **perceived future** environments
- Organisations use **projects** to **convert strategy into deliverables** – ie products, processes and services – they need for success
- Aligning projects with strategic goals is ***fundamental*** to organizational success
- Strategic Management is the process of assessing **"what we are"** and deciding and implementing **"what we intend to be and how we are going to get there"**

PM's spheres of influence within the organisation



External Influences impacting on organisation

Why does Strategic Management concern the PM?

Traditionally, Strategic Mngt was not a primary concern of PM.

However, it is now considered imperative that a PM has a good understanding of their organisation's strategy for the following reasons:

- It allows the PM to make necessary decisions and adjustments within a project to achieve results for the strategic benefit of the project's organizational sponsors
- Allows the PM to become an effective project advocate to Senior Management, team members etc – necessary to obtain support and resources to effectively execute the project

Four Activities of the Strategic Management Process:

1. Review/Define Organisational Mission Statement

Mission statement typically identifies WHO organisation is; and WHAT it wants to become

2. Analyse / Formulate Strategies

WHAT needs to be done to achieve mission

3. Set Objectives to Achieve Strategies

Objectives in concrete terms. SMART (Specific; Measurable, Assignable, Realistic, Time-related

4. Implement Strategies through Projects

More on Strategic Management

Peet C. "***Managing Benefits***" video in course Managing Project Benefits, released 13/11/18, LinkedIn Learning accessed through UNSW

Peet C. "***How to link to Corporate Strategy***" video in course Managing Project Benefits, released 13/11/18, LinkedIn Learning accessed through UNSW

How Organisations select projects for investment within limits of available resources to best deliver on their strategic needs

Portfolio Management

Portfolio Management System

The aim of a portfolio management system is to ensure that projects are aligned with strategic goals and prioritised appropriately.

It can often be the link between strategic organisation goals and the project.

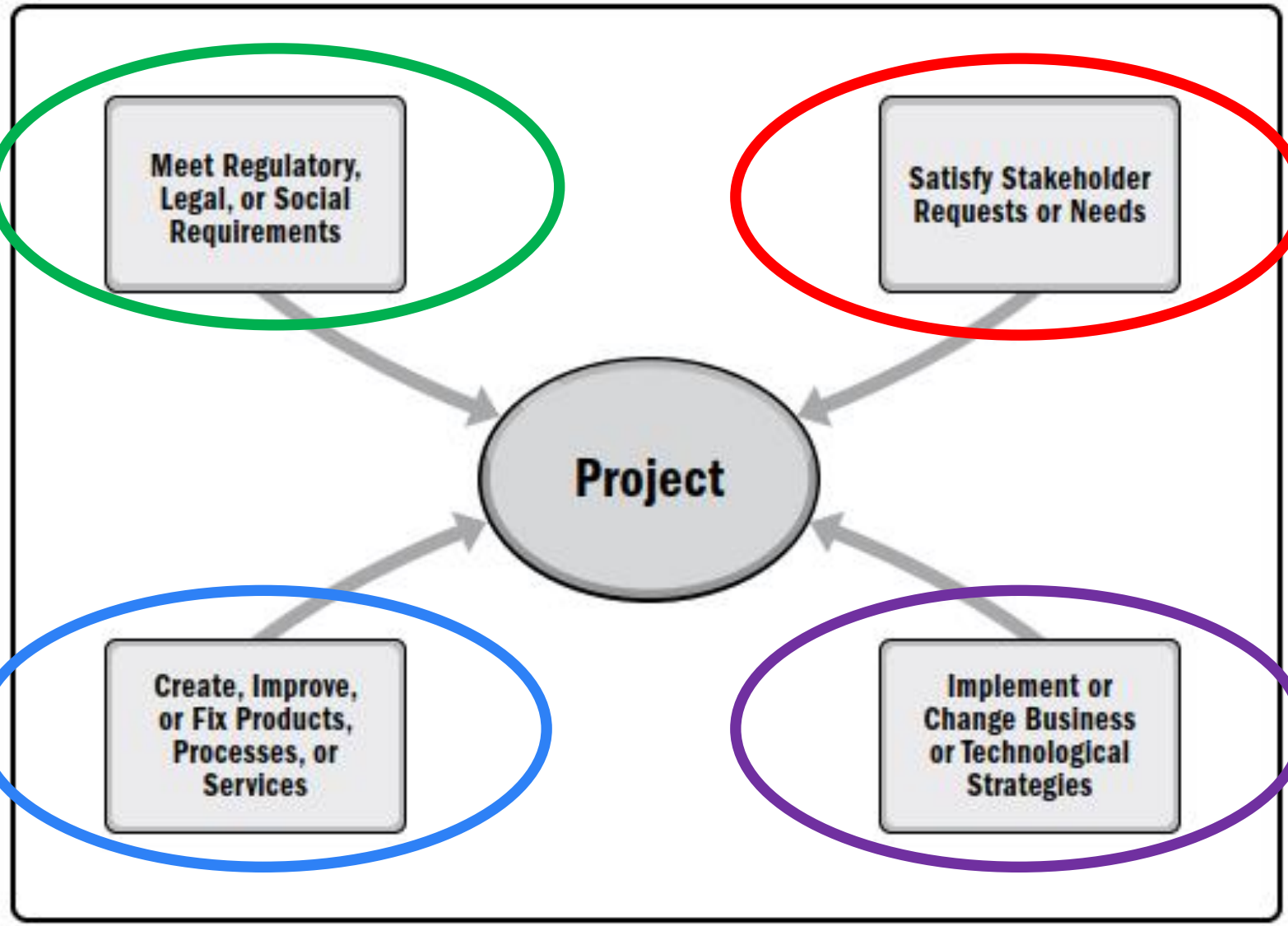
Components of Portfolio Management System

1. Project Classification – based on reasons for initiation

Thinking again about why organisations initiate projects:

Operational or Emergency

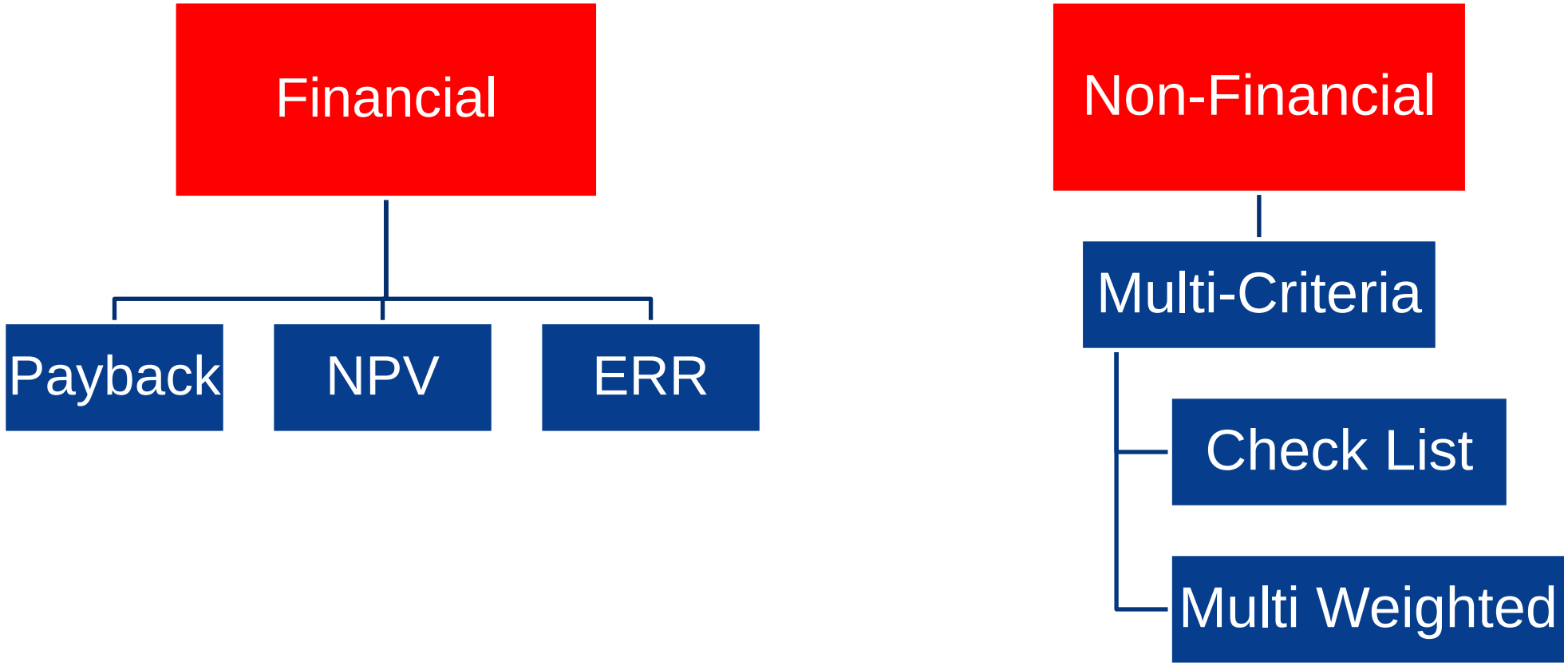
Strategic



Strategic or Emergency

Operational or Strategic

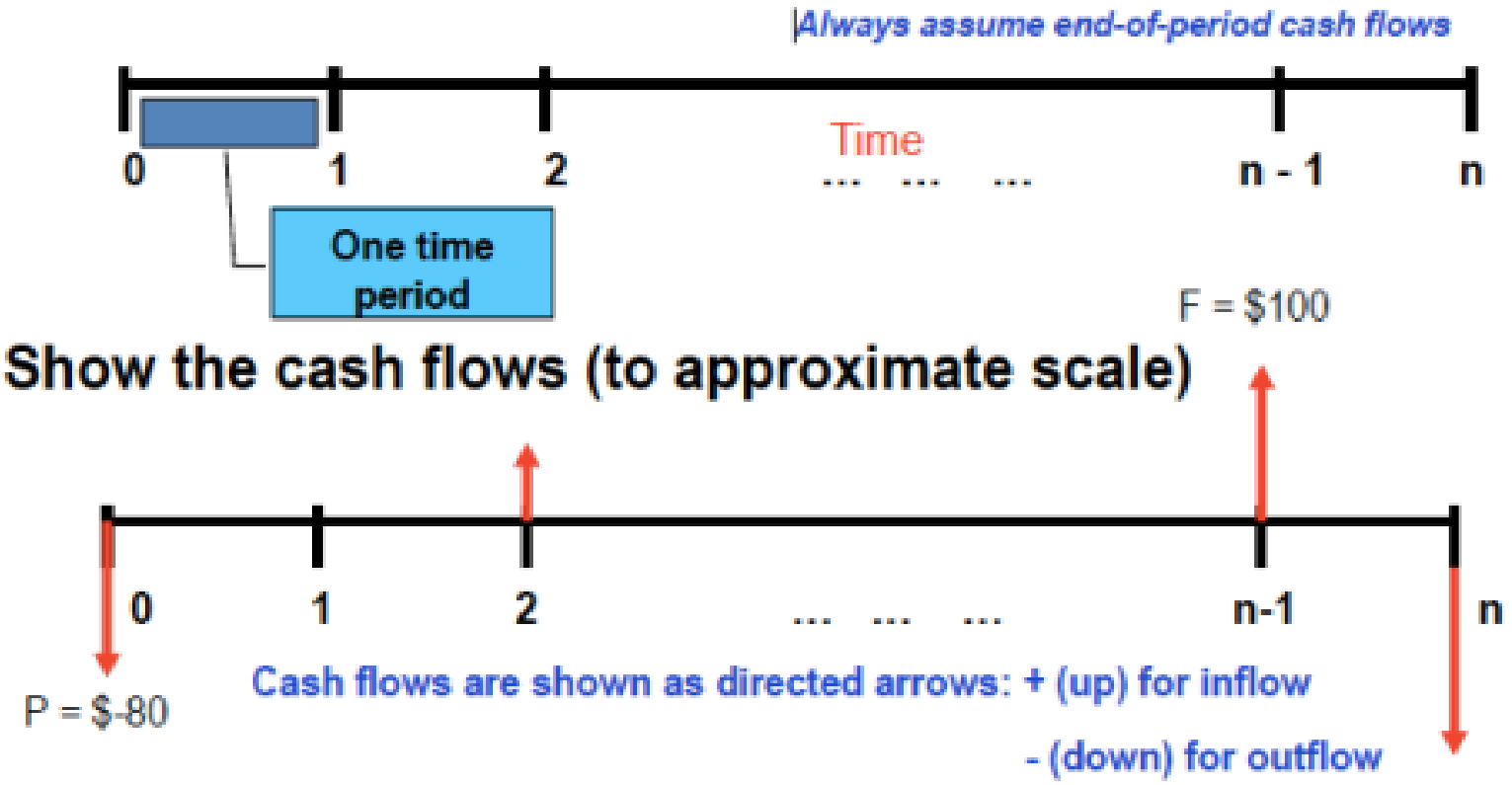
Project Selection Criteria - WHICH Projects should an Organisation Initiate to meet its strategic requirements?



Also known as building and comparing Business Cases

Financial Criteria - Cash Flow Diagram

What a typical cash flow diagram might look like:



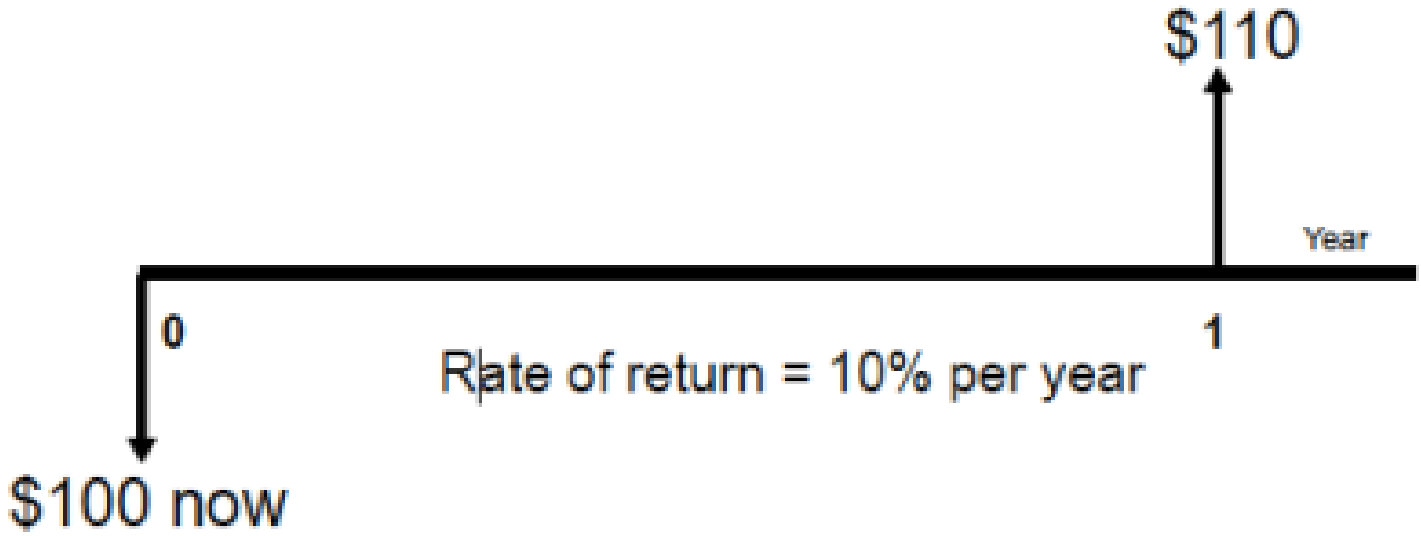
The Concept of ‘Time Value of Money’

Is based on the premise that there is greater benefit in receiving money now rather than an identical sum at a later date in the future due to its potential earning capacity.

- Corporate investments are expected to earn a return
- Investment involves money
- Money has a ‘time value’

Example of Equivalence

Different sums of money at different times may be equal in economic value at a given rate



$100 now is economically equivalent to $110 one year from now, if the $100 is invested at a rate of 10% per year.

More on Time Value of Money, Discounted Cash Flow

Patel Y. "***Opportunity Cost***" video in course Investment Evaluation, released 19/6/18, LinkedIn Learning accessed through UNSW

Patel Y. ***"Present, future and terminal values***" video in course Investment Evaluation, released 19/6/18, LinkedIn Learning accessed through UNSW

Patel Y. "***What is DCF***" video in course Investment Evaluation, released 19/6/18, LinkedIn Learning accessed through UNSW

Patel Y. "***Solve for DCF***" video in course Investment Evaluation, released 19/6/18, LinkedIn Learning accessed through UNSW

UNSW SYDNEY

1. Payback Period

- **Measures the time taken to repay the initial investment**
- **Emphasises Cash Flows – a key business consideration**
- **Ignores the Time Value of Money; nor considers profitability**
- **Shorter paybacks are more desirable**

Payback model is often used as an initial method to 'screen' the alternatives.

$$Payback\ period\ (yrs) = \frac{Estimated\ Project\ Cost}{Annual\ Savings}$$

More on Payback Period

Patel Y. "***Payback Period***" video in course Investment Evaluation, released 19/6/18, LinkedIn Learning accessed through UNSW

Patel Y. "***Payback Period in Microsoft Excel***" video in course Investment Evaluation, released 19/6/18, LinkedIn Learning accessed through UNSW

2. Net Present Value (NPV)

- Calculate the present worth of each alternative project at a specific interest rate.
- Equal-service or equal-duration of the projects is assumed.
- Selection criterion: Select alternative with the most favourable present worth value, that is, the *numerically largest* NPV.

$$Project\ NPV = P + \sum_{t=1}^{n} \frac{Net\ cash\ flow}{(1+i)^{t}}$$

NB The process of calculating NPV can be shortcut using NPV function in Excel

More on NPV

Patel Y. "***The Net Present Value Equation***" video in course Investment Evaluation, released 19/6/18, LinkedIn Learning accessed through UNSW

Patel Y. "***NPV using a Microsoft Excel formula***" video in course Investment Evaluation, released 19/6/18, LinkedIn Learning accessed through UNSW

Patel Y. "***Pro's & Con's of NPV***" video in course Investment Evaluation, released 19/6/18, LinkedIn Learning accessed through UNSW

Patel Y. "***Real Talk: Net Present Value***" video in course Investment Evaluation, released 19/6/18, LinkedIn Learning accessed through UNSW

3. Economic Rate of Return (ERR)
(also called Internal Rate of Return - IRR)

The ERR is the discount rate that makes the **net present value (NPV)** of a project equal **zero (0)**

ie is the discount rate that makes the initial cash investment at the beginning equal to the net present value of the *future* cash flows from that investment.

$$0 = NPV = \sum_{n=0}^{N} \frac{CF_n}{(1 + IRR)^n}$$

NB The time consuming process of iteratively using assumed IRR rates until NPV = 0 can be shortcut using IRR function in Excel

More on ERR (IRR)

Patel Y. "***What is IRR***" video in course Investment Evaluation, released 19/6/18, LinkedIn Learning accessed through UNSW

Patel Y. "***IRR Calculation the Long Way***" video in course Investment Evaluation, released 19/6/18, LinkedIn Learning accessed through UNSW

Patel Y. "***IRR using the Microsoft Excel formula***" video in course Investment Evaluation, released 19/6/18, LinkedIn Learning accessed through UNSW

Patel Y. "***Pro's & Con's of IRR***" video in course Investment Evaluation, released 19/6/18, LinkedIn Learning accessed through UNSW

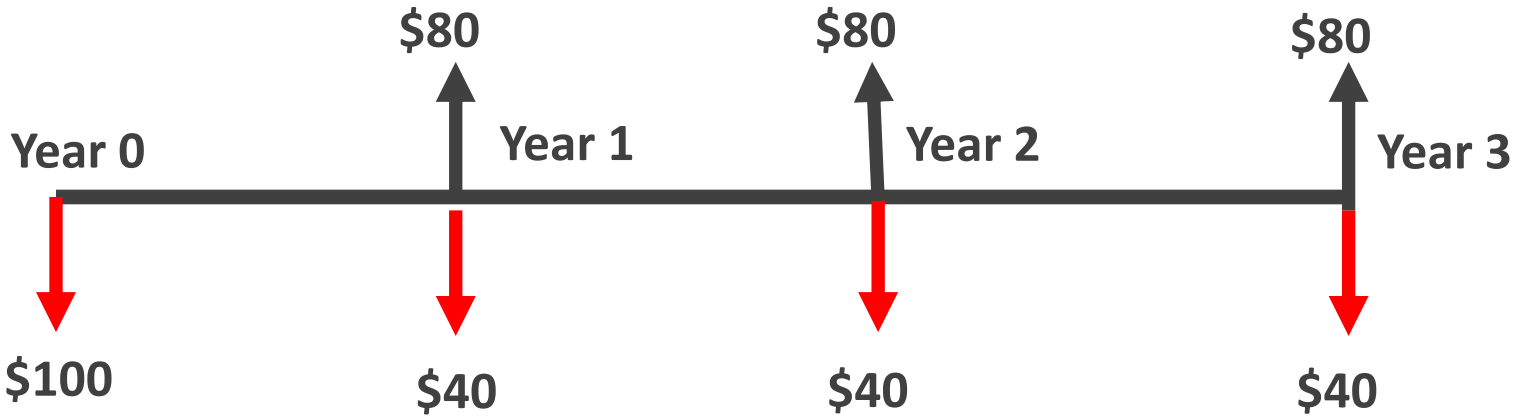
Comparing Payback vs NPV vs ERR

Payback	NPV	ERR
Quick and Easy	More Effort to Calculate – simplified by M/S Excel	Significantly more Effort to Calculate iteratively- simplified by M/S Excel
No Time value of Money - Less accurate on longer projects	Time Value of Money; used where Organisation has little limit on investment pool;	Time Value of Money; used where Organisation's projects compete for limited investment pool
Exaggerates benefits of longer life projects	Favours larger projects over smaller projects regardless of actual rates of return; uses assumed discount rate	Compares Rates of Return regardless of project size; not absolute amount of investment or return.
Used on smaller, shorter projects or initial estimates	Usually used by large publicly funded organisations	Usually used by commercial organisations

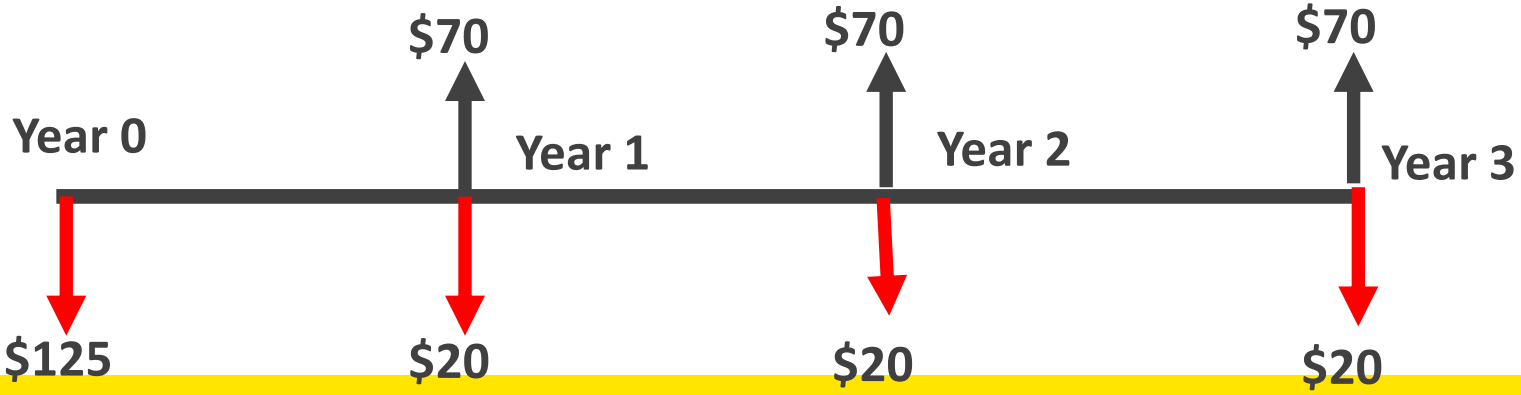
Example of using different financial criteria

Consider the cash flows for the following two projects:

1.



2.



Required Rate of Return is 10% pa

Example of using different financial criteria (cont):

Using Payback Period ***(= Cost / Annual Savings)***

1. **Payback Period = $100/ ($80 - $40) = 2.5 years**

2. **Payback Period = $125/ ($70 - $20) = 2.5 years**

So, using Payback Period, both projects would be equally rated

Example of using different financial criteria (cont):

Using NPV =

$$Project\ NPV = P + \sum_{t=1}^{n} \frac{Net\ cash\ flow}{(1+i)^t}$$

1. NPV = -\$100 + (\$80-\$40)/(1.1)^1 + (\$80-\$40)/(1.1)^2 + (\$80-\$40)/(1.1)^3
   = -\$100 + \$36.36 + \$33.06 + \$30.05
   = (-\$0.53)

2. NPV = -\$125 + (\$70-\$20)/(1.1)^1 + (\$70-\$20)/(1.1)^2 + (\$70-\$20)/(1.1)^3
   = -\$125 + \$45.45 + \$41.32 + \$37.56
   = \$0.33

So, using NPV, Project 2 is more highly rated

SHOWS EFFECTS OF TIME VALUE OF MONEY !

More on Project Financial Evaluation

Patel Y. "***Challenge 6: Choose a project based on NPV, IRR & payback period***" video in course Investment Evaluation, released 19/6/18, LinkedIn Learning accessed through UNSW

Patel Y. "***Solution 6: Choose a project based on NPV, IRR & payback period***" video in course Investment Evaluation, released 19/6/18, LinkedIn Learning accessed through UNSW

Typical Non-Financial Strategic Criteria

- To capture larger market share
- To make it difficult for competitors to enter the market
- To develop an enabler product, which by its introduction will increase sales in more profitable products
- To develop core technology that will be used in next generation products
- To reduce dependency on unreliable suppliers
- To prevent government intervention and regulation

Example – Check List:

TOPIC	QUESTION
Strategic Alignment	Which specific organisational strategy does this project align with?
Sponsorship	Who is the project sponsor?
Risk	What is the project risk of the project to the organisation?
Benefits, Value, ROR	When will the project show results?
Organisational Culture	Is the Organisation's culture right for this project?
Schedule	How long will project take?
Approach	Will organisation build or buy?
Portfolio	Is this a new initiative or part of an existing initiative?

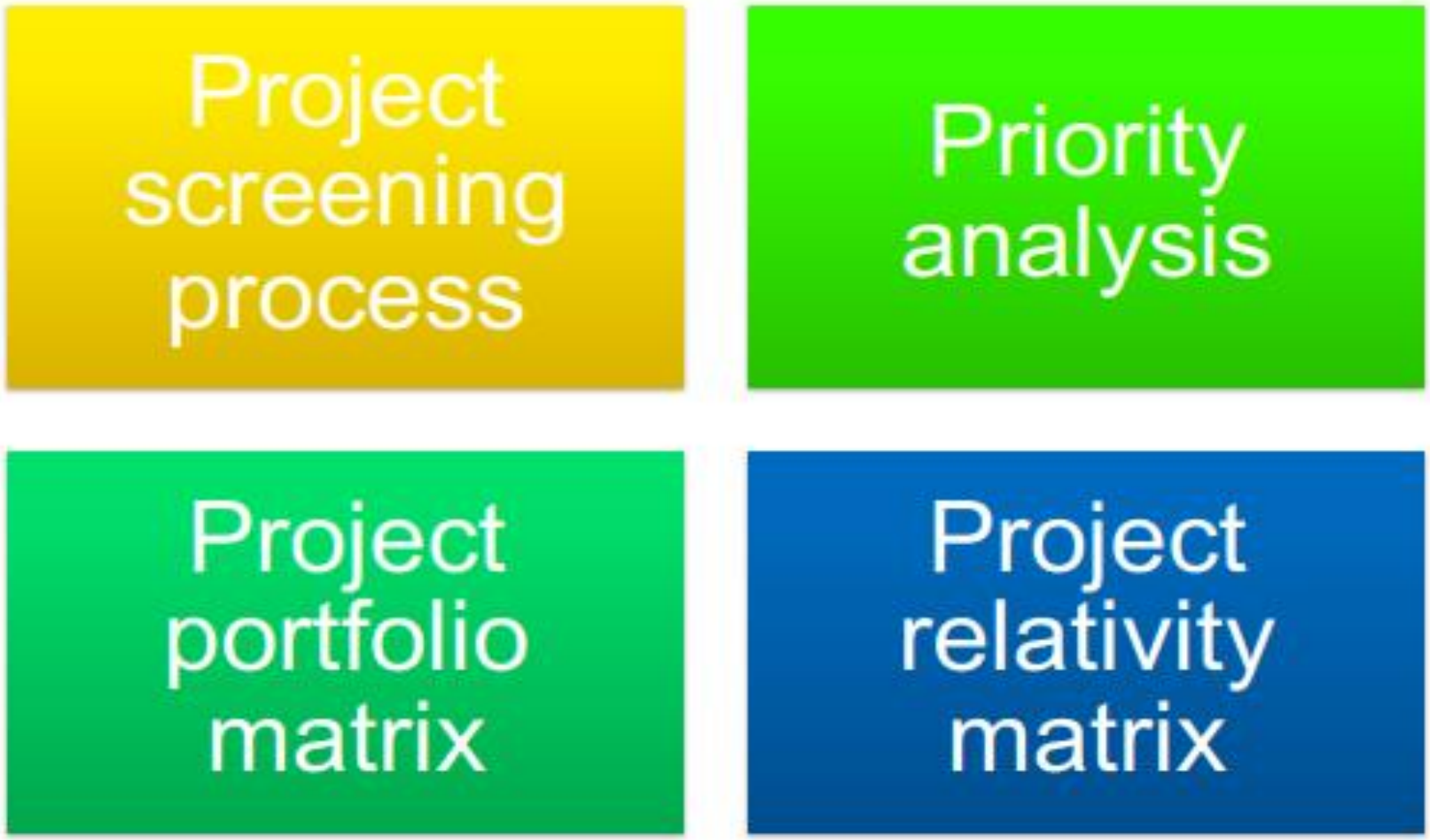
Example – Weighted Multi-Criteria: Good for project comparison

Criteria / Weight	Stay within core competencies	Strategic fit	Urgency	25% of sales from new products	Reduce defects to less than 1%	Improve customer loyalty	ROI of 18% plus	Weighted total
	2.0	3.0	2.0	2.5	1.0	1.0	3.0	
Project 1	1	8	2	6	0	6	5	66
Project 2	3	3	2	0	0	5	1	27
Project 3	9	5	2	0	2	2	5	56
Project 4	3	0	10	0	0	6	0	32
Project 5	1	10	5	10	0	8	9	102
Project 6	6	5	0	2	0	2	7	55
⋮								
Project *n*	5	5	7	0	10	10	8	83

More on Non-Financial Project Selection

Chau R.. "***Generate, Evaluate & Select Solutions***" video in course Six Sigma Foundations , released 18/7/16, LinkedIn Learning accessed through UNSW

Proposal Valuation Methods – ways of ranking projects in relation to strategic organizational needs



More on Portfolio Management

Jordan A. "***Introduction to Portfolio Management***" video in course Project Portfolio Management , released 23/8/18, LinkedIn Learning accessed through UNSW

Biafore B. "***The relationship between portfolios, programs and projects***" video in course Learning Program Management, released 8/4/17, LinkedIn Learning accessed through UNSW

How Organisations impact on their Projects?

- Project Team Structure

- Organisational Culture

- The Project Manager

Organisational Culture

Organisational Culture:

- Shared norms, beliefs, values, and assumptions
- Binds people together
- Creates shared meanings
- The “personality” of the organization that sets its personality apart from other organizations:
  - Provides a sense of identify to its members.
  - Helps legitimize the management system of the organization.
  - Clarifies and reinforces standards of behaviour.
  - Often voiced as “**this is the way we do things around here**”

Types of Organisational Cultures

Examples of cited organizational cultures:

“engineering culture”; “a sales culture”; “a Wall St culture”, a “results culture”; a “litigious culture” etc – many others

These types of cultural descriptions are shorthand for the predominant mindset in the organisation, regardless of the organisation’s industry.

NB Organisations in the same industry can have totally different cultures

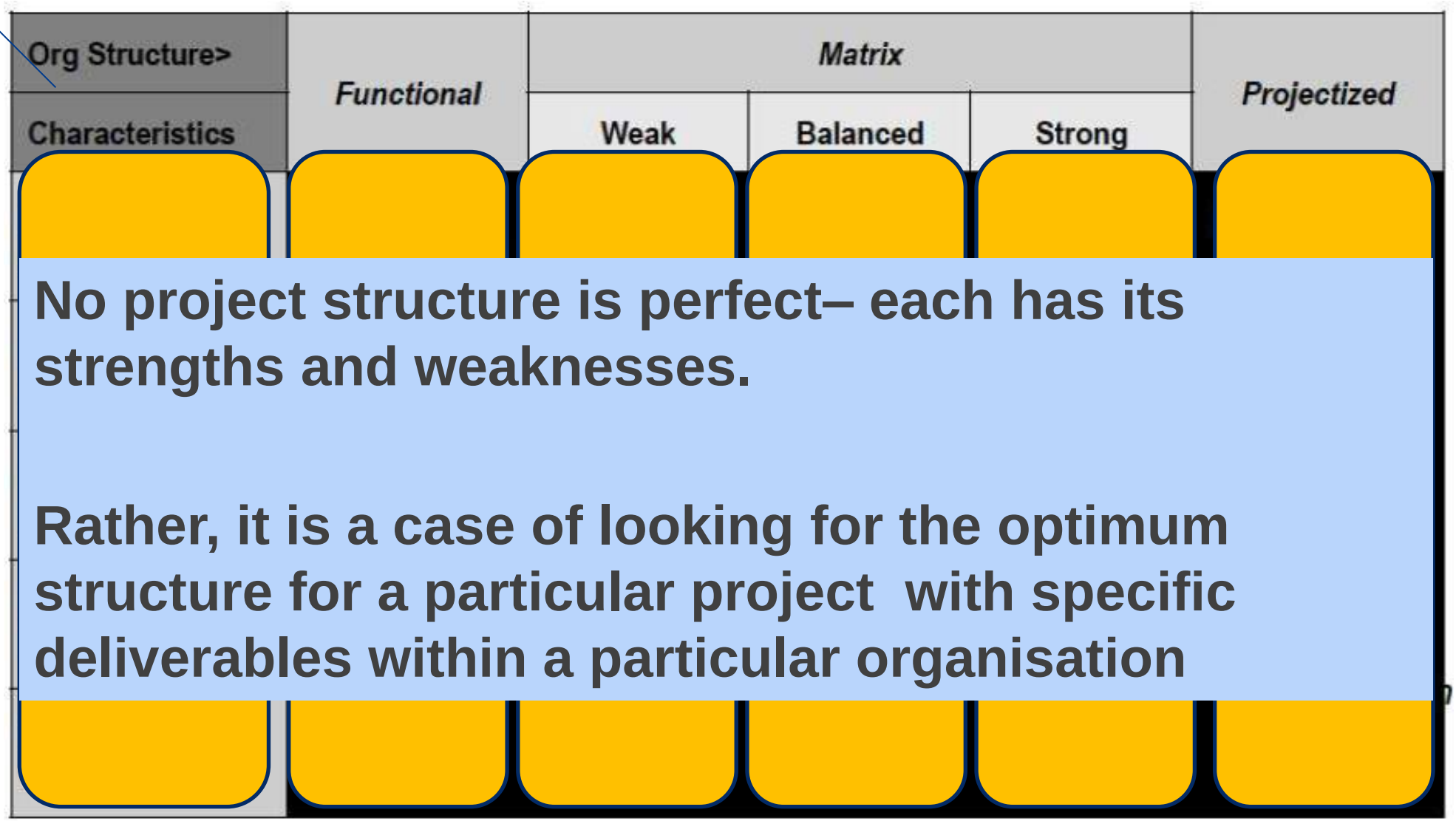
Ways of Identifying Cultural Characteristics

- Study the physical characteristics of an organization.
- Read about the organization.
- Observe how people interact within the organization.
- Interpret stories and folklore surrounding the organization
- Look at backgrounds of board and senior management - diversity vs one background predominating

More on Organisational Culture

Biafore B.. "***How Organisational Culture Affects Projects***" video in course Project Management Foundations, released 28/6/19, LinkedIn Learning accessed through UNSW

How Organisational structure affects projects



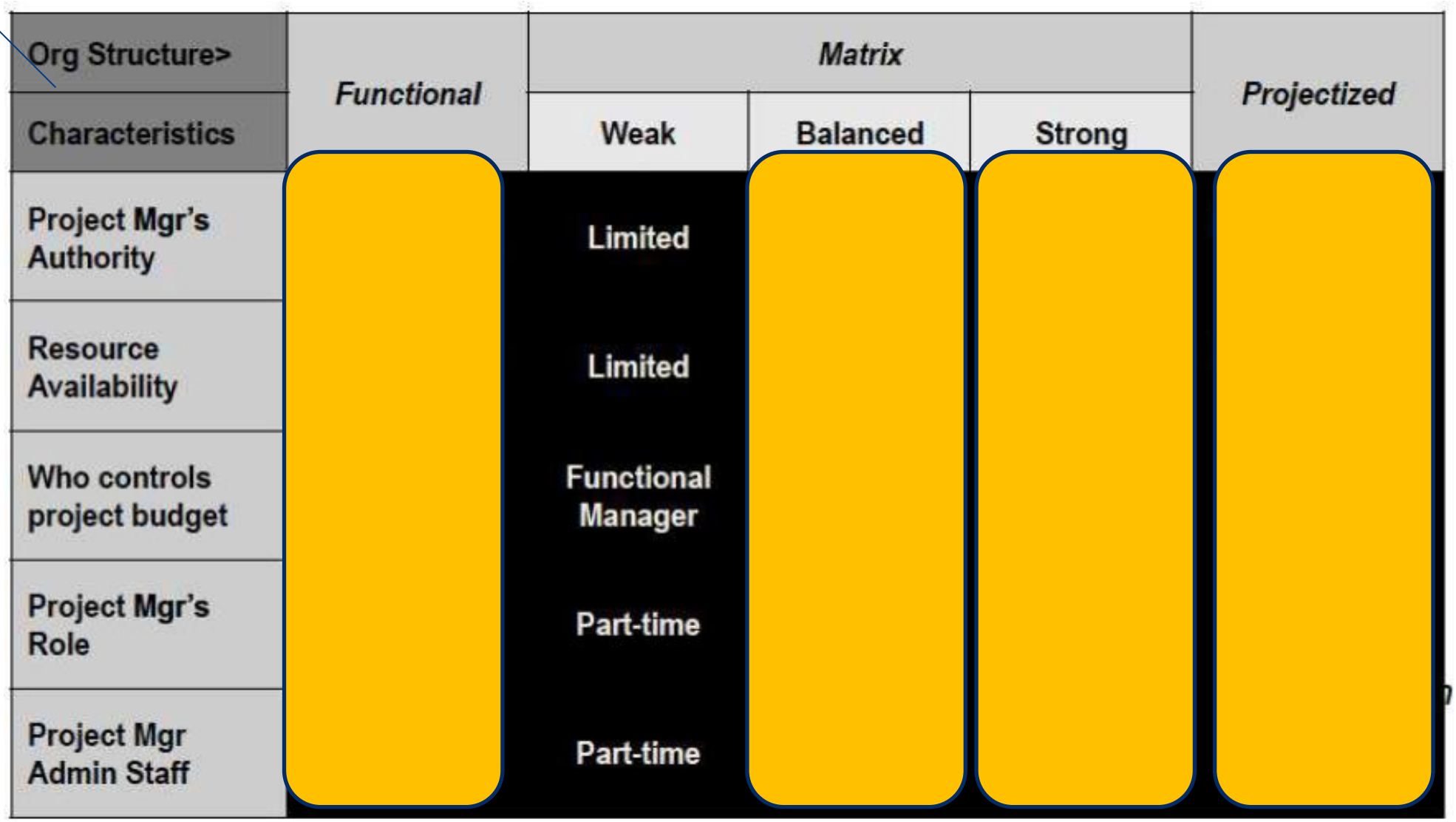
No project structure is perfect– each has its strengths and weaknesses.

Rather, it is a case of looking for the optimum structure for a particular project with specific deliverables within a particular organisation

Choosing project structure: Functional

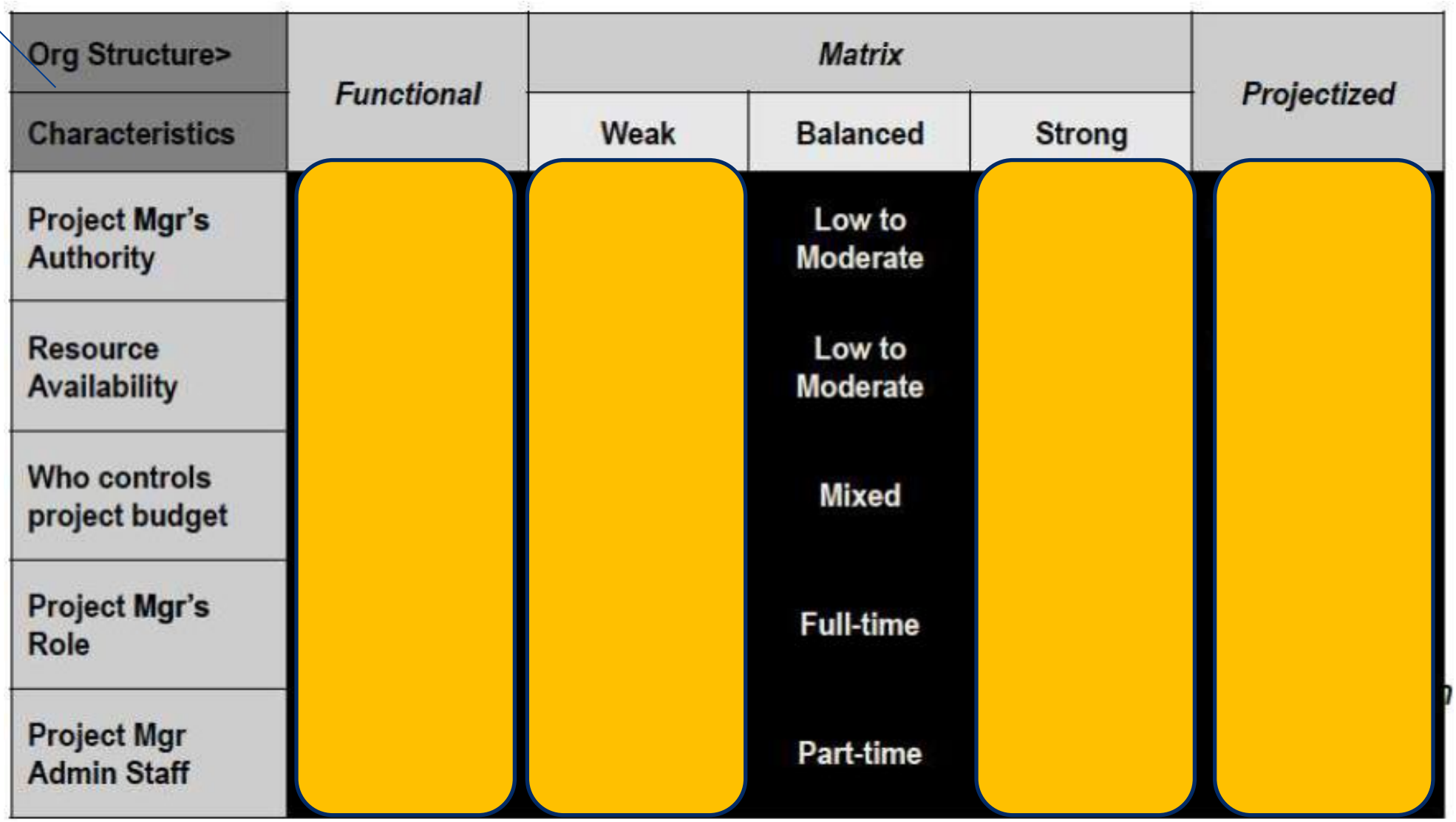
Org Structure>	*Functional*	*Matrix*			*Projectized*
Characteristics		Weak	Balanced	Strong	
Project Mgr's Authority	Little or None				
Resource Availability	Little or None				
Who controls project budget	Functional Manager				
Project Mgr's Role	Part-time				
Project Mgr Admin Staff	Part-time				

Choosing project structure: Weak Matrix



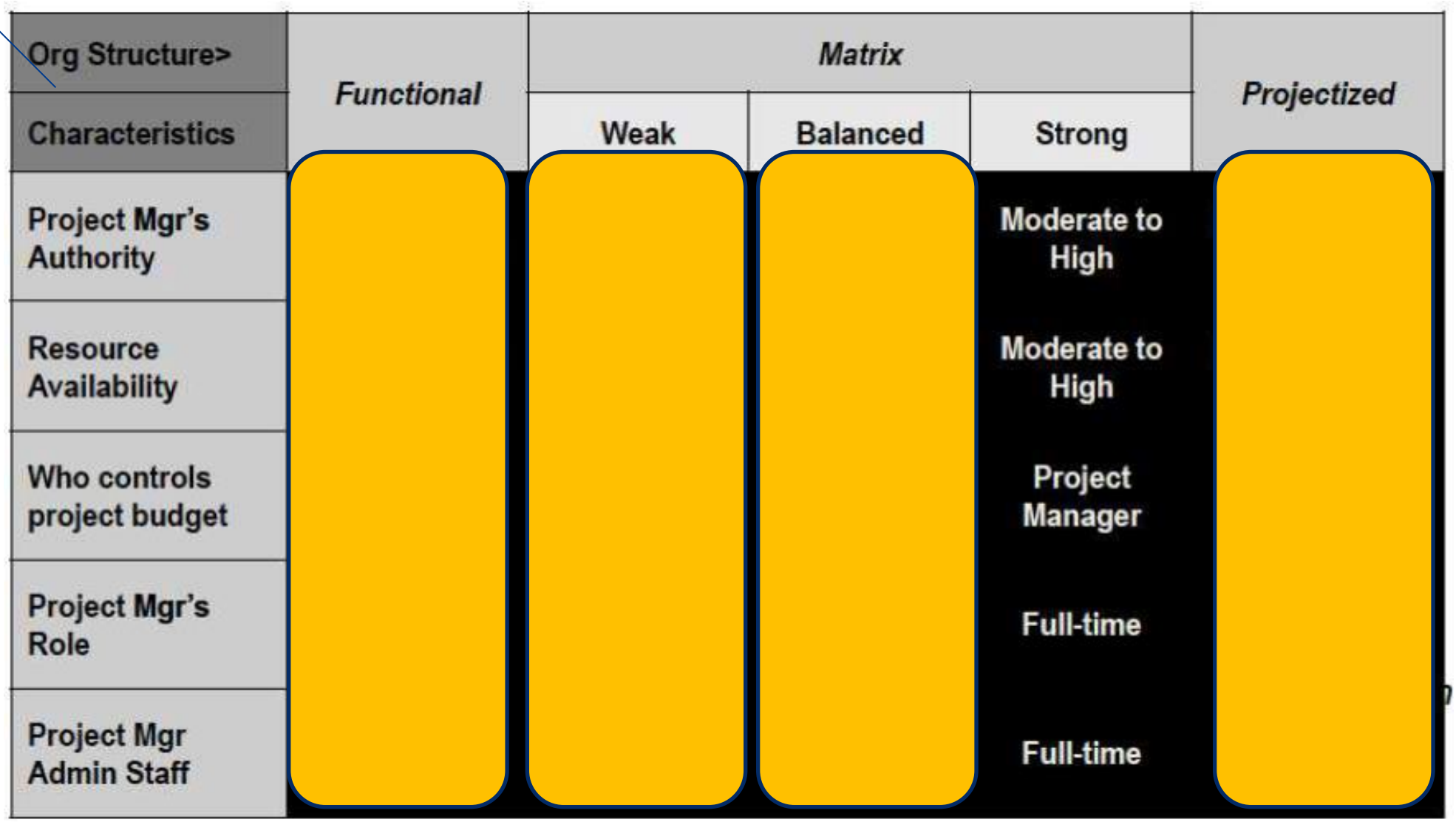
Org Structure>	*Functional*	*Matrix*			*Projectized*
Characteristics		Weak	Balanced	Strong	
Project Mgr's Authority		Limited			
Resource Availability		Limited			
Who controls project budget		Functional Manager			
Project Mgr's Role		Part-time			
Project Mgr Admin Staff		Part-time			

Choosing project structure: Balanced Matrix



Org Structure> / Characteristics	*Functional*	*Matrix*			*Projectized*
		Weak	Balanced	Strong	
Project Mgr's Authority			Low to Moderate		
Resource Availability			Low to Moderate		
Who controls project budget			Mixed		
Project Mgr's Role			Full-time		
Project Mgr Admin Staff			Part-time		

Choosing project structure: Strong Matrix

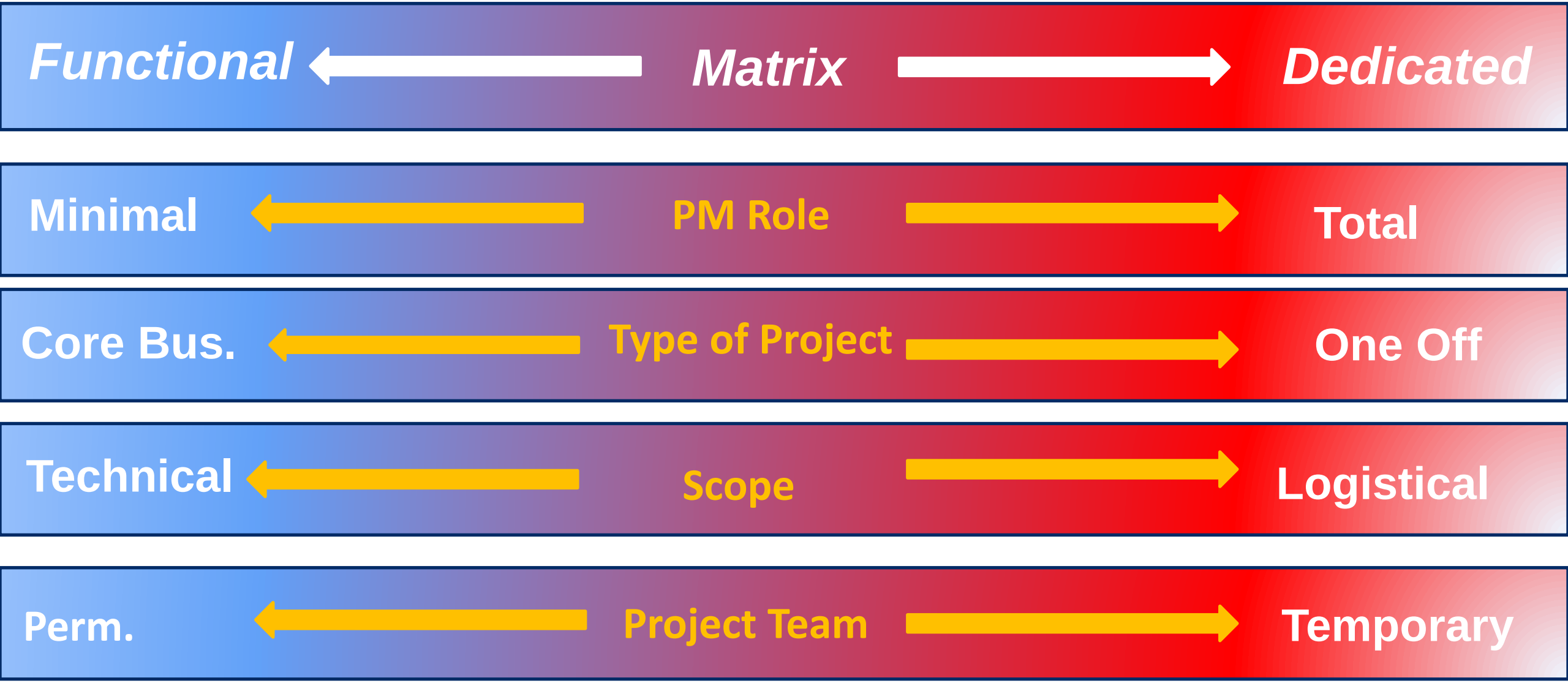


Org Structure>	*Functional*	*Matrix*			*Projectized*
Characteristics		Weak	Balanced	Strong	
Project Mgr's Authority				Moderate to High	
Resource Availability				Moderate to High	
Who controls project budget				Project Manager	
Project Mgr's Role				Full-time	
Project Mgr Admin Staff				Full-time	

Choosing project structure: Dedicated Project Team

Org Structure> / Characteristics	*Functional*	*Matrix*			*Projectized*
		Weak	Balanced	Strong	
Project Mgr's Authority					High to Almost Total
Resource Availability					High to Almost Total
Who controls project budget					Project Manager
Project Mgr's Role					Full-time
Project Mgr Admin Staff					Full-time

Typical project differences for various structures:



What factors should be considered to determine the optimum choice of structure for a particular project?

- The **Organisation** – history, culture, size, strategic requirements, recent similar project outcomes
- The **Technology** – complexity, novelty, risk, public safety, logistical requirements.
- **Resources** available – technical capabilities, project management competencies

More on Organisational Project Structure

Biafore B.. "***How Organisational Structure Affects Projects***" video in course Project Management Foundations, released 28/6/19, LinkedIn Learning accessed through UNSW

Importance of selecting the right PM to an Organisation achieving its strategic deliverables from ah project

- The PM leads the project team in delivering the project; setting the team's standards; monitoring team performance, resolving problems and managing outcomes.

- The PM carries the prime responsibility to the organizational sponsor(s) for achieving the project deliverables to meet the sponsor's defined success criteria

PMI's Talent Triangle – Core Competencies required as a PM

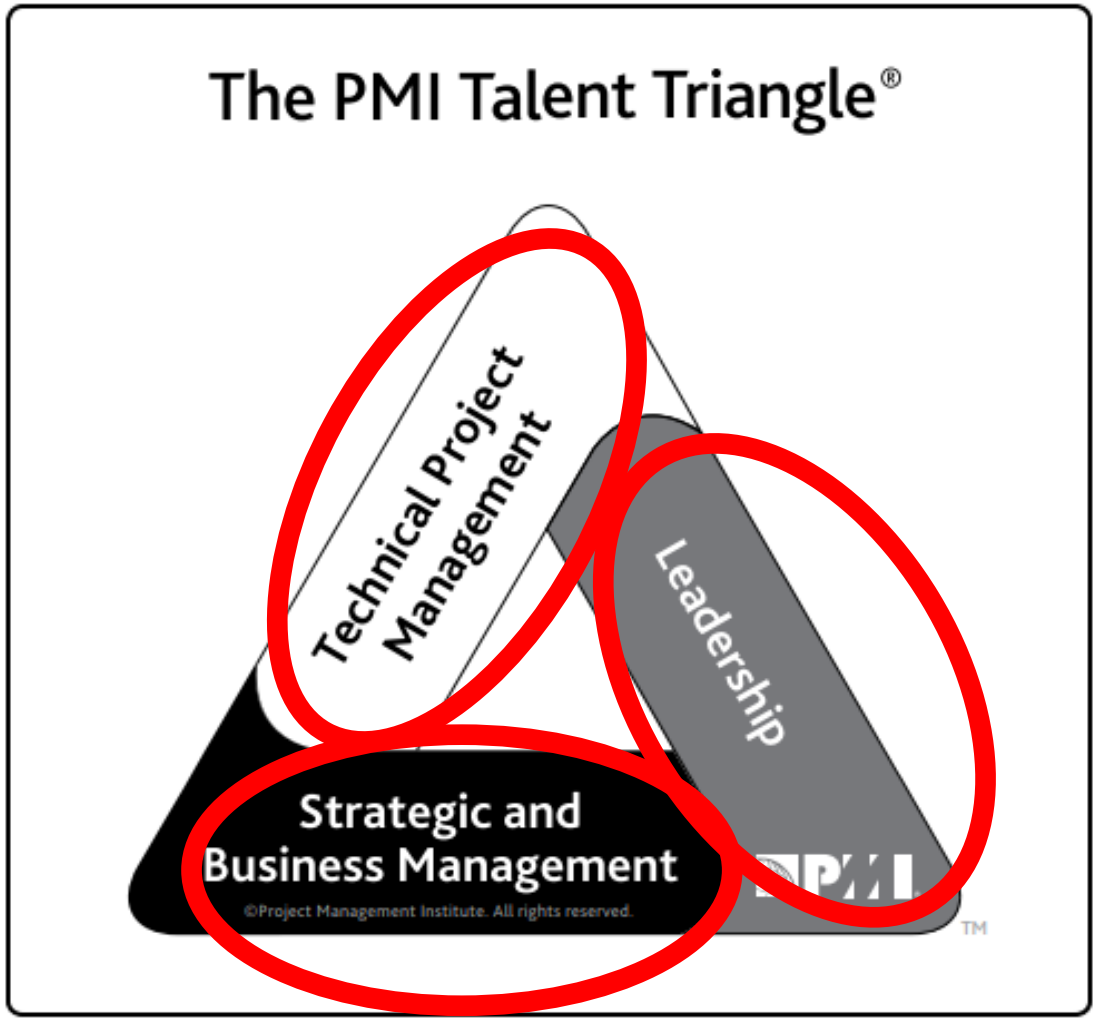


Figure 3-2. The PMI Talent Triangle®

More on PMI's Talent Triangle

Stanton D. "***The Talent Triangle***" video in course Business Accumen for Project Managers, released 19/4/17, LinkedIn Learning accessed through UNSW

Dionisio CS. "***What is Project Leadership?***" video in course Project Leadership, released 3/9/20, LinkedIn Learning accessed through UNSW

Case Study: Boeing 737 Max Crisis

Case Study: Boeing 737 Max Crisis

A Case Study that ties many of the concepts regarding projects in organisations together and demonstrates their relevance in the real world

Case Study: Boeing 737 Max Crisis (cont.)

HISTORY: Boeing and McDonnell-Douglas were the dominant players in commercial aviation market up until the 1980s.

Boeing – larger market share; engineering culture; stronger engineering reputation; strong functional organisation along engineering discipline lines; ran innovative new aircraft development projects using a weak matrix structure with strong input from the functions. PMs sourced internally from engineering functions.

McDonnell Douglas – more profitable; commercial culture; more risk adverse strategy of evolving existing designs rather than start new ones; ran aircraft development projects using a dedicated project team outside engineering functions. PMs were sourced externally from outside aerospace industry with strong commercial focus.

Case Study: Boeing 737 Max Crisis (cont.)

Merger: As time progressed, McD's minimally evolved product portfolio became increasingly uncompetitive against the newer technology of both Boeing and new entrant Airbus, resulting in financial performance deterioration.

Boeing eventually took over McDonnell-Douglas in 1990s.

Nevertheless, McDonald Douglas personnel took the majority of senior management positions in new merged Boeing. Over time, they converted Boeing's culture over to that of the former McDonald Douglas.

Result of Merger: Culture changed to more like old McD - had the desired short term effect of quickly improving financial results / boosting share price. Expensive new technology adoption became more limited.

Case Study: Boeing 737 Max Crisis (cont.)

737 Max Project

The 737 has been the largest selling plane in history. It's design has evolved from 1960s origins; Boeing's cash cow since 1980s.

Boeing had planned to profitably maintain 737 production without further investment until late 2020s but competitive pressure from Airbus forced an upgrade in 2012.

Boeing's dedicated project team drove the 737 redesign within a very short 3 year schedule without sufficient eng. function input.

Unfortunately, compromised engineering led to two 737-Max crashes of 2018-19

Case Study: Boeing 737 Max Crisis (cont.)

Results for Boeing: a trashing of its long held engineering reputation; severe financial pain; regulatory scrutiny

Case Study: Boeing 737 Max Crisis (cont.)

Consequences of the 737-Max Crash Crisis within Boeing:

Boeing Board replaced its CEO.

The Boeing Board undertook a review of strategy, culture and organisation of its aircraft development projects. The review firstly determined that Boeing's Mission Statement would become:

"**People working together as a global enterprise for aerospace industry leadership.**"

Case Study: Boeing 737 Max Crisis (cont.)

From this, Boeing's new CEO established the following strategies to return the business to its position of aerospace leadership.

1. Future aircraft development programs to incorporate the latest technology to maintain aerospace leadership
2. Boeing regain its safety and reliability reputation by utilising the company's full technical resources in future development programs;
3. Future Development Projects will require strict commercial discipline, given the company now finds itself under severe financial distress.
4. Boeing improve its culture to harness its global presence and resources; and support its push for aerospace technology leadership

You have been hired by the CEO as a consultant to recommend on a set of SMART objectives from which a series of projects can be proposed to deliver the strategy

Case Study: Boeing – Answer

Strategy Item	SMART Objective
1. Future aircraft development programs to incorporate the latest technology to maintain aerospace leadership	1. *Head Marketing Dept to review market and produce a aircraft development project pipeline for next twenty years – to be completed within 6 months.*
	NOT SMART: 1. Boeing review market and its aircraft development pipeline 
	2. Head R&D department to develop a new technology development schedule to fit the Objective 1 aircraft development projects pipeline ……complete 6 months after Objective 1 finishes

Recall: SMART = Specific; Measurable, Assignable, Realistic, Time-related

Case Study: Boeing – Answer

Strategy Item	SMART Objective
2. Boeing regain its safety and reliability reputation by utilising company's full technical resources in future development programs;	*3. Boeing CEO to redesign optimum Project Structures to manage future Aircraft Development Projects to regain safety and reliability reputation; whilst simultaneously maintaining strict commercial discipline; and implement within 9 months*
3. Future Development Projects will require strict commercial discipline, given the company now finds itself under severe financial distress.	*4. Boeing CEO to redesign new selection criteria for choosing Project Managers for Aircraft Development projects; to be implemented within 3 months after finalisation of Objective 3.*

Case Study: Boeing – Answer

Strategy Item	SMART Objective
4. Boeing improve its culture to harness its global presence and resources; and support its aerospace technology leadership	*5. Board to establish a new Safety Ombusman Dept directly reporting to Board outside Management structure; and to whom any employee at any level can report any safety concern for investigation anomalously ……. completed within 6 months*
	6. Head HR Dept to implement within 6 months an ongoing program of internal conferences and staff exchanges to foster better person-to-person relationships and understandings between employees in all global offices.

Projects would then be initiated to deliver on each of these objectives; and prioritised as we have seen in this lecture within Boeing's project portfolio.

Case Study: Boeing – Additional Consideration :

As an example, consider you became PM for a project to implement, say, Objective #3 – *A Project to Redesign Optimum Aircraft Development Project Team Structure* - with the CEO as sponsor.

You can now appreciate that knowing the history of the project, the company culture, the reasons behind the strategy your project is implementing; and the situation and motivations of the project's sponsor, the CEO, allows you, as PM, to be in a better position to:

- Make decisions during the project's execution to better deliver strategic benefit to Boeing
- Be in a better position to seek any further resources, additional support or removal of organizational roadblocks needed to complete the project from the CEO or other management

One final thought from my industry experience on project success criteria from the perspective of an Organisation's strategic requirements rather than just from a Project Manager's immediate results

A project can run *on budget*, *on time* and *on scope* but ultimately be considered a **failure** if it doesn't deliver strategic benefit to the organization.

Organisation should actually consider STOPPING such a Project despite its flawless execution !

Equally, a project can run *over budget*, *over time* and with *excess scope* but ultimately still be considered a **success** if it does deliver net strategic benefit to the organization, albeit delivered imperfectly.

Organisation should consider PERSEVERING with such a Project despite its poor execution !

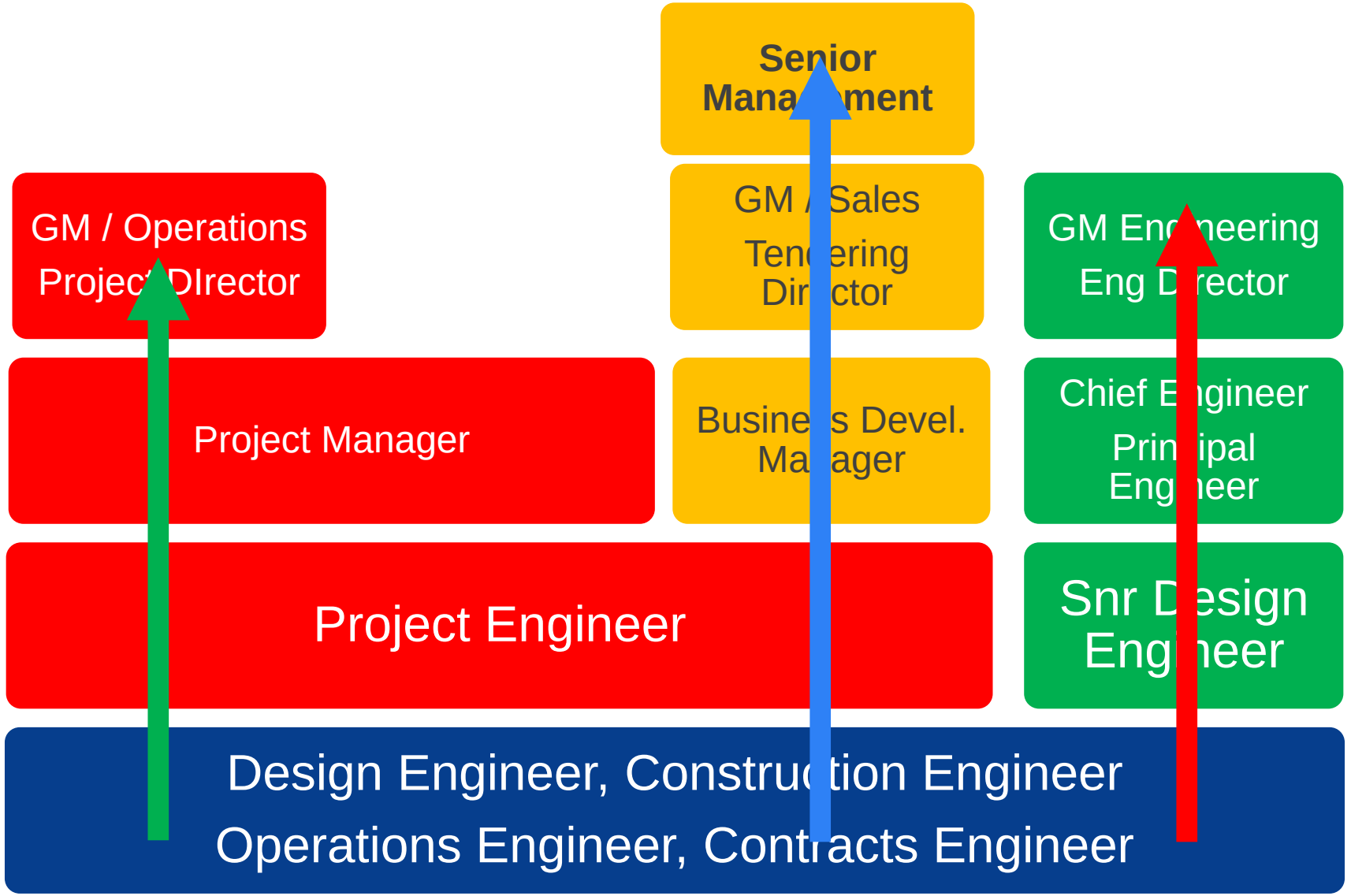
Added Bonus ! - Not Examinable - Thoughts on where PM fits within Career Paths in Engineering / IT Organisations:

Some typical career paths in larger engineering / IT organisations are shown in the next few slides.

A ‘pure’ Project Management career typically results in a very responsible and well rewarded position. However, it usually does not lead to senior management – project management is more narrowly focused on project delivery rather than wider organisational issues.

Commercial roles more often lead to senior general management, although engineers usually face competition from other disciplines (eg lawyers and accountants) for such roles.

Typical Career Paths: PM, Commercial, Technical



Career Paths in Engineering / IT Organisations (cont.)

Whilst the above trends tend to hold for larger / more well established companies, smaller / more recently established companies (**eg startups**) can show great variety in career path trajectories offered.

As organisations mature, career path opportunities evolve – something you should consider when selecting your career options.

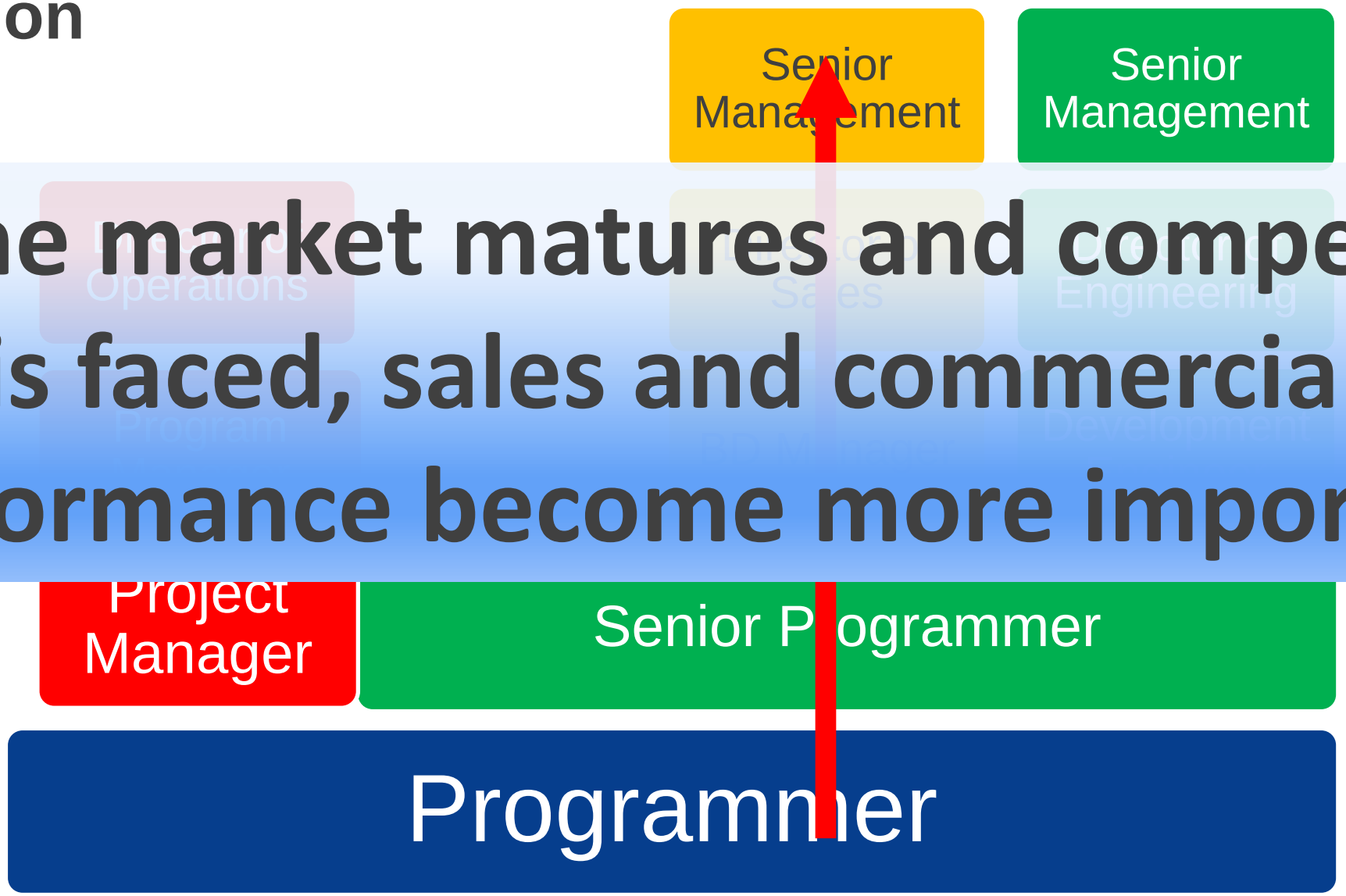
Looking at example of an IT Start-up

Initially, major challenge is product development by technical side. Founders often run the company

Stage 2: More Mature Expanding IT Company

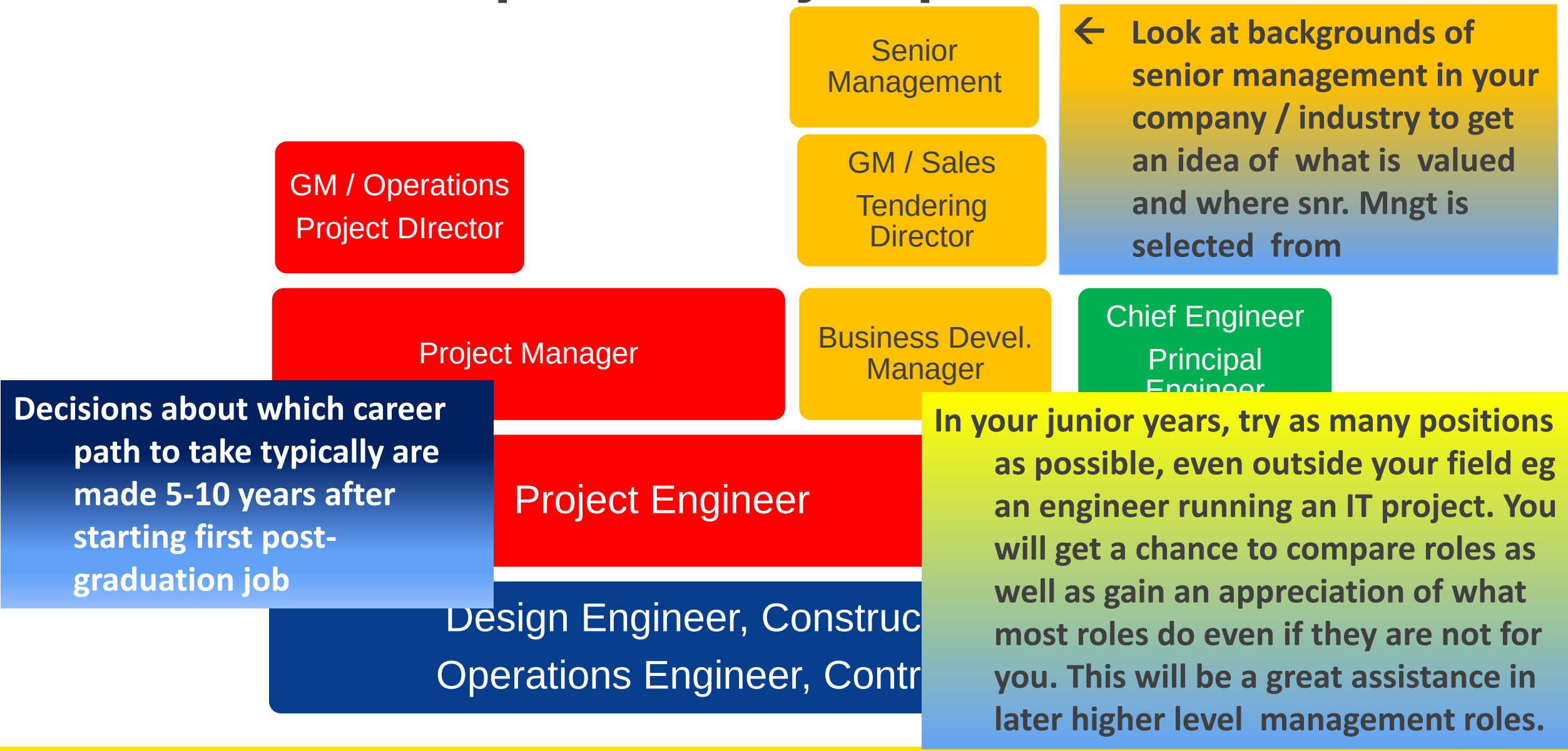
Then, major challenge is ramping up operations and delivery

Stage 3: Larger IT Company in mature industry facing competition



Once the market matures and competition is faced, sales and commercial performance become more important

A few Career Tips from my experience



← **Look at backgrounds of senior management in your company / industry to get an idea of what is valued and where snr. Mngt is selected from**

Decisions about which career path to take typically are made 5-10 years after starting first post-graduation job

In your junior years, try as many positions as possible, even outside your field eg an engineer running an IT project. You will get a chance to compare roles as well as gain an appreciation of what most roles do even if they are not for you. This will be a great assistance in later higher level management roles.

Thoughts on where PM fits within Career Paths in Engineering / IT Organisations:

Regardless of whether or not your career ultimately goes down the Project Management route, most engineers / IT professionals are likely to be involved in project management early on in their career, either as:

- A project team member
- Running a small project
- Running an informal project