

# Health & Safety Induction

- Toilets
- Cell phones
- Emergencies
- Room temperature
- Attendance Register
- Training Materials
- Timings and Catering

# Trainer's Profile : Jim Young

- Born in Invercargill and schooled at Reefton and Hokitika
- Attended Duntroon Military College (Australia) and served in NZ Army
- Manager Transpac Ltd (road transport)
- Obtained MBA, PMP, PRINCE2 Certification and Doctorate in Business Administration
- Director SkillPower Ltd (managed projects)
- Lives Lower Hutt with wife and daughter
- Contact: jim\_young@xtra.co.nz and [www.skillpower.co.nz](http://www.skillpower.co.nz)
- Check out this blog for lots of useful free stuff

<http://www.skillpower.co.nz/category/blog/>

# Robbie and Jim's other Family Members



# Project: hard-scaping my yard...

*Projects might be commercial, community, domestic...*



*Benefit being no mowing now needed! Time and effort saved.*



# Participant Introductions

➤ *PERHAPS...*

- Name, job and organisation?
- Involvement / familiarity with project management? And have you previously attended project management training?
- Learning expectations?
- And maybe something further about you - family, interests, career ambitions...?

Where  
are you  
from?

What do  
you already  
know?

Why are you here?

Porkies  
welcome if  
life has  
been a bit  
dull  
recently.

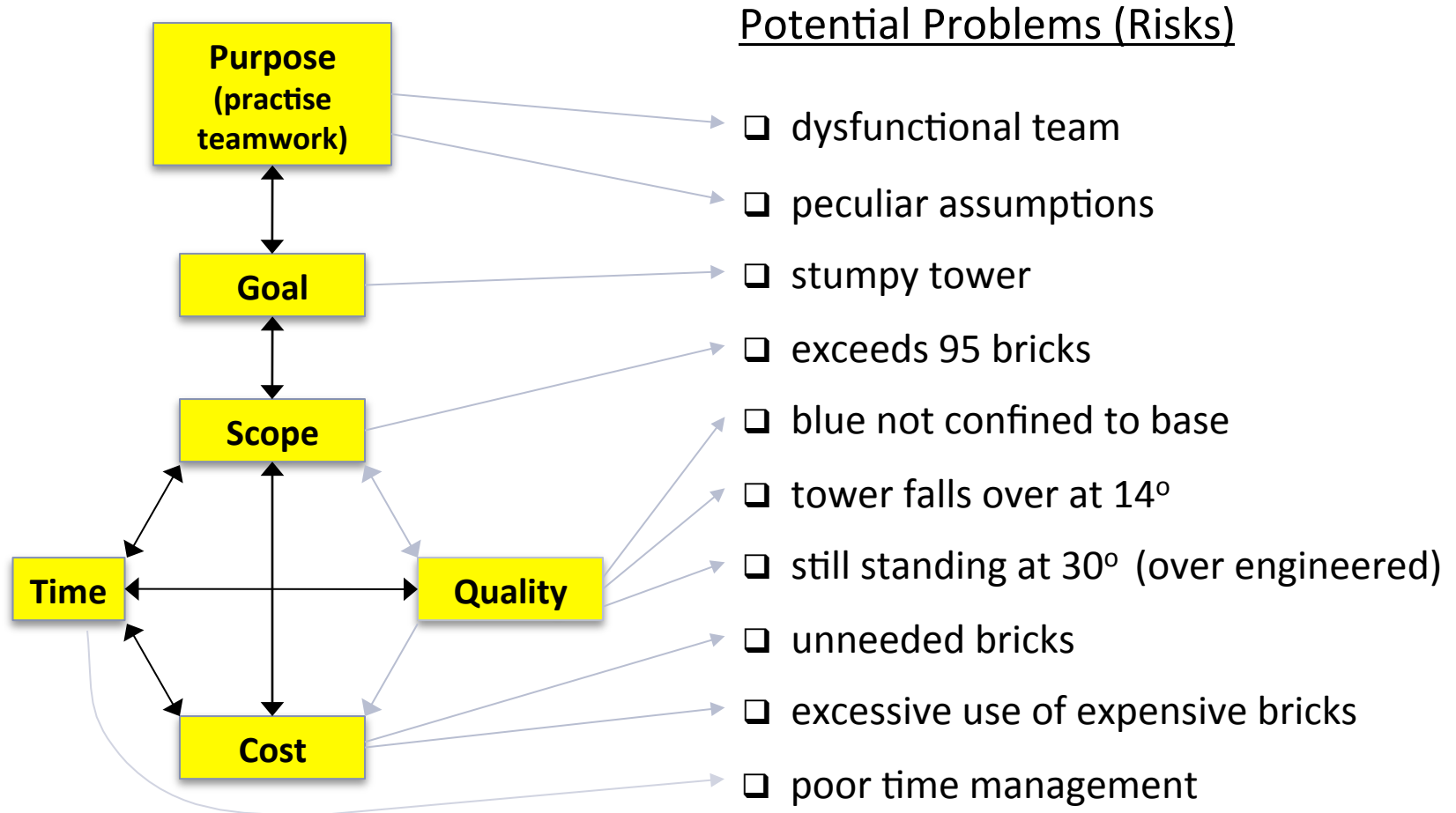
# Outline Programme

TIME	DAY ONE	DAY TWO	DAY THREE
9:00 10:30	Introductions Lego exercise Exercise critique	A busy day when we analyse the project conception and development phases, practising various tools and techniques – work breakdown structure, estimating, network diagrams, Gantt charts, resource scheduling, pre-empting problems (risk management), trade-off analysis, and project value management.	Project execution and finish phases.
10:45 12:30	Project management basics		Team project planning and presentation exercise.
1:15 2:45	Project lifecycle and framework		
3:00 4:30	Essential people skills		Finish-up Administration

# Eight Recent PM Developments

1. Greater recognition of the importance of the Business Case, Change Management, Benefits Realisation, and Stakeholder Management.
2. Development of new PM methodologies such as PRINCE2, Agile, Scrum, Critical Chain...
3. Employment of Rolling Wave Planning and Earned Value Analysis techniques.
4. Wide range of PM software now available although MS Project remains the most popular.
5. PM is now a profession and career path rather than simply a discipline.
6. Geographically dispersed PM teams.
7. Greater emphasis on people management skills.
8. Proliferation of PM certifications and training programmes.

# Sky Tower Challenge






# Terminology

- To work together effectively on any project, everyone on the team needs a common language. There's a glossary in the workbook.
- **A project** is a temporary endeavour undertaken to create a unique product, service or result. PMI
- **Project management** is the use of leadership, planning and control techniques to achieve the project goal within the parameters of:
  - scope (work)
  - time (schedule)
  - cost (budget)
  - quality (specifications)and to the satisfaction of stakeholders.



# Some Other Definitions for a Project

- A unique set of events with a main goal and defined objectives, and an agreed plan for achieving that goal.
- An activity with a specified beginning and end date undertaken to achieve a stated goal.
- An organised campaign to introduce, change and/or improve something.
- A temporary management environment created to deliver a specified outcome according to a defined business need.
- *A benefits led initiative.*  *I like this one.*

# Project Managers

- Unlike business managers who oversee a department or function, project managers coordinate borrowed people with different skills from different functional areas (and sometimes from different organisations) to spend other's money to produce new products and services.
- In recent years project management has been recognised as a profession, rather than simply a discipline, a proliferation of project management methodologies and training courses have been developed, and trained project managers are in demand.
- Simply put, project managers bring goals to fruition. Thus to some degree, we are all project managers, although we don't necessarily hold that job title or manage projects full-time. Most employees also have business-as-usual work to do, which can create untenable workloads. A project manager's position is perishable – it often ends with the completion of the assigned project.

# Projects Everywhere !

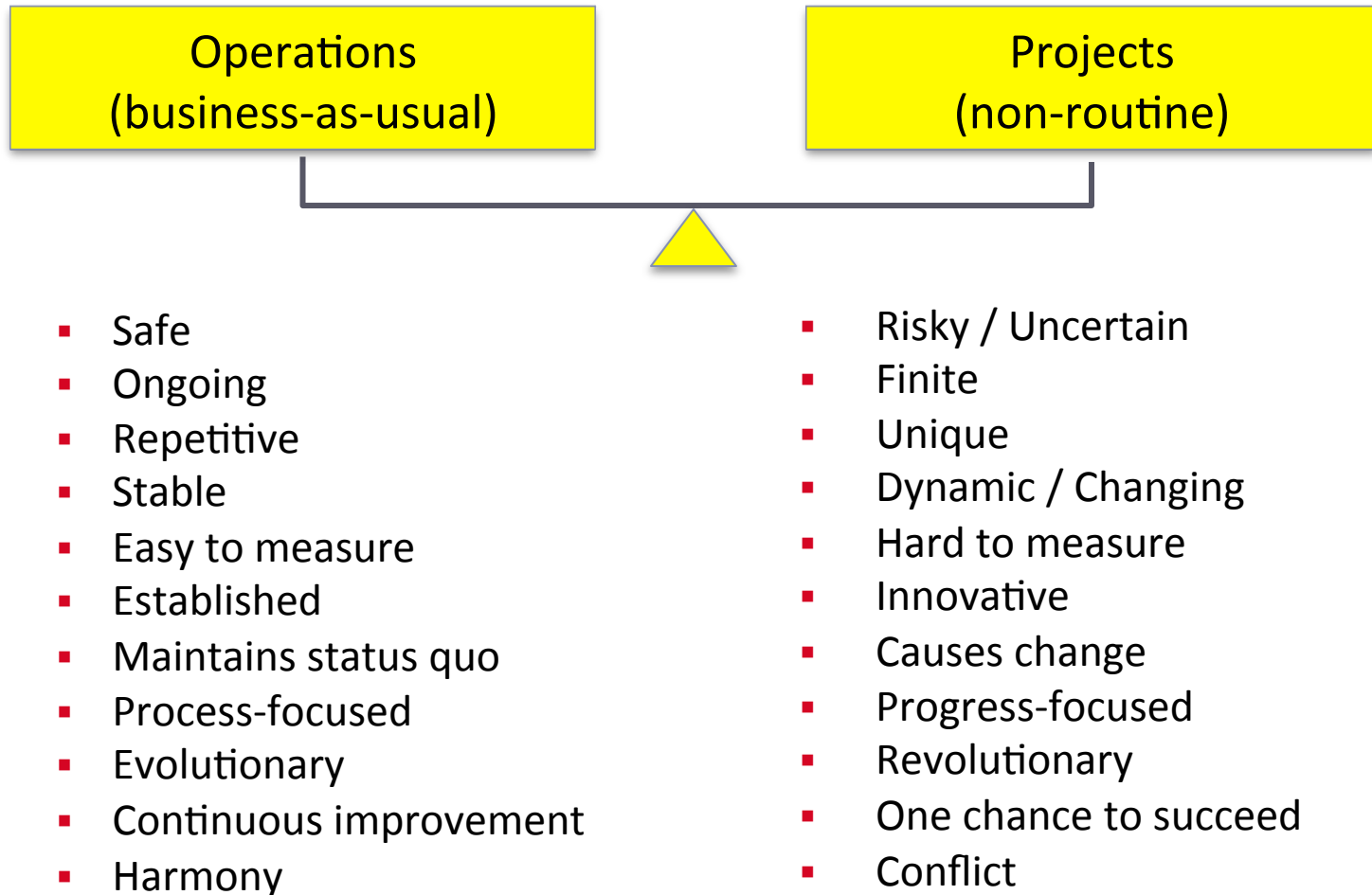
- Rostering District Court judges
- Establishing Super Wellington by merging nine councils
- Having a coroner's inquest
- Investigating Treaty breaches, preparing and settling claims
- Constructing a building, website or a highway
- Completing an report, audit or a marathon
- Prosecuting, jailing or rehabilitating a criminal
- Staging a theatrical production
- Getting to Aotearoa from Hawaiki
- Undertaking a housing survey
- Developing crime prevention initiatives
- Stopping the supply of alcohol to minors
- Emigrating to Aussie or returning to New Zealand
- ANZAC soldiers landing at or evacuating from Gallipoli
- Writing a book or producing a film
- Extending an airport runway
- Fixing a leaky home or stadium
- Sacking Jeremy Clarkson
- Quitting smoking, fast food or texting when driving



# and more projects...

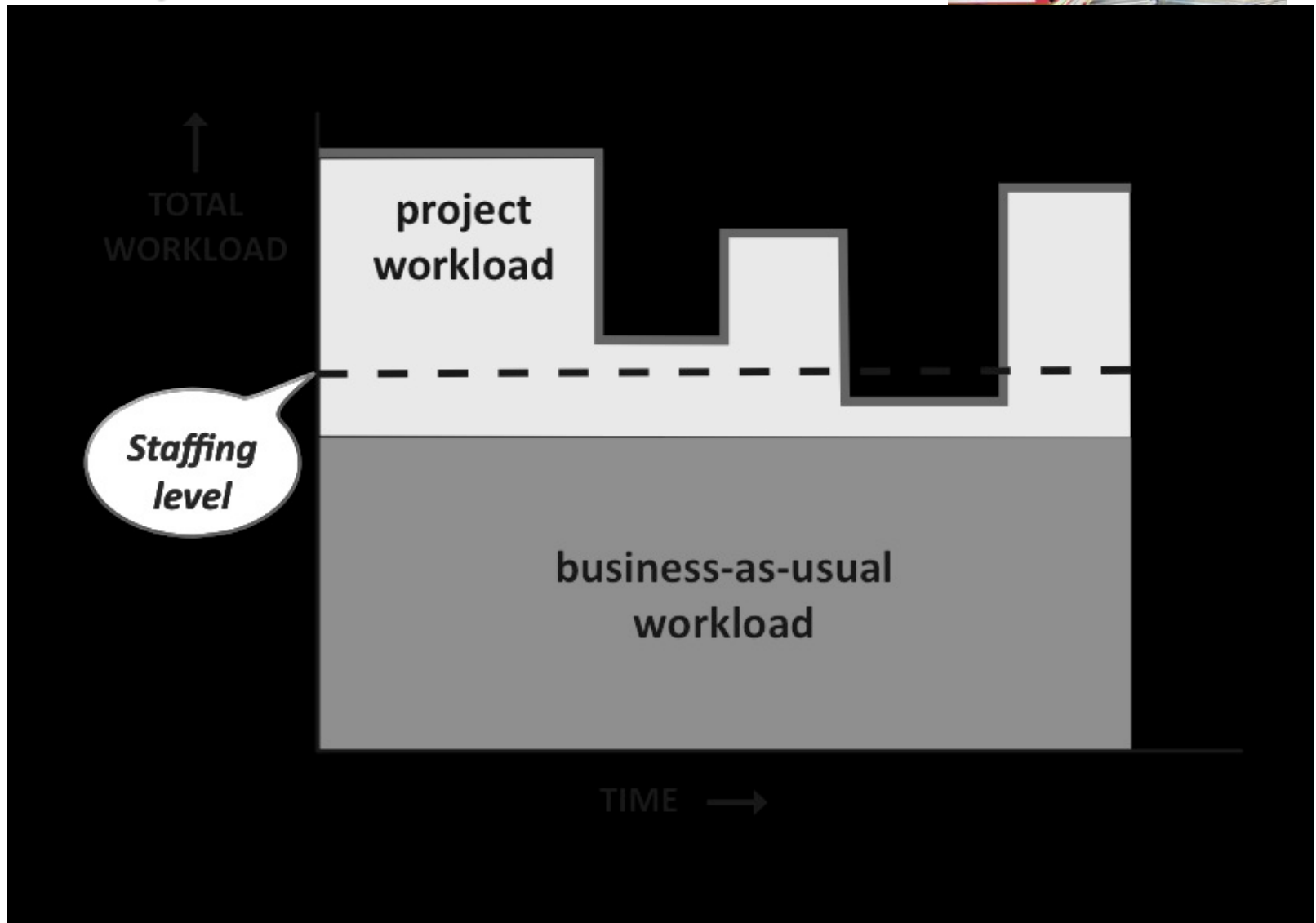
- Saving the Wainuia nasuta (it's a snail), turtles or sharks
- Mapping the continental shelf
- Having a jail break or cake stall
- Reforming drug laws or the legal system
- Battling ACC for compensation
- Robbing a bank or a dairy
- Running an election or by-election
- Holding a cricket world cup
- Finding a replacement planet
- Undertaking a hikoi, hangi or hui
- Belt-tightening the public service
- Establishing an orphanage
- Refurbishing the kitchen or bathroom
- Establishing or liquidating a business
- Creating a recreational park
- Organising a celebration, wedding, divorce or funeral
- Undertaking a Marsden Fund research project
- Reducing parliamentary back office costs
- Updating the Civil List Act

# Work Characteristics



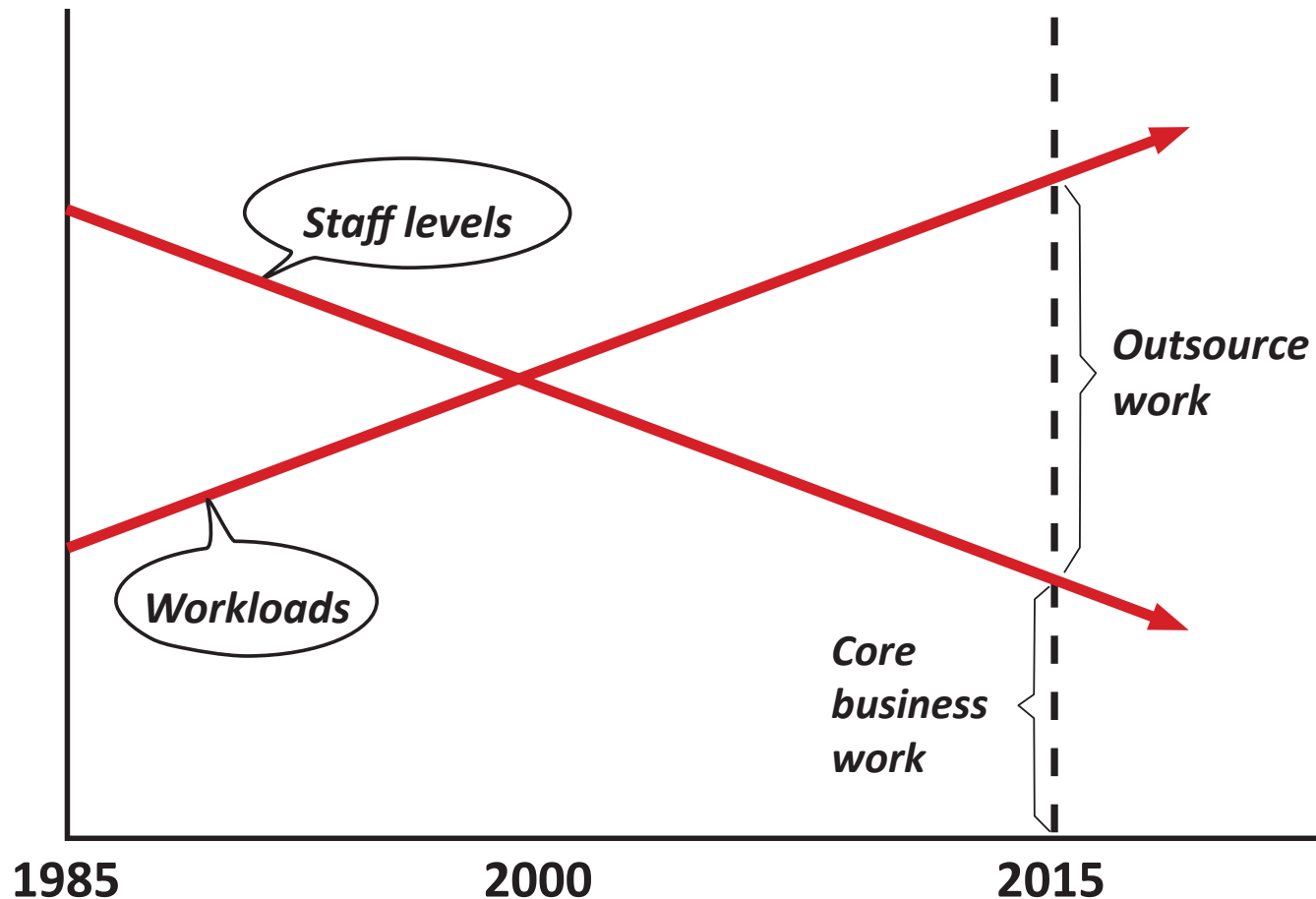
# Workload Problems?

Project Work + Routine Work = Too Much



# Workload Solution

We might outsource project and/or routine work.





# Success

When we think of success, there is a difference between *Project Management Success* and *Project Success*.

The former is about meeting deadlines, sticking to a schedule, staying under budget and providing outputs that are built and perform to specifications. This requires Project Management expertise.

On the other hand, Project Success is about the outcomes and their benefits created by the deliverables (outputs) during their operational life.

The ideal being both Project Management Success **and** Project Success.

# Six Levels of Project Success

1. The project was a success if it produced something – anything.
2. The project was a success if it delivered all or most of what it said it would, regardless of schedule or budgetary performance.
3. The project was a success if it delivered what it said it would, on schedule and/or within the agreed budget.
4. The project was a success if it delivered what it said it would, on schedule, within the agreed budget and to specified standards of quality.
5. The project was a success if it achieved all the above and the deliverables (ie, outputs) produced the desired outcomes.
6. *The project was an ultimate success if the outcomes created **significant net value** for the client and other key stakeholders. (Net Value = Benefits – Costs)*



# Unsuccessful IT Project



Some projects seem to be unsuccessful at all levels. The troubled Novopay, or “No Pay” project as some have called it, is our Ministry of Education’s unpopular payroll venture, undertaken by relative newcomer, Aussie contractor Talent2. Novopay, New Zealand’s largest payroll project to date, has been plagued with implementation problems, being behind schedule, over-spent, not working properly and definitely not user-friendly. This is a bad combination, yet not uncommon for large IT projects. Talent2 is now out of the contract and Novopay has become a taxpayers’ headache, although it seems to have settled down somewhat with fewer user complaints.

# Sydney Opera House

With its graceful sails dominating Sydney Harbour, the Sydney Opera House, designed by Jorn Utzon, is arguably one of the most recognised buildings in the world.



Yet, from a project objectives' perspective, it was a spectacular failure. When construction started in 1959, it was estimated to cost \$7 million, and take four years to build. It was finally completed in 1973 for over \$100 million, which was *about 1500% over budget and nearly 300% behind time!!*



# Yet another IT project blowout...

An Auckland Council IT project, key to delivering the promised savings of the "Super City" faces a budget blowout of up to \$100 million. The "New Core" programme is designed to consolidate the outdated operating systems of the eight local bodies that merged in 2010 to become the Auckland Council and had an approved budget of \$71 million. The first stage was supposed to go live in May 2014 with the project completed by June 2016, but council bosses recently confirmed a delay of 12 months and a new total cost of about \$170 million – some \$100 million more than the budget that was approved two years ago.

*But, wait for **IRD's \$1.5 billion computer upgrade** to be undertaken over the next 10 years! Final cost – who knows?*

# Eight Habits to Ensure an IT Fiascos

Dangerous Enthusiasms” by Gauld and Goldfinch describes why large IT projects often go wrong. They have analysed five failed IT projects including the NZ Integrated National Crime Investigation System (INCIS) that was abandoned in 2000 at the \$110 million point. Their book mentions eight habits to ensure project failure:

1. Prefer a huge project scope.
2. Change product requirements often during the project.
3. Have an enormous and complex contract document.
4. Rely on the advice of salespeople and use lots of consultants.
5. Ensure project takes a long time so the technology becomes outdated.
6. Believe everything you’re told about progress and assume bugs will be ironed out once the project goes live.
7. When failure threatens, never terminate project, but rely on promised fixes and more monitoring.
8. And most importantly - continue to throw lots of money at the project.

# INCIS – Compounding Risks

Abandoned in 2000 the \$110 million IBM/NZ Police project “INCIS” (Integrated National Crime Information System) provides a useful risk acronym:

<b>I</b>	Inexperienced team	0.8	} <b><math>0.8^5 = 0.33</math> (33%)</b>
<b>N</b>	Novel endeavour	0.8	
<b>C</b>	Complicated functions	0.8	
<b>I</b>	Imprecise specifications	0.8	
<b>S</b>	Sizeable scope/scale	0.8	

If each of these risk factors separately reduce the likelihood of project success to 80%, their combined effect could reduce the chances of overall project success to only 33%. Murphy (of Murphy’s Law fame) tells us that project risks are more likely to compound than compensate.



# Project Deliverables

Projects produce deliverables (outputs), which are what remain at project completion, include:

- Hardware such as a building, bridge or piece of equipment.
- Software such as a document, report or instruction.
- Interim deliverables, which might be hardware or software component items.

Final deliverables have their own life cycle (product life) during which time the benefits that justified the investment in the project are realised (or sometimes not) and there may sometimes be unanticipated benefits and disbenefits.

# Project Benefits



The project deliverables are the vehicles upon which project benefits are realised. Generic benefits might include:

- Realisation of our organisation's mission (purpose) and goals.
- Increased sales revenue and/or market share and/or share value.
- Reduced and/or avoided costs.
- Improved image, productivity and employee satisfaction, morale, motivation and performance.
- Compliance with legislation and/or avoidance of penalties.
- Retention of customers and/or gaining of new customers, members and supporters.

# Christchurch Rebuild Project

## Fletcher-Challenge Christchurch Repair Work

### Assessment Criteria – Relative Importance

Health and Safety	34%
Customer Satisfactiion	25%
Quality	21%
Value for Money	12%
Timeliness	8 %

This might explain the slow pace, but not the remedial work now needed on many “repaired” homes!



# Scope Terminology

- **Product scope** describes the features and functions of the product, service, or result that will be the deliverable (output) of the project. Published as a **specification**.

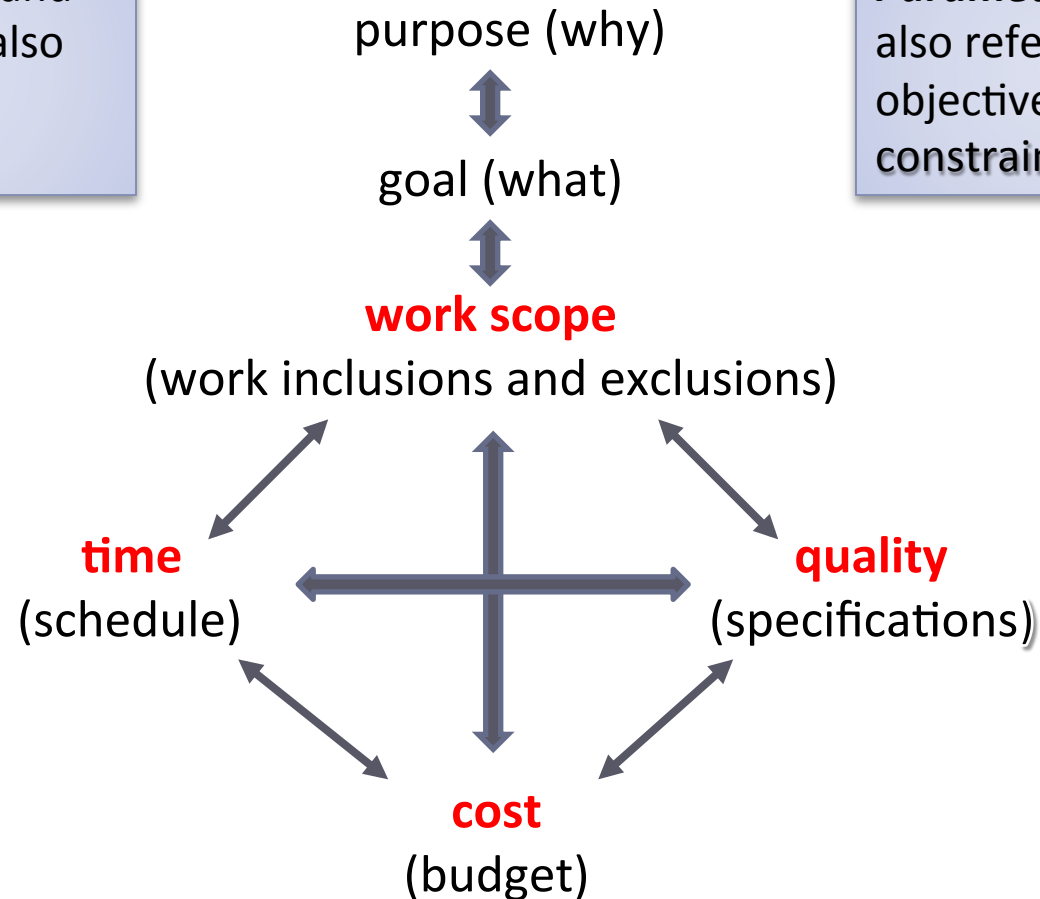
*And once described we can then determine:*

- **Project scope** or **work scope** is the work to be done in order to produce the desired product, service, or result. Published as a **Work Breakdown Structure (WBS)**.
- **Scope creep** occurs when we add more to the product scope than was originally agreed upon without addressing the effects on time, costs and resources. It's often an aggregate of little additions. Not to be confused with approved variations (changes) or progressive elaboration (incremental development). **Effective definition of project scope and product scope is key to preventing or limiting scope creep.**

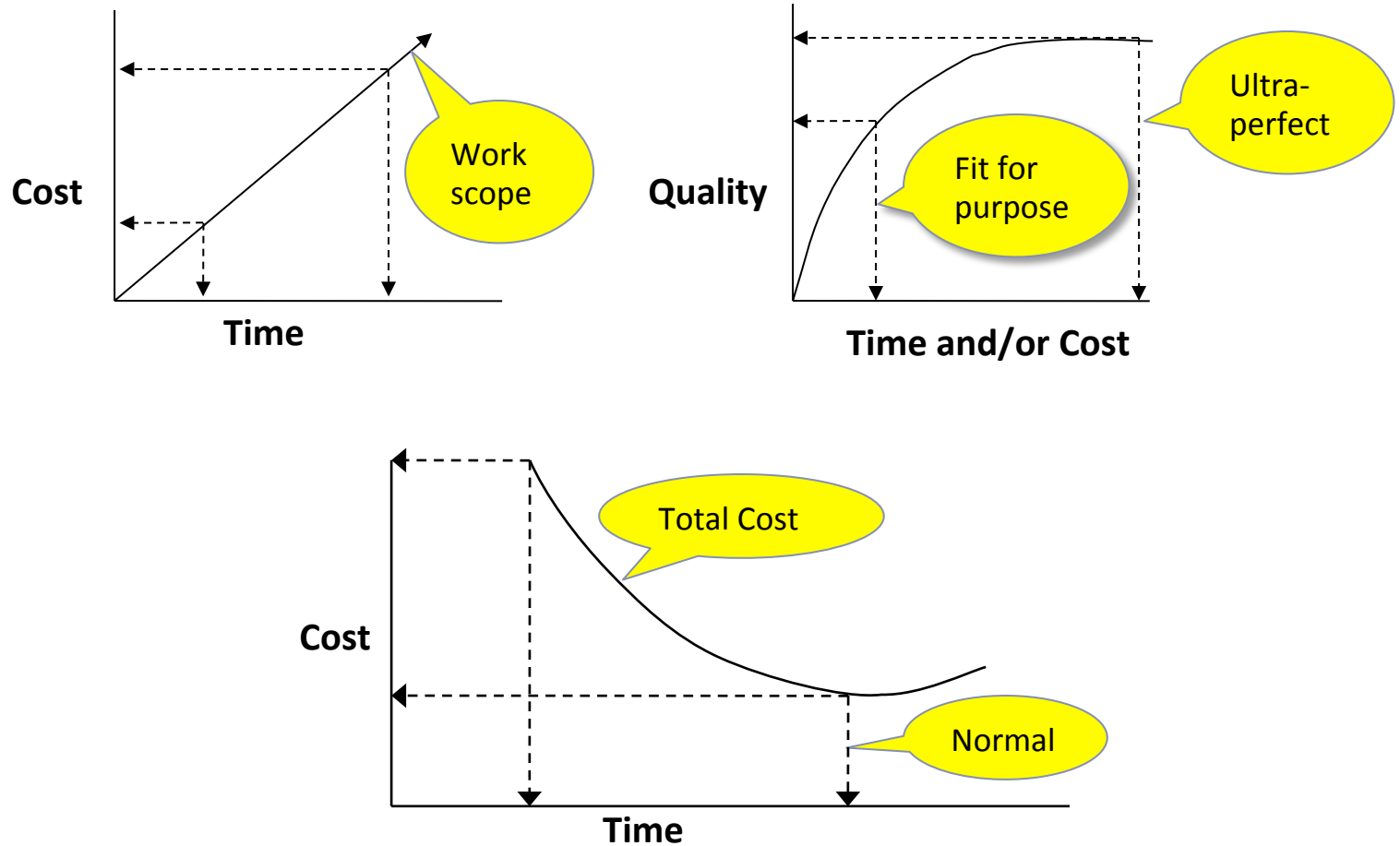
# Project Parameters

Perhaps **Risk** and **Benefits** are also project parameters.

**Parameters** are also referred to as objectives or even constraints.

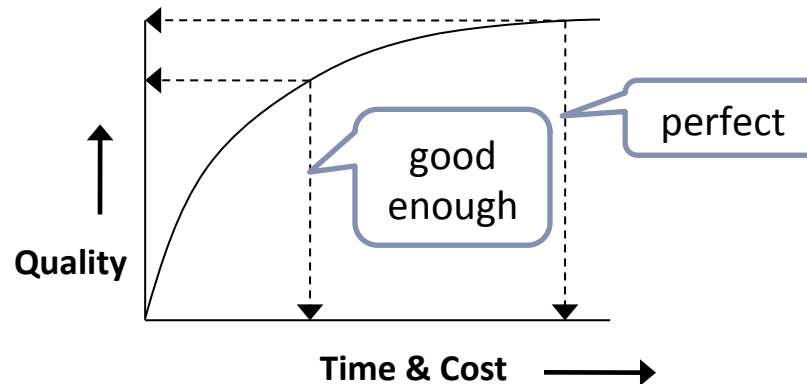


# Parameter Relationships



# Quality Standards

Deliverable quality is prescribed by specifications set by our client/customer.



Specification Types	Example - Quality Grade for a Match	
	Good Enough (Fit for Purpose)	Perfect (Gold-plated)
Design	<i>Match to be 9-10 cm long.</i>	<i>Match to be 9 cm long.</i>
Performance	<i>Match to burn for 8-12 seconds.</i>	<i>Match to burn for 10 seconds.</i>
Functional	<i>Match to light birthday cake candles.</i>	<i>Match to light all candle types.</i>

# Quality – Compliance with Specifications

- Where performance would not be adversely affected, use off-the-shelf components rather than one-off specially manufactured items to save cost, reduce lead-times and help ensure future availability.
- Where possible specify with figures in preference to adjectives and adverbs – that is, be precise and measurable:

*Rather than “light” better to state “not more than 10 grams.”*

*Rather than “quickly” better to state “not less than 10 kilometres per hour.”*

- Where performance would not be adversely affected, to help minimise cost and time, provide a range rather than a single figure – that is, allow some latitude or tolerance:

*Rather than “100 grams” better to state “95 – 105 grams.”*

*Rather than “50 metres per second” better to state “45 – 55 metres per second.”*

# Prioritising Project Parameters

Consider the extra Eden Park 3,000 temporary seating project needed to be completed for the 2011 Rugby World Cup tournament:

Rank	Score	Parameter	Cost	Quality	Time	Scope
2nd	2	Scope	S	S	T	
1st	3	Time	T	T		
4th	0	Quality	\$			
3rd	1	Cost				

Some project parameters are usually more important than others. If all parameters are non-negotiable the project is over-constrained.

The project 'driver' is the top parameter. Knowing the driver helps us better manage our project through appropriate work package sizing, trade-offs and prioritising risks. We should agree parameter priorities with our client and/or sponsor.

# Whole-of-Life Costs and Benefits

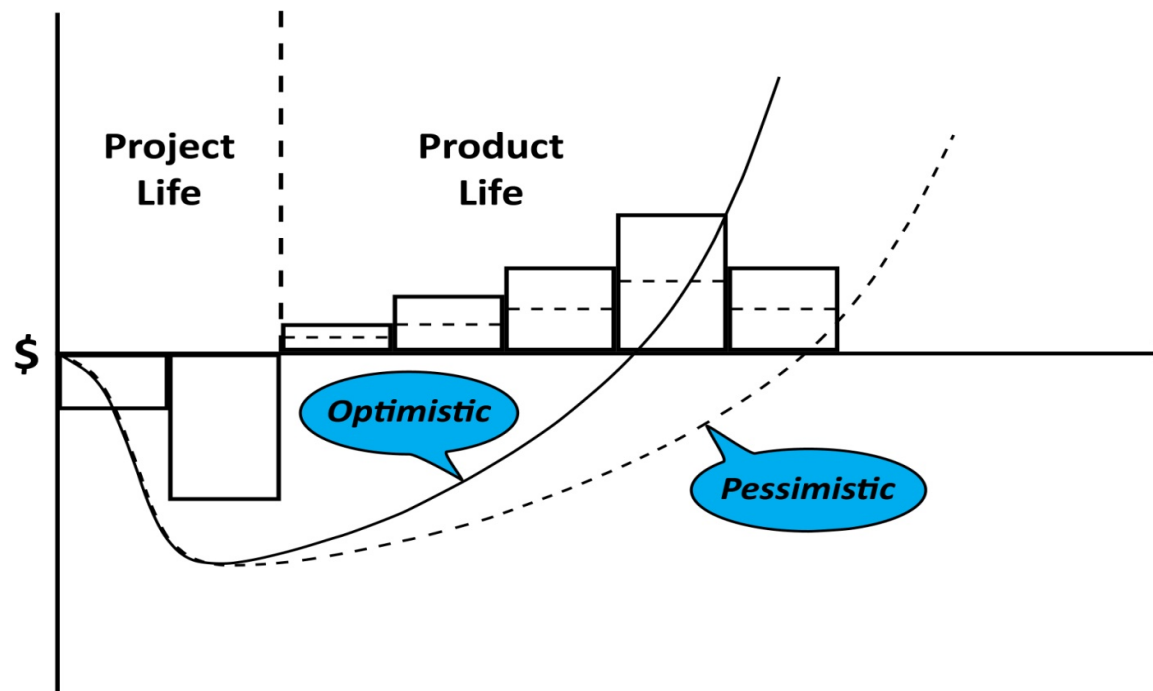
- Tangible (quantifiable) and intangible (qualitative)
- Immediate, intermediate and longer-term
- Direct and indirect
- Likely and less likely (business risk)



$$\text{Value} = \text{Benefits} - \text{Costs}$$

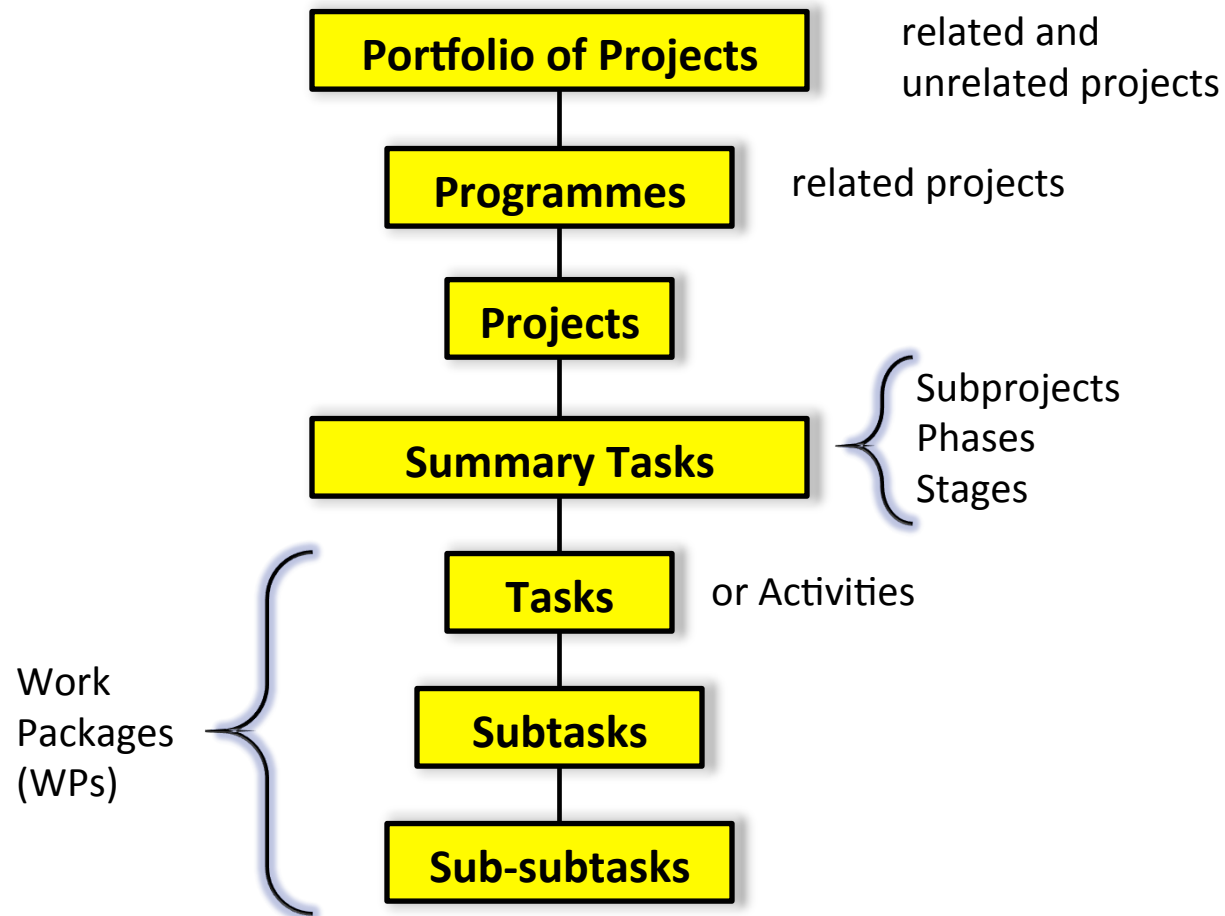
# Probabilistic Cash Flows

In this example, the breakeven point might be say three years after product launch (best case scenario) or up to five years (worse case scenario) depending on project management proficiency, market circumstances and NPV discount rates.





# Hierarchy of Project Work



# Some Project Management Challenges

- Unrealistic or poorly defined goal, parameters and assumptions
- Demanding stakeholders
- Client /customer uncertainty
- High risk endeavour
- Plenty of issues (actual problems)
- Scope creep (or gallop!)
- Unrealistic estimates
- Variations (authorised changes)
- Variance (actual versus planned performance)

# More Challenges!



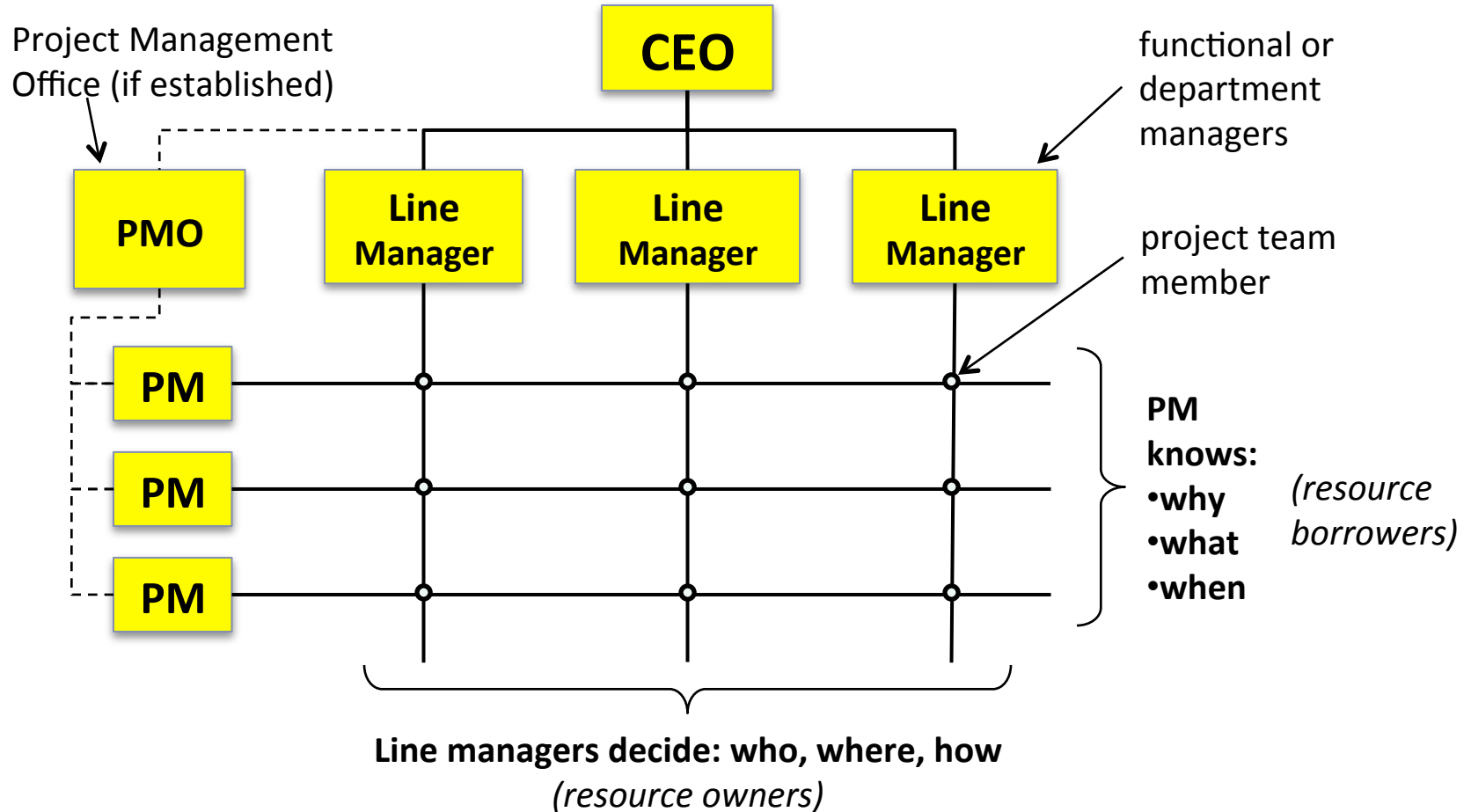
- Unhelpful organisation culture / values
- Funding and resource shortfalls
- Miscommunications
- Lack of formal authority
- Project given low priority
- Inexperienced team and poor teamwork
- Business-as-usual work continues or has priority
- Hidden agendas
- Inert governance
- External constraints beyond our control

# External “PESTLEC” Constraints

P	Politics
E	Economics
S	Social & cultural
T	Technology
L	Legislation
E	Environment & sustainability
C	Competition


# Matrix Organisation

## Project Responsibilities

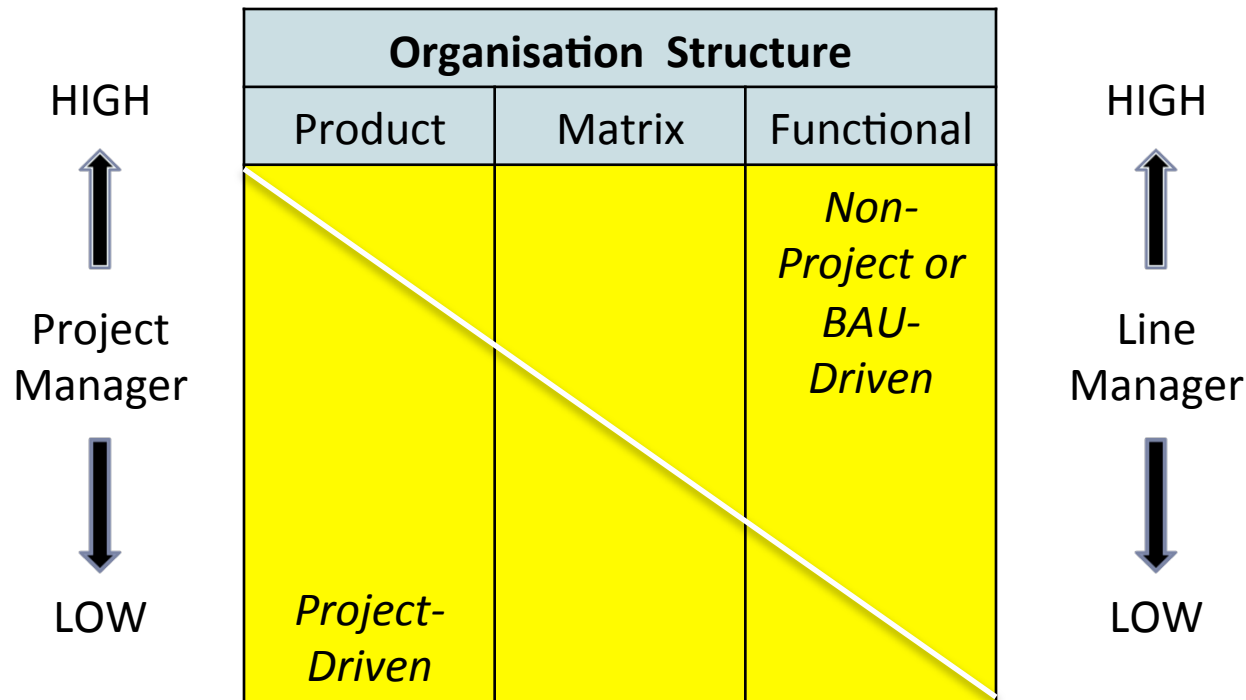


# Four As of Performance

**Altitude = Aptitude + Attitude (+ Availability)**

		Aptitude	
		High	Low
Attitude	Good	 <i>(empower)</i>	<b>coach</b> <i>(educate)</i>
	Bad	<b>counsel</b> <i>(encourage)</i>	<b>FIFO</b> <i>(eradicate)</i>

# Influence and Authority



Line Managers = Functional Managers = Resource Managers

If project work exceeds BAU work, then functional departments exist primarily to resource projects.

# Line Managers



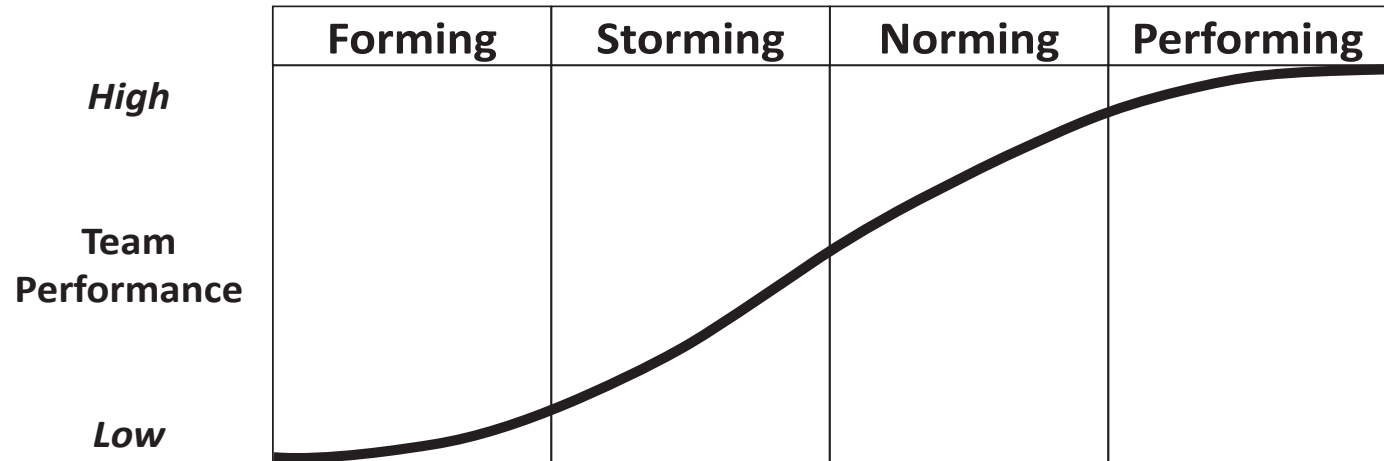
The PM has the right to request specific HR resources, but the final decision typically rests with the line managers because:

- They also need to resource business-as-usual work and other projects
- All requests for resources from project managers are 'top priority'
- Project priorities and plans are liable to change
- Even after resources are assigned resources cannot be guaranteed.

Empathy for the line manager's situation should help ensure realistic requests, more effective communication, and less conflict. Also, to have buy-in, functional managers need to know how the project will benefit their business units, and their support should be recognised as part of their regular performance appraisal.



# Project Team Performance



This classic team-building process may be at risk when members:

- have hidden agendas and different motivations
- lack social skills (emotional intelligence)
- are not always available (BAU commitments)
- are not needed at the same time (work schedule)
- are geographically dispersed (distances and time zones).

# Key Project Stakeholders

**Client** – owns project (might also be the customer)

**Customer** – uses project deliverables

**Sponsor** – works for the business, owns and updates project business case, ensures timely project funding, removes obstacles to project manager's success, and chairs the project steering committee if established

**Project Manager** – works for the sponsor, leads project team and manages stakeholders and project through its lifecycle to produce final deliverable(s) within specified parameters

**Line Manager** – provides resources and may manage project deliverable(s)

**Steering Committee** – if established, provides support and guidance

**Performing Organisation** – provides the people who do the work

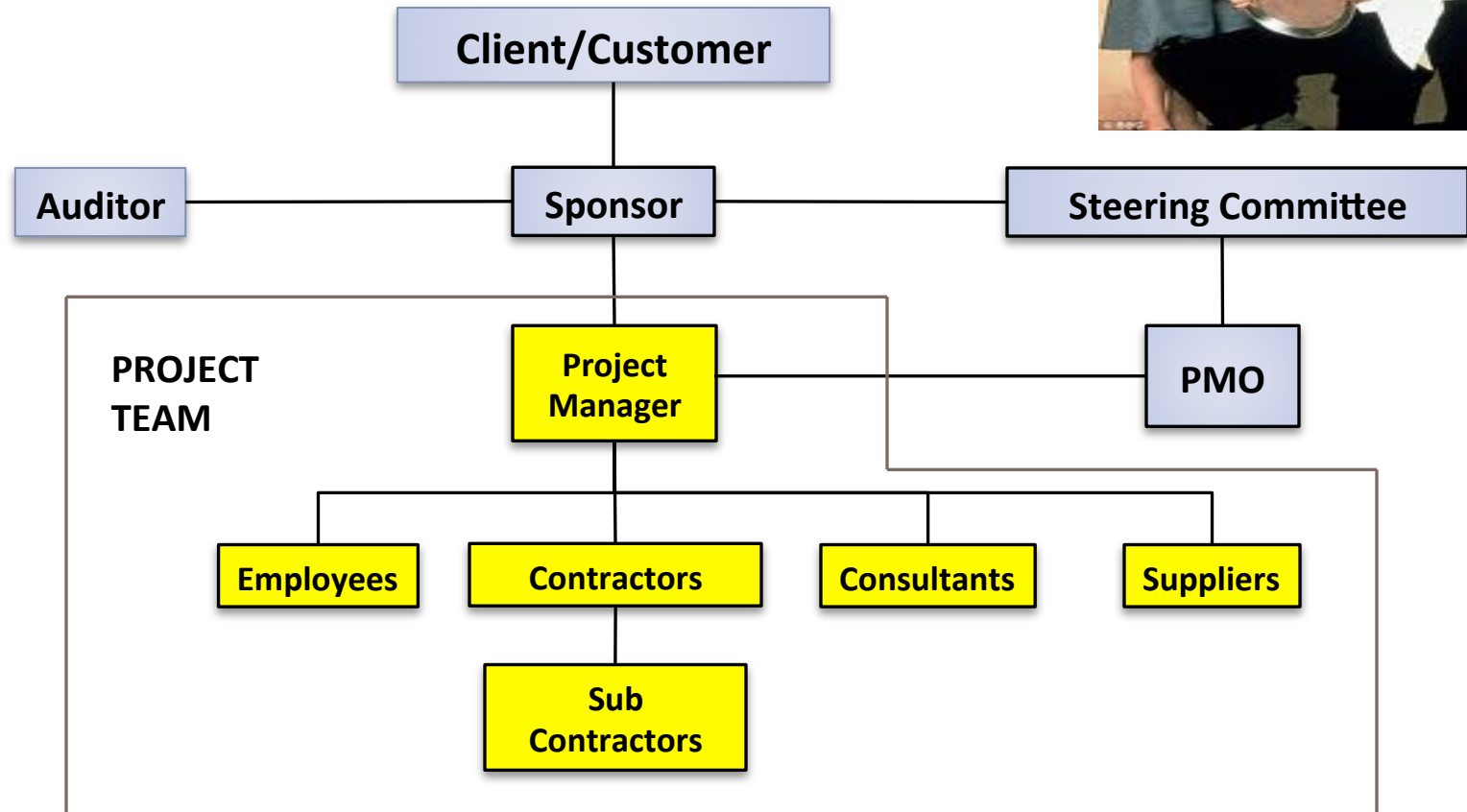
# Jobs in a word...

**PEOPLE** ➡ **JOBS**



Project Manager	Drives
Project Team	Delivers
Project Sponsor	Funds
Steering Committee	Directs
Project Auditor	Reviews
Project Consultant	Advises
Client	Owns
Customer	Uses

# Project Organisation



# Project Sponsor's Job

*There is no standard job description, but typically they:*

- authorise and champion the project
- approve the business case and changes to it
- appoint the project manager
- provide higher-level direction
- chair the project steering committee
- approve project charter, plan, big variations and final report
- ensure resources are available
- resolve escalated issues
- monitor project progress
- ensure benefits are realised.

# Project Manager's Job

**While there's no standard job description, the following are usually applicable:**

- help the sponsor prepare project business case
- prepare the project charter or assist sponsor to do so
- be accountable to sponsor, client and other stakeholders for project success
- define project scope with the client – inclusions and exclusions
- recruit team members
- lead project team
- manage external contracts and contractors
- negotiate resource needs
- prepare project plan or lead its preparation
- assemble project team, with agreement of line managers, and enable their performance

# Project Manager's Job cont'd...

- define responsibilities and performance targets for each team member
- arrange project procurement contracts
- regularly communicate with stakeholders
- regularly assess client's satisfaction
- continuously identify and manage risk
- regularly monitor and manage project progress
- resolve or escalate project issues
- manage project scope and control any changes (variations)
- make adjustments necessary to achieve time, cost and quality objectives (re-baselining)
- manage cashflow and budget

# Phew - even more!

- maintain project files
- monitor and control project risk and issue logs
- produces the project deliverable(s) on time, to budget, and to agreed quality standards
- periodically report project status to key stakeholders
- manage project closure
- inform line managers about team members' performance
- arrange for approval of project deliverable(s)
- prepare a post-project evaluation report that includes lessons learned
- may participate in benefits realisation reviews (product evaluation).



*So you're a plain-talker, even-tempered, risk-averter, obstacle-remover, bottom-line focussed, morale-building team leader.*



# PM Leadership Role



Leadership and management skills are essential for our success as project managers. We are both leaders and managers. As project team leaders we need to:

- Have a positive “can do” attitude
- Be honest, fair, flexible, competent and an inspiration to our project team
- Develop rapport with team members and be effective motivators and team-builders
- Provide guidance, enable team member’s success, bring out their best and be a trusted and reliable source of information about the project
- Be open-minded and encourage open communications and provide a receptive ear to people with problems.



# Project Management Office

Larger organisations that manage plenty of projects such as city councils may establish a project management office responsible for such things as:

- Developing and own the organisation's project management methodology.
- Coordinating major projects and their resourcing across the organisation.
- Disseminating best practice and provide project management training.
- Maintaining a pool of trained project managers.
- Maintaining a project database and files.
- Arranging project auditing.
- Providing secretariate services for project steering committees.

# Project Team Members



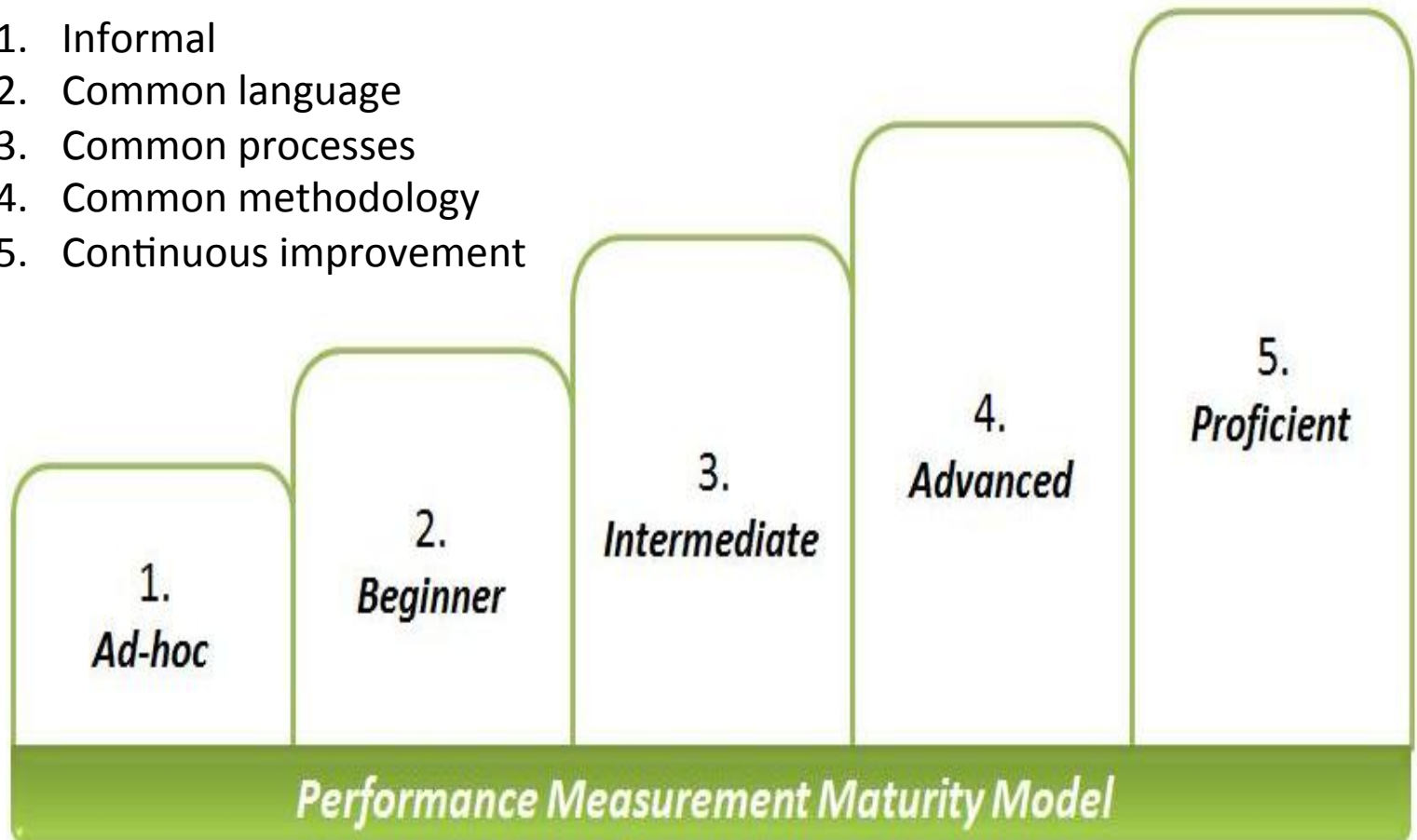
Team members include employees, contractors, consultants and suppliers who are typically responsible to the project manager to:

- Assist with project planning.
- Complete assigned work packages on time, within budget and to required standards of quality.
- Manage health and safety, risks and issues associated with their work packages and regularly report progress.
- Work cooperatively with all other project team members.

*Together Each Achieves More*

# Project Management Maturity Model

1. Informal
2. Common language
3. Common processes
4. Common methodology
5. Continuous improvement



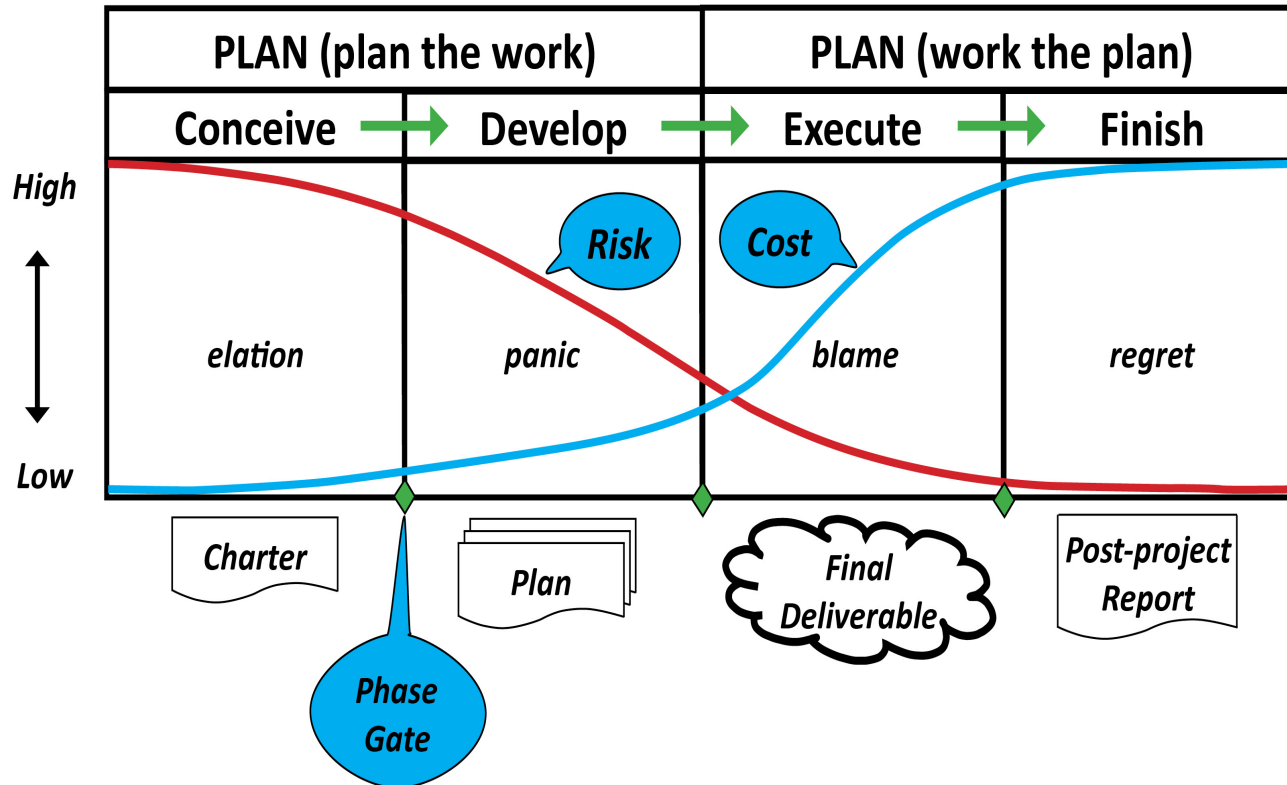
# Project Management Methodology Components

4P<sub>s</sub>



- **processes** (*sequential steps*)
- **principles** (*universal truths*)
- **proforma** (*templates and checklists*)
- **plus a glossary** (*definitions*)

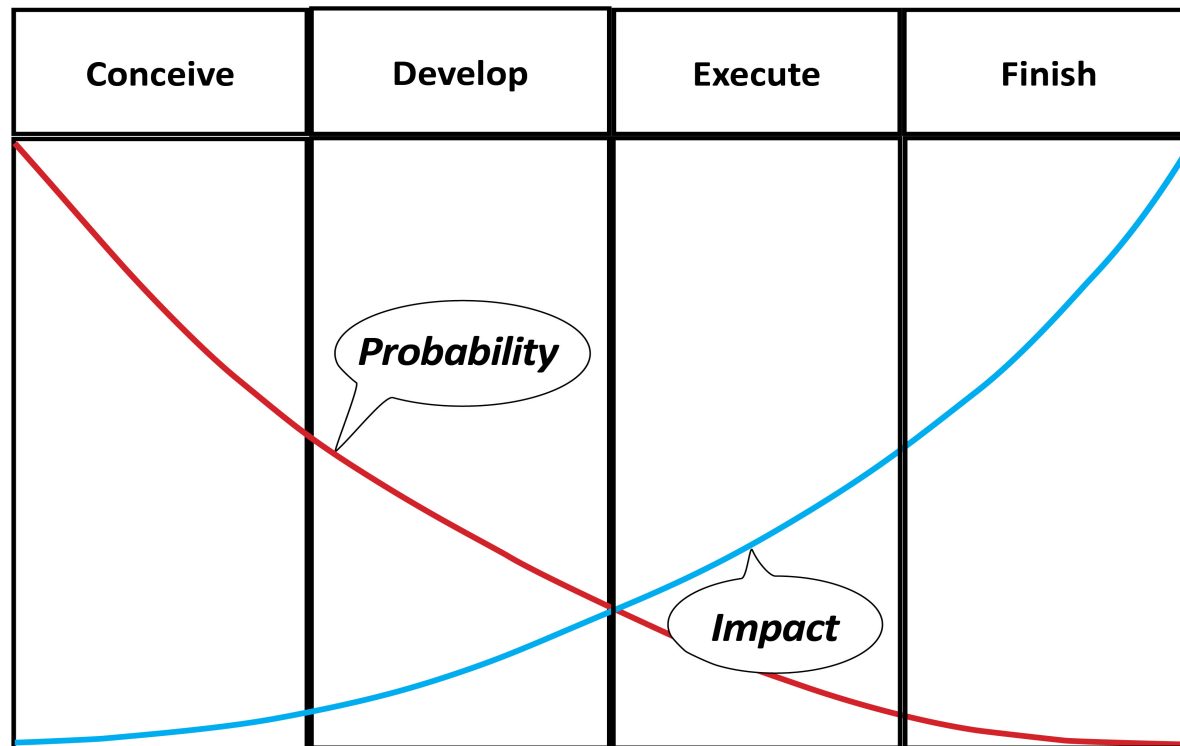
# PROJECT LIFE CYCLE



CDEF phases may be overlapped and/or compressed. it's important that we have a single owner for our methodology to avoid continuous local 'improvements'. The framework owner is often the Project Management Office (PMO) if established, otherwise a functional department, but not necessarily IT.

# PROJECT LIFECYCLE AND RISK COMPONENTS

Risk probability or likelihood diminishes as a project proceeds, but as the investment in the project increases so does the impact or consequence of risk.



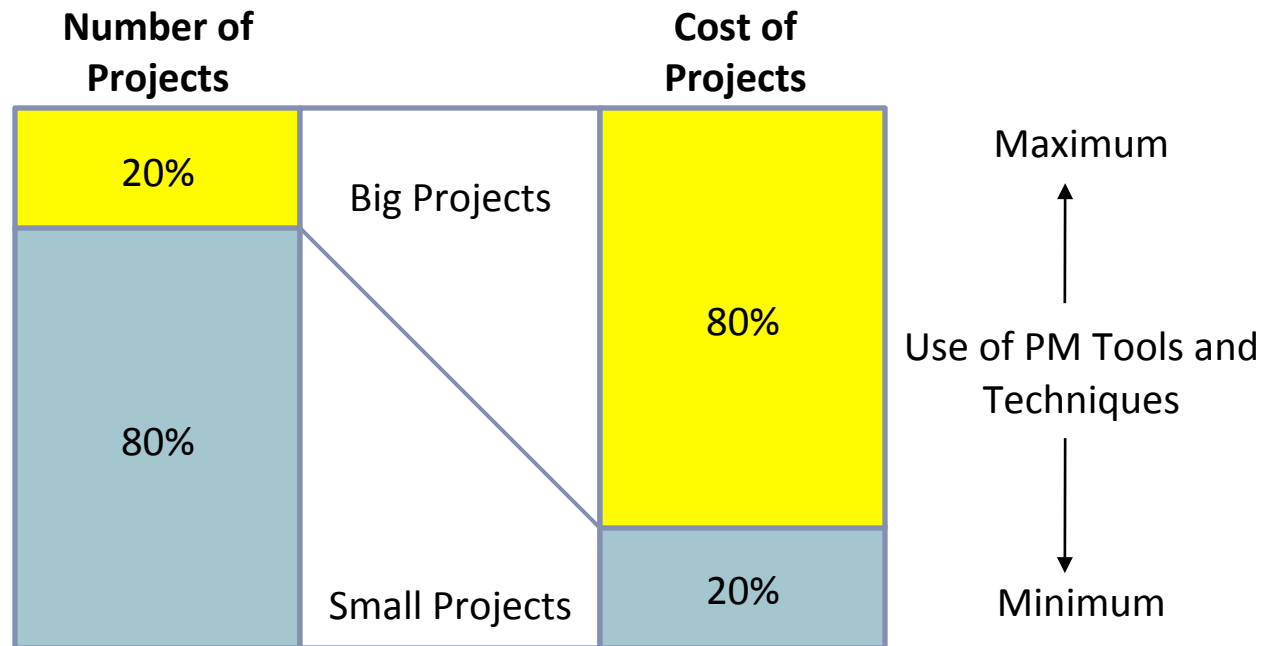
# Why have a standard framework?

1. A common language helps ensure effective communication.
2. Helps manage risk, and ensures everything is done and in right sequence.
3. Reduces learning time and guides newcomers.
4. Limits procrastination/complacency.
5. Ensures measurable progress and a predictable output (deliverable).
6. Enables comparisons/bench-marking.
7. Impress client and other stakeholders.
8. Provides a basis for improvement.



# Framework Application

The framework phases and steps are relevant to all projects, although for small projects these steps might require very little effort or any serious use of project management tools. And while multi-million dollar, five year projects capture public attention, most projects are small. Thus the use and resultant value of the various specialised project management tools and techniques at each step will depend largely on the project's size and complexity.



# Project Management Principles

**While these may not guarantee success, we ignore them at our peril:**

1. Develop a solid business case that justifies the investment.
2. Have sound governance that provides clear direction and support.
3. Clearly define the project deliverable(s) and negotiate realistic objectives (scope, time, cost and quality)
4. Involve and communicate with key stakeholders early and often.
5. Apply a disciplined approach from project conception to finish.
6. Pre-empt problems and address issues promptly.
7. Break projects into manageable chunks.
8. Delegate what we don't need to do personally, remove obstacles to team success, and recognise their good performance.
9. Check progress regularly and take timely corrective action.
10. Remember the importance of effective change management to help ensure project benefits are realised.

# PM's Sources of Influence

## De Jure (legal)

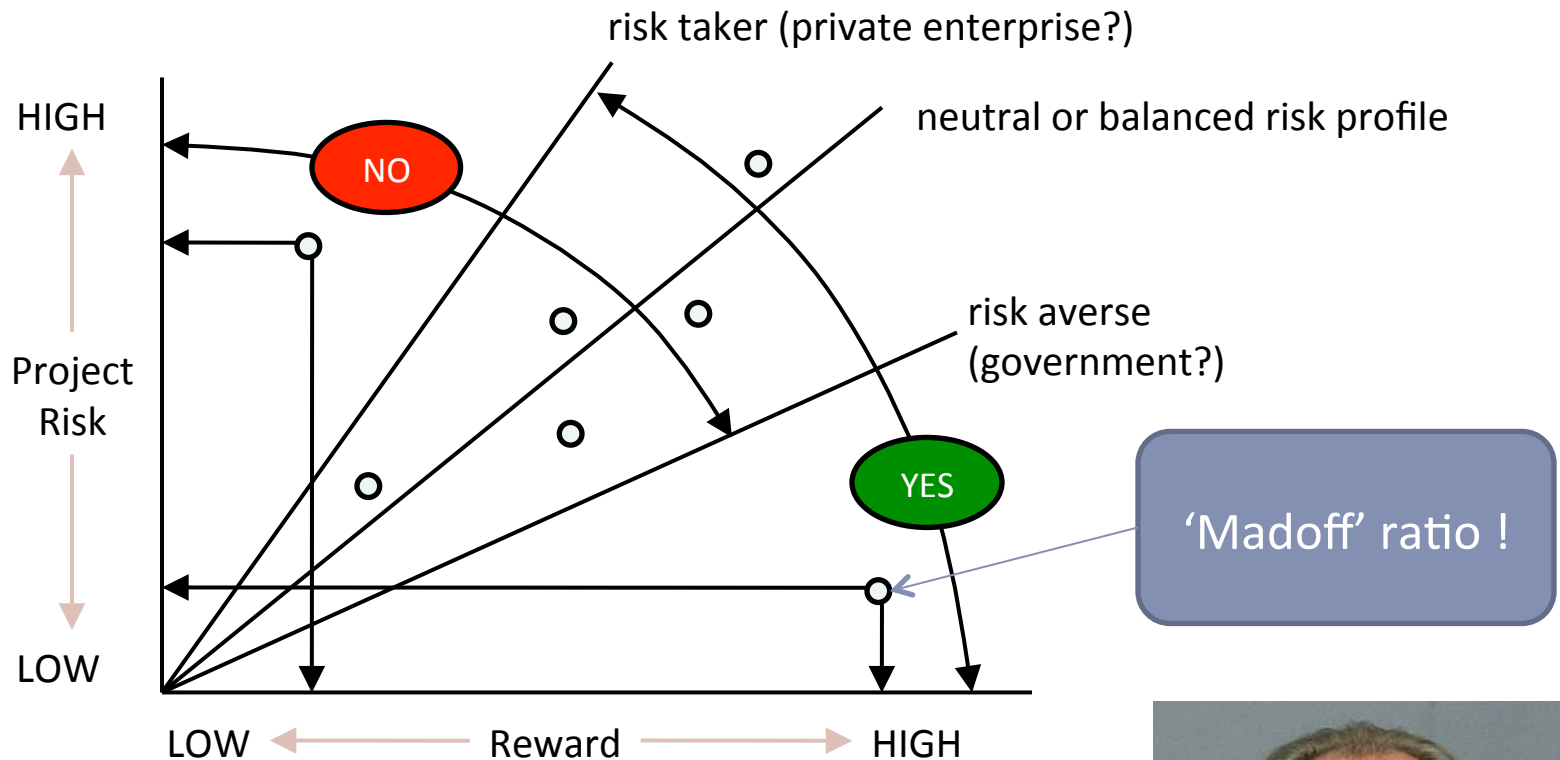
- Legitimate formal authority conferred by the project charter
- Ability to report and reward performance
- Ability to punish or remove privileges

## De Facto (earned)

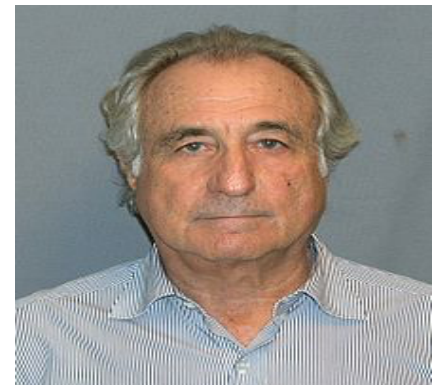
- Personal appeal – mana, charisma, trust, honesty, loyalty, interest...
- Social capital/personal relationships
- Expert knowledge, skills and a history of success
- Access to useful information
- Referent authority – identifies with powerful supporters

*(Alternatively, sometimes expressed as “POWER”, where the letters stand for Personality, Official, Whip, Expertise and Referent.)*

# Project Risk/Reward Profiles



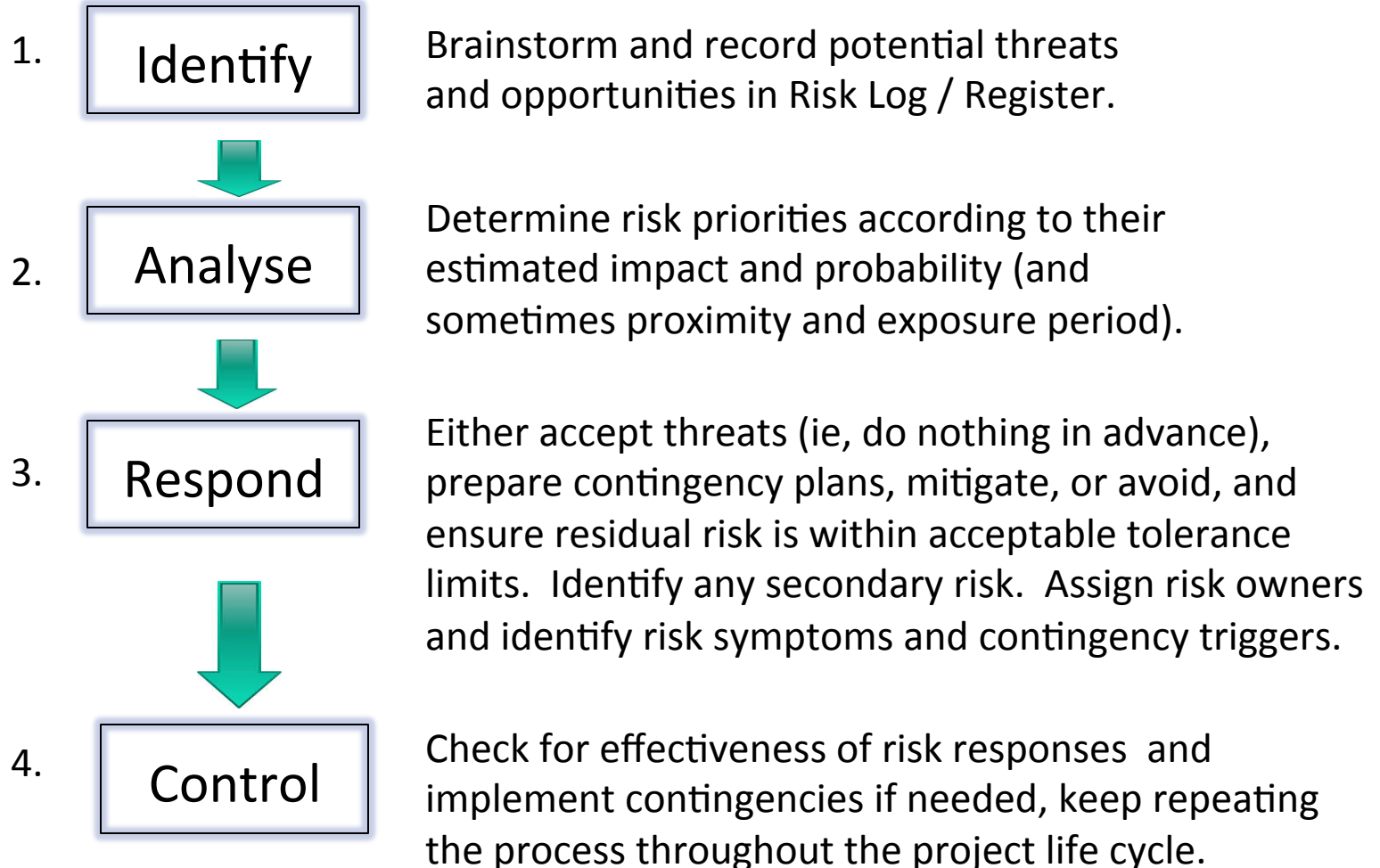
Currently serving 150 years for world's biggest ponzi scheme In which clients lost \$65 billion.



# Responding to and Controlling Risks

- Risks are about uncertainties, which range from threats to opportunities that we avoid, transfer, mitigate, accept (with or without a contingency response), or enhance, share, exploit.
- Due largely to new technology, complex functionality, variations, competitive pricing, ambitious deadlines and speed to market pressures there is usually much more to go accidentally wrong than accidentally right.
- We monitor and control to check for new risks, residual risks and secondary risks. And if existing risks are still active they need to be periodically reassessed.
- Contingency plans are launched when trigger points are reached. Fall-back plans are launched should contingency plans fail.

# Basic Risk Management Process



# Risk Log or Register

This is the key risk management tool usually in excel spreadsheet form, the contents of which might include any or all of the following column headings:

- Risk ID
- WBS Reference
- Threat or Opportunity
- Risk Description
- Risk Type or Category
- Date Identified and By Whom
- Parameter(s) Impacted
- Untreated Probability
- Untreated Impact (cost and time)
- Risk Rating, Score or EMV
- Type or Category of Response
- Description of Response
- Risk Trigger
- Residual Impact (cost and time)
- Residual Probability
- Residual Rating or Score
- Risk Owner
- Risk Review (date and status)

*Only one risk log for each project, it should be readily accessible, each risk is entered as a new line item, and secondary risks are included as new risks.*

# Qualitative Risk Analysis

		Impact		
		H	M	L
Probability	H	1	3	6
	M	2	5	8
	L	4	7	9

The matrix might have more divisions. 5 x 5 is common, whereas any more divisions suggests unrealistic precision.



# Threat Response Options

Risk Priority	Basic Responses
7, 8, 9	Accept risk
4, 5, 6	Prepare contingency plan
2, 3	Mitigate or transfer risk
1	Avoid, eliminate or prevent risk

‘Mitigate’ is sometimes described as treat, abate, reduce, counter, contain or minimise. ‘Transfer’ is also referred to as deflect, outsource, spread, shift or share, meaning to contract the risk to another party who is better able and/or motivated to manage it, or taking out insurance or bonding (ie, bank guarantee).

# Qualitative Risk Analysis Matrix

		IMPACT				
		VERY LOW	LOW	MEDIUM	HIGH	VERY HIGH
LIKELIHOOD	VH					
	H					
	M					
	L					
	VL					

# Quantitative Risk Analysis Matrix

*A similar matrix is used for time.*

		COST IMPACT (\$)				
		UNDER 6K	6-10K	11-15K	16-20K	OVER 20K
PROBABILITY (%)	OVER 60					
	45-60					
	30-44					
	15-29					
	0-14					

# Example of Quantitative Impacts

Impact Scale	Time (days)	Cost (\$000)	Quality
Very High	Exceeds 20	Exceeds 200	Functionality reduced by more than 20%
High	11 - 20	101 - 200	Functionality reduced by 11 – 20%
Medium	4 - 10	51 - 100	Functionality reduced by 4 – 11%
Low	1 - 3	10 - 50	Functionality reduced by 1 – 3%
Very low	Less than 1	Less than 10	Functionality reduced by less than 1%

Impact scales need to be set for each project. Quality impact might also be described as conformance with specifications. Functions may be prioritised.

# Risk Responses: Car Accident

Responses reduce or eliminate either risk probability or impact – sometimes both.

Risk Events	Risk Responses	Reduces Probability	Reduces Impact
1. Sickness	Preventative Medication	✓	
2. Injury	Air Bags		✓
	Road Warning Signs	✓	
	Seat Belts		✓
3. Breakdown	Current WOF	✓	
4. Car Damage	Insurance		✓

# Risk Response Summary

## THREATS

- **Avoid** – to prevent or eliminate the risk impact and/or probability.
- **Accept** – to do nothing since the risk is minimal or no other responses are suitable.
- **Transfer** – to shift or share risk responsibility with a third party better able to manage the threat.
- **Mitigate** – to reduce risk impact and/or probability.

## OPPORTUNITIES

- **Exploit** – to aggressively increase the risk impact and/or probability.
- **Accept** – to do nothing since the risk is minimal or no other responses are suitable.
- **Share** – to shift or share risk ownership another party better able to manage the opportunity.
- **Enhance** – to strengthen risk impact and/or opportunity.



# Soft Skills Can be Hard

- **Hard skills** or the science of project management involves a variety of processes, tools and techniques.
- **Soft skills** or the art of project management are those skills necessary for working productively with others.
- **Without people, projects cannot happen.** Thus, soft skills are at least as important as hard skills for our project success.
- **They are complementary skills.** We can't be wholly effective if we are only proficient at scheduling and budgeting. We must also be good at managing people.

# Buy-in Tactics



- Involve team members / engage their line managers
  - Successes - publish and celebrate them
- Get the boss on side early
  - Recognise / reward evidence of buy-in
- Sell personal gain - *WIIFM*
  - Be approachable, welcome ideas and keep everyone regularly updated
- Be positive yourself (but do quickly escalate issues beyond your authority to resolve with your recommendations)
  - Anticipate resistance / prepare for objections / convert or neutralise nay sayers
- Make it fun / enjoyable / interesting

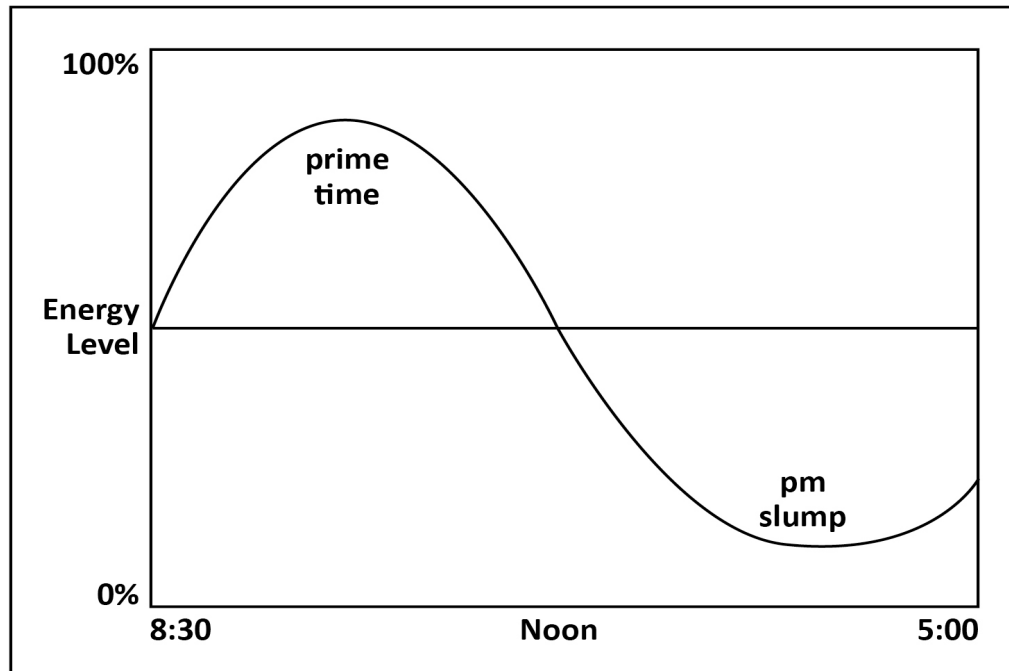


# More Buy-in Tactics

- Explain consequences of project failure!
- Get the boss to sign-off the project charter and distribute it early and widely.
- Manage team's performance and provide positive individual reports.
- Practise one-on-one, day-by-day, feedback and avoid bad surprises.
- Have their line managers relieve them of non-project work or have such work reassigned or postponed.
- Get visible and powerful advocates / supporters / champions and a sponsor who has time available and a high level of organisational influence and interest in our project. At least get a few very vocal supporters to champion your idea.

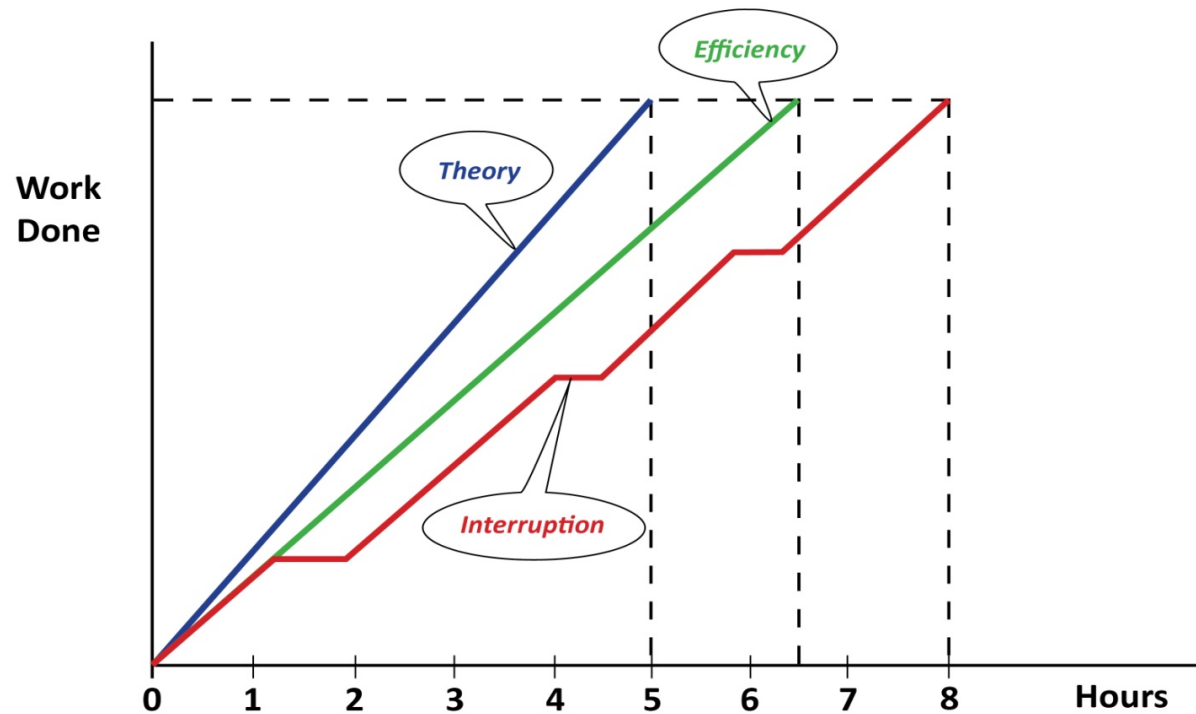
# Prime Time

If you have both project and business-as-usual work, it is usually better to schedule the more demanding project work for that time of day when your energy levels are highest, assuming you have such personal scheduling flexibility.



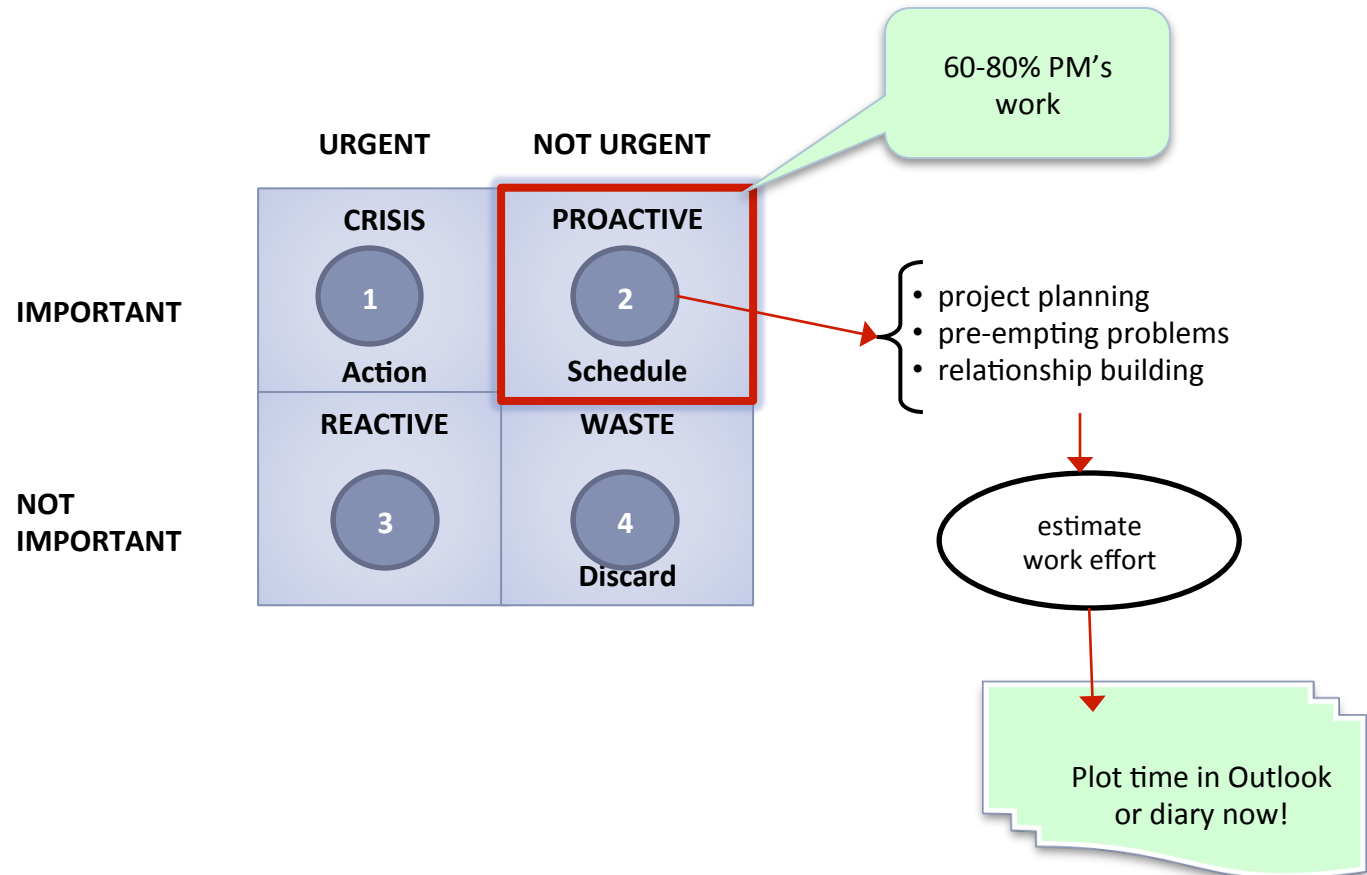
# Individual Productivity

This graph shows that in a typical 8 hour workday we do about 5 hours of productive work. Also, productivity often diminishes as the day proceeds. Thus, if we work part-time on projects, it is better to schedule project work for the morning and BAU work for the afternoon wherever possible.



# Personal Time Management

In his book *“First Things First”* Stephen Covey cites project managers as those who should spend most of their time in Quadrant 2.



# Some Top Motivators



Project managers also need people or “soft” skills to communicate effectively, build teams, delegate, facilitate meetings, negotiate agreements, resolve conflict, motivate team members and so on. Motivated team members are generally more productive. An NZIM survey found the following were the most frequently identified top 10 motivators (not in order):

- Advancement/Promotion
- Challenge
- Development/Learning
- Achievement
- Pay/Financial Reward
- Recognition
- Job Security
- Relationships
- Variety of Work
- Autonomy/Freedom

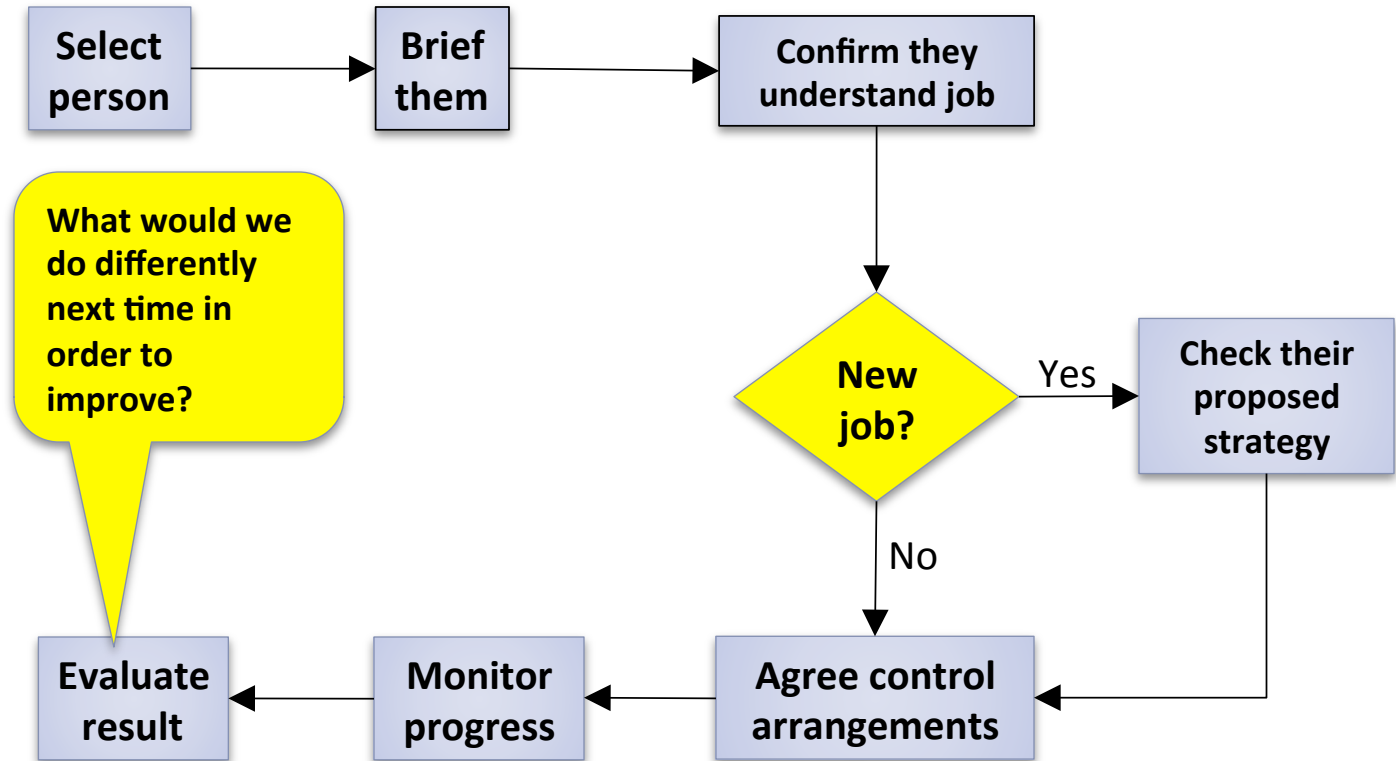
# Work Package Description

A work package (WP) or chunk of delegated or contracted work may be likened to a small project or task that is assigned to a project team member for completion. Its description may include:

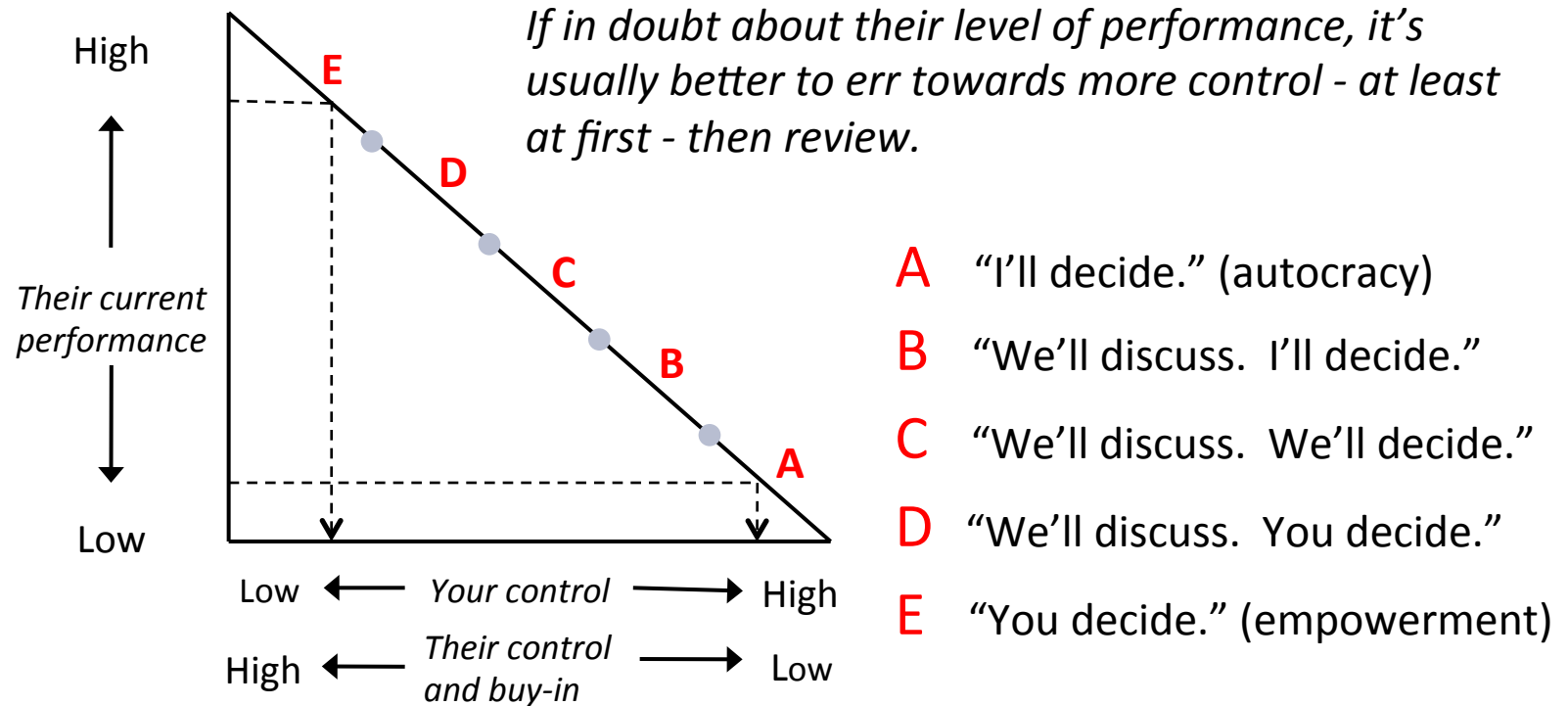
- Task indentifying number.
- Task description.
- Deliverable specification.
- Time and cost constraints.
- Threats and opportunities.
- Meetings, auditing and reporting requirements.

If the work package is outsourced a contractual agreement will normally be required *before* work starts.

# Delegation Process



# Delegation Continuum

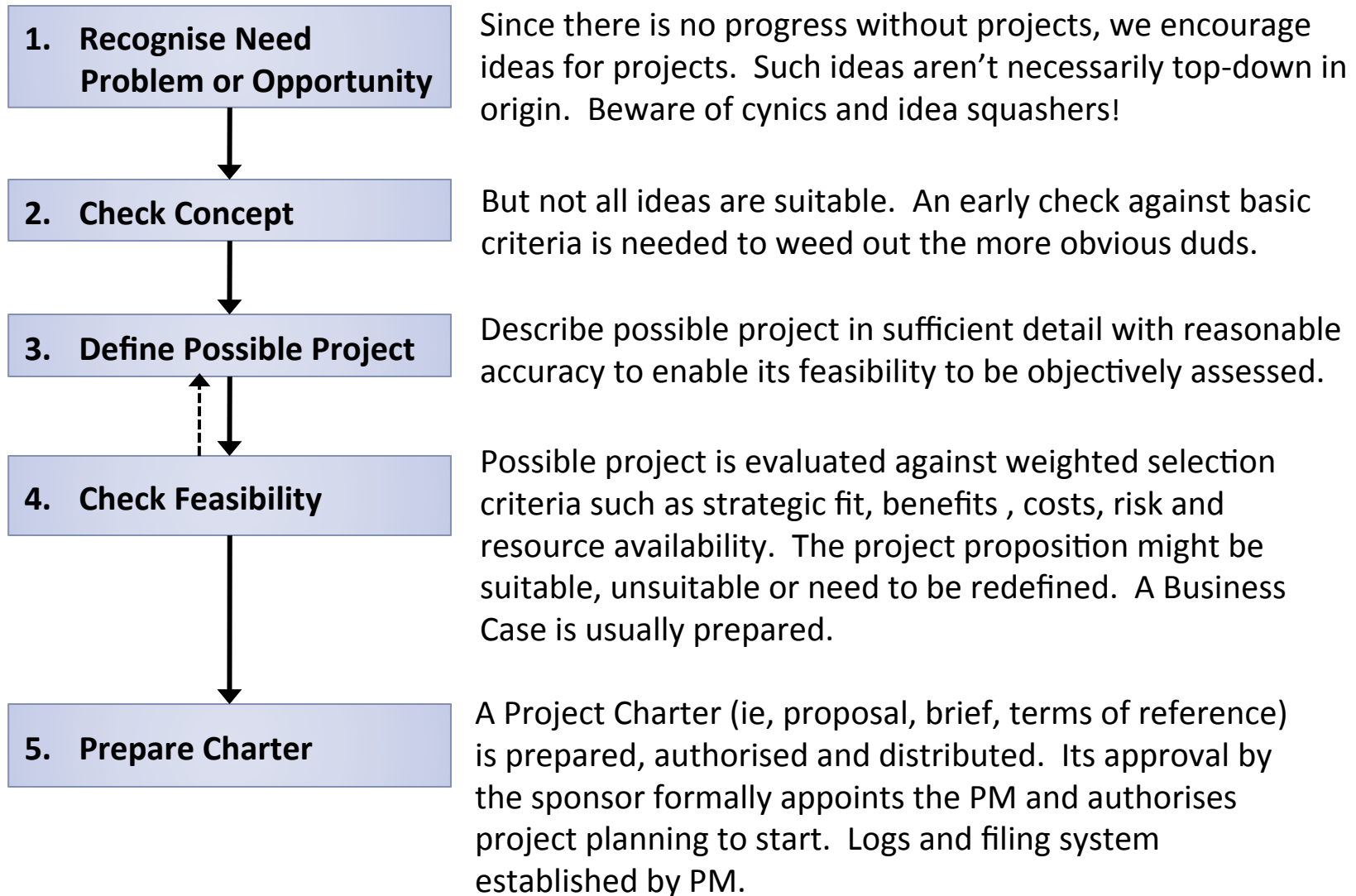




# Wow – Back for More!!

TIME	DAY ONE	DAY TWO	DAY THREE
9:00 10:30	Project management basics	A busy day when we analyse the project conception and development phases, practising various tools and techniques – WBS, estimating, network diagrams, Gantt charts, resource scheduling, pre-empting problems, and trade-off analysis.	Project execution and finish phases.
10:45 12:30	Team project exercise		Team project planning and presentation exercise.
1:15 2:45	Project lifecycle and framework		
3:00 4:30	Essential people skills		Finish-up Administration

# Project Management Conceive Phase



# Benefits of Planning



- Planning ensures we think in detail about what is involved in the project to achieve its goal – planning provides direction.
- Planning as a team creates ‘buy-in’ and gets everyone on the same page – unity of effort.
- Planning allows the team to proactively address risks to eliminate or reduce their likelihood impact on the project – pre-empting obstacles.
- Planning allows for best use of our scarce resources.
- Planning produces a baseline against which progress can be measured and early action taken to correct deviations (variances).
- Planning is a defence against unrealistic deadlines and budget cuts.
- Planning produces a ‘how to’ road map and delegation-size work packages for team members to focus on.

# Project Selection Criteria



Given limited resources we need to evaluate possible projects against weighted selection criteria (attributes), which might include:

- Strategic alignment
- Costs versus benefits
- Risk versus rewards
- Time to breakeven
- Opportunity cost
- Consequences of delay or not commissioning the project
- Technical feasibility
- Availability of resources
- Market demand
- Legislative compliance
- Environmental impact
- Patent, trademark, copyright and intellectual property implications

*You do not need blinding rhetorical skills or charismatic magic to sell a project proposition.*

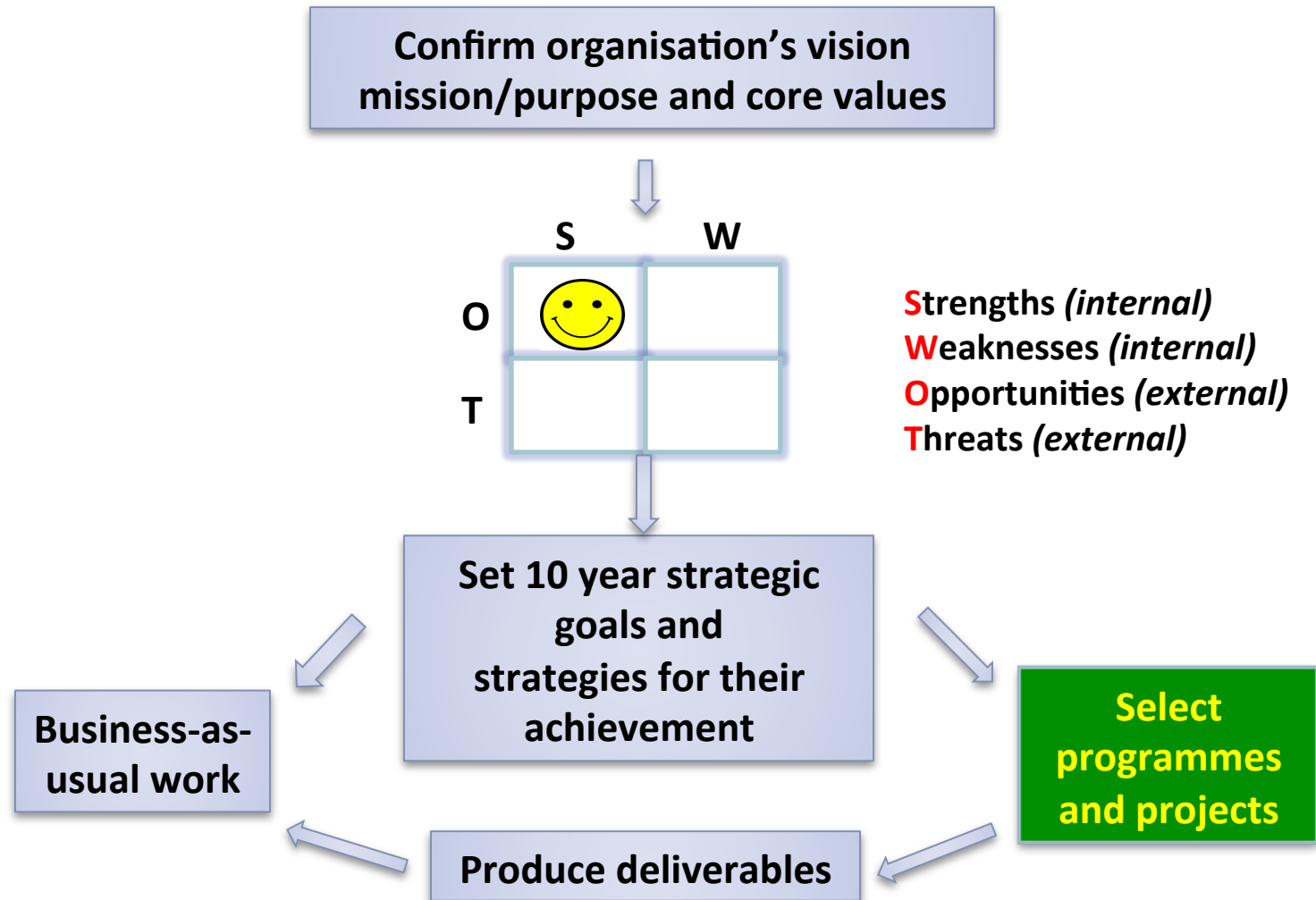
# Environmental Impact



Sustainable development is development that meets the needs of the present without compromising the needs of future generations .

You may have heard about the sustainability Triple Bottom Line (TBL): People, Planet, Profits. Perhaps we should add Projects to this list given that we PMs take ideas to reality.

# Strategic Alignment or Fit



# Decision Matrix

- This tool can be employed whenever we need to choose between or among solution options.
- Acceptable options are evaluated against common (weighted) attributes (criteria).
- We might use this tool when we need to determine which of several projects to proceed with, which tender to select, which solution to implement or any other decision-making occasion.

# Example Decision Matrix

Suppose we need to decide the best project option for decreasing a Pacific Island's reliance on fossil fuels. First the selection attributes (criteria) are identified and prioritised:

Rank	Score	Attributes	4	3	2	1
2nd	2	1. Reliability	4	1	1	
4th	0	2. Noise	4	3		
3rd	1	3. Durability	4			
1st	3	4. Maintainability				



# Example Decision Matrix

Next the prioritised attributes go into a decision matrix. We give each attribute a weight (from say 1 to 10) that represents its relative importance, and then evaluate each option against each attribute, scoring them, where say excellent is 5, satisfactory is 3, and adequate is 1. In this instance Option B scores highest.

Attributes	Weight	Wind	Solar	Hydro
Maintenance	10	X 2 = 20	X 5 = 50	X 3 = 30
Reliability	9	X 3 = 27	x 3 = 27	x 4 = 36
Durability	6	X 3 = 18	X 5 = 30	x 3 = 18
Noise	3	X 1 = 3	X 5 = 15	X 4 = 12
<b>Total Scores</b>		68	122	96
Place		3rd	1st	2nd

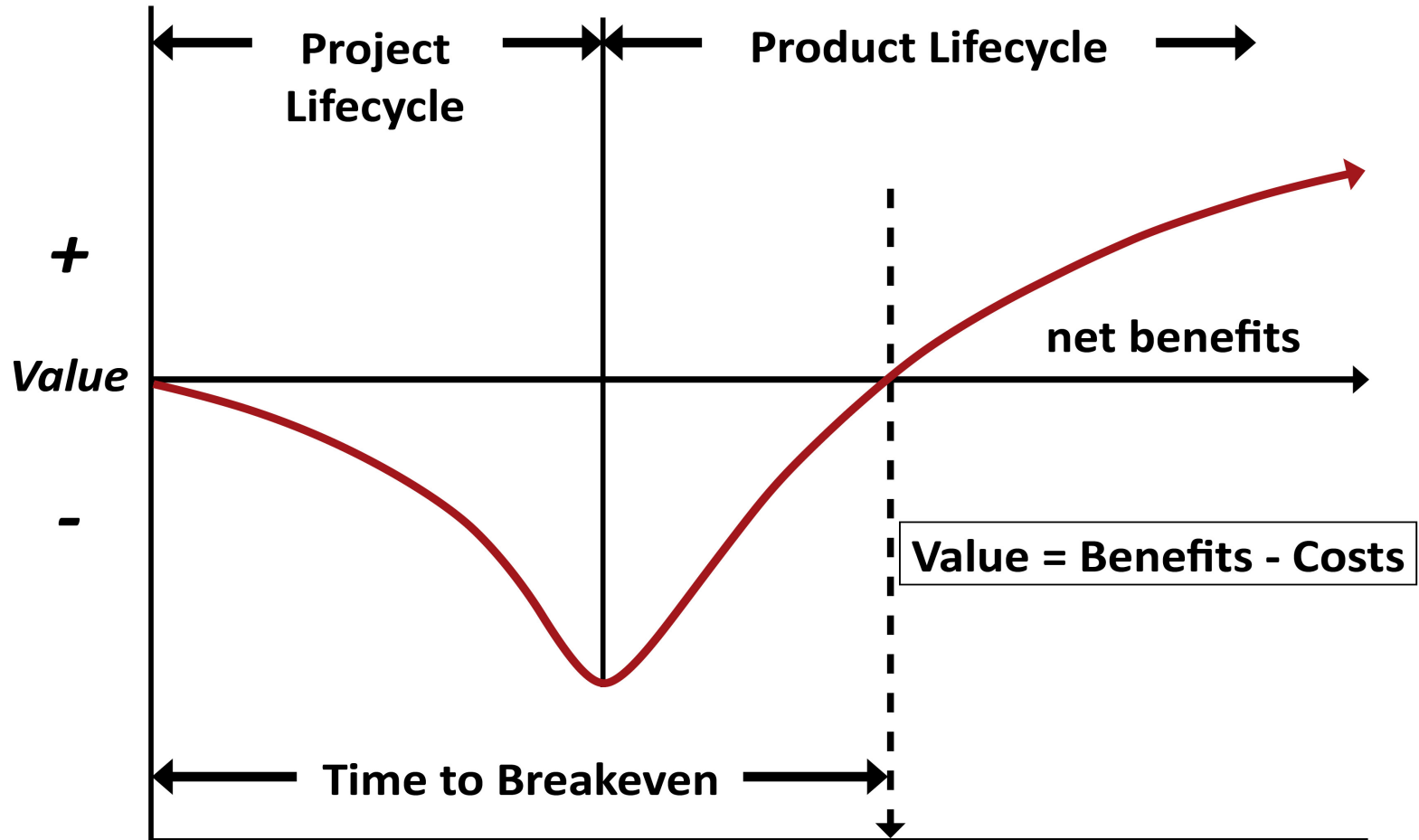
# A Dilbert Moment



If indeed your organisation has no strategic plan, then developing one is your first project.

# Project Cashflow

The reason for any project is to *add value*, which occurs when benefits exceed costs. Some projects take longer than others to break even.



# Project Business Case



The Project Business Case is an important document as it states what the project is intended to achieve. Periodically throughout the life of the project this document is referred to by the sponsor and project manager as a basis for deciding:

- can the business case still be achieved?
- does the business case need updating?
- should the project continue?

# Stakeholder Management

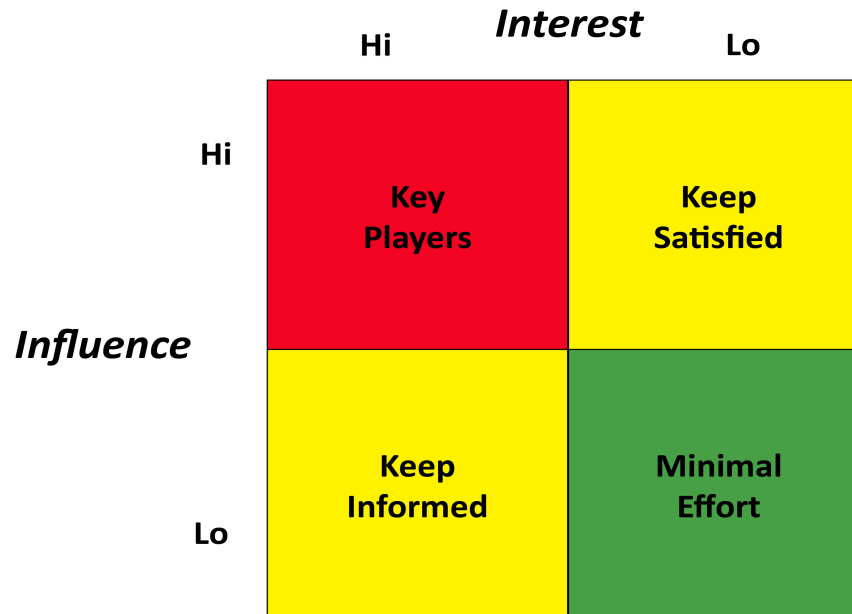
Stakeholders are individuals and organisations involved in the project, or whose interests may be affected as a result of project. They may also exert influence over the project's objectives and outcomes.

We should identify the stakeholders early, determine their requirements and expectations, and, to the extent possible, manage their needs and their input to ensure a successful project.

We need to identify and prioritise stakeholders and focus our attention on the key players at any point in time, where their importance is usually determined by their influence and interest.

# Stakeholder Categories

Success is happy stakeholders. Therefore, we need to identify our stakeholders and even before they know they are stakeholders and open communications with them.



# Project Charter



- A project does not start with planning. It starts during the conception phase. Before funds are committed to planning the project, the project proposition needs to be carefully evaluated.
- While much conception work can happen without the project manager's involvement, the inclusion of the project manager in the process can be immensely beneficial. We will have a much better understanding of the project rationale and expectations. We may also be able to develop a working relationship with key stakeholders and influence initial time and cost estimates.
- If we don't have a project charter, we don't have a project. It's the "contract" between ourselves and our sponsor that gives us authority to proceed. If our project is already underway and we haven't got a charter, prepare it now, have it approved, and give it a wide distribution.
- Remember, it's a "living" document. It may need to be revised as the project proceeds. Version control is therefore important.

# Project Files – Secure and Retrievable

Maintaining information about the project in an organised fashion facilitates new team member transitions, creates a point of reference for those developing project documentation, and provides an audit trail documenting the project. At project end, project files may include items such as:

1. Project business case and project charter
2. Deliverable specifications
3. Project plan and procurement documents
4. Project audit reports, status reports, timesheets (if applicable), and interim and final project reports
5. Stakeholder register, and logs for lessons learned, risk, issues, changes and OSH incidents
6. Photographs and correspondence, including pivotal or decision-making memos, letters, email, etc.
7. Meeting agendas and minutes (action plans)





# Develop Phase

## 6. Identify Work

7. Analyse Work

8. Sequence Work

9. Schedule Work

10. Allocate and Level Resources

11. Prepare Draft Plan

12. Pre-empt Problems

13. Finalise Project Plan

Given an approved project charter, the PM usually holds a project kick-off meeting at which:

1. Project sponsor typically emphasises the project's importance, discusses the charter, planning constraints, authority limits, issue escalation and progress reporting.
2. Project planning team would determine their modus operandi and set their team rules or contract.
3. The planning team brainstorm / mindmap the work to be undertaken to achieve project goal within parameters stated in charter. The result is a Work Breakdown Structure (WBS), which is essentially a family tree of work chunks, each level of breakdown producing smaller chunks (ie, work packages or WPs). Post-it Notes are useful to develop and illustrate this decomposition process. Work chunks are best described in verb-noun format (eg, 'write report', 'dig hole' etc). The resultant WBS elements may then be codified for easy on-going reference.

# Team Contract



## *We will:*

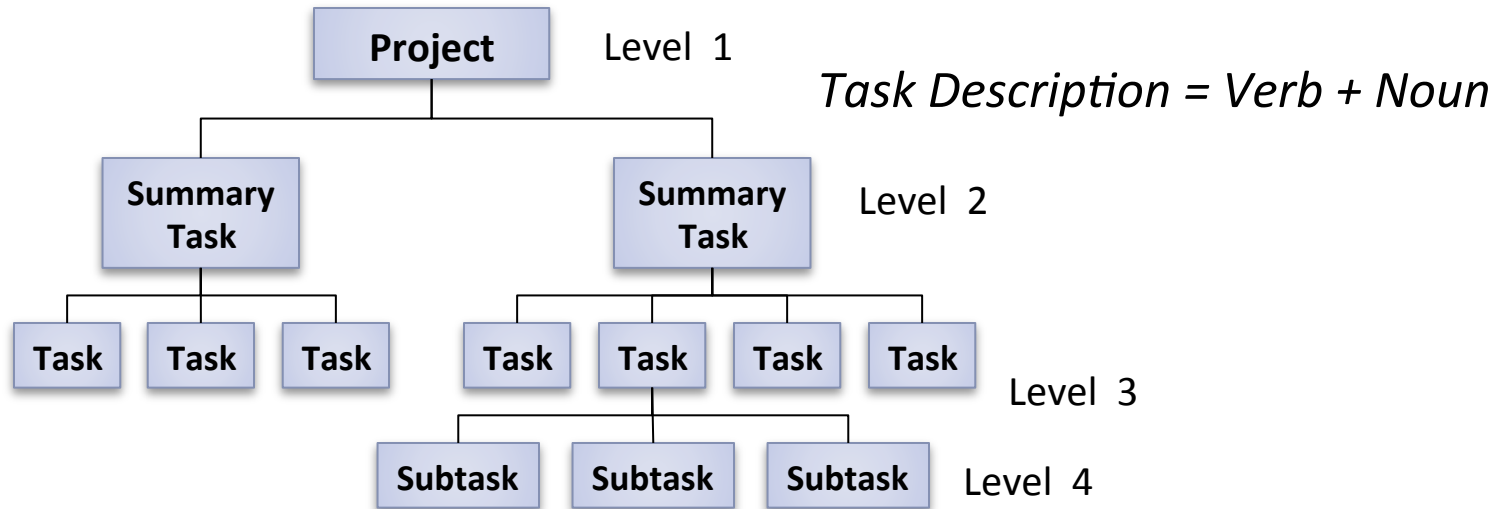
- *be punctual and properly prepared for all meetings*
- *be open and honest with each other*
- *decide as a team about best way to communicate, keep each other informed and resolve conflict*
- *focus on problem solving; not blaming*
- *use only constructive criticism*
- *practise participatory planning, problem solving and decision-making.*

In addition the team might complete a Motivation Audit, a Belbin Team Roles assessment, and/or a Myers-Briggs Personality quiz.

# Work Breakdown Structure (WBS)

- A WBS is the decomposition of the work to be performed on the project. It takes the project scope and translates that into a hierarchy of tasks (also referred to as activities) that need to be undertaken to create that scope. In effect these tasks are each smaller projects any of which might be outsourced.
- For costing purposes the WBS also needs to include project management activities such as teambuilding, training, travel, administration, planning sessions, meetings, reporting etc all of which incur a cost. Sometimes we simply add a percentage, say 10%, to the project budget to cover such project management overheads.
- The WBS is a useful brainstorming tool and a key document that becomes the basis for determining resource needs, estimating costs and scheduling the work.

# Work Breakdown Structure (WBS)



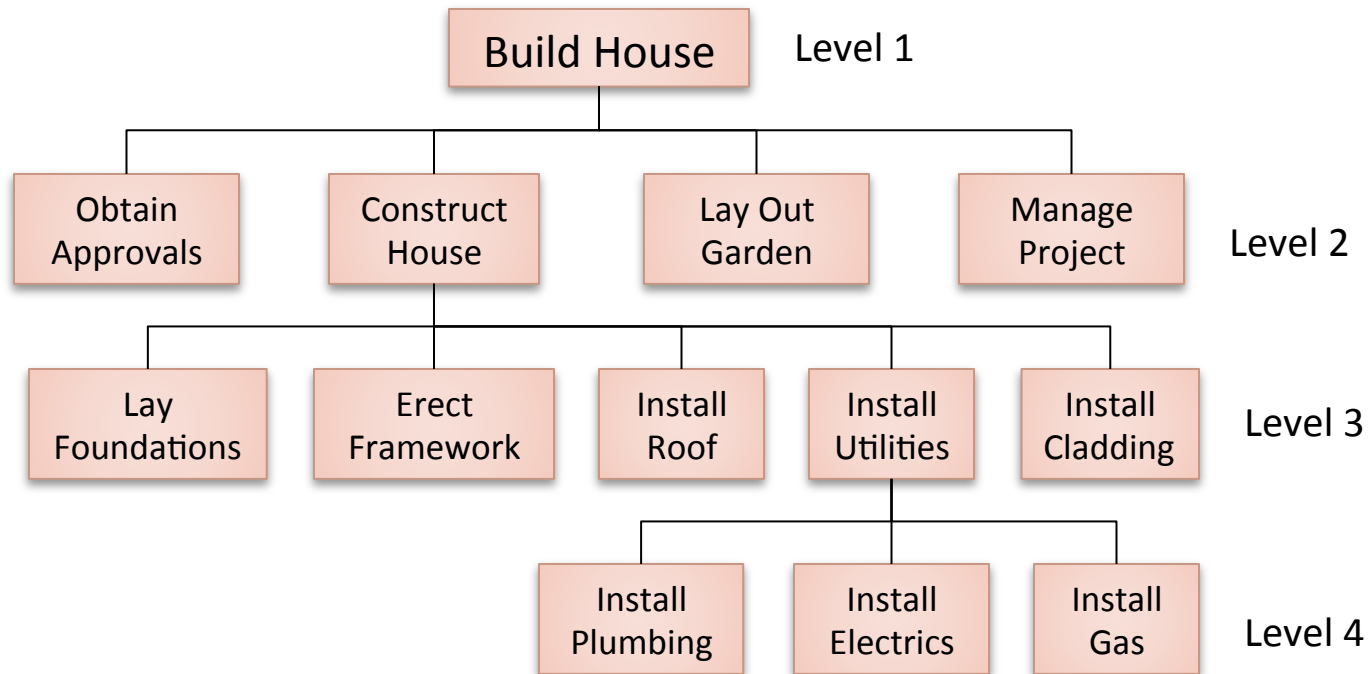
## Why break down work?

- to further describe work scope and enable layered planning and more accurate estimating
- to isolate risky work for special attention
- to enable work package (WP) assignments
- to measure progress by work packages
- to codify work packages for easy reference

## How far do we break down work?

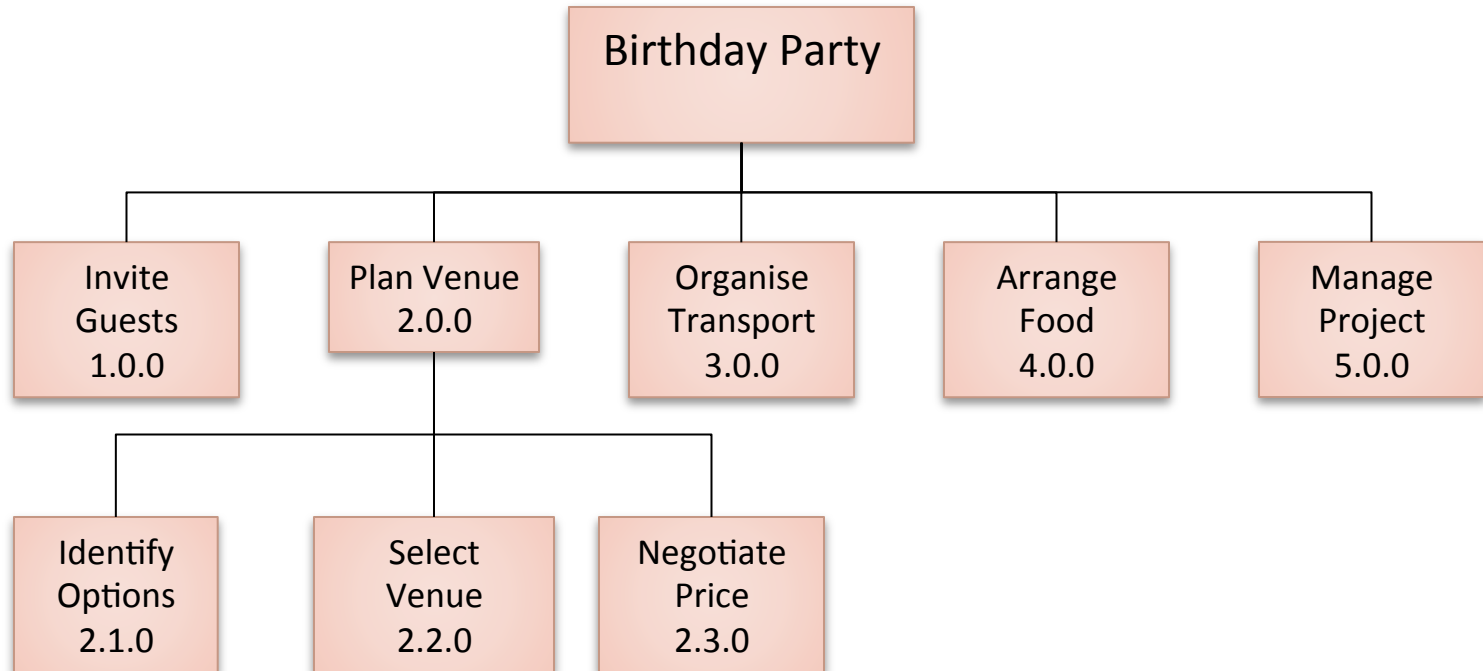
- depends on project size – large, medium, small
- previously assigned milestones
- until clearly defined delegation-size work chunks emerge (not further at project level)
- until WP time or cost limits reached

# Example Work Breakdown Structure



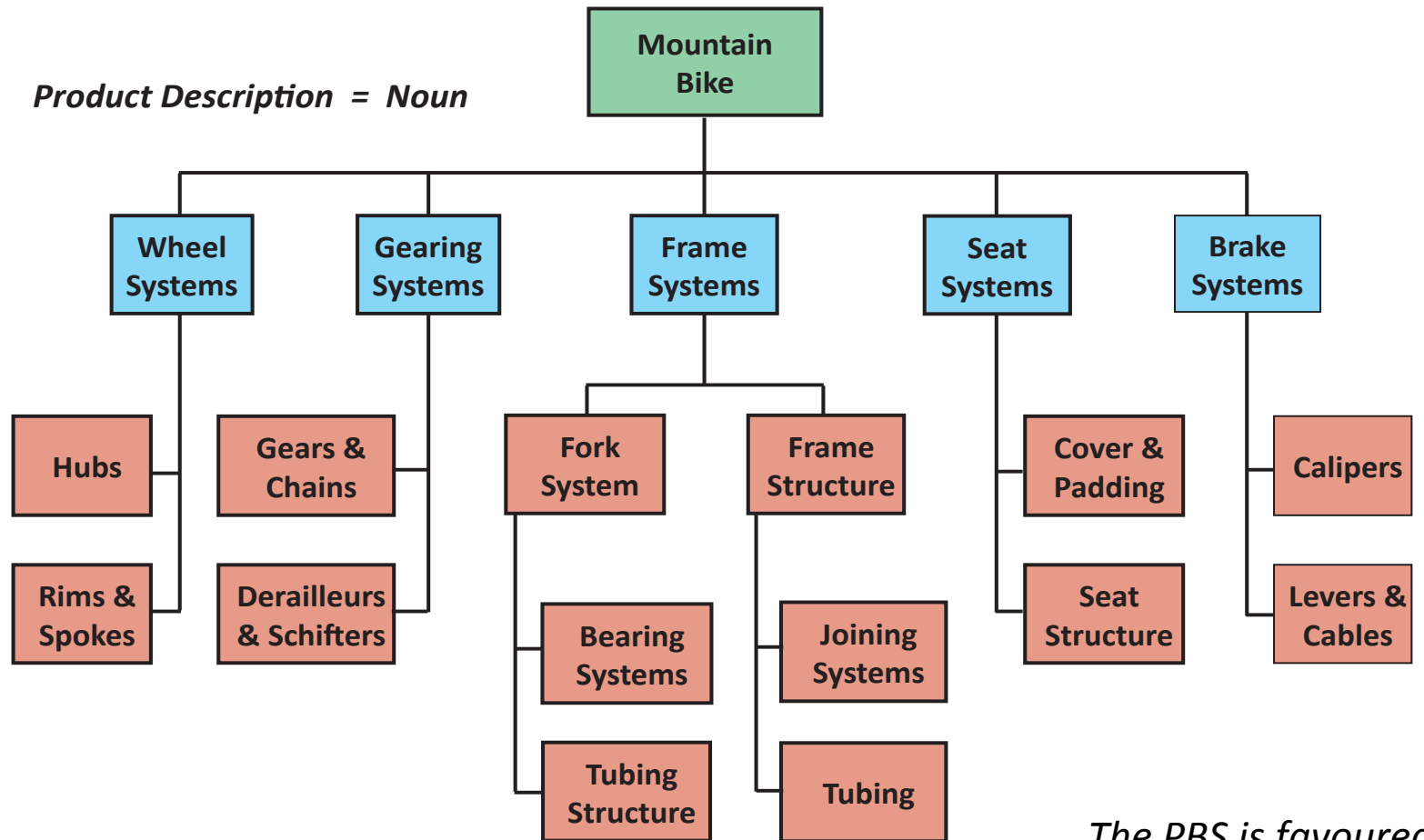
1. To ensure 'project management activities' are also costed, they may be included in the WBS, or more commonly some 10% cost is added to the budget for these activities.
2. Each work package (WP), which is the lowest level of breakdown, may be further described in a WBS dictionary.

# Codified Work Breakdown Structure



A useful codification system is expandable to accommodate extra work. Each chunk of work is assigned a unique number for easy reference.

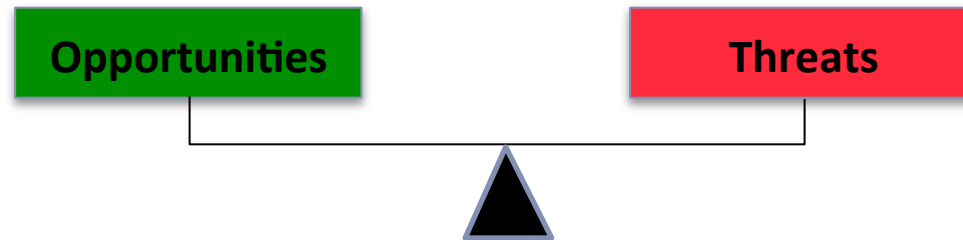
# Example Product Breakdown Structure (PBS)



*The PBS is favoured by PRINCE2 exponents.*

# Outsourcing Work Packages

Once the project is 'chunked', we may need to outsource some work and/or procure some material from external sources. Outsourcing work and purchasing outside expertise and/or materials presents both opportunities (to be exploited) and threats (to be avoided or minimised).



For government, more expensive purchases require tendering. This process is sometimes managed as a separate procurement project, perhaps as part of a programme. Also, contracts need to be agreed to help ensure that opportunities are realised and threats of contracting are avoided or minimised. The resultant contract is a risk management tool.

The advantages and disadvantages of contracting are best realised or avoided through selecting the right consultant/contractor /supplier, rather than through over reliance on contractual terms and remedies. 'Due diligence' is about evaluating prospective providers. A written contract must be agreed and signed before work or supply starts, but not before the project plan is approved.



# Some Contracting Risks (Uncertainties)

*(Contracts are a risk management tool that exploit opportunities and avoid or mitigate threats.)*

## Opportunities

- Fixed cost
- Fresh perspective
- Easier to hire and fire
- Frees up own resources
- Avoid undesirable jobs
- We can learn from them
- Impress our client
- Penalties can apply
- No capital investment
- We can be selective
- They want future contracts

## Threats

- Ability over-rated
- Lack of schedule flexibility
- Time and cost of tendering
- Security and confidentiality
- Demotivate own staff
- Deskill own organisation
- No priority attention
- Less control
- Scope creep
- Market vulnerability
- Learn at our expense

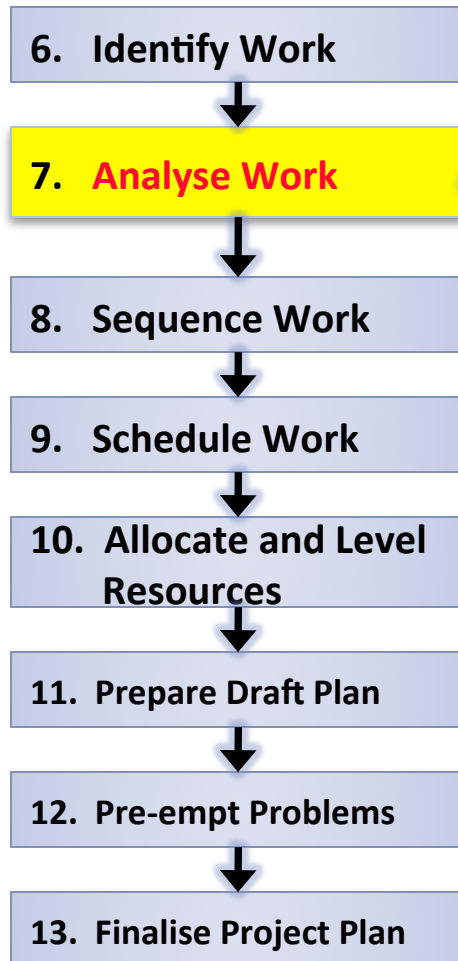
# Exploiting Outsourcing

*“Bob, a star programmer with a US software company was fired for outsourcing his own project work to a Chinese software company for a fifth of his salary. The company had awarded Bob numerous bonuses for his excellent work. ”*

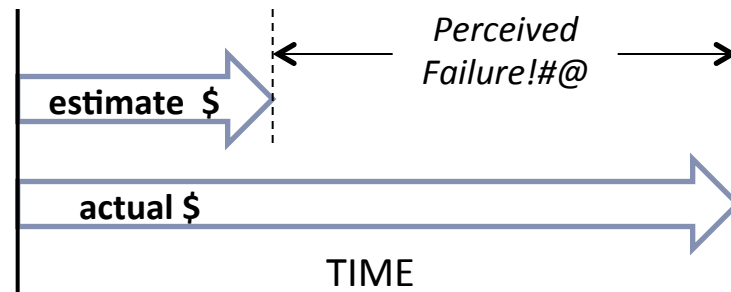
**Sunday Star Times**

I guess Bob crossed the line where he was exploiting his company, rather than his company exploiting him!

# Develop Phase

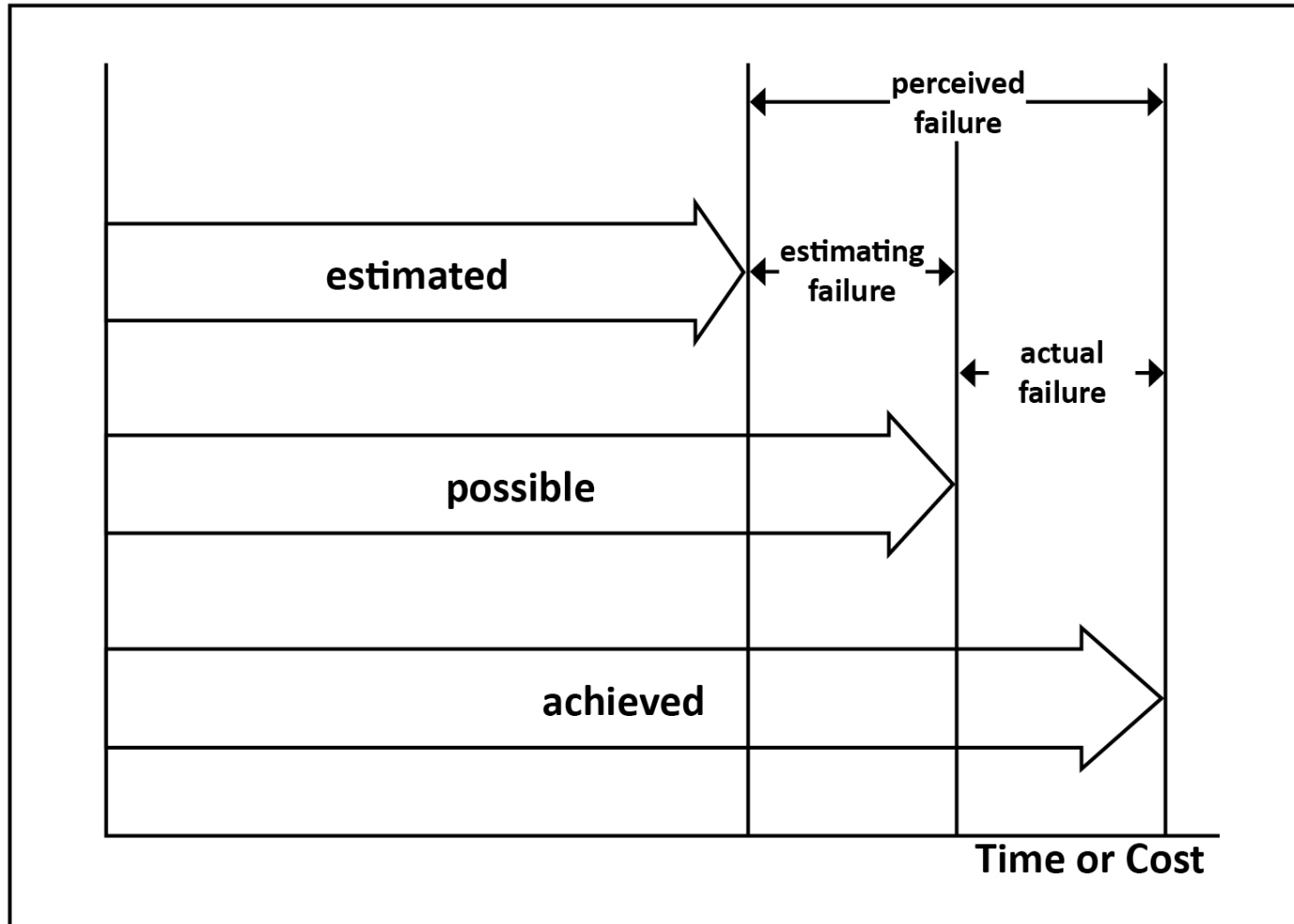


‘Chunking’ the project enables those people with the requisite skill-sets to more accurately estimate resource needs, work effort, duration and cost at WP level, to produce a project ‘bottom-up’ budget (estimate) of +25% to -10% accuracy (PMI), against which our financial performance might be assessed!



Level	Type	PMI Accuracy
1	Order of Magnitude	-25% to +75%
2	Budget Estimate	-10% to +25%
3	Definitive Estimate	-5% to +10%

# Failure – Perceived and Actual



# Estimating Tools and Techniques

- Ask the experts and know their tendencies
- Don't confuse elapsed time, duration and work-effort
- Check with those who have done it before
- Use normal work-package team sizes for estimates
- Review relevant reports/historical data
- Conduct trials or dummy runs or build prototypes
- Consult published productivity data
- Check you've identified all the work to be done
- Focus on longer duration and more expensive tasks – Pareto Principle (80:20 Rule)
- Adopt phased estimates (ie, rolling wave strategy)
- Allow for the unexpected – Murphy!
- Learn with experience – update estimating databases

# More Estimating Tools and Techniques

- Identify all factors that will affect time (eg, weather, weekends, work hours, holidays, skill levels, machine variations, industrial action, sickness, fatigue, staff turnover, etc)
- Find out current labour and material costs, insurance rates, interest rates, exchange rates etc for costing purposes
- Don't plan to do overtime
- Develop a spreadsheet
- Document estimate assumptions
- Include estimate date and indication of estimate accuracy
- Don't reduce estimate without commensurate scope reduction
- Provide estimators with feedback on variance
- Apply the Delphi technique
- Use PERT formula
- Use broad-band Delphi technique

# Contingency Calculation

Risks	Impact		Probability		Contingency (\$K)
A	-\$2K	x	0.1	=	\$0.2K
B	-\$4K	x	0.2	=	\$0.8K
C	-\$7K	x	0.4	=	\$2.8K
D	+\$3K	x	0.2	=	+\$0.6K
E	-\$5K	x	0.3	=	\$1.5K
F	-\$6K	x	0.5	=	\$3.0K
					<b>Total = \$7.7K</b>

Probability theory tells us that the likelihood of say risks A and C both occurring in same project is  $10\% \times 40\% = 4\%$  chance. Risk D is an opportunity.

**Contingency** reserve is typically controlled by sponsor/project manager for identified risks and is often reduced as project proceeds.

**Management** reserve (if established) held by sponsor for unidentified risks – those that without warning go bump in the night (they're issues before we recognise them as risks).

# Total Project Budget

**Total Project Budget** = Cost Baseline + Contingency Reserve + Management Reserve

*where:*

- **Cost Baseline** is the costed Work Breakdown Structure (WBS) including project management overheads – say 10%. *Get a quote, which includes a profit margin and GST, for outsourced work.*
- **Contingency Reserve** is for anticipated or known risks.
- **Management Reserve** is for unanticipated or unknown risks and variations, but is often difficult to determine.



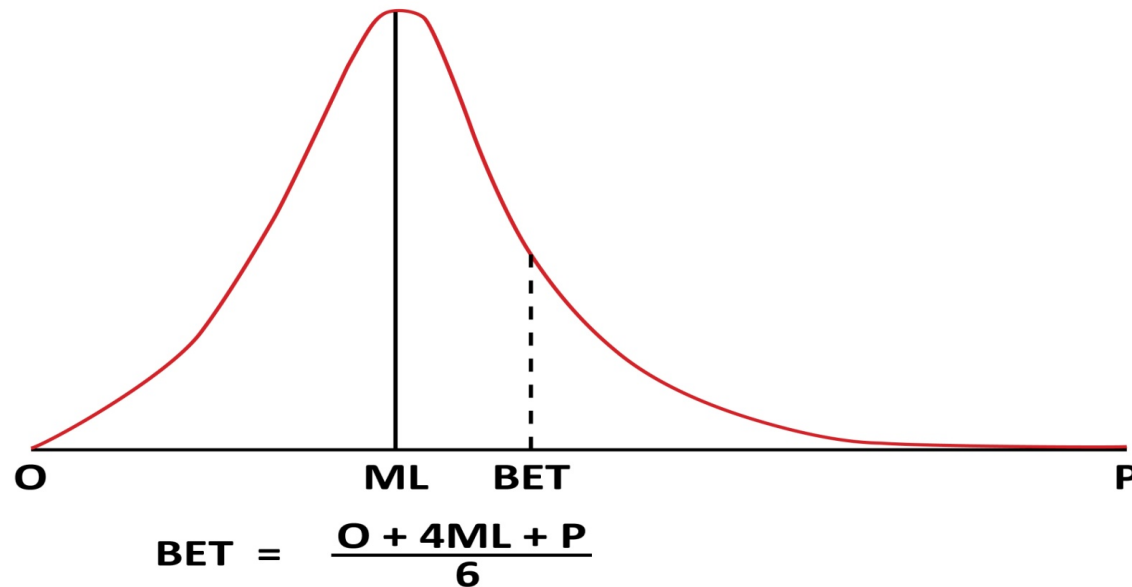
# Getting a Quote

*A quote is an offer to do a job for a specific price.*

1. Decide exactly what you want done and by when.
2. Contact say three reputable providers, give them the same information and ask for a written quote (preferably free).
3. Decide which quote you will accept. Consider the price, quality of materials and how long the job will take.
4. Tell the successful seller they have the job. You don't have to tell the other sellers who you chose or why.
5. Try not to pay a deposit, and definitely don't pay the total amount before the job is finished.
6. Keep all the paperwork – quotes, invoices, receipts.
7. Use the same process for an estimate but remember that the quote may be more (or even less), but not excessively so.

# PERT Formula

PERT (Programme Evaluation and Review Technique), developed during the US Polaris Missile Project 1960, provides a weighted average estimate given estimated Optimistic (O), Most Likely (ML) and Pessimistic (P) durations. This Beta frequency distribution recognises that there is a limit to how quickly a job might be completed, but little limit to how long it could take. Standard Deviation is  $P - O/6$ .



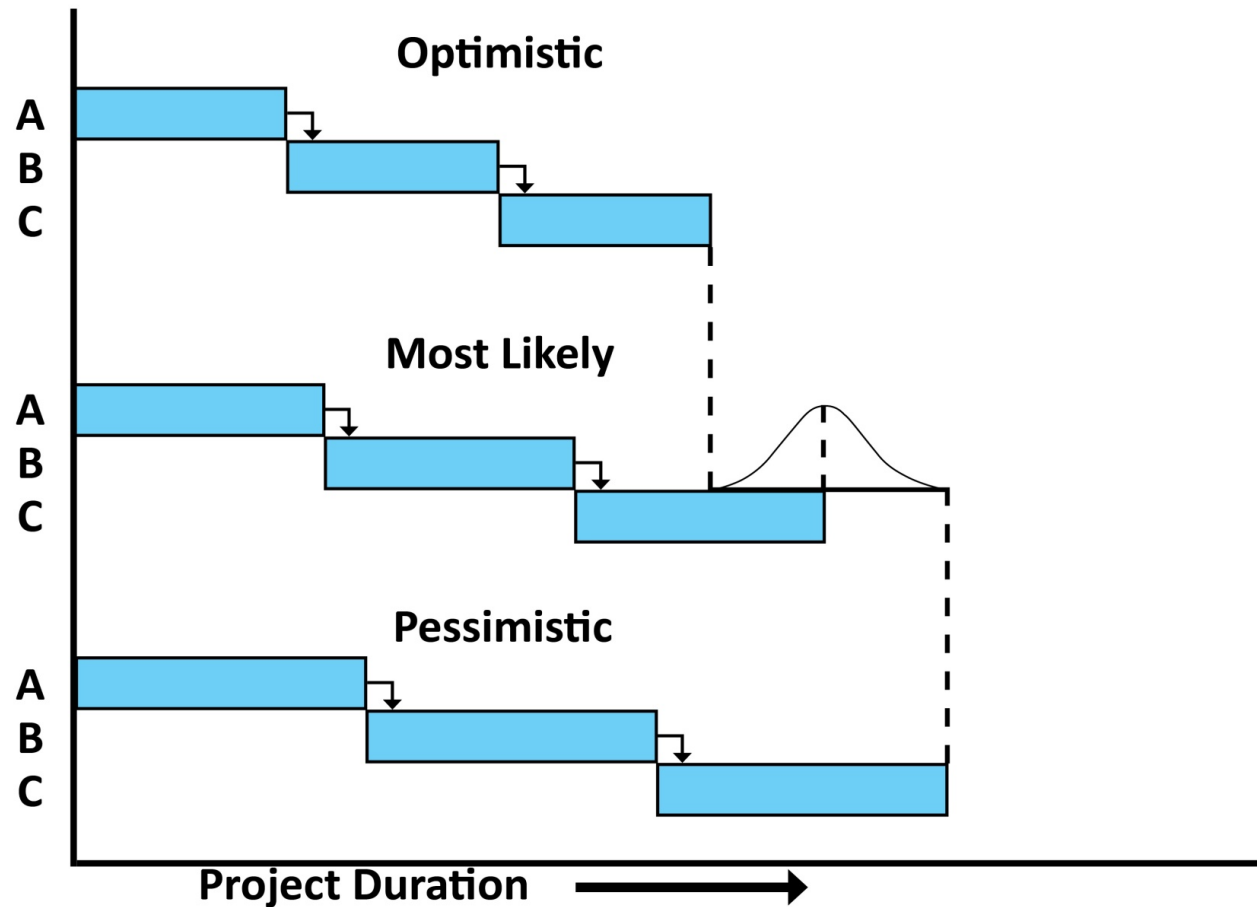
# PERT Exercises

$$\text{BET} = (O + 4L + P) / 6$$

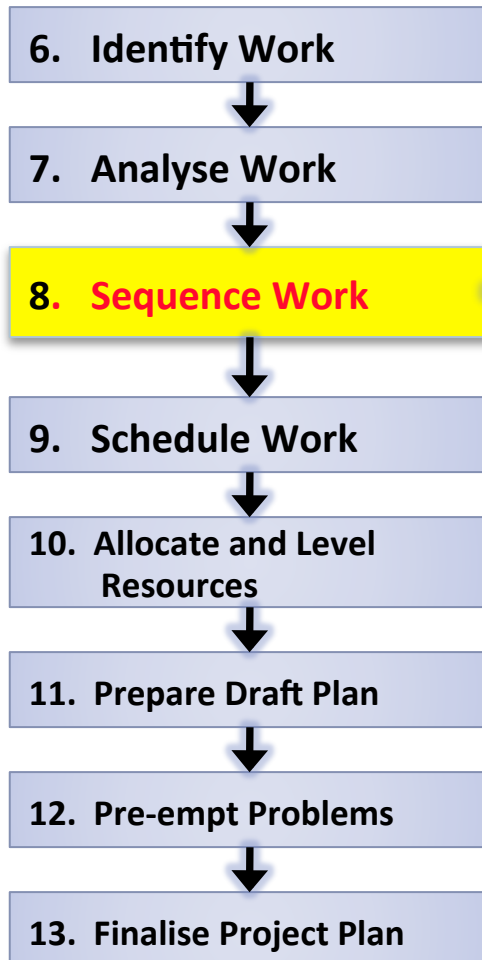
What is the Best Estimate of Time (BET) given:

1. P = 20, L = 10, and O = 6?
2. P = 300, L = 180, and O = 126?

# PERT and Project Schedule



# Develop Phase

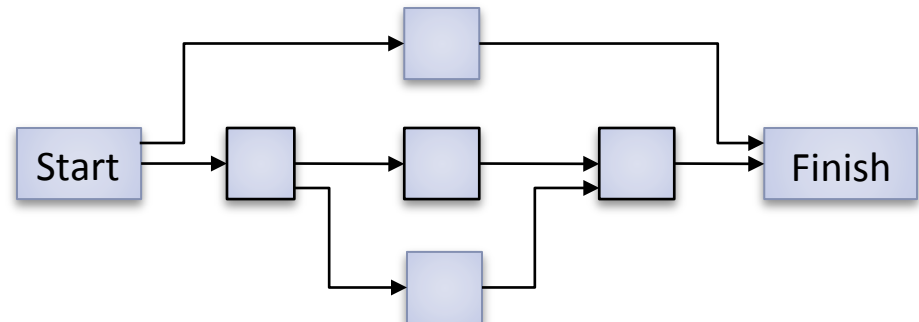


Now we consider the 'logic' of the project, which recognises that some tasks can't be undertaken until other tasks have been started or completed. These task relationships are illustrated by a Network Diagram that enables us to:

- identify critical path/tasks and estimate project duration
- assign milestones and undertake sensitivity analyses
- determine float time (slack time) for non-critical tasks

Such diagrams are often prepared using Post-it Notes on a whiteboard or paper before using scheduling software .

'Float' is the amount of time by which we can delay a task without delaying the project completion date.



# Critical Path

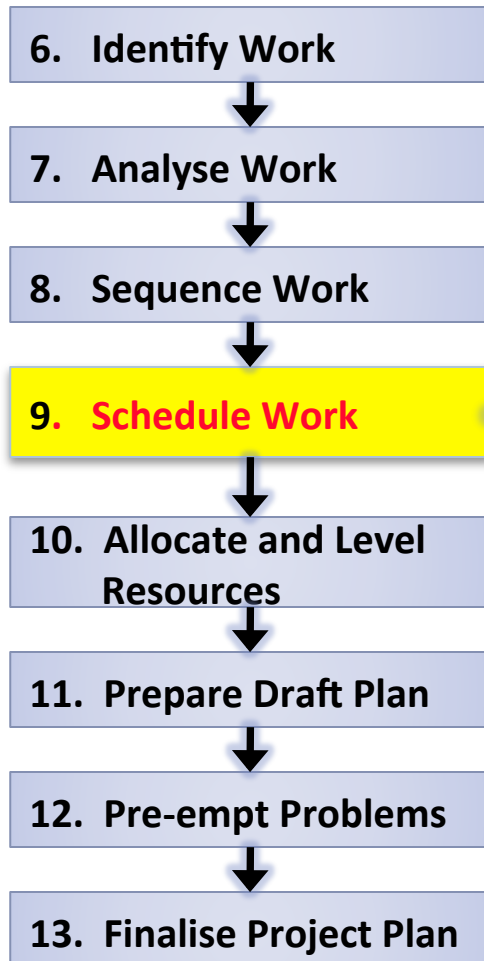
‘Critical path’ is an often misunderstood term. It dictates project duration. A critical task is on the critical path. It is critical in terms of project completion time.

Our project’s critical path is important since:

- It tells us the shortest time in which our project can be completed.
- It shows us those tasks, which if delayed, will cause a delay to our entire project.
- It shows us those tasks that must be completed more quickly in order to accelerate project completion.

A project can have more than one critical path, and sometimes the critical path changes during project execution when actual task durations become apparent.

# Develop Phase



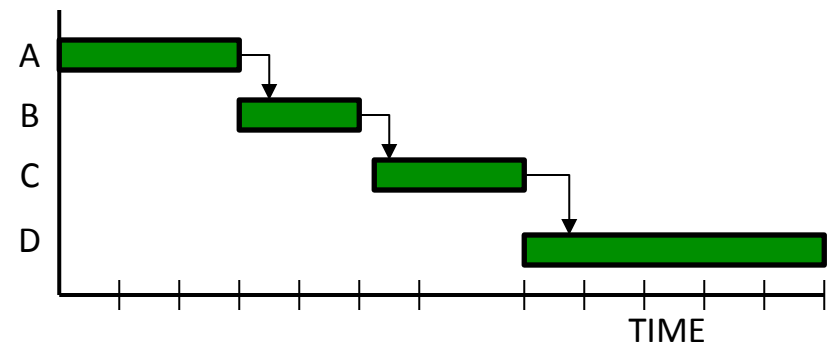
Now we convert our Network Diagram into a Task Schedule that shows what tasks are to be undertaken over what periods.

The schedule might be in table format or illustrated as a Gantt chart. Scheduling software is very useful. MS Project is the most widely used package.

**Table Format**

Task	Dur	Float	ES	EF	LS	LF
A						
B						
C						

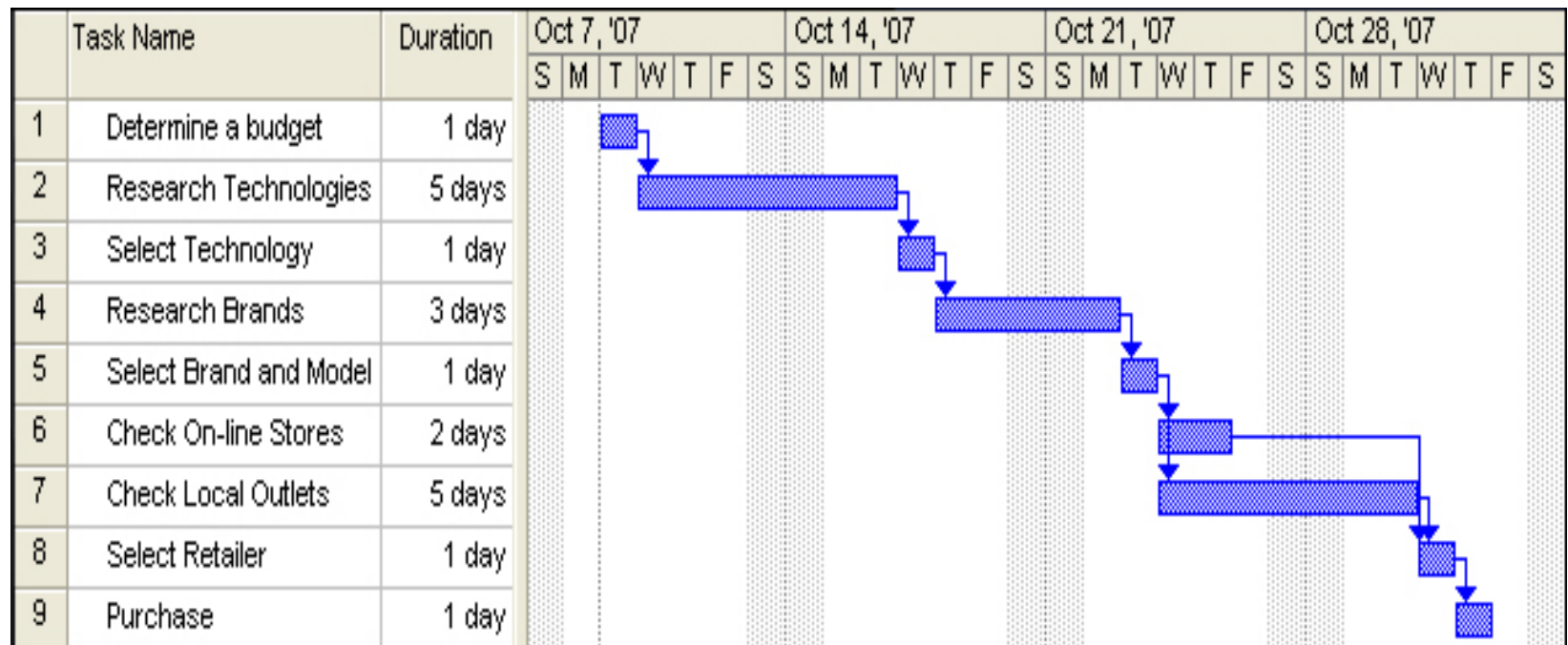
**Gantt Chart**



# Gantt Chart (MS Project)

*God Alone kNowS The Truth*

This Gantt chart, invented by Henry Gantt in 1914, depicts a simple project schedule where only **Task 6** has float. All other tasks are critical.





# Value of a Gantt Chart

- Shows what tasks need to be done and when (start, duration and finish dates), and as such is a useful communications tool.
- We can look vertically to see when our project will be busiest in terms resource commitments (money, labour, equipment and materials).
- We can reschedule those tasks with float (non-critical tasks) if too much is going on at once.
- We can monitor progress by superimposing actual timelines over planned timelines, the difference being variance that may require some action to get back on track.

# Free PM Software

Project management applications are usually centered around Gantt charts, where each task is represented by a timeline. This visual is linked to resources and synchronised to a calendar.

Because of its brand and its place in the market, Microsoft Project is the most popular product, but is fairly expensive, especially if you just want to use it for some simple projects.

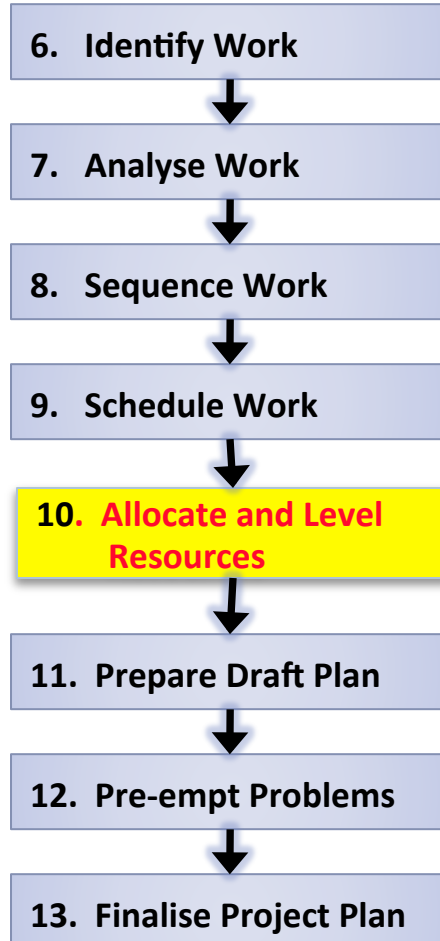
<http://blog.capterra.com/free-open-source-project-management-software/>

This website lists the ten *best* free project management software applications as at 2016. But, better check first with your IT manager if you propose to use any of these free products at work.

# A Dilbert Moment



# Develop Phase



Having prepared our Task Schedule, we now check the actual availability of resources and identify any resource shortfalls or overloading. Such resourcing problems may be resolved or reduced by the following practices, usually applied in this order:

1. Reschedule non-critical tasks (NCTs) using float.
2. Extend NCTs using float (ie, take longer over work).
3. Split NCTs using float (which may increase total work effort).
4. Remove non-essential task dependencies to create more float and thus revisit above possible solutions 1,2 and 3.
5. Get more productive resources (rather than just add more).
6. Subject project parameters to a 'trade-off analysis'.
7. Add shifts and/or work longer hours (but sometimes for a diminishing return).

The deliverable from Step 10 is a Resource Schedule that itemises resource needs - who, what and when - the basis for our Procurement Plan. Given that sometimes tendering and long lead-times are involved, procurement might now be initiated, but no contracts should be finalised/signed until the project plan is formally approved by the project sponsor.

# Resource Scheduling

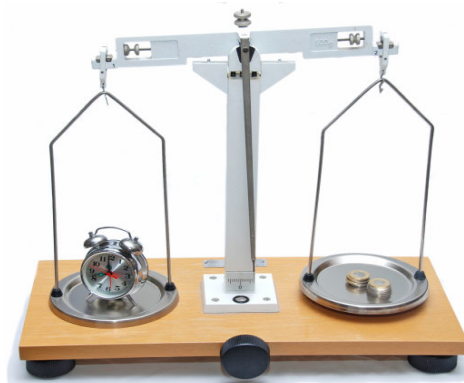
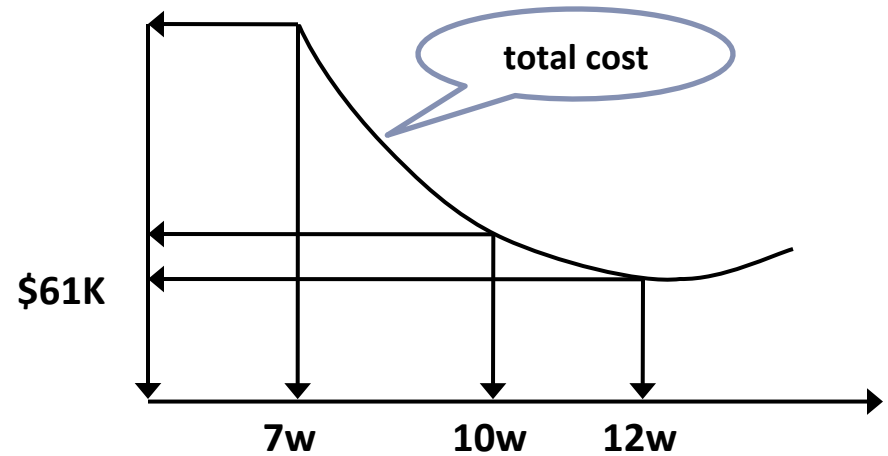
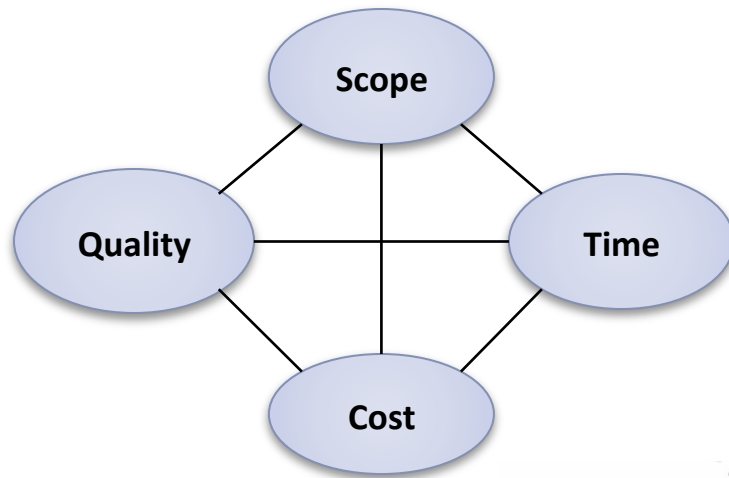


Resources (labour, equipment and materials) are needed to complete project tasks. A project resource schedule is based on the project task schedule and documents who, what and how much is needed and when it is needed and for how long.

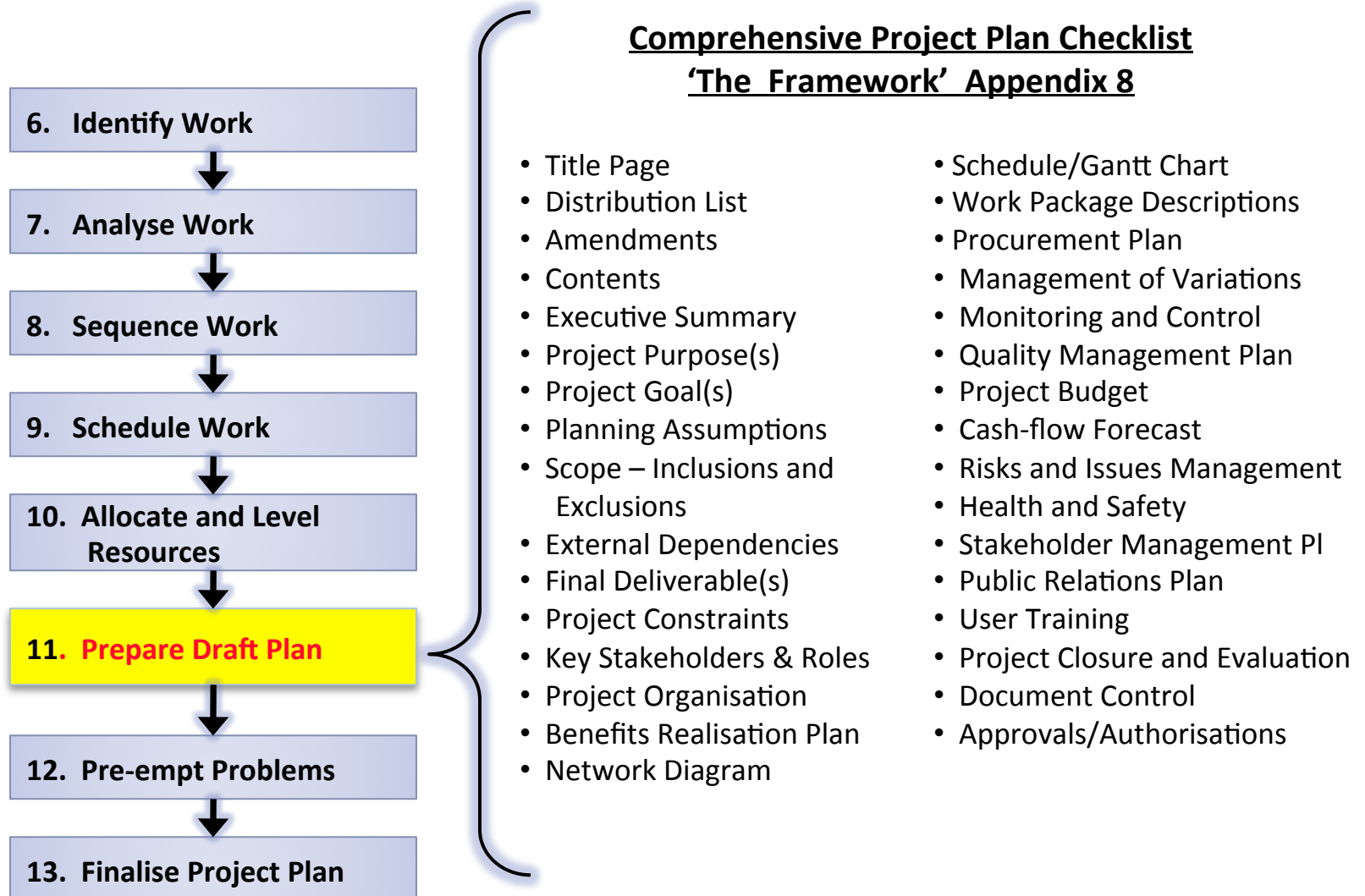
Allocation of limited resources is usually based on project priorities. Low priority projects may need to make do with what resources are left over. They have resource-constrained schedules, which means that the availability of resources dictates their schedule and duration. We also need to check:

1. We haven't assigned the same person to different tasks on the same dates.
2. If resources are not available when needed we may need to reschedule some tasks or outsource the work.

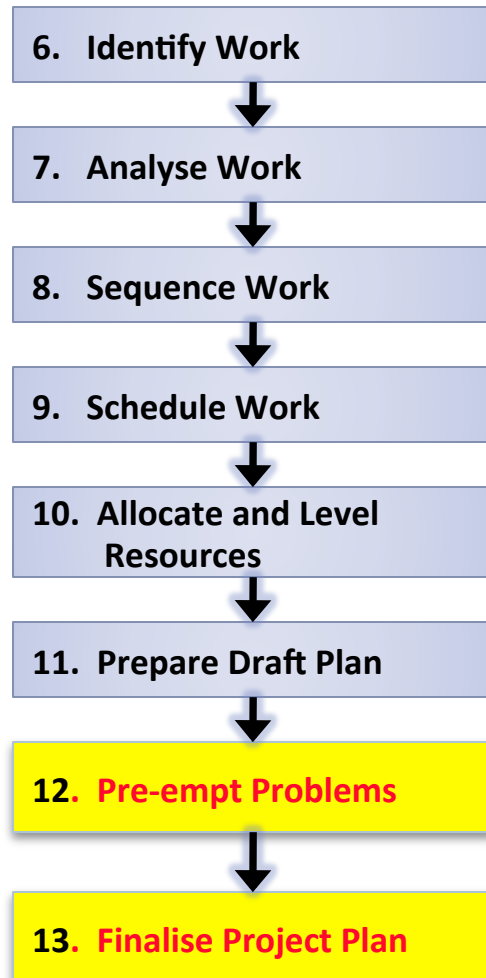
# Trade-off Exercise



# Develop Phase



# Develop Phase



Although risk management must be continuous throughout the project lifecycle, Step 12 is one important occasion when key stakeholders are invited to assess the draft project plan and identify potential implementation problems. The project plan might then be amended to eliminate or keep identified risks to within acceptable tolerances prior to project implementation.

While Step 13 is to 'Finalise Plan' (or baseline) for approval, in reality the project plan is often subject to frequent revision as the project proceeds and unforeseen good and bad realities are revealed. Careful project plan version control is therefore essential.

Once the Sponsor approves the plan in part or total, the project is usually implemented without delay. However, detailed planning may reveal unexpected problems, or circumstances may have changed since project conception, such that project implementation is now postponed or the project is cancelled.





# Project Value Management (PVM)

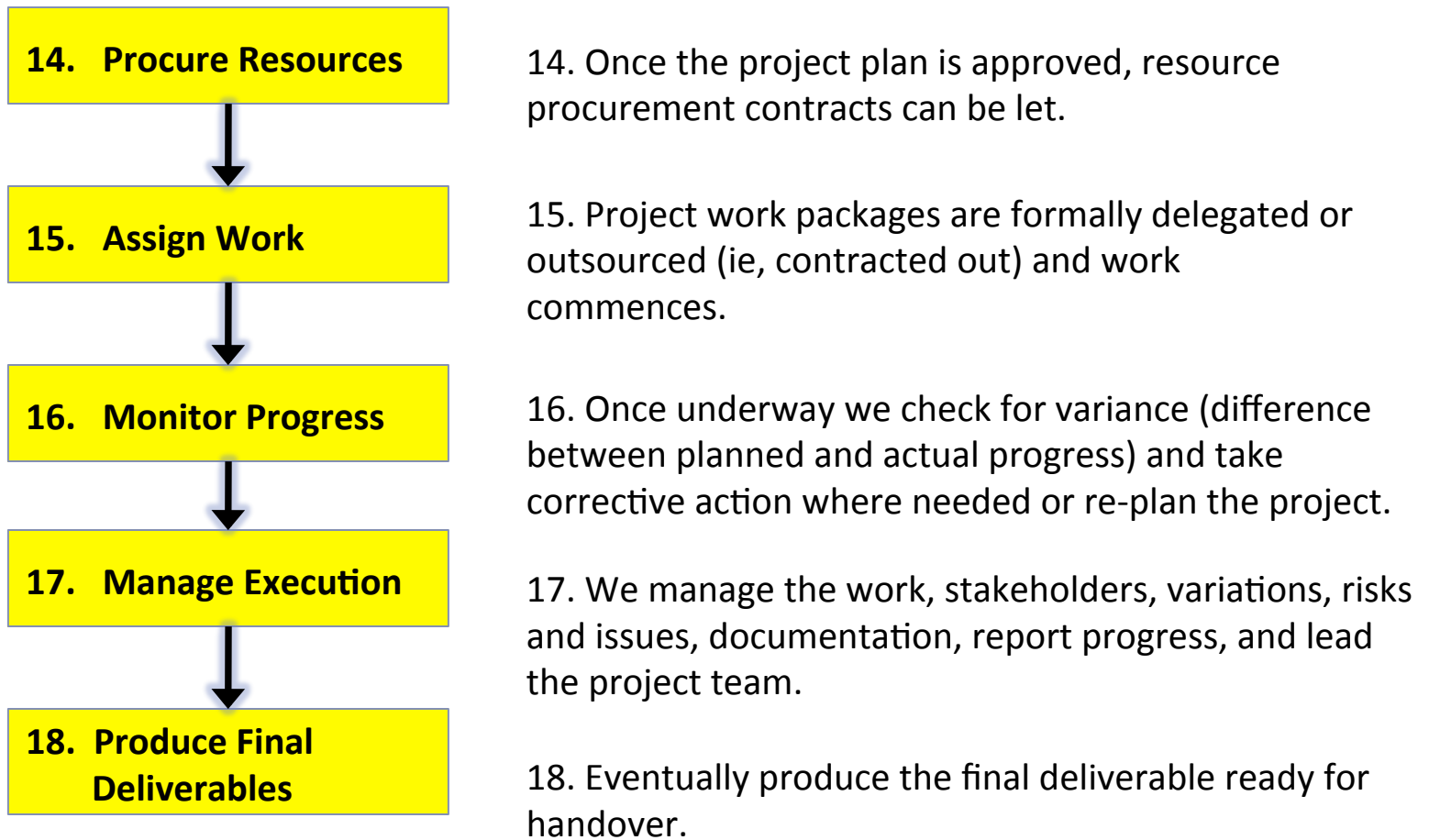
- Once the draft plan is prepared we might then see if we can make it more efficient through a project value management (PVM) intervention.
- PVM is the formal and systematic study of a project to identify ways to achieve the functionality needed at lowest cost without adding risk or without loss of performance.
- Some expressions equivalent to Value Management are Value Methodology, Value Analysis, Value Engineering, and Value Optimisation.
- It's potentially effective for all types of projects, but best results are usually obtained with larger and more expensive construction projects.
- PVM usually adds greater value if applied prior to project execution, but might also be undertaken periodically during project execution.
- PVM intervention is in the form of a study (typically of one day's duration) undertaken by an expert facilitator and attended by invited experts and key stakeholders from the target project.
- Unfortunately, PVM is often only initiated when project budgets seem insufficient or profit margins are under pressure.

# Phew – You Came Back !!

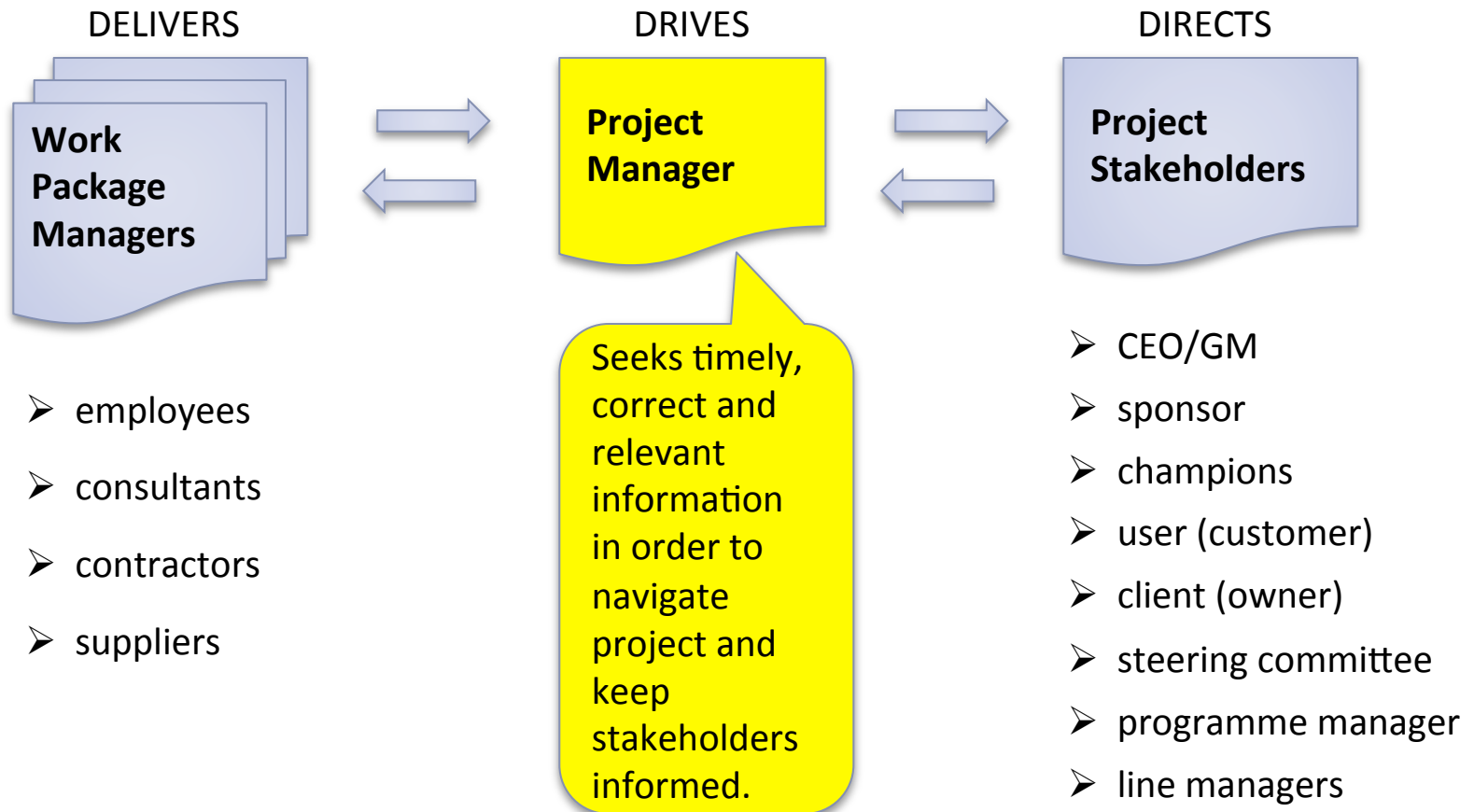
*(A Trainer's KPI)*

TIME	DAY ONE	DAY TWO	DAY THREE
9:00 10:30	Project management basics	A busy day when we analyse the project conception and development phases, practising various tools and techniques – WBS, estimating, network diagrams, Gantt charts, resource scheduling, pre-empting problems, and trade-off analysis.	Project execution and finish phases.
10:45 12:30	Team project exercise		Team project planning and presentation exercise.
1:15 2:45	Project lifecycle and framework		
3:00 4:30	Essential people skills		Finish-up Administration

# Project Execute Phase



# Information Flows



# Monitoring Progress

There is a trade-off between cost to monitor progress and value of resultant information. Project control should be cost-effective and the need to monitor project performance will typically be influenced by:

- priority of project
- size of resource commitment
- cross-project dependencies
- allowable tolerance limits and parameter priorities
- previous experience with similar projects, or same consultants, contractors and employees (confidence measure)
- stakeholder expectations
- risk assessment
- Legislation
- consequences of failure
- project complexity
- project novelty
- progress to date

# What to Monitor

- planning assumptions
- symptoms of risk
- Deliverables
- variances and trends to schedule, cost, quality
- resources – people, materials, equipment
- resolution of issues
- processes – control, communications, quality, health and safety, variations, payments, problem solving, stakeholder management, risk and issues
- relationships
- security – physical and intellectual property
- cash flow
- external factors

**Note:** *a project that's slipped by 2 weeks when we're 25% complete, is likely to be 8 weeks late unless we take action.*

# Monitoring Tools and Techniques

- risk log
- issues log
- lessons learned log
- change log
- accident register
- progress reports
- status reports
- exception reports
- site visits
- variance reports
- milestone slip charts
- personal contact
- interviews
- questionnaires
- sampling and testing
- meetings
- reviews and audits
- prototypes and trials
- checklists
- telephone conferences
- video conferences
- structured walk through
- demonstrations
- simulations
- benchmarking
- peer reviews
- earned value analysis

*To solve it easily, detect it early!*



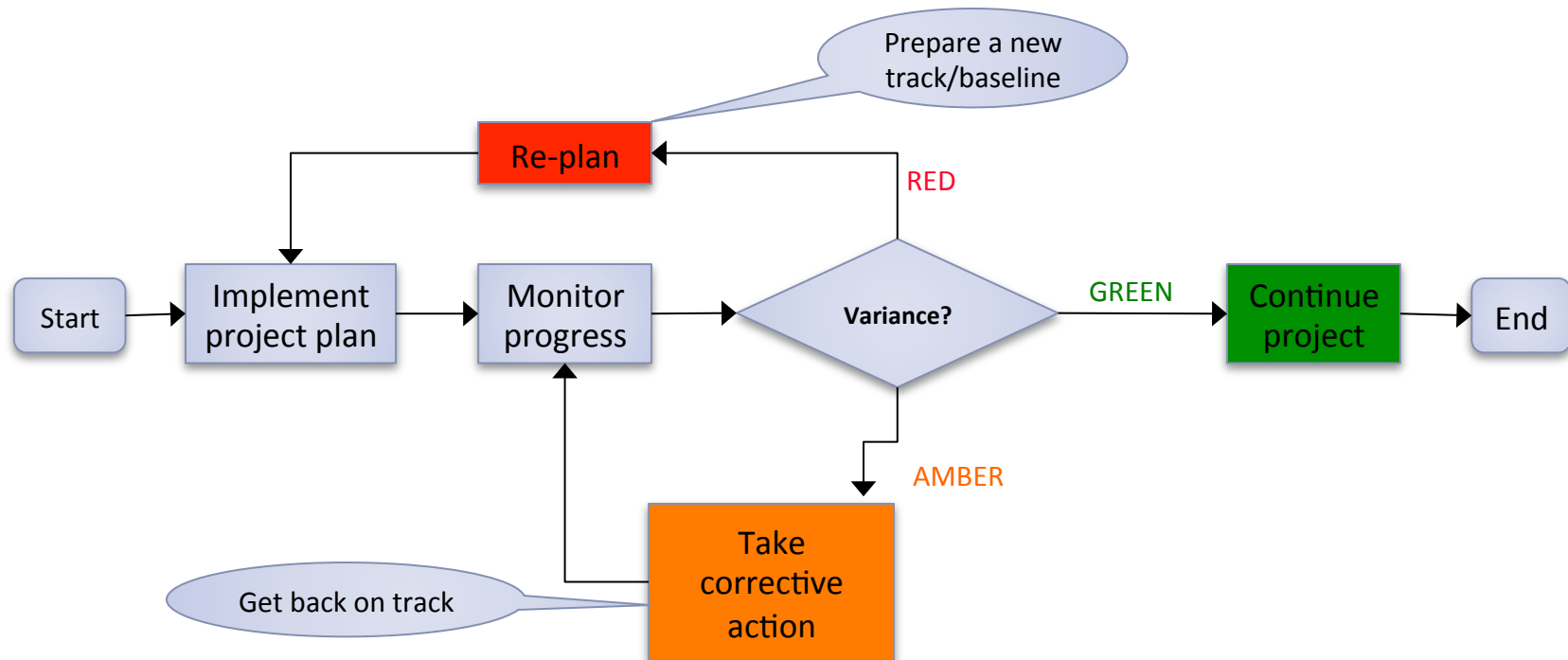
# Reviews and Audits

- **A review** is a structured opportunity for reflection to identify key issues and risks, and make timely and informed decisions for effective project implementation. Reviews are usually an internal assessment. While monitoring is on-going, reviews are periodic throughout the project life cycle.
- **An audit** is an assessment to verify compliance with established policies, protocols, rules, regulations, procedures or mandates. The emphasis is on assurance and compliance, rather than judgment of worth. Audits can be internal or external. Also, their frequency will vary, but is often determined by the novelty, size and complexity of the project.



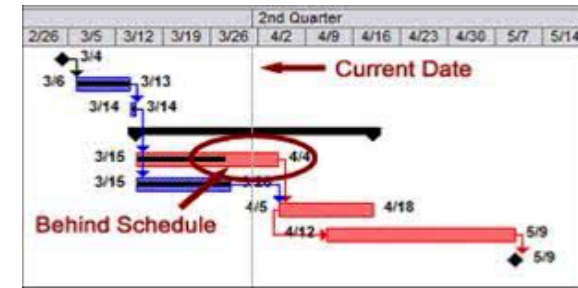
# Managing Variance

Should variance look to move beyond predetermined and acceptable tolerance limits, corrective action is usually needed.



Re-planning or corrections that are likely to exceed parameters (and any contingency provisions) in current Charter first need sponsor's approval and issue of updated Charter.

# Overcome Schedule Slippage



- Renegotiate milestones, finish date, work scope and/or performance standards.
- Deploy more resources and/or more productive resources. Brooks' Law states that adding more resources to an already late project further slows the work.
- Stand down any trainees and poor performers.
- Apply the 'minimum float' rule.
- Redeploy resources to focus effort on critical and near-critical path tasks.
- Undertake more work concurrently (fast-tracking), overlap, break dependencies.
- Work overtime and/or contract out work.
- Impose late completion penalties (eg, liquidated damages).
- Set incentives for early or on-time completion and productivity improvements.
- Accept partial delivery (ie, postpone less-essential work).

# A Dilbert Moment

Brooks' Law : "Adding people to a late project just makes it later."



"Ramp up" time is often required by new project staff, which takes existing project team members and puts them in coaching roles. Although, for Brooks' Law to hold true, the amount of effort lost to coaching must exceed the productivity contributed by new staff when they eventually become productive.

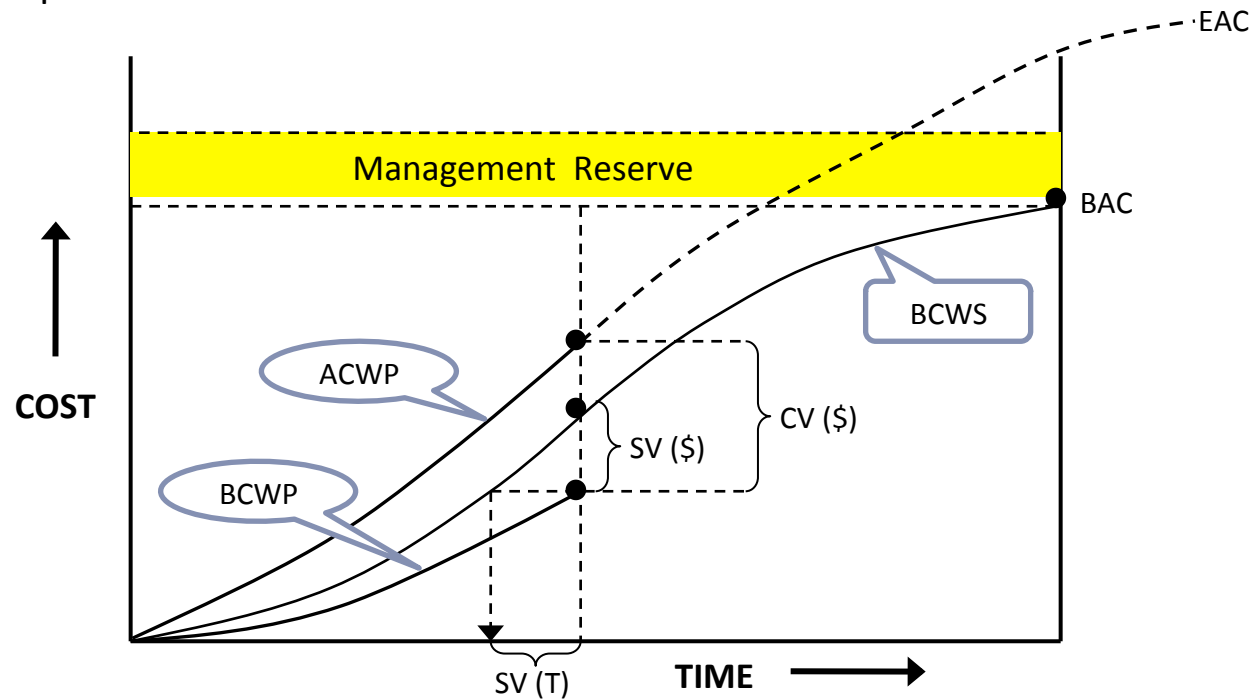
# Reduce Over-Expenditure



- Check schedule progress. Ahead of schedule work incurs early unexpected expenditure.
- Renegotiate project budget, work scope, specifications, pay rates and material costs.
- Minimise order quantities and/or purchase economical order quantities (EOQ).
- Sell off excess inventory for immediate cash injection. Avoid stockpiling. Practice JIT.
- Substitute cheaper processes, labour, materials and equipment.
- Eliminate advances, deposits, rework, wastage, theft, spoilage and scope creep.
- Have more progress payments from client. Delay own payments (ie, improve cash flow).
- Optimise schedule/budget. An ambitious schedule is usually an expensive schedule.
- Shun perfection and extra audits. Curb ultra-perfectionists. Settle for 'good enough'.
- Ensure all charges against project are accurate, legitimate and properly authorised.
- Review delegated financial authorities. Centralise financial approvals. Vet all purchases.
- Ensure payments are only made for satisfactory completed work. Apply retentions.

# Earned Value Analysis

EVA is a method of measuring progress and predicting results. It links and extrapolates cost and schedule performance.



## Variance:

$$SV = BCWP - BCWS$$

$$CV = BCWP - ACWP$$

## Estimates:

$$\text{Cost} = BAC / CPI$$

$$\text{Time} = \text{Duration} / SPI$$



## Indices:

$$SPI = BCWP / BCWS$$

$$CPI = BCWP / ACWP$$



$$CR \text{ or } CSI = SPI \times CPI$$

# EVA Performance Measures

**Variance** { positive is   
negative is 

$$CV = BCWP - ACWP$$

$$SV = BCWP - BCWS$$

**Indices** { more than 1   
less than 1 

$$CPI = BCWP/ACWP$$

$$SPI = BCWP/BCWS$$

$$CR = CPI \times SPI$$

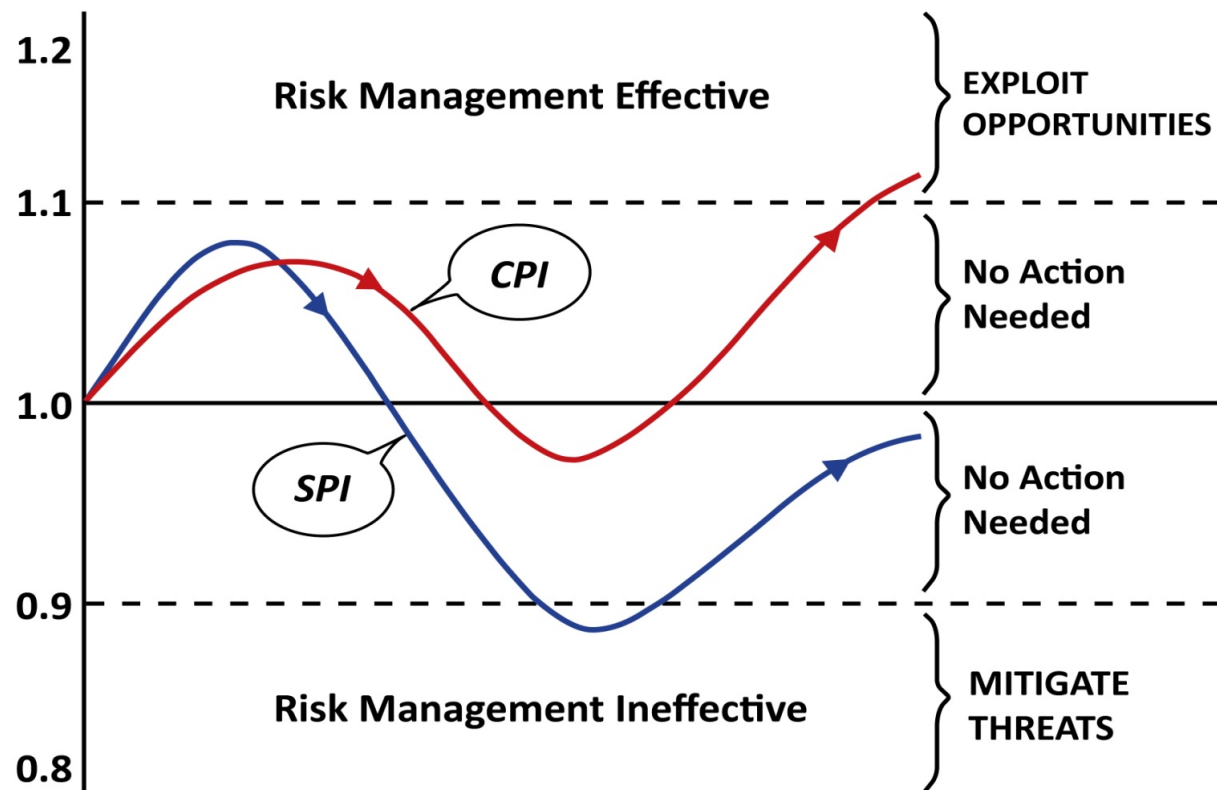
## Projections:

$$\text{Projected Duration} = \text{Planned Duration}/SPI$$

$$\text{Projected Cost} = BAC/CPI$$

# Project Performance Thresholds

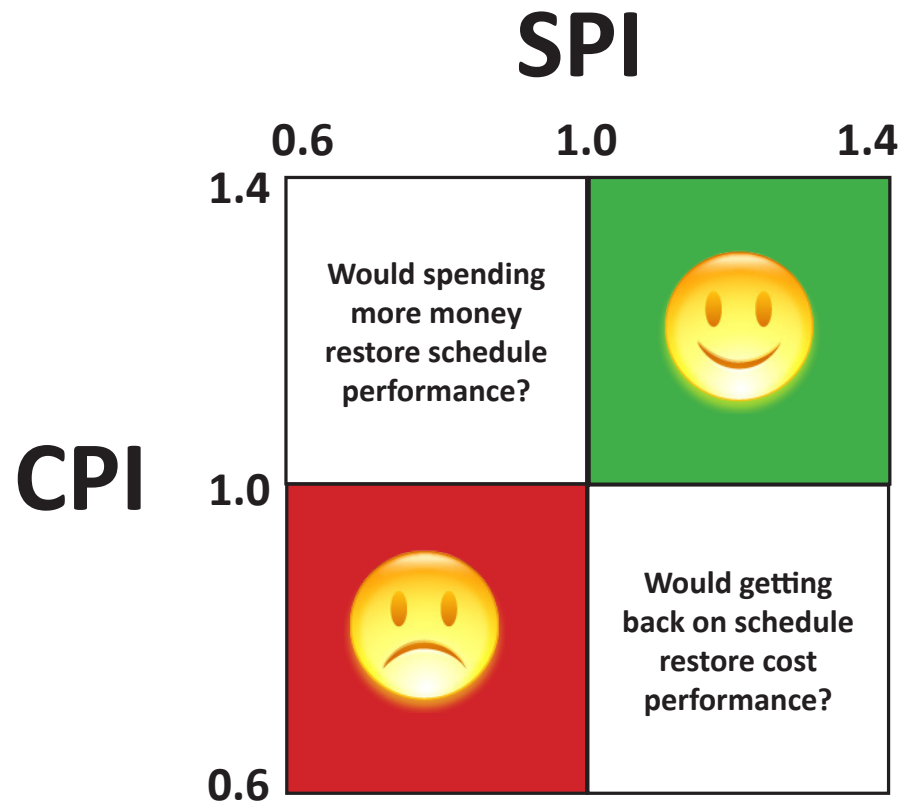
CPI and SPI indicate project risk management effectiveness. The “No Action” zones bounded by broken lines show permitted tolerances, which in this example is  $\pm 10\%$  for both SPI and CPI.



# EVA Project Performance

$$\text{SPI} = \frac{\text{BCWP}}{\text{BCWS}}$$
$$\text{ACWP}$$

$$\text{CPI} = \frac{\text{BCWP}}{\text{ACWP}}$$





# Project Finish Phase



## 19. Obtain Sign-off

On handover there may be feature-by-feature checks to realise practical completion and sign-off.

## 20. Close Project

Closing the project is often poorly done and is best treated as a 'project within the project' when we identify, plan and complete everything needed to properly close the project.

## 21. Evaluate Project

One approach is to assess performance in terms of 6Ps – purpose, people, politics, parameters, processes and products. We also complete the lessons learned log.

## 22. Prepare Post-Project Report

A comprehensive report on project performance is prepared and published, with conclusions and recommendations that may include suggestions for updating the project management methodology and estimating databases.

## 23. Review Benefits

Periodically after product launch the sponsor/client checks with customers/users the extent to which business case benefits are being realised – a key measure of project success. Debugging and enhancement projects may follow.

# Lessons Learned?

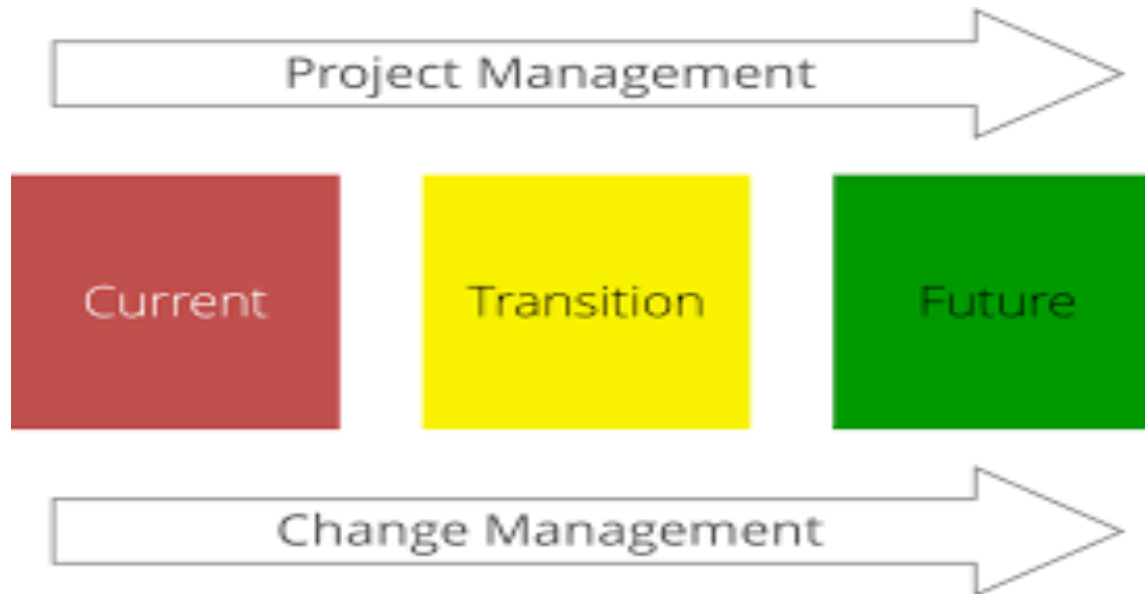


Every project can help us run future projects better, but often we neglect to formalise lessons learned identification and recording. Common mistakes are:

- There is no lessons learned log, or if we do have one it's not conveniently available, properly completed, or it's used to chastise people.
- Lessons learned means admitting our less than perfect performance.
- We assume that lessons learned have already been learned, don't apply to us or to future projects – after all each project is unique.
- We only attempt to recall lessons at project completion, rather than document them at the time as we progress through the project lifecycle.
- We've already moved on to other pressing more endeavours.
- Lessons learned are personal and are therefore not included in our post-project report or made available to others in our organisation.

# Change Management

Concurrent with the project management process is change management:



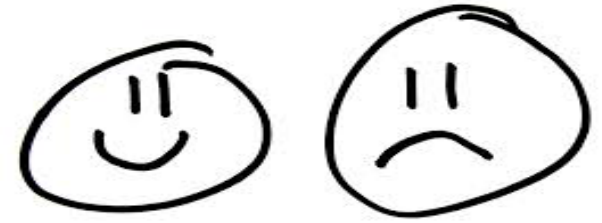
# Change Management Principles

- Start at the top.
- Make the case.
- Create ownership.
- Provide end-user training.
- Manage resistance.
- Recognise successes.
- Imbed new practices.

# Project Closure

- Our client just accepted (according to the previously agreed-to Acceptance Criteria) the final project deliverable (or Work Product). In a meeting with our client and the project sponsor, we agreed to conclude the project and hopefully declare the project a success. Our client is happy with the final deliverable and the sponsor is pleased that we closely managed the project, kept it on-schedule and on-budget (within agreed tolerances) and met the Acceptance Criteria.
- As project manager, we deliver the good news to our Project Team and congratulate them on a job well done. We send a letter, not an email, to their functional managers describing the value of their contribution to a successful project. Typically, this letter will go on their personnel file.
- Remember to communicate project closure to all stakeholders.

# Mixed Feelings



- Project Closure can be a time of mixed feelings for the Project Team. Hopefully they will feel satisfaction about a job well done but we need to ensure they aren't:
  - worried about what the future will hold for them
  - so eager to get on with the next project that things are unfinished
  - elongating project life because they don't want to leave it.
- The exit strategy for the project staff must be clear so that they feel adequately supported whether they are going on to new projects, returning to routine jobs or leaving the organisation.

# Realising Benefits

Changing the way people think, work and manage is no easy task, but without it our project is in danger of joining a long list of successful project deliveries that never realise their expected benefits. Common mistakes are:

- Believing that a project is over once the deliverables (outputs) are produced.
- Expecting benefits to automatically occur without effort.
- Expecting benefits when there's been no change.

# Products → Outcomes → Benefits

Products	Outcomes	Tangible Benefits
New order processing software installed	Faster processing of customers' orders	Reduce the processing time for customer orders by at least 20 % from the current average of 15 minutes.
Sales campaign revitalised	Attract new customers	Add a minimum of 20 new customers each month for the next year.
Website updated	Attract more viewers	Increase visitors to our website by an average of 5% each week for the next year.
Core values published	Enhanced company culture and image	Staff absences and turnover reduced by 50% during the next year



# Final Exercise

The purpose of this exercise is to practise you working in a project team to prepare and present a project plan, and to further familiarise you with the use of various project management tools and techniques, such that back on the job you'll tackle those work projects with added capability and confidence.

