

SWEN90016

Software Processes & Project Management

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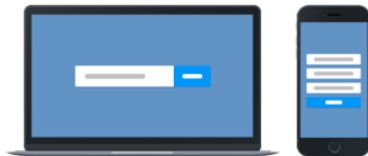
2019 – Semester 2

Lecture 10

Lecture Quizzes

1. Not marked.
2. Majority of exam multiple choice questions will be selected from these.

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- 2 Text in your message



2019 - Semester 2 Structure

Week #	Lecture w/b Date	Old Arts Public Lecture Theatre Friday 3.15pm to 5.15pm	Assignment
1	29/07/19	Subject Introduction, Introduction to Projects and Project Management	
2	05/08/19	Project Management Plan & SDLC's	Assignment 1 Spec available on LMS Friday 09/08/19
3	12/08/19	SDLC - Agile Scrum – continued Individuals, Motivation and Teams	
4	19/08/19	Stakeholder Management Communication Management	Assignment 2 available & Groups created during the workshops / tutorials – attendance mandatory
5	26/08/19	Project Planning and Scheduling Assignment 1 & 2 open forum / discussion	Assignment 1 (Individual) due Fri 30/08 @ 11.59 pm
6	02/09/19	Cost Estimation	
7	09/09/19	Risk Management	
8	16/09/19	Quality Management/Configuration Management	Assignment 2 (Part 1) due Wed 18/09 @ 11.59 pm
9	23/09/19	<i>No Lecture - University Holiday</i>	
	30/09/19	<i>Non Teaching Week – Mid semester break</i>	Assignment 2 (Part 2) due Sat 05/10 @ 11.59 pm
10	07/10/19	Ethics, Outsourcing & Procurement	Assignment 2 (Part 3) due Sat 12/10 @ 11.59 pm
11	14/10/19	Guest Lecture	Assignment 2 (Final) due Sat 19/10 @ 11.59 pm
12	21/10/19	Subject Revision and Exam Prep	Assignment 2 Project Demonstration during tutorials

L8 - Quality Management Recap

1. Understand the fundamentals of quality management
2. Understand the quality management process
3. Understand the following quality management activities:
 - Quality Assurance
 - Quality Planning
 - Quality Control and Monitoring

L8 - Quality Management Recap

What is quality?

Quality is not an act, it is a habit — Aristotle

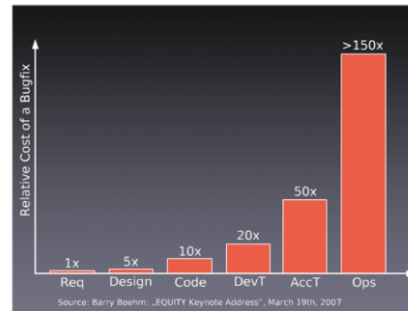
- Evidence shows that we cannot simply fix up our software *post-hoc* and add in quality attributes after building the system
- Quality must be *built into the software from the beginning*
- In this topic you will learn how to built quality into the software through a range of *Quality Management* activities

SWEN90016 Software Processes and Project Management

-11-

Quality Management

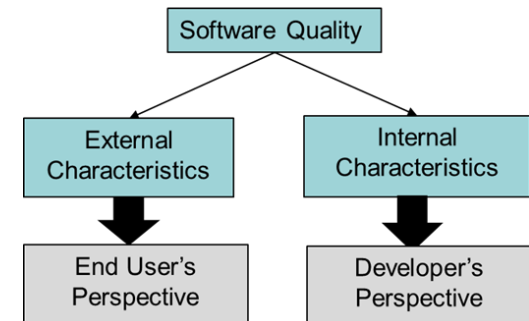
Cost of quality



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Quality Management



Quality Management Process



- Quality assurance:**
The establishment of a framework of organizational procedures and standards that lead to high-quality software
- Quality planning:**
The selection of appropriate procedures and standards from the framework, adopted for the specific project
- Quality control:**
Ensuring that the software development team has followed the project quality procedures and standards

SWEN90016 Software Processes and Project Management

-20-

Quality Management

Quality Standards and Systems

ISO 9000

Capability Maturity Model

L8 - Quality Management Recap



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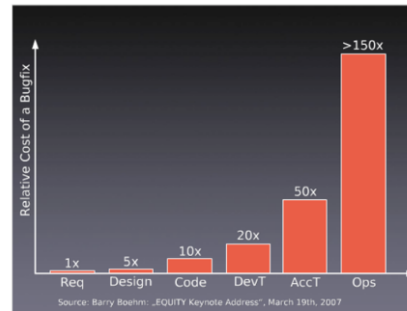
SWEN90016 Software Processes and Project Management

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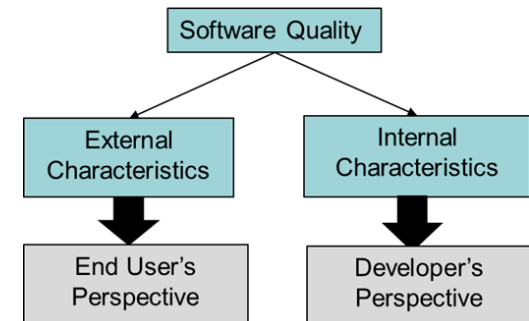
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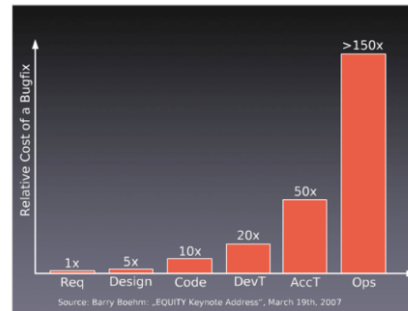
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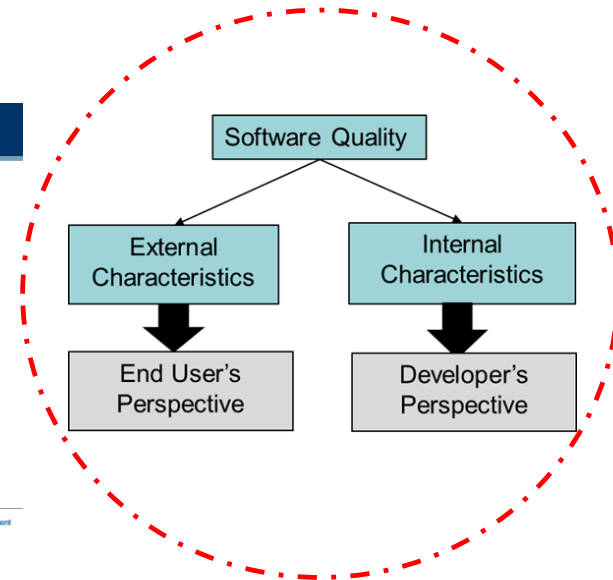
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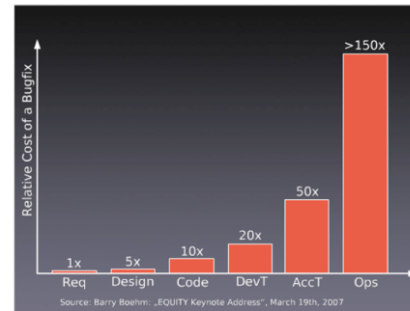
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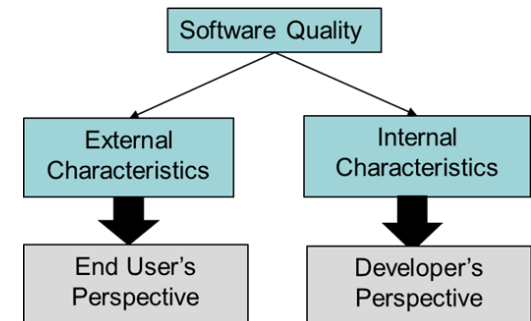
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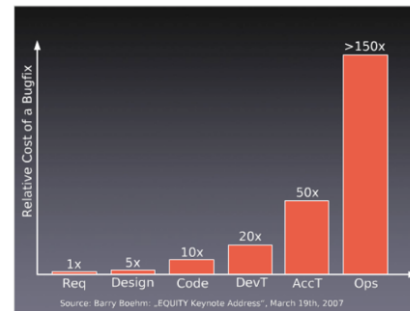
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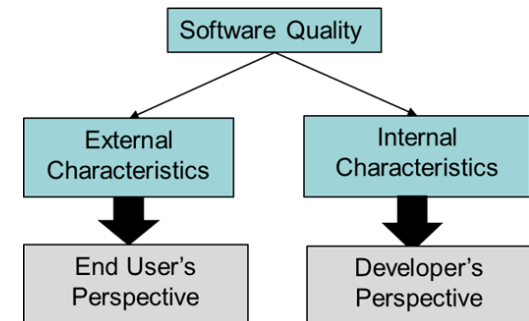
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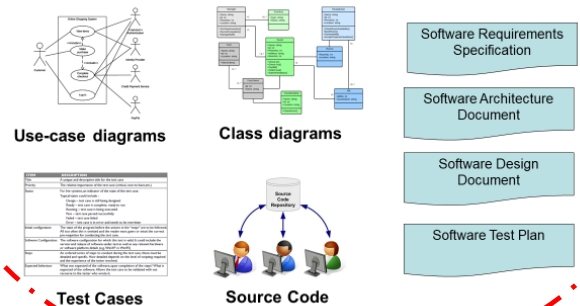
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Capability Maturity Model

L8 - Configuration Management Recap

What is a Software Configuration?

- Software projects generate a large number of different types of artefacts – that are all interdependent



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Role of Configuration Management

- The aim of configuration management is to manage change properly without losing overall consistency through:
 - establishing processes;
 - setting up repositories; and
 - using other appropriate tools and techniques
- Configuration Management (CM) addresses the following:
 - How do we manage requests for change?
 - What and where are the software components?
 - What is the status of each software component?
 - How does a change to one component affect others?
 - How do we resolve conflicting changes?
 - How do we maintain multiple versions?
 - How do we keep the system up to date?

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CM Processes

Configuration Management Aims to:

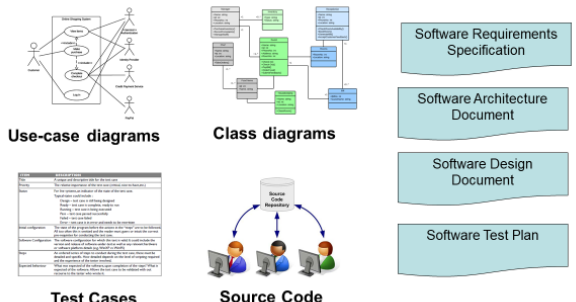
- To identify all items that collectively will make up the configuration.
- To manage changes to one or more of these items so that the collection remains consistent.
- To manage different versions of the product.
- To assure software quality as the configuration evolves over time.

SWEN90016 Software Processes and Project Management -54- Quality Management

L8 - Configuration Management Recap

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CM Processes

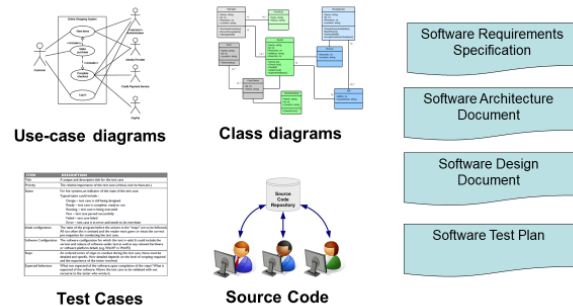
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SWEN90016 Software Processes and Project Management

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Quality Management

L10 - Intended Learning Objectives

L10.1 Understand how and why Ethics are important

L10.2 Australian Computer Society Code of Ethics

L10.3 Understand what Outsourcing is and why it is used

L10.4 Understand the Procurement Management Process

L10.5 Understand the types of contracts, when you would use them and key contractual clauses

L10.1 - Ethics



Why should organisations / individuals be ethical?

Start the presentation to see live content. Still no live content? Install the app or get help at PolleEv.com/app

L10.1 - Ethics



Ethics – What is it?

- *Organisational ethics express the values of an organization to its employees and/or other entities irrespective of governmental and/or regulatory laws.*
- *Ethics are the principles and values used by an individual to govern his or her actions and decisions*

L10.1 - Ethics



Ethics in organisations are important because:

- **Satisfies Basic Human Needs:** Being fair, honest and ethical is one the basic human needs. Every employee desires to be such himself and to work for an organization that is fair and ethical in its practices.
- **Creates Credibility:** An organisation that is believed to be driven by moral values is respected in the society.
- **Unites People and Leadership:** An organisation driven by values is revered by its employees also. They are the common thread that link all employees regardless of position.
- **Set the basis for Decision Making:**
- **Long Term Gains:** Organisations guided by ethics and values last and are profitable in the long run.

L10.1 - Ethics



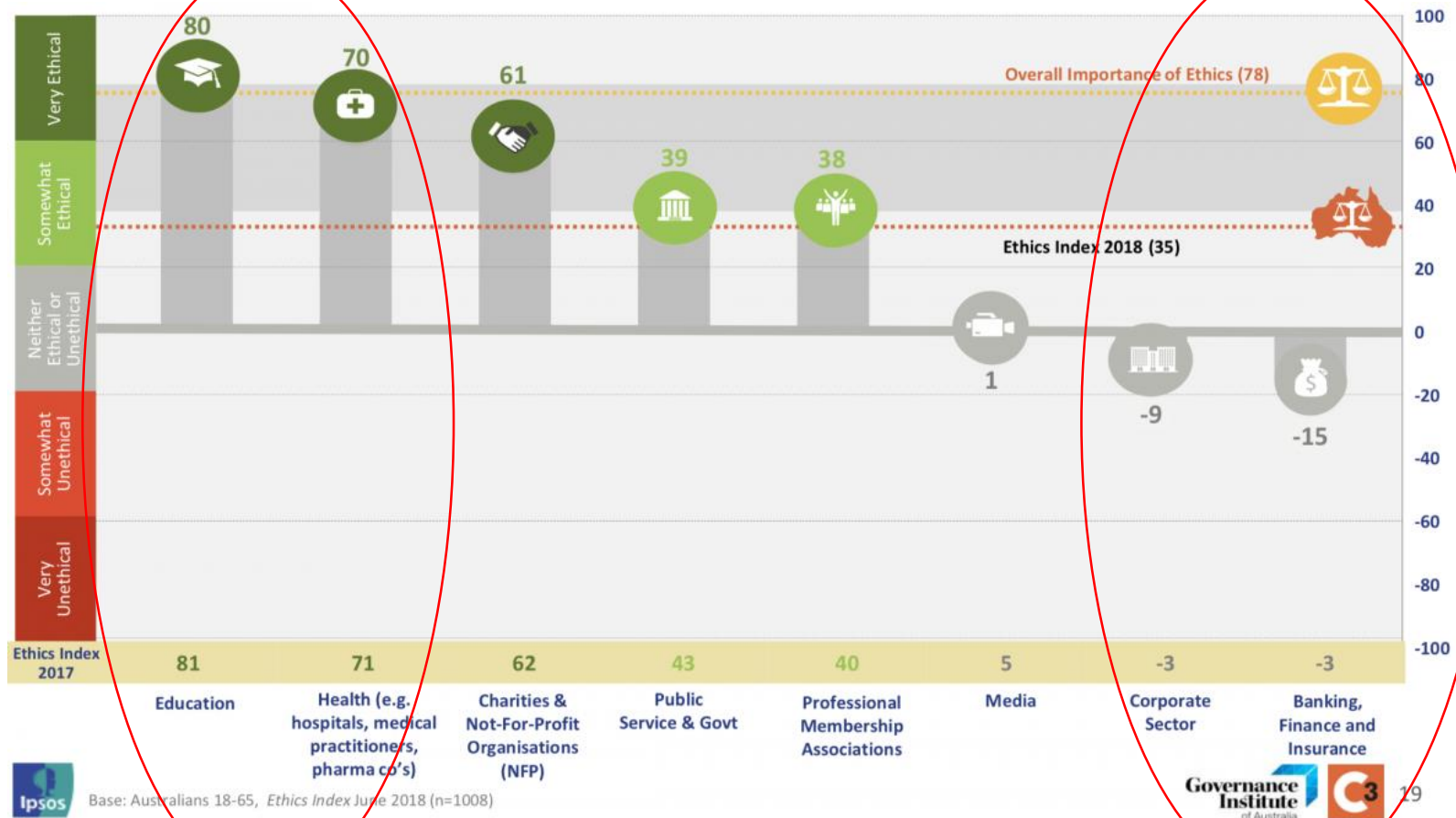
Ethics are not only for the 'big issues'

- Should we execute criminals?
- Can we destroy embryos for medical research?
- Lie under oath?

They inform our day-to-day interactions:

- How we treat our fellow colleagues.
- What information / resources can we use or take from work?
- Should we tell a work colleague a truth even though we know it will upset them?

L10.1 – 2018 Australian Business Ethics Index



<https://thenewdaily.com.au/money/consumer/2018/08/17/ethics-index-2018/>

L10.1 - Ethics



Questions to ask & consider before making a decision:

1. Would I be happy for this decision to be headlining the news tomorrow or be confronted with this in my work / friendship group?
2. Is there a universal rule that applies here?
3. Will the proposed course of action bring about a good result?
4. What would happen if everybody did this?
5. What will this proposed action do to my character or the character of my organisation?
6. Is the proposed course of action consistent with my values and principles?

Reference <http://www.ethics.org.au/about/what-is-ethics>

Ethics - your personal beliefs.....

Work for an ethical
company not supporting
slave labour and earn
10% less?

Work for a company
having no slave labour
policy and earn 10%
more?

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L10.1 - Ethics

THERE IS
NO RIGHT WAY
TO DO
A WRONG THING.



L10 - Intended Learning Objectives

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L10.2 – Australian Computer Society Code Of Ethics

1. The Primacy of Public Interest.
 - *You will place the interests of the public above those of personal, business or sectional interests*
2. The Enhancement of Quality of Life.
 - *You will strive to enhance the quality of life of those affected by your work*
3. Honest.
 - *You will be honest in your representation of skills, knowledge, services & products.*
4. Competence.
 - *You will work competently and diligently for your stakeholders*
5. Professional Development.
 - *You will enhance your own professional development, your colleagues & staff.*
6. Professionalism.
 - *You will enhance the integrity of the ACS & the respect of its members for each other.*

References: www.acs.org.au/content/dam/acs/rules-and-regulations/Code-of-Ethics.pdf
www.acs.org.au/content/dam/acs/rules-and-regulations/Code-of-Professional-Conduct_v2.1.pdf

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L10.3 - What is Outsourcing

Definition: *The practice of engaging an external party (under contract) to perform services or create goods that are traditionally performed in-house by the company's own employees.*



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Types of Outsourcing:

1. Onshoring:
 - Relocating activities inside national borders to access targeted benefits.
2. Nearshoring:
 - Activities relocated to another country with close proximity e.g. New Zealand, Indonesia.
3. Offshoring:
 - Activities relocated to another country irrelevant of geographical location and time zones.

Examples

Various activities are better suited to the type of Outsourcing:

- Architecture
- Change Management
- Project Management
- Business Analysis
- Design
- Software Development Testing
- Operational (Application & Infrastructure) Support
- All the above

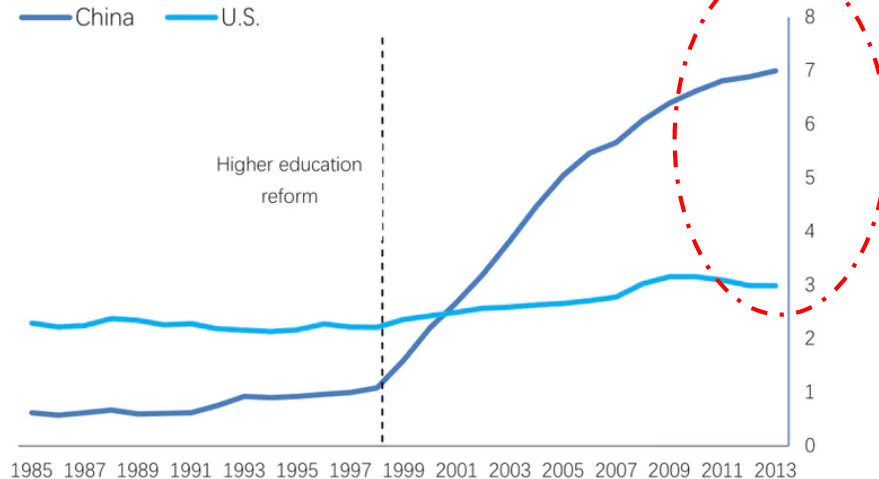
L10.3 - Why Outsource

Accessing a broader skills base at a lower cost



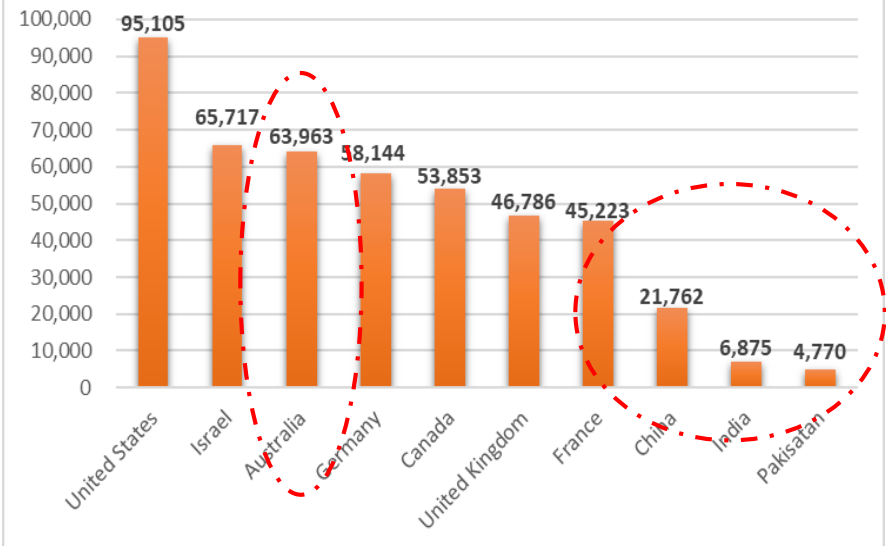
Annual enrolment of new students in higher education institutions

Millions



Source: China National Bureau of Statistics and US Department of Education

Software Engineer Avg Salary (USD)



Reference www.glassdoor.com.au/Salaries/index.htm

L10.3 - Why Outsource



Pros

- Reduces costs
- Access to difficult to find capabilities & skills
- Time savings – 24/7 based activities
- Freeing scarce internal resources to focus on core business activities
- Leverage best practice
- Access to better Technology
- Lower training costs in high turn over jobs
- Flexibility – Ramp up and down
- Increased Accountability - Contracts
- Risk mitigation – Access established and proven approaches e.g. Agile, Project Management etc

Cons

- Loss of control
- Process / supply chain fragmentation
- Security issues
- Employees feel threatened
- Additional effort and cost to engage and manage
- Lower quality work / work to contract
- Time zone, cultural & language challenges
- Location stability - Political, Economic, Religious
- Ethical standards - environment, slave / child labour
- Difficult to change
- Damages to the local job markets
- Loss of Relationship building opportunity with key stakeholders

L10.3 - Outsourcing

Why you should Outsource your IT- Infrastructure example

<https://www.youtube.com/watch?v=KjJ6PBkf0ss>

Why Outsourcing is bad for business:

https://www.youtube.com/watch?v=V7fsElp2r_8

What would you do? You are the CEO of a medium sized company and are looking to outsource a majority of a large project to get access to critical skills at a cheaper price.

I would outsource to any company that provided the best deal.

I would not outsource anything and would do higher people to do all activities.

I would consider all items and risks and only outsource items that had no impact to my business.

I would get someone else to make the decision in case it all went I had someone to fire.

Start the presentation to see live content. Still no live content? Install the app or get help at Pollev.com/app

Negatives of outsourcing include:

Loss of control

Security issues

Employees feel threatened

Additional effort and cost to
engage and manage

Time zone, cultural & language
challenges

Location stability - Political,
Economic, Religious

Ethical standards - environment,
slave / child labour

All of the above

L10.3 - What is Outsourcing and why is it used

Contrary to what the sales people tell you it is NOT a Silver Bullet.

Outsourcing is a powerful tool for Project managers and organisations and it does add value.

Critical to understand your key drivers, risks you want to / can manage and ensure you look at and include the total picture.



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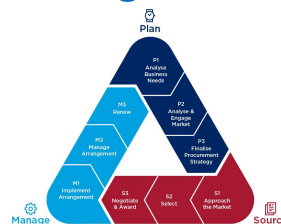
L10.4 - The Procurement Management Process

If there is no need to buy (outsource) any products or services from outside the organisation, then there is no need to perform any of the procurement management processes.

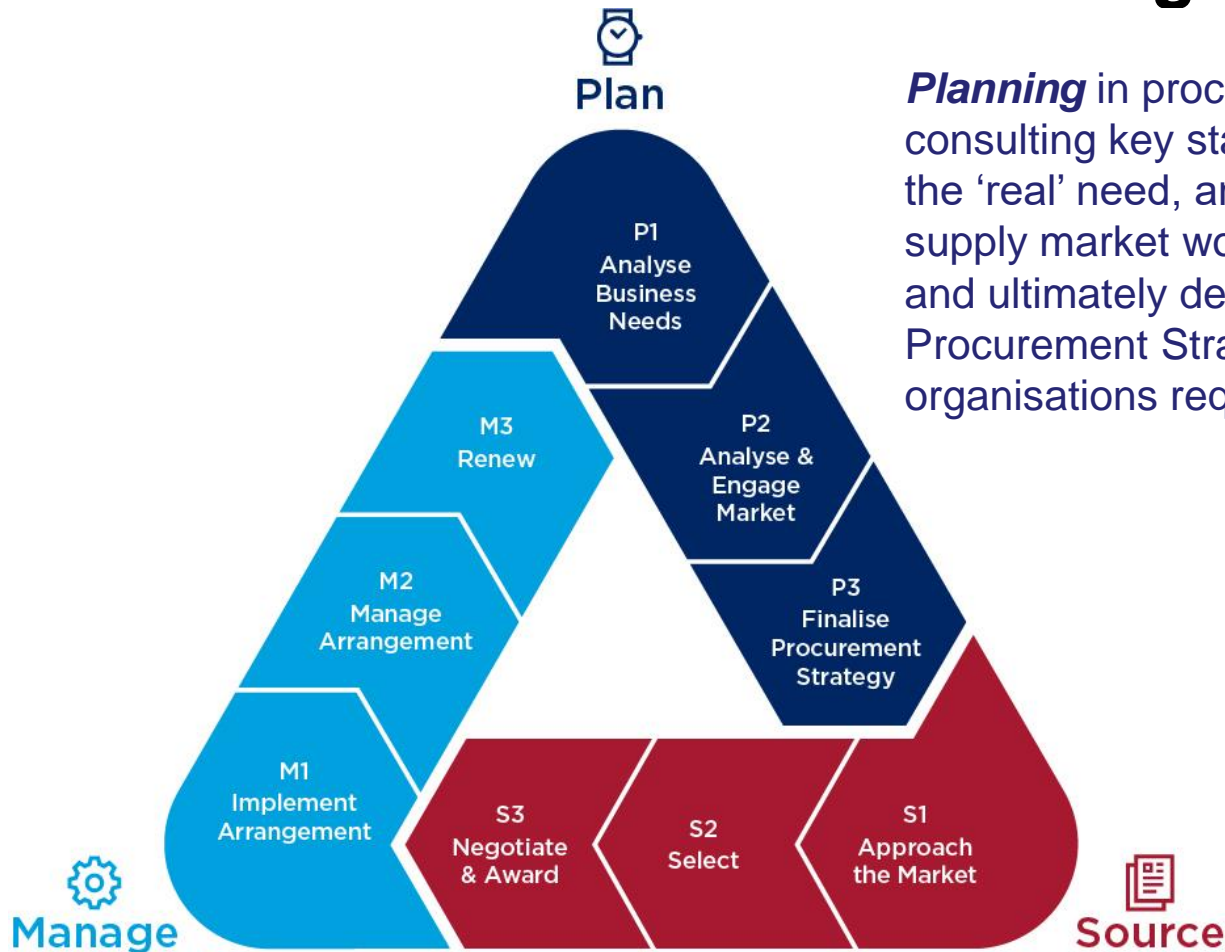
However you will find that most (if not all) projects will contain some sort of outsourcing.

The Procurement Management Process consists of 3 broad stages:

1. Plan.
2. Source.
3. Manage.



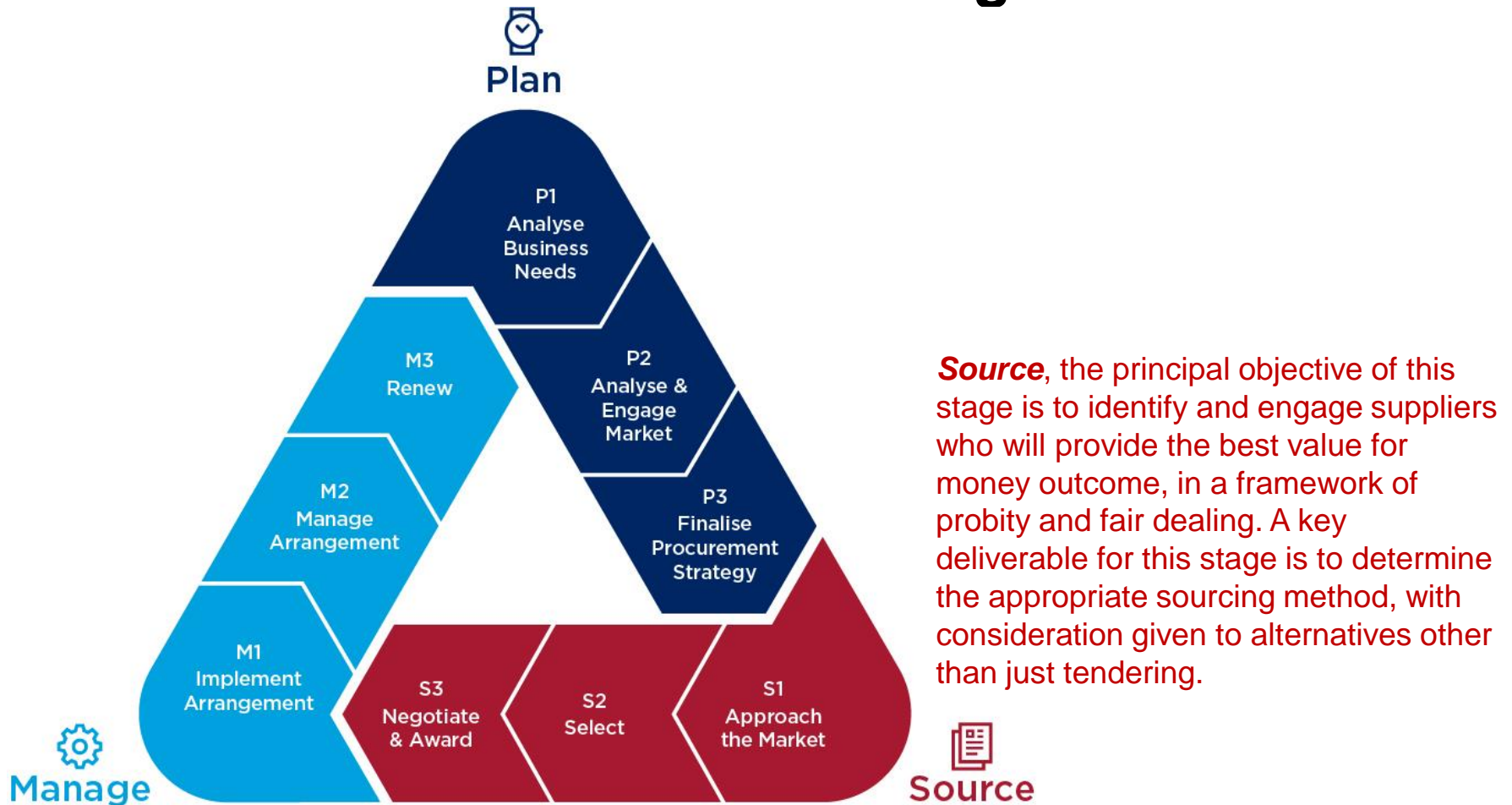
L10.4 - The Procurement Management Process



Planning in procurement involves consulting key stakeholders to define the 'real' need, analysing how the supply market works, assessing risks and ultimately defining the best Procurement Strategy to meet the organisations requirements.

Reference www.procurepoint.nsw.gov.au/policy-and-reform/nsw-government-procurement-information/nsw-procurements-approach

L10.4 - The Procurement Management Process



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L10.4 - The Procurement Management Process

Manage, Every arrangement articulates the rights and responsibilities of the parties so it is important to identify, understand and manage them in order to better ensure you 'get what we contracted for'. Signing an arrangement is not the end of a process, but rather the start of an on-going relationship with the supplier. It needs to be managed in order to deliver the best outcome for the organisation.

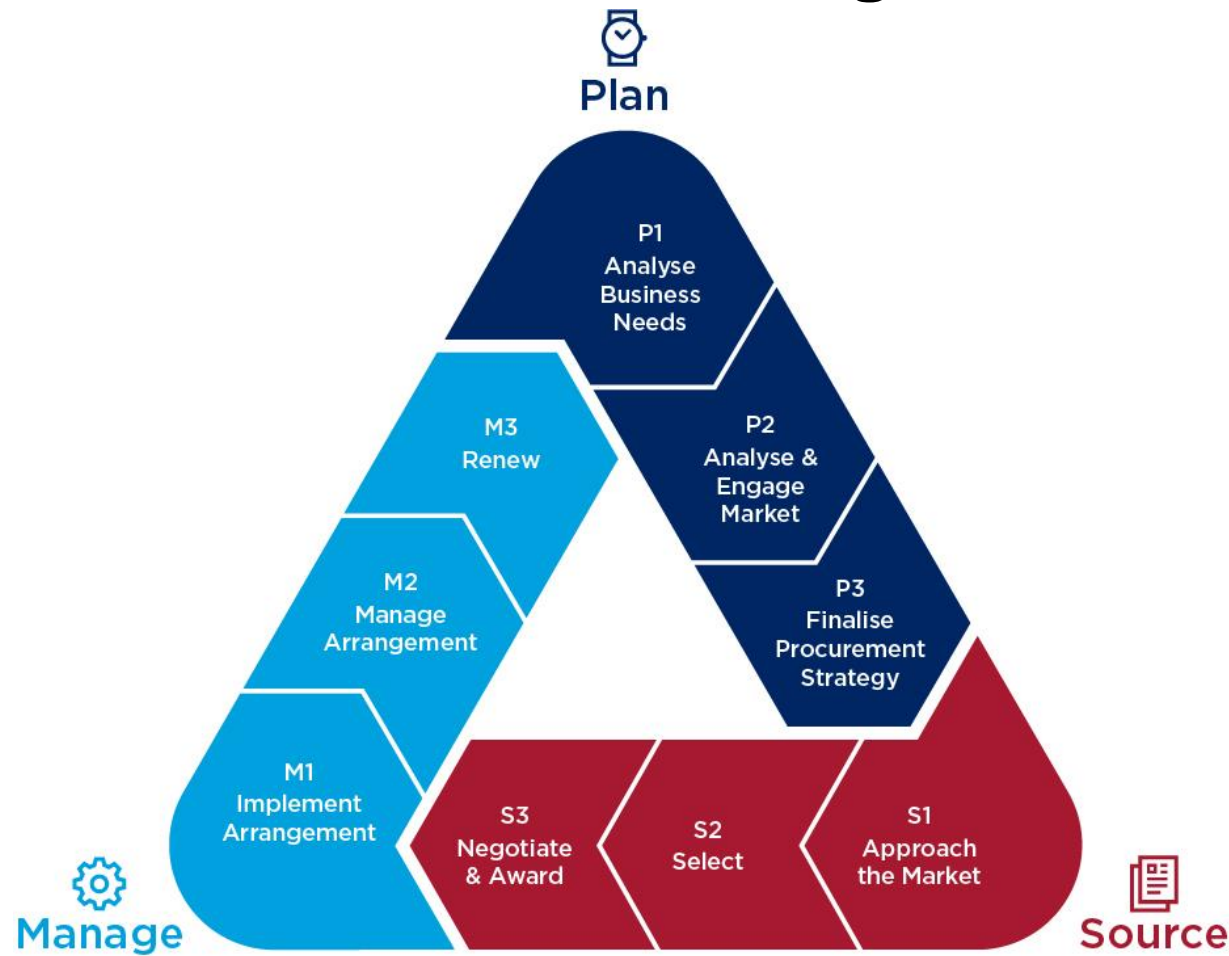


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BREAK

Please return promptly as the
Lecture will re-start in **5 mins**

L10.4 - The Procurement Management Process



Reference www.procurepoint.nsw.gov.au/policy-and-reform/nsw-government-procurement-information/nsw-procurements-approach

L10.4 - Sourcing Procurements



The procurement process is typically conducted with the issuing of a Request For X (RFx), where x = Bid, Information, Proposal, Tender or Quote.

RFx (request for x)

RFB (request for bid)	RFI (request for info)	RFP (request for proposal)	RFQ (request for quotation)	RFT (request for tender)
<ul style="list-style-type: none"> ■ Invitation for prospective suppliers to bid on service ■ It is not a binding agreement ■ Also called "invitation to bid" 	<ul style="list-style-type: none"> ■ Gathers information for potential suppliers ■ Used for major IT purchases ■ Usually precedes RFP or request for offer 	<ul style="list-style-type: none"> ■ Document posted to elicit bids from potential vendors ■ Specifies evaluation criteria ■ Used for complex IT projects or to boost competition 	<ul style="list-style-type: none"> ■ Document eliciting quotes for a product or service ■ Seeks itemized list of prices ■ Used for simpler IT projects 	<ul style="list-style-type: none"> ■ Invitation for suppliers to submit sealed bid ■ Specifies services and timeframe ■ Usually expected to conform to legally standardized structure

L10.4 - Sourcing Procurements - RFx



The RFx document is prepared by the buyer and will have specific information depending on the what it is (RFI, RFP, RFT/Q). It will typically include:

1. Purpose of RFx.
2. Organisation's Background.
3. Basic Requirements.
4. Hardware and Software Environments.
5. Description of RFx Processes & Evaluation.
6. Statement of Work and Scheduled Information.
7. Appendices:
 - a. Current Systems Overview.
 - b. Systems Requirements.
 - c. Volume and Size data.
 - d. Required Contents of Vendor's Response to RFx.
 - e. Sample Contract.

L10.4 - Sourcing Procurements - SOW



A key component of the RFx document is to analyse the business needs and establish a detailed Statement of Work (SOW).

A Statement Of Work is a description of the work required. A good SOW is detailed and gives bidders an understanding of buyer's expectations, key items include:

- Scope of Work to be completed
- Location of where the Work is to be completed from
- Measurement and Performance criteria
- Deliverables, milestones and schedule
- Applicable Standards and Acceptable Criteria
- Any Special Requirements

L10.4 - Sourcing Procurements



Approach the Market, Select, Negotiate and Award:

- Deciding whom to ask and potentially do the work
- Sending appropriate documentation to potential sellers / bidders
- Obtaining proposals / bids
- Evaluating responses and selecting a preferred supplier
- Negotiating the contract
- Awarding a contract

L10.4 - Sourcing Procurements



Evaluation Processes:

1. Evaluation team review of RFx response and evaluate against predetermined criteria.
2. Schedule short-listed vendor presentations.
3. Check vendor references.
4. Short-listed vendor presentations.
5. Evaluation team site visits to short-listed vendors / references.
6. Evaluation team finalises evaluation and selects short-listed firms.
7. Best and Final Offer (BAFO) with short-listed firms.
8. Conduct final negotiation with preferred supplier.

L10.4 - Sourcing Procurements



Sample Evaluation Sheet:

		Proposal 1		Proposal 2		Proposal 3	
Criteria	Weight	Rating	Score	Rating	Score	Rating	Score
Technical Approach	25%						
Management Approach	25%						
Past Performance	20%						
Price	30%						
Total Score	100%						

To calculate the score multiply the weight of the criterion by the rating for the proposal

L10.4 - Managing Procurements



Implement, Manage & Renew:

- Implement the agreement & services as per the contract and SOW
- Manage the agreement to ensures the seller's performance meets contractual requirements
- Review and control all changes - It is critical that project managers and team members watch for Constructive Change Orders
 - If change is requested then contractor can legally bill the buyer for additional work

L10.4 - Managing Procurements



Change Control is critical. Focus on it early and get it right!

- Changes in any part of the project need to be:
 - Reviewed
 - Approved
 - Documented
- Evaluation of any change should include an impact analysis
 - Time, Cost, Scope, Quality
- Changes must be documented and signed off by appropriate delegates (business, procurement, finance etc)

L10.4 - Managing Procurements



Renew / Closing Procurements:

- Involves completing, settling contracts and resolving issues
- The project team should:
 - Determine if all work was completed correctly and satisfactorily
 - Resolve any issues or outstanding items
 - Up date records to capture all lessons learnt & outcomes
 - Archive information
 - Capture all knowledge and lessons learnt
- The contract itself should include requirements for formal acceptance and closure

**The procurement process is typically
conducted with the issuing of a Request For
X (RFx)**

True

False

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The 3 stages of procurement are:

Plan, Manage and
hope it works

Plan, Source and
Manage

Source, Manage
and Contract

All of the above

L10 - Intended Learning Objectives

L10.1 Understand how and why Ethics are important

L10.2 Australian Computer Society Code of Ethics

L10.3 Understand what Outsourcing is and why it is used

L10.4 Understand the Procurement Management Process

L10.5 Understand the types of contracts, when you would use them and key contractual clauses

[illegible]

L10.5 -Contracts



Contracts are the one source of truth for all activities that are to delivered by the external parties.

What is a Contract?

- A mutually binding agreement that obligates the seller to provide the specified products or services and obligates the buyer to pay for them
- A document that clarifies responsibilities and sharpens focus on key requirements – deliverables, quality, timeframes etc
- A legally binding document that increases accountability for delivering the specific work as stated in the contract
- A document that must be detailed and and accurately as they are used as the final position (you get out of them what you put to them)
- It is rarely used or relied on and seen as a last point of call.

L10.5 -Contracts



Different types of Contracts are used in different situations with all having pros and cons:

- ***Fixed Price*** contracts: involve a fixed total price for a well-defined product or service.
- ***Time & Material*** contracts: involve payment to the seller for actual time spent and any materials used in providing the service.

L10.5 -Contracts



Fixed Price

Time & Material

LOW

BUYER'S RISK

HIGH

HIGH

SELLER'S RISK

LOW

Fixed Price model

When to choose:



Clear deadlines



Detailed specification



Short project duration



Optional client's control



No changes planned

Pros

- ✓ No overpayments
- ✓ No distrust
- ✓ No supervision
- ✓ No turn-ups
- ✓ Low risk

Cons

- ✗ Longtime preparation
- ✗ Minor control over the process
- ✗ Lack of communication

Time and Materials model

When to choose:



Raw project concept



Workflow can change



Innovative idea



Little known target market



Intention to take control

Pros

- ✓ Flexible budget
- ✓ Easy start
- ✓ Part-payment opportunity
- ✓ No costs for preparations
- ✓ Agile orientation

Cons

- ✗ No deadlines
- ✗ Low budget control
- ✗ Time for participation

L10.5 -Contracts



Contracts should include specific clauses that take into account issues that are unique to the project – Quality, Time, Location etc

Key contractual conditions should include

- Intellectual Property Ownership and Indemnities
- Milestones and Deliverables
- Quality Criteria / Performance and Acceptance testing
- Variations to scope, time, costs etc – defined Change request process
- Non-Performance / Termination - Convenience, Breach etc
- Disengagement & Transition
- Liquidated Damages
- Fees & Penalties
- Warranties

Reference www.mdplaw.com.au/insights-publications/software-development-agreement

Contracts are the one source of truth for all activities that are to delivered by the external parties

Yes

No

Sometimes

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2019 - Semester 2 Structure

Week #	Lecture w/b Date	Old Arts Public Lecture Theatre Friday 3.15pm to 5.15pm	Assignment
1	29/07/19	Subject Introduction, Introduction to Projects and Project Management	
2	05/08/19	Project Management Plan & SDLC's	Assignment 1 Spec available on LMS Friday 09/08/19
3	12/08/19	SDLC - Agile Scrum – continued Individuals, Motivation and Teams	
4	19/08/19	Stakeholder Management Communication Management	Assignment 2 available & Groups created during the workshops / tutorials – attendance mandatory
5	26/08/19	Project Planning and Scheduling Assignment 1 & 2 open forum / discussion	Assignment 1 (Individual) due Fri 30/08 @ 11.59 pm
6	02/09/19	Cost Estimation	
7	09/09/19	Risk Management	
8	16/09/19	Quality Management/Configuration Management	Assignment 2 (Part 1) due Wed 18/09 @ 11.59 pm
9	23/09/19	<i>No Lecture - University Holiday</i>	
	30/09/19	<i>Non Teaching Week – Mid semester break</i>	Assignment 2 (Part 2) due Sat 05/10 @ 11.59 pm
10	07/10/19	Ethics, Outsourcing & Procurement	Assignment 2 (Part 3) due Sat 12/10 @ 11.59 pm
11	14/10/19	Guest Lecture	Assignment 2 (Final) due Sat 19/10 @ 11.59 pm
12	21/10/19	Subject Revision and Exam Prep	Assignment 2 Project Demonstration during tutorials