

CSE 4103/ ISY 4102/ ITE 4102

Applied Project

LECTURE 0



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Course Overview

- This course will provide students an opportunity to develop a professional understanding of teamwork in small groups while working on real community-based projects.
- During this course, students will apply the hard skills learned in individual programme courses to research, devise and carry out a systems development plan for a local organization.



Course Overview

- Students will be required to apply and further develop the necessary soft skills of leadership, professionalism and adaptability required by the real-world work environment.
- Students will use these hard and soft skills to devise and execute a systems development plan or system improvement plan which will entail requirements engineering, software development and project management towards the development and implementation of a functional software system for a local organization



Learning Outcomes

- Manage a software development project;
- Meet project milestones individually and within a team environment;
- Interact with clients in a professional manner;
- Develop and deploy an effective systems-based solution for the client;
- Assess other team projects and receive feedback in a professional manner.



Course Leaders

- Mr. Dave Sarran
- Mr. Malcolm Williams

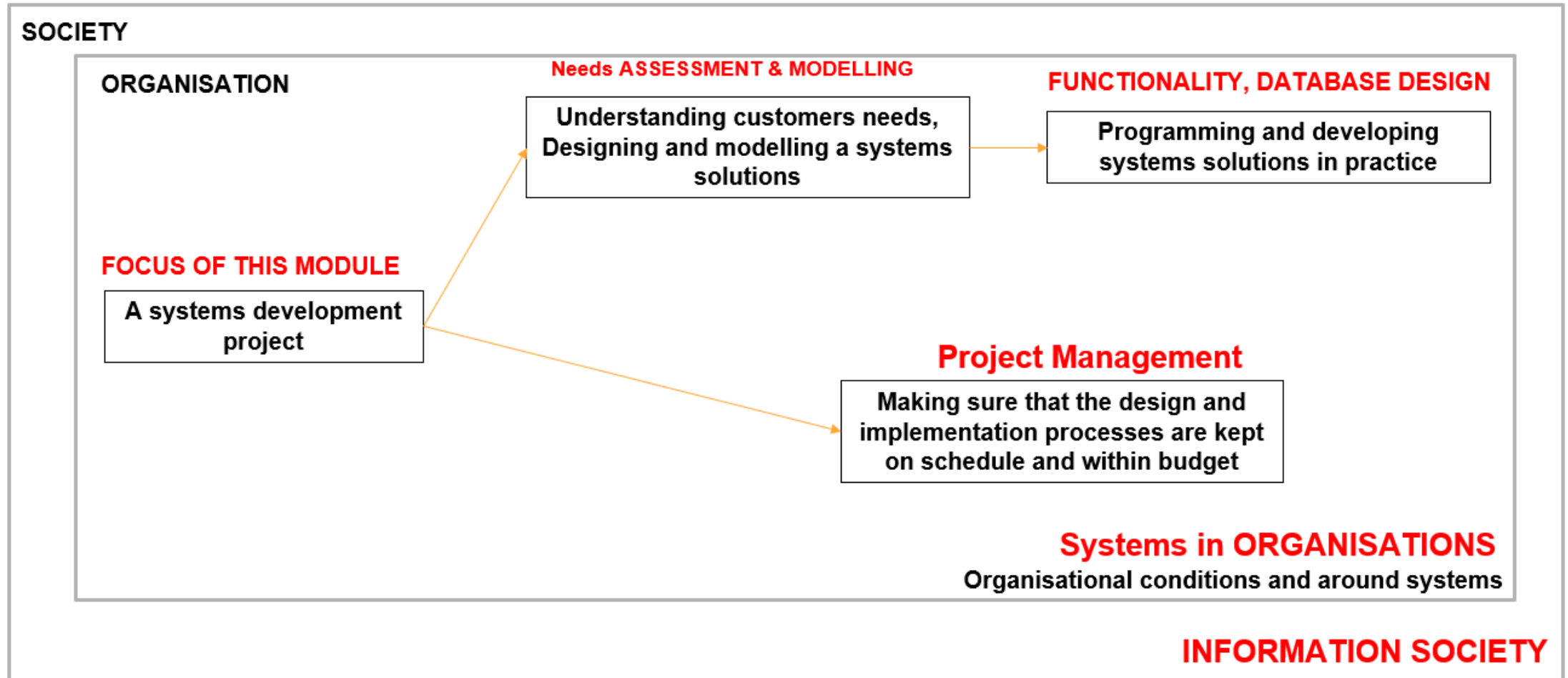


Method of Teaching

- Lectures : $1 \times 13 = 13$ hrs
- Field Work : $5 \times 13 = 65$ hrs



Course Content



Teamwork

- Students in this course are expected to work in multi-disciplinary teams (Computer Science, Information Systems and Information Technology)
- Students are encouraged to utilize soft skills
 - 1) People skills; 2) Leadership; 3) Listening; 4) Integrity, ethical behavior, consistency; 5) Strength at building trust
- Students will be divided in groups for the assignments
- Ensure you know in which group you are and which session you are involved in



Types of Systems Projects

- Software development – design, specify, develop new system
- System enhancement – adding new features to a working system
- System migration – move system to new operational environment
- Outsourced projects – developed, implemented outside organisation
- Infrastructure – upgrading PCs, networks etc



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Course Content

Week 1	Project management: <ul style="list-style-type: none">– Setting up a development schedule– Components of systems development Teamwork Fundamentals
Week 2	First meeting with clients: <ul style="list-style-type: none">– Assess the requirements– Determine the ongoing budget– Determine existing infrastructure (if applicable)– Discuss resources available– Set tasks, milestones and deliverables
Week 3	Team meeting and working session (brainstorming)
Week 4	Client-Team working session to draft proposal



Course Content

Week 5	Team development working session
Week 6	Team development working session
Week 7	Team development working session
Week 8	Team development working session
Week 9	Peer review of projects



Course Content

Week 10	Team development working session Team-Client working session to discuss deployment
Week 11	Team development working session
Week 12	Team development working session
Week 13	Team development working session
Week 14	Team Project revisions
Week 15	Deploy project and make final presentations to clients



Who should you have on your team?

For a typical large scale systems development project

- Project manager – Responsible for day-to-day management
- Business analysis – Business aspects of IS development
 - e.g. Undertake business process modeling
- Systems analysis – Convert business needs into systems designs
- Software developers – Program and test software
- Database administrator – Undertake database scoping and design
- Quality manager - Manage and check quality assurance
- Risk manager – Responsibility for identifying and managing risk



Who should you have on your team?

For smaller projects, many of the roles outline in the previous slide will be done by single people

- Software developers undertake database design
- Project manager manages risk and quality in a project
- Systems and business analysis are done by a single analyst



Methods of Assessment

- Continuous assessments

Assessment	Weight
Communication with Client and Team Members	20%
Production Schedule Milestones	20%
Final Project	60%



Recommended Readings

- Software Engineering Project Management, 2nd Edition 2nd Edition by Edward Yourdon (Author), Richard H. Thayer (Editor)
- Project Management Made Easy by Sid Kemp
- Leading Self-Organising Teams by Siegfried Kaltenecker



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Applied Project

LECTURE 1

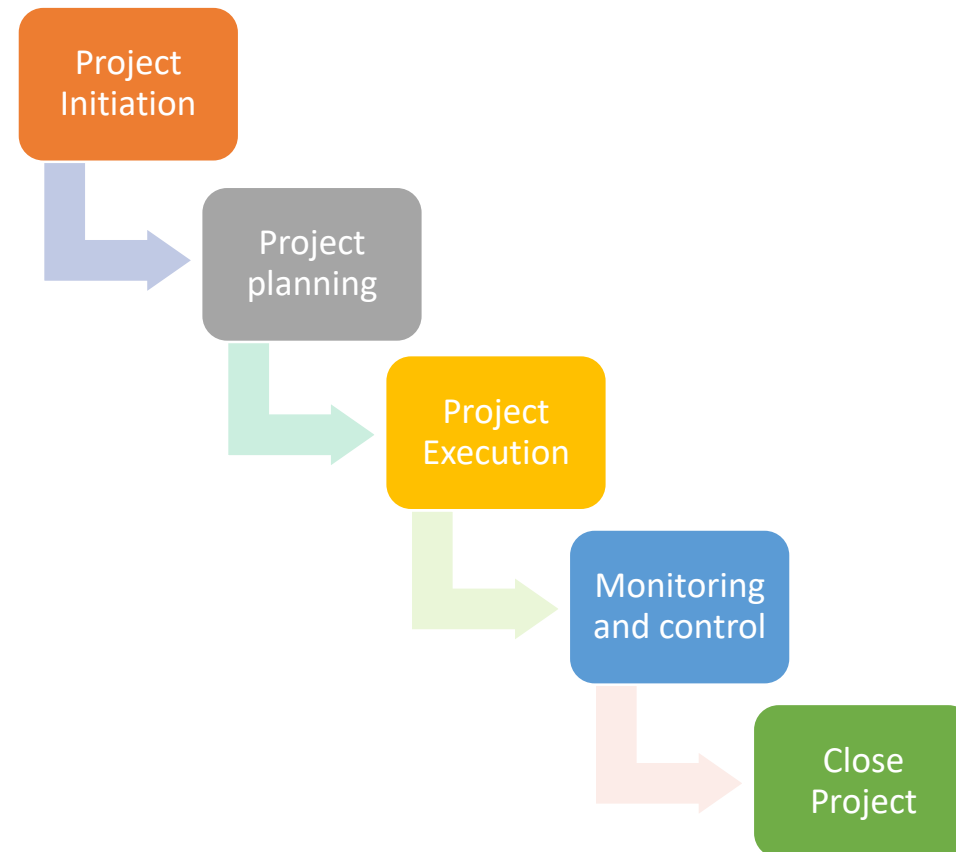


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Embarking on a Project

- All projects can be broken down into a set of sequential stages to make them more manageable



Project Initiation

Selecting - Most organisations are likely to have a whole range of options.

- **Business Case Document** – This document justifies the need for the project, and it includes an estimate of potential financial benefits.
- **Feasibility Study** – This is an evaluation of the project's goals, timeline and costs to determine if the project should be executed. It balances the requirements of the project with available resources to see if pursuing the project makes sense.

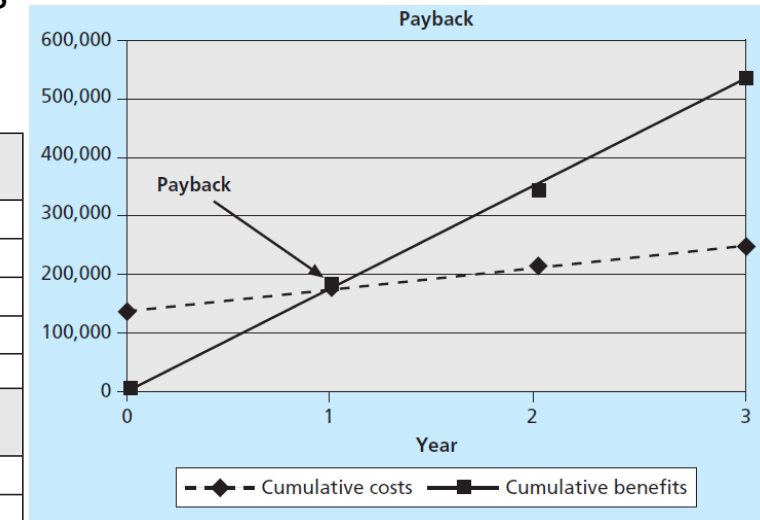
Defining – Clear project goal, with expanded business case often called a **project charter**

Business case

- ✓ Executive summary
- ✓ Introduction
- ✓ Description of the problem
- ✓ Options considered
- ✓ Analysis of the benefits
- ✓ Impacts and risks
- ✓ Conclusion and recommendations

Year	DEVELOP IN-HOUSE	Operating Cost	Benefit	Net
0	\$300,000	\$80,000		(\$380,000)
1		\$180,000	\$250,000	\$70,000
2		\$200,000	\$350,000	\$150,000
3		\$225,000	\$450,000	\$225,000
TOTALS	\$300,000	\$685,000	\$1,050,000	\$65,000
Year	OUTSOURCE	Operating Cost	Benefit	Net
0	\$500,000	\$20,000		(\$520,000)
1		\$60,000	\$250,000	\$190,000
2		\$80,000	\$350,000	\$270,000
3		\$110,000	\$450,000	\$340,000
TOTALS	\$500,000	\$270,000	\$1,050,000	\$280,000

Cost-benefit on in-house vs outsource (Olson 2015, p54)



(Schwalbe 2015, p153)

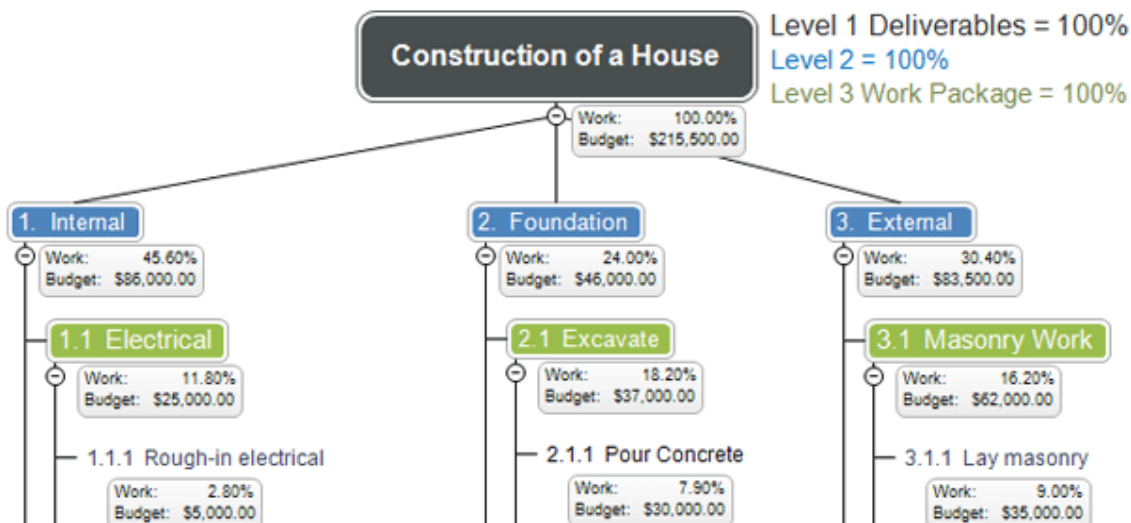


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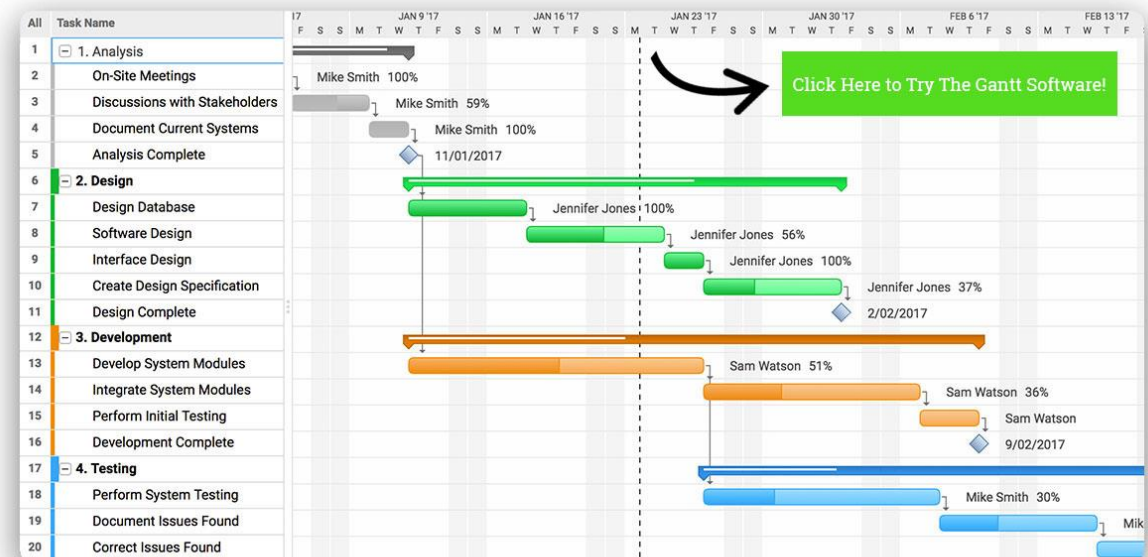


Project Planning

- Once your project's been given the go-ahead, there is a need to hammer out the scope, schedule, and cost of a project.
- This is usually done by drawing up a project plan, scope or charter, then calculating a budget, the resources needed, and a schedule.



Work Breakdown Structure (WBS, 2019)



Gantt Chart (Project Manager, 2018)



Project Execution

- This is the phase that is most commonly associated with project management. Execution is all about building deliverables that satisfy the customer.
- Team leaders make this happen by allocating resources and keeping team members focused on their assigned tasks.
- Execution relies heavily on the planning phase. The work and efforts of the team during the execution phase are derived from the project plan.



Project Monitoring and Control

- Monitoring and control are sometimes combined with execution because they often occur at the same time.
- Project managers will use **key performance indicators (KPIs)** to determine if the project is on track.

- **Project Objectives:** Measuring if a project is on schedule and budget and will meet stakeholder objectives.

- **Quality Deliverables:** This determines if specific task deliverables are being met.

- **Effort and Cost Tracking:** PMs will account for the effort and cost of resources to see if the budget is on track.

- **Project Performance:** This monitors changes in the project and ensuring its still within its scope



Project Closure

- Projects Teams close a project when they deliver the finished project to the customer, communicating completion to stakeholders and releasing resources to other projects.
- Project managers will have few tasks to complete.
 - Create a project **punch list** of things that didn't get accomplished during the project and work with team members to complete them.
 - Prepare a final project budget and report.
 - Collect all project documents and deliverables and store them in a single place.

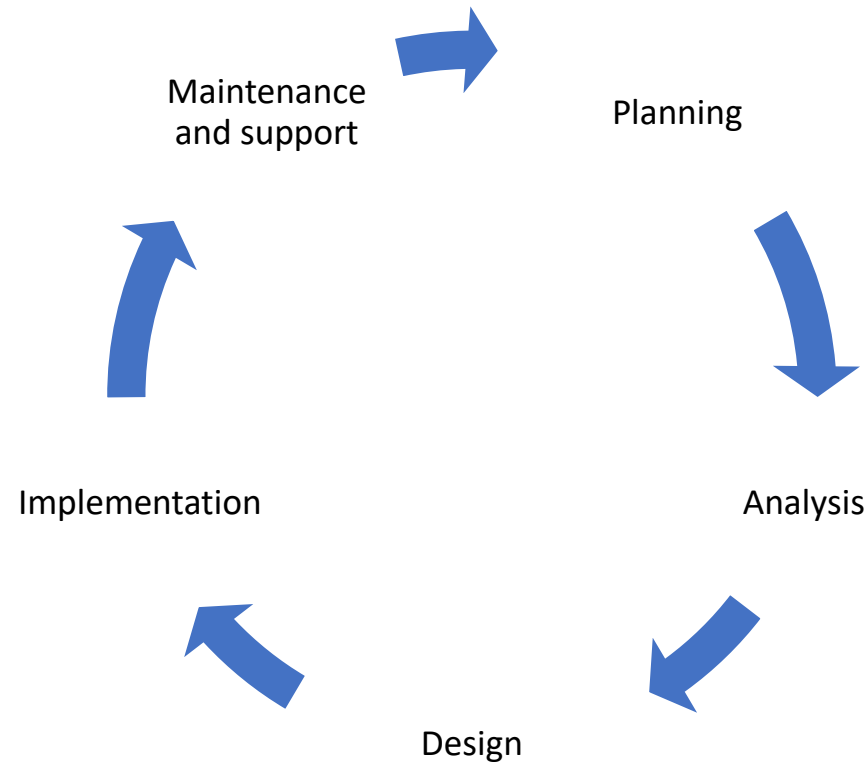


Project management lifecycle VS Systems development lifecycle



Systems development lifecycle (SDLC)

At the same time as the project. There is also the lifecycle of information system development occurring

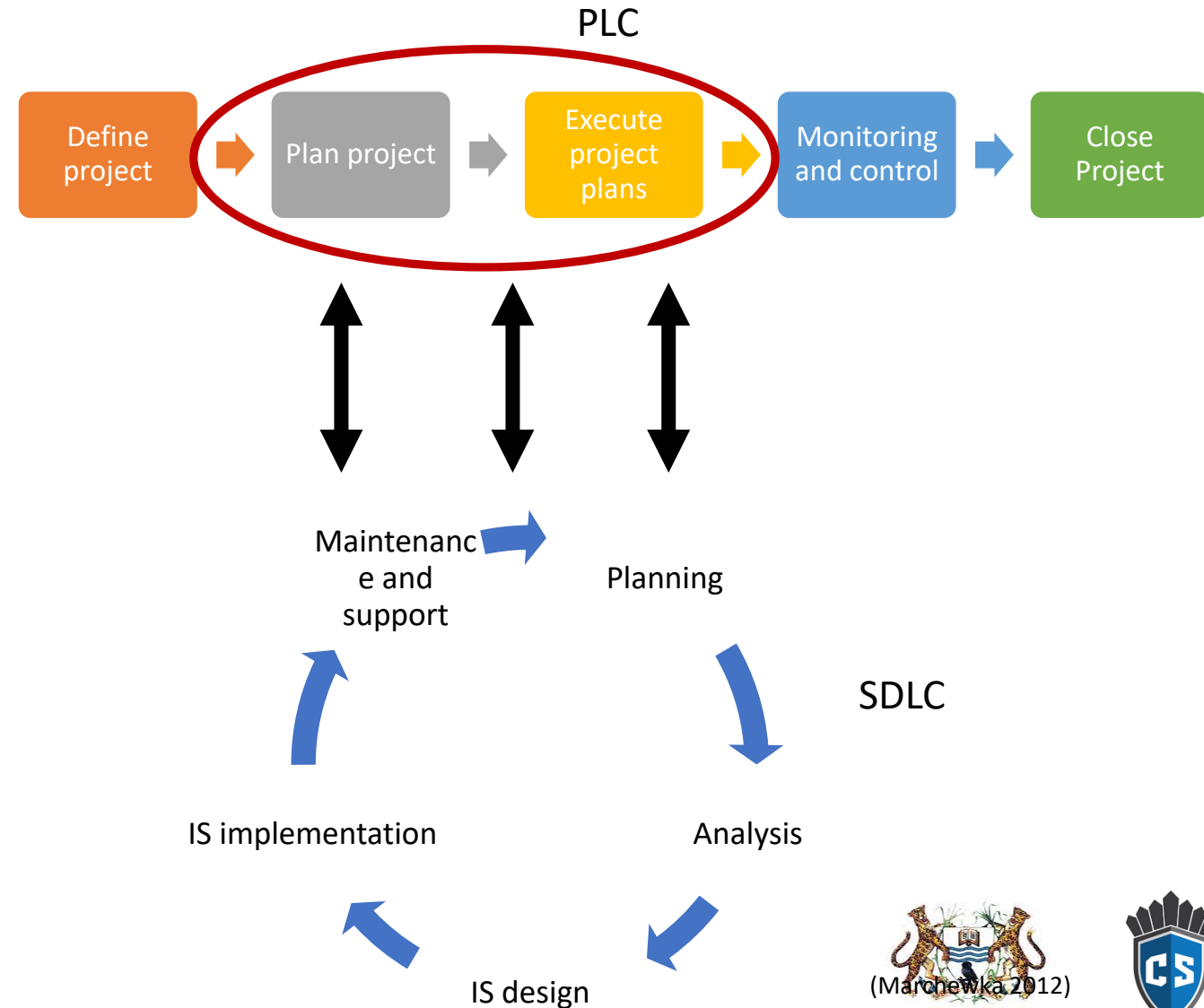


How do PLC and SDLC relate?

- PLC - activities and tools for managing projects

- SDLC - creating and implementing a systems solution within a project

Many aspects of SDLC occur within the “**plan**” & “**execute**” phase of a project



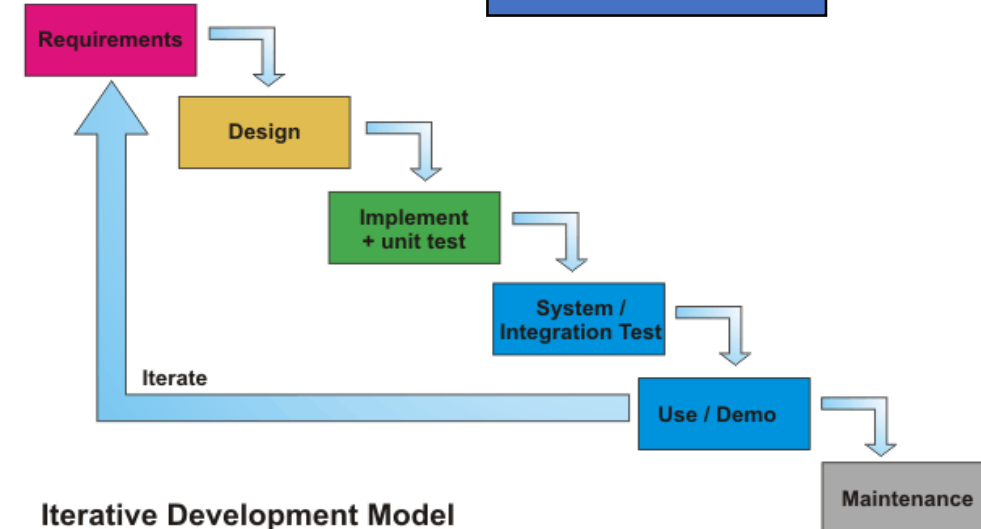
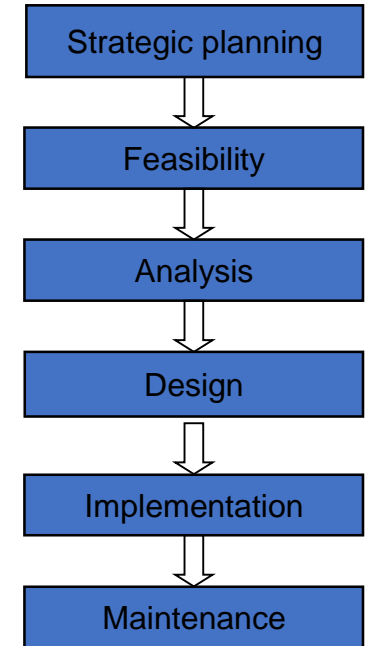
Systems development approaches

Waterfall or sequential

- Sequence of stages - complete stage before moving to next
- Typically popular in large-scale formal projects

Iterative or agile

- Create partial system/prototype, gather feedback and refine
- In the *Agile* form of development, each iteration may lead to a working system
- Popular in dynamic smaller-scale projects



Comparison of IS approaches

Waterfall

- Coherent, formally planned
- Limited flexibility for changed requirements
- Costly to undo mistakes from early phases
- Mismatch between IS design and user requirements

Iterative

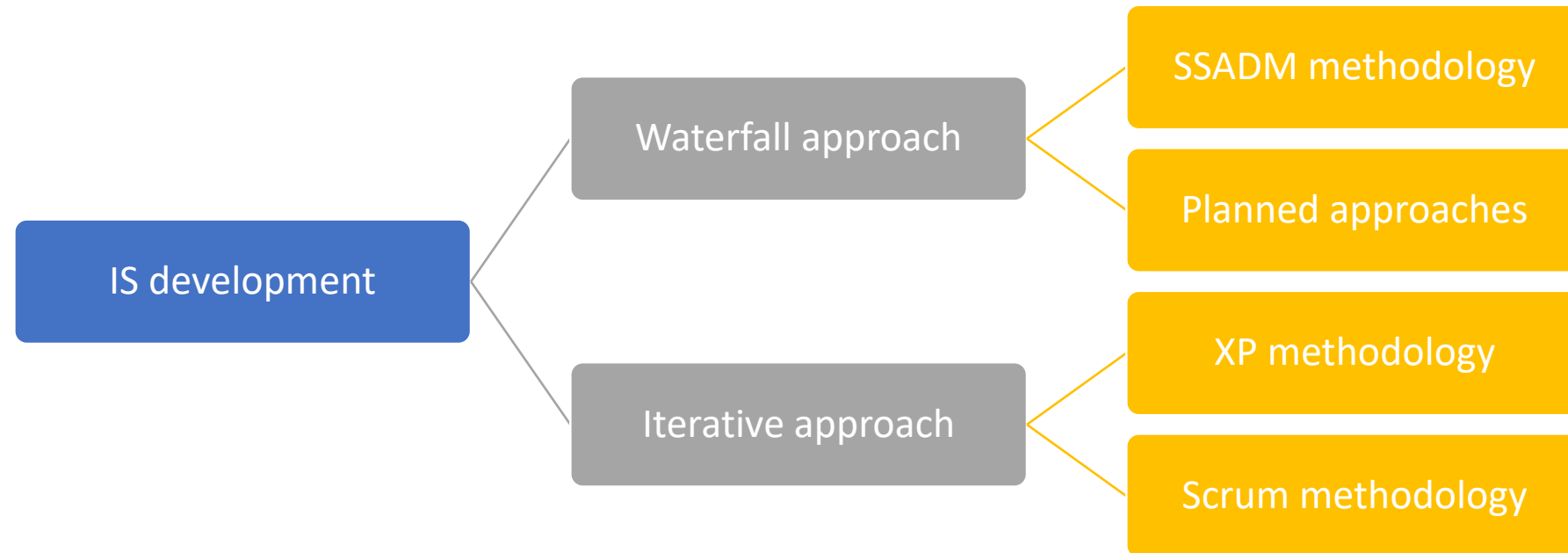
- More user involvement
- More rapid production of working systems
- Can incorporate changes during the lifecycle
- Potentially harder to use for large scale, formal projects



Approaches and methodologies

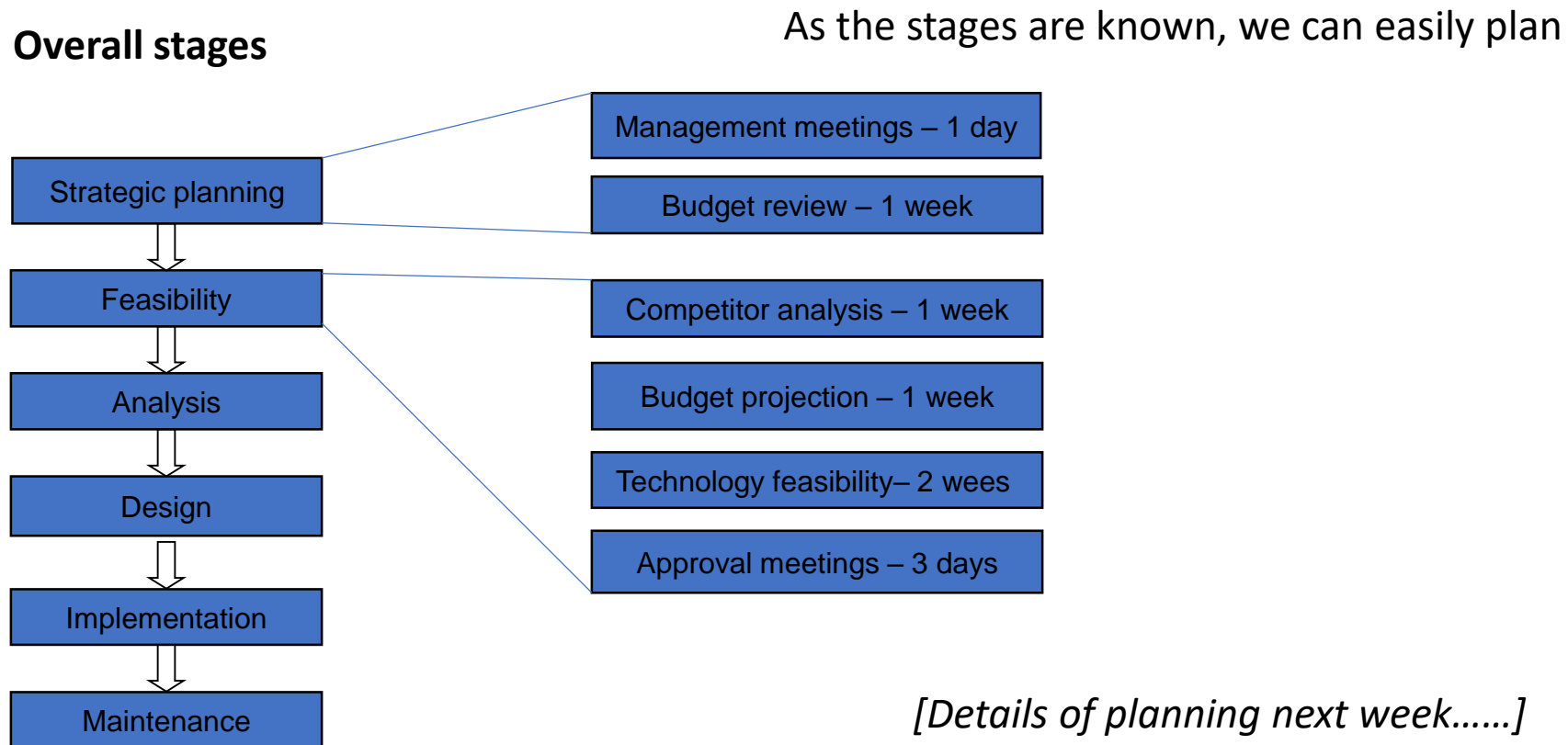
Methodologies are like recipes. They detail how to undertake the systems development processes

- Provide checklists, detail of tasks, guidance on key roles



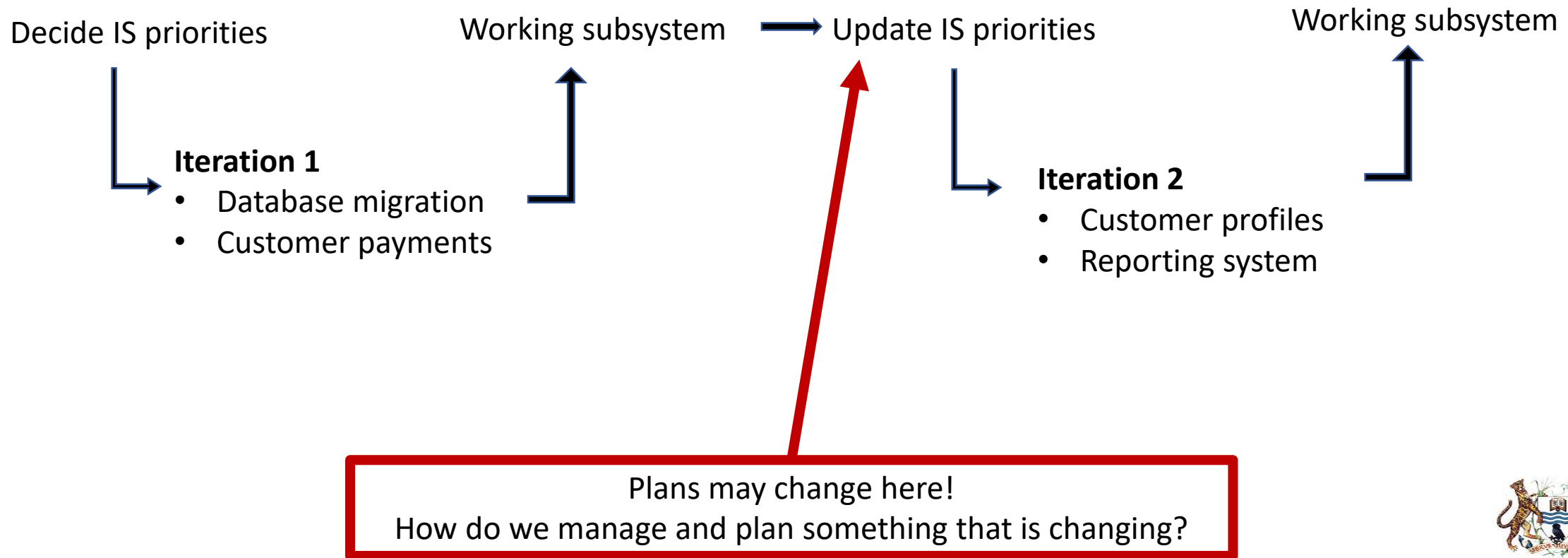
Managing the systems lifecycle

- **Waterfall – Planning.** There are clear stages and clear tasks at the start.



Managing the systems lifecycle

- **Iterative –much harder to plan and things change are changing all the time**



Class Exercise

- You're a project manager in a small IT development company which has recently won a contract with a small dental practice to design, develop and implement a new patient appointment system. Your company is new and has very little experience dealing with companies within the health domain.
 - As a project manager, what development approach will you consider for this project and why?
 - Also what could be the limitation of this approach and how will you address it?
- Your company sells the best software to support patients during kidney transplant. A new hospital has asked your company to roll out the software within the next 4 months in order to save at least 4 lives monthly. As the project manager, you have identified some few risk that may affect the project deadline. The major risk is that the date of a national holiday when many staff involved in the project will be asking for holidays is due at a critical stage of the project. Hence there is a risk that staff shortage will cause delay.
 - As a project manager, how would you mitigate this risk.



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