Applied Project
ITE4102/CSE4103/ISY4102

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Course Objectives

- This course will provide students an opportunity
  - Develop a professional understanding of teamwork (think **High Performance Team**)
    - Mixed Team comprising CSE, ITE and ISY students (you bring different, yet complementary perspecrtives/skills)
  - Work on real community-based IT projects
  - Apply the hard skills learned in individual programme courses to carry out an IT Project.
  - Develop leadership skills, professionalism and to adapt to the realities of real-world work.
  - Initiate, Plan and Execute a **systems development plan** or **system improvement plan**; involving requirements engineering, software development and project management.

Course Objectives con’t

- Upon successful completion of this course students shall reliably demonstrate the ability to:
  - 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 Information

- **Method of Assessment:**

This courses uses continuous assessment to evaluate students' learning.

- **Method of Teaching:**

Lectures	1 x 13	=	13 hrs.
Field Work	5 x 13	=	65 hrs.

- Communication with Client and Team Members **20%**
- Production Schedule Milestones **20%**
- Final Project **60%**

A few Prerequisite thoughts:

Systems Thinking in Project Management in a Nutshell

Challenges of Project Management

- The principles and theories of PM are not difficult to understand
- However, implementing these principles under different conditions/environments is challenging
- In view of above, Project Managers must
  - Consider every environment/condition in which the project is situated
  - Consider uniqueness of project and the conditions/environment; which involves attention to:
    - systems approach,
    - understanding organizations,
    - managing stakeholders,
    - matching product life cycles to the project environment,
    - understanding the context of IT projects, and
    - reviewing recent trends that affect IT project management.

Systems Approach

- Projects are situated in a broader organizational context
  - Portfolio
  - Programmes
  - Projects
  - Activities

- Project Managers employ Systems Thinking to handle the complex situations in which projects, in consideration of their environment, are situated.

- Systems Thinking helps the Project Manager to:
  - take a holistic view of a project, and
  - understand how the project relates to the larger organization.

Systems

- The term system means different things to different people
  - An engineer sees a system as a physical object
  - An economist sees a system as a mode of operation; e.g. free enterprise/market system or inventory system
  - A computer scientist sees a system as HW or SW systems
  - A Rastaman may speak to the Babylon System
- System in terms of a definition is not clearly defined; by virtue of the above.
- In this course, we shall adopt the broadest definition; as a system being a set of interrelated components with relationships between them that together give rise to some phenomenon.

Systems Approach

- Systems Approach emerged in the 1950's, it is a school of thought in the management field which stresses the interactive nature and interdependence of external and internal factors in an organization – sees organisations as systems within systems.

- Further, Systems Approach can be seen as a methodology and analytical approach to solving complex problems. This involves:
  - Systems Philosophy: a model for thinking about things as systems
  - Systems Analysis: a problem-solving approach; involves
    - scoping of the system,
    - decomposing into components
  - Systems Management: addresses the business, technological, and organizational issues associated with creating, maintaining, and modifying a system

What is a Problem?

What is a Problem?

- A desired objective is not a problem by itself.
  - *The key to a problem is that there is an obstacle that prevents you from closing the gap.*

- A problem is a *gap(achieving your objective)* between where you are **(AS-IS)** and where you want to be **(TO-BE),** with an obstacle that prevents easy movement to close the gap.

- Problem solving consists of finding ways of overcoming or getting around obstacles.

Problem Solving

A critical skill in leading and managing

1. Identify and Define the Problem
   (seeing what others do not see; objectives)
2. Analyze the Problem &
   Establish Evaluation Criteria
3. Identifying Alternative Solutions
4. Selecting the Best-Fit Solution

Decision Making

5. Develop an Action Plan
6. Implement the Solution
7. Evaluate the Solution

Take Action to Solve Problem

Applying Critical Thinking

- In defining the problem ask
  - What is the problem?
  - What are the symptoms of the problem?
  - What are the assumptions?
  - Is/Are the evidence reliable?
  - Is there missing information?
  - Is there another reason for the problem?

    (think; alternative hypothesis)

Systems Analysis

- Systems Analysis, a definition
  - the act, process, or profession of studying an activity (such as a procedure, a business, or a physiological function) typically by mathematical means (formal/objective means) in order to define its goals or purposes and to discover operations and procedures for accomplishing them most efficiently.

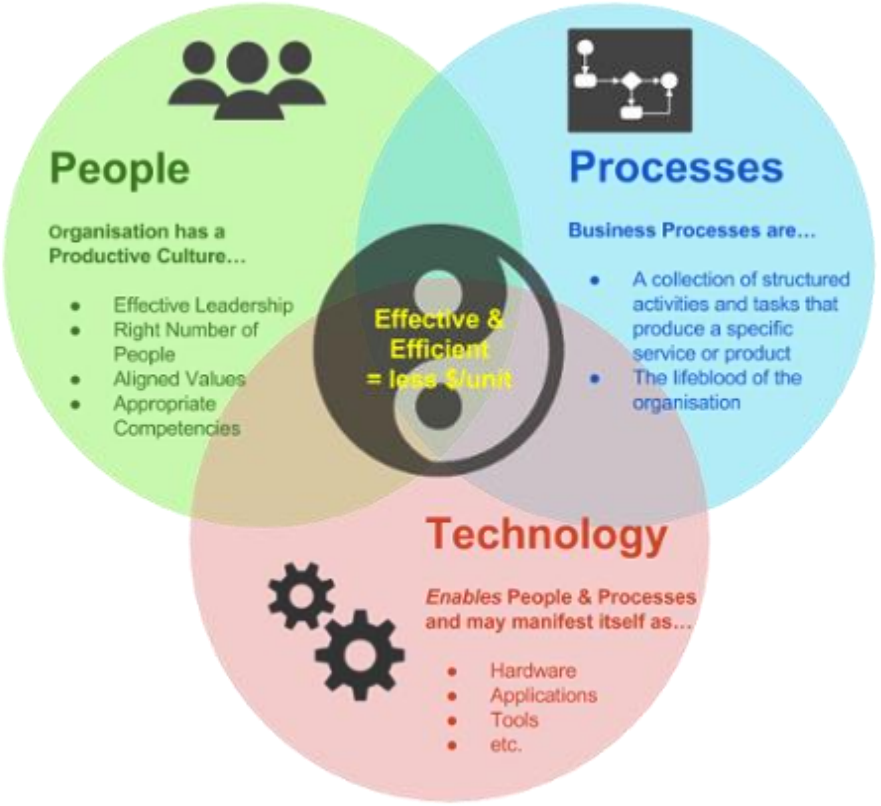
- Systems Analysis involves
  - scoping of the system,
  - decomposing into components, and then
    - identifying and evaluating its problems, opportunities, constraints, and needs

Systems Management

- Systems Management addresses the need to:
  - identify key business, technological, and organizational issues related to each project in order to identify and satisfy key stakeholders and do what is best for the entire organization.

- **Systems Analysts, in the IS/IT field,** studies
  - an organization's current computer systems and procedures, and
  - design information systems solutions to
  - help the organization operate more efficiently and effectively.

- **Systems Analysts** bring business and information technology (IT) together by understanding the needs and limitations of both.

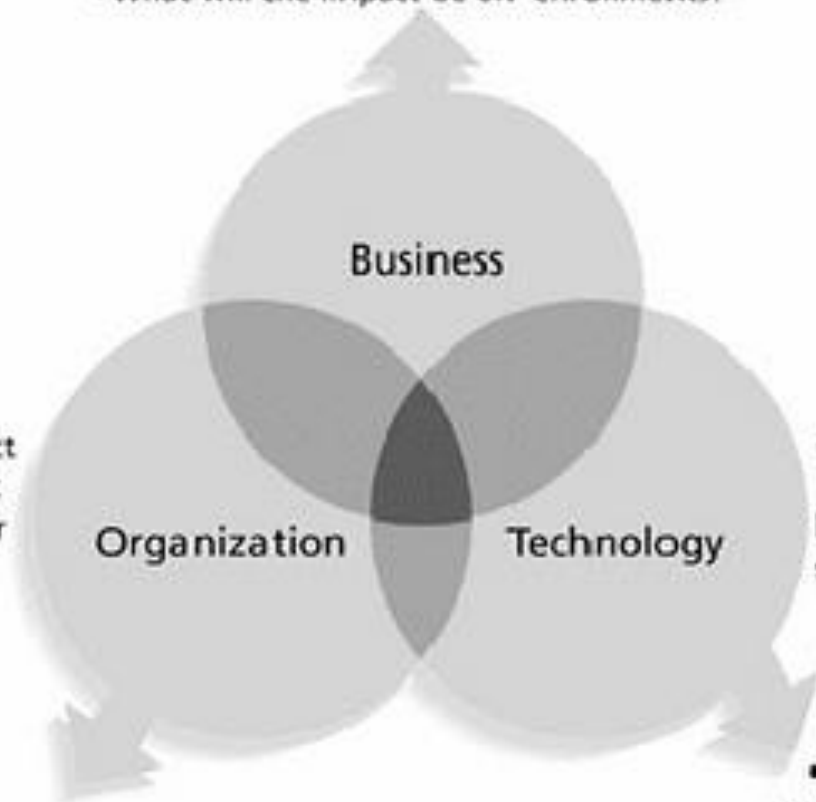


•What will the laptop project cost the college?

•What will it cost students?

•What will support costs be?

•What will the impact be on enrollments?



•Will the laptop project affect *all* students, just traditional students, or only certain majors?

•How will the project affect students who already have PCs or laptops?

•Who will train students, faculty, and staff?

•Who will administer and support training?

•Should the laptops use Macintosh, Windows, or both types of operating systems?

•What applications software will be loaded?

•What will the hardware specifications be?

•How will the hardware impact LAN and Internet access?

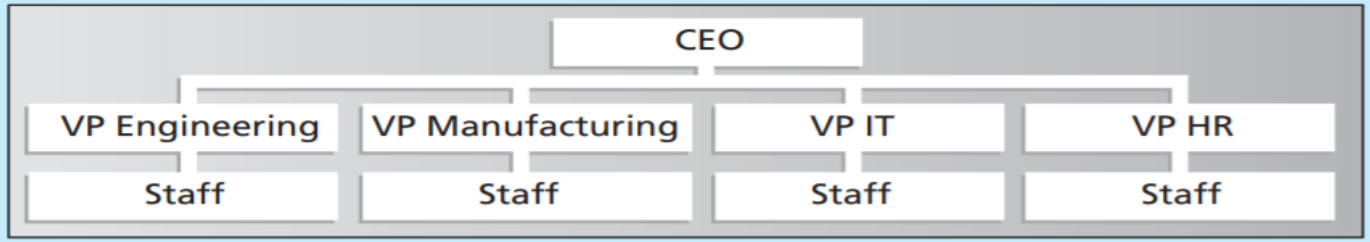
The Systems Approach require that Project Managers always view the project from the perspective of, and within the context of, the larger/whole organization.

Organisational/People Issues will arise; it's not a matter of what or when, but rather how they are handled.

Project Managers keep their eyes on the mission.

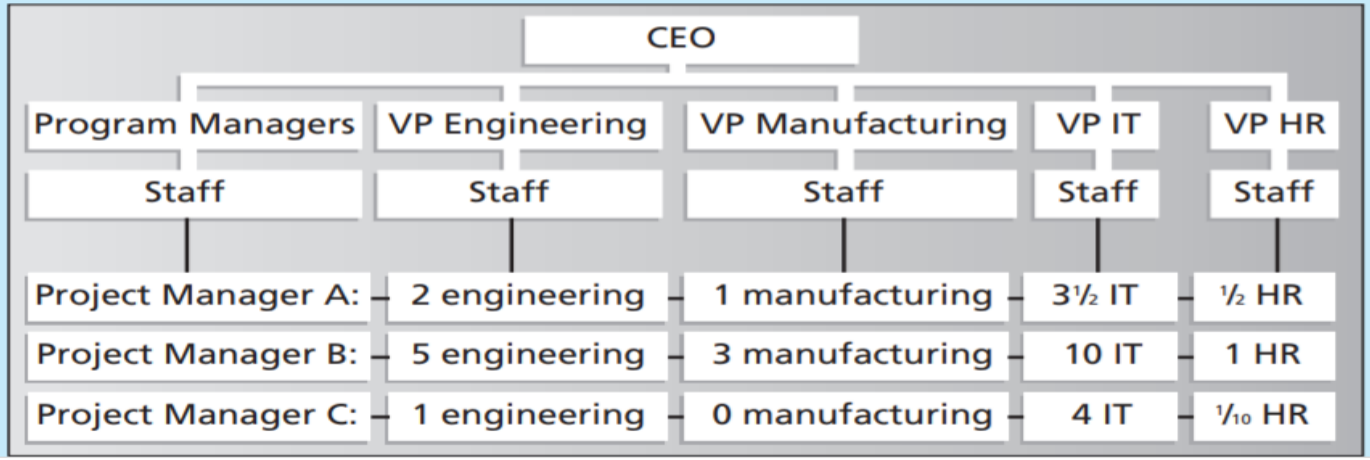
Organisational Structures about control and coordination

Functional



Project

Matrix



Organisational Culture

- Organizational culture is a set of
  - shared assumptions,
  - values, and
  - behaviors that

  characterize the functioning of an organization.

- Your group/team will develop its own culture
- Organizational culture is very powerful (power of influence).
- The underlying causes of many companies' problems are not in the organizational structure or staff; they are in the culture.
- Organisations (units) can have sub-cultures…these are especially impactful

On the relationship between Organisational Culture and Successful Project Management

- Project work is most successful in an organizational culture where
  - employees identify more with the organization,
  - work activities emphasize groups, and where there is
    - strong unit integration,
    - high risk tolerance,
    - performance-based rewards,
    - high conflict tolerance,
    - an open-systems focus (sensitive to changes in external env), and
    - a balanced focus on people, control, and means orientation.

“Our evidence suggests that the culture within many organisations is often such that leadership, stakeholder and risk management issues are not factored into projects early on and in many instances cannot formally be written down for political reasons and are rarely discussed openly at project board or steering group meetings although they may be discussed at length behind closed doors…”

What is Systems Development?

What is a Project?

What is a Project?

"Unique process consisting of a set of coordinated and controlled activities with start and finish dates, undertaken to achieve an objective conforming to specific requirements, including constraints of time, cost, quality and resources"

- A Project is a planned set of activities
- A Project has a scope
- A Project has time, cost, quality and resource constraints

What is Project Management

What is Project Management

- Project management is the planning, scheduling, and controlling of project activities to meet project objectives.

- The major objectives that must be met include performance, cost, and time goals, while at the same time you control or maintain the scope of the project at the correct level.

What are some of the challenges facing Systems Development and Project Management in Guyana?

Challenges of SD and PM

- Failure to define problem properly
- People issues
- Lack of funding
- Inadequate requirements gathering
- Immaturity of the local software development / IT industry/sector
- Insufficiency in our willingness to **THINK BIG**
- **Insufficiency in Leadership Skills/Ability**
- …

On Project Management

Knowledge Areas	Process Groups				
	Initiating	**Planning**	**Executing**	**Monitoring & Controlling**	**Closing**
4. Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Execution	4.4 Monitor and Control Project Work 4.5 Perform Integrated Change Control	4.6 Close Project or Phase
5. Scope Management		5.1 Collect Requirements 5.2 Define Scope 5.3 Create WBS		5.4 Verify Scope 5.5 Control Scope	
6. Time Management		6.1 Define Activities 6.2 Sequence Activities 6.3 Estimate Activity Resources 6.4 Estimate Activity Durations 6.5 Develop Schedule		6.6 Control Schedule	
7. Cost Management		7.1 Estimate Costs 7.2 Determine Budget		7.3 Control Costs	
8. Quality Management		8.1 Plan Quality	8.2 Perform Quality Assurance	8.3 Perform Quality Control	
9. Human Resource Management		9.1 Develop Human Resource Plan	9.2 Acquire Project Team 9.3 Develop Project Team 9.4 Manage Project Team		
10. Communications Management	10.1 Identify Stakeholders	10.2 Plan Communications	10.3 Distribute Information 10.4 Manage Stakeholder Expectations	10.5 Report Performance	
11. Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses		11.6 Monitor and Control Risks	
12. Procurement Management		12.1 Plan Procurements	12.2 Conduct Procurements	12.3 Administer Procurements	12.4 Close Procurements

Immediate Course Concerns

- Concept Note
- Project Charter
- Project Implementation Plan