

ENGG 1803 - Project Management



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Projects ?

- Discrete entities
- Limited time
- Cross-functional, multi-disciplinary teams
- Specific problem / issue orientation



Programs ?

- Ongoing entities
- More solid, stable than projects
- Easily recognised in organisational structures & reporting relationships



Project Characteristics ?

- Unique
- Finite
- Complex
- Dynamic
- Boundary crossing



Key features of Projects

- Conception of tasks
- Time
- Costs
- “On time & within budget”
- Delivery of useful, relevant outcomes



Technology Projects - problems?

- 'leading edge or bleeding edge'?
- Internal integration - project, teams
- Management controls, continuity, reporting
- Resources & timeframes
- Technological uncertainties
- Understanding of market needs - issue definition
- Market opportunities vs technical correctness



Surveys of PM Effectiveness

- PM Institute 2004 -
 - 50% final completion rate
 - 30% > time 2x
 - 10% > time 5x
 - 10% on-time completion
- Standish Group IT projects 2004 -
 - 29% final completion rate
 - 56% budget over-runs
 - 84% time over-runs



Project Organisation

- Normal work vs Project work - 3M
- Matrix organisations
- 'Skunk works'
- Project tools - methodologies, IT, PMBOK
- Communication & knowledge issues



Project Life Cycle

- Initiation & concept development
- Execution & control
- Transfer to operations
- Closure & review



Initiation & concept development

- Team formation
- Planning & scoping - project specifications
- Scheduling - planning tools (Gantt charts, CPM, PERT etc)
- Risk assessment



Execution & control

- Finalisation of team roles, reporting, performance criteria
- Detailed design & engineering
- Concurrent development - simultaneous effort
- Issue & team (HR) management
- Time & cost monitoring / control



Transfer to operations

- Serious product / system testing
- Delivery of outcomes
- Integration of project into mainstream operations
- Codification of project knowledge into operational systems
- Winding up of teams &/or contractors



Closure & review

- Evaluation of project outcomes, teams, processes, individuals
- Establish learning from the project
- Disseminate learning throughout organisation
- Celebrate success, overcome failure



Tools & techniques

- Work breakdown structure
- Planning charts (Gantt charts)
- Critical Path
- Risk management
- 'Cradle to grave' - QFD, CE, DfM
- Post-project review



Work Breakdown Structure

- WBS presents all tasks to be completed either as a list or a chart
- Tasks are ordered to define the scope of work (activities) & the significant steps to be achieved (milestones)
- Inter-relationships between activities & milestones displayed to show all possible steps needed to complete the project



Critical Path Method

- CPM determines minimum estimated time for each element of WBS
- Can be developed to chart impacts of early & late task starts and early & late task finishes
- Activities where earliest & latest times are equal are termed 'critical' - activity can't be delayed without delaying entire project
- Charted path of critical activities = critical path



Gantt Chart

- Most useful way of displaying all project activities and time allocations on X & Y axes
- Clearly shows task overlap and need for concurrent effort
- Often used in conjunction with CPM



Evolution of Project Management

- Scheduling (1970s) - simple/certain
- Teamwork (1980s) - complex/certain
- Flexibility (1990s) - complex/uncertain
- Simultaneity (2000s) - complex/
uncertain/ rapid



Challenges for Project Management

- Concurrent management of people, resources and tasks
- Building effective project team roles, behaviours, culture while maintaining task focus
- Sustainability of project outcomes



Project sustainability:

- Maintaining desired outcomes over time
- Effective mainstreaming of project knowledge as normal practice
- Outcome maintenance without dedicated project resources
- Disseminating knowledge effectively to aid organisational learning



Projects - your experience? -

- Human factors
- Teamwork/leadership
- Project complexity
- Resources
- Time management
- Outcomes
- Personal learning?