Project Plan

Resource Management
Resource Management

Content

• What is it
• Why do it
• Sr. Design Context
• Elements
• Advanced Concepts
• Tools
• Team Breakout
• Summary - Questions
Resource Management

What is it

Structured processes for Planning & Guiding

Who is going to do 

What, How, & When?
Resource Management

Why do it

Project Execution Performance

Maximize $\uparrow$ PEP

$\downarrow$

Resources
Resource Management

Why do it

Two keys Thoughts:

• Write it Down

• Don’t Hesitate to Estimate
Resource Management

Sr Design General Plan Context

<table>
<thead>
<tr>
<th>SEP</th>
<th>OCT</th>
<th>NOV</th>
<th>DEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Concept</td>
<td>- Design</td>
<td>- Prototype</td>
<td></td>
</tr>
<tr>
<td>- Project Plan</td>
<td>- Feasibility Model</td>
<td>- Path forward Plan</td>
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</tbody>
</table>

Assess Customer Wants/Metrics/Specifications

Synthesize Concept

Design Concept

Prototype Concept

- Create/Design Concept; Analyze; Test
- Benchmark Technology
Resource Management

Structured Plan Elements

- End State Definition and Timing
  ……Include intermediate milestones or “phase reviews”

**What is the Goal?** *(sponsor “buy in”?)*

- Developing Steps/Tasks/Activities

**What Tasks are required? Timing?**

- Availability & Assignment of Resources (Cost)

**How will resources be applied?**
Resource Management

Elements

• End State Definition and Timing
  ....Include intermediate milestones or “phase reviews”

What is the Goal? (sponsor “buy in”?)

Demonstrate_______
Resource Management

Elements

• Developing Steps/Tasks/Activities

What Tasks are required? Timing?

Tasks

Demonstrate________
Resource Management

Elements

• Availability & Assignment of Resources (Cost)

How will resources be applied?

Demonstrate

Tasks

.5 J.E.T.
.2 R.J.N.

Instron

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Sequence of Elements

Define the goal
Define other milestones
Set timing constraints
List tasks
Establish time order of tasks
Determine resources & assign to tasks
Determine critical paths - Iterate

Dec 2001
Resource Management

Creating the Plan - Conceptual Issues

SEP	OCT	NOV	DEC

Deliverable >
- Concept
- Project Plan
- Design
- Feasibility Model
- Prototype
- Path forward Plan

Task >
Synthesize Concept
Design Concept
Prototype Concept

Iteration

Hierarchy
- Appropriate Level of Detail
- Risk Management

Parallel v.s. Sequential
Resource Management

Tasks as Processes

Conceive & Demonstrate .............

Inputs

Project Goal
Customers
Wants/Metrics
Specifications

Process/Transform

Output Resources

Available Resources
Distribution of Resources

Proof of Concept
Prototype

Report
- Analysis
- Test Results

Path Forward Plan
Resource Management

More on Risk Management

- Parallel v.s. Sequential tasks
- Contingency Plans
- Continuous Communication
# Resource Management

## Cost to carry out plan

<table>
<thead>
<tr>
<th>ITEM</th>
<th>RESOURCE</th>
<th>TIME</th>
<th>UNIT COST</th>
<th>TOTAL COST</th>
</tr>
</thead>
</table>

**Task Element**

**Purchased Items**
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Phases of Development

Cost

Senior Design Project

Implement Concept

Develop Concept

Proof of Concept

Application Scale up?
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Tools

- Gantt\(^1\) Chart
- PERT\(^2\) (network) Diagram
  - Critical Path

1 Henry Gantt, early 19th century
2 Program Evaluation and Review Technique, US Navy, circa late 50’s
Resource Management

Software Tools

- MS Project

PERT Diagram

Gantt Chart
Resource Management

Team Plan

1:00pm 8/28

9:00pm 8/30
Resource Management

Structured processes for Planning & Guiding

Who is going to do

What, How, & When?
Resource Management

Sequence of Elements

1. Define the goal
2. Define other milestones
3. Set timing constraints
4. List tasks
5. Establish time order of tasks
6. Determine resources & assign to tasks
7. Determine critical paths - Iterate

- Consider Risk
- Develop Costs

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Sequence of Elements

Continuous Communication