Project Management Basics

Steve Snelling
IISE - Industry Advisory Board (IAB)
IISE Fellow
Boeing Co. (*retired*)
Seattle, WA

stephen.r.snelling@gmail.com

Main Project Sequence

- Project request received
- Discuss project Objective with Customer
- Tour the problem area (if possible)
- Form a Project Team
- Meet with people close to the problem
- Do some preliminary analysis of the problem
- Develop a Project Plan (Objective, Scope, Approach, & planned Deliverables)
- Develop a Project Schedule
- Review Plan & Schedule with Customer, and discuss frequency of project updates (reports &/or communication)
- Analyze existing process and existing data
- Obtain and analyze new data (if required)

Main Project Sequence
(Continued)

- Document Findings & Observations
- Benchmark similar processes (if applicable)
- Develop Solutions & check against actual conditions
- Evaluate & Test Solutions
- Document Conclusions & Recommendations
- Review Findings & Recommendations with the Customer
- Develop an Implementation Plan (if required)
- Follow-up with the Customer

Form a Project Team

- Criteria for selecting a Project Team:
  - Knowledge of the problem
  - Cross-functional skills
  - Industry experience
  - Availability
  - Team compatibility
  - Optimistic & Results oriented
  - Change agents
- The Team strives for synergy.
- The Team helps develop the Project Plan & Schedule.

Project Plan

- Develop a Project Plan/Profile (with a Description, Scope, Statement of Work & planned Deliverables).
- Meet with the requesting Customer to discuss the Project and to understand current conditions.
- Write a broad Objective (Description) of what is to be studied, and review it with the Customer.
- Develop the boundaries of what is to be included (the Scope of the Review), and discuss it with the Customer.
- Determine the main Deliverables to be provided at the end of the project.
- Prepare a high level, Statement of Work (Approach), to later build a Project Schedule around.

Project Plan

Project Profile

Project #: PE- 0410 Analyst: Steve Snelling

Assignment Title: **747 T.O.C./Critical Chain Pilot Area**

Customers: Final Assembly General Supervisor
A/C Bay Supervisor

Date Assigned: 4/1/2004 ECD: 12/10/2004

Description:

To determine if a pilot area for T.O.C. (Critical Chain) is viable for an area in FBJ systems. Then set up and run the pilot area for several airplanes.

Scope:

FBJ Air Conditioning Installation area (~110 jobs).

Expected Benefits:

Determine potential savings by using alternate scheduling methods.
Determine if feasible. If there are measurable savings by this approach.

Statement of Work:

Develop a project plan and schedule
Learn from F-22 usage and 777 S&I pilot area
Define the true Critical Chain (note: differs from the Critical Path, and also more detailed than current P-nets), including revised job times and buffers
Investigate software options
Get IE Resource Commitment
Prepare report on turning on the pilot
Decide to go or no-go
Start up the pilot area

Deliverables:

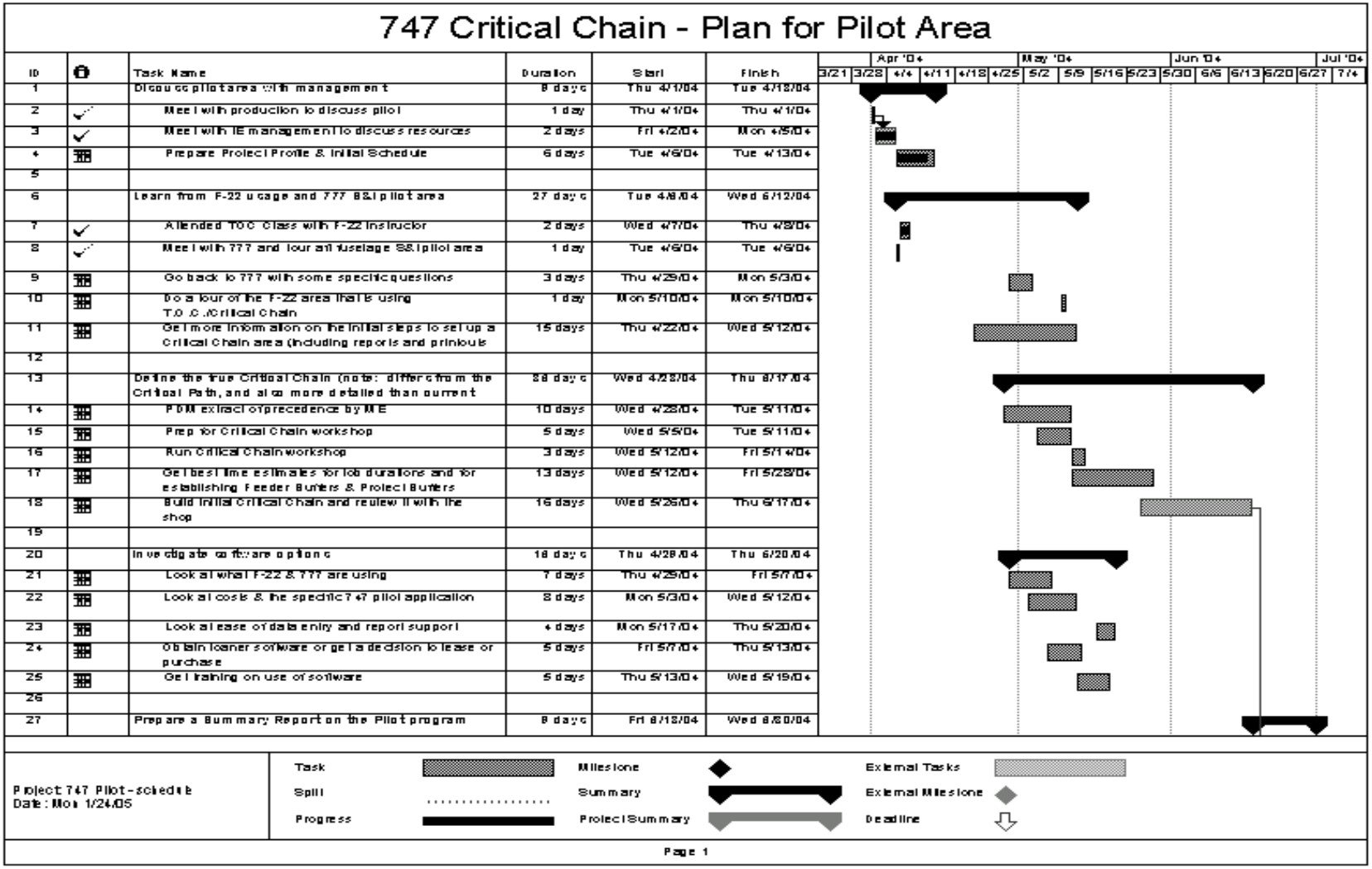
Detailed precedence networks
Calculated (or estimated Project Buffer and Feeder Buffers)
A detailed Critical Chain network that represents the entire pilot area (all skills)
Sample management reports & tracking charts
A recommendation to proceed or not to proceed with turning on the pilot
A recommendation after running the pilot, to expand or not to expand it to other systems areas in Final Assembly

Schedule: (*see attached MS Project schedule)*

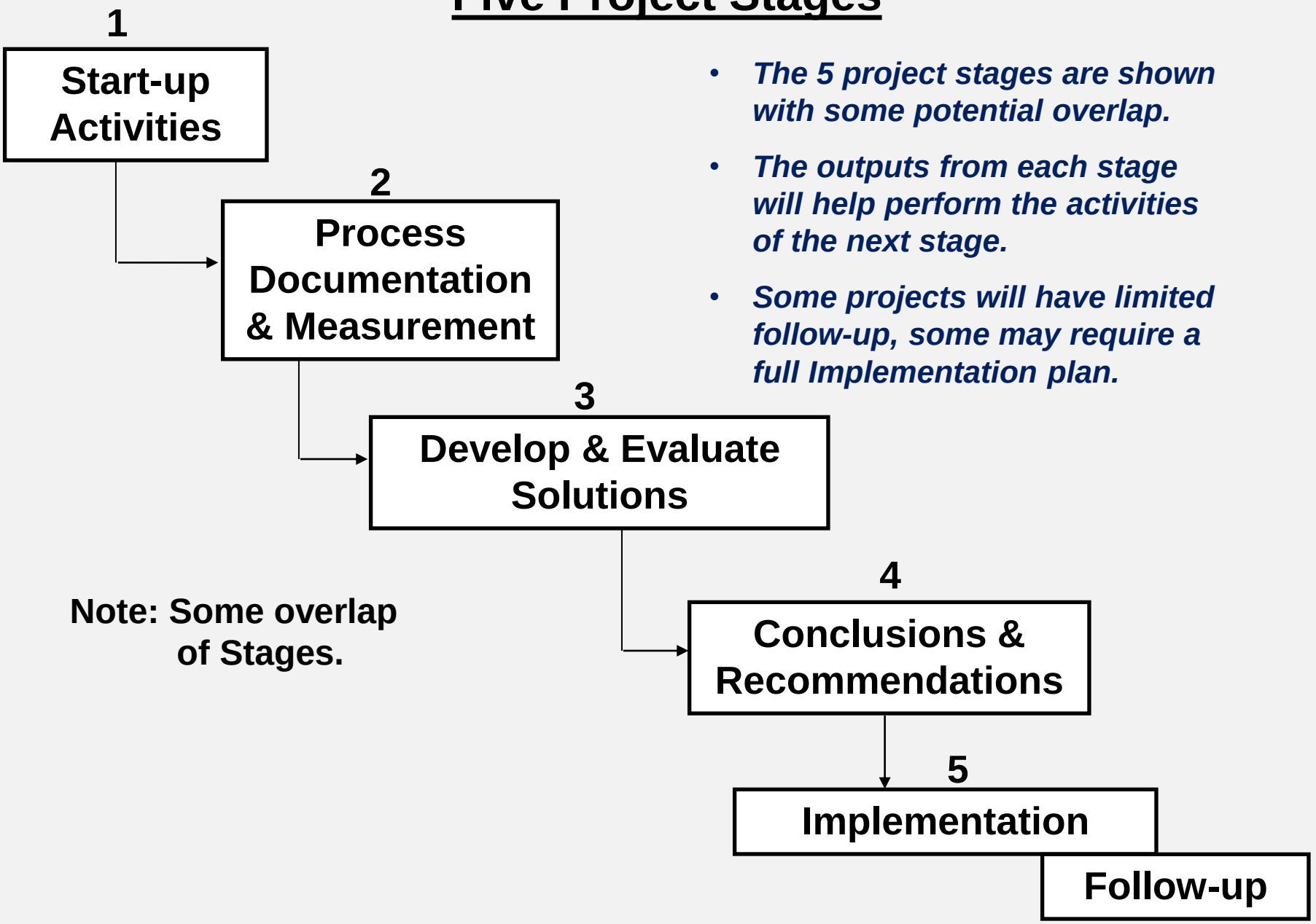
Project Schedule

- Create a useful Project Schedule.
- Use a good tier-1, tier-2, tier-3 outline to organize the related tasks, and the planned sequence of work.
- Utilize good Project Scheduling software (like MS Project).
- Show links for related activities, particularly sequential & dependent tasks.
- Develop estimated completion times, for all tasks.
- Show any known, internal deadlines or major milestones.
- Be realistic about the amount of concurrent activity, particularly with limited assigned resources.
- Don’t schedule project work during weekends & holidays.
- Build in some recovery times for longer tasks that may be completed late (or tasks starting late).
- Break complex projects into major Phases (Phase 1, Phase 2, etc.).
- Continue to update the original Schedule for the entire Project.

Project Schedule



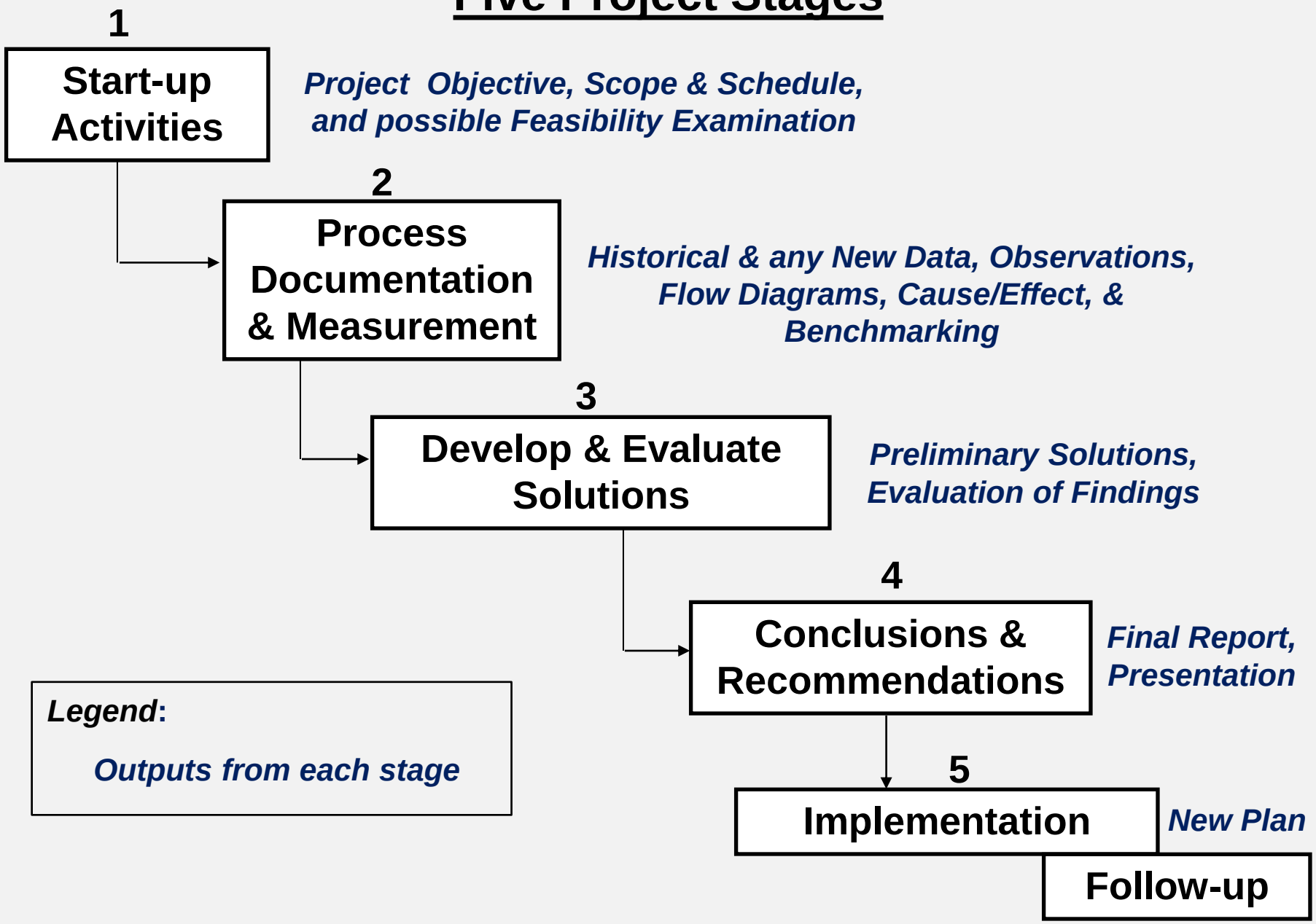
Five Project Stages



- *The 5 project stages are shown with some potential overlap.*
- *The outputs from each stage will help perform the activities of the next stage.*
- *Some projects will have limited follow-up, some may require a full Implementation plan.*

Note: Some overlap of Stages.

Five Project Stages



Five Project Stages

1. **Project Start-up Activities**
   - Project is authorized and assigned
   - Initial meetings with the project's customer
   - Project Team is formed
   - Initial understanding about project
   - A Feasibility Study may be required before proceeding too far
   - Project Profile is prepared & reviewed with the project's customer
   - Project Schedule is prepared & reviewed with the project's customer

Five Project Stages

2. Process Documentation & Measurement

- Process flow charts are prepared, if applicable
- Historical data is obtained & analyzed
- New data is obtained & analyzed (e.g. Time Studies, direct observations)
- Direct observations of current conditions
- Digital pictures of current conditions
- Interviewing for Information
- Cause and Effect diagrams, etc.
- Possible Benchmarking tours

Five Project Stages

3. **Develop & Evaluate Solutions**
   - Solutions are listed and organized
   - Additional Benchmarking, if needed
   - Simulations (mathematical or using simulation software) are performed, if applicable
   - Evaluation criteria are determined and utilized
   - All viable Solutions are evaluated

Five Project Stages

4. **Prepare Conclusions & Recommendations**
   - Conclusions are documented and investigated
   - Final Recommendations are documented
   - Final Presentations are prepared, reviewed & given

Five Project Stages

5. **Implementation & Follow-up**
   - Implementation items are planned and assisted
   - Follow-up is done as necessary
   - A large scale Implementation may become a new project

Visual Tracking on Projects

- To bring some logic and order to ongoing Project Status meetings with other Team members, it helps to utilize some type of “Visual Tracking”.
- This might involve a simple Excel spread sheet that allows you to list out groups of activities (or departments, or locations), and then keep track of planned critical tasks:
  - When the tasks are planned to be completed
  - Current % of completion
  - Who or which group is assigned to each task
  - Maybe how the tasks tie-in to the overall project
- Sometimes this Team status on critical tasks and activities, can be updated in real-time, during the Team meeting (or soon afterwards from notes taken during the status briefings).
- You can use a task tracking Excel form in combination with ongoing status to the MS Project Schedule.

Visual Tracking - format

A	B	C	D	E	F	G
Item #	**Task Name**	**Sub-task name**	**% Complete**	**Group/Person Assigned**	**ECD**	**Actual Completion Date**
1	**Main Task #1**	**task summary**				
2		Task 1 - item 1				
3		Task 1 - item 2				
4		Task 1 - item 3				
5	**Main Task #2**	**task summary**				
6		Task 2 - item 1				
7		Task 2 - item 2				
8	**Main Task #3**	**task summary**				
9		Task 3 - item 1				
10		task 3 - item 2				

Project Management Basics

Summary

- ✓ Follow a typical Project Sequence
- ✓ Form a strong Project Team
- ✓ Develop a good Project Plan with an Objective, Scope, Approach, & planned Deliverables
- ✓ Create a tier-1, tier-2, tier-3 outline to build an initial Project Schedule, and utilize it for the entire Project
- ✓ Utilize the five project stages for any complex project
- ✓ Plan to have documented outputs from each project stage
- ✓ Set up some type of Visual Tracking for Team meetings
- ✓ Review Plan & Schedule with the Project Customer
- ✓ Continue the Project to a successful conclusion