

Project Management Tips for Industrial Engineering Projects

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Project Profile, Deliverables, and Scope

- Developing a good Project Profile (Objective, Scope, Statement of Work, & Deliverables) is an important part of setting up any new project.
- Do not rush defining the Project's Objective and really understanding the nature of the main work to be accomplished – even checking on what type of project is expected (whether it is mainly a defect reduction, or a recovery plan, or a facility plan, etc. – since the approach will vary for each main type of Industrial Engineering project).
- Do not overstate what should be expected as Deliverables from the Project. It is better to surprise the customer and provide more than the originally stated Deliverables – rather than promise more Deliverables than is possible with the time available and disappoint the customer.
- Continually compare new action items against the original Scope of the project (Scope is primarily the project's boundaries of what is to be included vs. what is not to be included) – to be aware of any increase in the project's Scope (whether planned or unplanned). “Scope creep” is when the Scope increases incrementally (or in great leaps) – without it being planned or sometimes properly recognized.
- Make sure the original Objective and Deliverables will not be significantly impacted by expanding the Scope.
- Consider setting up a separate project Plan to manage significant Scope increases (after the impact is understood and the Scope changes have been agreed to by the internal customer and the project team).

Project Schedule

- Develop a realistic project Statement of Work (the main planned activities or tasks) which will drive out the actual Project Schedule.
- Be careful regarding how much simultaneous work you show in your Project Schedule – particularly if a small group (or a single person) – are really doing much of a task – or they have limited time available to work on the project.
- Show the entire project in the MS Project schedule (including any previous steps done prior to building the initial MS Project schedule file), with elapsed days estimates and responsible persons or groups (if known, when the initial schedule is being developed).
- Develop a good detailed outline (sometimes best to use MS Word initially) of planned tasks.
- Write out the tier 2 or 3 level tasks - to understand which are higher level (Tier 1) activities, or middle (Tier 2) activities, or lower (Tier 3) activities.
- Show key “links” of related or impacted tasks on the schedule – so the project tasks are connected (not just a list of tasks). These “links” should also relate to key deliverables that need to be produced.

Project Phases

- On some larger projects, it may be necessary to break the project into several Phases that can be worked sequentially as smaller projects.
- Due to delays in the customer's decision making, it may be necessary to break out portions of the project for completion later.
- Implementation and significant follow-up activity is commonly viewed as a separate Phase of the project and may need to be tracked separately (or may require a new Project Profile and Schedule to be prepared).

Resource Partnerships

- Look for ways of partnering with other groups or individuals on projects.
- Look for Subject Matter Experts (SMEs) for technical areas related to a project and include them in the project planning, benchmarking, and solutions development.
- Use some individuals with strengths you may not have, and outside your group – to help out on items that they may have better knowledge on. For example: a Research & Development (R&D) group may have some “technical experts” available – and may even be able to purchase some inexpensive items for testing.
- Coordinate regularly with all the Resource Partners on a project.

Project Manager's Duties

- Make the project management duties relatively quick & concise, on smaller projects.
- Don't ignore the project management duties, since it is difficult to correct a project that gets in trouble.
- Separate out when you are working action items on a project and when you are doing the project management duties.

Project Communication

- Utilize good, ongoing communication with all project members and with anyone affected by the project.
- Use a variety of medium (for example: meetings, e-mail, digital pictures, file servers, white board discussions, Web Ex, etc.) – to stay in communication with your immediate team and others that are providing you information.
- Ask for reviews during the project – don't wait for everyone to chase you down to find out how it is going. Periodically plan to show your documented progress so any advice or ideas on implementation can be incorporated as you go.
- Communication with your customer is very important – the more regular you can make it, the less “forced” the final presentation will seem (and the less time it will take to prepare a summary update). Face-to-face meetings are best, but e-mails with Word status reports are the next best.

Project Documentation

- One common project weakness is not doing enough ongoing documentation.

- Each major section or phase of a project should be generating typed documentation (for example: summary notes, flow diagrams, excel files, possible solutions, conclusions, or PowerPoint presentations, etc.).
- Moving on too quickly to the next project task – before completing the existing set of related tasks is a common mistake.
- It might help if you compare working on a project to shooting a movie film. Each section of your project plan is like shooting a scene in a movie. The movie Director must make sure they are completely done with the scene and have good “film in the can” (enough good film footage ready for film editing in the storage canister, and it will not be necessary to return to shoot anything in that scene or that location). On a project, make sure each section of the project plan drives out some results that are typed up and can be shared, so that part of the project plan is completed (the “film is in the can”).
- Show the results from each major “scene of the movie” or each separate portion of the project plan – to get feedback and make sure you are finished with a section before moving on.
- Regularly look over your project documentation and see what it is telling you – make adjustments to your project plan – if the data requires it. Use this regular review to make sure you are staying within the project Scope, and it can also help you identify any resource help that may be required.
- Utilize File Servers and other methods for safely sharing files with your immediate team. Regularly back these files up on your laptop.

Data Analysis & Measurement

- Understand what data is needed, then develop your collection plan (for both historical & new data).
- Use data to verify and help investigate what you are hearing or observing.
- Utilize good statistical analysis skills, and check all calculations.
- Link the data to actual observations, whenever possible.
- Set up lab tests and mathematical models to check data results.
- See if the micro data relates to macro conditions (Does it seem realistic and feasible?).
- Constantly do “reality checks” with your subject matter experts.

Benchmarking

- Do the main benchmarking only after you fully understand your current process – otherwise you may have wasted a good benchmarking learning opportunity. And if done too late – the benchmarking can’t properly influence the solution development phase of a project.
- Utilize “white board” discussions (that are later typed up) to reach consensus with your team members following benchmarking tours.
- Try to include your customer on some of the benchmarking tours.

Project Solutions & Evaluations

- Write down alternative solutions throughout the project, and plan to investigate them thoroughly.
- Be creative and comprehensive when developing initial solutions ideas.
- Do additional benchmarking, if needed.
- Develop an evaluation approach (the criteria you want to use to determine which solutions are best).
- Rank the most likely solutions (the ranking may be based on cost, schedule, or risk factors).
- Bring the customer in on the selection process and to offer real applications information (a “reality check”).

Conclusions & Recommendations

- Research & investigate the most likely conclusions with the entire team.
- Review the possible conclusions ongoing with your customer (or their representative).
- Take the best of the ideas and form a coherent recommendation (or recommendations).
- Recommendations may need to be assessed by cost and risk when presented.
- Recommendations may need to be time phased.

Project Presentations & Reports

- All final presentations (and final reports) should be reviewed, prior to being given to the customer.
- At the conclusion of the assignment, make sure all files are organized and stored on the file server and all hard copies are organized and stored properly (in labeled file folders or binders).

Project Management Training

- Consider taking some Project Management classes or Project Manager Certification series.
- Read some good books on Project Management.
- The Project Management Institute (PMI) has book resources, and training - leading to certification, and also local PMI chapters have speakers & tours.
- Go back and review your own past Projects, and see if there are any “lessons learned”.
- If you did a Senior Design Project in college – you may want to go back and review what you learned from that class, and look over your final report and presentation.