

Notes on Project Requirements

Part of a Series of Basic Concepts in Project Management

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PM TUTORIAL

Notes On Project Requirements

“Requirements are the first and most important thing to define on any project, spend real time making sure your requirements are adequate before any significant amount of project work is accomplished.”

THE BASIC BASICS

Projects must have requirements. Without requirements a project has no basis for what it will deliver, no basis for a plan and no basis to even start work. Without requirements, there really is no project.

Here are the basics of the types of requirements that are needed for any project.

- Project Definition - A definition of the project that includes the purpose, work scope, stakeholders involved, etc. This is the “Project Definition,” sometimes termed the project charter.
- Deliverable Requirements - The requirements for what the project will deliver, i.e. what the project’s outcome or result will be and/or do. This is the “Deliverable Requirements.”
- Constraints - Constraints for the project itself commonly in terms of budget and schedule limitations, limitations on resources available, rules or regulations the project must follow and/or the project’s deliverable must comply with, etc. These are “Project Constraints.”
- Deliverable Definition - A clear definition of what will be delivered. This is not the “Deliverable Requirements” noted earlier, this is a top level description of the actual result of the project. As an example, a new home build may have “Deliverable Requirements” that include energy efficiency, low maintenance exteriors, structure strength to withstand local weather events and many other requirements. These requirements define what the deliverable must be and do but are not a specific design of a home. The design of the home, based on the requirements is captured in the “house plans,” drawings depicting the top level design of the home. These resulting house plans then provide the “blue print” or “definition of what the house will be.” The house plans are the project’s “Deliverable Definition” and is a separate and subsequent set of information from the “Deliverable Requirements that drove the house design.

Requirements Tutorial Follows

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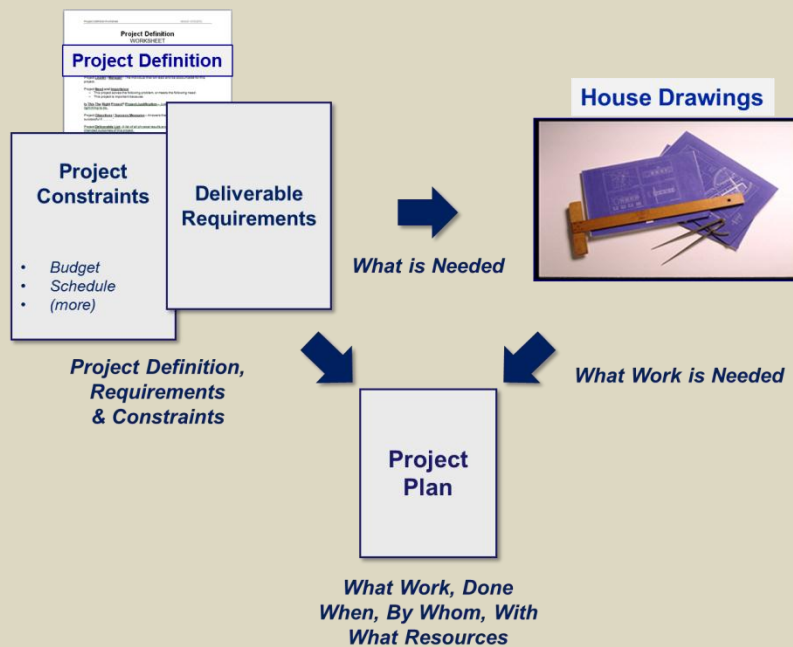
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REQUIREMENTS TUTORIAL

What is the Relationship of Project Requirements to Other Project Information?

House Build Example

In the example of building a home, information about the nature of the desired home coupled limitations imposed by cost, schedule, building codes and other constraints will determine the boundaries of the home design. Both the home design and the fore-mentioned information will drive the project plan as the plan needs that information to determine what work will be accomplished.



Every project will be driven by a set of information that will drive both the definition of the project deliverable and the project plan. The project's driving information will consist of multiple parts that will include a definition of the project, constraints and detail requirements for the project deliverable. This information will drive the definition of what the project will deliver and all of the forgoing information will drive the project plan.

Many projects are challenged and many get into trouble because this important information needed at project initiation is either not available or is not assembled and communicated to the project team. In either situation, the project is headed for difficulties as insufficient information is in place to develop the plan and perform the project.

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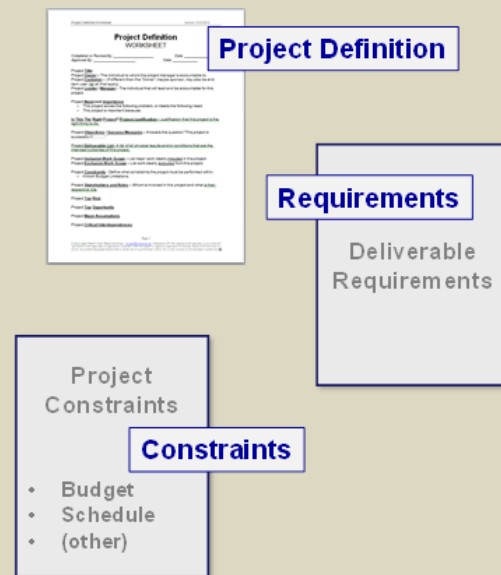
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What Are the Categories of Initial Project Requirements?

Requirements are not just important to any project, they are absolutely essential for all projects. Many projects have trouble, or fail altogether because requirements are inadequate.

Requirements exist in multiple categories that include the following.

- Project Definition – A definition of key parameters describing a given project. Sometimes termed the “Project Charter.”
- Deliverable Requirements - Requirements for the project’s deliverable, what the outcome of the project will be and what it will do.
- Project Constraints - Constraints on the project itself that can include budget limitations, resource limitations, schedule needs, rules and regulations the project or the project’s deliverable must comply with and other boundaries that define the project.



Who Provides the Project Requirements?

Different stakeholders may provide this information in different environments, follows are some example requirements sources.

- Project Definition – Should be provided by the sponsor or management of the organization the project resides within. The PM can use the project definition to collect necessary information if it is not provided.
- Deliverable Requirements – The requirements for the project’s deliverable must come from the customer / users or be reviewed and approved by them. The customer may provide all or part of these requirements and the project team may support the customer in developing a complete requirements set for the intended deliverable of the project. In some cases, the customer / user may not have the ability to define needed detail requirements and the project team or other technical experts may develop deliverable requirements for the customer to review.
- Project Constraints - Constraints on the project itself may come from multiple sources. Limitation on budget and schedule often come from the customer.

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*Resource limitations may come from the organization that owns those resources.
Rules and regulations the project must abide by and/or ensure the project's deliverable complies with, will come from different sources depending on the limitation.*

The PM should assume the responsibility to ensure all needed requirements are eventually assembled, communicated and understood by the project team.

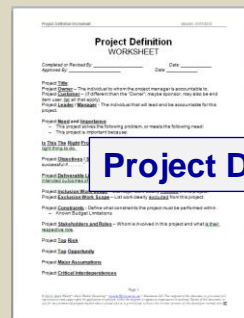
What is The “Project Definition”?

The project definition is a several page document that defines parameters about a project that are critical to a project being started and completed successfully.

The project definition answers the question “What is this project?”

- Project **Title:**
- Project **Owner:**
- Project **Customer:**
- Project **Leader / Manager:**
- Project **Need and Importance**
 - This project meets the following need:
 - This project is important because:
- Project **Justification Statement:**
- Project **Objectives / Success Measures**
- Project **Deliverable List** - A list of all physical results and end conditions
- Project **Inclusion Work Scope** – List major work clearly included :
- Project **Exclusion Work Scope** – List work clearly excluded :
- Project **Initial Constraints** - Known Budget, Schedule, etc. Limitations
- Project **Stakeholders and Roles:**
- Project **Top Risk:**
- Project **Top Opportunity:**
- Project **Major Assumptions:**
- Project **Critical Interdependences:**

(Template download available at www.manageprojectsbetter.com)



The image shows a 'Project Definition WORKSHEET' template. It includes fields for 'Completed or Priority By' and 'Date'. Below these are sections for 'Project Title', 'Project Objectives', 'Project Stakeholders', 'Project Justification Statement', 'Project Objectives / Success Measures', 'Project Deliverable List', 'Project Inclusion Work Scope', 'Project Exclusion Work Scope', 'Project Initial Constraints', 'Project Stakeholders and Roles', 'Project Top Risk', 'Project Top Opportunity', 'Project Major Assumptions', and 'Project Critical Interdependences'. A blue box with the text 'Project Definition' is overlaid on the right side of the worksheet.

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Project Definition Worksheet
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Project Definition WORKSHEET

Completed or Revised By: _____ Date: _____

Approved By: _____ Date: _____

Project Title:

Project Owner – The individual to whom the project manager is accountable to.

Project Customer – (If different than the "Owner"; maybe sponsor)

Project Leader / Manager - The individual that will lead and be accountable for this project.

Project Need and Importance

- This project solves the following problem, or meets the following need:
- This project is important because:

Is This The Right Project? Project Justification –

Project Objectives / Success Measures – "This project is successful if....."

Project Deliverable List - A list of all physical results and/or conditions.

Project Inclusion Work Scope – List major work clearly included in this project:

Project Exclusion Work Scope – List work clearly excluded from this project:

Project Constraints - Define what constraints the project must be performed within.

Project Stakeholders and Roles – Whom is involved in this project and what is their role.

Project Top Risk –

Project Top Opportunity –

Project Major Assumptions –

Project Critical Interdependences –

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What are Examples of Deliverable Requirements?

Custom Service - If a project is defining and implementing a new service contract such as defining, selecting and employing a new security service for a business, the requirements could include types of security protection needed, hours of service needed, special needs (events), qualifications of personnel, transition requirements from the old to new security services and other requirements.

New Consumer Product - If the project is developing a new marketplace consumer product, the requirements that define the general marketplace customer needs must be known. These requirements typically would be represented in a technical specification that combines requirements from market surveys that determine what the consumer wants.

New Marketing Campaign - If the project is developing a new marketing campaign, then the products or services to be marketed are defined, the intended customer sets must be known, duration of the campaign, marketing discriminators to be employed and many other factors need to be defined. These requirements could be defined in a brief requirements document.

What are Project “Constraints”?

In addition to the previously mentioned project definition and deliverable requirements, several other types of information that often drive projects and project plans exist. These include:

Common Constraints

- Budget
- Schedule
- Resource Limitations or Assumptions
- External Evaluations and Approvals
- Legal and Regulatory Constraints (FDA, EPA,...)
-(others).....

Additional Constraints

- **Reuse** – Definition of the intended reuse of parts, services or methods.
- **Priorities** – The most important thing the project must meet.
- **Goals** – Additional direction from management.



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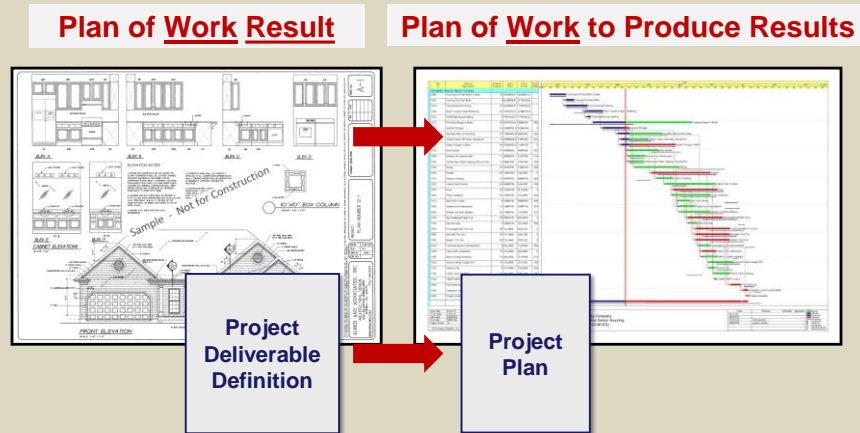
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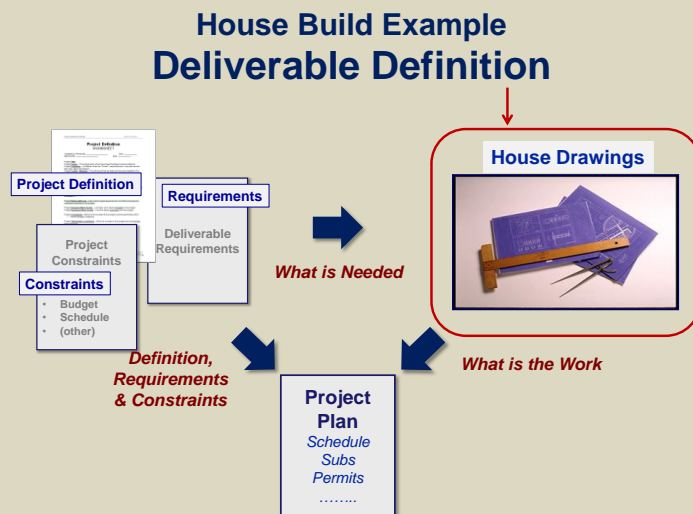
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What is the Project's "Deliverable Definition"?

The project's deliverable definition is the information describing the result of the project (i.e. the "Deliverable") this definition drives a plan of the work to produce that result.



When building a home there is a set of driving information that encompasses the project definition, constraints and requirements for the home. This information is used to guide the definition of the home itself which is captured and communicated in a set of house drawings. This set of drawings is the definition of what the contractor will provide and what the buyer will receive. This definition of the "project deliverable" is a necessary basis for the project plan as it defines, in part, what work will be done.



Deliverable Definition

What – This is the definition of the result or outcome of the project

What to Do

- Complete sufficient work to be able to define the project's end deliverable
- The detail level and maturity must be sufficient to plan the project

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Examples of Project Deliverable Definitions

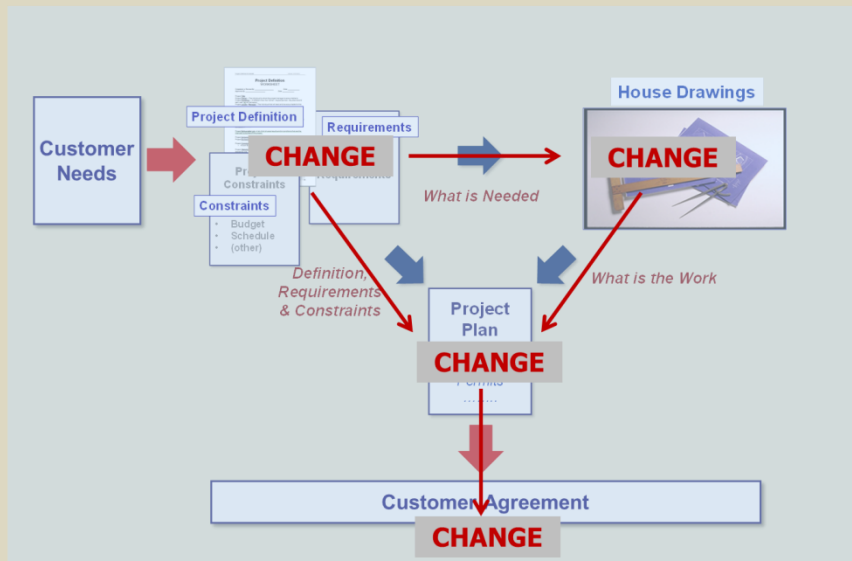
- **Development Project**
 - A system design for the delivery of a system
 - A top level hardware design or detail concept
 - A top level software design or detail concept
- **Services Project**
 - A definition of a new service, what it is, how it is provided, what resources are needed,
- **Study Project**
 - A definition of the study's scope, intent, top level steps and the anticipated form of the final report
- **Improvement Project**
 - A definition of the improvement project's intended outcome



A Note on Requirements Change Management

A change in any project baseline must be reflected in all other baselines that are affected. As one example if the customer of a custom home build changes the requirements, this can affect the “deliverable definition” (house plans) which in turn can affect the plan. All of these changes need to be incorporated in a revised agreement with the customer.

Changes Ripple Through Project Baselines



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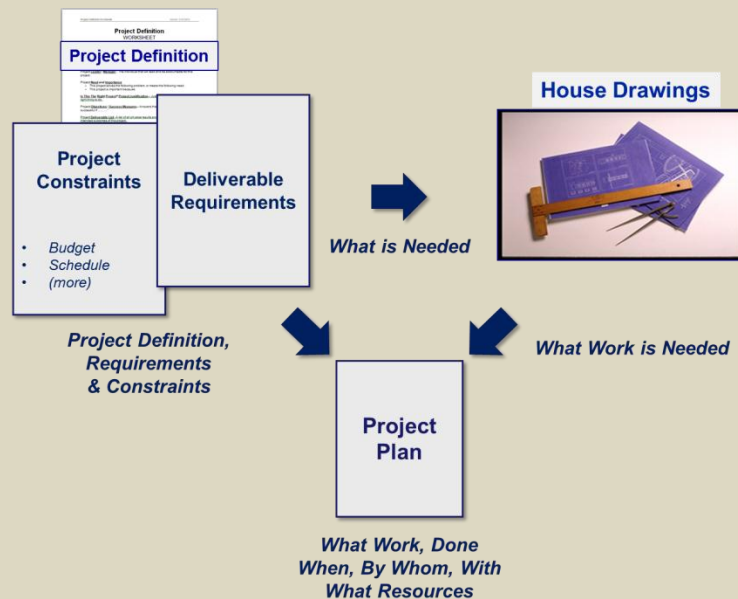
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Summary

Three types of project requirements drive the definition of what the project will deliver that include the project definition, the requirements for the deliverable itself (what it is and will do) and the constraints existing for the project.

The definition of the project's outcome (house plans) are then developed, based on these requirements, at a high level sufficient to understand the work required so that a plan can be prepared. Subsequently a project plan that identifies what work will be accomplished, what the schedule of work is, what individual or organization completes the work and what resources are required.



All components are needed for any project. Many projects get into trouble because one or more of these components are missing or completed out of the needed sequence.

What Should Project Managers Do to Make Sure Project Requirements are Adequate?

1. Make sure all requirements components exist; Project Definition, Deliverable Requirements, Constraints and the Definition of the Deliverable.
2. Make sure all of the information in all requirements documents are mutually compatible, especially the deliverable requirements and definition as compared to the cost and schedule constraints. Take action when this is not the case.
3. Make sure all of this information is communicated to, understood by and accepted by all appropriate stakeholders such as the customer, sponsor and team. Take actions when this is not the case.
4. Put these project requirements documents under change control to make sure when something changes in one document, other documents are changed accordingly and also that stakeholders are aware of the changes.
5. Take project requirements seriously and invest the time and energy to make them of sufficient quality for your project.

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Additional FAQs Related to Project Requirements

Question: Can the project be started without all requirements in place?

Answer: For some projects, there is some clearly defined work which is known to be needed independent of what the eventual documented requirements will be. In this situation, project work can start before all requirements are completed. Examples might be that a new project needs to train team members or that new equipment or facilities need to be acquired or some predecessor development work from another project needs to be analyzed or modified or some research needs to be accomplished. In these situations, these types of project work can get underway. Care must be taken that any other work that is clearly predicated on the “to-be-completed” requirements is not started as this work might have to be redone, causing unnecessary turmoil for the team. Not something you want right at the start of an effort.

Question: Our customers keep changing the requirements, what should the team do?

Answer: If you are in the situation where your customer is willing to accept schedule impacts and budget impacts resulting from the respective change, then changes may not be an issue if the changes do not involve technical performance impacts unacceptable to the customer.

If your project is not in this situation and budget and schedule limitations exist, then the customer needs to be educated on the impacts of changing requirements. Requirements changes early in a project might be adopted without significant, or any, impacts but that same change later in the project could have major ramifications and customers need to understand those relationships.

One method to use involves completing your schedule plan that includes milestones and each milestone includes a definition of what work is completed by that point in time. As the project is started the customer can be shown the milestones and also educated on when certain types of changes can be made with little or no impacts and also when certain changes would have significant impacts. Using the building of a home example can be effective. When the foundation of the home is being excavated, changes in the types of windows, interior fixtures and cabinetry would have modest or no impact to the current work. If on the other hand the excavation is underway and the customer decides to increase the size of the home, then of course, significant impacts to project schedule and costs could exist. Educating your customer on when different types of requirements can be made with limited impacts should be done on any project.

Another approach is to use a schedule activity network tool (MS Project as one example). With a schedule network in place, changes to the project requirements can be used to modify the tasks, task linkages and task durations in the schedule and the tool can re-calculate what the planned schedule. These changes in schedule milestone dates (including final delivery) could also be used as a part of estimating cost changes. With this “evidence,” you can educate your

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customer on the change impacts and make a decision that best support customer needs and project resource limitations.

Question: How would requirements information be reviewed on a project?

Answer: Once the project is underway, periodic reviews of the requirements driving the project should be reviewed for several reasons. One would be to ensure that the team fully understands all requirements which may have not been the case earlier. Another reason is that things change and some of the documentation may be out of date and needs update. Another reason would be for the team to measure their compliance with the requirements and take corrective actions where important deviations exist. These requirements reviews could be accomplished as a part of team progress reviews or could be handled as a separate meeting.

Question: Some of our requirements could be interpreted in several ways, what should the team do?

Answer: Certainly contact the party that has generated the requirements and/or your customer/sponsor/users to make sure that how you interpret a given requirement is what they need. Be aware this also opens the door to changes which could impact project schedules and budgets. If the new requirements interpretation is not consistent with currently planned project schedules and budget, that fact needs to be surfaced to all appropriate parties and actions taken to resolve.

Question: Our project really does not have much in the way of requirements, what should we do?

Answer: Review the requirements tutorial in this document and make a team determination if the basic requirements exist or do not exist. Identify what is missing and educate (as appropriate) your customer/sponsor/management on what complete requirements mean and that they are needed to support the project providing what is desired. Communicate the impacts of poor or missing requirements and you might use past projects that had difficulties or failed altogether due to incomplete requirements as examples. Work to assemble the requirements as best you can and review them for understanding and acceptance by all appropriate stakeholders. Customers and sponsors may not have the background held by the project team and as such, may not be able to provide complete and sufficient requirements information. In these situations, a cooperative effort between all involved stakeholders is needed to move the project ahead.

END of PROJECT REQUIREMENTS TUTORIAL

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