

Developing Business Requirements *by Brenda Cook Petrillo*

One of a project's critical success factors can be attributed to fully defined Business Requirements. According to the Standish Group, 13.1% of projects fail because of incomplete requirements. According to IBM, doing a good job with requirements can save your organization a fortune.

Business Requirements define the Stakeholder's requirements, needs, and expectations for the project. These requirements take the Project Charter and other documentation to the next level of detail and understanding to develop additional information as the basis for planning. As additional steps are taken to break the project down to successive levels of detail and ultimately deliverables in the Work Breakdown Structure (WBS), the project team should trace those details back to the business requirement(s) they satisfy. This concept is known as "requirements traceability" and is enabled using a Requirements Traceability Matrix (RTM). By tracing business objectives to requirements, requirements to designs, and designs to deliverables, the project team is able to show how the "product of the project" meets the customer's needs.

There are several Business Requirement development techniques but I have included a few that are applicable to any type of project. Keep in mind, they are not a replacement for those techniques or other requirements definition techniques from other delivery methodologies.

Develop Business Requirements

The Develop Business Requirements process is designed to meet several fundamental objectives for the project:

- Analyze and develop the requirements of the customer, the package, the package components, related supplier services, the project's work products, and the company's services or product intended to be delivered to a customer.
- Ensure the business requirements map to the delivery methodology requirements and ultimately to the deliverables (product of the project) defined in the work breakdown structure.
- Ensure the business requirements are congruent with any external supplier's plans and work products related to the project.
- Maintain a current and approved set of requirements within the business requirements document over the life of the project, as specified by the delivery methodology, and closely manage and control changes to the requirements.

Ensuring traceability between the business requirements and the deliverables in the WBS is an iterative process and may be performed multiple times as requirements are added and modified and as the same process occurs for the deliverables in the WBS. By the end of the Planning phase of the project, a Project Planning Document should contain business requirements that are traceable to deliverables within the WBS; otherwise, planning efforts are not complete.

Review Input Documents

There are many sources of input documents and other information that serve to orient the project team, allowing them to understand and define the customer's requirements, needs, and expectations for the project.

- Requirements from previous projects that were similar in nature or leveraged the same delivery methodology.
- Existing strategy documents related to business or Information Technology (IT) strategy as part of the customer's ongoing operations.
- Executed Contract: This may be a Statement of Work or a Master Services Agreement, which includes terms and conditions that encompass a wider set of services than a project alone.
- Executed Project Charter: An output of the Feasibility Phase of the project, the charter describes why the project is being undertaken.
- Delivery Methodology: The applicable Delivery Methodology will specify the approach to executing and governing the project, as well as the deliverables that will be produced. This information should include standard WBS information with accompanying deliverable definitions that you can harvest and tailor for inclusion in the scope of work for the project.
- Previous Project Business Requirements: A similar project has probably already been executed. Locate and leverage the requirements from similar projects as a guideline. If they were complex projects, the segment governance group may have copies of the critical project documents.
- Request for Proposal or Request for Information: The customer may have issued one of these documents, which often includes business requirements that must be satisfied by the project.
- Existing system documentation, such as application documentation, architecture documentation, or IT strategy documents.

Elicit Stakeholder's Business Objectives

Elicit the Stakeholder's requirements, expectations, and needs for the project in the context of their overall operational environment using as an example workgroup facilitation and techniques or voice of the customer interview techniques. The stakeholders will likely come from multiple organizations within the customer's organization and have competing objectives and requirements.

To elicit Stakeholder's business objectives

1. Conduct structured brainstorming techniques to collect requirements from project stakeholders.
2. Consider functional, performance, interface, statutory, contractual, and regulatory requirements.
3. Consider non-functional requirements; such as platform standards, data rights, delivery dates, milestone exit criteria, and other attributes, such as extensibility, maintainability, and re-usability.

4. Include, as necessary, discussions of the current systems, applications, or environments and their relative strengths, weaknesses, problems, and constraints. These will often lead to business requirements.
5. Record the needs in the business requirements document.

Transform/Translate Objectives into Business Requirements

A customer's business objectives may be fairly high-level and need to be refined so they are specific to a business function or even an application. This step is necessary to make the need a more practical requirement that lends itself to traceability. One need or expectation may translate into more than one business requirement.

To transform/translate objectives into business requirements

1. Translate the customer's top-level requirements, needs, expectations, constraints, and interfaces into more practical requirements that will be further elaborated upon within the system requirements to support a technical design and ultimately a feature within the software.
2. Document customer requirements following the guidelines below:
 - a. Assign business criticality to the customer requirement.
 - b. Trace each requirement from its point of origin through each project phase and to the deliverables.
 - c. Update the business requirements at every phase end and when there is a change to or addition of requirements. Note: Follow standard Integrated Change Control processes if a change in requirements impacts the scope of work.
 - d. Ensure that the business requirements document (i.e., Requirements Traceability Matrix) is reviewed, updated and controlled following delivery methodology guidelines and document management procedures.

Perform Quality Reviews

After the draft business requirements are complete, the project team should review internally, record and dispose of all comments prior to delivery to the customer. The project team should perform a quality assurance check on the requirements, comparing them to the deliverable definitions to ensure they meet or exceed the definition and are consistent with the acceptance criteria.

Finally, for a large project, the customer may formally accept and approve the business requirements. Or, on smaller projects, the business requirements may be formally accepted in conjunction with the approval of a Project Plan Document.

To perform the quality reviews of the business requirements

1. Perform a Quality Review of the business requirements for clarity, completeness, consistency, feasibility, testability, etc., using relevant standards and guidelines. Record the review comments in a tool such as the review comments log.

2. Resolve each review comment to the satisfaction of the reviewer by modifying the requirement or by rejecting the comment.
3. The PM should internally approve the business requirements.
4. Submit the requirements for customer review per your deliverable definitions.
5. Once again, resolve each review comment to the satisfaction of the reviewer by modifying the requirement or by rejecting the comment and recording the results.
6. After the customer formally approves the business requirements, record them in the business requirements document (i.e., RTM and/or Project Planning Document) following the document management procedures.

Business Requirement Writing Tips

Though there's no one-size-fits-all approach to writing Business requirements (there are varying schools of thought on what constitutes a good requirement statement): however, abiding by this recommended structure will certainly improve the clarity of your requirements.

The collected information during the gathering of Business Requirements should be documented in a clear and concise way, familiar to the customer to ensure successful product development and high-quality end-product. Clearly documenting the information enables the author of the document to identify any conflicting steps early in the lifecycle steps of the project. Below are a few tips and useful guidelines that should be taken into consideration.

- A requirement is a statement of something someone needs. It distinguishes between a need and a want. A requirement must state something that can be verifiable by inspection, analysis, test, or demonstration. Identify how to prove that a product meets the requirement when writing or reviewing a requirement.
- A requirement must be attainable within foreseeable budget and schedule, and must be technically feasible. This is particularly important for the technical requirements.
- A requirement expresses a single thought. It cannot be misunderstood. It is clear, concise, simple, and grammatically correct.
- Standard requirement terminology is the use of "Shall" (i.e., the system shall ...) for stating requirements, "Will" stating facts, or "Should" for stating goals. "Shall" is the flag that identifies requirements. The use of "shall" is especially important when requirements go to an external or contracted provider. Avoid using let-out clauses like "but, except and if necessary."
- Requirements state what is needed, not how to provide it. Remove implementation from requirements. Ask why you need each requirement. If the answer takes you back to a more fundamental requirement, you were stating a "how" not a "what". Avoid describing *how* the system will do something. Only discuss *what* the system will do.

- Eliminate operation descriptions. Instead, state the Requirement. Requirements that state “the user shall”, “the forecaster shall”, or “the operator shall” are almost always operational descriptions, not requirements.
- There must be one, correct, unambiguous understanding of a requirement. Requirements that contain subjective, unquantifiable words are not verifiable. Ask “How will we verify or confirm that the designed and built product met the requirement?” An unverifiable requirement is an unnecessary or bad requirement. How do you verify “the product shall be safe?”
- Avoid the use of indefinable terms like user-friendly, versatile, robust, approximately, minimal impact, state-of-the-art, etc. Such terms often mean different things to different people, making it difficult to test for the requirements.
- Do not speculate; avoid drawing up wish lists of features that are impossible to achieve. Saying you want a system to handle all unexpected failures is wishful thinking since no system will ever be a 100% what you want it to be.
- Avoid duplication and contradictory statements.
- Do not express suggestions or possibilities. You can identify these wherever you see statements with “might, may, could, ought, etc.”
- Record and track relationships between levels of requirements. Document which “parent” requirement is driving a lower-level “child” requirement. Checks must be made periodically to ensure the traceability is correct and complete and that requirements flow down correctly. Lower level child requirements that do not link back to higher level parent requirements may be gold-plating or indicate a missing higher level requirement. Traceability is crucial in change impact assessments. Design reviews should address how the design meets each requirement.
- The requirements owner or source is the stakeholder specifying the requirement. The owner is knowledgeable about the need for the requirement, willing and able to defend the need, and able to assess how project changes or changes to other requirements impact the requirement.
- Project objectives become requirements, requirements become deliverables in the work breakdown structure which, is then translated in a project schedule. All should be traceable forward and backwards. As an example, by tracing business objectives to requirements, requirements to designs, and designs to deliverables, the project team is able to show how the "product of the project" meets the customer's needs.