Business Analysis Introduction

What is Business Analysis?

Business Analysis is the set of tasks, knowledge, and techniques required to identify business needs and determine solutions to enterprise business problems. Although, the general definition is similar, the practices and procedures may vary in various industries.

In Information technology industry, solutions often include a systems development component, but may also consist of process improvement or organizational change.

Business analysis may also be performed to understand the current state of an organization or to serve as a basis for the identification of business needs. In most cases, however, business analysis is performed to define and validate solutions that meets business needs, goals, or objectives.

Who is a Business Analyst?

A business analyst is someone who analyzes an organization or business domain (real or hypothetical) and documents its business, processes, or systems, assessing the business model or its integration with technology. However, organizational titles vary such as analyst, business analyst, business systems analyst or maybe systems analyst.

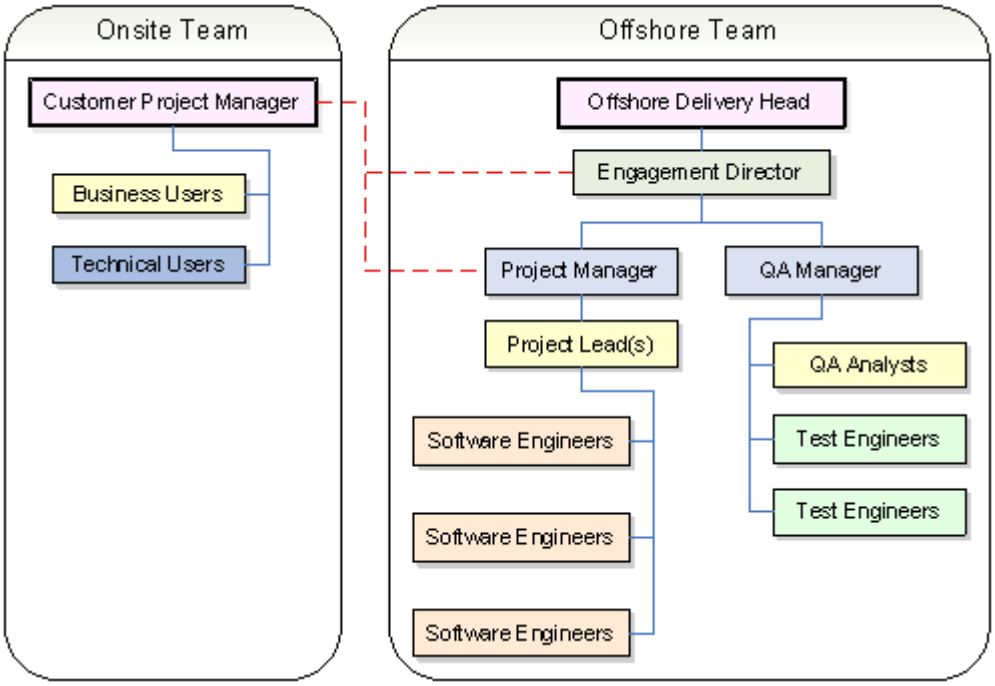
Why a Business Analyst?

Organizations employ business analysis for the following reasons −

- To understand the structure and the dynamics of the organization in which a system is to be deployed.
- To understand current problems in the target organization and identify improvement potentials.
- To ensure that the customer, end user, and developers have a common understanding of the target organization.

In the initial phase of a project, when the requirements are being interpreted by the solution and design teams, the role of a Business analyst is to review the solutions documents, work closely with the solutions designers (IT team) and Project managers to ensure that requirements are clear.

In a typical large-size IT organization, especially in a development environment, you can find On-site as well as offshore delivery teams having the above-mentioned roles. You can find a “Business Analyst” who acts as a key person who has to link both the teams.

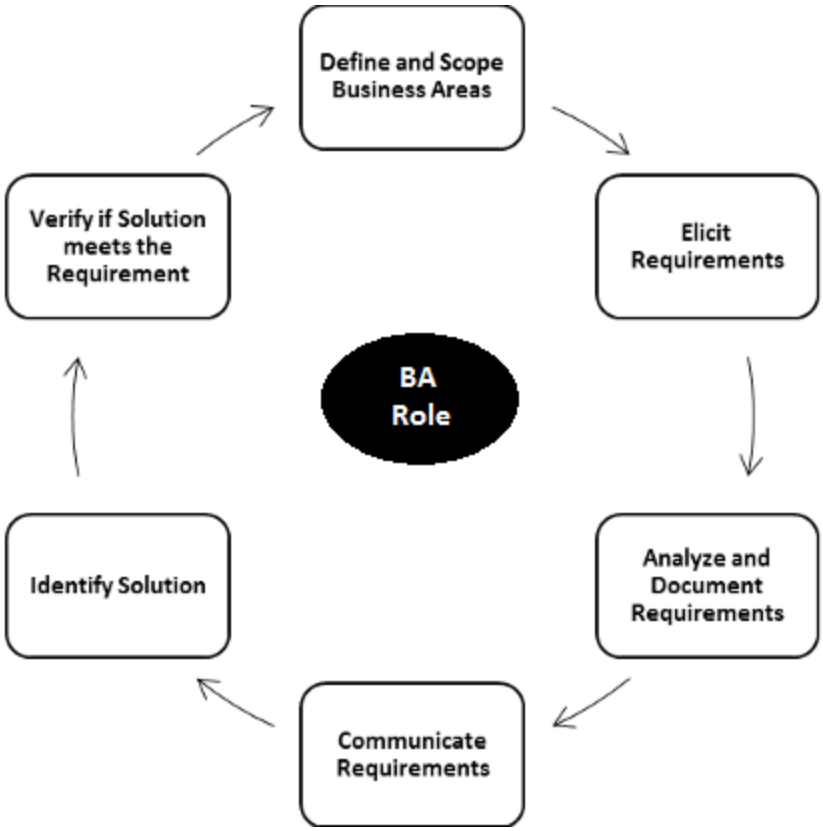


Sometimes, he would interact with Business users and at times technical users and finally to all the stakeholders in the projects to get the approval and final nod before proceeding with the documentation.

Hence, the role of BA is very crucial in the effective and successful jumpstart for any project.

Role of an IT Business Analyst

The role of a Business analyst starts from defining and scoping the business areas of the organization, then eliciting the requirements, analyzing and documenting the requirements, communicating these requirements to the appropriate stakeholders, identifying the right solution and then validating the solution to find if the requirements meet the expected standards.



How is it different from other Professions?

Business analysis is distinct from financial analysis, project management, quality assurance, organizational development, testing, training and documentation development. However, depending on the organization, a Business Analyst may perform some or all these related functions.

Business analysts who work solely on developing software systems may be called IT business analysts, technical business analysts, online business analysts, business systems analysts, or systems analysts.

Business analysis also includes the work of liaison among stakeholders, development teams, testing teams, etc

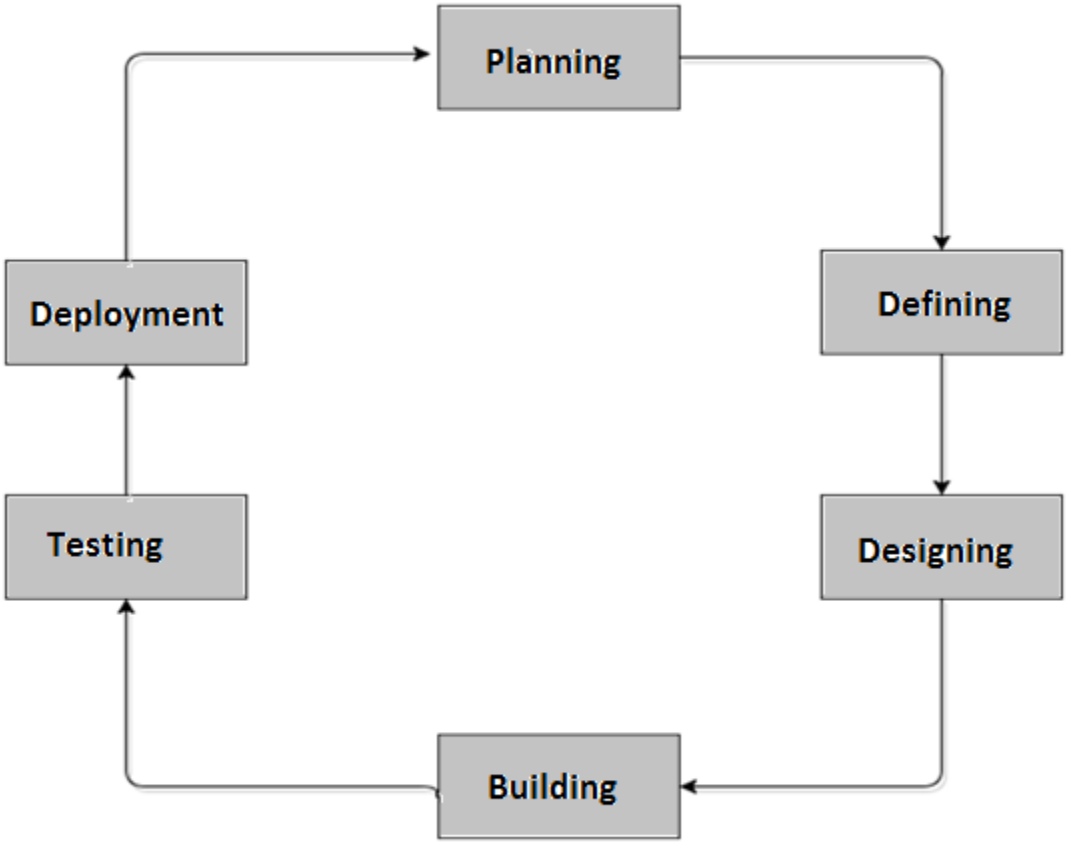
Software Development Life Cycle

Software Development Life Cycle (SDLC) is a process followed in a software project, within a software organization. It consists of a detailed plan describing how to develop, maintain, replace and alter or enhance specific software. It defines a methodology for improving the quality of software and the overall development process.

- SDLC is a process used by IT analysts in order to develop or redesign high quality software system, which meets both the customer and the real-world requirement.

- It takes into consideration all the associated aspects of software testing, analysis and post-process maintenance.

The important phases of SDLC are depicted in the following illustration −



Planning Stage

Every activity must start with a plan. Failing to plan is planning to fail. The degree of planning differs from one model to another, but it's very important to have a clear understanding of what we are going to build by creating the system's specifications.

Defining Stage

In this phase, we analyze and define the system's structure. We define the architecture, the components, and how these components fit together to produce a working system.

Designing Stage

In system design, the design functions and operations are described in detail, including screen layouts, business rules, process diagrams and other documentation. The output of this stage will describe the new system as a collection of modules or subsystems.

Building Stage

This is the development phase. We start code generation based on the system's design using compilers, interpreters, debuggers to bring the system to life.

Implementation

Implementation is a part of the Building Stage. In this phase, we start code generation based on the system's design using compilers, interpreters, debuggers to bring the system to life.

Testing Stage

As different parts of the system are completed; they are put through a series of tests. it is tested against the requirements to make sure that the product is actually solving the needs addressed during the requirement phase.

- Test plans and test cases are used to identify bugs and to ensure that the system is working according to the specifications.
- In this phase, different types of testing like unit testing, manual testing, acceptance testing and system testing is done.

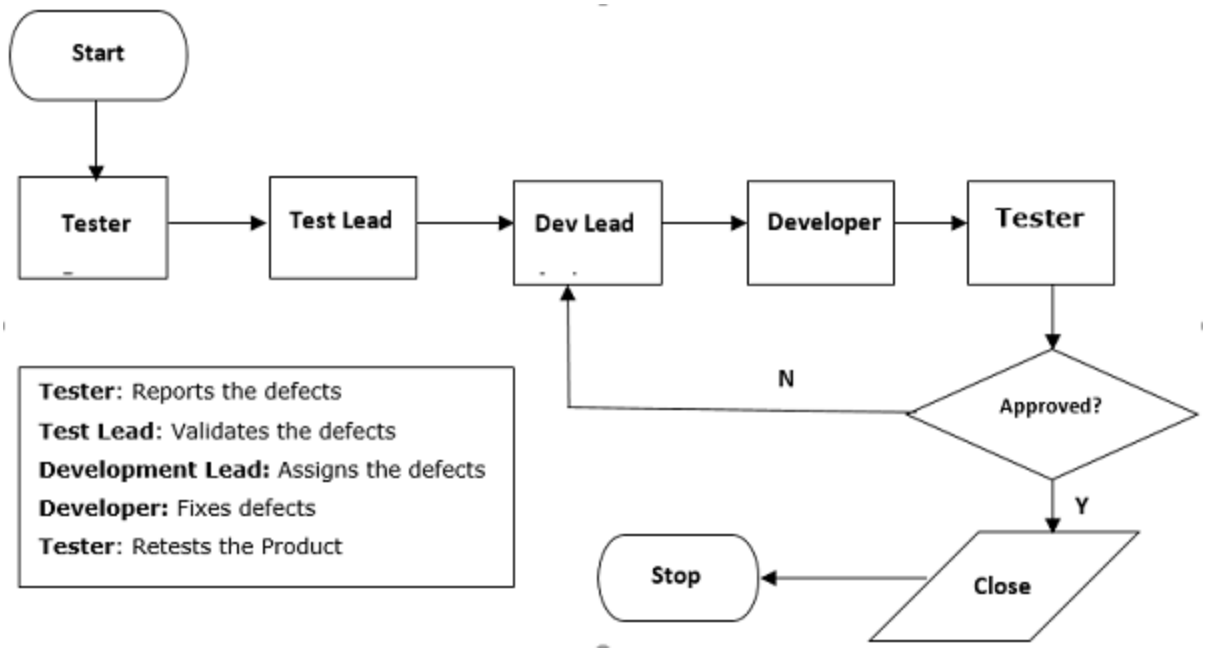
Defect Tracking in Testing

Software test reports are used to communicate the results of the executed test plans. This being the case, a report should contain all test information that pertains to the current system being tested. The completeness of reports will be verified in walkthrough sessions.

Testing for a project seeks to accomplish two main goals −

- Detect failures and defects in the system.
- Detect inconsistency between requirements and implementation.

The following flowchart depicts the **Defect Tracking Process** −



To achieve the main goals, the testing strategy for the proposed system will usually consist of four testing levels.

These are unit testing, integration testing, acceptance testing, and regression testing. The following subsections outline these testing levels, which development team roles are responsible for developing and executing them, and criteria for determining their completeness.

Deployment

After the test phase ends, the system is released and enters the production environment. Once the product is tested and ready to be deployed it is released formally in the appropriate market. Sometime product deployment happens in stages as per the organization's business strategy.

The product may first be released in a limited segment and tested in the real business environment (UAT- User acceptance testing). Then based on the feedback, the product may be released as it is or with suggested enhancements in the targeting market segment.

Post SDLC Process

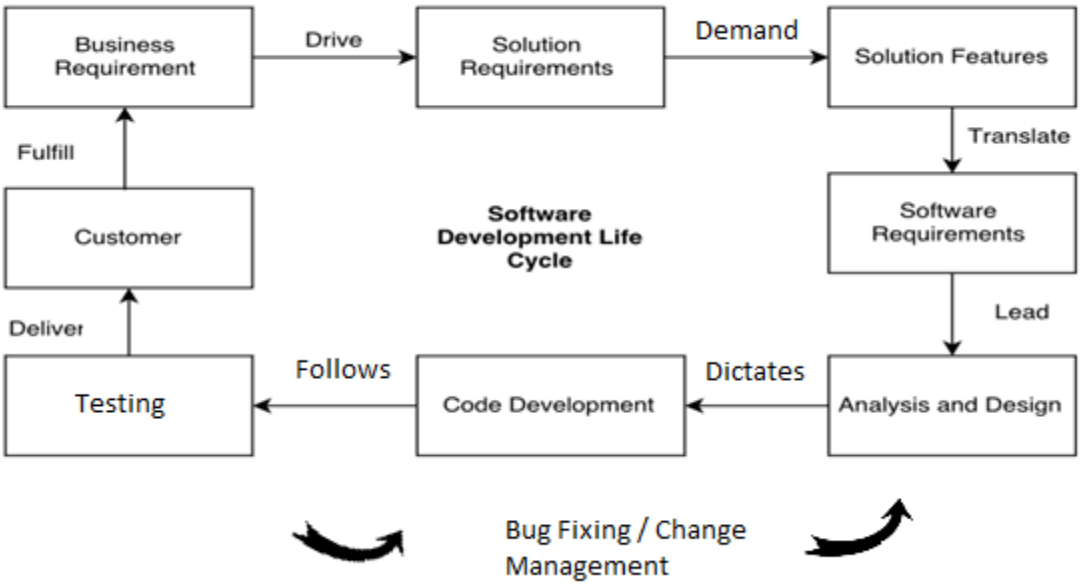
After the product is released in the market, its maintenance is done for the existing customer base.

Once in the production environment, the system will suffer modifications because of undetected bugs or other unexpected events. The system is evaluated and the cycle is repeated for maintaining the system.

Role of Business Analyst during SDLC Process

As we can see the below diagram, BA is involved in driving business requirement and converting them to solution requirements.

He is involved in translating the solution features into software requirements. Then leads in analysis and designing phase, dictates in code development, then follows the testing phase during bug fixing as a change agent in the project team and ultimately fulfills the customer requirements.



Roles

The role of a business analyst in an IT Project can be multi–fold. It is possible for project team members to have multiple roles and responsibilities. In some projects, the BA may take on the roles of the Business Intelligence Analyst, Database Designer, Software Quality Assurance Specialist, Tester, and/or Trainer when there are limited resources available.

It is also possible for a Project Coordinator, or an Application Development Lead, or a Developer to take on the role of the Business Analyst in specific projects.

Business Analysis overlaps heavily with analysis of requirements of the business to function as usual and to optimize how they function. Some examples of Business Analysis are −

- Creating Business Architecture
- Preparing a Business Case
- Conducting Risk assessment
- Requirements Elicitation
- Business Process Analysis
- Documentation of Requirements

Major Roles of a BA

A key role of most business analysts is to liaison between the business and technical developers. Business analysts gets to work together with the business clients to gather/define requirements of a system or process to improve productivity while at the same time working with the technical teams to design and implement the system/process.

As a Contributor

The major responsibility of a BA is to contribute to the development of Business user's / key users in identifying business problems, needs and functions, understand stakeholders' concerns and requirements to identify improvement opportunities, and contribute business input for developing the business case for the IT system development project.

As a Facilitator

A Business Analyst is also supposed to facilitate/co-ordinate in the elicitation and analysis of requirements, collaborating and communicating with stakeholders and to manage their expectations and needs, and ensure the requirements are complete, unambiguous and map them to real-time business needs of an organization.

As an Analyst

Another important role would be to assess proposed system and organizational readiness for system implementation and providing support to users and coordinate with IT staff.

To help review and provide inputs to the design of the proposed IT system from the business perspective, resolving issues/conflicts among stakeholders, help organize comprehensive and quality UAT through assisting users in developing test cases, and help organize training with the aim of ensuring the deployed IT system which is capable of meeting business needs and requirements as well as realizing the anticipated benefits.

Planning and monitoring the Business analysis activities for scope development, schedule and approach for performing the activities related to business analysis for the IT system development project, monitor the progress, coordinating with the Internal Project manager and report on revenue, profitability, risks and issues wherever appropriate.

Key Responsibilities of a Business Analyst

The responsibility set of a business analyst would require him to fulfill different duties in different phases of a project and they are elucidated below −

Initiation Phase

This phase will mark the beginning of a new project and a business analyst will vary out the following responsibilities −

- Assist in carrying out the cost-benefit analysis of the project.
- Understand the business case.
- Ascertain the feasibility of the solution/project/product.
- Help in creating the project charter.
- Identify the stakeholders in the project.

Planning Phase

This phase will involve gathering the requirements and planning, how the project will be executed and managed. His responsibilities will include the below functions −

- Eliciting the requirements
- Analyze, organize and document requirements.
- Manage requirements by creating Use-cases, RTM, BRD, SRS, etc.
- Assess proposed solutions.
- Liaise and enhance communications with stakeholders.
- Assist in formulating the project management plans.
- Help in finding the project's scope, constraints, assumptions and risks.
- Assist in designing the user experience of the solution.

Executing Phase

This phase marks the development of the solution as per the requirements gathered. The responsibilities include −

- Explain requirements to the IT/development team.
- Clarify doubts, concerns regarding the proposed solution to be developed.
- Discuss and prioritize project scope changes and gain agreement.
- Create beta tests scripts for initial testing.
- Sharing the developing modules with stakeholders and solicit their feedback.
- Following deadlines and manage stakeholder's expectations.
- Resolving conflicts and manage communications with the project team.

Monitoring and Controlling Phase

In this phase, the project is measured and controlled for any deviations from the initial plans. This phase runs simultaneously to the execution phase.

- Developing test scripts and conducting comprehensive module and integration testing.
- Conducting UAT (use acceptance testing) and creating testing reports.
- Gain acceptance/approval of the deliverables from the client.
- Explain the change requests to the development team.
- Monitor the development of the change requests and verify their implementation as per the project's objective.

Closing Phase

This phase marks the closure of the project. The responsibilities are −

- Presenting the completed project to the client and gain their acceptance.

- Create user-training manuals, any functional material and other instructional guides.
- Conduct elaborate integration testing in production environment.
- Create final product documentations, document project lessons learned.

What a BA is Expected to Deliver?

A Business Analyst serves as the bridge between the business users and the technical IT people. Their presence will contribute significantly to the success of IT projects. There are many benefits of having a dedicated business analyst. A dedicated business analyst can −

- Delivers a clear project scope from a business point of view.
- Develop sound business cases and more realistic estimation of resources and business benefits.
- Prepares better reports on project scoping, planning and management in terms of costs and schedule, especially for large-scale IT projects.
- Produces clear and concise requirements, which in turn, helps provide clearer and more accurate requirements, if the IT project is outsourced.
- Elicit the real business needs from users and effectively manage user expectations.
- Improves the quality of design for the proposed IT system so that it meets the user requirements.
- Ensures the quality of the system developed before passing on to end-users for review and acceptance.
- Arranges comprehensive quality test on the delivered systems and provide feedback to the technical IT people.

Tools and Techniques

A Business Analyst should be familiar with various analytical tools and related technologies when you are wearing the BA hat. I mean, if you are holding this position.

As we have already learnt earlier, business analysis is a process where you are trying to understand a business enterprise and identifying opportunities, problem areas, problems and meeting a wide range of people having wide range of roles and responsibilities like CEO, VP, Director and understanding their business requirements.

Fundamentally, there are 3 types of Business analysis which we can categorize into −

- **Strategic Analysis** − Strategic business analysis deals with pre-project work. It is the method or process of identifying business problems, devising business strategies, goals and objectives helping the top management. It provides management information reporting for effective decision making process.

- **Tactical Analysis** − It involves knowledge of specific business analysis techniques to apply at the right time in the appropriate project.
- **Operational Analysis** − In this type of Business analysis, we are focussed towards the business aspect by leveraging information technology. It is also a process of studying operational systems with the aim of identifying opportunities for business improvement.

For each type of analysis, there are a set of tools which are available in the market and based on organizational needs and requirements, these are to be used.

However, to materialize business requirements into understandable information, a good BA will leverage techniques Fact-Finding, Interviews, Documentation Review, Questionnaires, Sampling and Research in their day-to-day activities.

Functional and Non-Functional Requirements

We can breakdown a requirement into two principal types like Functional and Nonfunctional requirements.

For all the technology projects, functional and non-functional requirements must be segregated and separately analyzed.

To define the proper tool and an appropriate technique might be a daunting challenge. Whether you are doing a brand-new application or making change to an existing application. Considering the right technique for the functional process is an art by itself.

An overview of the widely-used business analysis techniques which are currently in the market −

Processes	Techniques	Process Deliverables (Outcomes)
To Determine Functional and Non-Functional Requirements	• JAD Sessions • Scenarios and Use-cases • Organizational Modeling • Scope Modeling • Functional Decomposition • Interviews • Observation (Job Shadowing) • Focus Groups • Acceptance and Evaluation • Sequence Diagrams • User Stories	**Business Requirements Documents** − • Business and Functional Requirements • Non-Functional Requirements • Business Rules • Requirements Traceability Matrix

	• Brainstorming • Storyboarding • Prototyping • Structured Walk-through • Event Analysis • Business Rule analysis • Requirements Workshops • Risk Analysis • Root Cause Analysis	**Common Template** − • Business Requirements Document

Applicability of Tools and Process

Although there are a variety of tools and procedures available to business analysts, it all depends upon the current practices of the organization and how they would like to use it.

For example, **root-cause analysis** is used when there is a requirement to go deeper into a certain important area or function.

However, business requirements document is the most popular and accepted way to put the requirements in documentation format.

In the subsequent chapters, we will be discussing some of the above techniques in-depth.

Modelling

A Business Model can be defined as a representation of a business or solution that often include a graphic component along with supporting text and relationships to other components. For example, if we have to understand a company's business model, then we would like to study the following areas like −

- Core values of the company
- What it serves?
- What is sets apart?
- Its key resources
- Major relationships
- Its delivery channels

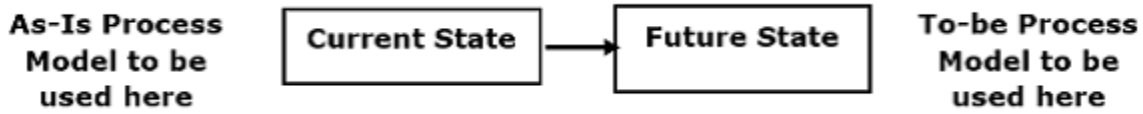
With the help of modelling techniques, we can create a complete description of existing and proposed organizational structures, processes, and information used by the enterprise.

Business Model is a structured model, just like a blueprint for the final product to be developed. It gives structure and dynamics for planning. It also provides the foundation for the final product.

Purpose of Business Modelling

Business modelling is used to design current and future state of an enterprise. This model is used by the Business Analyst and the stakeholders to ensure that they have an accurate understanding of the current “As-Is” model of the enterprise.

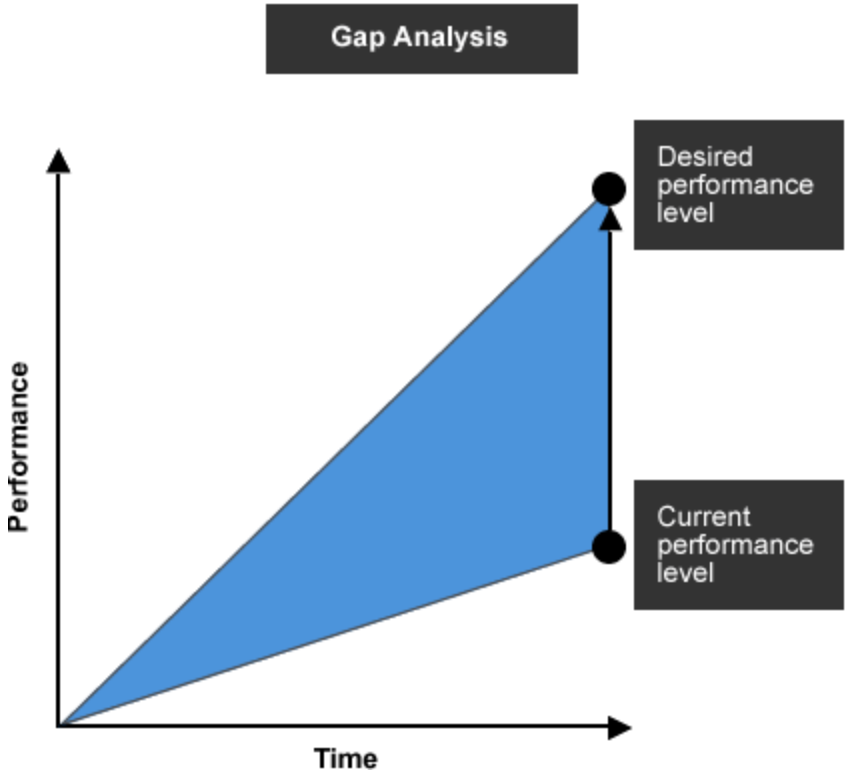
It is used to verify if, stakeholders have a shared understanding of the proposed “To-be of the solution.



Analyzing requirements is a part of business modelling process and it forms the core focus area. Functional Requirements are gathered during the “Current state”. These requirements are provided by the stakeholders regarding the business processes, data, and business rules that describe the desired functionality which will be designed in the Future State.

Performing GAP Analysis

After defining the business needs, the current state (e.g. current business processes, business functions, features of a current system and services/products offered and events that the system must respond to) must be identified to understand how people, processes and technology, structure and architecture are supporting the business by seeking input from IT staff and other related stakeholders including business owners.



A gap analysis is then performed to assess, if there is any gap that prevents from achieving business needs by comparing the identified current state with the desired outcomes.

If there is no gap (i.e. the current state is adequate to meet the business needs and desired outcomes), it will probably not be necessary to launch the IT project. Otherwise, the problems/issues required to be addressed in order to bridge the gap should be identified.

Techniques such as SWOT (Strengths, Weaknesses, Opportunities and Threats) Analysis and document analysis can be used.

To Assess Proposed System

BA should assist the IT project team in assessing the proposed IT system to ensure that it meets the business needs and maximizes the values delivered to stakeholders. BA should also review the organization readiness for supporting the transition to the proposed IT system to ensure a smooth System Implementation.

BA should help the IT project team to determine whether the proposed system option and the high-level system design could meet the business needs and deliver enough business value to justify the investment. If there are more than one system options, BA

should work with the IT staff to help to identify the pros and cons of each option and select the option that delivers the greatest business value.

Guiding Principles for Business Modelling

The primary role of business modelling is mostly during inception stage and elaboration stages of project and it fades during the construction and transitioning stage. It is mostly to do with analytical aspects of business combined with technical mapping of the application or software solution.

- **Domain and User variation** − Developing a business model will frequently reveal areas of disagreement or confusion between stakeholders. The Business Analyst will need to document the following variations in the as-is model.
- **Multiple work units perform the same function** − Document the variances in the AS-IS model. This may be different divisions or geographies.
- **Multiples users perform the same work** − Different stakeholders may do similar work differently. The variation may be the result of different skill sets and approaches of different business units or the result of differing needs of external stakeholders serviced by the enterprise. Document the variances in the AS-IS model.
- **Resolution Mechanism** − The Business Analyst should document whether the ToBe solution will accommodate the inconsistencies in the current business model or whether the solution will require standardization. Stakeholders need to determine which approach to follow. The To-Be model will reflect their decision.

Example of BA role in Modelling ERP Systems

A Business analyst is supposed to define a standard business process and set up into an ERP system which is of key importance for efficient implementation. It is also the duty of a BA to define the language of the developers in understandable language before the implementation and then, utilize best practices and map them based on the system capabilities.

A requirement to the system is the GAAP fit analysis, which has to balance between −

- The need for the technical changes, which are the enhancements in order to achieve identity with the existing practice.
- Effective changes, which are related to re-engineering of existing business processes to allow for implementation of the standard functionality and application of process models.

Functional Business Analyst

Domain expertise is generally acquired over a period by being in the “business” of doing things. For example,

- A **banking associate** gains knowledge of various types of accounts that a customer (individual and business) can operate along with detailed business process flow.
- An **insurance sales representative** can understand the various stages involved in procuring of an Insurance policy.
- A **marketing analyst** has more chances of understanding the key stakeholders and business processes involved in a Customer Relationship Management system.
- A Business Analyst involved in **capital markets** project is supposed to have subject matter expertise and strong knowledge of Equities, Fixed Income and Derivatives. Also, he is expected to have handled back office, front office, practical exposure in applying risk management models.
- A **Healthcare Business Analyst** is required to have basic understanding of US Healthcare Financial and Utilization metrics, Technical experience and understanding of EDI 837/835/834, HIPAA guidelines, ICD codification – 9/10 and CPT codes, LOINC, SNOMED knowledge.

Some business analysts acquire domain knowledge by testing business applications and working with the business users. They create a conducive learning environment though their interpersonal and analytical skills. In some cases, they supplement their domain knowledge with a few domain certifications offered by AICPCU/IIA and LOMA in the field of Insurance and financial services. There are other institutes that offer certification in other domains.

Other Major Activities

Following a thorough examination of current business processes, you can offer highly professional assistance in identifying the optimal approach of modelling the system.

- Organizing the preparation of a formalized and uniform description of business processes in a manner ensuring efficient automation in the system.
- Assistance to your teams in filling out standard questionnaires for the relevant system as may be furnished by the developers.
- Participation in working meetings requirements towards the developers are defined.
- Check and control as to whether the requirements set by you have been properly “reproduced” and recorded in the documents describing the future model in the system (Blueprints).
- Preparation of data and assisting for prototyping the system.
- Assistance in preparation of data for migration of lists and balances in the format required by the system.
- Review of the set-up prototype for compliance with the requirements defined by the business process owners.

- Acting as a support resource to your IT teams in preparing data and actual performance of functional and integration tests in the system.

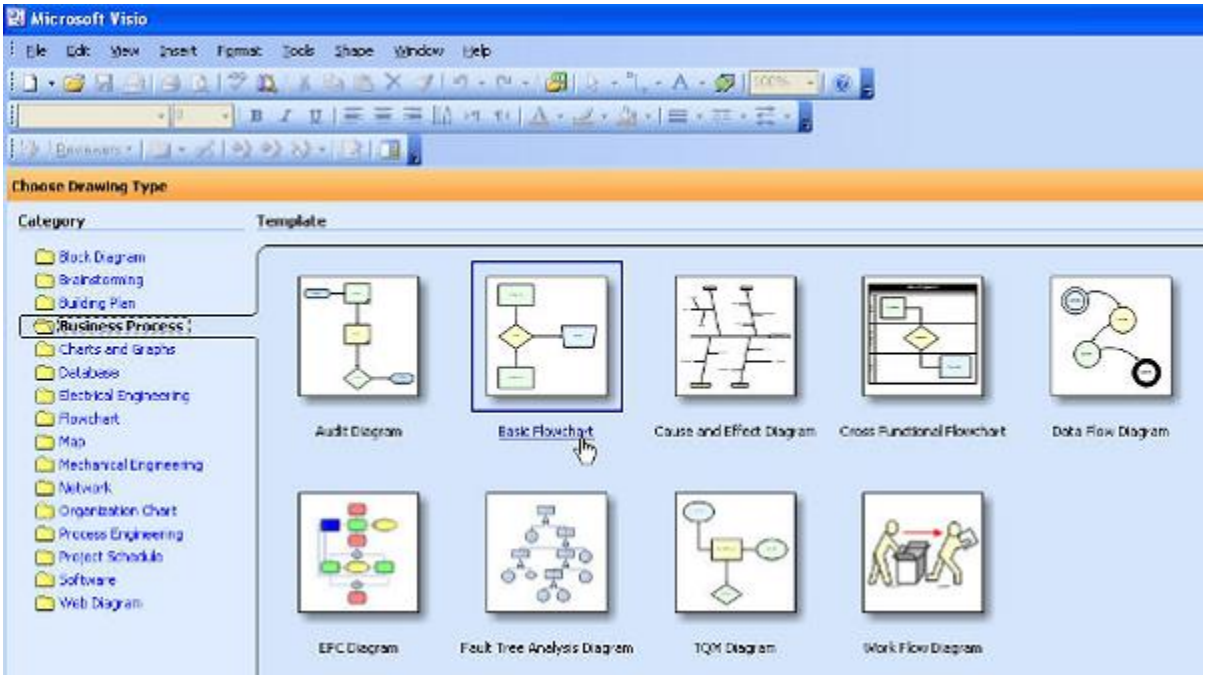
In the next section, we will discuss briefly about some of the popular Business Modelling Tools used by large organizations in IT environments.

Tool 1: Microsoft Visio

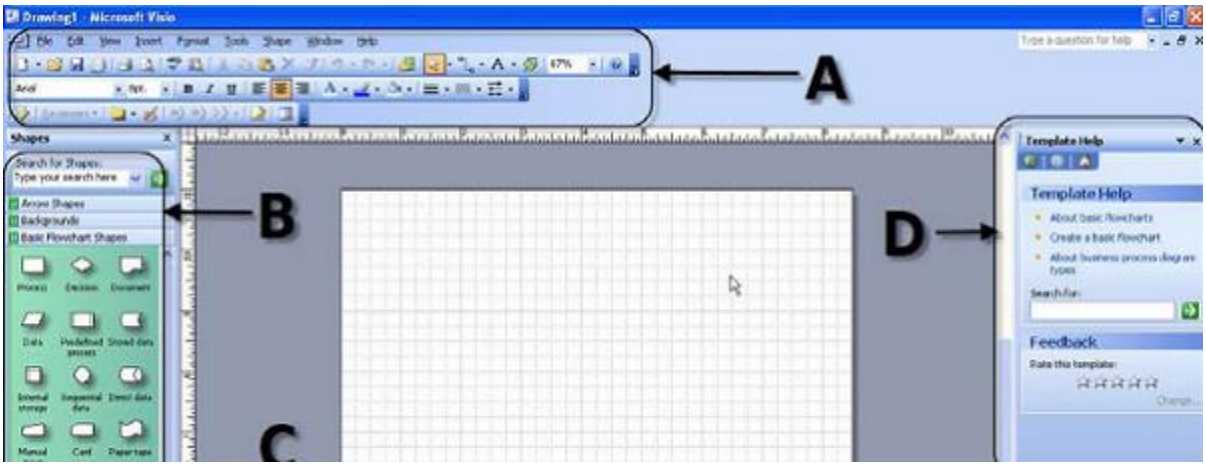
MS-Visio is a drawing and diagramming software that helps transform concepts into a visual representation. Visio provides you with pre-defined shapes, symbols, backgrounds, and borders. Just drag and drop elements into your diagram to create a professional communication tool.

Step 1 − To open a new Visio drawing, go to the Start Menu and select Programs → Visio.

Step 2 − Move your cursor over “Business Process” and select “Basic Flowchart”.



The following screenshot shows the major sections of MS-Visio application.



Let us now discuss the basic utility of each component −

A − the toolbars across the top of the screen are like other Microsoft programs such as Word and PowerPoint. If you have used these programs before, you may notice a few different functionalities, which we will explore later.

Selecting Help Diagram Gallery is a good way to become familiar with the types of drawings and diagrams that can be created in Visio.

B − The left side of the screen shows the menus specific to the type of diagram you are creating. In this case, we see −

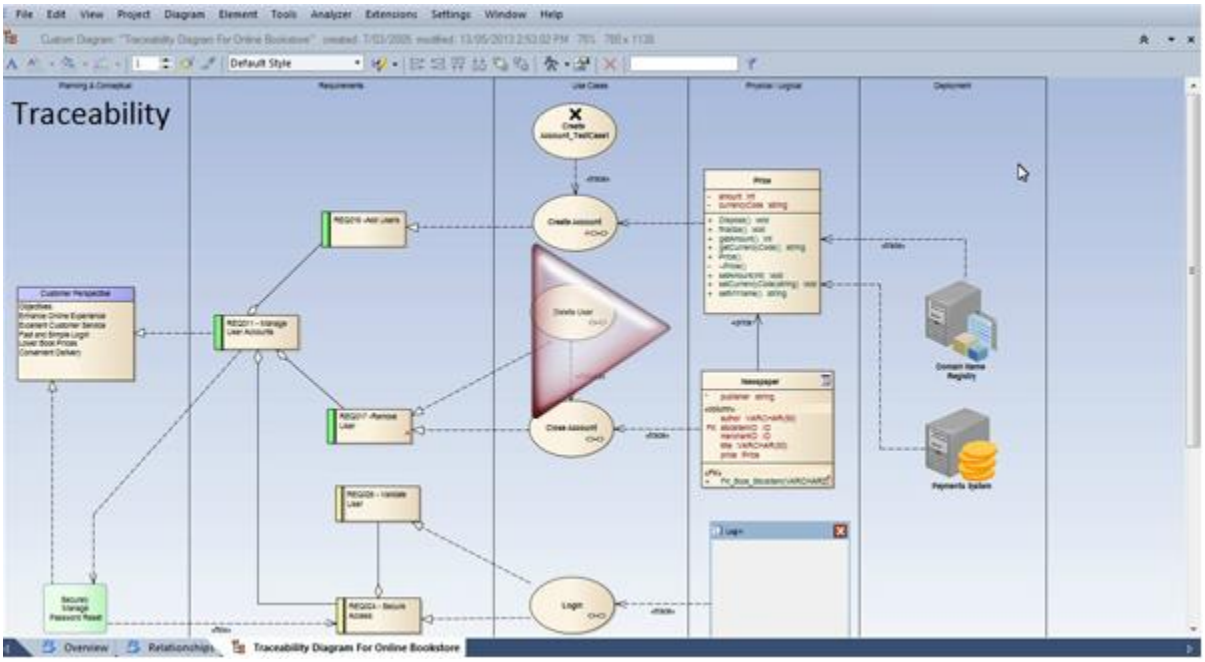
- Arrow Shapes
- Backgrounds
- Basic Flowchart Shapes
- Borders and Titles

C − The center of the screen shows the diagram workspace, which includes the actual diagram page as well as some blank space adjacent to the page.

D − The right side of the screen shows some help functions. Some people may choose to close this window to increase the area for diagram workspace, and re-open the help functions when necessary.

Tool 2: Enterprise Architect

Enterprise architect is a visual modeling and design tool based on UML. The platform supports the design and construction of software systems, modeling business processes and modeling industry based domains. It is used by business and organizations to not only model the architecture of their systems. But to process the implementation of these models across the full application development life cycle.



The intent of Enterprise architect is to determine how an organization can most effectively achieve its current and future objectives.

Enterprise architect has four points of view which are as follows −

- **Business perspective** − The Business perspective defines the processes and standards by which the business operates on day to day basis.
- **Application Perspective** − The application perspective defines the interactions among the processes and standards used by the organization.
- **Information Perspective** − This defines and classifies the raw data like document files, databases, images, presentations and spreadsheets that organization requires in order to efficiency operate.
- **Technology Prospective** − This defines the hardware, operating systems, programming and networking solutions used by organization.

Tool 3: Rational Requisite Pro

The process of eliciting, documenting organizing tracking and changing Requirements and communicating this information across the project teams to ensure that iterative and unanticipated changes are maintained throughout the project life cycle.

Monitoring status and controlling changes to the requirement baseline. The Primary elements are Change control and Traceability.

Requisite Pro is used for the above activities and project administration purposes, the tool is used for querying and searching, Viewing the discussion that were part of the requirement.

In Requisite Pro, the user can work on the requirement document. The document is a MS-Word file created in Reqpro application and integrated with the project database. Requirements created outside Requisite pro can be imported or copied into the document.

In Requisite Pro, we can also work with traceability, here it is a dependency relationship between two requirements. Traceability is a methodical approach to managing change by linking requirements that are related to each other.

Requisite Pro makes it easy to track changes to a requirement throughout the development cycle, so it is not necessary to review all your documents individually to determine which elements need updating. You can view and manage suspect relationships using a Traceability Matrix or a Traceability Tree view.

Requisite Pro projects enable us to create a project framework in which the project artifacts are organized and managed. In each project the following are included.

- General project information
- Packages

- General document information
- Document types
- Requirement types
- Requirement attributes
- Attribute values
- Cross-project traceability

Requisite Pro allows multiple user to access the same project documents and database simultaneously hence the project security aspect is to very crucial. Security prevents the system use, potential harm, or data loss from unauthorized user access to a project document.

It is recommended that the security is enabled for all RequisitePro projects. Doing so ensures that all changes to the project are associated with the proper username of the Individual who made the change, thereby ensuring that you have a complete audit trail for all changes.