BEST PRACTICES FOR BUSINESS ANALYST

A SMALL GUIDE FOR BUSINESS ANALYSTS

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INTRODUCTION

WHAT IS BUSINESS ANALYSIS

Business analysis refers to the identification and analysis of business problems, needs and opportunities through participation in the SDLC to help achieve the organization's strategic vision and business goals.

WHO IS BUSINESS ANALYST

BA refers to any person who is responsible for performing the business analysis functions for IT system development projects such as analyzing business needs, facilitating the elicitation of user requirements, documenting and prioritizing the business requirements, verifying the major project deliverables, business reengineering opportunities and workflow from business perspective, and facilitating effective communication between business and IT sides.

IMPORTANCE OF AND NEED FOR A BA ROLE

(a) During IT system development, communication gap often exists between IT staff and business users due to differences in knowledge, skills, background and orientation. Users may not understand the IT terminology and technical solutions while IT staff may not understand the business terminology, functions, processes and environment, leading to difficulties in eliciting real business needs and understanding of requirements as well as affecting the design of the proposed system. The situation becomes even more challenging if the IT project is outsourced, where more communication and collaboration issues may arise especially when the external IT contractor is not familiar with the Government environment and the business processes. Therefore, a BA role is important and needed to be instituted in the IT project organization to improve the collaboration between users and IT staff throughout the SDLC.

(b) At project initiation stage before the formation of a project team, BA can help explore improvement opportunities of current state by developing sound business cases to justify the investment of IT project and produce a clear project scope and estimation. BA role is especially helpful in scoping and planning of large-scale projects at project initiation stage.

(c) Where the demand and resources justify, a permanent establishment of the BA role is recommended to aid in future system maintenance, support and enhancement.

BENEFITS OF HAVING DEDICATED BA

BA serves as the bridge between the business users and the technical IT people. Its presence will contribute significantly to the success of IT projects. The anticipated benefits of having a dedicated BA include the following:

i) More able to deliver a clear project scope from a business point of view;
ii) More able to develop sound business cases and more realistic estimation of resources and business benefits;
iii) More able to make a better project scoping, planning and management in costs and schedule especially for large-scale IT projects;
iv) More able to produce clear and concise requirements, which in turn, helps provide clearer and more accurate tender requirements if the IT project is outsourced;
v) More able to elicit the real business needs from users, and effectively manage user expectations and changes;
vi) More able to improve the quality of design for the proposed IT system so that it can meet real user needs and achieve the anticipated benefits;
vii) More able to ensure the quality of the system developed before passing on to end-users for review and acceptance; and viii) More competent to arrange the comprehensive and quality test on the delivered systems or functions and provide feedback to the technical IT people.

ROLES AND RESPONSIBILITIES OF BA

The major role of BA is to liaise between end-user side and IT side to help identify and analyze business problems and needs, and work closely with the SA during the development of IT system to achieve the business goals. The major responsibilities of BA are listed as follows:

i) **Contribute to the Development of Business Case:** Assist users in identifying business problems, needs and functions, understand stakeholders' concerns and requirements, identify improvement opportunities, and contribute business input for developing the business case for the IT system development project.

ii) **Facilitate the Elicitation and Analysis of Requirements:** Collaborate and communicate with stakeholders to elicit, consolidate, analyze and prioritize requirements, manage their expectations and needs, and help ensure the requirements are complete, unambiguous and map to real business needs.

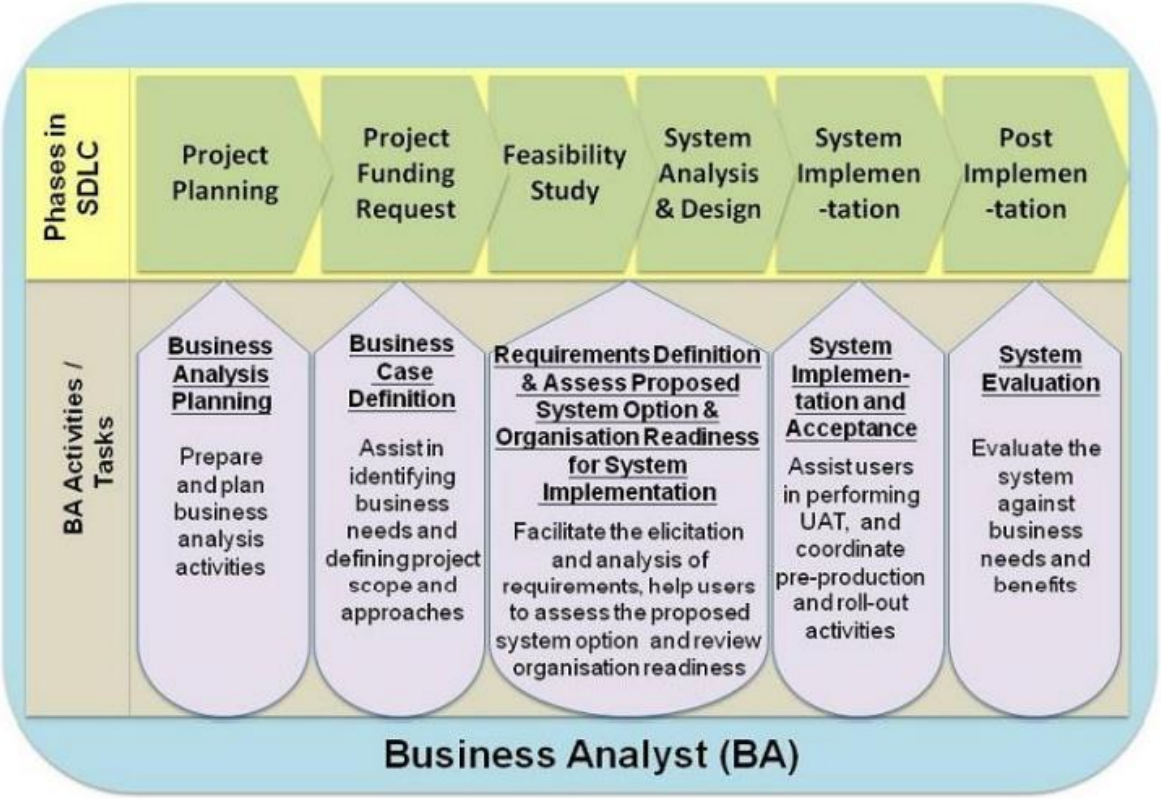
iii) **Assess Proposed System Option and Organization Readiness for System Implementation:** Provide support to users and coordinate with IT staff to help review and provide input to the design of the IT system from the business perspective, resolve issues/conflicts among stakeholders, help organize comprehensive and quality UAT through assisting users in developing test cases, and help organize training with the aim of ensuring the deployed IT system is capable of meeting business needs and requirements as well as realizing the anticipated benefits.

iv) **Plan and Monitor the Business Analysis Activities:** Plan the scope, schedule and approach for performing the activities related to business analysis for the IT system development project, monitor the progress, coordinate with the Internal PM and report to PAT or PSC on changes, risks and issues wherever appropriate.

INVOLVEMENT OF BA IN SYSTEM DEVELOPMENT

OVERVIEW

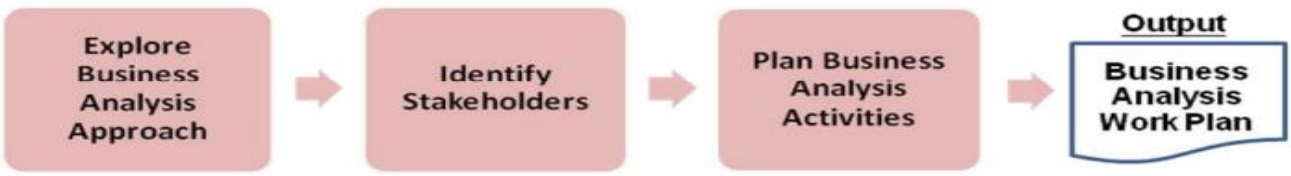
(a) Business Analysis related activities are involved in various phases of the SDLC. An overview of the key activities for BA in each phase of the SDLC is depicted in below Figure.



(b) More details of the key BA activities as mentioned above are explained in the following sections of the Document:

BUSINESS ANALYSIS PLANNING

In the Project Planning Phase of the SDLC, B/D should prepare a high-level plan of the business analysis activities to be performed for the IT system development project. The planning activities involved are shown in Figure.



Explore Business Analysis Approach

(a) B/D should explore the business analysis approach for performing business analysis for the IT system development project. Typically, there are two main approaches: plan-driven versus change-driven. The differences between the two approaches are shown in Table below. B/D may select, combine and tailor the approach to suit the project needs.

Area	Plan-driven Approach	Change-driven Approach
Approach	Define all requirements before implementation starts	Define an initial set of high-level requirements at the beginning of a project, detailed or new requirements then emerge in iterative cycles throughout the implementation
Purpose	Minimise uncertainty and maximise control	Early visualisation of system functions and business values
Suitability Criteria	Suitable if all or most requirements can be elicited and defined prior to implementation, or unacceptable high risk may result if implementation is wrong	Suitable for incremental enhancements of an existing system, or when requirements are new and changing, or unable to be well defined before implementation
Approval of Requirements	The project owner for final approval with selected stakeholders for approving their own specific groups of requirements	One stakeholder dedicated and empowered by the project owner to approve requirements within each iteration

Area	Plan-driven Approach	Change-driven Approach
Scheduling of Business Analysis Activities	Most work is undertaken at start of the project or during one specific project phase such as SA&D	Some initial work is performed at the beginning of the project, followed by work such as elicitation of requirements throughout the implementation.
Documentation of Requirements	Formal and detailed, generally following a standardised template to document the requirements.	A list of prioritised requirements, supplemented with models or working functions to show details. Formal documentation is often produced after system is implemented.
Stakeholders' Communication	Formal, written communication, often with pre-defined forms/templates	Focus on informal, frequent communication
System Development Method Used*	Waterfall system development method	Iterative system development method

(b) In determining the business analysis approach to be used, the following factors should also be considered:

i) **System Development Method:** Business analysis approach often needs to be aligned with the system development method to be used in the project. The system development method as recommended by IT staff defines how the SDLC is taken forward, e.g., Waterfall, iterative or hybrid (e.g., Agile), and affects the timing of the activities, tasks and deliverables to be produced in different phases.

ii) **Project Characteristics:** BA should understand the project characteristics such as project goals and objectives, nature, size and complexity, to determine which approach best suits their needs.

iii) **Laws, Ordinances, Regulations and Standards:** B/D should identify the laws, ordinances, regulations and standards that are applicable to the project, such as the Personal Data (Privacy) Ordinance, the Government Security Regulations and the Baseline IT Security Policy, and take into consideration the appropriate activities such as seeking advices from relevant parties, in determining the business analysis approach.

Identify Stakeholders

(a) This activity is to identify stakeholders who are likely required to participate in the business analysis activities, or who may influence or be affected by the business needs, requirements or outcomes of the IT system development project. These may range from business owners to end users.

(b) The Internal PM and the BA would identify both internal and external stakeholders for the whole project and conduct preliminary stakeholder analysis. BA may seek input from or work jointly with the Internal PM to prepare a stakeholder register for those stakeholders specified above. Identified stakeholders can be classified into different groups. The register should state the location and any special needs of the stakeholders, e.g., work in remote office, work under shift working hours, would take long vacation holidays, etc. The list of stakeholders in the register and their involvement vary among projects, system development methods and the organization structure of the B/D.

(c) BA may leverage techniques from Practice Guide to Project Management1 (PGPM) to identify stakeholders and conduct stakeholder analysis to understand their involvement in the project and their communication requirements.

(d) The stakeholder register may need to be updated after the IT project organization is formed at the end of the Project Funding Request Phase to take into account the confirmed nomination of members to the PSC and PAT.

(e) The RACI Model as mentioned in PGPM is a technique used for clarifying the levels of participation of different roles for completing deliverables in a project.

Plan Business Analysis Activities

BA should identify and schedule the overall business analysis activities and deliverables for the project. In doing so, BA may make reference to similar past projects, if applicable, to define an outline of business analysis activities and to estimate the resources required for the activities. This would typically involve the following tasks:

i) Plan the business analysis deliverables: BA should plan and determine what deliverables will be produced in different phases of the SDLC.

ii) Determine the business activities to be performed: BA should identify what business analysis activities should be performed to produce the planned deliverables, e.g., define business cases in the Project Funding Request Phase or elicit and analyze detailed user requirements in the Systems Analysis & Design (SA&D) Phase.
iii) Identify communication vehicle and frequencies with stakeholders: BA may seek input from or work jointly with Internal PM by leveraging techniques from PGPM to establish a communication plan to describe the communication vehicle (e.g., video conferencing, emails or face-to-face meetings) and frequencies with stakeholders (e.g., ad hoc, weekly or monthly) regarding business analysis activities. The communication plan can be incorporated into the project management plan if necessary.

iv) Estimate the resources required: The resources required such as the number of BAs and total man-days required for performing the planned activities should be estimated. The estimation results should be incorporated into the project management plan as part of the estimated resources for the project.

Business Analysis Work Plan

(a) Upon completion of the above activities, a Business Analysis Work Plan will be prepared describing the approach, stakeholders to be involved, activities, target deliverables (e.g., User Requirements Document), work schedule and estimated resources.

(b) If possible, BA should submit the Business Analysis Work Plan to the Project Owner or senior management in the B/D for endorsement before project commences. This helps the BA to ensure that adequate resources are allocated to the IT project for conducting business analysis activities, earlier support and commitment from identified stakeholders including IT staff are obtained, and the planned activities and work schedule are well received and agreed by the Internal PM.

(c) The Business Analysis Work Plan should be updated in subsequent SDLC phases to cater for changing conditions or newly identified project problems/issues. Detailed work plans for key activities can also be prepared if necessary.

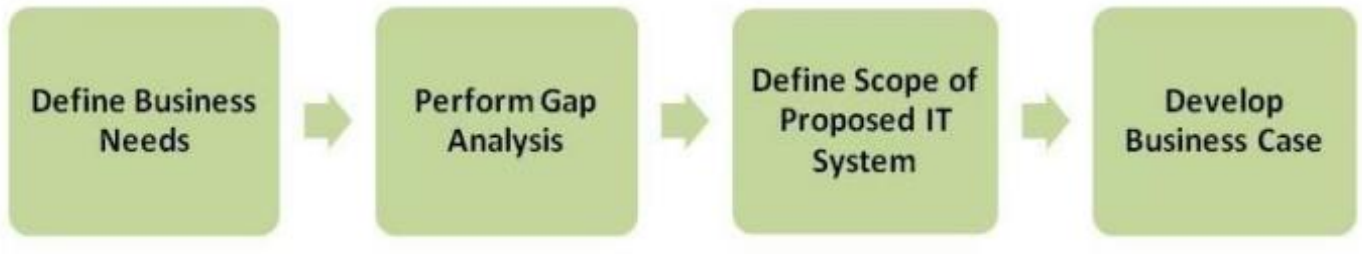
(d) The Business Analysis Work Plan should be aligned with the overall project management plan which is prepared after the approval of project funding. Related contents of the Business Analysis Work Plan such as work schedule may be incorporated into the project management plan as appropriate.

BUSINESS CASE DEFINITION

(a) A business case helps to identify improvement opportunities and benefits of the investments, which in turn provides valuable information for preparing a funding request. It generally contains information such as objectives of the investment, business opportunities and issues to be addressed, policy support, the proposed IT system as well as its cost and benefit analysis.

(b) BA should coordinate with the relevant stakeholders to collect the required business information and assist in providing business input to the IT staff or other responsible staff in the B/D to develop the business case and propose the IT system.

(c) The major BA activities involved are shown in Figure.



This section provides a brief overview of the development of business case.

Define Business Needs

(a) BA should assist in identifying and defining business needs for the business area concerned by understanding the current problems and exploring any opportunities for continuous service improvements. Defining business needs helps to explain why a change to the current system is required.

(b) Stakeholders from different levels such as senior management, middle level and working level may need to be consulted to understand their underlying business needs. The steps listed below can be followed when defining the business needs:

i) **Determine business goals and objectives:** Business goals and objectives describe the targets or state that the B/D plans to achieve for the business area concerned. Goals are longer-term, strategic and qualitative statements of conditions that the B/D plans to accomplish, while objectives are more specific and granular descriptions derived from the goals.

ii) **Identify business problems and opportunities:** Business problems must be investigated and analyzed to identify the underlying root cause; challenges faced as well as limitations of the current system. The impact of the identified problems should be assessed to explore any improvement opportunities in achieving the business goals and objectives. iii) Define desired outcomes: Desired outcomes are the desired benefits that stakeholders wish the proposed IT system to deliver. Some examples of desired outcomes are: increase in work safety, increase in user satisfaction to a specific service, and compliance with new law or regulation.

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Perform Gap Analysis

(a) 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) has to 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.

(b) A gap analysis is then performed to assess if there is any gap that prevents the B/D from achieving business needs by comparing the identified current state with the desired outcomes.

(c) 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 to bridge the gap should be identified. If the issues/problems can be solved by IT elements, assistance and input should be sought from IT staff. The findings related to the current environment such as current business process and identified problems/issues may be incorporated by the SA into the Current Environment Description of the SA&D Report in the SA&D phase.

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

Define Scope of Proposed IT System

Having performed the gap analysis and determined that a new IT system is needed to solve the issues/problems, the scope of the proposed IT system must be defined for stakeholders to understand the new capabilities to be delivered and the changes that would arise. This would involve the following tasks:

i) Define in-scope business-related components such as the major functions and features of IT system, the divisions/sections/teams to be involved, the business processes to be improved or redesigned.
ii) Identify major business-related dependencies that affect the delivery of the proposed IT system, e.g., law and regulations, government policies, external dependencies with other systems or government IT infrastructure.

Develop Business Case

A business case can then be developed to provide justifications necessary to support the investment of the IT system development project, which would involve the following tasks:

i) Help to identify any business-related assumptions and constraints that may affect the selection of the approaches e.g., delivery schedule and funding limitations;

ii) Assist in assessing the feasibility of different implementation approaches by considering various business factors from economic, operational, organizational, cultural, and legal angles, etc., and assign ranking to the assessed implementation approaches if there are more than one feasible approach;

iii) Help to identify and estimate the business-related financial benefits of the proposed IT system including non-recurrent savings and annual recurrent savings (e.g., one-off or annual realizable and notional savings in business users' effort after deployment of the IT system);

iv) Help to identify and estimate the key business outcome expected and other non-financial business benefits with target measurement and timeframe for realization of the benefits;

v) Help to identify and estimate the business-related non-recurrent costs (e.g., one-off cost for business users' effort to support the IT system development project) and annual recurrent costs (e.g., annual recurrent cost for business users' effort to support daily user administration);

vi) Assist in conducting initial risk assessment to identify various business-related project risks, assess their likelihood of occurrence and impact and determine the corresponding mitigation measures to manage those risks; and vii) Provide the above estimated business-related costs and benefits to Internal PM or other responsible IT staff for them to conduct the cost and benefit analysis to evaluate if it is cost effective to implement the proposed IT system.

REQUIREMENTS DEFINITION

(a) During the Feasibility Study (FS) and SA&D phases, it is important to create a complete, clear, accurate and consistent representation of all requirements that the proposed IT system must accommodate. The requirements serve as the foundation to the business needs and the design of the proposed system. The role of BA during the FS and SA&D phases is to facilitate the IT project team to elicit and analyze requirements.

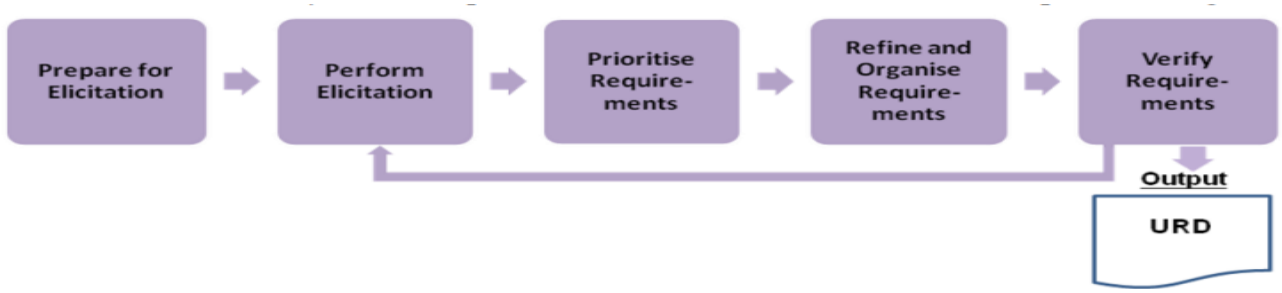
(b) In general, requirements can be classified into two broad categories: functional and non-functional requirements. Functional requirements define the functions or features of a system that can be utilized by a user to fulfil business operation (i.e. what the system should do to provide business value when satisfied), while non-functional requirements, e.g. audit, control and security requirements, service level requirements, etc. specify criteria of how the system can perform and maintain these functions and features (i.e. how the system should work) from a business perspective. Technical non-functional requirements such as browser versions and IT architecture platform will not be covered in this Document. They will be prepared by the IT project team during SA&D phase.

(c) Besides, BA should also provide business input to the IT project team for assessing the proposed system option to ensure that they are able to meet the business needs and requirements, and that the organization is ready to make effective use of the new IT system and prepare for the corresponding organizational change.

(d) The following sections describe in more details the processes involved in elicitation and analysis of requirements, and the assessment of the design of the proposed IT system.

Elicitation and Analysis of Requirements

This activity is to identify and analyze requirements in details with the use of a combination of elicitation and analysis techniques. The detailed tasks involved are depicted in Figure.



Prepare for Elicitation

(a) The following information in the Business Analysis Work Plan and Business Case should be based upon to prepare for the elicitation of requirements:

i) system scope and objectives;
ii) business needs;
iii) work schedule;
iv) planned activities;
v) target deliverables;
vi) stakeholder register.

(b) The preparation tasks include:

i) Select the elicitation techniques to be used and specify the scope of work for each selected technique. Some examples of commonly used techniques include brainstorming, document analysis, interface analysis, focus groups, interviews, observation, prototyping, requirements workshops and surveys/questionnaires.

ii) Prepare supporting materials required for using the selected techniques, e.g., survey form, interview questions list, discussion materials, existing documentation, comment/feedback form, etc.

iii) Schedule all other required resources such as participants, meeting venue, facilities and equipment before performing elicitation;

iv) Prepare an elicitation work plan with a schedule; and

v) Notify and agree with all involved stakeholders and related parties such as project team members on the elicitation work plan.

(c) The BA should agree with the stakeholders on the scope of work and the elicitation work schedule, and define a mechanism for verifying and signing off the elicited results.

Perform Elicitation

(a) Upon completing the necessary preparatory tasks, the elicitation activities can be performed according to the elicitation work plan.

(b) BA should start by studying all documentation about the concerned business and existing system, including policies, procedures and current system documentation where applicable.

(c) While eliciting the requirements, scope creeping, i.e., uncontrolled changes in the scope should be avoided. It should be ensured that requirements can always be traced back to the business goals/objectives to ensure that they are within scope, and should be capable of addressing the business needs as well as addressing the relevant current problems and issues. Therefore, the acceptance criteria of functional requirements should be defined to provide a level of quality measurement that is quantifiable to satisfy users' needs.

(d) During the elicitation, requirements attributes such as the source, value to users and priority should be recorded. This will help to manage the requirements throughout the project life cycle. The actual time spent for eliciting the requirements may also be recorded as useful information for future planning.

(e) All requirements provided by stakeholders during the elicitation should be properly recorded and documented, and a summary should be produced.

Prioritize Requirements

(a) The requirements collected should be prioritized based on their relative importance. This helps to determine which requirements should be analyzed and implemented first. The following criteria should be considered when prioritizing the requirements:

i) **Business Value:** The requirements with the highest business value should be considered for development first.

ii) **Stakeholder Agreement:** Agreement from the senior or key stakeholders on which requirements are most useful or valuable is another important factor when prioritizing requirements.

iii) **Impact on Users:** Some requirements may cause high impact on users affecting their current processes, or requiring additional staff effort.

iv) **Impact on Other Systems:** Some requirements may require data input from/output to other interfaced systems such that associated changes are required to be made on those systems which they may not be capable or willing to do the changes.

v) **Regulatory or Policy Compliance:** Meeting regulatory or policy demands may take precedence over other stakeholder interests.

vi) **Dependency:** A requirement which supports other higher priority requirements, i.e., other requirements have a high dependency on it, may need for early implementation.

vii) **Urgency:** Time sensitivity is another important consideration.

viii) **Business or Technical Risk:** Select requirements that present the highest risk of project failure for early investigation and implementation such that rectification can be made at an early stage in case any problem occurs.

ix) **Implementation Difficulty:** Select requirements that are easiest to implement if early visualization of functions is required to gain user familiarity and management support.

(b) The BA should be aware that some stakeholders may refrain from making choices, and wish to assign all requirements as high priority without recognizing the necessity for making trade-offs. Also, project teams may not be able to comprehend the technical difficulties or complexity of implementing the requirements and thus the implications if insufficient details are provided. All these potential challenges may affect the prioritization process.

(c) The MoSCoW Analysis technique may be used to conduct the prioritization.

Refine and Organize Requirements

(a) Requirements should be described in natural language, simple, and consistent definitions should be used when defining the requirements.

(b) The dependencies and interrelationship among the requirements should also be described. Usually, requirements on their own are not complex, but complexity may arise from the relationships and interdependencies among requirements.

(c) Requirements should be developed in enough details that are sufficient to fully describe the project scope and meet the informational needs of stakeholders. It is recommended to have a diagram showing a high-level overview of the whole system.

(d) Future business processes are required to be defined to help visualize the requirements. The following are some suggestions on how to define future business processes:

i) Through review and analysis of the information captured from the current environment including current business processes and policies or legal/regulatory documentation, create the future business process diagrams with the aim to fill the gaps between current business processes and the identified business objectives and needs;

ii) A separate business process diagram should be produced for each key future business process, whereas the less critical processes may be presented with text descriptions as appropriate;

iii) The future business process diagram should be documented with sufficient details such that IT project team can use it to help design and implement the new IT system;

iv) A complex business process can be broken down into smaller processes, each with a separate diagram.

(e) Some modelling techniques such as process modelling for business processes, functional decomposition, scenarios and use cases, flow diagram, activity diagram, sequence diagram, structured walkthrough, etc. can be used for organizing the requirements. Visual elements such as prototypes and user-system interaction diagrams such as use case diagrams may be created to help users to verify their understanding and confirm the functional requirements and acceptance criteria identified.

Verify Requirements

(a) Before finalizing the requirements, they should be verified to ensure that they have been defined correctly and are of acceptable quality. A high-quality requirement should be concise, complete, consistent, correct, feasible, testable, modular, traceable and unambiguous. The quality of the requirements can be verified by doing the followings: i) Check the completeness of the requirements;

ii) Check that consistent terms and words are used, and that they are understandable to stakeholders and aligned with those terms used in the Government;

iii) Ensure all variations (e.g., exception cases and branching logics) to the processes are identified and documented;
iv) Ensure all causes and outcomes of the variations have been explained; and

v) Give examples to strengthen the business case as appropriate.

(b) Techniques such as prototyping and structured walkthrough can be used to assist in the verification of requirements. If required, the involved stakeholders should be invited to participate in the verification. During the walkthrough, it is useful to highlight how the

identified gaps are resolved through future business processes, and which of the current business processes are to be retired.

(c) The requirements should be assessed to determine if they could deliver direct or indirect business value. If a requirement does not provide any value to the stakeholder, the requirement can be removed. Besides, if a requirement could deliver value to stakeholder but is not aligned with the business case, the requirement should be removed as it does not fall within the project scope, and defined in a separate business case as appropriate. Each requirement should be traceable to the objectives in the business case.

(d) This verification process may last for several rounds until all requirements are verified. However, each round should normally have fewer refinements than the previous round.

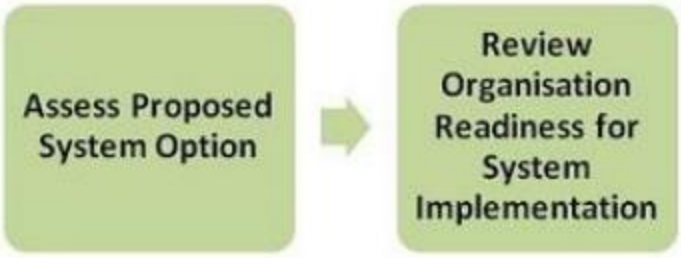
(e) A User Requirements Document (URD) should be prepared based on the finalized requirements. It describes what the new IT system looks like from a business perspective. URD is a critical deliverable (often named as "User Requirements Specification") for the SDLC and will be embedded in the SA&D Report (or FS report if only FS is conducted) as it documents all the analyzed user requirements and related information elicited from stakeholders.

(f) BA should lead the preparation of the URD. If required, BA may seek assistance from IT project team in preparing the URD especially for those sections that the BA is not familiar with. For example, use of modelling techniques or drawing tools to prepare the business process flow diagrams or use cases, elicitation of non-functional requirements and system implementation considerations. BA may gradually become capable of preparing the whole URD after gaining sufficient IT project experience and knowledge.

(g) The URD should preferably be signed off by the users once all requirements are confirmed and accepted. PAT should review and assure the quality of the URD before submitting it to PSC for endorsement.

ASSESS PROPOSED SYSTEM OPTION & ORGANISATION READINESS FOR SYSTEM IMPLEMENTATION

During the SA&D phase, solutions will be proposed through the design processes. 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. The tasks involved are shown in Figure.



Assess Proposed System Option

(a) 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.

(b) In assessing the proposed system option, BA should learn about the implications of the design to ensure that the design risks associated with the requirements are minimized (e.g., use prototypes for early visualization of screen design and layout) and support the requirements well such as:

i) the proposed solution functions and usage should cover all types of users;

ii) the listed requirements (both functional and non-functional) are complete by comparing them with the original project initiating documents such as funding application form and business cases; and

iii) the listed proposed system functions and features are complete and each documented requirement can be mapped with one or more proposed functions/features.

(c) If it is determined that no proposed IT system option can deliver enough value to justify the investment, a recommendation to terminate the implementation of the project may be needed.

Review Organization Readiness for System Implementation

(a) BA should understand the changes that will probably occur to business and users, and should identify the potential impacts of the new system to the organization such as the organization culture, its business units and stakeholders.

(b) BA should effectively communicate the identified potential changes and impacts on the concerned parties and senior management, and propose any needs for training and change management to be conducted in association with the implementation of the system. If required, BA should work together with the Internal PM and collaborate with

concerned parties and senior management to prepare an organizational change management plan to support the implementation of the system.

(c) If the proposed IT system needs to be rolled out in phases or operate in parallel such that there is a transition period (i.e. the time when both the existing system and the proposed IT system are operational), BA should help to elicit the transition requirements (i.e. the capabilities that must be developed in order to successfully transit between existing and proposed systems) such as the transition information and the temporary business processes/work flows required to enable users to effectively operate both systems in parallel. IT project team should help to design and develop the additional functions and programs required to support the transition. BA may assist IT project team in performing the transition planning by coordinating with users and other stakeholders involved.

SYSTEM IMPLEMENTATION AND ACCEPTANCE

BA should provide support to the project team for developing the proposed IT system in the System Implementation Phase. This includes the following three major activities:

i) Provide Support to System Scope and Requirements Management;
ii) Provide Support to UAT; and
iii) Provide Support to Pre-production and Roll-out.

Provide Support to System Scope and Requirements Management

(a) During system implementation, BA should provide support to stakeholders in helping them to resolve issues/conflicts, obtain consensus on any changes in system scope & requirements and seek approval of change requests.

(b) The system scope serves as a boundary for requirements management. Only requirements that fall within the system scope will be managed. The system scope itself is also a requirement that needs to be managed. But any change in business need and technical solution that may be initiated by users and IT project team respectively will probably affect the system scope, which in turn will lead to changes in previously approved requirements and approved system option and design.

(c) The requirements specified in the URD and endorsed by the PSC at the end of the SA&D Phase will form a baseline for any change to requirements. BA should prepare the

change request and forward to the Internal PM for seeking approval from PSC via PAT, and maintain an up-to-date list of approved user requirements.

(d) BA should manage and resolve issues/conflicts among stakeholders on changes in requirements and technical changes that emerge in the System Implementation Phase. Conflicts may arise due to different views on requirements or priorities. BA should liaise among the stakeholders to facilitate their communication and resolve any conflicts before seeking approval. Unless under urgent situations, BA may work with the Internal PM and consider grouping the requirements change requests into batches for approval at regular progress review/checkpoint meetings to reduce administrative overheads.

After completing the SA&D, the implementation may be outsourced to external contractor. In this case, the role of BA is particularly important in requirements communication. BA should take note of the following when communicating requirements with the outsourced implementation contractor:

i) remind the Internal PM to include a formal and clear definition of requirements in the outsourcing contract to minimize potential dispute; and

ii) consider requesting contractor to use prototypes to demonstrate their interpretation of the requirements and seek early user feedback before writing the program details as appropriate. 3.6.2 Provide Support to User Acceptance Test BA should provide support to users in conducting UAT, with the aim to check and verify whether the developed IT system fully meets the requirements and business needs. The support activities include the following:

i) Get key users involved as early as during UAT planning, and ensure that the participants are committed to the success of the UAT;

ii) Assist in preparing the UAT plan to verify that all major components or functions of the system meet the user requirements and business needs, and align with users to ensure that they have a clear understanding of the outcomes. The test plan should normally include different test cases and scenarios, a test schedule, testing steps/procedures and user representatives and parties to be involved;

iii) Coordinate external departments and business stakeholders (such as focus group users) for the UAT on interface functions;

iv) Organize hands-on training for UAT participants to get them familiarized with the new system functions and workflow;

v) Work with users to prepare a testing schedule, and ensure that schedule resembles the process flow in real life;

vi) Request users to define and document all the necessary test data and expected output for each test case;

vii) Assist users to conduct the UAT, consolidate findings and testing reports; and

viii)Follow up with IT project team on failed UAT test cases to ensure that all problems are fixed and re-tested.

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Provide Support to Pre-production and Roll-out

Prior to system production and roll-out, BA's support is required in the following areas:
i) Assist in organizing training for users on how to use the new IT system such as helping to review the training materials and arranging logistics for the training courses;

ii) Collaborate between users and IT project team on pre-production activities such as disaster recovery drill, transition work like setting up of temporary business

processes/work flows for transition and data conversion like initialization of new system data and archiving of old system data to ensure that data is properly migrated and pre-loaded into the new system. BA may also provide support to users to participate in any pre-production activities such as security risk assessment and audit as well as privacy impact assessment wherever applicable;

iii) Coordinate among users, related stakeholders and IT project team to perform system roll-out activities such as system verification, user administration, system support and maintenance, nursing, etc.;
iv) Assist users in reviewing and revising user-related documentation such as user manual, user guides, user administration procedures, operation manual, etc.; and

v) Coordinate with IT project team to provide support to user to perform publicity campaign for any new/enhanced public services, if required.

SYSTEM EVALUATION

(a) After the IT system is rolled out, a post-implementation review will be conducted to evaluate the performance of the deployed IT system to ensure that it meets the business needs and user requirements and achieve the intended business benefits in a timely and cost-effective manner.

(b) BA should assist users in evaluating the performance of the IT system from business and user perspectives by investigating how the system is used after it is deployed, and assessing the business value and benefits it delivers. BA should also help to identify any opportunities for improvement.

(c) In general, a comparison of the planned and actual performance can be conducted based on some pre-defined performance metrics such as quantitative metrics (e.g., time saved, number of transactions processed. cost saved, revenue, number of errors found, etc.) or qualitative metrics (e.g., user or stakeholder satisfaction, comments or suggestions). If the result is not satisfactory, detailed analysis should be performed to identify the cause of the deviation and improvement measures should be proposed.

(d) BA should pass the performance evaluation results to the Internal PM for completing the Post Implementation Departmental Return (PIDR) of the project. PIDR is required to be completed within six months after the completion of the IT system implementation.

PREPARATION FOR ESTABLISHING BA ROLES

RESOURCES PLANNING

(a) To institute a BA role in the project organization to support IT system development projects, B/Ds need to identify the business analysis activities that are necessary in their case in supporting the various phases of the IT system development projects, and estimate the corresponding resources required according to the project size and complexity. The resources required vary from project to project.

(b) A complex IT system development project (e.g., involving many new and volatile business requirements, complex business logics/rules, or many interactions with or dependencies on other systems) will typically require more than one BA to support. On the other hand, for a relatively simple or straightforward IT system development project (e.g., involving few/even no new business requirements, simple/direct business logics/rules or few interactions with or dependencies on other systems), a part-time BA may be sufficient.

(c) Generally, more BA resources should be allocated to the activities for elicitation and analysis of requirements. There will also be variation in the distribution of BA resources in different phases of the SDLC if different system development methods are used. A sample list of tasks for estimating BA resources for IT project is provided in Appendix 6 for reference.

(d) Some estimation techniques such as Functional Decomposition and Work Breakdown Structure (WBS) (also mentioned in the PGPM) can be used for planning the resources. B/Ds may also make reference to other similar projects in the past.

REQUIRED COMPETENCIES OF BA

(a) The knowledge and skills of BA are critical to the success of IT project delivery. BA should possess sufficient business knowledge and be familiar with the business and organization environment of the B/D. They should preferably have experience in the daily business operations and functions, and understand the business rules, cases/scenarios, processes, workflows, roles and responsibilities of stakeholders, business needs and goals as well as organization policy, culture and structure. Basic knowledge of relevant legal requirements such as data protection regulation and commercial regulation may also be needed.

(b) BA should also possess basic IT knowledge2, the meaning of commonly used IT terms, concepts of SDLC and information security, and practices on IT project management and change management. It is better if the BA has work experience in previous IT system development projects. This would facilitate their planning of the necessary business analysis activities that need to be performed in various phases of the SDLC as well as facilitate their communication with the IT project team.

(c) It is important for BA to liaise effectively between users and IT project team throughout the project life cycle. Soft skills including oral and written communication,

presentation, liaison, negotiation, coordination, leadership, teamwork, organizing and analytical skills are essential. Staff members who are open-minded, self-motivated, eager to learn new things and willing to make changes are good candidates to undertake the BA role.

GLOSSARY

Abbreviation	Full Name
BA	Business Analyst
BAC	Business Assurance Coordinator
FS	Feasibility Study
Internal PM	Internal Project Manager
IT	Information Technology
OOM	Object Oriented Methodology
PAT	Project Assurance Team
PGPM	Practice Guide to Project Management for IT Projects under an Outsourced Environment
PIDR	Post Implementation Departmental Return
PMP	Project Management Plan
PSC	Project Steering Committee
RAD	Rapid Application Development
SA	Systems Analyst
SA&D	Systems Analysis & Design
SDLC	System Development Life Cycle
TAC	Technical Assurance Coordinator
UAC	User Assurance Coordinator
UAT	User Acceptance Test
UC	Use Case
URD	User Requirements Document
WBS	Work Breakdown Structure