

City University, London

From the Selected Works of Mark A Brace

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Functional Spec Template 30.8.07

Mark A Brace
Debasis Bakshi



Available at: https://works.bepress.com/mark_brace/1/

< XYZ Project Functional Specification – Version 0.1 >

Approvals

Approved by		
Name	Date	Role
Name 1	dd/mm/yy	Project executive – Senior Responsible Owner

Change History

Version No.	Date	Details of Changes included in Update	Author(s)
0.1	dd/mm/yy	Initial Draft Version	Business Analyst Name
1.0		First Published Version	

References

List all references that might be useful in developing, testing and maintaining the system. References documents can be technical, database, user procedures/policies, test plan etc.

Version No.	Location	Title	Comments
1.0	Y:\IS Projects\Directory Location	Reference Document Name	Detail of Ref Document.

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Use of this Template

This document is intended to be used as a starting point for the Functional Specification for any new projects.

The sections mentioned below are not expected to be required on all projects and as such the author needs to consider when any given section is not needed, whether the heading should be removed altogether or is left in with “Not Applicable” in the text.

If any sections / heading are removed, the index above will need to be updated.

This “Use of this Template” Box should be removed before publication.

Versions should start at 0.1 while still draft and move to Version 1.0 when first published.

Suggestions for amendment to this template should be progressed through the Business Group Project Office – via Richard Bell initially.

1. Introduction

1.1. Background

Detail the initiative(s) by which the project came into being. This might be as a result of legislative changes, a supplier releasing a system upgrade or an initiative to improve productivity.

1.2. Purpose

This functional specification is a formal document used to describe in detail the system's intended capabilities, appearance, and interactions with other parts of the system and users. This document is intended to:-

- Ensure that the system requirements are correctly understood before moving onto the next step, the software design process.
- Clearly and unambiguously provides all the information necessary to design the software.

Once this document has been signed off any future changes to requirement and/or this functional specification will go through a change control process. During this process, the impact of those changes on timescales, cost, design and support will be assessed. It is therefore imperative that this document is fully reviewed and understood prior to sign off. This document may also act as a baseline for project planning and cost estimating purposes.

1.3. Summary Requirement

This section should state, at a high level, the requirements the functional specification is attempting to fulfil. This may be an understanding of a customer's requirement or a statement given as an internal starting point, e.g. produce a comprehensive mail tool in minimum time. Normally requirements are by their nature unstructured with high and low level statements intermingled. This section could refer to a separate requirements document or spreadsheet if it exists.

2. Existing System

2.1. Background

Include here any relevant history of the existing system and any other pertinent facts – ownership, development history, strengths and weaknesses and why the system is being replaced.

2.2. Overview of Current System (As Is)

The As-Is model is a reflection of the current system/process. This section should identify problem areas and where enhancements are required and may include UML diagrams of the existing system such as - Use Case Diagram, Sequence Diagram, State Chart, etc.

3. New System / Upgrade / New Functionality

3.1. Overview of New System

Include here a summary of the new functionality / enhancements / changes to the existing system, including any phased approach to be taken.

3.2. Functionality

All statements regarding functionality should be written clearly using consistent terminology such that a test could be written to ensure the final system performs as described with no interpretation necessary..

3.3. UML (Unified Modelling Language) model of New System (To Be)

Include here diagrams of the New system -

- Use Case Model
- Sequence Diagram
- Activity Diagram
- State Chart

3.4. Detailed Functionality of New System / Upgrade

Functions 1 to n below describe the detail for the new system.

3.4.1. Function 1

For each High Level function the following should be considered :

Inputs

By defining the inputs and outputs for each function, the scope can be further refined.

Outputs

By defining the inputs and outputs, the scope can be further refined.

Data

What are the people, places and things you want to keep track of?

Business rules

What rules govern the way the function works?

3.4.2. Function 2

For each function the following should be considered :

Inputs

Outputs

Data

Business rules

4. General Functionality of New System / Upgrade

The following section should describe in detail any general conditions / factors for the functionality of the New System. It may be more relevant to incorporate some of these above in Section 3 Detailed Functionality if that is more appropriate for the project being undertaken.

4.1. Users

Identification of who the system is aimed at. There may be more than one group of people and each group may have slightly different requirements. Are we providing different functions to fulfil these or not?

4.2. Administration Functions

How will the system be administered? ie Setting up of new users or passwords – changed access rights etc .Are there separate functions for an administrator? Is there any security built in to stop others using administrative functions?

4.3. Error Handling

Describe how errors are to be handled and whether messages will always appear. Identify the different types and reasons or the classification of each possible error.

4.4. Security

Security considerations are an important part of any project. This section should detail how inappropriate access / permissions to the system are to be controlled.

Along with error handling, the specification has to handle “the negative path”. There is no point in having a system that does lots of good things if it also does lots of bad things.

4.5. Help

What type of help is to be provided? One Help Page or a “Help” button on each screen ?

4.6. Printing

Ensure any printing requirements are included – Can remote printers be accessed ? Are colour printers required?

4.7. User Reports

Any User Reports required should be specified and included here. This should include detail the fields required on each report, the frequency with which they should run and whether any ad-hoc reports are to be developed for the users of the system.

4.8. Interfaces

4.8.1. User Interfaces

Describe all forms - ie screens, web pages including any dialog boxes. This is usually best done via simulated, non-functioning screen shots (such as PowerPoint slides), and may take the form of a separate document.

The navigation flow of the windows, menus, and options should be described, along with the expected content of each window. Examples of items included are screen resolutions, colour scheme, primary font type and size. Discussion also includes how input validation will be done, and how data will be protected from accidental changes. Specific items are described for each screen such as input fields, control buttons, sizing options, and menus.

4.8.2. Hardware Interfaces

Describe the equipment needed to run the software, and also other output or input devices such as printers or handheld devices.

4.8.3. Software Interfaces

Describe any software that will be required in order for the product to operate fully. Also describes any software that the software product will interact with such as operating system platforms supported, file import and export, networking, automation, or scripting. Specify whether the users must provide the interfacing software themselves, and any special licensing requirements.

4.8.4. Communication Interfaces

Describe how the software product will communicate with itself (for multi-platform applications) or other software applications, including items such as networking, email, intranet, and Internet communications.

4.9. Boundary Conditions

It should be clear what the extremes to be taken into consideration are. This will vary with different systems but it could be items such as number of users, field sizes (ie max number of characters held on the database), size of forms, and number of forms.

4.10. Constraints

All other constraints not specified under other headings. For example: economic, political, technical, system, environmental, scheduling constraints.

4.11. Business Change and Impact

The impact analysis assesses the impact of the system within its operational setting. Both positive impacts (e.g., increased productivity, higher product sales) as well as negative impacts (e.g., job displacement, potential negative legal impacts) should be considered

Identify any existing requirements that conflict with the proposed change. Identify any other pending requirement changes that conflict with the proposed change. What are the consequences of not making the change? What are possible adverse side effects or other risks of making the proposed change? Will the proposed change adversely affect performance requirements or other quality attributes? Will the change affect any system component that affects critical properties such as safety and security, Is the proposed change feasible within known technical constraints and current staff skills?

4.12. Platforms

We should list which platforms we will be supporting. Name a reference platform or platforms plus appropriate operating system versions.

4.13. Internationalisation

Is Internationalisation to be included in the product now or in the future?

4.14. Portability

Although we may only be supporting one platform initially, we may want to be able to port developments to other platforms in the future. This should be stated here.

4.15. Expandability

State the likely expansion requirements. Some of the items may have been considered earlier in the document.

4.16. Customisation

Are we allowing the user to customise the system? If so, what are we going to provide?

4.17. Support & Maintenance

Are any functions to be included to make maintenance and support easier, e.g. internal monitoring of traffic flows?

5. Non-Functional Requirements

5.1. Reliability/Availability

Describe requirements items such as days or weeks of continuous operation, strategy for data recovery, code structuring for ease of future modification.

5.2. Performance

Describe all performance requirements like response time, throughput, capacity etc.

5.3. Installation

Describe the planned method for installation: done by the user independently, done by customer company internal IT services, done by an external contractor. Specify the handling of such items as data transfer from prior releases, and the presence of software elements from prior releases.

5.4. Usability

Describe items that will ensure the user-friendliness of the software. Examples include error messages that direct the user to a solution, input range checking as soon as entries are made, and order of choices and screens corresponding to user preferences.

5.5. Monitoring and Control

Describe how the proposed system is to be monitored and controlled. Monitoring encompasses the tracking of individual processes so that information on their state can be easily seen and the provision of statistics on the performance of one or more processes. The degree of monitoring depends on what information the business wants to evaluate and analyse and how business wants it to be monitored, in real-time or ad-hoc.

5.6. Operational Requirements

Describe standard operating procedures relating to start up and shut down of the system.

5.7. System Interdependencies

Describe any system interdependencies.

5.8. Audit and Management Reports

Describe all audit requirements and management reports.

5.9. Disaster Recovery / Business Continuity

Disaster recovery plan takes into account various factors. The most important are communication with employees and clients during a crisis, facilities (hot and cold back up sites), recovery time, recovery point, recovery method and testing plan.

5.10. User Documentation

Describe the user documentation to be delivered with the software, including both hard copy and online requirements.

5.11. Compliance Requirements

Include in this section any compliance issues – These may be internal or may be required for legislative purposes.

5.11.1. Data Ownership and responsibility

Who is the business owner for the data? Who is the business owner of the system ?
What data the system must hold (information map)?

5.11.2. Data Retention

How long we will need the data in the system?

Data Collection & Archiving considerations should be detailed here.

Why the data is needed, and how it will be used? Which part of City University will use the data? Any third parties to whom the data will be transferred.

5.11.3. Data Migration

Are there any data migration/cleansing requirements? What is the source system?

6. Issues / Known Risks

This section contains issues that could not be resolved before the Functional Specification is published but which will have to be addressed at a later stage. These issues should not stop the user / sponsor from signing off the specification.

Issue Num	Issue	Owner	Issue Type	Action/Next Step	Target Resolution Date
1	E.g. Should the interface program also call the standard Import routine, or would this be run separately.	Initials	Technical	Yes – base this on the best technical approach. <u>Confirm</u>	dd/mm/yy

7. Appendix 1 : Terminology / Abbreviations / Glossary

List all terminology & abbreviations used throughout this document. A few examples are listed below.

ADS	Academic Development Services
ICSL	Inns of Court School of Law
OSDU	OnLine Staff Development Unit