

U.S. Department of Energy

Project Name

Functional Design Document

September 2002

TEMPLATE

U. S. DEPARTMENT OF ENERGY

Organizational Title 1

Organizational Title 2

Change Control Page

The following information is being used to control and track modifications made to this document.

- 1) Revision Date:
Author:
Section(s):
Page Number(s):
Summary of Change(s):

Title Page

Document Name: *Project Name*
Functional Design Document

Publication Date: *Month Year*

Contract Number: XX-XXXX-XXXXXXXXXX

Project Number: Task: XXXXXXXXXXXXXXXX

Prepared by: XXXX XXXXXX

Approval: _____
Name and Organization

Concurrence: _____
Name and Organization

**THIS IS A WORKING DOCUMENT THAT HAS NOT RECEIVED DOE
MANAGEMENT SANCTION FOR PUBLICATION, IS SUBJECT TO REVISION,
AND SHOULD NOT BE CIRCULATED OUTSIDE OF THE RECEIVING OFFICE.**

U.S. DEPARTMENT OF ENERGY

Organizational Title 1
Organizational Title 2

Table of Contents

Preface.....	ii
1. Introduction.....	1 - 1
1.1 Project Background.....	1 - 1
1.2 Plan Objectives	1 - 1
1.3 References.....	1 - 1
2. System Overview	2 - 1
2.1 Business Processes.....	2 - 1
2.2 System Users.....	2 - 1
2.3 Dependencies and Limitations.....	2 - 1
3. Functional Design.....	3 - 1
3.1 Software Structure.....	3 - 1
3.2 Data Design and Control.....	3 - 1
3.3 Human-Machine Interface Design.....	3 - 1
3.4 System Interface Design	3 - 1
3.5 Security Structure.....	3 - 1
4. Requirements Cross-Reference.....	4 - 1

Preface

Document Version Control: It is the reader's responsibility to ensure they have the latest version of this document. Questions should be directed to the owner of this document, or the project manager.

This document was generated by the *Project Name* project team. *System/Project Name* will be developed for the *Organizational Name* of the U.S. Department of Energy.

Lifecycle Stage: *Project Name* is in the Functional Design stage of the project lifecycle.

Approval: *A completed stage exit will constitute approval of this document.*

Document Owner: The primary contact for questions regarding this document is:

Author's Name, Author's Function, e.g., Project Planner

Project Name Team

Phone: *(XXX) XXX-XXXX*

E-mail: *XXX.XXX@hq.doe.gov*

Privacy Information

This document may contain information of a sensitive nature. This information should not be given to persons other than those who are involved in the *Project Name* project or who will become involved during the lifecycle.

1. Introduction

1.1 Project Background

Briefly describe the project for which this design is being developed. Identify the system owner.

1.2 Plan Objectives

Briefly describe the objectives of the Functional Design Document, e.g., describing the design in the user's terminology, providing a guide for a more technical design document, or ensuring that customers and systems engineers have a common understanding of the solution design. Explain how this document might evolve throughout the project lifecycle.

1.3 References

Identify sources of information used to develop this document. Include documents that define and trace system requirements, e.g., a Requirements Specification or a Requirements Traceability Matrix.

2. System Overview

2.1 Business Processes

Describe the business processes that will be modeled by the system. List any organizational functions that will be served by the system, e.g., payroll, human resources, production, etc.

2.2 System Users

Identify the potential system users. Specify the levels of expertise needed by the various user types, and indicate how each user type will interact with the system, e.g., data entry clerk, system administrator, etc.

2.3 Dependencies and Limitations

List dependencies or limitations that may affect the design of the software. Examples include budget and schedule constraints, staffing issues, availability of components, etc. Describe how each factor will affect the functional design.

3. Functional Design

3.1 Structure

Decompose the system into design entities or objects that will interact with and transform data to perform the required system objectives. Assign a unique name to each design entity, and group entities by type, e.g., class, object, procedure. Describe how each design entity satisfies system requirements. In user terminology, specify the inputs, outputs, and transformation rules for each design entity. Depict how design entities depend on one another.

3.2 Data Design and Control

Identify specific data elements and logical data groupings that are stored and processed by the design entities in 3.1. Outline data dependencies, relationships, and integrity rules in a data dictionary. Specify the format and attributes of all data elements or data groupings.

Develop a logical model of data flow through the system software by depicting how design elements transform input data into outputs.

3.3 Human-Machine Interface Design

Describe the user interface and the operating environment, including the menu hierarchy, data entry screens, display screens, online help, and system messages. Specify where in this environment the necessary inputs are made, and list the methods of data outputs, e.g., printer, screen, file. Note any design standards to be applied. If project human-machine interface design standards have been developed, discuss them in this section.

3.4 System Interface Design

Specify how the product will interface with other systems. For each interface, describe the inputs and outputs for the interacting systems. Explain how data is formatted for transmission and validated upon arrival. Note the frequency of data exchange.

3.5 Security Structure

List any access restrictions for the various types of system users. Describe any access code systems used in the software. Identify any safeguards that protect the system and its data. Specify communications security requirements.

4. Requirements Cross-Reference

For each numbered system requirement, identify the section(s) of this document that specify how the functional design will meet the requirement.