

The Hardware Design Minefield

A Guide to the Electronic Design process and its Obsolescence Mitigation Strategies

How can the part be obsolete, I've only just completed the prototype?

Sales have sold ten more spares, where do they think we are going to find the parts?

How can we afford to relay the printed circuit for a one-off repair on a fixed price maintenance contract?

Didn't we have a last time buy on those? So where have they all gone?

If you have ever asked any of the above questions then you need to read this booklet



Published by the Component Obsolescence Group

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The publication is one of a series of booklets published by the Component Obsolescence Group, all of which are recommended as essential reading for organisations or individuals tasked with obsolescence management. This series includes:

The Obsolescence Minefield

The Date Coding Minefield

The Supply Chain Minefield

The Long-Term Storage Minefield

The Pb-Free Minefield

The Redundant Stock Minefield

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This booklet was written by **Dave Hill**, Thales Underwater Systems in co-operation with members of the External Liaison Group of the Component Obsolescence Group (COG).

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How can hardware design mitigate future obsolescence?

Introduction

This booklet is aimed at hardware electronics design engineers in particular but many of the sections are appropriate at all stages of the design cycle. The aim is to improve design awareness of obsolescence problems and provide examples of techniques to reduce their effect.

No design is safe from obsolescence – technology relentlessly marches on, the Whitworth thread is alas no more; the red and black rubber insulated mains lead, the eight track car audio cartridge and many other examples of everyday items are relegated to the museum of modern life. Legislation to protect us from ourselves and to protect our environment is accelerating the pace. Those companies who cannot embrace the changes will fall by the wayside – hopefully yours will not be one of those casualties.

The format of this booklet

The main thrust is to describe a typical working design environment (my own, within Thales Underwater Systems) and to take into account the effects of Obsolescence, Restriction of Hazardous Substances (RoHS) and Waste Electrical and Electronic Equipment (WEEE).

Along the way, I will include some observations, some design aids and advice gathered over many years of experience.

The Design Process

ISO 9001:2000

This booklet is not intended to be a blueprint for ISO accreditation but it **is** based on an existing process and so may be a useful guide to companies wishing to set up a design section or formalise the work of an expanding work force. The Design Process is not intended as a straight-jacket on entrepreneurial spirit but a means of ensuring the highest standards.

The generic design flow may be described by the diagram in Figure 1. Here, the phases of design are shown in a 'V' formation with review, test and documentation milestones shown. This design flow is further described in the following sections.

Design Procedure

Requirements Capture: Understanding the Requirements

The most important aspect of a successful design is that it meets all the perceived requirements! This may be difficult as the customer, the project and you, as the design engineer, have differing agendas.

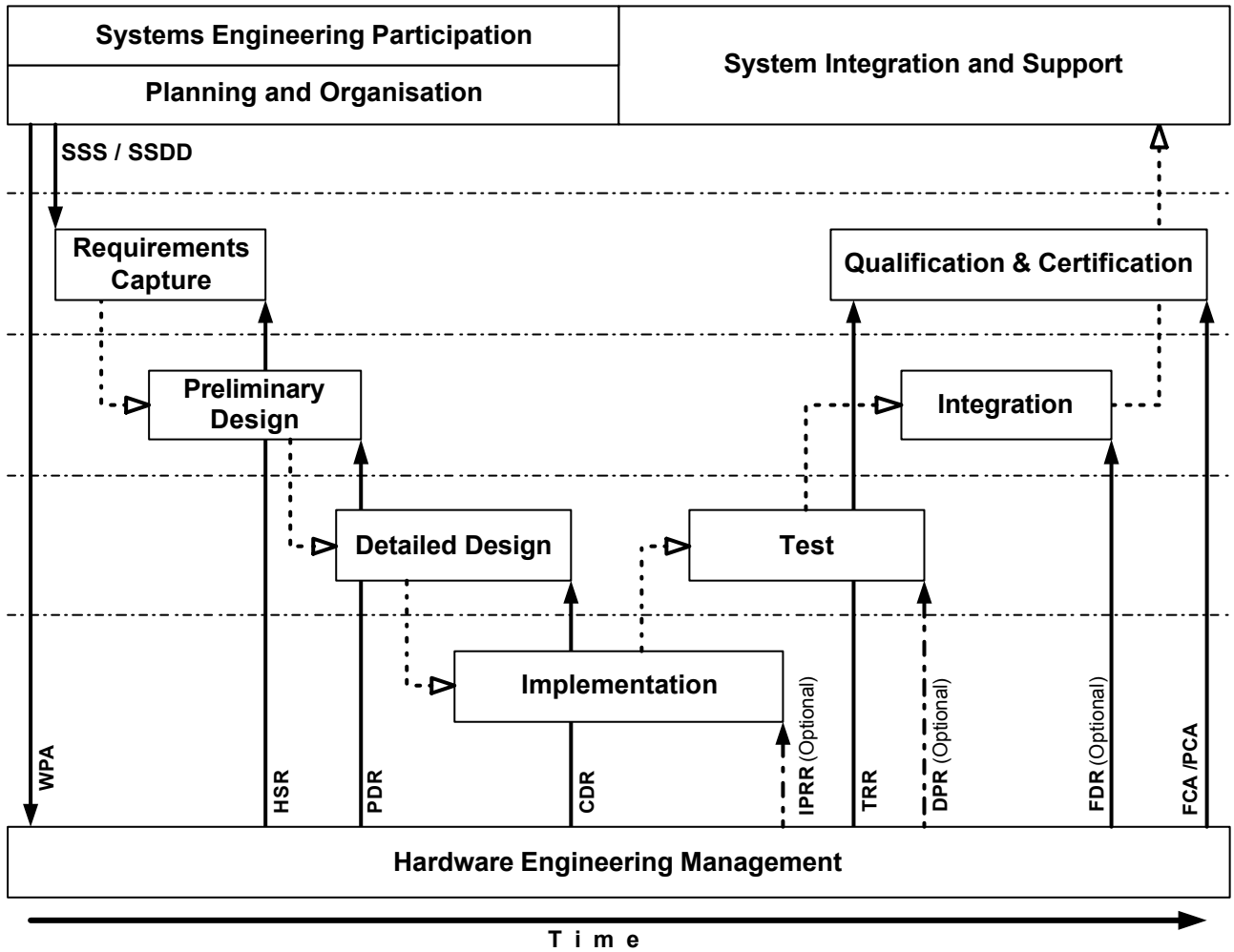


Figure 1: The Design Process

For acronyms see glossary

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