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## **Dependability management –**

### **Part 3-3: Application guide – Life cycle costing**

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## CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references .....	7
3 Terms and definitions .....	7
4 Life cycle costing.....	8
4.1 Objectives of life cycle costing .....	8
4.2 Product life cycle phases and LCC .....	8
4.3 Timing of LCC analysis.....	10
4.4 Dependability and LCC relationship.....	10
4.4.1 General .....	10
4.4.2 Dependability related costs.....	10
4.4.3 Consequential costs .....	11
4.5 LCC concept .....	13
4.5.1 General .....	13
4.5.2 LCC breakdown into cost elements.....	14
4.5.3 Estimation of cost.....	15
4.5.4 Sensitivity analysis .....	18
4.5.5 Impact of discounting, inflation and taxation on LCC.....	18
4.6 Life cycle costing process .....	18
4.6.1 General .....	18
4.6.2 Life cycle costing plan .....	19
4.6.3 LCC model selection or development.....	19
4.6.4 LCC model application.....	20
4.6.5 Life cycle costing documentation .....	20
4.6.6 Review of life cycle costing results .....	21
4.6.7 Analysis update .....	21
4.7 Uncertainty and risks.....	21
5 LCC and environmental aspects .....	22
Annex A (informative) Typical cost-generating activities.....	23
Annex B (informative) LCC calculations and economic factors .....	26
Annex C (informative) Example of a life cycle cost analysis .....	29
Annex D (informative) Examples of LCC model development .....	49
Annex E (informative) Example of a product breakdown structure and LCC summary for a railway vehicle .....	57
Figure 1 – Sample applications of life cycle costing .....	9
Figure 2 – Typical relationship between dependability and LCC for the operation and maintenance phase.....	11
Figure 3 – Cost element concept .....	15
Figure 4 – Example of cost elements used in the parametric cost method .....	17
Figure C.1 – Structure of DCN .....	30
Figure C.2 – Cost breakdown structure used for the example in Figure C.1 .....	31

Figure C.3 – Definition of cost elements.....	33
Figure C.4 – Comparison of the costs of investment, annual operation and maintenance .....	41
Figure C.5 – Net present value (10 % discount rate) .....	47
Figure C.6 – Net present value (5 % discount rate) .....	48
Figure C.7 – NPV with improved data store reliability (5 % discount rate) .....	48
Figure D.1 – Hierarchical structure .....	53
Figure E.1 – Vehicle system product breakdown structure .....	58
Table C.1 – First indenture level – Data communication network.....	32
Table C.2 – Second indenture level – Communication system.....	32
Table C.3 – Third indenture level – Power supply system .....	32
Table C.4 – Third indenture level – Main processor .....	32
Table C.5 – Third indenture level – Fan system .....	32
Table C.6 – Cost categories.....	33
Table C.7 – Investments in spare replaceable units .....	35
Table E.1 – Life cycle cost summary by Product Breakdown Structure.....	59

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**DEPENDABILITY MANAGEMENT –****Part 3-3: Application guide –  
Life cycle costing**

## FOREWORD

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International Standard IEC 60300-3-3 has been prepared by IEC technical committee 56: Dependability.

This second edition cancels and replaces the first edition published in 1996, and constitutes a full technical revision.

This edition expands upon the technical guidance in response to requests from practitioners. The examples in particular have been enhanced.

The text of this standard is based on the following documents:

FDIS	Report on voting
56/942/FDIS	56/962/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

IEC 60300 consists of the following parts, under the general title *Dependability management*:

Part 1: Dependability management systems

Part 2: Dependability programme elements and tasks

Part 3: Application guide

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

A bilingual version may be issued at a later date.

## INTRODUCTION

Products today are required to be reliable. They have to perform their functions safely with no undue impact on the environment and be easily maintainable throughout their useful lives. The decision to purchase is not only influenced by the product's initial cost (acquisition cost) but also by the product's expected operating and maintenance cost over its life (ownership cost) and disposal cost. In order to achieve customer satisfaction, the challenge for suppliers is to design products that meet requirements and are reliable and cost competitive by optimizing acquisition, ownership and disposal costs. This optimization process should ideally start at the product's inception and should be expanded to take into account all the costs that will be incurred throughout its lifetime. All decisions made concerning a product's design and manufacture may affect its performance, safety, reliability, maintainability, maintenance support requirements, etc., and ultimately determine its price and ownership and disposal costs.

Life cycle costing is the process of economic analysis to assess the total cost of acquisition, ownership and disposal of a product. This analysis provides important inputs in the decision-making process in the product design, development, use and disposal. Product suppliers can optimize their designs by evaluation of alternatives and by performing trade-off studies. They can evaluate various operating, maintenance and disposal strategies (to assist product users) to optimize life cycle cost (LCC). Life cycle costing can also be effectively applied to evaluate the costs associated with a specific activity, for example, the effects of different maintenance concepts/approaches, to cover a specific part of a product, or to cover only selected phase or phases of a product's life cycle.

Life cycle costing is most effectively applied in the product's early design phase to optimize the basic design approach. However, it should also be updated and used during the subsequent phases of the life cycle to identify areas of significant cost uncertainty and risk.

The necessity for formal application of the life cycle costing process to a product will normally depend on contractual requirements. However, life cycle costing provides a useful input to any design decision-making process. Therefore, it should be integrated with the design process, to the extent feasible, to optimize product characteristics and costs.

## **DEPENDABILITY MANAGEMENT –**

### **Part 3-3: Application guide – Life cycle costing**

#### **1 Scope**

This part of IEC 60300 provides a general introduction to the concept of life cycle costing and covers all applications. Although the life cycle costs consist of many contributing elements, this standard particularly highlights the costs associated with dependability of the product.

This standard is intended for general application by both customers (users) and suppliers of products. It explains the purpose and value of life cycle costing and outlines the general approaches involved. It also identifies typical life cycle cost elements to facilitate project and programme planning.

General guidance is provided for conducting a life cycle cost analysis, including life cycle cost model development. Illustrative examples are provided to explain the concepts.

#### **2 Normative references**

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050-191:1990, *International Electrotechnical Vocabulary (IEV) – Chapter 191: Dependability and quality of service*

IEC 60300-3-12, *Dependability management – Part 3-12: Application guide – Integrated logistic support*

IEC 61703, *Mathematical expressions for reliability, maintainability and maintenance support terms*

IEC 62198, *Project risk management – Application guidelines*