



BSI Standards Publication

Maintenance management and functions

National foreword

This British Standard is the UK implementation of EN 17948:2024.

The UK participation in its preparation was entrusted to Technical Committee DS/1, Dependability.

A list of organizations represented on this committee can be obtained on request to its committee manager.

BSI, as a member of CEN, is obliged to publish EN 17948:2024 as a British Standard. However, attention is drawn to the fact that during the development of this European Standard, the UK committee voted against its approval due to a number of technical factors which could affect its application, including the following.

- Users of this standard should be aware that nine definitions (plus variants) are different to other definitions in other dependability standards, especially those issued by IEC. These terms are reliability, competence, objective, organization, maintenance, maintainability, maintenance support, sustainability, and life cycle. As with all dependability standards, it is important that users have a clear understanding of what the definitions mean in each specific context, especially if this standard is being used in conjunction with other standards. Being clear with regards to which definition is to be used at the outset could prevent later disagreements.
- The standard assumes a linear economy, which means that those working in or working towards a circular economy might make appropriate adjustments to the activities identified in this standard to ensure consistency both with their objectives and other requirements/standards. These adjustments might include the following.
 - Maintenance plans can be designed and implemented to align with the principles of a circular economy. This can include trade-offs, for example between design for durability of a component and design for ease of replacement of a used component. Further guidance, and a comprehensive bibliography, for circular design is available in BS EN 45560:2024, *Method for circular product design*.
 - Plans for maintenance which could include maintenance support and take into account context of use for the item of interest to derive appropriate strategies for corrective, adaptive and perfective maintenance. Plans for maintenance of a product might consider maintenance strategies for the systems which require availability of that product. Further guidance on aspects of maintainability and qualification of parts for use and reuse is available in standards produced by IEC/TC 56.
 - Taking into account the impact of replacing old for new and, if an item is to be discarded, how the maximum benefit can be gained from that item, either by refurbishing and reusing, stripping to component parts and refurbishing/reusing as many as possible, or by recycling as much material as is possible.

UK users might also find the following standards to be relevant:

- BS 14200:2023, *Maintenance of machinery — Specification*;
- BS 8210:2020, *Facilities maintenance management — Code of practice*;

- BS EN IEC 60300-3-10, *Dependability management — Part 3-10: Application guide — Maintainability*;
- BS EN IEC 60300-3-14:2024, *Dependability management — Part 3-14: Application guide — Supportability and support*; and
- BS EN IEC 62309:2024, *Dependability of new products containing reused parts and life-extended products*.

Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

© The British Standards Institution 2024
Published by BSI Standards Limited 2024

ISBN 978 0 539 25042 8

ICS 03.080.10

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 November 2024.

Amendments/corrigenda issued since publication

Date	Text affected

English Version

Maintenance management and functions

Management de la maintenance et fonctions

Instandhaltungsmanagement und -funktionen

This European Standard was approved by CEN on 30 September 2024.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents	Page
European foreword.....	3
Introduction	4
1 Scope.....	5
2 Normative references.....	5
3 Terms and definitions	5
4 Maintenance framework	9
4.1 Maintenance contributions and challenges.....	9
4.2 Maintenance types.....	10
4.3 Maintenance process	11
4.4 Maintenance requirements during the life cycle of physical asset.....	12
4.5 Influencing factors.....	12
5 Maintenance management.....	13
5.1 Maintenance objectives	13
5.2 Maintenance policy and strategy.....	14
5.2.1 Maintenance approaches acting on the items	14
5.2.2 Maintenance policy.....	14
5.2.3 Maintenance strategy	14
5.2.4 Maintenance level.....	15
5.2.5 Maintenance echelon.....	16
5.3 Maintenance management process	17
5.4 Maintenance organization and maintenance functions.....	17
5.5 Interaction of maintenance with the other functions of organizations	19
5.5.1 General.....	19
5.5.2 Interactions between maintenance and the other functions of the organization	19
Annex A (informative) Standards for maintenance (CEN/TC 319 Maintenance)	22
A.1 General.....	22
A.2 The values of maintenance	22
A.3 Map of CEN/TC 319 standards for maintenance.....	22
A.3.1 General.....	22
A.3.2 Common basis	23
A.3.3 Management.....	23
A.3.4 Methodologies.....	23
A.3.5 Resources.....	24
A.3.6 Main users of maintenance standards.....	24
Annex B (informative) Levels of maintenance — Examples.....	25
Bibliography.....	31

European foreword

This document (EN 17948:2024) has been prepared by Technical Committee CEN/TC 319 “Maintenance”, the secretariat of which is held by UNI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2025, and conflicting national standards shall be withdrawn at the latest by May 2025.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Introduction

This document is part of a set of maintenance standards produced by CEN/TC 319 where it holds a central place because it introduces maintenance, its organization and management and establishes close links with the other standards of CEN/TC 319. Annex A presents the framework and an overview of the available CEN/TC 319 maintenance standards divided into four groups: Common basis, Management, Methodologies, and Resources. This document belongs to the Management group.

Maintenance is a set of activities that requires effective management able to anticipate, react quickly to events, and adapt to business changes. It has an essential role in controlling plant safety and occupational and environmental risks as well as ensuring the competitiveness and the durability of organisations and companies.

Therefore, the importance of effective maintenance management is major, and this document gives guidelines for maintenance managers to develop a process contributing to the success factors defined by the managing board. It is based on the existing European standards, and particularly those which describe the role of maintenance within asset management, the maintenance processes and their inter-relationships, the maintenance of buildings and infrastructures, maintenance key performance indicators, maintenance support processes such as documentation, contracts, qualification of maintenance personnel, etc.

This document is intended to help maintenance managers develop the maintenance management process in its various aspects (maintenance policy, maintenance objectives, maintenance strategy, internal/outsourced activities, organization of functions, job profiles and responsibilities, budgets, supervision of maintenance activities, communication, and continuous improvement).

Annex A presents a summary of other standards for maintenance which have been prepared by CEN/TC 319

Annex B describes examples of levels of maintenance.

1 Scope

This document specifies the main content of maintenance management and the main activities for which maintenance management is responsible.

This document is applicable to maintenance managers and asset managers in the industry sector and for infrastructure and buildings in order to achieve the success factors of the organization.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

EN 13306:2017, *Maintenance - Maintenance terminology*

EN 17007:2017, *Maintenance process and associated indicators*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp/>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

item

part, component, device, subsystem, functional unit, equipment or system that can be individually described and considered

Note 1 to entry: A number of items e.g. a population of items, or a sample, may itself be considered as an item.

Note 2 to entry: An item may consist of hardware, software or both.

Note 3 to entry: Software consists of programs, procedures, rules, documentation, and data of an information processing system.

[SOURCE: EN 13306:2017, definition 3.1]

3.2

physical asset

item that has potential or actual value to an organization

Note 1 to entry: Examples of physical assets are components, machines, plants, buildings, infrastructures, etc.

[SOURCE: EN 13306:2017, definition 3.2]

3.3 maintenance

combination of all technical, administrative and managerial actions during the life cycle of an item intended to retain it in, or restore it to, a state in which it can perform the required function

Note 1 to entry: Technical maintenance actions include observation and analyses of the item state (e.g. inspection, monitoring, testing, diagnosis, prognosis, etc.) and active maintenance actions (e.g. repair, refurbishment).

Note 2 to entry: See also the definitions of improvement and modification.

[SOURCE: EN 13306:2017, definition 2.1]

3.4 maintenance management

all activities of the management that determine the maintenance requirements, objectives, strategies and responsibilities, and implementation of them by such means as maintenance planning, maintenance control, and the improvement of maintenance activities and economics

[SOURCE: EN 13306:2017, definition 2.2]

3.5 process

set of interrelated or interacting activities that use inputs to deliver an intended result

[SOURCE: EN ISO 9000:2015, definition 3.4.1, modified]

3.6 maintenance function

role and responsibility entrusted to entities within an organization for achieving maintenance objectives

3.7 maintenance policy

general approach to the provision of maintenance and maintenance support based on the objectives and policies of owners, users and customers

Note 1 to entry: The maintenance policy entails establishing the direction (method, programme, budget, etc.) based on the goals and objectives set by the company's Management.

The management focus in the policy statement can be:

- availability and useful life of the item;
- safety of the items and individuals, product quality, environmental protection;
- optimization of maintenance costs, etc.

In particular, the maintenance policy give guidance to maintenance strategy that leads to choices being made between:

- planning corrective and/or preventive, predetermined or condition-based maintenance;
- internal or external service provision.

[SOURCE: EN 17007:2017, definition 3.8]

3.8**maintenance strategy**

management method used in order to achieve the maintenance objectives

EXAMPLE Outsourcing of maintenance, allocation of resources, etc.

[SOURCE: EN 13306:2017, definition 2.4]

3.9**life cycle**

series of stages through which an item goes, from its conception to disposal

EXAMPLE A typical system life cycle consists of acquisition, operation, maintenance, modernization, decommissioning and/or disposal.

Note 1 to entry: The stages identified will vary with the application.

[SOURCE: EN 13306:2017, definition 4.18]

3.10**sustainable development**

development that meets the needs of the present without compromising the ability of future generations to meet their own needs

[SOURCE: UN Brundtland Commission report, 1987]

3.11**indenture level**

level of sub-division within an item hierarchy

EXAMPLE System, subsystem and component.

Note 1 to entry: From the maintenance perspective, the indenture level depends on the complexity of the item's construction, the accessibility to sub-items, skill level of maintenance personnel, test equipment facilities, safety considerations, etc.

[SOURCE: EN 13306:2017, definition 3.7]

3.12**line of maintenance****maintenance echelon**

position in an organization where specified levels of maintenance are to be carried out on an item

EXAMPLE Field (first line maintenance), workshop (second line maintenance) and manufacturer (third line maintenance).

Note 1 to entry: The lines of maintenance are characterized by the skill required of the personnel, the facilities available, the location, the complexity of the maintenance task, etc.

[SOURCE: EN 13306:2017, definition 10.3]