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Informacijska tehnologija - Naprave in infrastruktura podatkovnega centra - 3-1. del: Informacije o upravljanju in obratovanju

Information technology - Data centre facilities and infrastructures - Part 3-1: Management and operational information

Informationstechnik - Einrichtungen und Infrastrukturen von Rechenzentren - Teil 3-1: Informationen für das Management und den Betrieb

Technologie de l'information - Installation et infrastructures de centres de traitement de données - Partie 3-1: Informations de gestion et de fonctionnement

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ICS:

35.110 Omreževanje Networking

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Information technology - Data centre facilities and infrastructures - Part 3-1: Management and operational information

Technologie de l'information - Installation et infrastructures de centres de traitement de données - Partie 3-1: Informations de gestion et de fonctionnement

Informationstechnik - Einrichtungen und Infrastrukturen von Rechenzentren - Teil 3-1: Informationen für das Management und den Betrieb

This draft European Standard is submitted to CENELEC members for enquiry.
Deadline for CENELEC: 2025-01-10.

It has been drawn up by CLC/TC 215.

If this draft becomes a European Standard, CENELEC 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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

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European foreword

This document prEN 50600-3-1:2024 has been prepared by CLC/TC 215 “Electrotechnical aspects of telecommunication equipment”.

This document is currently submitted to the Enquiry.

The following dates are proposed:

• latest date by which the existence of this document has to be announced at national level	(doa)	dor + 6 months
• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	dor + 12 months
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	dor + 12 months (to be confirmed or modified when voting)

This document will supersede EN 50600-3-1:2016 and all of its amendments and corrigenda (if any).

prEN 50600-3-1:2024 includes the following significant technical changes with respect to EN 50600-3-1:2016:

a) the document has been completely revised and restructured;

b) new clauses on data centre strategy, organisation, data centre management, risk management and quality management have been added;

c) existing clauses on operational information and parameters and on acceptance test have been included in the clause on operational processes.

This document has been prepared under a standardization request addressed to CENELEC and ETSI by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

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Introduction

The unrestricted access to internet-based information demanded by the information society has led to an exponential growth of both internet traffic and the volume of stored/retrieved data. Data centres are housing and supporting the information technology and network telecommunications equipment for data processing, data storage and data transport. They are required both by network operators (delivering those services to customer premises) and by enterprises within those customer premises.

Data centres need to provide modular, scalable and flexible facilities and infrastructures to easily accommodate the rapidly changing requirements of the market. In addition, energy consumption of data centres has become critical both from an environmental point of view (reduction of carbon footprint) and with respect to economic considerations (cost of energy) for the data centre operator.

The implementation of data centres varies in terms of:

a) purpose (enterprise, co-location, co-hosting, or network operator facilities);

b) security level;

c) physical size;

d) accommodation (mobile, temporary and permanent constructions).

The needs of data centres also vary in terms of availability of service, the provision of security and the objectives for energy efficiency. These needs and objectives influence the design of data centres in terms of building construction, power distribution, environmental control, telecommunications cabling and physical security as well as the operation of the data centre. Effective management and operational information is required to monitor achievement of the defined needs and objectives.

Recognizing the substantial resource consumption, particularly of energy, of larger data centres, it is also important to provide tools for the assessment of that consumption both in terms of overall value and of source mix and to provide Key Performance Indicators (KPIs) to evaluate trends and drive performance improvements.

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At the time of publication of this document, the EN 50600 series is designed as a framework of standards and other documents covering the design, the operation and management, the key performance indicators for energy efficient operation of the data centre as well as a maturity model for energy management and environmental sustainability.

This series of European Standards specifies requirements and recommendations to support the various parties involved in the design, planning, procurement, integration, installation, operation and maintenance of facilities and infrastructures within data centres. These parties include:

1) owners, operators, facility managers, IT managers, project managers, main contractors;

2) consulting engineers, architects, building designers and builders, system and installation designers, auditors, test and commissioning agents;

3) facility and infrastructure integrators, suppliers of equipment;

4) installers, maintainers.

This document is intended for use by and collaboration between facility managers, ICT managers, and main contractors.

The inter-relationship of the documents within the EN 50600 series is shown in Figure 1.

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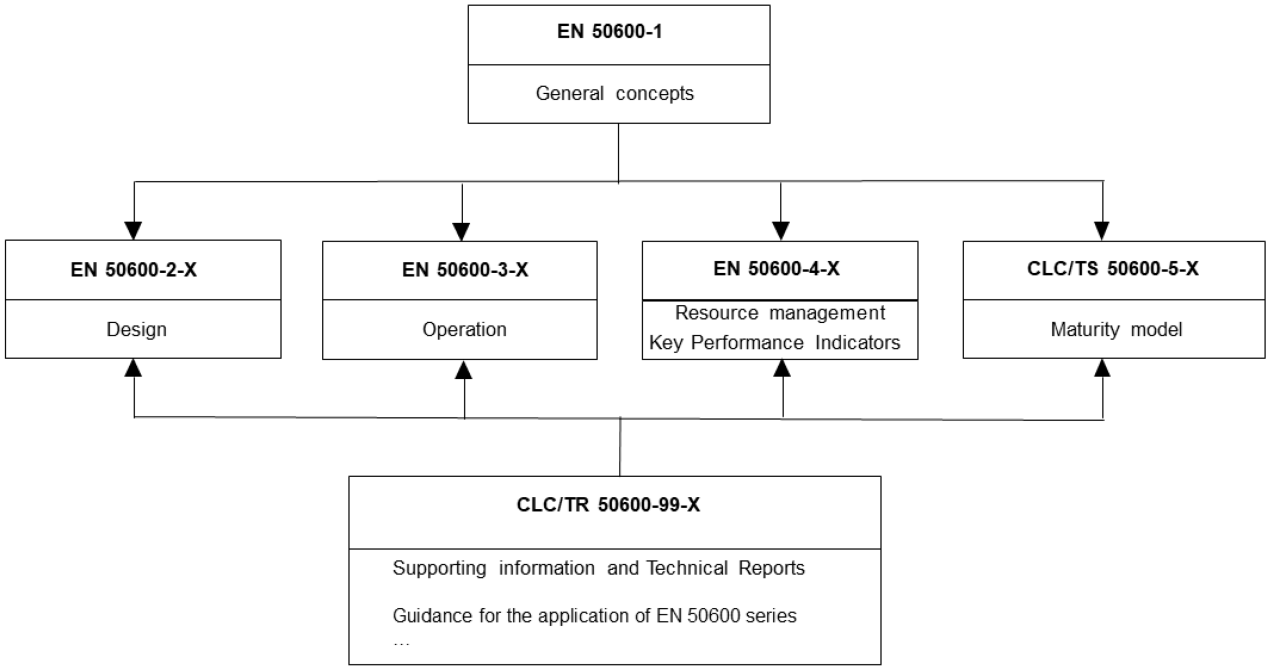

Figure 1 — Schematic relationship between the EN 50600 series of documents

EN 50600-1 introduces the general concepts relevant for the design and operation of data centres.

The EN 50600-2 series of documents define the requirements for the data centre design and specify requirements and recommendations for particular facilities and infrastructures to support the relevant classification for “availability”, “physical security” and “energy efficiency enablement” selected from EN 50600-1.

The EN 50600-3 series of documents specify requirements and recommendations for data centre operations, processes and management.

The EN 50600-4 series of documents specify requirements and recommendations for key performance indicators (KPIs) used to assess and improve the resource usage efficiency and effectiveness, respectively, of a data centre.

CLC/TS 50600-5-1 specifies the maturity model for energy management and environmental sustainability and refers amongst others to EN 50600-4-X KPIs as appropriate.

The CLC/TR 50600-99 series of Technical Reports cover guidance for specific topics around data centre operation and design.

Secretary note: Verify this sentence during enquiry.

This document addresses the operational and management information (in accordance with the requirements of EN 50600-1). A data centre’s primary function typically is to house large quantities of computer and telecommunications hardware which affects the construction, operation, and physical security. Most of the data centres may impose special security requirements. Therefore, it is important that the planning of a data centre by the designer and the various engineering disciplines that will assist in the planning and implementation of the design of the data centre i.e. electrical, mechanical, security, etc. are carried out in cooperation with the IT and telecommunications personnel, network professionals, the facilities manager, the IT end users, and any other personnel involved.

Figure 2 shows an overview of the document:

- The organization provides the data centre strategy and resources for data centre management and operation.
- Data Centre management organizes all process and resources for data centre operation.

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- Operational information and documentation support all data centre activities.

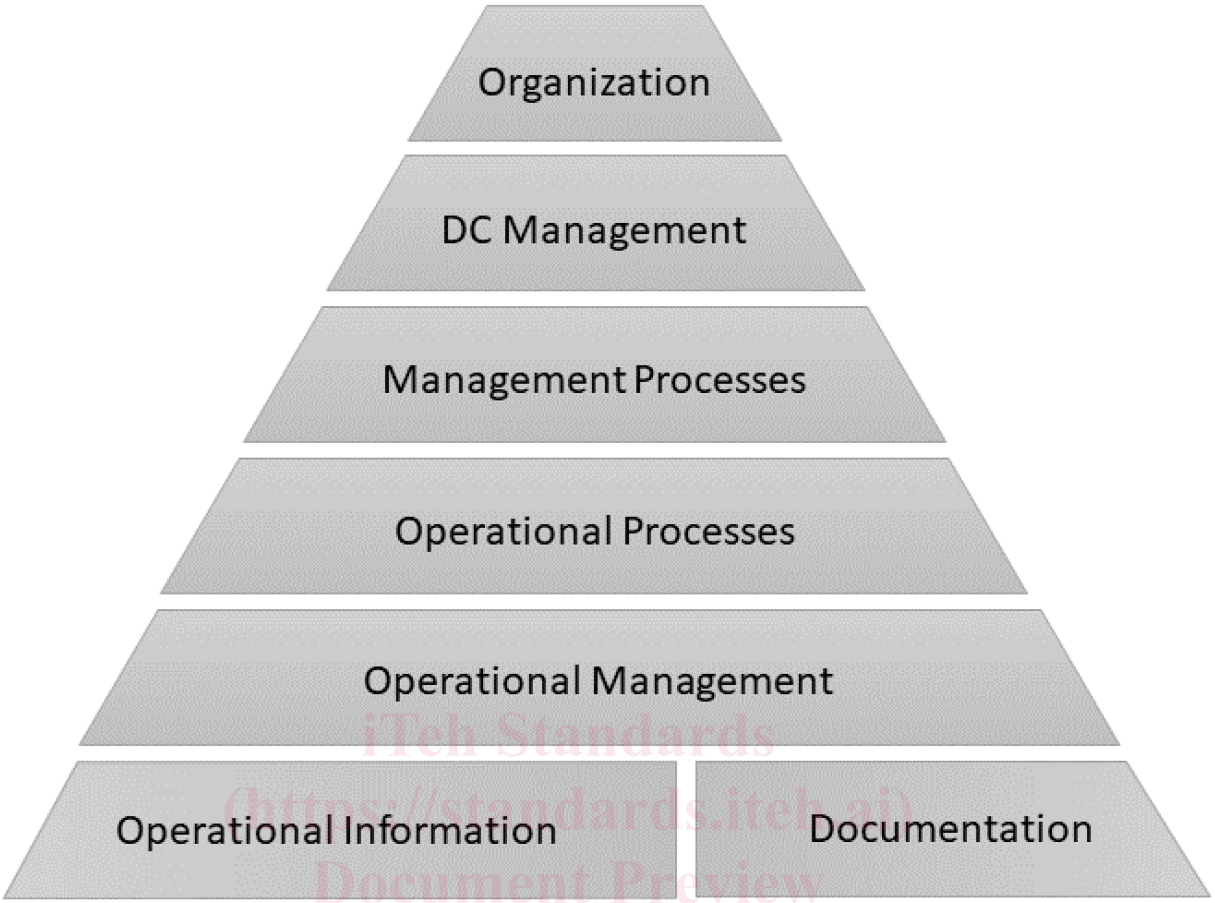

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Figure 2 — Data centre management overview

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The transition from planning and building to operation of a data centre is considered as part of the acceptance test process in 8.3.

This series of European Standards does not address the selection of information technology and network telecommunications equipment, software and associated configuration issues.

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1 Scope

This document specifies processes for the management and operation of data centres. The primary focus of this document is the processes necessary to deliver the expected level of resilience, availability, risk management, risk mitigation, capacity planning, security and resource and energy efficiency.

The secondary focus is on organization and data centre management to align the actual and future demands. Only processes specific for data centres are in the scope of this document.

Business processes like people management, financial management, etc. are out of scope.

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 50174-1, *Information technology — Cabling installation — Part 1: Installation specification and quality assurance*

EN 50174-2, *Information technology — Cabling installation — Part 2: Installation planning and practices inside buildings*

EN 50600-1:2019, *Information technology — Data centre facilities and infrastructures — Part 1: General concepts*

EN 50600-2 *(all parts), Information technology — Data centre facilities and infrastructures*

EN 50600-2-2:2019, *Information technology — Data centre facilities and infrastructures — Part 2-2: Power supply and distribution*

EN 50600-4 (all parts), *Information technology — Data centre facilities and infrastructures*

CLC/TS 50600-5-1, *Information technology — Data centre facilities and infrastructures — Part 5-1: Maturity Model for Energy Management and Environmental Sustainability*

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3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 50600-1, the EN 50600-2 series and the following apply.

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

— IEC Electropedia: available at https://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

3.1.1
availability management
process for monitoring, analysis, reporting and improvement of availability

3.1.2
capacity management
process for monitoring, analysis, reporting and improvement of capacity

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3.1.3
change management
process for recording, coordination, approval and monitoring of all changes

3.1.4
configuration item
entity managed by configuration management

3.1.5
configuration management
process for logging and monitoring of configuration items

3.1.6
cost distribution model
model to distribute costs that cannot be directly related to an infrastructure item

3.1.7
cost management
process for monitoring, analysis and reporting of all infrastructure related costs

3.1.8
customer management
process for management of customers responsibilities

3.1.9
data centre strategy
process for alignment of actual data centre's capabilities and future demands of data centre's users and owners

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3.1.10
energy management
process for monitoring, analysis, reporting and improvement of energy efficiency

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3.1.11
event
something that happens and leads to one or more failures or faults

[SOURCE: CLC/TS 50600-4-31:2024, 3.1.7]

3.1.12
incident management
process for responding to unplanned events and recovery of normal operation condition

3.1.13
incident severity
incident category according to the four impact categories described in EN 50600-1:2019, 5.3

3.1.14
key performance indicator
parameter used to evaluate performance

3.1.15
operations management
process for infrastructure maintenance, monitoring and event management

3.1.16
product lifecycle management
process for managing the timely renewal of infrastructure components and review of product lifecycle costs

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3.1.17
provisioned capacity
capacity of the data centre's actual installed infrastructure

3.1.18
resilience
ability to withstand and reduce the magnitude and/or duration of disruptive events, including the capability to anticipate, absorb, adapt to, and/or rapidly recover from such an event

[SOURCE: IEEE Task Force on Definition and Quantification of Resilience, PES-TR65:2018-04]

3.1.19
resilience level
enumeration of attributes for the determination of *resilience* aspects of a defined service at a defined operation point (OP)

[SOURCE: CLC/TS 50600-4-31:2024, 3.1.26]

3.1.20
security incident
unplanned event resulting in an actual or potential breach of security

3.1.21
security management
process for design and monitoring of security policies, analysis, reporting and improvement of security

3.1.22
service level management
process for monitoring, analysis and reporting of service level compliance

3.1.23
service level agreement
agreement defining the content and quality of the service to be delivered and the timescale in which it is to be delivered

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3.1.24
total capacity
maximum capacity the data centre was designed for at full use in terms of e.g. space, power and cooling

3.1.25
used capacity
data centre's current capacity used by the IT and facility in terms of e.g. space, power and cooling

3.2 Abbreviations

For the purposes of this document, the abbreviations given in EN 50600-1 and the following apply:

AHU	Air Handling Unit
BIM	Building Information Management
BMS	Building Management System
CAB	Change advisory board
CBM	Condition-based Maintenance
CFR	Cabinet/Frame/Rack
CIP	Commissioning Implementation Plan
CRAC	Computer Room Air Conditioning (unit)