



# SLOVENSKI STANDARD

## SIST EN 13290-1:2000

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### Space project management - General requirements - Part 1: Policy and principles

Space project management - General requirements - Part 1: Policy and principles

Raumfahrtmanagement - Allgemeine Anforderungen - Teil 1: Grundsätze und  
Verfahrensweise

Management des projets spaciaux - Exigences générales - Partie 1: Politique et  
principes

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## Space project management - General requirements - Part 1: Policy and principles

Management des projets spatiaux - Exigences générales -  
Partie 1: Politique et principes

Raumfahrtmanagement - Allgemeine Anforderungen - Teil  
1: Grundsätze und Verfahrensweise

This European Standard was approved by CEN on 26 November 1998.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

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## Contents

Foreword.....	4
Introduction.....	5
1 Scope .....	6
1.1 General.....	6
1.2 Space standards domains .....	6
2 Normative references.....	7
3 Definitions and abbreviations.....	7
3.1 Definitions .....	7
3.2 Abbreviations .....	8
4 Use of space standards to define project requirements .....	8
4.1 Policy and principles .....	8
4.2 Customer/supplier network .....	9
4.3 Selection and tailoring of standards.....	12
4.4 Requirements.....	13
4.4.1 Business agreement.....	13
4.4.2 Statement of compliance.....	13
4.4.3 Contract review .....	13
5 Project management.....	14
5.1 Objective .....	14
5.2 Policy and principles .....	14
5.3 Management of risks .....	15
5.3.1 Risk aspects .....	15
5.3.2 Objective.....	15
5.3.3 Policy and principles.....	15
5.3.4 Risk management process.....	16
5.3.5 Contribution of space standards to risk management process.....	18
5.3.6 Classification of the risk.....	18
5.3.7 Requirements.....	20
6 Elements of project management .....	20
6.1 Project breakdown structures.....	20
6.1.1 Objective.....	20
6.1.2 Policy and principles.....	20
6.1.3 Requirements.....	21



6.2	Project organization .....	21
6.2.1	Objective .....	21
6.2.2	Policy and principles .....	21
6.2.3	Requirements .....	21
6.3	Project phasing and planning .....	22
6.3.1	Objective .....	22
6.3.2	Policy and principles .....	22
6.3.3	Requirements .....	22
6.4	Configuration management .....	22
6.4.1	Objective .....	22
6.4.2	Policy and principles .....	22
6.4.3	Requirements .....	23
6.5	Information/Documentation management .....	23
6.5.1	Objective .....	23
6.5.2	Policy and principles .....	23
6.5.3	Requirements .....	23
6.6	Cost and schedule management .....	24
6.6.1	Objective .....	24
6.6.2	Policy and principles .....	24
6.6.3	Requirements .....	24
6.7	Integrated logistic support .....	25
6.7.1	Objective .....	25
6.7.2	Policy and principles .....	25
6.7.3	Requirements .....	25
7	Project management human resources aspects .....	25
7.1	Resourcing the project .....	25
7.2	Staffing the project .....	25
7.3	Training and development .....	26
7.4	Team performance continuous improvement .....	26

## Figures

Figure 1	— Principles governing the implementation of the customer–supplier network concept .....	11
Figure 2	— Risk management process .....	17

## Tables

Table 1	— Participants' roles in customer/supplier network .....	10
Table 2	— Purpose of the individual steps of the risk management process .....	16

## Foreword

This European Standard has been prepared by CEN/CS.

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 September 1999, and conflicting national standards shall be withdrawn at the latest by September 1999.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

This standard is one of the series of space standards intended to be applied together for the management, engineering and product assurance in space projects and applications.

Requirements in this standard are defined in terms of what must be accomplished, rather than in terms of how to organize and perform the necessary work. This allows existing organizational structures and methods to be applied where they are effective, and for the structures and methods to evolve as necessary without rewriting the standards.

The formulation of this standard takes into account the existing ISO 9000 family of documents.

This standard has been prepared by the ECSS Management Standards Working Group, reviewed by the ECSS Technical Panel and approved by the ECSS Steering Board. ECSS is a cooperative effort of the European Space Agency, National Space Agencies and European industry associations for the purpose of developing and maintaining common standards.

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## Introduction

The production of complex products requires the cooperation of several organizations which share a common goal to provide a product which satisfies the consumer's needs (technical performance) under cost and schedule constraints.

To reach this goal, corresponding technical activities, and human and financial resources, are commonly organized and coordinated in a structured manner in order to obtain the end product also known as system. This structure, together with related processes, constitutes a project. It implies a target (system), a time frame, and actions to be performed under resource constraints.

Project management consists of the definition, implementation and execution of such actions including the verification that results obtained match with the expected ones.

Project management requires careful thinking about what shall be accomplished, laying out all the steps needed to build that future, and obtaining the resources required to carry out those steps. But most important, it requires dealing with reality, problems, delays, changes, obstacles and, sometimes, opportunities that arise as a project takes place.

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## 1 Scope

### 1.1 General

This standard is designed to facilitate the elaboration of a management system which is cost effective, appropriate to the project in which it is implemented, compatible with the actors' existing structures and which has the flexibility to adapt to changing needs throughout all the phases of an evolving project, and to new projects.

It contains the basic requirements and overall principles to be applied for the management of space projects, from definition of mission objectives to final disposal. It defines the scope and interfaces of this discipline with the activities relative to the domains of engineering and product assurance, and explains how they are to be interrelated to ensure customer satisfaction. The set of related standards apply to all the actors for the execution of a space project.

This standard:

- presents and describes the documents generated for conducting the managerial and technical activities associated with the deployment and execution of space projects;
- defines the basic management rules for the execution of space projects;
- defines the applicability of these rules to all the actors in these projects, including for example space agencies, industry and scientific laboratories;
- identifies project requirements without imposing a particular organizational structure on the actors;
- proposes how these requirements can be tailored to specific project needs.

### 1.2 Space standards domains

The space standards have been grouped in three branches, designated as management, product assurance and engineering.

- The management standards define the process requirements to be applied to the overall project activities during the life cycle. They describe what needs to be achieved to establish project breakdown structures (e.g. product tree, work breakdown structure), the project organization and cost and schedule management, and cover also the management of configuration, documentation, and integrated logistic support.
- The product assurance standards define the requirements for the management and performance of product assurance activities during a space project (quality assurance, dependability, safety, EEE components control, materials, mechanical parts and processes control, software product assurance).
- The engineering standards are devoted to the products themselves. They cover:
  - the engineering process as applied to space systems and their elements or functions;
  - technical aspects of parts, assemblies, equipments, subsystems and systems used to accomplish, or associated with, space missions.

They include specifications, guidelines, manuals, handbooks and procedures, all identified as space standards. Their objective is to enable engineers to work as efficiently as possible and to achieve the most appropriate product for the project application.



## 2 Normative references

This European standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these apply to this standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

ECSS-M-10A	Space project management - Project breakdown structures
ECSS-M-20A	Space project management - Project organization
ECSS-M-30A	Space project management - Project phasing and planning
ECSS-M-40A	Space project management - Configuration management
ECSS-M-50A	Space project management - Information/Documentation management
ECSS-M-60A	Space project management - Cost and schedule management
ECSS-M-70A	Space project management - Integrated logistic support
EN 13291-1	Space product assurance – General requirements – Part 1: Policy and principles
ECSS-Q-20A	Space product assurance - Quality assurance
ECSS-Q-30A	Space product assurance - Dependability
ECSS-Q-40A	Space product assurance - Safety
EN 13292	Space engineering - Policy and principles
ECSS-E-10A	Space engineering - System engineering
ECSS-P-001A, Rev 1	ECSS - Glossary of terms
ISO 9001:1994	Quality systems - Model for quality assurance in design/development, production, installation and servicing

## 3 Definitions and abbreviations

### 3.1 Definitions

For the purposes of this standard, the definitions given in ECSS-P-001 and the following definitions apply.

#### 3.1.1

##### Support system

The hardware and software products, together with the necessary human resources, which are essential to enable the supported system to achieve its system functional performance from delivery to the end of the life cycle of the supported system, at minimum total life cycle (discounted cash flow) cost.

#### 3.1.2

##### Supported system

The hardware and software products, together with the necessary human resources, which are essential to the system functional performance as expected by the consumer.

### 3.2 Abbreviations

The following abbreviations are defined and used within this standard.

Abbreviation	Meaning
ECSS	European Cooperation for Space Standardization
EEE	Electronic, Electrical, Electromechanical
WBS	Work Breakdown Structure

## 4 Use of space standards to define project requirements

### 4.1 Policy and principles

It is a policy that space standards should, as far as is practicable, define requirements in terms of what is to be achieved, interface requirements to be satisfied, and constraints which shall not be breached. It is a cardinal principle that no particular methodologies, implementation techniques, or organizational arrangements shall be imposed.

Consequently, these documents shall be made applicable on a project by the customer invoking them in the binding documentation in accordance with the relevant business agreement.

It is a policy that the supplier shall have the freedom to choose the methodology by which he intends to fulfil the project requirements, which reference the space standards, except where methodology guidelines and constraints are made applicable for the project.

In order to fulfil the objectives space standards allow for the following functions:

- a) to enable optimization of aspects of the "customer/supplier" relationship that is established among all the actors of a space project. Consequently, they have been drafted so as to facilitate:
  - the critical stages of the elaboration process of the business agreements and contracts clauses binding the various participants. They cover the preparation of an Invitation To Tender (ITT), by the purchaser, the elaboration of the industry proposal and the final negotiation preceding the contract award. During these three stages, the space standards will enable the different actors (customer & supplier) to select the requirements set (and the replies to these requirements...) tailored to the nature of the particular project.
  - the project execution.
- b) to ensure the harmonization in Europe of the requirements of various space projects. The availability of the space standards as a common source of requirements (applicable to all the actors of a space project, in every stage of the elaboration process of the customer/supplier relations) is the only way to reduce the proliferation of similar requirements, differently expressed from one project to another.

The ambitious aim to increase the competitiveness of space products can only be achieved if one maintains strict discipline for the cascade of requirements from the first level customer to the lower levels of the project's industrial organization. At each level the customer shall apply to his suppliers only those requirements strictly necessary at the level of the relevant supplies.

## 4.2 Customer/supplier network

Exchanges of products within a project are governed by business agreements, which shall be understood in the wide sense. A business agreement is defined as any agreement between two or more parties for the supply of goods or services.

The term contract will be used in the narrow sense as any legally enforceable business agreement for the supply of goods or services. A contract is a special case of a business agreement.

Business agreements can be made up of general terms and conditions, financial dispositions, deliverables and project requirements documents.

As a consequence, the terms "customer" and "supplier" will be used generally in all the space standards. "Purchaser" and "contractor" will only be used when the associated requirement applies only to a contract in the narrow sense as defined above.

In order to control the activities distributed by the business agreements among the various companies and agencies (the project actors), the roles of each participant shall be defined relative to the customer/supplier network.

Irrespective of the project phase, the concept of the "customer/supplier" network (acquisition network) remains unchanged. Implementation of this concept, including deployment of project requirements, is described below and illustrated in Figure 1 and Table 1.

The following types of participant can be identified:

The **consumer** is situated at level 0 of the organization. The consumer is responsible for expressing its needs and expectations. He is responsible for identifying/approving the financing of the project and identifying politico/economic and major project constraints.

The **first level customer** is also situated at level 0 of the organization. He can be the consumer or the consumer's agent.

From needs and expectations expressed by the consumer, the first level customer defines the project objectives (such as system technical performance, needed availability, delivery time, duration of operational life) and constraints (e.g. environment of product utilization, budget available, environment impact), step ① (see Figure 1). In collaboration with the consumer, he is responsible for defining the functional (what the product shall do) and performance (how well it shall perform) requirements at system level. He is also in charge of planning project financing and organization. After consultation with the first level supplier at bid or business agreement negotiation stage, he monitors project execution by the first level supplier (e.g. prime contractor) in order to ensure compliance with the performance and schedule objectives, cost and other constraints agreed with the consumer. He prepares a set of project requirements documents, step ②, which defines all the project requirements, either explicitly (in the case of product requirements) or by reference to selected space standards or tailored variants of them. The selection and tailoring process, step ③, is addressed in subclause 4.3.

The **first level supplier** is situated at level 1 of the organization. The first level supplier is responsible to the first level customer for:

- responding, step ④, and demonstrating compliance, through the elaboration of implementation documents, to the project requirements (system concepts, related activities, proposed organization), and to the politico/economic and project constraints,
- supplying a compliant system.

The first level supplier also acts as the **customer** for the next level and, as with the first level customer, is responsible for defining the next level project constraints, output performance and required availability, step ⑤.