SLOVENSKI STANDARD
SIST EN 16601-80:2014

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SIST EN ISO 17666:2004

Vodenje vesoljskih projektov - 80. del: Obvladovanje tveganja

Space project management - Part 80: Risk management

Raumfahrt-Projektmanagement - Teil 80: Risikomanagement

Management des projets spatiaux - Partie 80: Management des risques

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Space project management - Part 80: Risk management

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Raumfahrtsysteme - Teil 80: Risikomanagement

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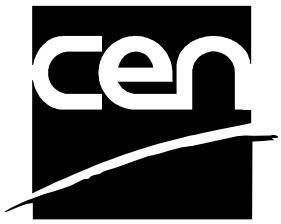

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Foreword

This document (EN 16601-80:2014) has been prepared by Technical Committee CEN/CLC/TC 5 “Space”, the secretariat of which is held by DIN.

This standard (EN16601-80:2014) originates from ECSS-M-ST-80C.

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of an identical text or by endorsement, at the latest by February 2015, and conflicting national standards shall be withdrawn at the latest by February 2015.

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

This document supersedes EN ISO 17666:2003.

This document has been developed to cover specifically space systems and has therefore precedence over any EN covering the same scope but with a wider domain of applicability (e.g. : aerospace).

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

Introduction

Risks are a threat to project success because they have negative effects on the project cost, schedule and technical performance, but appropriate practices of controlling risks can also present new opportunities with positive impact.

The objective of project risk management is to identify, assess, reduce, accept, and control space project risks in a systematic, proactive, comprehensive and cost effective manner, taking into account the project's technical and programmatic constraints. Risk is considered tradable against the conventional known project resources within the management, programmatic (e.g. cost, schedule) and technical (e.g. mass, power, dependability, safety) domains. The overall risk management in a project is an iterative process throughout the project life cycle, with iterations being determined by the project progress through the different project phases, and by changes to a given project baseline influencing project resources.

Risk management is implemented at each level of the customer-supplier network.

Known project practices for dealing with project risks, such as system and engineering analyses, analyses of safety, critical items, dependability, critical path, and cost, are an integral part of project risk management. Ranking of risks according to their criticality for project success, allowing management attention to be directed to the essential issues, is a major objective of risk management.

The project actors agree on the extent of the risk management to be implemented in a given project depending on the project definition and characterization.

1 Scope

This Standard defines the principles and requirements for integrated risk management on a space project; it explains what is needed to implement a project–integrated risk management policy by any project actor, at any level (i.e. customer, first level supplier, or lower level suppliers).

This Standard contains a summary of the general risk management process, which is subdivided into four (4) basic steps and nine (9) tasks.

The risk management process requires information exchange among all project domains, and provides visibility over risks, with a ranking according to their criticality for the project; these risks are monitored and controlled according to the rules defined for the domains to which they belong.

The fields of application of this Standard are all the activities of all the space project phases. A definition of project phasing is given in ECSS-M-ST-10.

This standard may be tailored for the specific characteristics and constraints of a space project in conformance with ECSS-S-ST-00.

2
Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this ECSS Standard. For dated references, subsequent amendments to, or revisions of any of these publications do not apply. However, parties to agreements based on this ECSS Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references the latest edition of the publication referred to applies.

EN reference	Reference in text	Title
EN 16601-00-01	ECSS-ST-00-01	ECSS system - Glossary of terms
EN 16601-10	ECSS-M-ST-10	Space project management – Project planning and implementation

3
Terms, definitions and abbreviated terms

3.1 Terms from other standards

For the purpose of this Standard, the terms and definitions from ECSS-ST-00-01 apply, in particular for the following terms:

risk

residual risk

risk management

risk management policy

3.2 Terms specific to the present standard

3.2.1 acceptance of (risk)

decision to cope with consequences, should a risk scenario materialize

NOTE 1 A risk can be accepted when its magnitude is less than a given threshold, defined in the risk management policy.

NOTE 2 In the context of risk management, acceptance can mean that even though a risk is not eliminated, its existence and magnitude are acknowledged and tolerated.

3.2.2 (risk) communication

all information and data necessary for risk management addressed to a decision–maker and to relevant actors within the project hierarchy

3.2.3 (risk) index

score used to measure the magnitude of the risk; it is a combination of the likelihood of occurrence and the severity of consequence, where scores are used to measure likelihood and severity

3.2.4 individual (risk)

risk identified, assessed, and mitigated as a distinct risk items in a project

3.2.5 (risk) management process

consists of all the project activities related to the identification, assessment, reduction, acceptance, and feedback of risks

3.2.6 overall (risk)

risk resulting from the assessment of the combination of individual risks and their impact on each other, in the context of the whole project

NOTE Overall risk can be expressed as a combination of qualitative and quantitative assessment.

3.2.7 (risk) reduction

implementation of measures that leads to reduction of the likelihood or severity of risk

NOTE Preventive measures aim at eliminating the cause of a problem situation, and mitigation measures aim at preventing the propagation of the cause to the consequence or reducing the severity of the consequence or the likelihood of the occurrence.

3.2.8 resolved (risk)

risk that has been rendered acceptable

3.2.9 (risk) scenario

sequence or combination of events leading from the initial cause to the unwanted consequence

NOTE The cause can be a single event or something activating a dormant problem.

3.2.10 (risk) trend

evolution of risks throughout the life cycle of a project

3.2.11 unresolved (risk)

risk for which risk reduction attempts are not feasible, cannot be verified, or have proved unsuccessful: a risk remaining unacceptable

3.3 Abbreviated terms

For the purpose of this standard, the abbreviated terms of ECSS-S-ST-00-01 and the following apply:

Abbreviation	Meaning
IEC	International Electrotechnical Commission

4 Principles of risk management

4.1 Risk management concept

Risk management is a systematic and iterative process for optimizing resources in accordance with the project's risk management policy. It is integrated through defined roles and responsibilities into the day–to–day activities in all project domains and at all project levels. Risk management assists managers and engineers by including risk aspects in management and engineering practices and judgements throughout the project life cycle, including the preparation of project requirements documents. It is performed in an integrated, holistic way, maximizing the overall benefits in areas such as:

- design, manufacturing, testing, operation, maintenance, and disposal, together with their interfaces;
- control over risk consequences;
- management cost and schedule.

4.2 Risk management process

The entire spectrum of risks is assessed. Trade-offs are made among different, and often competing, goals. Undesired events are assessed for their severity and likelihood of occurrence. The assessments of the alternatives for mitigating the risks are iterated, and the resulting measurements of performance and risk trend are used to optimize the tradable resources.

Within the risk management process, available risk information is produced and structured, facilitating risk communication and management decision making. The results of risk assessment and reduction and the residual risks are communicated to the project team for information and follow-up.

4.3 Risk management implementation in a project

Risk management requires corporate commitment in each actor's organization and the establishment of clear lines of responsibility and accountability from the top corporate level downwards. Project management has the overall responsibility for the implementation of risk management, ensuring an integrated, coherent approach for all project domains.

Independent validation of data ensures the objectiveness of risk assessment, performed as part of the risk management process.

Risk management is a continuous, iterative process. It constitutes an integral part of normal project activity and is embedded within the existing management processes. It utilizes the existing elements of the project management processes to the maximum possible extent.

4.4 Risk management documentation

The risk management process is documented to ensure that the risk management policies (see Annex A) are well established, understood, implemented and maintained, and that they are traceable to the origin and rationale of all risk–related decisions made during the life of the project.

The risk management documentation includes the risk management policy, which:

- defines the organization's attitude towards risk management, together with the project specific categorization of risk management, and
- provides a high-level outline for the implementation of the risk management process.

In addition to the risk management policy document, two key documents are established:

- risk management plan describing the implementation of the risk management process (see Annex B), and
- risk assessment report for communicating the identified and assessed risks as well as the subsequent follow-up actions and their results (see Annex C).