International Standard

ISO 17666

# Space systems — Programme management — Risk management

*Systèmes spatiaux — Management de programme — Management des risques*

Third edition
2025-04

Reference number
ISO 17666:2025(en)

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Published in Switzerland

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# Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 14, *Space systems and operations*.

This third edition cancels and replaces the second edition (ISO 17666:2016), which has been technically revised.

The main changes are as follows:

— updated the normative references in Clause 2;

— updated the terms and definitions references in Clause 3 and deleted Clause 4 for abbreviated terms;

— included Annex C on the risk areas in space systems programmes.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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# Introduction

Risks are a threat to the project success because they have negative effects on the project cost, schedule and technical performance; but appropriate practices of controlling risks can 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.

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.

When viewed from the perspective of a specific programme or project context, the requirements defined in this document are tailored to match the genuine requirements of a particular profile and circumstances of a programme or project. The implementation of this document can be tailored to project-specific conditions.

NOTE Tailoring is a process by which individual requirements or specifications, standards and related documents are evaluated and made applicable to a specific programme or project by selection, and in some exceptional cases, modification and addition of requirements in the standards.

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 the 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 into a given project depending on the project definition and characterization.

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# Space systems — Programme management — Risk management

## 1 Scope

This document defines, extending the requirements of ISO 14300-1, 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 document contains a summary of the general risk management process, which is subdivided into four basic steps and nine tasks. This document is applicable to all the space project phases, as defined in ISO 14300-1.

## 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.

ISO 10795, *Space systems — Programme management and quality — Vocabulary*

ISO 14300-1:2023, *Space systems — Programme management — Part 1: Structuring of a project*

ISO 23462, *Space systems — Guidelines to define the management framework for a space project*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 10795 and the following 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**
**acceptance of risk**
decision to cope with consequences, should a *risk scenario* (3.13) materialise

Note 1 to entry: A *risk* (3.12) can be accepted when its magnitude is less than a given threshold, defined in the *risk management policy* (3.6).

Note 2 to entry: In the context of *risk management* (3.5), acceptance can mean that even though a risk is not eliminated, its existence and magnitude are acknowledged and tolerated.

**3.2**
**risk communication**
all information and data necessary for *risk management* (3.5) addressed to a decision maker and to relevant actors within the project hierarchy

**3.3**
**risk index**
combined score used to measure the likelihood of occurrence, magnitude and severity of *risk* (3.12)

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