BSI Standards Publication

Space systems — Guidelines for the management of systems engineering

National foreword

This British Standard is the UK implementation of ISO 18676:2017.

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

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Contents

Page

Foreword

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For an explanation on 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 the following URL: 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*.

Introduction

There is general consensus that to accomplish space programme/project requirements, it is mandatory to manage the systems engineering activities. The main role of systems engineering management is to ensure system performance conforms with expressed need, and to control the technical risks involved in development. Also, cost and schedule parameters are taken into account in space systems engineering in the search of optimal performance.

Thus, this document provides guidelines for managing the systems engineering activities related to planning, assessment and control of space programmes/projects.

These guidelines are intended to identify a set of recommendations to help customers and space system organizations to establish management requirements for systems engineering activities and help the organization to construct the elements of the systems engineering management plan (SEMP).

Given the need for systems engineering management, the overall systems engineering activities can be divided into two types:

— systems engineering management activities related to programme management which comprise planning, assessing, controlling, trade-off studies and decision making;

— the technical activities themselves, linked to the technical processes (stakeholder requirements analysis, system requirements analysis, system architectural design, system detailed design and assembly, integration, and verification and validation) applied to the system.

Therefore, systems engineering management reinforces the technical viewpoint within programme management.

In these guidelines, a set of leading indicators are suggested as measures for evaluating the effectiveness of each space systems engineering activity. Leading indicators are important tools for project management to make interventions and actions to avoid rework and wasted effort during the whole system engineering life cycle.

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INTERNATIONAL STANDARD ISO 18676:2017(E)

Space systems — Guidelines for the management of systems engineering

1 Scope

This document presents the guidelines for the management of systems engineering for space systems.

This document addresses the systems engineering activities and provides guidelines for interfacing with specific major management subjects (e.g. configuration management, data management, interface management, risk management, requirements management, and integrated logistics support), which are themselves the subject of this document.

This document establishes a common reference for all customers and suppliers in the space sector to work with management systems engineering for all space products and projects.

These guidelines emphasize the following aspects of managing space systems engineering:

— the positioning of space systems engineering activities related to the management of space activities;

— the framework for the management of systems engineering;

— the systems engineering management plan (SEMP);

— the system, product and work breakdown structures;

— the phasing, scheduling and recursivity of the systems engineering management;

— reviews, audits and control gates;

— the main activities of systems engineering and the respective management approach.

It is not the scope of this document to describe in detail the standard systems engineering process or project management process for all types of space systems.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

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

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

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

3.1
management
coordinated activities to direct and control an *organization* (3.2)

[SOURCE: ISO 9000:2015, 3.3.3]