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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

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 documents should be noted. This document was drafted in accordance with the rules given in 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 Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Systems and software engineering*, in cooperation with the Systems and Software Engineering Standards Committee of the IEEE Computer Society, under the Partner Standards Development Organization cooperation agreement between ISO and IEEE.

This edition cancels and replaces ISO/IEC 16085:2006, which has been technically revised.

The main changes compared to ISO/IEC 16085:2006 are as follows:

— Use common terminology, common process names, and common process structure with ISO/IEC/IEEE 15288:2015 and ISO/IEC/IEEE 12207:2017.

— Improve consistency with ISO 31000:2018, which provides generic principles, framework, and process for managing all forms of risk.

— Provide specialized guidance for performing risk management within the context of systems and software engineering projects.

This document is intended to be used in conjunction with ISO/IEC/IEEE 15288:2015, ISO/IEC/IEEE 12207:2017, ISO 31000 and IEC 31010, and is not a replacement.

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Introduction

This document is an elaboration standard for the risk management process described in ISO/IEC/IEEE 15288 and ISO/IEC/IEEE 12207. This document provides requirements for the tasks and activities of the risk management process in Clause 6, consistent with these life cycle process International Standards. This document provides a definition of the content of the risk management plan (8.1) and risk treatment plan (8.2). This document also provides guidance for how risk management outcomes, activities, and tasks pertain to other processes.

This document prescribes a continuous process for risk management. Clause 1 provides an overview and the purpose, scope, and field of application. Clause 2 lists the normative references. Clause 3 provides terms and definitions. Clause 4 prescribes conformance criteria. Clause 5 describes key concepts and application with other International Standards. Clause 6 elaborates the risk management process as required by ISO/IEC/IEEE 15288 or ISO/IEC/IEEE 12207. Clause 6 also defines required purpose, outcomes, tasks, and activities of the risk management process for application to systems and software engineering projects in an integrated manner as described in Clause 7 and produces the information products described in Clause 8. Clause 7 suggests some typical risk areas, some typical opportunity areas, and some typical treatments for each life cycle process. Clause 8 prescribes the content for the risk management information items. The Bibliography lists informative references that are either referenced by this document or of interest to users of this document.

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Systems and software engineering — Life cycle processes — Risk management

1 Scope

1.1 Overview

This document:

— provides risk management elaborations for the processes described in ISO/IEC/IEEE 15288 and ISO/IEC/IEEE 12207,

— provides the users of ISO/IEC/IEEE 15288, ISO/IEC/IEEE 12207 and their associated elaboration standards with common terminology and specialized guidance for performing risk management within the context of systems and software engineering projects,

— specifies the required information items that are to be produced through the implementation of risk management process for claiming conformance, and

— specifies the required contents of the information items.

This document provides a universally applicable standard for practitioners responsible for managing risks associated with systems and software over their life cycle. This document is suitable for the management of all risks encountered in any organization or project appropriate to the systems or software projects regardless of context, type of industry, technologies utilized, or organizational structures involved.

This document does not provide detailed information about risk management practices, techniques, or tools which are widely available in other publications. Instead this document focuses on providing a comprehensive reference for integrating the large and wide variety of processes, practices, techniques, and tools encountered in systems and software engineering projects and other lifecycle activities into a unified approach for risk management, with the purpose of providing effective and efficient risk management while meeting the expectations and requirements of organization and project stakeholders.

1.2 Purpose

This document provides information on how to design, develop, implement, and continually improve risk management in a systems and software engineering project throughout its life cycle.

1.3 Field of application

This document is compatible with risk management as described in ISO/IEC/IEEE 15288 and ISO/IEC/IEEE 12207 and can also be applied in conjunction with ISO 31000. Depending on the scope and context of the systems or software engineering project of interest, there are a number of additional International Standards that can be applicable to the risk management effort including ISO 9001. This document is intended to provide additional information useful in implementing a system for integrated risk management for systems and software engineering projects. 5.2 discusses in more detail how this document can be applied with other standards.

This document is applicable to:

— project teams which use ISO/IEC/IEEE 15288 and ISO/IEC/IEEE 12207 on projects dealing with man-made systems, software-intensive systems, software and hardware products, and services

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