



**International
Standard**

ISO/IEC 9837

**Systems and software
engineering — Systems resilience
concepts**

*Ingénierie des systèmes et du logiciel — Concepts de résilience
des systèmes*

**First edition
2026-06**

Sample Document

get full document from standards.iteh.ai

Sample Document

get full document from standards.iteh.ai



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2026

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
3.1 Systems resilience fundamentals.....	1
3.2 Fundamental objectives.....	2
3.3 Means objectives.....	2
3.4 Resilience techniques.....	4
4 Key resilience concepts and their relationships	8
4.1 The system context for systems resilience.....	8
4.2 Understanding resilience.....	9
4.3 Aspects of resilience.....	9
4.4 Relation of resilience to other system qualities.....	10
5 A resilience framework	11
5.1 Overview.....	11
5.2 Fundamental objectives layer.....	11
5.3 Means objectives layer.....	11
5.4 Resilience techniques layer.....	12
6 Resilience considerations during systems engineering life cycle processes	13
Bibliography	16

Sample Document

get full document from standards.iteh.ai

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 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 or www.iec.ch/members_experts/refdocs).

ISO and IEC draw attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO and IEC take no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO and IEC had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents and <https://patents.iec.ch>. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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. In the IEC, see www.iec.ch/understanding-standards.

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*.

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 and www.iec.ch/national-committees.

Introduction

As the complexity of systems continues to increase and the list of capabilities required of those systems continues to grow, systems are expected to deliver those capabilities under various conditions, including adverse ones. Resilience is the quality characteristic that enables systems to achieve this. Broadly speaking, systems resilience involves the capabilities of systems to avoid, withstand, and recover from adversity. Resilience goals are realized through application of techniques during processes related to requirements, architecture, design or operations of a system.

This document focuses on establishing systems resilience concepts that form the basis for understanding, building and enhancing the resilience of systems. It also provides a resilience framework that includes fundamental objectives, means objectives and techniques for achieving systems resilience. It is compatible with a system engineering approach and with system life cycle processes.

This document serves as a foundation for other documents related to various aspects of systems resilience.

Sample Document

get full document from standards.iteh.ai

Sample Document

get full document from standards.iteh.ai

Systems and software engineering — Systems resilience concepts

1 Scope

This document establishes concepts for understanding and improving systems resilience. Systems resilience addresses the capabilities of systems under adversity.

This document is applicable to human-created systems that can be either physical or conceptual, or a combination of both. It applies to systems as defined in ISO/IEC/IEEE 15288, including services and products. It is not intended to apply to naturally occurring 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 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 Systems resilience fundamentals

3.1.1 resilience

ability to provide required *capability* (3.1.2) in the face of *adversity* (3.1.3)

Note 1 to entry: Under adversity, what is required of a system can be distinct from the capability required during normal operation.

Note 2 to entry: Resilience includes the ability to anticipate and adapt to, resist or quickly recover from a potentially disruptive event.

[SOURCE: MITRE Technical Report MTR-190495, 2019,^[23] modified — Notes to entry have been added.]

3.1.2 capability

ability to do something useful under a particular set of conditions

[SOURCE: ISO/IEC/IEEE 24641:2023, 3.1.3, modified — Note 1 to entry has been removed.]

3.1.3 adversity

anything that can degrade the required *capability* (3.1.2) of the system, directly or indirectly

Note 1 to entry: In contrast to risk, which is the effect of uncertainty on objectives (as defined in ISO/IEC/IEEE 15288:2023, 3.39), adversity can be anything actual or possible.