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Information technology — Artificial intelligence — Guidance for AI applications

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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

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Foreword

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 42, *Artificial intelligence*.

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Introduction

Artificial intelligence (AI) systems have the potential to create incremental changes and achieve new levels of performance and capability in domains such as agriculture, transportation, fintech, education, energy, healthcare and manufacturing. However, the potential risks related to lack of trustworthiness can impact AI implementations and their acceptance. AI applications can involve and impact many stakeholders, including individuals, organizations and society as a whole. The impact of AI applications can evolve over time, in some cases due to the nature of the underlying data or legal environment. The stakeholders should be made aware of their roles and responsibilities in their engagement. While detailed AI-related standards can serve the interest of technical experts involved in engineering and development, this document provides a macro-level context of the AI application life cycle, to facilitate multi-stakeholder communication, engagement and acceptance.

This document contains guidance for AI applications based on a common framework, to provide multiple macro-level perspectives. The framework incorporates “make”, “use” and “impact” perspectives. It also incorporates AI characteristics and non-functional characteristics such as trustworthiness and risk management. The guidance can be used by standards developers, application developers and other interested parties to provide answers to the question: “What are the characteristics and considerations of an AI application?”. The stakeholders are mapped to various stages of the AI system life cycle, highlighting their roles and responsibilities and making them aware of the processes to follow to enable a coherent stakeholder engagement for the AI application. These stakeholders can have various levels of AI expertise and knowledge. Since AI applications can differ from non-AI software applications due to their continuously evolving nature and aspects of trustworthiness, all stakeholders should be made aware of AI-specific characteristics.

This document provides:

— this document’s motivation and objectives (Clause 4);

— an approach to identifying an AI application’s stakeholders, context, functional characteristics and non-functional characteristics (Clause 5);

— an AI application framework that can be used to answer the question: “What are the characteristics and considerations of an AI application?” (Clause 6);

— guidance for AI applications based on the make, use and impact perspectives (Clause 7).

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Information technology — Artificial intelligence — Guidance for AI applications

1 Scope

This document provides guidance for identifying the context, opportunities and processes for developing and applying AI applications. The guidance provides a macro-level view of the AI application context, the stakeholders and their roles, relationship to the life cycle of the system, and common AI application characteristics and considerations.

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/IEC 22989:2022, *Information technology — Artificial intelligence — Artificial intelligence concepts and terminology*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 22989:2022 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
AI application
use of AI with functional characteristics that operates in stakeholder contexts to deliver an intended result

3.2
cloud service
one or more capabilities offered via *cloud computing* (3.6) invoked using a defined interface

[SOURCE: ISO/IEC 22123-1:2023, 3.1.2]

3.3
private cloud
cloud deployment model (3.5) where *cloud services* (3.2) are used exclusively by a single *cloud service customer* (3.4) and resources are controlled by that cloud service customer

[SOURCE: ISO/IEC 22123-1:2023, 3.2.4]

3.4
cloud service customer
party that is in a business relationship for the purpose of using *cloud services* (3.2)

Note 1 to entry: A business relationship does not necessarily imply financial agreements.

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