

# SLOVENSKI STANDARD

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**Informacijska tehnologija - Umetna inteligenca - Koncepti in terminologija umetne inteligence (ISO/IEC 22989:2022, popravljena različica 2025-12)**

Information technology - Artificial intelligence - Artificial intelligence concepts and terminology (ISO/IEC 22989:2022, Corrected version 2025-12)

Informationstechnik - Künstliche Intelligenz - Konzepte und Terminologie der Künstlichen Intelligenz (ISO/IEC 22989:2022, korrigierte Fassung 2025-12)

Technologies de l'information - Intelligence artificielle - Concepts et terminologie relatifs à l'intelligence artificielle (ISO/IEC 22989:2022, Version corrigée 2025-12)

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35.020	Informacijska tehnika in tehnologija na splošno	Information technology (IT) in general

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EUROPEAN STANDARD

EN ISO/IEC 22989

NORME EUROPÉENNE

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June 2023

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## Information technology - Artificial intelligence - Artificial intelligence concepts and terminology (ISO/IEC 22989:2022, Corrected version 2025-12)

Technologies de l'information - Intelligence artificielle  
- Concepts et terminologie relatifs à l'intelligence  
artificielle (ISO/IEC 22989:2022, Version corrigée  
2025-12)

Informationstechnik - Künstliche Intelligenz -  
Konzepte und Terminologie der Künstlichen  
Intelligenz (ISO/IEC 22989:2022, korrigierte Fassung  
2025-12)

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## European foreword

The text of ISO/IEC 22989:2022 has been prepared by Technical Committee ISO/IEC JTC 1 "Information technology" of the International Organization for Standardization (ISO) and has been taken over as EN ISO/IEC 22989:2023 by Technical Committee CEN-CENELEC/ JTC 21 "Artificial Intelligence" the secretariat of which is held by DS.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2023, and conflicting national standards shall be withdrawn at the latest by December 2023.

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INTERNATIONAL  
STANDARD

ISO/IEC  
22989

First edition  
2022-07

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**Information technology — Artificial  
intelligence — Artificial intelligence  
concepts and terminology**

*Technologies de l'information — Intelligence artificielle — Concepts  
et terminologie relatifs à l'intelligence artificielle*

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## ISO/IEC 22989:2022(E)

### Foreword

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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](http://www.iso.org/directives) or [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs)).

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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](http://www.iso.org/iso/foreword.html). In the IEC, see [www.iec.ch/understanding-standards](http://www.iec.ch/understanding-standards).

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

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## Introduction

Advancements in computing capacity, reduction of costs of computation, availability of large amounts of data from many sources, inexpensive online learning curricula and algorithms capable of meeting or exceeding human level performance in particular tasks for speed and accuracy have enabled practical applications of AI, making it an increasingly important branch of information technology.

AI is a highly interdisciplinary field broadly based on computer science, data science, natural sciences, humanities, mathematics, social sciences and others. Terms such as “intelligent”, “intelligence”, “understanding”, “knowledge”, “learning”, “decisions”, “skills”, etc. are used throughout this document. However, it is not the intention to anthropomorphize AI systems, but to describe the fact that some AI systems can rudimentarily simulate such characteristics.

There are many areas of AI technology. These areas are intricately linked and developing rapidly so it is difficult to fit the relevance of all technical fields into a single map. Research of AI includes aspects such as aspects including “learning, recognition and prediction”, “inference, knowledge and language” and “discovery, search and creation”. Research also addresses interdependencies among these aspects<sup>[23]</sup>.

The concept of AI as an input and output process flow is shared by many AI researchers, and research on each step of this process is ongoing. Standardized concepts and terminology are needed by stakeholders of the technology to be better understood and adopted by a broader audience. Furthermore, concepts and categories of AI allow for a comparison and classification of different solutions with respect to properties like trustworthiness, robustness, resilience, reliability, accuracy, safety, security and privacy. This enables stakeholders to select appropriate solutions for their applications and to compare the quality of available solutions on the market.

As this document does provide a definition for the term AI in the sense of a discipline only, the context for its usage can be described as follows: AI is a technical and scientific field devoted to the engineered system that generates outputs such as content, forecasts, recommendations or decisions for a given set of human-defined objectives.

This document provides standardized concepts and terminology to help AI technology to be better understood and used by a broader set of stakeholders. It is intended for a wide audience including experts and non-practitioners. The reading of some specific clauses can however be easier with a stronger background in computer science. These concerns are described primarily [Clauses 5.10](#), [5.11](#) and [8](#), which are more technical than the rest of the document.

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# Information technology — Artificial intelligence — Artificial intelligence concepts and terminology

## 1 Scope

This document establishes terminology for AI and describes concepts in the field of AI.

This document can be used in the development of other standards and in support of communications among diverse, interested parties or stakeholders.

This document is applicable to all types of organizations (e.g. commercial enterprises, government agencies, not-for-profit organizations).

## 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 Terms related to AI

#### 3.1.1

##### **AI agent**

*automated* (3.1.7) entity that senses and responds to its environment and takes actions to achieve its goals

#### 3.1.2

##### **AI component**

functional element that constructs an *AI system* (3.1.4)

#### 3.1.3

##### **artificial intelligence**

##### **AI**

<discipline> research and development of mechanisms and applications of *AI systems* (3.1.4)

Note 1 to entry: Research and development can take place across any number of fields such as computer science, data science, humanities, mathematics and natural sciences.

#### 3.1.4

##### **artificial intelligence system**

##### **AI system**

engineered system that generates outputs such as content, forecasts, recommendations or decisions for a given set of human-defined objectives

Note 1 to entry: The engineered system can use various techniques and approaches related to *artificial intelligence* (3.1.3) to develop a *model* (3.1.23) to represent data, *knowledge* (3.1.21), processes, etc. which can be used to conduct *tasks* (3.1.35).