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Information technology — Artificial intelligence — Overview of ethical and societal concerns

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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 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).

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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. 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 42, *Artificial intelligence*.

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.

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Introduction

Artificial intelligence (AI) has the potential to revolutionise the world and carry a plethora of benefits for societies, organizations and individuals. However, AI can introduce substantial risks and uncertainties. Professionals, researchers, regulators and individuals need to be aware of the ethical and societal concerns associated with AI systems and applications.

Potential ethical concerns in AI are wide ranging. Examples of ethical and societal concerns in AI include privacy and security breaches to discriminatory outcomes and impact on human autonomy. Sources of ethical and societal concerns include but are not limited to:

— unauthorized means or measures of collection, processing or disclosing personal data;

— the procurement and use of biased, inaccurate or otherwise non-representative training data;

— opaque machine learning (ML) decision-making or insufficient documentation, commonly referred to as lack of explainability;

— lack of traceability;

— insufficient understanding of the social impacts of technology post-deployment.

AI can operate unfairly particularly when trained on biased or inappropriate data or where the model or algorithm is not fit-for-purpose. The values embedded in algorithms, as well as the choice of problems AI systems and applications are used for to address, can be intentionally or inadvertently shaped by developers' and stakeholders' own worldviews and cognitive bias.

Future development of AI can expand existing systems and applications to grow into new fields and increase the level of automation which these systems have. Addressing ethical and societal concerns has not kept pace with the rapid evolution of AI. Consequently, AI designers, developers, deployers and users can benefit from flexible input on ethical frameworks, AI principles, tools and methods for risk mitigation, evaluation of ethical factors, best practices for testing, impact assessment and ethics reviews. This can be addressed through an inclusive, interdisciplinary, diverse and cross-sectoral approach, including all AI stakeholders, aided by International Standards that address issues arising from AI ethical and societal concerns, including work by Joint Technical Committee ISO/IEC JTC 1, SC 42.

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Information technology — Artificial intelligence — Overview of ethical and societal concerns

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1 Scope

This document provides a high-level overview of AI ethical and societal concerns.

In addition, this document:

— provides information in relation to principles, processes and methods in this area;

— is intended for technologists, regulators, interest groups, and society at large;

— is not intended to advocate for any specific set of values (value systems).

This document includes an overview of International Standards that address issues arising from AI ethical and societal concerns.

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, *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 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
agency
ability to define one's goals and act upon them

[SOURCE: ISO/TR 21276:2018, 3.6.2]

3.2
bias
systematic difference in *treatment* (3.13) of certain objects, people, or groups in comparison to others

[SOURCE: ISO/IEC TR 24027:2021, 3.2.2, modified — Removed Note to entry.]

3.3
data management
process of keeping track of all data and/or information related to the creation, production, distribution, storage, disposal and use of e-media, and associated processes

[SOURCE: ISO 20294:2018, 3.5.4, modified — Added "disposal" to definition.]

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