Technical Report

ISO/IEC TR 21221

Information technology — Artificial intelligence — Beneficial AI systems

First edition
2025-09

Reference number
ISO/IEC TR 21221:2025(en)

© ISO/IEC 2025



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2025

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**
4 Conceptual framework of a beneficial AI system ... **3**
4.1 General ... 3
4.2 AI system and its functions ... 3
4.3 The roles and perspectives of AI stakeholders ... 3
4.4 Trustworthiness ... 3
4.5 Timeliness of benefits evaluation ... 4
4.6 Purposeful and responsible application ... 4
4.7 Measuring value of AI systems ... 4
4.7.1 General ... 4
4.7.2 Benefit components of AI system value ... 4
4.7.3 AI systems and automation ... 5
4.7.4 Different stakeholder perspectives ... 5
4.8 Create positive impact ... 7
4.8.1 General ... 7
4.8.2 Positive vs. negative impacts ... 8
5 Applications of beneficial AI systems ... **8**
Annex A (informative) **Beneficial AI system use cases** ... **11**
Annex B (informative) **Modelling customer value** ... **18**
Annex C (informative) **AI external stakeholders and relevant interested parties** ... **20**
Annex D (informative) **AI system value and United Nations Sustainable Development Goals** ... **22**
Bibliography ... **23**

© ISO/IEC 2025 – All rights reserved

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 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.

© ISO/IEC 2025 – All rights reserved

Introduction

At present government, commercial and not-for-profit organizations are increasing their investment and adoption of artificial intelligence (AI) technology in systems and applications for business processes, products and services. As with other innovations, the adoption of AI comes with risks potentially resulting in negative impacts. In some cases, the legal requirements governing the use of the technology have already been imposed to mitigate these risks. To prevent unjustified negative societal attitude towards the AI, there is a need to clearly articulate the benefits of AI for all the stakeholders, comparing the benefits with relevant costs and risks. This can foster transparency and trustworthiness of AI, ensuring better governance, trust, understanding and appreciation of the value of the AI technology.

This document describes a conceptual framework for the articulation of benefits of AI as one of the non-functional characteristics of AI systems. This framework incorporates the make, use and impact perspectives of the stakeholders. It can help to initiate meaningful discussion among the stakeholders and to formulate appropriate business models and value propositions along the AI value chain.

This document also shows how the United Nations Sustainable Goals (UN SDGs) can be incorporated into the benefit components of AI system value (Annex D). Examples are provided to how an AI system with the proper benefit components in its value proposition can potentially contribute to and help accelerate the UN SDGs and lend support to the ISO's London Declaration[1].

© ISO/IEC 2025 – All rights reserved

Information technology — Artificial intelligence — Beneficial AI systems

1 Scope

This document describes the delivery of functional, economic, environmental, social, societal, cultural, intellectual and personal benefits by AI systems as perceived by their stakeholders. The document includes illustrative use cases of AI systems.

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 5339:2024, *Information technology — Artificial intelligence — Guidance for AI applications*

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, ISO/IEC 5339 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
consumer
individual member of the general public purchasing or using goods, property or services for private purposes

[SOURCE: ISO 14025:2006, 3.16]

3.2
AI customer
organization or entity that uses an AI product or service either directly or by its provision to AI users

Note 1 to entry: In the context of this document, an AI customer has a business relationship with the AI provider that provides platforms, products or services that uses AI systems (see ISO/IEC 22989:2022, 5.19.2).

3.3
AI user
organization or entity that uses AI products or services

Note 1 to entry: An AI user can be an individual from the general public (consumer) or a member of the customer organization or entity. An AI user is not required to have a business relationship with the AI provider or AI customer.

© ISO/IEC 2025 – All rights reserved