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Foreword

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

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Artificial intelligence — AI-enhanced nudging

1 Scope

This document provides definitions, concepts, guidelines and methodology to address AI-enhanced nudging mechanisms by organizations. It provides requirements for designing responsible AI-enhanced nudging mechanisms, key indicators, both horizontally and vertically. This document supports organizations that develop or use AI-enhanced nudges, as well as entities interested in the protection of civil society and individuals, including consumers and workers.

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 terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1 General and decision concepts

3.1.1
choice architecture
organizing the context in which people make decisions

Note 1 to entry: The choice architecture is designed by choice architects (human agents) or inferred by AI systems (artificial agents).

3.1.2
nudge
nudging mechanism
subtle change in the choice architecture to encourage shifts in behaviour based on *human cognitive bias* (3.1.11)

[SOURCE: ISO/IEC TR 24027:2021 [1]]

3.1.3
sludge
specific instance of nudge that adds friction in making a choice based on biases

3.1.4
digital nudge
nudge that is delivered in digital environment or using digital technologies

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3.1.5
affective computing
collection, recognition, strategy and presentation of affective characteristics of human-computer interactions

[SOURCE: ISO/IEC 30150-1:2022 [2], 3.2]

3.1.6
persuasive technology
technology that is designed to change opinions, attitudes or behaviours of the users through persuasion and social influence

3.1.7
artificial intelligence 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 to develop a model to represent data, knowledge and processes which can be used to conduct tasks.

Note 2 to entry: AI systems are designed to operate with varying levels of automation.

[SOURCE: ISO/IEC 22989:2022 [3]]

3.1.8
AI-enhanced nudges
AI nudges
AI-enhanced nudging mechanisms
use of artificial intelligence techniques to design and deliver behavioural interventions that subtly influence individuals' decisions or actions

3.1.9
implicit AI-enhanced nudging
AI-enhanced nudging which is not intended by the organisation that provides the nudging mechanism

3.1.10
bias
systematic difference in treatment of certain objects, people or groups in comparison to others

Note 1 to entry: Treatment is any kind of action, including perception, observation, representation, prediction or decision.

[SOURCE: ISO/IEC TR 24027:2021 [1], 3.2.2]

3.1.11
human cognitive bias
bias that occurs when humans are processing and interpreting information

Note 1 to entry: Human cognitive bias influences judgement and decision-making.

[SOURCE: ISO/IEC TR 24027:2021 [1], 3.2.4]

3.1.12
human factors
environmental, organizational and job factors, in conjunction with cognitive human characteristics, which influence the behaviour of persons or organizations

[SOURCE: ISO/IEC TR 24028:2020 [4], 3.19]

3.1.13
neurodata
neural network patterns and other biological signals involved in cognitive and neural functioning

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3.2 Ethics concepts

3.2.1
ethics
branch of philosophy that analyses and reflects on moral situations, including the principles, values and frameworks involved

3.2.2
code of ethics
set of principles and rules concerning moral obligations and regard for the rights of humans and nature

Note 1 to entry: Codes of ethics can be specified by a given profession, group or organization.

3.2.3
code of data ethics
set of ethics guidelines, principles and procedures by which data is acquired, analysed, processed, adjusted, compiled or otherwise sold, traded or shared with other entities

3.2.4
ethics committee
group of individuals with multidisciplinary expertise responsible for reviewing, advising on and overseeing the ethical aspects of the organization's activities, projects or policies and requiring the participation of at least one professional ethicist

3.2.5
professional ethicist
a professional with competence in studying, analysing and providing guidance on the ethical considerations, implications and practices

3.2.6
ethics risk assessment
process of identifying, analysing and evaluating potential ethical risks associated with a system, action or decision

3.2.7
ethical risk
potential for an action, system or decision to affect ethical objectives

3.2.8
ethical harm
adverse effect on individuals, communities or societal values that occur via breaches of ethical principles stated in a *code of ethics* (3.2.2)

3.2.9
ethical foresight analysis
prediction of potential ethical issues in new technologies that guide proactive measures to address these concerns

3.2.10
explainability
property of an *AI system* (3.1.7) that enables a given human audience to comprehend the reasons for the system's behaviour

Note 1 to entry: Explainability methods are not limited to the production of explanations, but also include the enabling of interpretations.

[SOURCE: ISO/IEC TS 6254:2025 [5]]

3.2.11
explainable AI
approach to explain information about the functioning or output of an AI system

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3.2.12
moral situation
circumstance in which an agent faces a decision requiring evaluation of actions based on moral principles, values or obligations

3.2.13
semantic capital
any content that can enhance someone's power to give meaning to and make sense of (semanticise) something

Note 1 to entry: Large-scale informational perturbations can erode the shared content that enables individuals and societies to make coherent sense of reality, thereby undermining meaning, trust and collective understanding; for example, algorithmically personalised nudges that systematically amplify misleading or inconsistent narratives can degrade the semantic resources upon which public debate and democratic decision-making rely.

3.2.14
shared moral framework
common ethics-based principles and values guiding an organization's decisions and behaviours

3.2.15
well-being
fulfilment of physical, mental and cognitive needs and expectations

Note 1 to entry: Well-being relates to all aspects of life.

Note 2 to entry: Well-being exists at the individual, household, country and global level and can be applied to people and nature and to individuals and systems.

[SOURCE: ISO/UNDP PAS 53002:2024 [6], 3.38]

3.2.16
infosphere
environment consisting of all informational entities, processes and interactions, including both digital and analogue components, in which information is created, stored, exchanged or used, where humans, artificial agents and systems coexist and interact

3.2.17
ethics standard
value or principle that guides judgements of right and wrong and informs responsible conduct within a given context

3.3 Terms related to risk and quality

3.3.1
management system
set of interrelated or interacting elements of an *organization* (3.3.8) to establish policies and objectives, aswell as *process* (3.3.2) to achieve those objectives

Note 1 to entry: A management system can address a single discipline or several disciplines.

Note 2 to entry: The management system elements include the organization's structure, roles andresponsibilities, planning and operation.

[SOURCE: ISO/IEC 42001:2023 [7], 3.4]

3.3.2
process
set of interrelated or interacting activities that uses or transforms inputs to deliver a result

[SOURCE: ISO/IEC 42001:2023 [7], 3.8]

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3.3.3
AI system impact assessment
impact assessment
formal, documented process by which the impacts to individuals, groups of individuals and societies are considered by an organization developing, providing or using products or services utilizing artificial intelligence

[SOURCE: ISO/IEC 42005:2025 [8], 3.1]

3.3.4
child rights impact assessment
process to identify, analyse and evaluate the actual or potential impacts of a policy, project, product, service, system or activity on the rights and well-being of children, in order to inform decision-making and support the prevention of adverse impacts

Note 1 to entry: The CRIA is one of the general measures of implementation of the United Nations Convention on the Rights of the Child (UNCRC), according to United Nations Children's Fund (UNICEF).

3.3.5
governance
human-based system comprising directing, overseeing and accountability

[SOURCE: ISO/IEC 38500:2024 [9], 3.3]

3.3.6
goal
intended outcome

[SOURCE: ISO/IEC 25022:2016 [10]]

3.3.7
hazard
potential source of harm

[SOURCE: ISO/IEC Guide 51:2014 [11], 3.5]

3.3.8
organization
person or group of people that has its own functions with responsibilities, authorities and relationships to achieve its objectives

Note 1 to entry: The concept of organization includes, but is not limited to, sole-trader, company, corporation, firm, enterprise, authority, partnership, charity or institution or part or combination thereof, whether incorporated or not, public or private.

[SOURCE: ISO/IEC 42001:2023 [7], 3.1]

3.3.9
risk
effect of uncertainty on objectives

[SOURCE: ISO/IEC 23894:2023 [12] XX]

3.3.10
risk identification
the process of finding, recognising and recording risks

[SOURCE: ISO 31000:2018 [13], 2.15]

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3.3.11
residual risk
risk remaining after *risk treatment* (3.3.12)

[SOURCE: ISO Guide 73:2009 [14] XX]

3.3.12
risk treatment
process to eliminate risk or reduce it to a tolerable level

[SOURCE: ISO Guide 73:2009 [14]]

3.3.13
task
set of activities undertaken to achieve a specific goal

[SOURCE: EN ISO 9241-11:2018 [15], 3.1.11]

3.4 Vulnerability terms

3.4.1
age group
children who fall within a defined age range linked to specific developmental milestones or characteristic behaviours

[SOURCE: ISO/TR 8124-8:2024 [16], 3.1]

3.4.2
child
children
person below the age of 18 years

Note 1 to entry: As defined in the United Nations Convention on the Rights of the Child (UNCRC) and referred to in International Labour Organization (ILO) Convention 182[9].

Note 2 to entry: National applicable statutory or regulatory requirements may define a different age limit for a child.

[SOURCE: IWA 49:2025 [17]]

3.4.3
age-appropriate policy
an organization's position outlining its commitment to age-appropriate experience, disclosure and consent, including the identification of target age ranges

3.4.4
protected category
category defined under law or regulation by jurisdiction, that can include race, age, gender, religion, ability/ disability, sexual orientation, creed, skin colour, nation of origin, socio-economic factors

4 Acronyms

For the purposes of this document, the following acronyms apply.

4.1 AI

artificial intelligence

4.2 CRIA

child rights impact assessment

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