

GISC 2025

Global ICT Standards Conference 2025

(세션 1) ISO/IEC JTC 1(정보 기술) 주요 표준화 동향

인공지능 국제표준화 동향

조영임 교수
가천대학교

ICT Standards and Intellectual Property:
AI for All

Index

01 인공지능 국제표준 현황

02 인공지능 기술발전 추세

03 국내 인공지능 표준개발 현황 및 전략

Index

01 인공지능 국제표준 현황

02 인공지능 기술발전 추세

03 국내 인공지능 표준개발 현황 및 전략

Abstract

I 인공지능 국제표준화 동향

ICT Standards

- ISO/IEC JTC 1/SC 42 Artificial Intelligence 중심의 국제표준 동향 발표
- AI 기술발전 추세와 국제표준과의 연관성 발표
- 한국의 표준개발 현황 및 개발 방향 발표

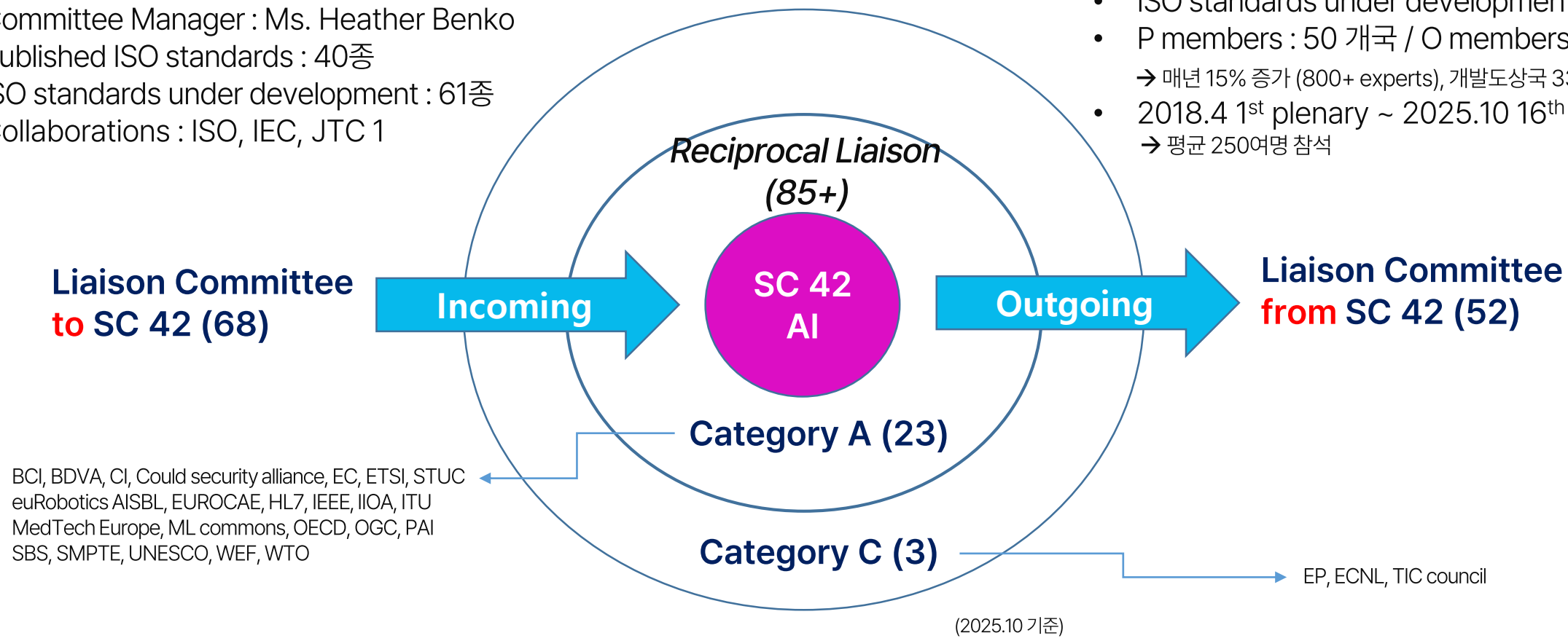


01. ISO/IEC JTC 1/SC 42 Artificial Intelligence 현황

I 2017 설립 (2018부터 총회 시작)

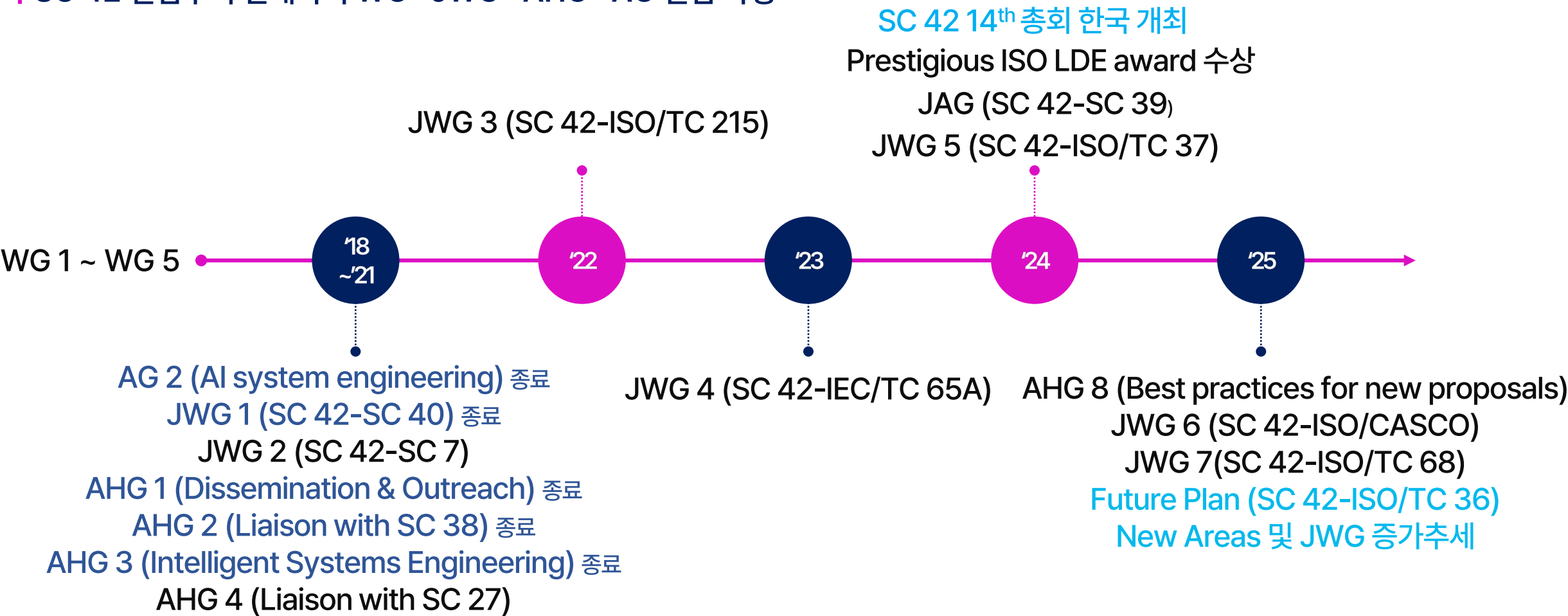
- Chairperson: Mr. Wael William Diab
- Committee Manager : Ms. Heather Benko
- Published ISO standards : 40종
- ISO standards under development : 61종
- Collaborations : ISO, IEC, JTC 1

- Published ISO standards : 40종
- ISO standards under development : 61종
- P members : 50 개국 / O members : 25 개국
→ 매년 15% 증가 (800+ experts), 개발도상국 33% 유지
- 2018.4 1st plenary ~ 2025.10 16th plenary
→ 평균 250여명 참석



02. SC 42 Subgroup

SC 42 설립부터 현재까지 WG · JWG · AHG · AG 설립 과정



02. SC 42 Subgroup 현황

| Summary of Officers ('25.10)

- 5 WGs
- 6 JVGs
- 1 JAG
- 2 AHG



- SC 42/JAG (SC 39)
- → Phil Isaak/Harm Ellen/
Engr Derick Oohmar Adil
- SC 42/AHG 4 → Peter Deussen (GE)
- SC 42/AHG 8 → Olivier Blais (CA)

Position	Officer Name	Originating National Body
SC 42 Chair	Wael William Diab	USA (ANSI)
SC 42 Committee Manager	Heather Benko	USA (ANSI)
SC 42/WG 1 Convenor	Marta Janczarski	Ireland (NSAI)
SC 42/WG 2 Convenor	David Boyd	USA (ANSI)
SC 42/WG 3 Convenor	David Filip	Ireland (NSAI)
SC 42/WG 3 Secretary	Aditya Mohan	Ireland (NSAI)
SC 42/WG 4 Convenor	Nobuhiro Hosokawa	Japan (JISC)
SC 42/WG 4 Secretary	Yuchang Cheng	Japan (JISC)
SC 42/WG 5 Convenor	Ning Sun	China (SAC)
SC 42/JWG 2 Convenor (SC 42)	Adam Smith	United Kingdom (BSI)
SC 42/JWG 2 Convenor (SC 7)	Stuart Reid	United Kingdom (BSI)
SC 42/JWG 3 Convenor (SC 42)	Shusaku Tsumoto	Japan (JISC)
SC 42/JWG 4 Convenor (SC 42)	Riccardo Mariani	Italy (UNI)
SC 42/JWG 5 Convenor (SC 42)	Lauriane Aufrant	France (AFNOR)
SC 42/JWG 5 Convenor (ISO TC 37)	Avashlin Moodley	South Africa (SABS)
SC 42/JWG 6 Convenor (SC 42)	Martina Paul	Switzerland (SNV)
SC 42/JWG 6 Convenor (ISO TC 37)	Graeme Drake	Australia (SA)
SC 42/JWG 7 Convenor (SC 42)	Aditya Mohan	Ireland (NSAI)
SC 42/JWG 7 Convenor (ISO TC 68)	Jim Northey	USA (ANSI)

03. 주요 활동

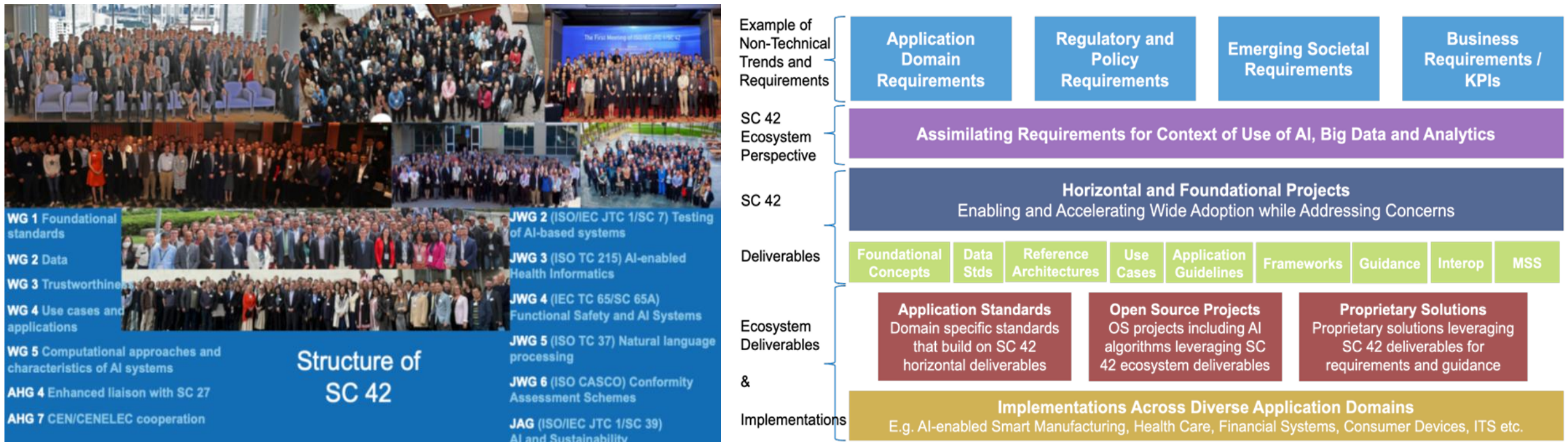
| SC 42 주요 개발 표준 (Business Plan, 2025.9)

Publication	Extension of Areas and Planning
• 기반(Foundational): ISO/IEC 42005 <i>Impact Assessment</i>, ISO/IEC 42006 <i>Requirements for Audit/Certification</i> • 데이터(Data): ISO/IEC 5259 <i>Data Quality Series</i> – Part 2, Part 5 • 신뢰성(Trustworthiness): ISO/IEC 12791 <i>Bias</i>, ISO/IEC 6254 <i>Explainability</i> • 응용(Applications): ISO/IEC 20226 <i>Environmental Sustainability</i>, ISO/IEC 21221 <i>Beneficial AI</i>	• 기존 분야의 확장(Extension of Existing Areas): • <i>Conformity assessment / auditing</i> 분야 확대 • ISO/IEC 42001의 이행 가이드라인 개발 • AI 작업의 성능 측정(<i>Performance measurement for AI tasks</i>) • 신규 분야(New Areas): • <i>AI taxonomy</i>(분류체계) • AI 사고 보고(<i>Reporting of AI incidents</i>) • 데이터 프로파일 및 모델 설명, 생성형 AI(GenAI) 출력 데이터 품질 개요 • GenAI 리스크 대응 및 회복탄력성(<i>Resilience</i>) 평가 • 인간-기계 협력(<i>Human-Machine Teaming</i>) • 생성형 AI 응용 가이드라인(<i>Guidance for GenAI Applications</i>) • 사전학습모델(<i>Pretrained Models</i>) 지식 강화(<i>Knowledge Enhancement</i>) • AI 시스템 테스트에 관한 다부분 시리즈(<i>Multi-part Series</i>) • AI 라이프사이클 평가모델(<i>Assessment Model for AI Lifecycle</i>) • 헬스케어 AI의 기본 용어 및 개념(<i>Terminology and Concepts for AI in Healthcare</i>) • 자연어처리 (NLP) 시스템 분류체계(<i>Taxonomy for NLP Systems</i>) • 적합성평가체계(<i>Conformity Assessment Schemes</i>) 고수준 프레임워크 • 금융서비스 산업 내 AI 적용 표준화 필요성 • 지속적 전략 기획: SC 42의 모든 하위 그룹(Subgroups)은 매년 전략 기획(Strategic Planning) 을 수행 하며, 새로운 프로젝트와 로드맵 아이디어를 지속적으로 발굴하고 있음.
Growth by the Numbers	
• 프로젝트: 총 40건이 발행됨 (이 중 8건은 최근 업데이트 이후 발행). 현재 61개 프로젝트가 진행 중이며, 이 중 17개는 신규 프로젝트로 추가됨. • 참여: • 75개국 회원국(NBs) (P회원 49개 / O회원 26개) — 15% 이상 증가 • 회의 참석자: 약 250명 이상 • 전문가 수: 800명 이상의 고유 전문가(unique experts) • 리아종(Liaisons): 85개 이상 (Category A 23개 / Category C 3개) • 신규 JWG 2개 설립: <i>Conformity Assessment</i> 및 <i>Financial Systems</i> → 현재 SC 42는 WG보다 JWG가 더 많을 정도로 협업의 중요성이 커짐 (ISO 및 IEC 간 협력의 확대를 반영)	

03. 주요 활동

| SC 42 Objective Ecosystem Approaches : Structure and Bridging the Gap

- SC 42 has adopted the **holistic ecosystem** approach providing the glue between requirements and technical requirements through the **platform of horizontal deliverables the committee develops**



(Source: https://jtc1info.org/sd-2-history/jtc1-subcommittees/sc-42/?utm_source=chatgpt.com)

04. ISO Artificial Intelligence

| SC 42 AI + Ethics Foresight

Artificial intelligence

Artificial intelligence (AI) today includes a whole host of technologies from data science to computer science, to electronics and social disciplines.^[4] It is a very broad field within information technology that is enabling the digital transformation of industry and society by creating computers that have the ability to learn as they are programmed to perform tasks normally requiring human intelligence. This includes reasoning, problem-solving, understanding language, making predictions or inferences, and perceiving situations or environments. Essentially, it involves computers being able to provide better, deeper, and otherwise practically unachievable insights in an efficient way by leveraging computer-learning algorithms.

This trend is about the rapid adoption of AI technologies whose increased capabilities and applications have the potential to reshape almost every industry and profession as they fundamentally change the ways in which humans interact with machines.^[5] This should be considered a megatrend because of the scale and geographic reach of its potential economic and societal impacts.

The projected impacts of AI are significant. Many different projections and estimates exist, but to provide an example of the magnitude of these projections, *UN Conference on Trade and Development's Digital Economy Report*^[6] estimates that AI has the potential to generate USD 13 trillion of additional global economic output by 2030, contributing an additional 1.2% to annual GDP growth. The Future Today Institute predicts that the global AI market will grow at a CAGR of 42.2% from 2021 to 2027.^[7]

(Source: <https://www.iso.org>)

Ethics of technology

Many governments around the world are turning their attention to the ethics of technology and the implications of fast-developing technology for future societies.

Ethics related to the use of 'Artificial intelligence' for automated vehicles, automated decisions, and consumer interactions are topics that are frequently raised^[1] and governments will increasingly be expected to address concerns around digital harm, disinformation, antitrust and foreign interference.^[2] The AI-enabled technologies of the future must benefit from effective 'technical, legal, and ethical frameworks', according to the UK Ministry of Defence. Ethical questions are perhaps most critical in the area of militarized AI, and the use of technology in conflict. While machines could behave without regard for human suffering, they may also more accurately calculate the costs of conflict. Complexities can be expected to arise if countries develop conflicting ethical and legal frameworks for AI, both in military contexts and more broadly.^[3] Other key ethical issues related to AI systems are about unwanted bias, eavesdropping, and safety, and industry is already busy trying to address these. The ISO/IEC committee working on AI (ISO/IEC JTC 1/SC 42) has collected 132 use cases for AI, including ethical considerations and societal concerns for each (for more details, see ISO/IEC TR 24030:2021, *Information technology – Artificial intelligence (AI) – Use cases*).

When considering the ethics of using AI, however, it is equally important to consider the ethics of *not* using AI. The risks of using AI are frequently discussed, but one question that is not addressed often enough is – when does it become unethical for us not to use AI? For example, if AI technology could predict the next pandemic or speed up vaccine development, one could argue that it would be unethical not to use this technology. There are plenty of examples like this, for instance, a common question posed is: if an AI-enabled autonomous vehicle had to hit someone, who should it hit? But is this the right question if the proper use of AI-enabled autonomous driving can help save lives by reducing accidents overall?

Of course, AI is not the only emerging technology that could pose significant ethical challenges in the future. Advancements in biotechnology could – alone, or in combination with AI – lead to the creation of synthetic life forms or augmented human beings, with enhanced physical or cognitive abilities. How to regulate technologies that can fundamentally alter human capabilities or change the human gene pool "could prompt strident domestic and international battles" in coming decades (see 'Gene editing').^[4] Even technological advances to treat diseases could engender political debates about the ethics of access (since treatments are likely to be available only to those who can afford them).^[4] Not to mention continued ethical debates about genetically engineered crops and foods and their potential ecological or health-related consequences.^[5]

As the climate crisis becomes more urgent, we may also soon face ethical issues related to the use of new technologies for decarbonization. While geoeengineering technologies (carbon dioxide [CO₂] removal and solar-radiation management) have for many years been considered morally unacceptable, they are now gaining more attention as potential solutions of last resort.^[6] Ethical concerns here range from distributive justice for future generations or vulnerable populations (negative effects of geoeengineering actions could disproportionately some countries or populations e.g. by increasing drought in Africa and Asia), to procedural justice questions (who should decide to use these technologies and how?).

Standards
Sectors
About ISO
Insights & news
Taking part
Store

← IT and related technologies

Artificial intelligence

The potential benefits and risks of AI are formidable, for society as well as for companies. Standards that enhance transparency, data quality, and system reliability are a way to mitigate risks and maximize rewards. Incorporating desired societal and ethical outcomes based on comprehensive stakeholder inputs, they can help bridge gaps in regulation.

Top standards

ISO/IEC 22989

Information technology — Artificial intelligence — Artificial intelligence concepts and terminology

Published in 2022 CHF 0

ISO/IEC 42001

Information technology — Artificial intelligence — Management system

Published in 2023 CHF 199

ISO/IEC 42005

Information technology — Artificial intelligence (AI) — AI system impact assessment

Published in 2025 CHF 177

ISO/IEC 42006

Information technology — Artificial intelligence — Requirements for bodies providing audit and certification of artificial intelligence management systems

Published in 2025 CHF 155

ISO/IEC 23894

Information technology — Artificial intelligence — Guidance on risk management

Published in 2023 CHF 132

ISO/IEC 38507

Information technology — Governance of IT — Governance implications of the use of artificial intelligence by organizations

Published in 2022 CHF 155

ISO/IEC 5338

Information technology — Artificial intelligence — AI system life cycle processes

Published in 2023 CHF 177

+

Load more

Insights

AI management systems: What businesses need to know

With the risks and complexity of AI, it's important to have robust governance mechanisms. AI...

Artificial intelligence: What it is, how it works and why it matters

For those unfamiliar with computer science, it can be overwhelming to try and grasp the many facets of...

Machine learning (ML): All there is to know

Learning new skills – once perceived as something reserved for humans and other intelligent sentient...

- 10 -

05. SC 42 Standard's Classification

I Projects support of the Majority of UN SGD's

- Currently 13 of the 17 (1, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 16) are directly supported
- New projects anticipated to continue to support these SDGs as well as other ones
- Not surprising as AI is a key enabler to digital transformation. Broad responsible adoption helping improve the way we live, work and play
- AI enables all stakeholders to make prompt and assist better decisions as they get adopted into vertical domains. From that perspective all UN SDGs would be supported through application domain standards that leverage SC 42 work
- (Examples)
 - ISO/IEC 42001 : 5, 7, 8, 9, 10, 12, 14
 - ISO/IEC 42005 : 5, 8, 9, 10, 12
 - ISO/IEC 5259 series : 6, 7, 8, 9, 11, 12, 13, 14, 15
 - ISO/IEC TR 24030 : 3, 9
 - ISO/IEC 42111, 25258, 17903 : 8, 9
- JAG (SC 42 – SC 39): To roadmap in the area of AI and sustainability, the JAG will look at the application of AI to global sustainability challenges as well as the sustainability of AI.

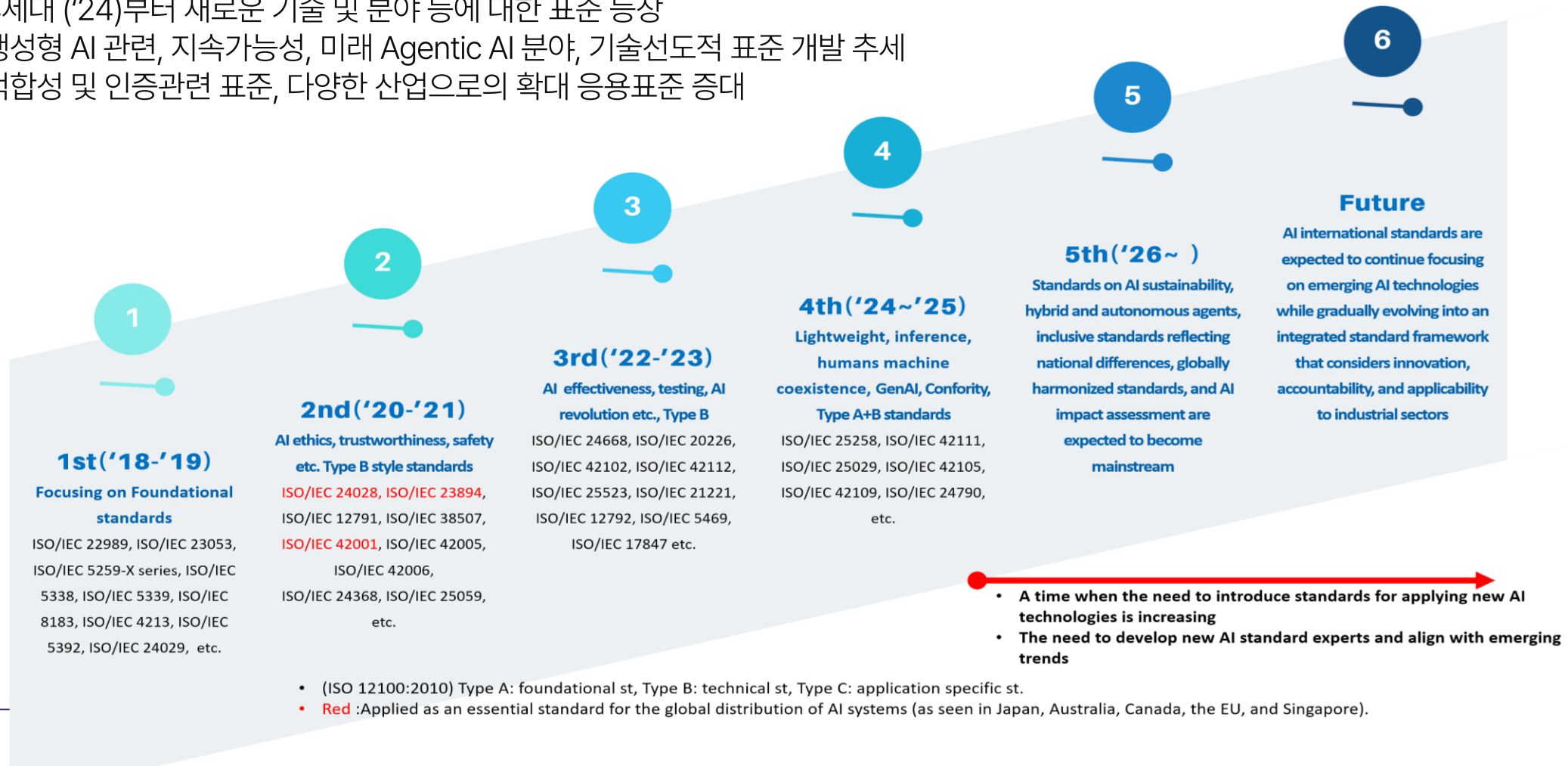
UN SDGs(Sustainable Development Goals)

- 1: No Poverty
- 2: Zero Hunger
- 3: Good Health and Well-being
- 4: Quality Education
- 5: Gender Equality
- 6: Clean Water and Sanitation
- 7: Affordable and Clean Energy
- 8: Decent Work and Economic Growth
- 9: Industry, Innovation and Infrastructure
- 10: Reduced Inequality
- 11: Sustainable Cities and Communities
- 12: Responsible Consumption and Production
- 13: Climate Action
- 14: Life Below Water
- 15: Life on Land
- 16: Peace, Justice and strong institutions
- 17: Partnerships for the goals

05. SC 42 Standard's Classification

| AI Standards Classification by 6 Generation

- 4세대 ('24)부터 새로운 기술 및 분야 등에 대한 표준 등장
- 생성형 AI 관련, 지속가능성, 미래 Agentic AI 분야, 기술선도적 표준 개발 추세
- 적합성 및 인증관련 표준, 다양한 산업으로의 확대 응용표준 증대



06. SC 42 Roadmapping

| 12-month, 36-month, 5-years+ roadmapping

WG 1 Foundational Standards

12-month, 36-month, 5yrs+

- Constellation, mapping of supporting work for management systems, risk and governance as well as terminology
- Assessment of possible revision of existing body of work, continuous monitoring of terminology and concepts
- Assessment of possible revision of existing body of work

WG 2 Data

12-month, 36-month, 5yrs+

- Data management for Agentic AI Context management
- Data provenance and pedigree
- Management of quantum stored/processed data for AI

WG 3 Trustworthiness

12-month, 36-month, 5yrs+

- Existing projects on Guidance for human oversight of AI systems (42105), resilience assessment of AI systems (25864), trustworthiness Fact Labels (42117)
- Artificial Intelligence — System Safety Engineering (9 areas)
- Identifying new projects regarding AI safety and sustainability

WG 4 Use Cases

12-month, 36-month, 5yrs+

- Existing projects on human-machine teaming (TR 42109, 25589) and use cases (TR 24030); proposing new projects of HMT
- Identifying potential projects of HMT and AI agent
- Identifying new AI topics by collecting and analyzing use cases

06. SC 42 Roadmapping

| 12-month, 36-month, 5-years+ roeoadmapping

WG 5 Computational approaches

JWG 2 SC 42-SC 37

JWG 4 SC 42-TC 65

JWG 5 SC 42-SC 37

12-month, 36-month, 5yrs+

- Existing projects on 4213 performance measurement on AI tasks, TS 42112 ML model training efficiency, TS 25258 AI inference, TS 42111 lightweight modelling, 25872-1 knowledge enhancement framework
- Knowledge enhancement for pretrained machine learning models series
- Potential AGI related topic etc.

12-month, 36-month, 5yrs+

- IS 42119-4 Ontology for software testing (e.g. UML/OWL/knowledge graphs)
- IS 42119-1 Introduction to standards on testing AI, IS 42119-5 Testing ML systems without continuous learning, IS 42119-6 Testing KE systems
- TS 42119-8, IS 42119-9, IS 42119-10 Software testing AI benchmarks (AI used for testing, not testing AI)

12-month, 36-month, 5yrs+

- CD and DTS ballot (joint ballot between SC 42, TC 65/SC 65A and JTC 21) of TS 22440 series.
- Publication of TS 22440 series and start discussion toward 2nd ed., including potential migration to IS; CD, DTS ballot and publication of TS 25223
- No new project interest at this time, study groups could be started after publication of TS 22440 series

12-month, 36-month, 5yrs+

- NP for Study item Corpus development and maintenance for NLP systems, DTR/DIS for 23281 on NLP tasks and 23282 on NLP evaluation
- NP for PWI 25526, Second ed. of 23281 and 23282, Amend. or specific NWIP for: Robustness for NLP, Bias for NLP, Documentation for NLP
- No NWIP planned, to be complemented depending on emerging technological needs around GenAI

07. Publication Standards

| 최근 개발완료 표준들

[최근 개발된 표준들과 설명]

출판일	타이틀	주요내용
2025-07	ISO/IEC TR 21221:2025 Information technology — Artificial intelligence — Beneficial AI systems	This document provides an overview of the environmental sustainability aspects (e.g. workload, resource and asset utilization, carbon impact, pollution, waste, transportation, location) of AI systems during their life cycle, and related potential metrics. NOTE 1 This document does not identify opportunities on how AI, AI applications and AI systems can improve environmental, social or economic sustainability outcomes. NOTE 2 This document can help other projects related to AI system environmental sustainability.
2025-05	ISO/IEC 42005:2025 Information technology — Artificial intelligence — AI system impact assessment	ISO/IEC 42005 provides guidance for organisations conducting AI system impact assessments. These assessments focus on understanding how AI systems — and their foreseeable applications — may affect individuals, groups, or society at large. The standard supports transparency, accountability and trust in AI by helping organisations identify, evaluate and document potential impacts throughout the AI system lifecycle.

07. Publication Standards

| 최근 개발완료 표준들

[최근 개발된 표준들과 설명]

출판일	타이틀	주요내용
2025-02	ISO/IEC 5259-5:2025 Artificial intelligence — Data quality for analytics and machine learning (ML) Part 5: Data quality governance framework	ISO/IEC 5259-5 provides a governance framework to help organisations oversee and direct data quality for analytics and machine learning (ML). It equips governing bodies with strategic tools to ensure that data quality measures are implemented effectively across all levels of the organisation and throughout the entire data life cycle.
2025-09	ISO/IEC TR 20226:2025 Information technology — Artificial intelligence — Environmental sustainability aspects of AI systems	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.

07. Publication Standards

| 최근 개발완료 표준들

[최근 개발된 표준들과 설명]

출판일	타이틀	주요내용
2025-09	ISO/IEC TS 6254:2025 Information technology — Artificial intelligence — Objectives and approaches for explainability and interpretability of machine learning (ML) models and artificial intelligence (AI) systems	This document describes approaches and methods that can be used to achieve explainability objectives of stakeholders with regard to machine learning (ML) models and artificial intelligence (AI) systems’ behaviours, outputs and results. Stakeholders include but are not limited to, academia, industry, policy makers and end users. It provides guidance concerning the applicability of the described approaches and methods to the identified objectives throughout the AI system’s life cycle, as defined in ISO/IEC 22989.
2025-07	ISO/IEC 42006:2025 Information technology — Artificial intelligence — Requirements for bodies providing audit and certification of artificial intelligence management system	ISO/IEC 42006 sets out the additional requirements for bodies that audit and certify artificial intelligence management systems (AIMS) according to ISO/IEC 42001. It builds on ISO/IEC 17021-1 and ensures that certification bodies operate with the competence and rigor necessary to assess organizations developing, deploying or offering AI systems.

07. Publication Standards

| 최근 개발완료 표준들

[최근 개발된 표준들과 설명]

출판일	타이틀	주요내용
2024-11	ISO/IEC 5259-2:2024 Artificial intelligence — Data quality for analytics and machine learning (ML) Part 2: Data quality measures	ISO/IEC 5259-2 defines a data quality model and a set of measurable characteristics to help organisations assess and report on data quality in the context of analytics and machine learning (ML). It builds on existing standards (such as ISO/IEC 25012 and ISO 8000) and provides a common foundation for ensuring that data used in AI and analytics processes is trustworthy and fit for purpose.
2024-10	ISO/IEC TS 12791:2024 Information technology — Artificial intelligence — Treatment of unwanted bias in classification and regression machine learning tasks	This document describes how to address unwanted bias in AI systems that use machine learning to conduct classification and regression tasks. This document provides mitigation techniques that can be applied throughout the AI system life cycle in order to treat unwanted bias. This document is applicable to all types and sizes of organization.

07. Publication Standards

| WG 1 Foundational Standards 개발완료 표준들

출판일	타이틀
ISO/IEC 42005:2025	AI system impact assessment
ISO/IEC 42006:2025	Requirements for bodies providing audit and certification of artificial intelligence management systems
ISO/IEC 42001:2023	Management system (AIMS)
ISO/IEC 22989:2022	Artificial intelligence concepts and terminology
ISO/IEC 23053:2022	Framework for Artificial Intelligence (AI) Systems Using Machine Learning (ML)

| WG 4 Use Cases 개발완료 표준들

출판일	타이틀
ISO/IEC TR 21221:2025	Beneficial AI systems
ISO/IEC 20226:2025	Environmental sustainability aspects of AI systems
ISO/IEC 24030-2:2024	Use cases 2nd edition
ISO/IEC 24030:2024	Use cases
ISO/IEC 5339:2024	Guidance for AI applications
ISO/IEC 5338:2023	AI system life cycle processes

07. Publication Standards

| WG 2 Data 개발완료 표준들

출판일	타이틀
ISO/IEC 5259-5:2025	Data quality for analytics and machine learning (ML) — Part 5: Data quality governance framework
ISO/IEC 5259-1:2024	Data quality for analytics and machine learning (ML) — Part 1: Overview, terminology, and examples
ISO/IEC 5259-2:2024	Data quality for analytics and machine learning (ML) — Part 2: Data quality measures
ISO/IEC 5259-3:2024	Data quality for analytics and machine learning (ML) — Part 3: Data quality management requirements and guidelines
ISO/IEC 5259-4:2024	Data quality for analytics and machine learning (ML) — Part 4: Data quality process framework
ISO/IEC 8183:2023	Data life cycle framework

07. Publication Standards

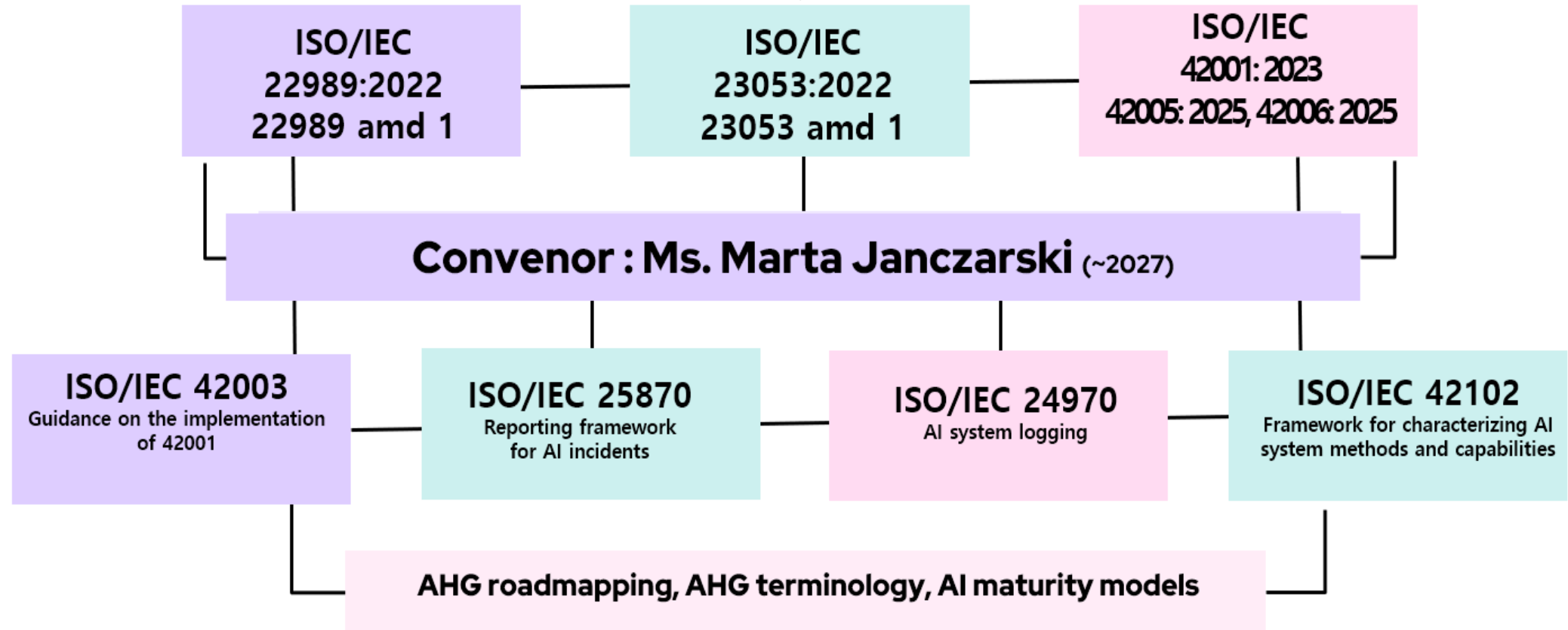
| WG 3 Trustworthiness 개발완료 표준들

출판일	타이틀
ISO/IEC 12792-2:2025	Transparency taxonomy of AI systems
ISO/IEC 6254:2025	Objectives and approaches for explainability and interpretability of machine learning (ML) models and artificial intelligence (AI) systems
ISO/IEC 12791:2024	Treatment of unwanted bias in classification and regression machine learning tasks
ISO/IEC 23894:2023	Guidance on risk management
ISO/IEC 24029-2:2023	Assessment of the robustness of neural networks — Part 2: Methodology for the use of formal methods
ISO/IEC 24368:2022	Overview of ethical and societal concerns
ISO/IEC 24029-1:2021	Assessment of the robustness of neural networks — Part 1: Overview
ISO/IEC 24028:2020	Overview of trustworthiness in artificial intelligence

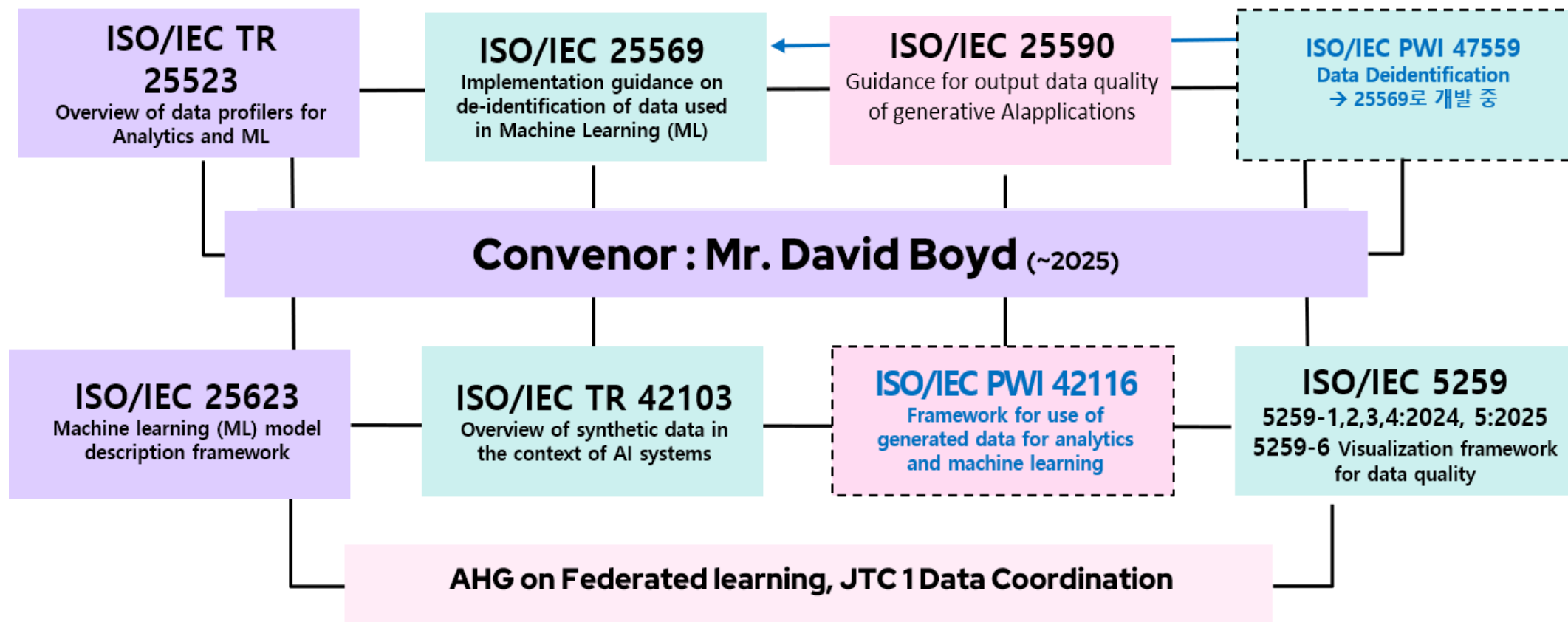
| WG 5 Computational approaches and computational characteristics of AI systems 개발완료 표준들

출판일	타이틀
ISO/IEC 5392:2024	Reference architecture of knowledge engineering
ISO/IEC TR 17903:2024	Overview of machine learning computing devices
ISO/IEC TS 4213:2022	Assessment of machine learning classification performance
ISO/IEC TR 24372:2021	Overview of computational approaches for AI systems

08. WG 1 Foundational Standards 개발 프로젝트



09. WG 2 Data 개발 프로젝트



Index

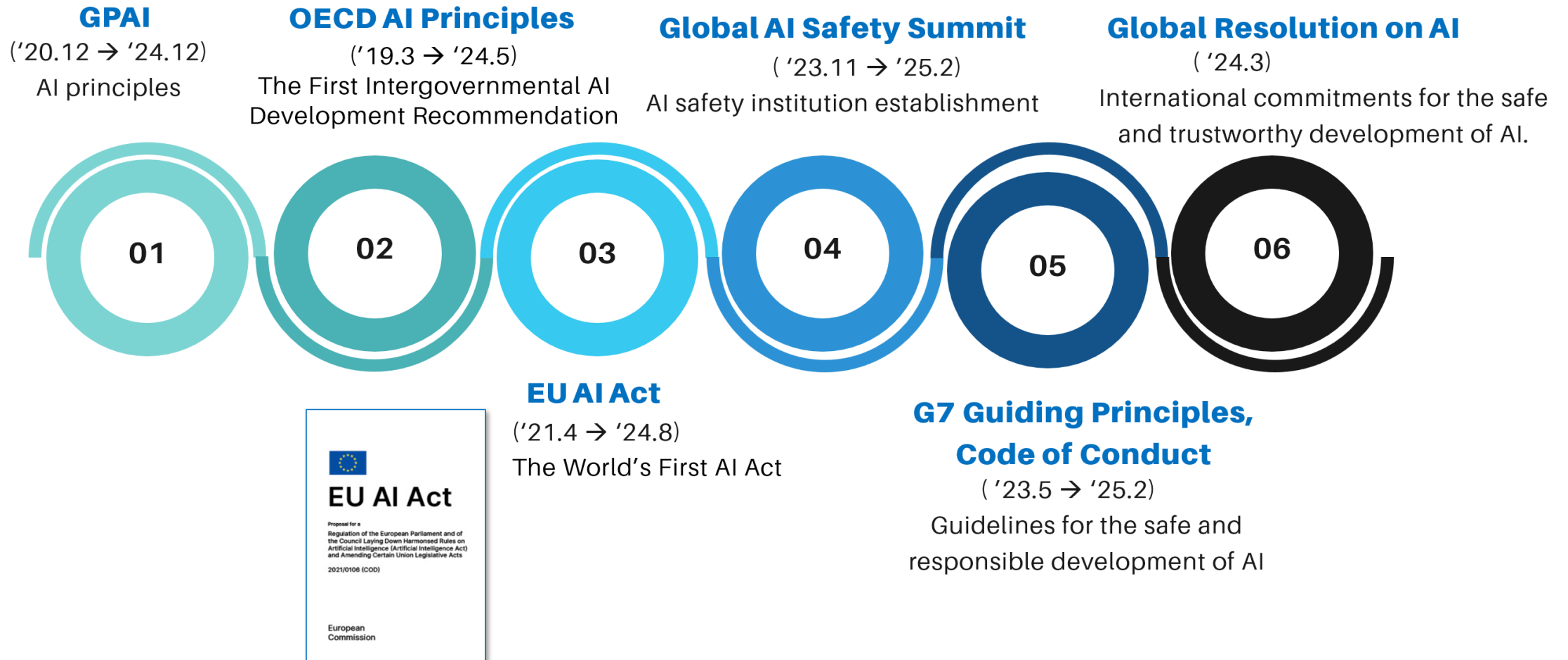
01 인공지능 국제표준 현황

02 인공지능 기술발전 추세

03 국내 인공지능 표준개발 현황 및 전략

01. Key AI Principles

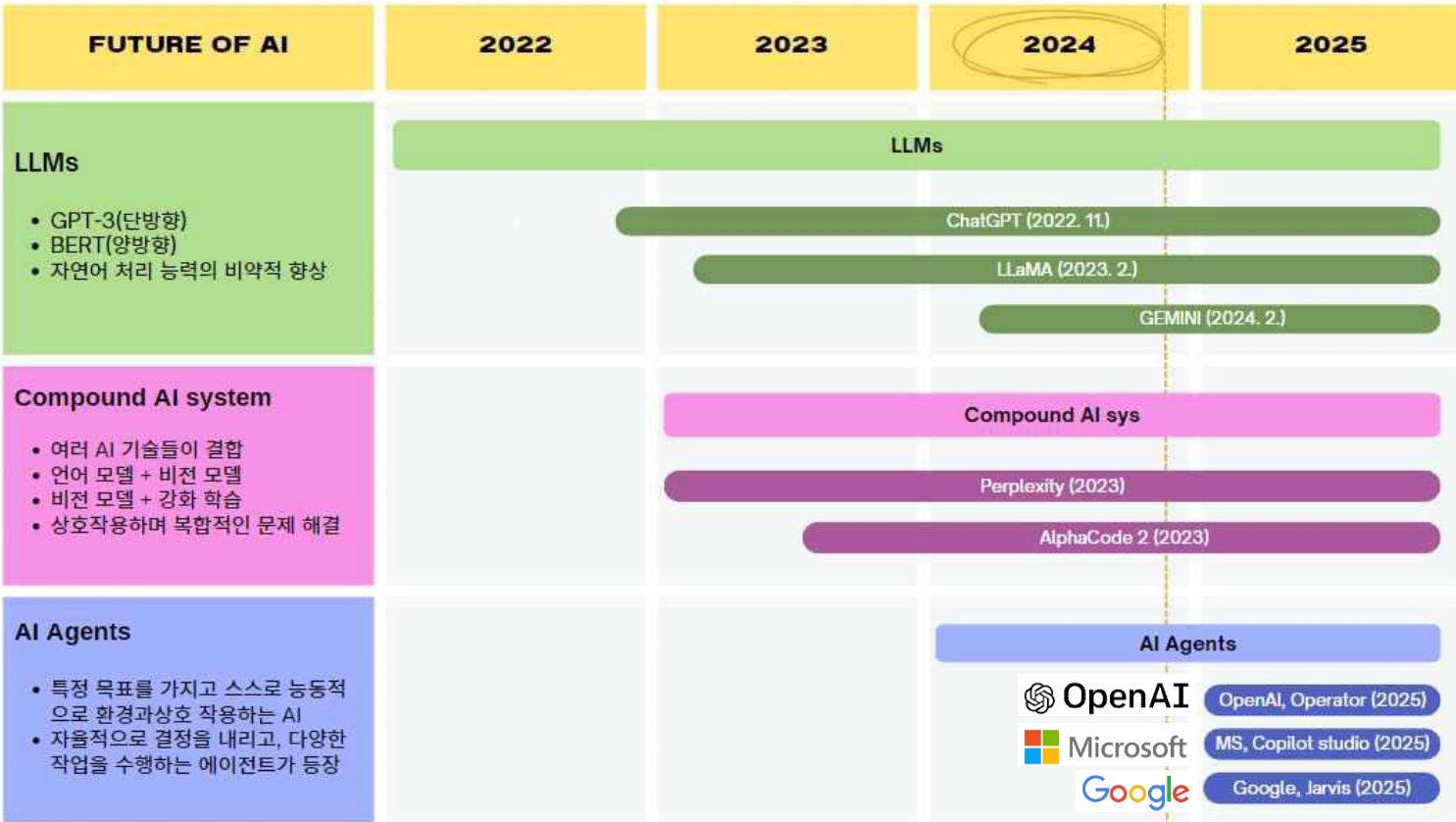
| Key AI Principles from GPAI to UN



02. AI Approaches

AI 기술개발 트렌드

Current Approach	Future Approach
Cloud AI	On-device AI
LLM, LMM	sLM, sLLM
High Performance	Efficiency Collaboration
Performance Optimization	Sustainability

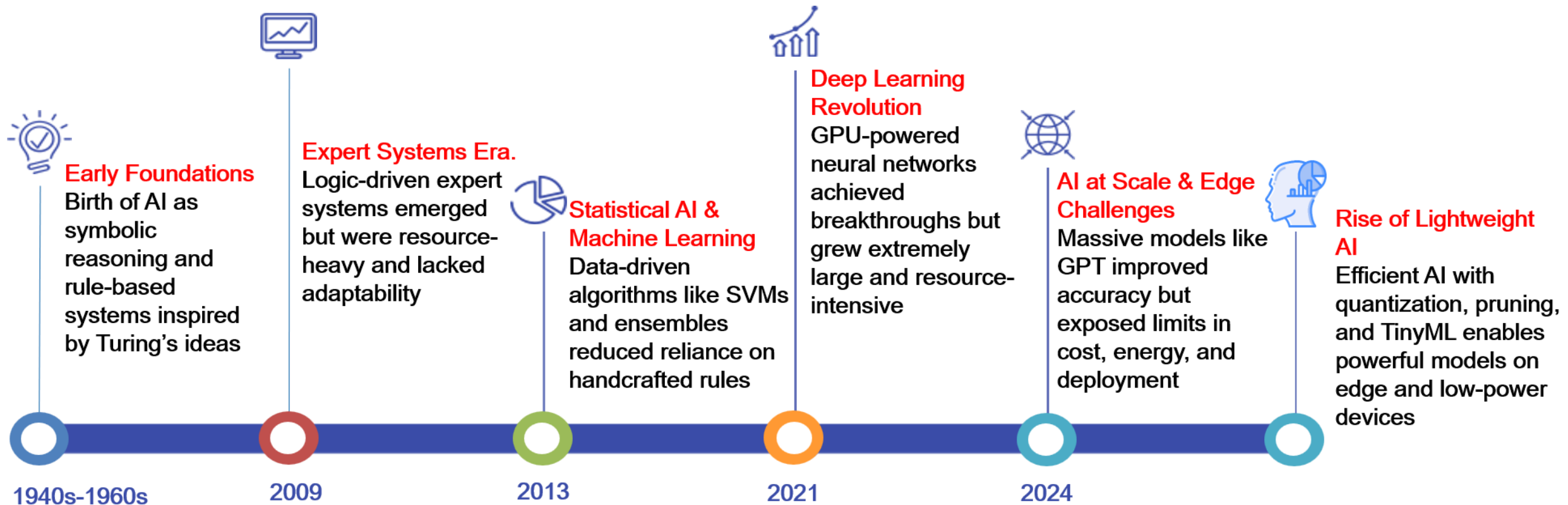


(Source: SMI conference, 2024)

02. AI Approaches

| AI Steps

- AI는 symbolic reasoning 에서 부터 edge intelligence 로 기술 진화하고 있음



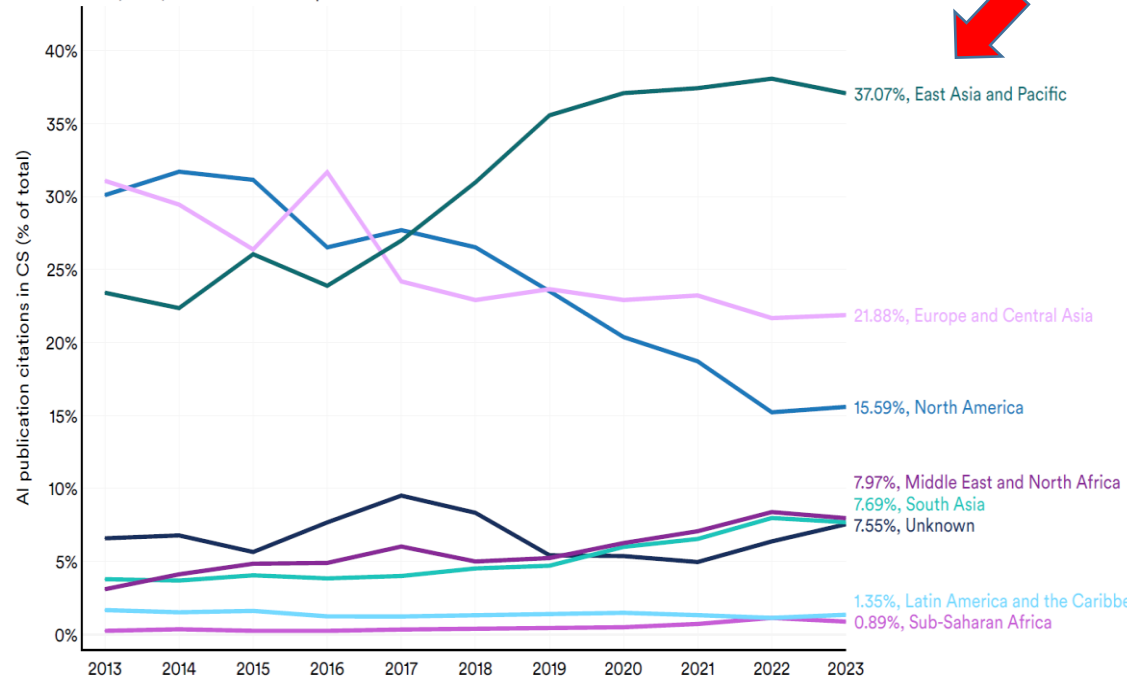
03. AI Index

| Stanford Human-centered AI Index (2025)

- In 2023, **East Asia and the Pacific** led AI research output, accounting for **34.5%** of all AI publications
- The country with the most granted AI patents per 100,000 inhabitants was **South Korea**

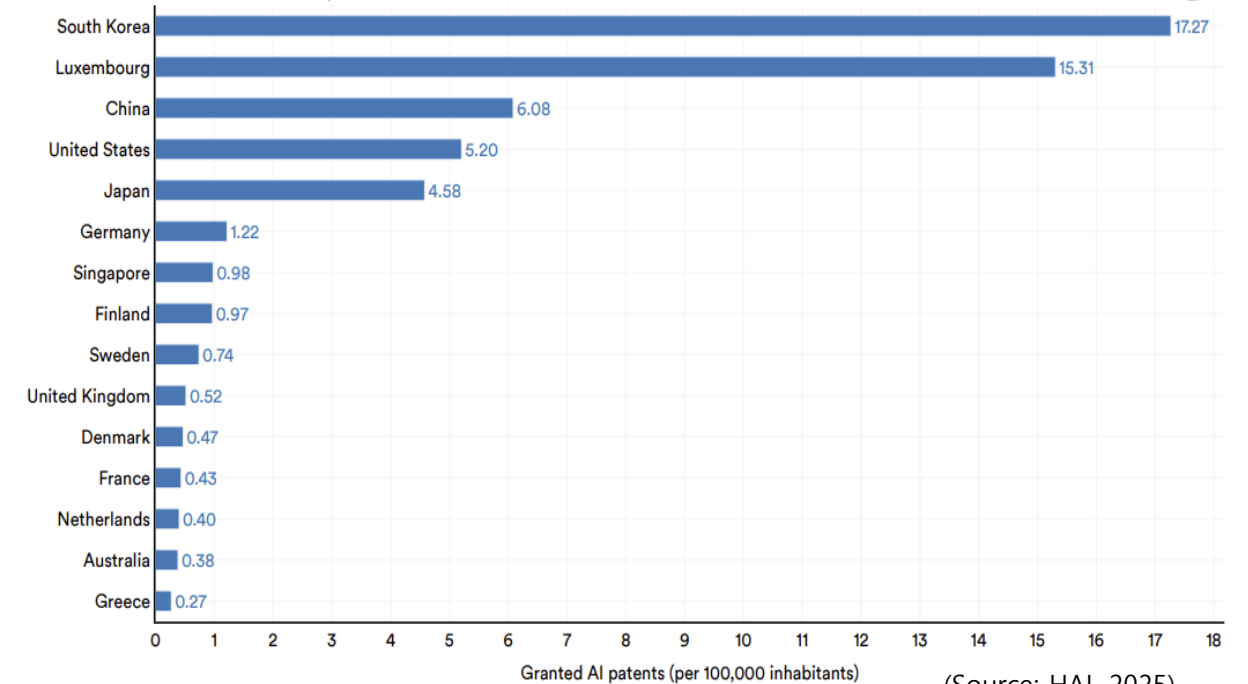
AI publication citations in CS (% of total) by region, 2013–23

Source: AI Index, 2025 | Chart: 2025 AI Index report



Granted AI patents per 100,000 inhabitants by country, 2023

Source: AI Index, 2025 | Chart: 2025 AI Index report



(Source: HAI, 2025)

Index

01 인공지능 국제표준 현황

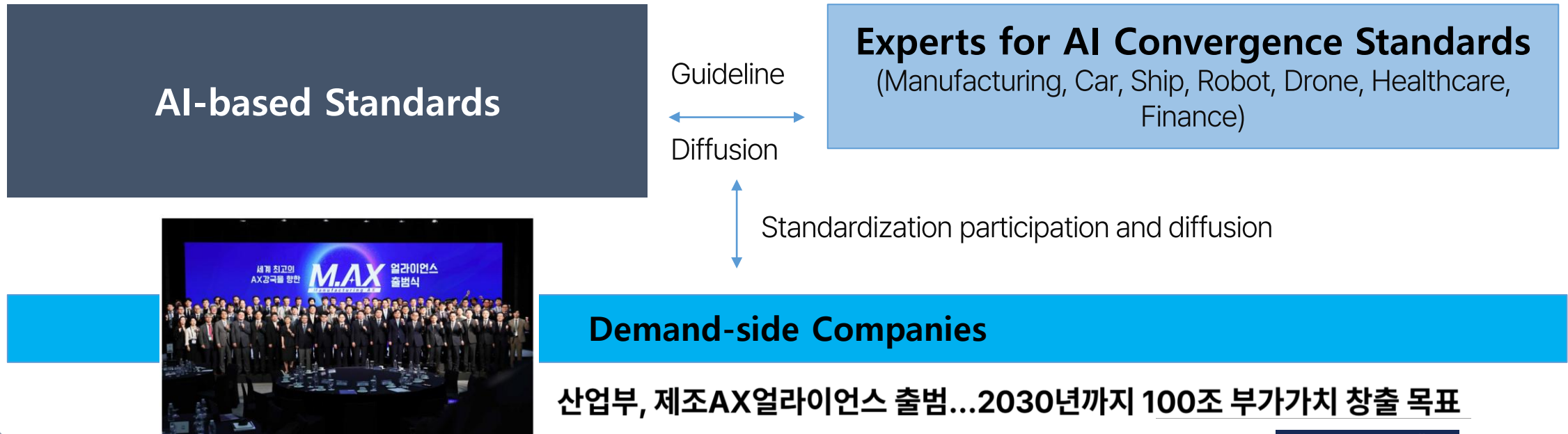
02 인공지능 기술발전 추세

03 국내 인공지능 표준개발 현황 및 전략

01. Korea Government Plan

I AI Standardization in Korea

- Until now : focused on foundational, cross-cutting areas
- Challenge : lack of domain / industry-specific standards for convergence
- Next step : AI Industry Standards Alliance (launched September 2025) to drive domain-centered standardization
→ Reflecting this trend, **54 industry-specific standards** will be developed by 2030



02. 한국주도 개발표준

| AI Standardization in Korea

[개발완료]

출판일	타이틀
ISO/IEC 5259-5:2025	Data quality for analytics and machine learning (ML) — Part 5: Data quality governance framework
SO/IEC TS 6254:2025	Objectives and approaches for explainability and interpretability of machine learning (ML) models and artificial intelligence (AI) systems
ISO/IEC 5259-1:2024	Data quality for analytics and machine learning (ML) — Part 1: Overview, terminology, and examples
ISO/IEC TR 20547-2:2018	Big data reference architecture

[개발중]

출판일	타이틀
ISO/IEC TS 42119-2	Testing of AI - Part 2: Overview of testing AI systems
ISO/IEC TS 42111	Guidance on lightweight AI systems
ISO/IEC TS 25258	Hybrid AI inference framework for AI systems
SO/IEC TS 25571	Example template for documenting ethical issues of an AI system
ISO/IEC AWI TS 42119-7	Testing of AI - Part 7: Red teaming
ISO/IEC AWI 25704	Process assessment model for AI system life cycle processes
ISO/IEC AWI 25058	Systems and software Quality Requirements and Evaluation (SQuaRE) — Guidance for quality evaluation of artificial intelligence (AI) systems
ISO/IEC AWI TR 25523	Overview of data profiles for analytics and ML
ISO/IEC PWI TS 42117	Trustworthiness fact labels for AI systems

GLISC 2025

Global ICT Standards Conference 2025

- 감사합니다 -

조영임 교수 가천대학교

yicho@gachon.ac.kr

ICT Standards and Intellectual Property:
AI for All