

Normiamo l'AI



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Presidente UNINFO



Agenda

- * Cosa è una norma tecnica?
- * Come nasce una norma tecnica?
- * Chi sviluppa le norme tecniche?
 - Sistema UNI (e UNINFO ...)
- * UNI/CT 533 "AI"
- * Takeway





Cosa è una
Norma Tecnica?

standard



standard deriva dal francese *estendart* "stendardo"; è, dunque, *l'insegna da seguire in battaglia*

cfr. Treccani – standard: livello, grado, tenore normale (s. di vita); modello cui si devono uniformare prodotti, procedimenti, attività e prestazioni

standard, Standard o Norma Tecnica?

Una Norma Tecnica è un *documento* che descrive lo "stato dell'arte" di: un bene, un servizio, un processo ...

*Sviluppato presso un Ente di Normazione in maniera **trasparente** e **aperta**, approvato in maniera **consensuale** e adottato su **base volontaria**.*



Principi alla base della normazione

Apertura

- Tutti possono partecipare: gli esperti con le loro competenze, gli utenti con le loro esigenze o con un parere.

Consenso

- I lavori progrediscono attraverso il consenso dei partecipanti ai lavori.

Volontarietà

- Le norme sono il punto di riferimento che le parti interessate adottano volontariamente.

Trasparenza

- Il processo di elaborazione di una norma è sotto gli occhi di tutti: non ci sono azioni nascoste, dietro le quinte.

standard, Standard o Norma Tecnica?

Dal Regolamento UE 1025/2012:

Una «**norma**» è una specifica tecnica, adottata da un organismo di normazione riconosciuto, per applicazione ripetuta o continua, alla quale non è obbligatorio conformarsi, e che appartenga a una delle seguenti categorie:

- a) «**norma internazionale**»: una norma adottata da un organismo di normazione internazionale;
- b) «**norma europea**»: una norma adottata da un'organizzazione europea di normazione;
- c) «**norma armonizzata**»: una norma europea adottata sulla base di una richiesta della Commissione ai fini dell'applicazione della legislazione dell'Unione sull'armonizzazione;
- d) «**norma nazionale**»: una norma adottata da un organismo di normazione nazionale.



A cosa serve una
norme tecnica?

A cosa serve una Norma Tecnica?



- A promuovere l'interoperabilità
- A tutelare la sicurezza
- A incrementare lo sviluppo
- A ridurre i costi
- A migliorare la comunicazione
- A supportare le leggi vigenti

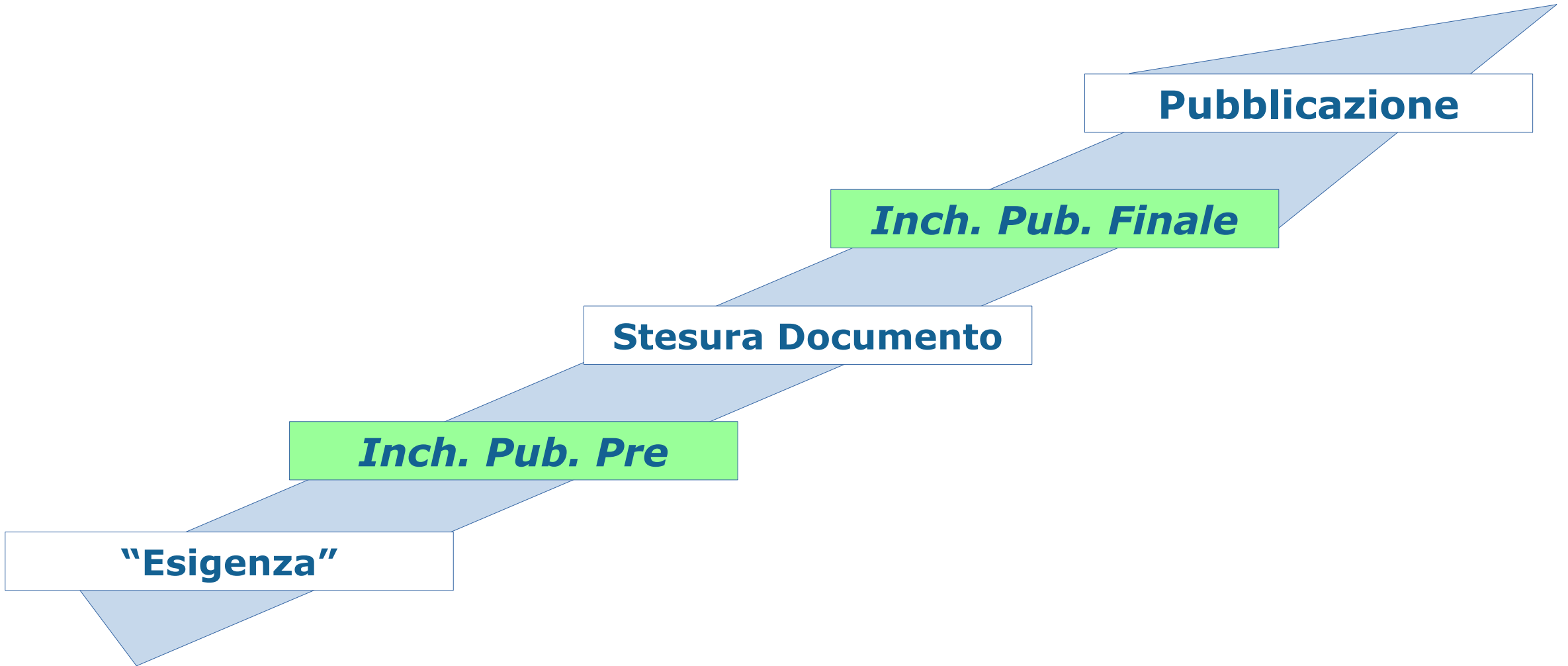


*Come Nasce una
Norma Tecnica?*

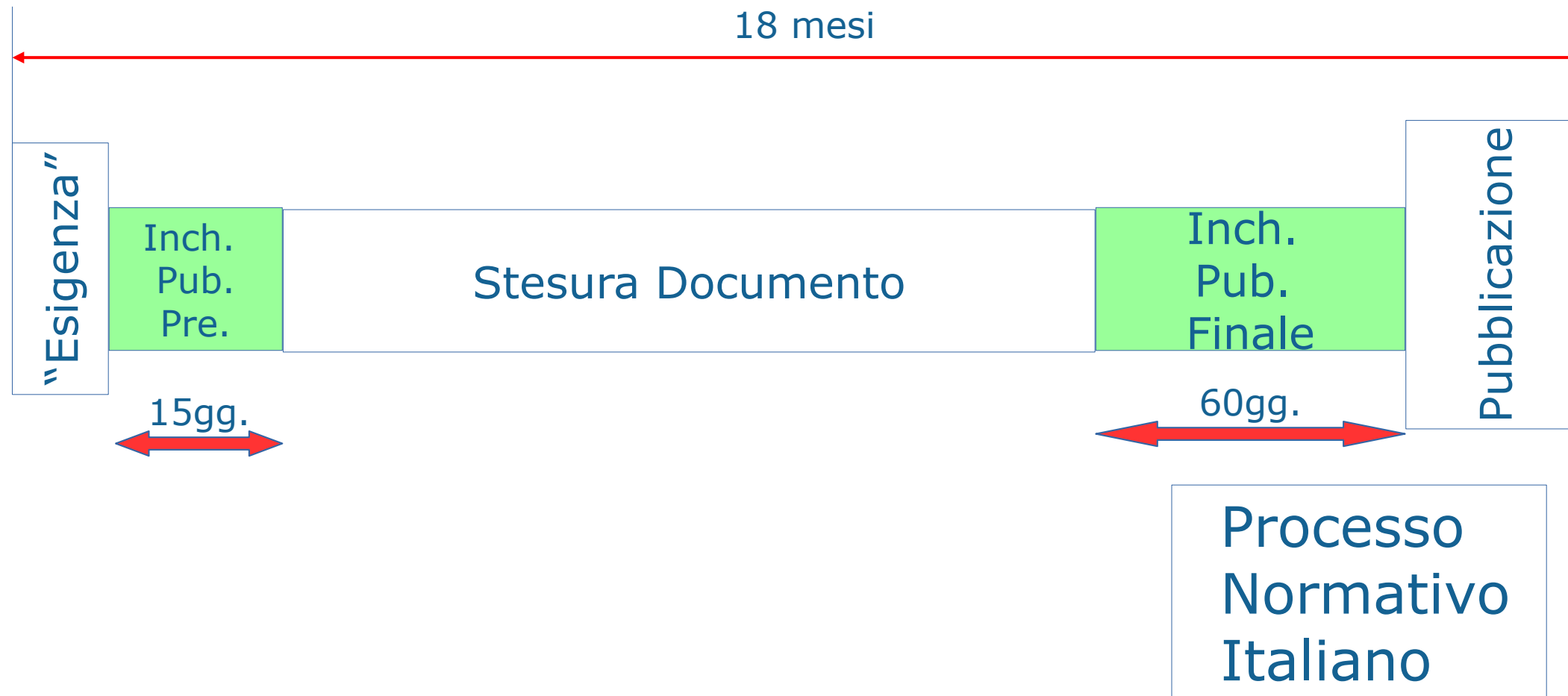


A seguito di una esigenza del mercato, prende forma un processo che porta alla definizione ed all'approvazione del progetto di norma

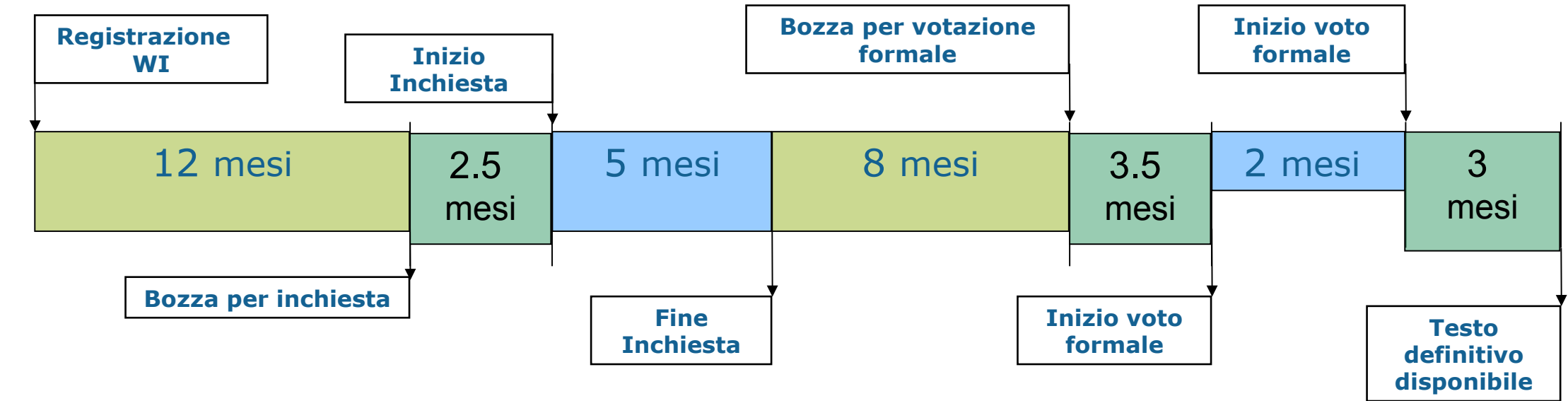
Come nasce una norma tecnica?



Come nasce una norma tecnica?



Come nasce una norma tecnica?



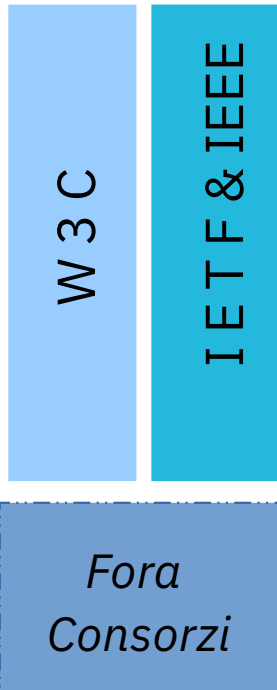
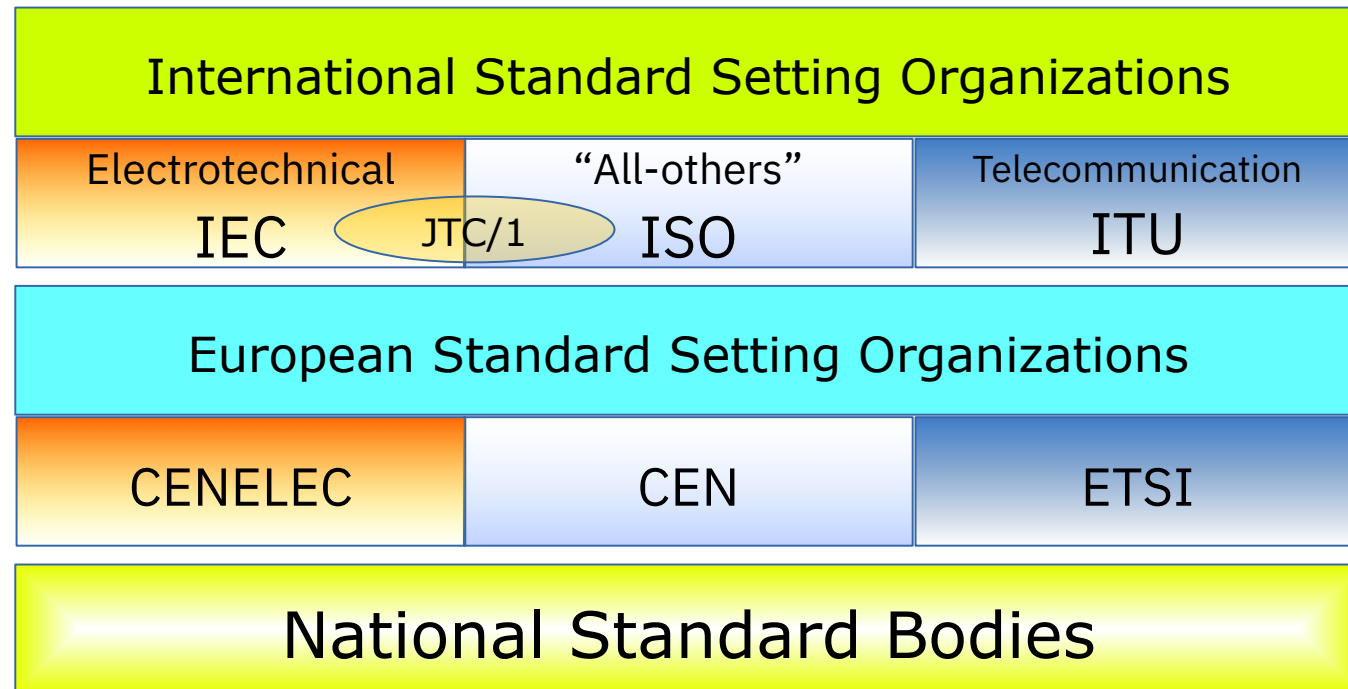
Processo
Normativo
Europeo
Internazionale





Chi sviluppa le
Norme Tecniche?

*Le Norme Tecniche
sono sviluppate da:*



*I National Standard
Body italiani sono:*



UNI
UN MONDO FATTO BENE

Sistema UNI



Sistema UNI

UNI ed Enti Federati



CIG
Gas

CTI
Termotecnica

CUNA
Automobili

UNSIDER
Ferro e Metalli



UNICHIM
Chimica

UNIPLAST
Plastica

UNINFO "fa" gli Standard per l'ICT



CIG
Gas

CTI
Termotecnica

CUNA
Automobili

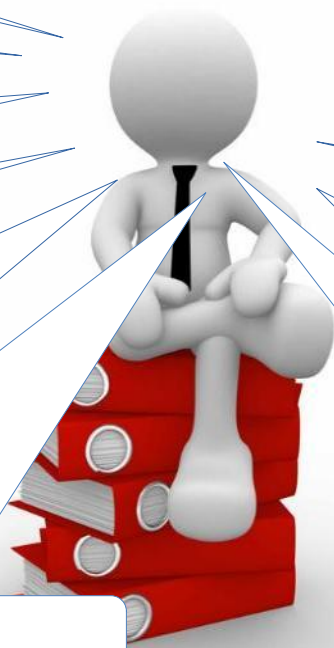
UNSIDER
Ferro e Metalli



UNICHIM
Chimica

UNIPLAST
Plastica

UNINFO
Informatica



Smart Card

Ingegneria del SW

eHealth

eAccessibility

eBSF

Blockchain & DLT

MPEG

I4.0

ITS

Intelligenza Artificiale

Tecnologie Additive

APNR-ICT

Automazione Industriale

IT Security

Green/Digital Economy

Quantum Technologies



UNI/CT 533 “AI”



Ing. Domenico Squillace

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Presidente UNI/CT 533

Presidente CCT UNINFO
Presidente UNINFO



Agenda



- ISO/IEC JTC1 SC 42
 - Structure & Activities
- CEN/CENELEC JTC21
 - Structure & Activities
- AI Act & Standardization
 - SR “AI”: *requests & architecture*

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ISO/IEC JTC/1 SC42 “AI”

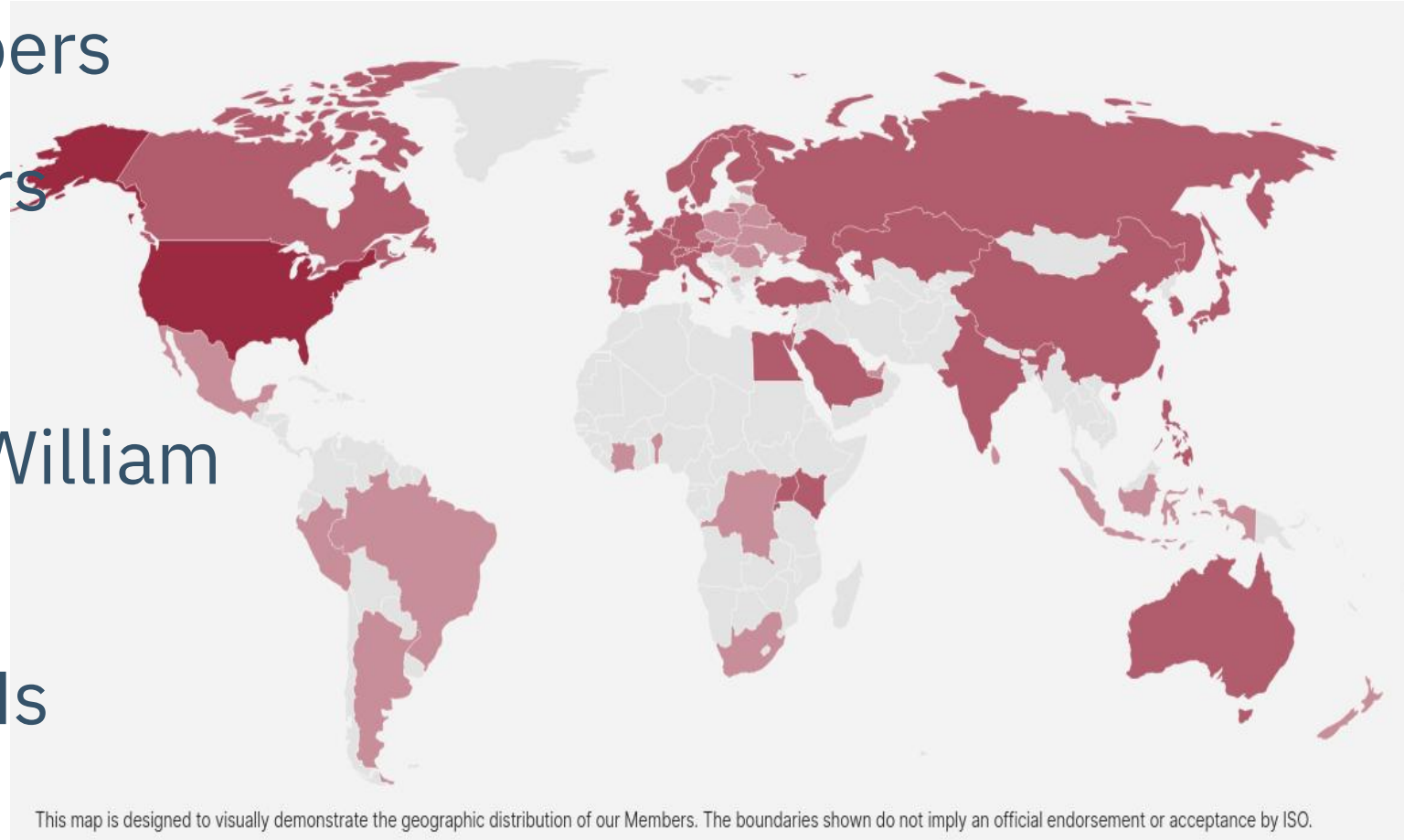
Scope

Standardization in the area of Artificial Intelligence

- Serve as the focus and proponent for ISO/IEC JTC 1's standardization program on Artificial Intelligence
- Provide guidance to ISO/IEC JTC 1, IEC, and ISO committees developing Artificial Intelligence applications

ISO/IEC JTC/1 SC42 “AI”

- 37 “P”ermanent Members
- 23 “O”bserver Members
- Secretariat: ANSI (US)
- Chairperson: Mr Wael William Daeb (US)
- Committee Manager: Ms Heather Benko (ANSI)



ISO/IEC JTC/1 SC42 “AI” Structure



- 5 WG
- 3 JWG
- 3 AG

ISO/IEC JTC/1 SC42 “AI” Structure



- 5 WG
- 3 JWG
- 3 AG

WG 1
Foundational Standards

WG 2
Data

WG 3
Trustworthiness

WG 4
Uses Cases & Applications

WG 5
Computational approaches and
characteristics

ISO/IEC JTC/1 SC42 “AI” Structure



- 5 WG
- 3 JWG
- 3 AhG

JWG 2
With ISO/IEC JTC1/SC 7
Testing of AI-based systems

JWG 3
With ISO/TC 215
AI enabled health informatics

JWG 4
With IEC TC65/65A
Functional safety and AI
Systems

ISO/IEC JTC/1 SC42 “AI” Structure



- 5 WG
- 3 JWG
- 3 AhG

AG 3
AI Standardisation
Roadmap

AhG 4
Liaison with SC 27
(IT Security)

AhG 7
JTC 21 projects for
potential joint development

ISO/IEC JTC/1 SC42 “AI” Activities



[20 Published standards](https://bit.ly/UNI533-SC42-Published) <https://bit.ly/UNI533-SC42-Published>



[29 Standards under development](https://bit.ly/UNI533-SC42-UnderDev) <https://bit.ly/UNI533-SC42-UnderDev>

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CEN/CENELEC JTC21 “AI”

SCOPE

The JTC shall produce standardization deliverables in the field of Artificial Intelligence (AI) and related use of data, as well as provide guidance to other technical committees concerned with Artificial Intelligence.

The JTC shall also consider the adoption of relevant international standards and standards from other relevant organisations, like ISO/IEC JTC 1 and its subcommittees, such as SC 42 Artificial intelligence.

The JTC shall produce standardization deliverables to address European market and societal needs and to underpin primarily EU legislation, policies, principles, and values.



CEN/CENELEC JTC21 “AI”



- Secretariat: DS
- Chairperson: Sebastian Hallensleben
- Vice-Chairperson: Patrick Bezombes
- Committee Manager: Kim Skov Hildin
- CCMC Program Manager: Laurens Hernalsteen

CEN/CENELEC JTC21 “AI” Structure



- A strategic advisory group
 - Gives direction
 - Does not produce norms
- n ad-hoc-groups
 - “explore” needs then pass them to WGs
- 3 “operative” working groups
 - Produce all norms

CEN/CENELEC JTC21 “AI” Structure AhGs

- 1 Augmented Goal Specification
- 2 AI conformity assessment
- 3 Green sustainable AI
- 4 AI Systems for human language processing
- 5 Data Governance & Quality AI
- 6 AI Enhanced Nudge
- 7 Overarching unified approach on trustworthiness characteristics
- 8 AI Systems risk catalogue and risk management
- 9 SMEs and startups concerns



CEN/CENELEC JTC21 “AI” Structure AhGs



- 1 ~~Disbanded~~ Augmented Goal Specification
- 2 ~~Disbanded~~ AI conformity assessment
- 3 ~~Disbanded~~ Green sustainable AI
- 4 ~~Disbanded~~ AI Systems for human language processing
- 5 ~~Disbanded~~ Data Governance & Quality AI
- 6 ~~Disbanded~~ AI Enhanced Nudge
- 7 ~~Disbanded~~ Overarching unified approach on trustworthiness characteristics
- 8 ~~Disbanded~~ AI Systems risk catalogue and risk management
- 9 SMEs and startups concerns

CEN/CENELEC JTC21 “AI” Structure

WG 2
Operational
Aspects

WG 3
Engineering
Aspects

WG 4
Foundational
& Societal
Aspects

WG 5
Cybersecurity



CEN/CENELEC JTC 21 Activities



[2 Published standards](https://bit.ly/UNI533-JTC21-Published) <https://bit.ly/UNI533-JTC21-Published>



[17 Standards under development](https://bit.ly/UNI533-JTC21-WorkProgram) <https://bit.ly/UNI533-JTC21-WorkProgram>

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AI Act & Standardization

Article 40 – Harmonised standards

High-risk AI systems **and foundation models** which are in conformity with harmonised standards or parts thereof the references of which have been published in the Official Journal of the European Union **in accordance with Regulation 1025/2012 (AM 2122)** shall be presumed to be in conformity with the requirements set out in Chapter 2 of this Title **or Article 28b**, to the extent those standards cover those requirements.

New Legislative Framework (NLF)

Essential requirements for market access laid down in legal act

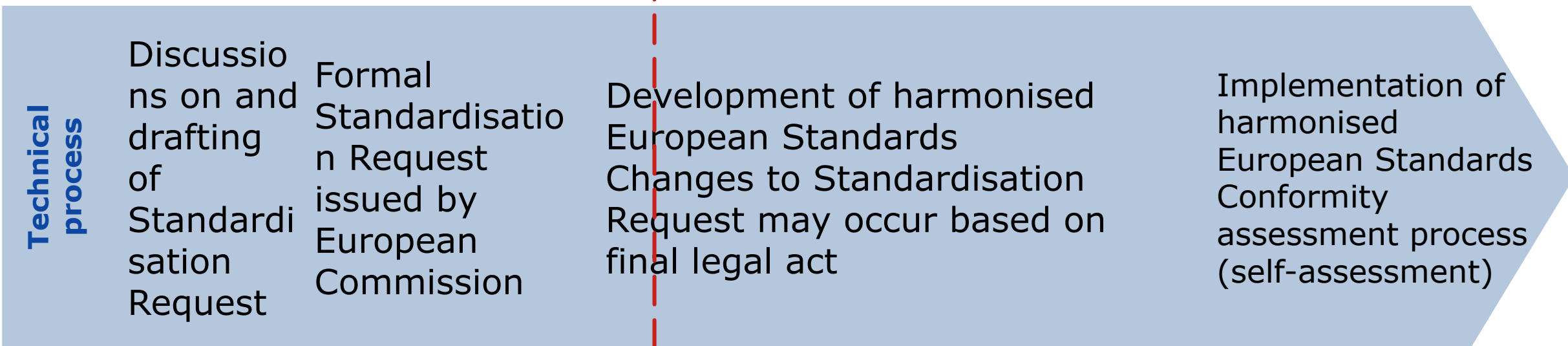
Standardization Request for voluntary standards defining the technical way to meet the requirements

Conformity assessment against (harmonised) European standards –
Presumption of conformity





Today



AI Act Essential Requirements

... laid down in EU Draft Regulation, Chapter 2, Articles 8-15 are:

- Risk management system
- Data and data governance
- Technical documentation
- Record-keeping
- Transparency and provision of information to users
- Human oversight
- Accuracy, robustness and cybersecurity

AI Act draft Standardization Request ^{1/2}

... to develop 10 harmonized European Standards

- Risk management system for AI systems
- Governance and quality of datasets used to build AI systems
- Record keeping through built-in logging capabilities in AI systems
- Transparency and information to the users of AI systems
- Human oversight of AI systems

AI Act draft Standardization Request ^{2/2}

... to develop 10 harmonized European Standards

- Accuracy specifications for AI systems
- Robustness specifications for AI systems
- Cybersecurity specifications for AI systems
- Quality management system for providers of AI system, including post-market monitoring process.
- Conformity assessment for AI systems

SR “AI” Architecture

All ten standardization requirements (SRs) are of equal importance but they serve distinct roles.

Risk management (SR1) and Quality management systems (SR9) are identified as pivotal tools that connect requirements from various areas to support Conformity assessment (SR10).

Trustworthiness in AI is defined in the AI Act so the standardization request outlines specific requirements forming a comprehensive framework.

Source: CEN/CLC-JTC21_N460: Architecture of standards



SR "AI" Architecture (graphical view)

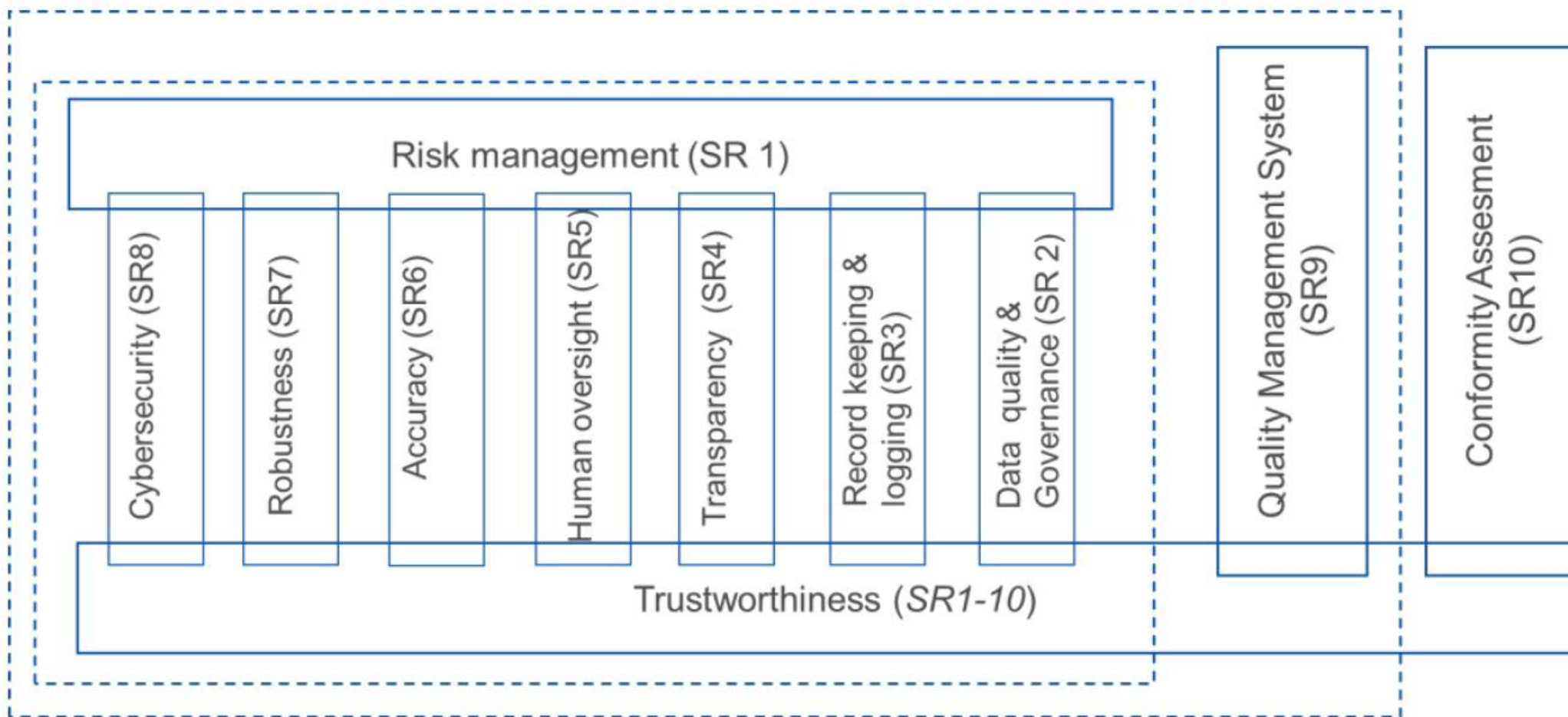


Figure 1: Architecture of Standards

Source: CEN/CLC-JTC21_N460: Architecture of standards

SR “AI” Architecture (norms and gap) 1/6

- **SR 1 – Risk management**

- **ISO/IEC 23894** provides guidance to support risk management from a horizontal perspective.
- **ISO/IEC 42001** further provides requirements on risk management and can be utilised in combination with the ISO/IEC 23984 to support in part conformity to the AI Act.
- an EN specific standard to address the requirements necessary to support conformity to the AI Act and to respond to the standardization request, and specifically, it will address and prioritize risks of AI to individuals considered in the AI Act.

Source: CEN/CLC-JTC21_N460: Architecture of standards



SR “AI” Architecture (norms and gap) 2/6

- **SR 2 – Data Quality & Governance**
 - **ISO/IEC 5259** series on Data quality and common modification
 - It is necessary to cover a minimum gap related to bias
- **SR 3 - Record keeping and logging**
 - PrEN on logging already approved
- **SR 4 – Transparency**
 - **ISO/IEC 12792** Transparency taxonomy of AI systems (parallel development)

Source: CEN/CLC-JTC21_N460: Architecture of standards



SR “AI” Architecture (norms and gap) 3/6

- **SR 4 – Transparency (...)**

- PrEN AI trustworthiness characterization

- **SR 5 – Human oversight**

- **ISO/IEC PWI 42105** - Guidance for human oversight of AI systems
- **ISO/IEC TS 8200** - Controllability of automated artificial intelligence systems
- **ISO/IEC TS 6254** Objectives and methods for explainability of ML models and AI systems

Source: CEN/CLC-JTC21_N460: Architecture of standards



SR “AI” Architecture (norms and gap) 4/6

- **SR 6 – Accuracy**

- Coverage in existing ISO/IEC standards of the technical aspects of accuracy requirements is limited.
- Work in progress

- **SR 7 – Robustness**

- Coverage in existing ISO/IEC standards of the technical aspects of requirements on robustness exists but does not cover the entirety SR requirements
- Work in progress

Source: CEN/CLC-JTC21_N460: Architecture of standards



SR “AI” Architecture (norms and gap) 5/6

- **SR 8 – Cybersecurity**

- Cybersecurity standards for AI systems should be developed on top of existing standardization work on cybersecurity (e.g., ISO/IEC SC27, CEN/CLC JTC13 and ETSI TC SAI)
- Investigative work done by ENISA provides guidance and should be leveraged when drafting cybersecurity standards for AI systems.
- **ISO/IEC 27000 series, ISO/IEC 27090, ISO/IEC 27091**

Source: CEN/CLC-JTC21_N460: Architecture of standards



SR “AI” Architecture (norms and gap) 6/6

- **SR 9 – Quality management System**

- **ISO/IEC 42001** fulfils in part the role of the QMS as established by AIA article 17.
- PrEN AI management quality system in the context of the EU regulation (to fill the identified gap...)

- **SR 10 – Conformity assessment**

- **ISO/IEC 42006** on Requirements on bodies performing audit and certification of AI systems
- prEN on Conformity assessment

Source: CEN/CLC-JTC21_N460: Architecture of standards



Takeaway...



Takeaway

- * Usare gli Standard è fondamentale per costruire sistemi e/o applicativi interoperabili.
- * Gli Standard li scriviamo **tutti Noi** partecipando alle attività degli Enti di Normazione che per l'Italia sono CEI, UNI (e ... i suoi Enti Federati).
- * È importante **partecipare** perché vuol dire appartenere ad un sistema di interrelazioni tra i diversi stakeholder che permette di: ...

Takeaway

... permette di:

- * essere parte attiva del processo democratico di elaborazione delle norme tecniche, influenzando sui loro contenuti e facendo valere le proprie esigenze;
- * essere aggiornati sullo stato dell'arte di prodotti, servizi e processi;
- * conoscere in tempo utile le "regole del gioco", anticipando i futuri sviluppi tecnologici e normativi;
- * migliorare la comunicazione, facilitando e ottimizzando il rapporto clienti/fornitori;
- * ridurre i costi della ricerca ed i rischi ad essa connessi.



*E se avessimo
delle esigenze
particolari???*

Reinventiamo la ruota?



Ci rimbocchiamo le
maniche e...

partecipiamo alle
attività di Normazione
Tecnica!



Many Thanks!!! Questions?

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