

# Trustworthy Artificial Intelligence in Healthcare and Social Care

Iftikhar Ahmad (PhD), Head of R&D Central Function  
Niina Siipola, Portfolio Lead, AI and Data Solutions

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# Outline



Digitalization



Data management  
and fusion



EU and national  
regulation



Care use-cases



VETURI Care R&D



Trustworthy AI in  
health and social  
care





# Digitalization



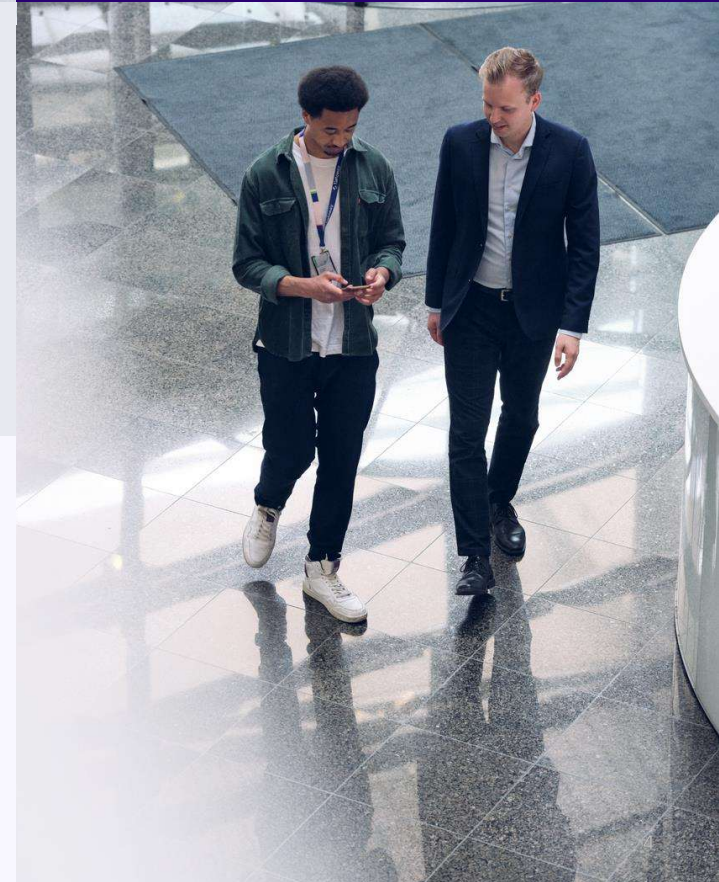
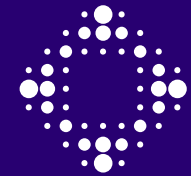
# Data management

 **Data access and transformation**

 **Uniform data access and storage**

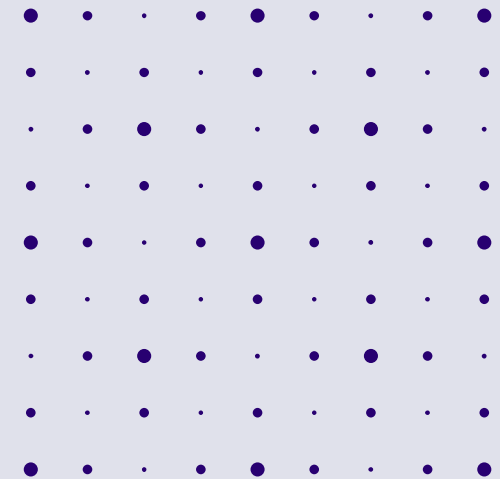
 **Data pseudonymization**  
Preprocessing: Data filtering for invalid/missing values  
Data fusion

 **EU + Finnish regulation**



# Data management in Healthcare and Social Care

- Digitization in healthcare
- Communicating with multimedia (machines, equipment, etc.)
- Information fusion and storage (cloudification)
- Data anonymization & synthesization
- Data access control
- Data conversion and filtering
- Merged visualization
  - For different healthcare professionals
  - For users



# Data: EU regulation General Data Protection Regulation

- Data minimization
- Accuracy and updates
- Storage limitation
- Security
- Accountability
- Consent, Special category data in GDPR, Vulnerable individuals
- **Certification** (training for data access)
- Build trust, enhance privacy, protect vulnerable people





## Data: EU regulation: Data act



**Enter into force:** January 11, 2024

**Provisions apply:** Sep. 12, 2025

**Data accessibilities:** Sep.12, 2026



### Key objectives

Promote **innovation**, Empower user

Ensure fair value distribution, Repair

Prevent lock-in, Product improvement



### Affected

Manufacturers, User of connected products

**Cloud Service provider**

**Data services providers** and companies using IoT data

Public sector



### Important provisions

Access to product data, Fair data contracts, Switching between cloud services

# Data: EU regulation - Data Governance Act

- ◆ Facilitating data sharing
- ◆ Data intermediaries and **altruism organizations**
- ◆ Reuse of public sector data
- ◆ Economic growth and innovation
- ◆ Improve public services
- ◆ Common European data spaces
  - Language data spaces
- ◆ Increase trust





# GDPR, EU acts and national regulations


 Data Protection Act

 Data Act

 Customer Data Act

 Artificial Intelligence Act

 Secondary Use Act

 Security, privacy, laws & national regulations

 EHDS

 Standards: ISO9001, ISO14001,  
ISO27001, ISO27701, ISO13485



# Tietoevry Data and AI Solutions



Unified data access (Lifecare Data Platform and Lakehouse Analytics )



Structurizing patient journals (notes)



Text summarization by GenAI



Speech to text (Clinical)



GenAI based Data Classifier



The Finnish Olympic Committee supporting elite sport coaching with data management,

Ref1, Ref2

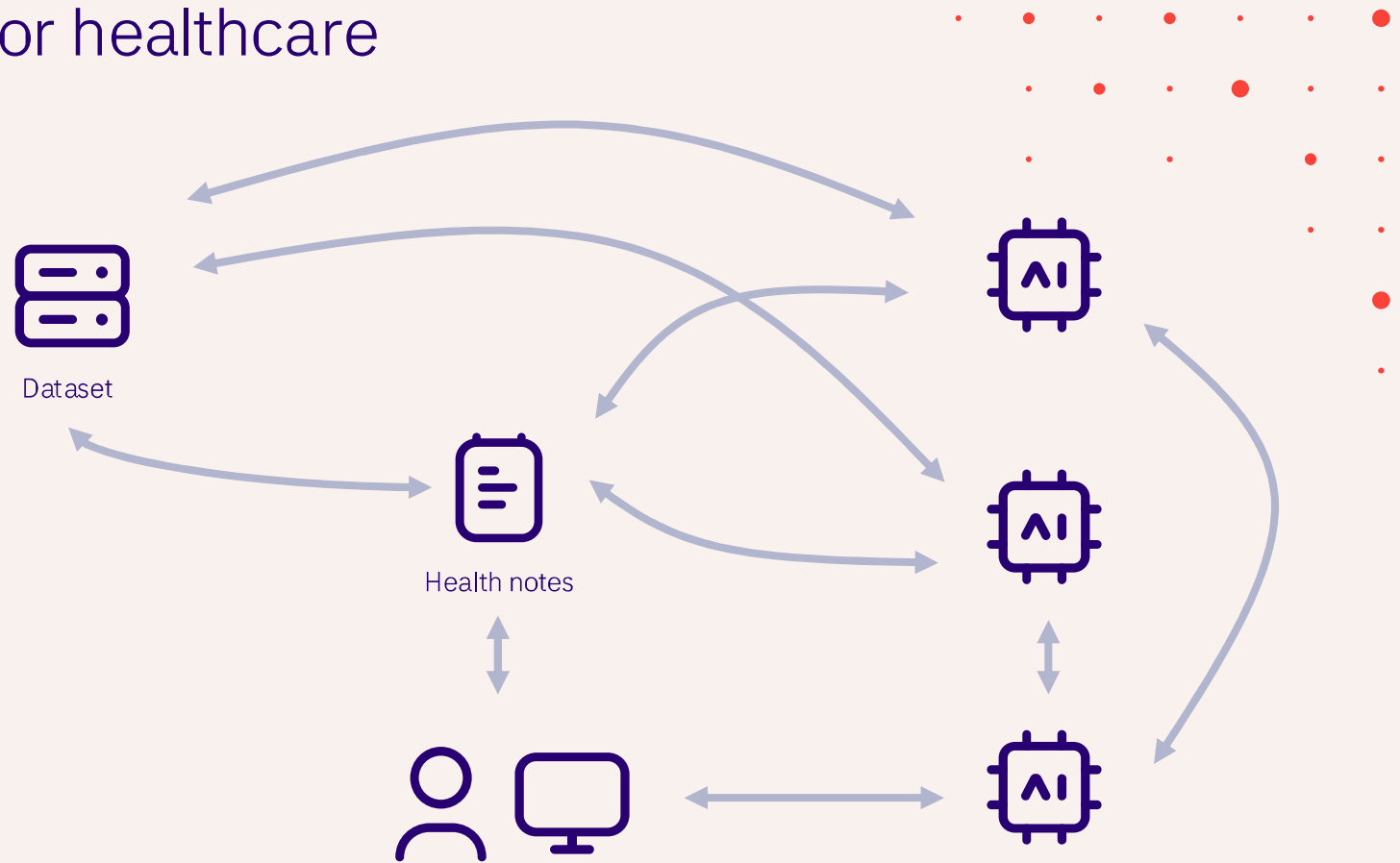


# TietoEVRY EU and national research projects

- PHEMS
- LAREINA – language resource infrastructure for AI (Aalto university)
- Digital Assistant for healthcare professionals MediTrustAI
- TietoEVRY VETURI -- Care
- eCare for Me



# Digital assistant for healthcare professionals



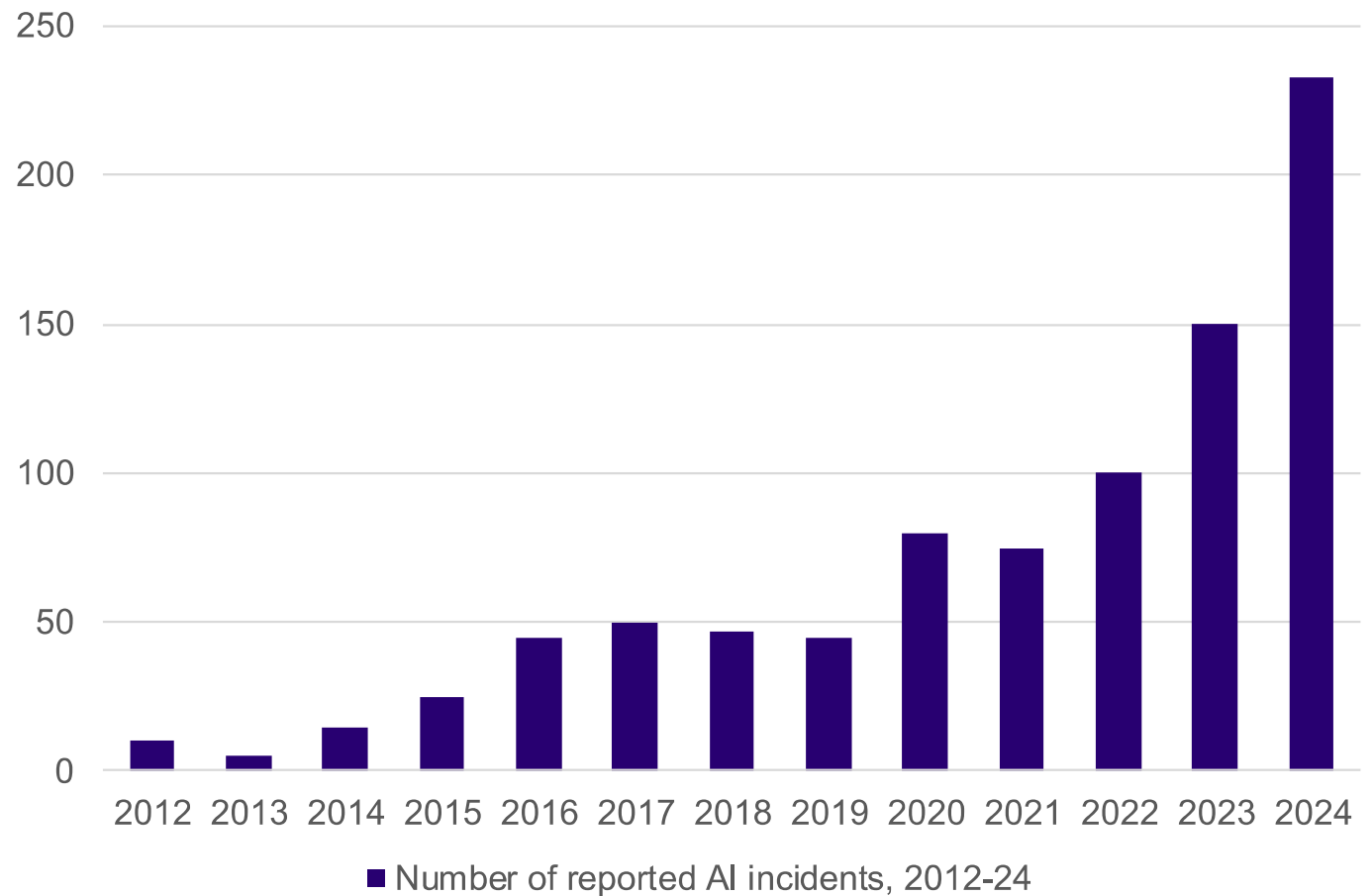
- Fetch data
- Pseudonymization data
- Generate summary
- Prescription Validation

[Github: MediTrustAI](#), [VIDEO LINK](#)

# Trustworthy Artificial Intelligence

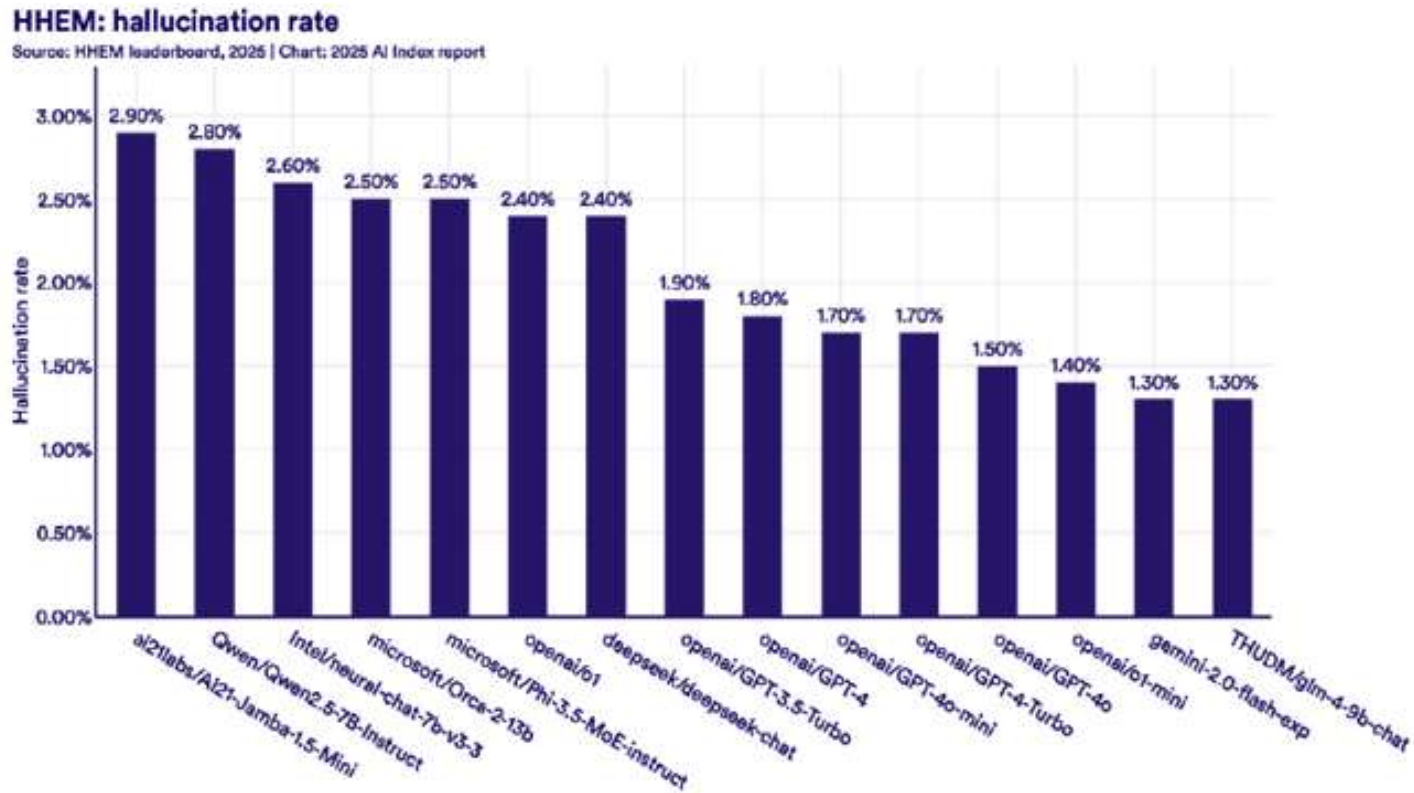


# AI incidents 2012-2024



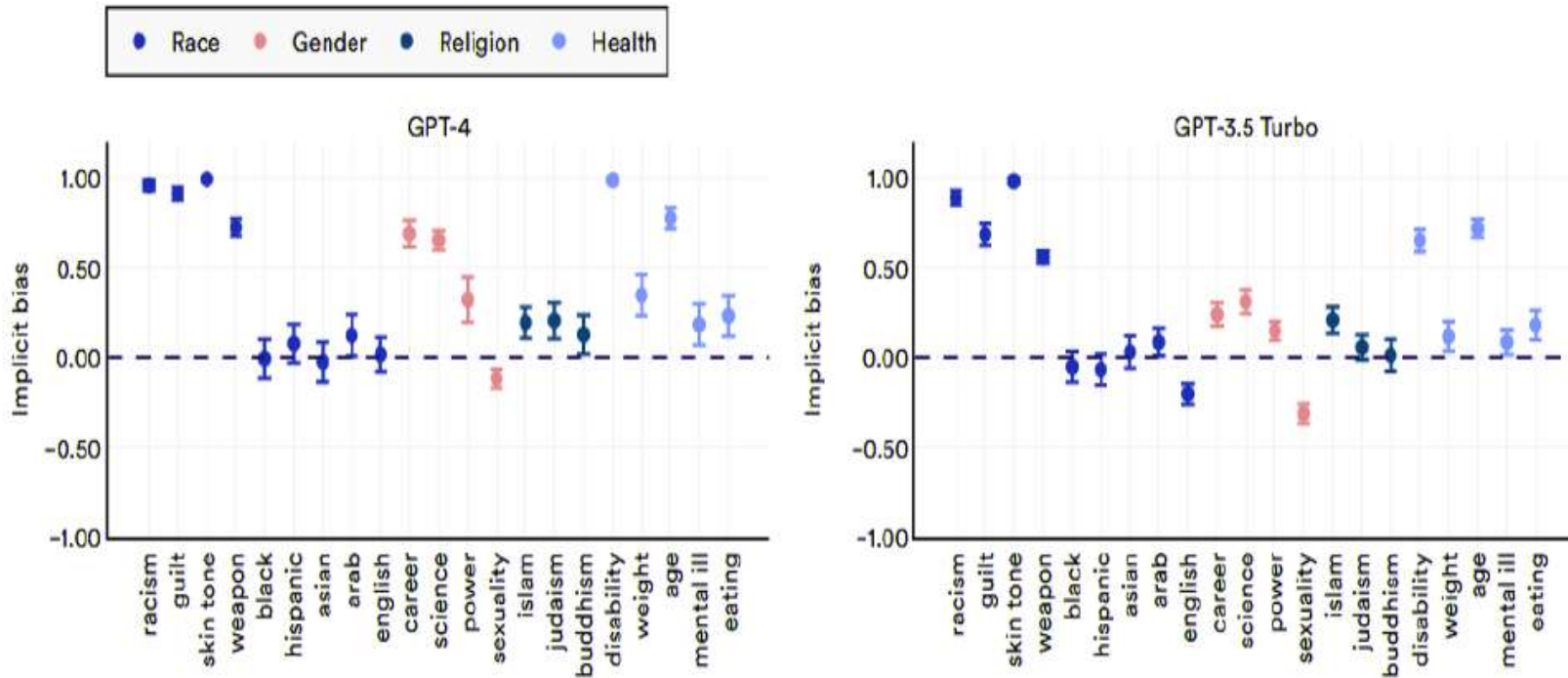
Source: <https://hai.stanford.edu/ai-index>

# Large language models hallucination



<https://hai.stanford.edu/ai-index>

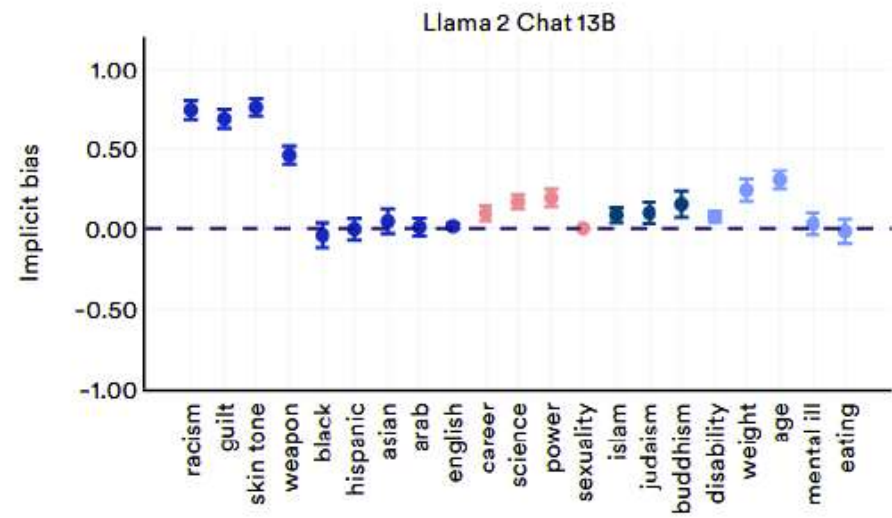
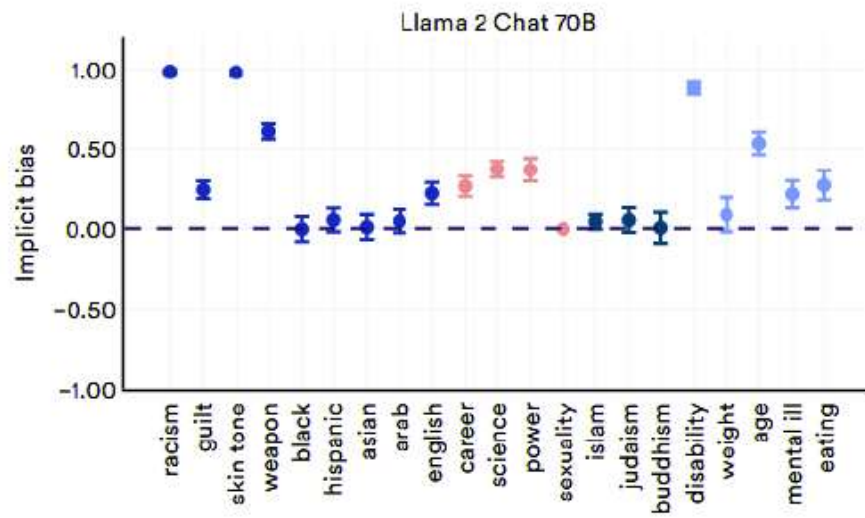
# LLMs implicit bias race, gender, religion, health



Source: <https://hai.stanford.edu/ai-index>

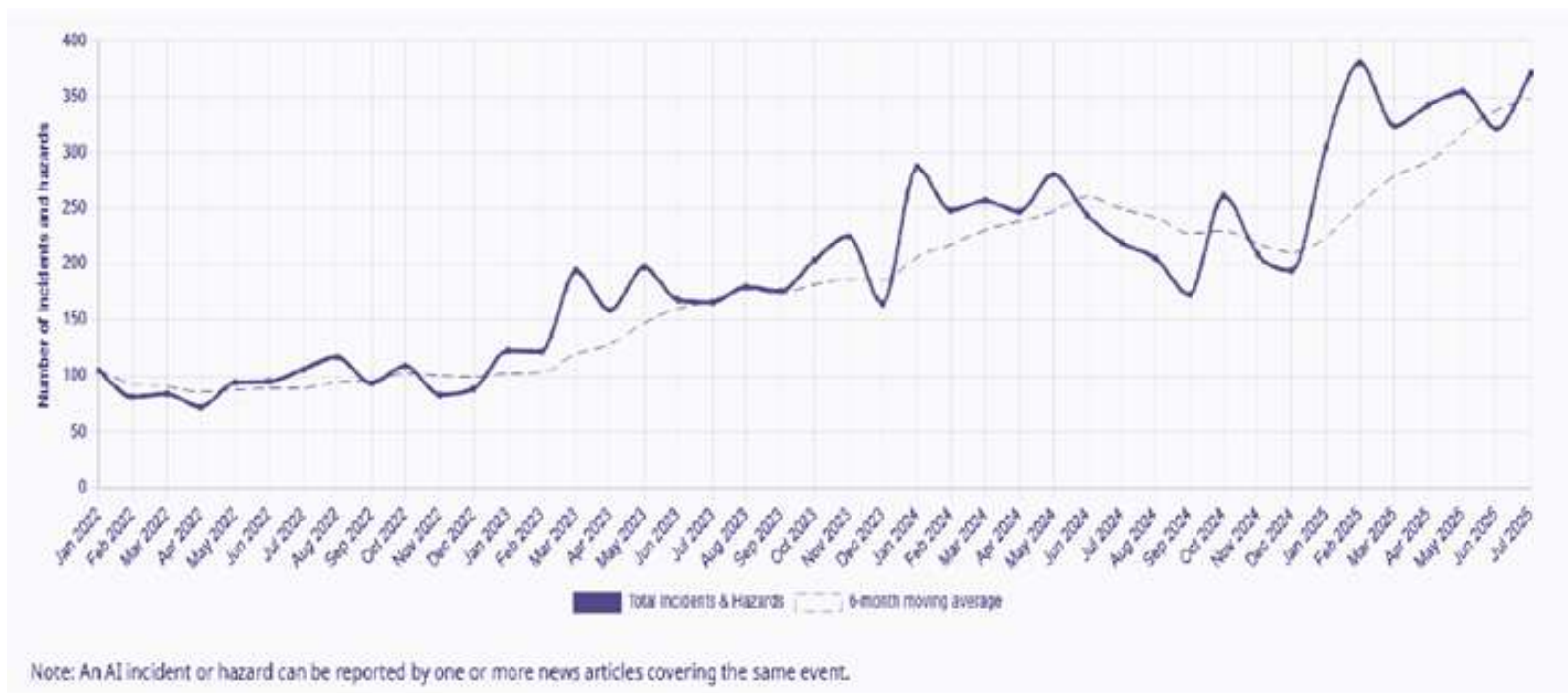


# LLMs implicit bias race, gender, religion, health



Source: <https://hai.stanford.edu/ai-index>

# OECD: AI incidents and hazards monitor



Source: <https://hai.stanford.edu/ai-index>

# Trustworthy AI mapping

AI risk management framework	OECD AI	EU AI Act	US EO 13960
Valid and reliable	Robustness	<b>Technical robustness</b>	Purposeful and performance driven accurate, reliable, and effective regularly monitored
Safe	Safety	<b>Safety</b>	Safety
Fair and bias is managed	Human-centered values and fairness	<b>Non-discrimination diversity and fairness data governance</b>	Lawful and respectful of our nation's values
Secure and resilient	Security	Security & resilience	Secure and resilient
Transparent and accountable	Transparency and responsible disclosure accountability	Transparency accountability human agency and oversight	Transparent accountable lawful and respectful of our nation's values, responsible and traceable, regularly monitored
Explainable and interpretable	Explainability	Explainable	Understandable by subject matter experts, users, and others, as appropriate
Privacy-enhanced	Human values, respect for human rights	Privacy, data governance	Lawful and respectful of our nation's values

# AI Risk Management framework

Test, evaluation, verification,  
and validation

Human in the loop

Easily usable and fit well with  
other aspects of risk management

Frame the risk, Risk perspectives

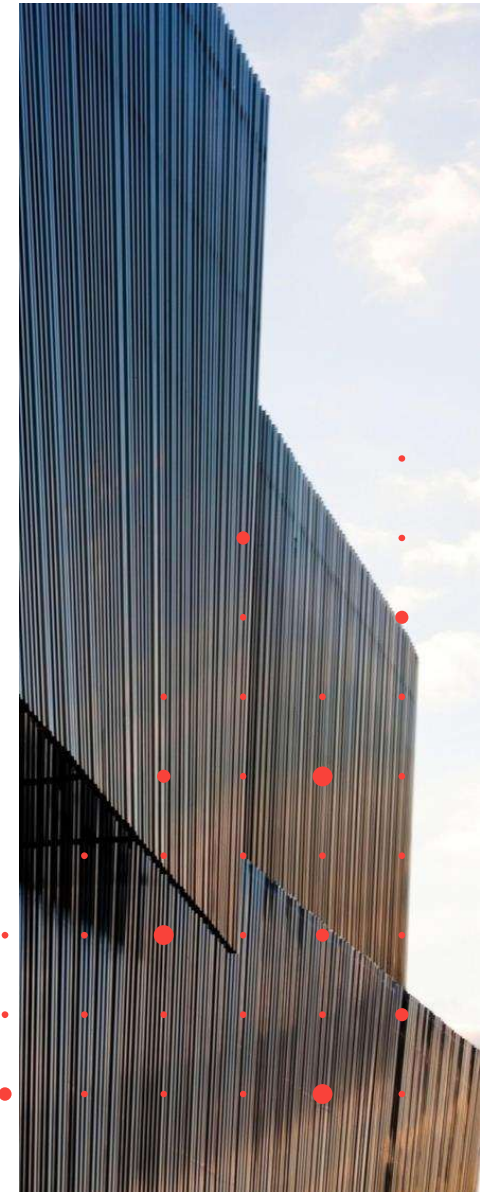
Risk measurement, Risk tolerance,  
Mitigation plans

Understand the risk, impact  
and harms  
-Harm to people, organization  
(enterprise, system/ecosystem)

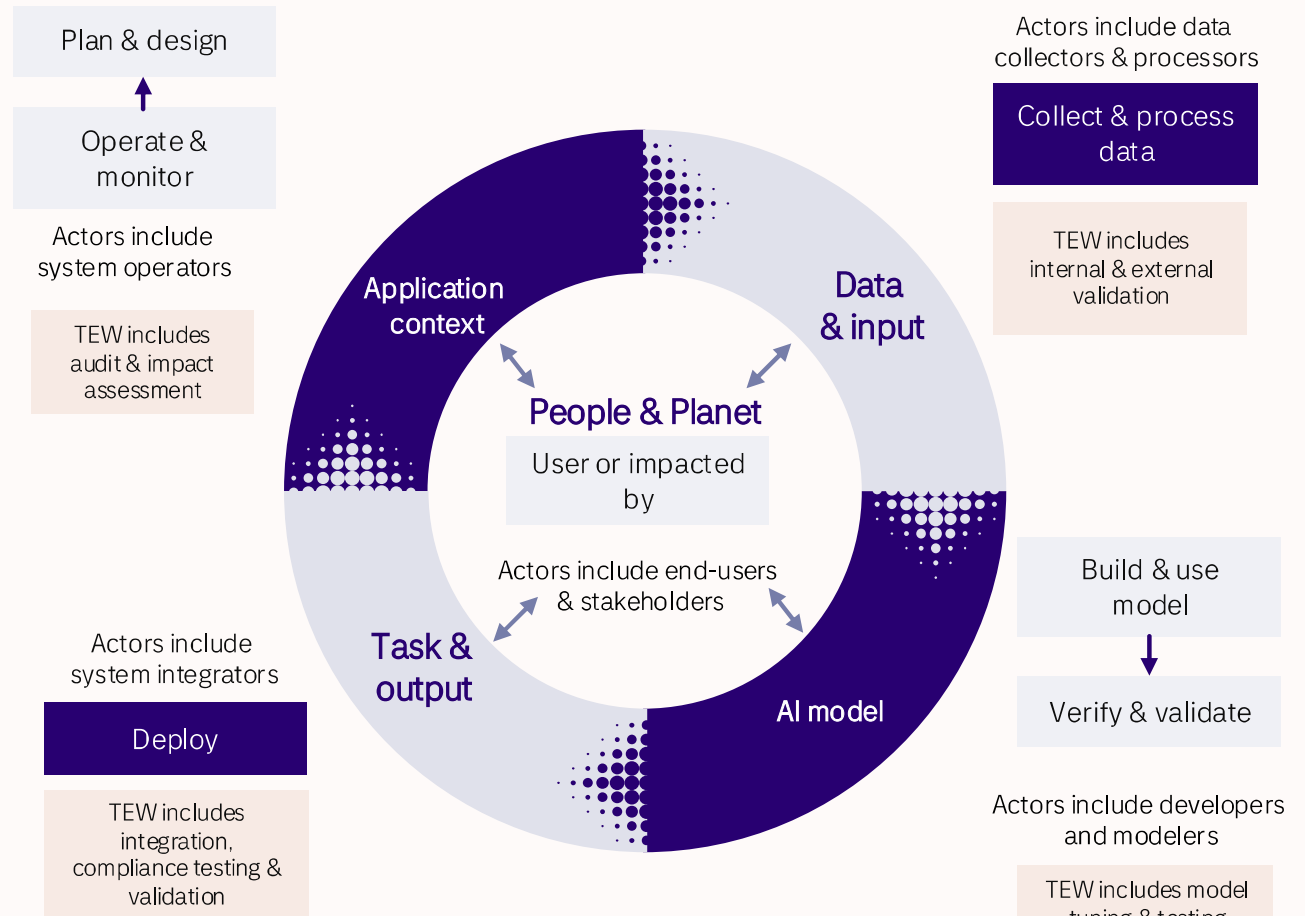
Valid and reliable, safe, fair  
and biased is managed

Secure and resilient,  
transparent and accountable

Transition from traditional  
software risk to AI risk



# Trustworthy AI system lifecycle



<https://www.nist.gov/itl/ai-risk-management-framework>

# Is the EU AI Act already fully applicable?

The AI Regulation came into force on **August 1, 2024**. Prohibitions and obligations are now gradually coming into force:



After six months  
(February 2, 2025),

AI systems with unacceptable risk are prohibited.



After twelve months  
(August 2, 2025),

governance rules and the obligations for general purpose AI models will take effect.



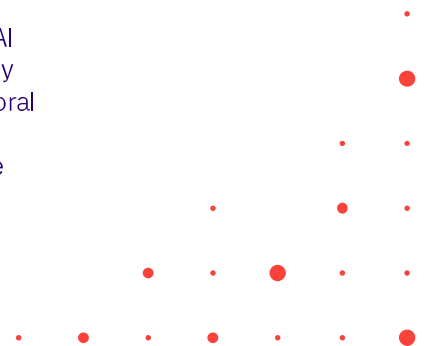
After 24 months  
(August 2, 2026),

most of the regulations will take effect, for example for high-risk AI systems in accordance with Annex III.



After 36 months  
(2 August 2027),

rules for high-risk AI systems affected by regulation via sectoral harmonization provisions will take effect.



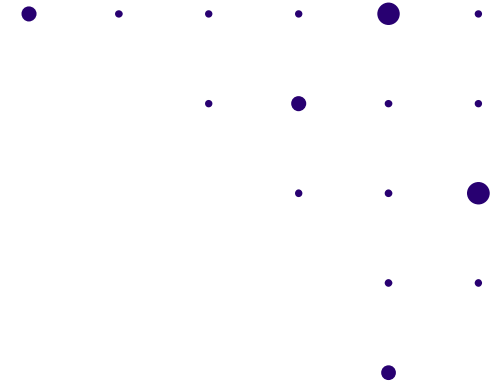


# Thank you

Learn more at [tietoevry.com](https://tietoevry.com)

 tietoevry

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