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AI and the Hierarchy of Legal Sources

Dave Lewis, TCD and ADAPT Centre (Dave.lewis@adaptcentre.ie)

Maria Grazia Porcedda, TCD and ADAPT Centre (Maria-grazia.porcedda@tcd.ie)

XXXIX Nordic Conference on Law and IT/ Program.
ARTIFICIAL INTELLIGENCE AND LEGAL METHODS:
NAVIGATING THE NEW FRONTIER



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- **A conversation between law and engineering**
- The law commands, engineering executes? A reality check on the expectations and practice of EU IT law and the AIA
- **Some open points**
- On chicken and eggs: vertical v horizontal standards (// silos in law)
- The impossible task of embedding HR in standards



I. How does the law command? The AIA seen through the lenses of key features of IT law

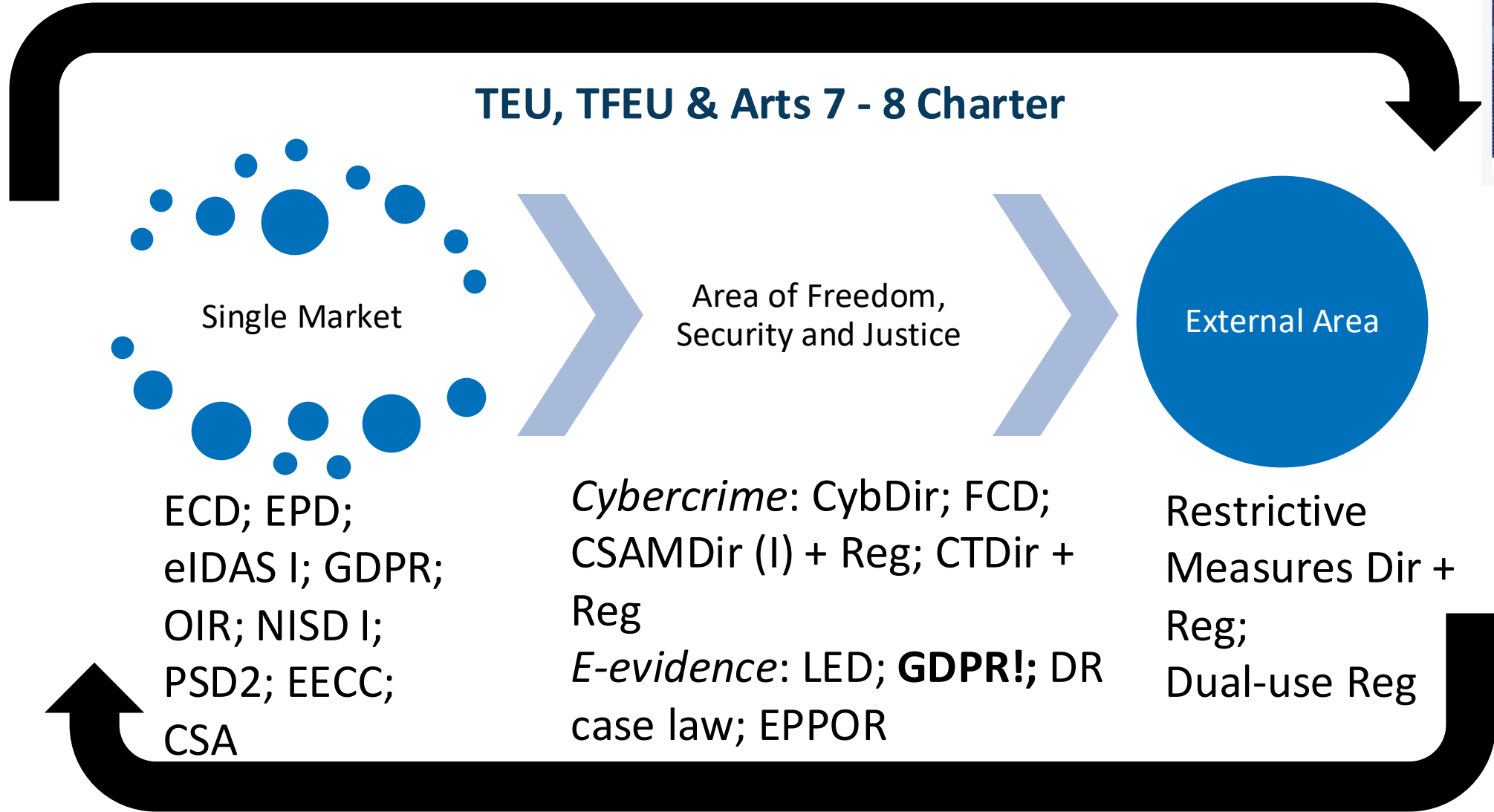
[Maurits Cornelis Escher \(Metamorphosis Machine\)](https://archive.org/details/EscherMetamorphosisMachine/5-Escher-Waterfall_0.jpg)

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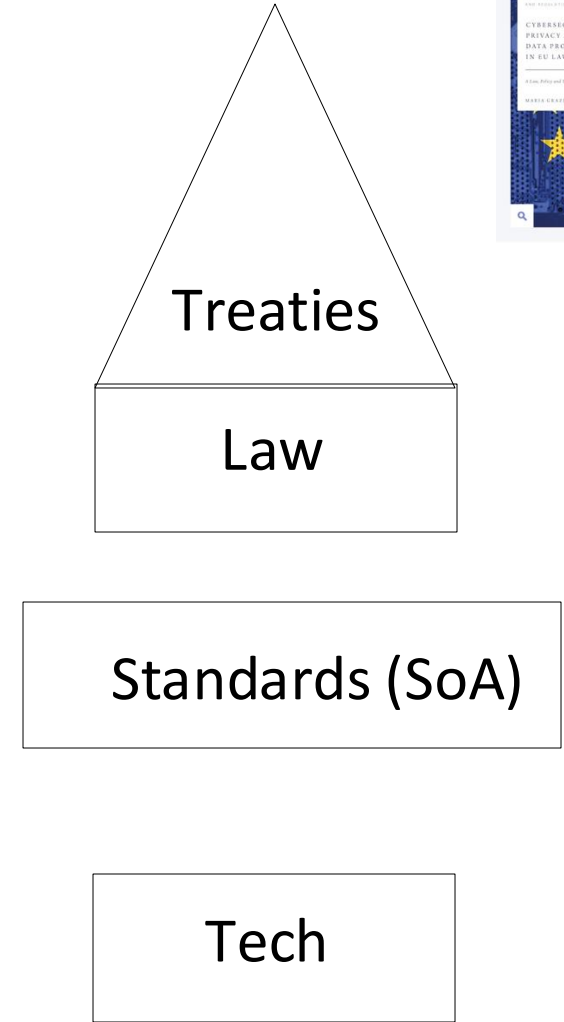
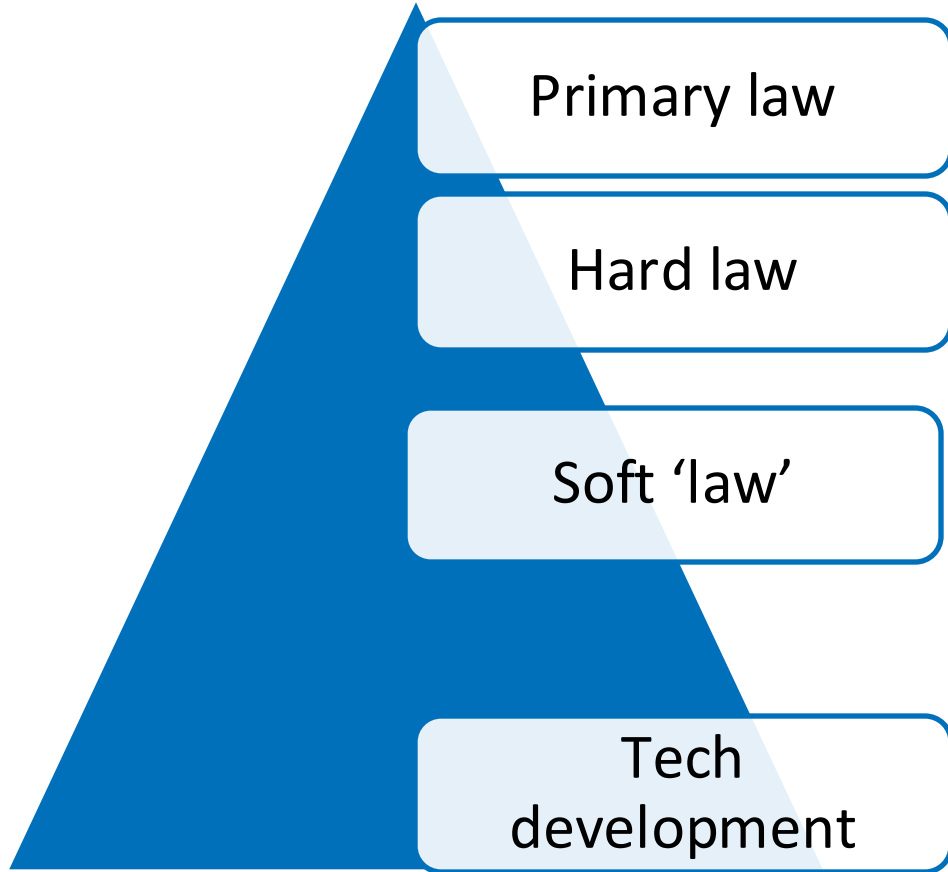
A siloed approach to market regulation



Multilevel system of
protection of HRs + CoE



I. The hierarchy of legal sources and the stair-less house

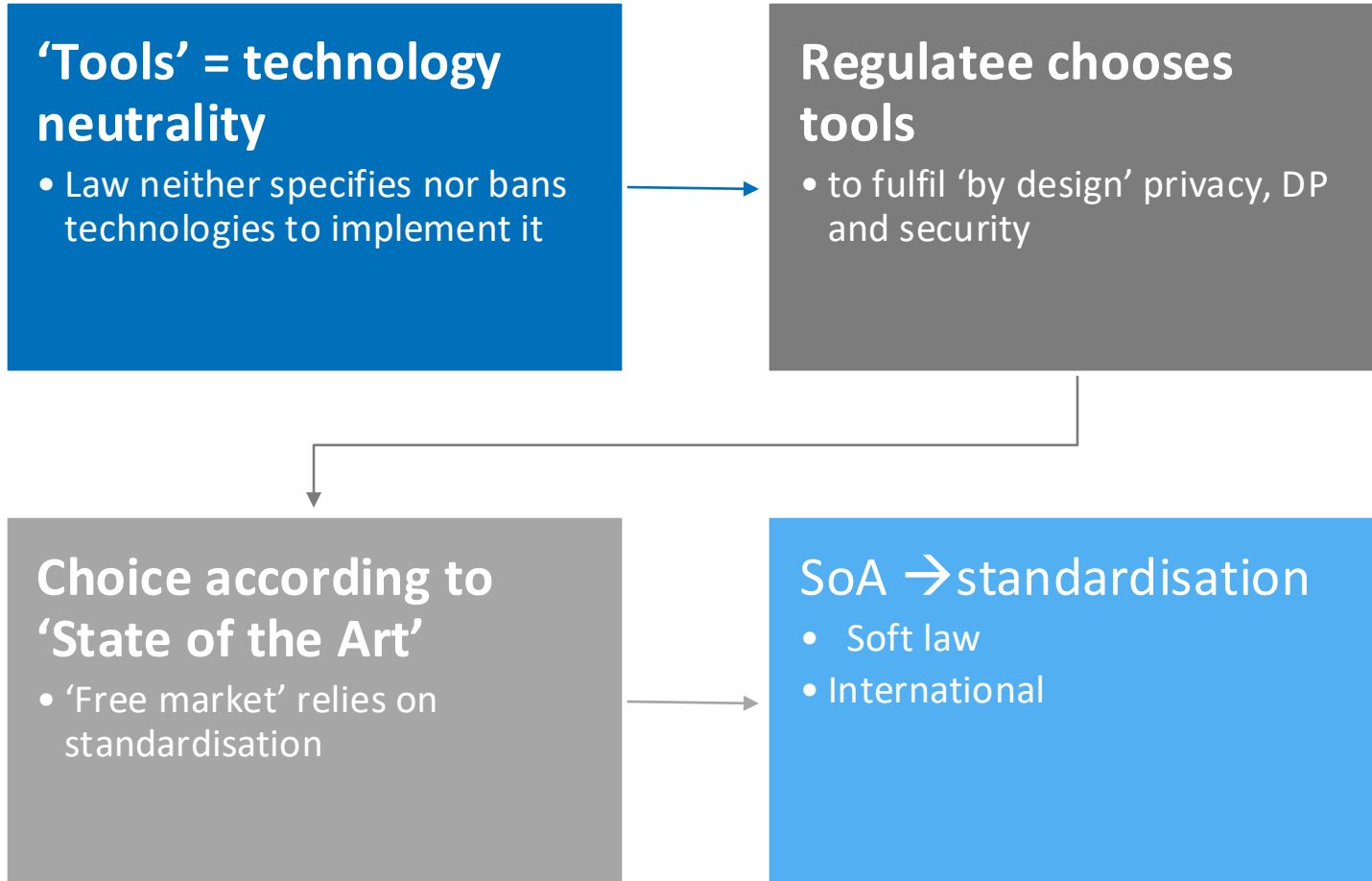


<https://www.youtube.com/watch?v=pBk4NYhWNMM> 0''-12''

II. 'Tooling': the effacement of technology from law

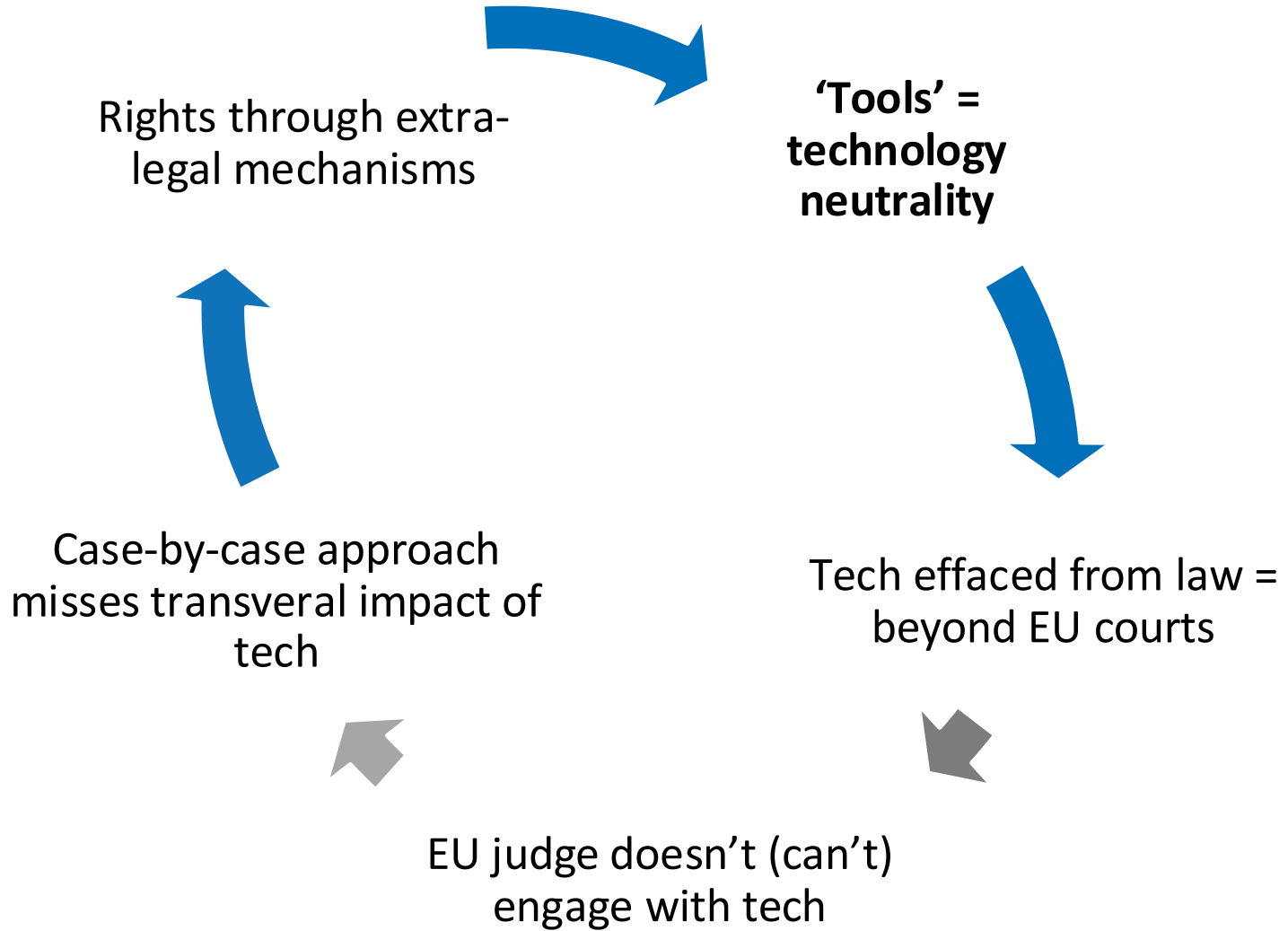


Predicated on technology neutrality, future-proofing and design-blindness



Source
<https://www.startpage.com/av/proxy-image?piurl=https%3A%2F%2Ftse1.mm.bing.net%2Fth%3Fid%3DOIP.pV2Pv9oe5W-sHCVThy7VaQHaDW%26pid%3DApi&sp=1718207831Td354cc7930ecad94d2ea581763db68a72e0942bf336aff81fd63edf7dfafa43e>

III. The (CJEU) judicial 'indeterminacy loop'



Eg CJEU case law on filtering/monitoring, the NAP case



See also
MG Porcedda, 'The GDPR as a cyber risk management system: the ECJ cautiously tackles data breaches in the NAP case', *European Law Blog* (2024)
<https://www.europeanlawblog.eu/pub/h015lop1/release/1>
MG Porcedda, Automated Analysis in the AFSJ and Digital Single Market Monitoring: An Effaced Nexus, in Kosta (ed) *Data Retention Law in Europe and Beyond* (OUP forthcoming)

ANNEX I

List of Union harmonisation legislation

Section A. List of Union harmonisation legislation based on the New Legislative Framework

1. Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (OJ L 157, 9.6.2006, p. 24);
2. Directive 2009/48/EC of the European Parliament and of the Council of 18 June 2009 on the safety of toys (OJ L 170, 30.6.2009, p. 1);
3. Directive 2013/53/EU of the European Parliament and of the Council of 20 November 2013 on recreational craft and personal watercraft and repealing Directive 94/25/EC (OJ L 354, 28.12.2013, p. 90);
4. Directive 2014/33/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to lifts and safety components for lifts (OJ L 96, 29.3.2014, p. 251);
5. Directive 2014/34/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to equipment and protective systems intended for use in potentially explosive atmospheres (OJ L 96, 29.3.2014, p. 309);
6. Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC (OJ L 153, 22.5.2014, p. 62);

ANNEX III

High-risk AI systems referred to in Article 6(2)

High-risk AI systems pursuant to Article 6(2) are the AI systems listed in any of the following areas:

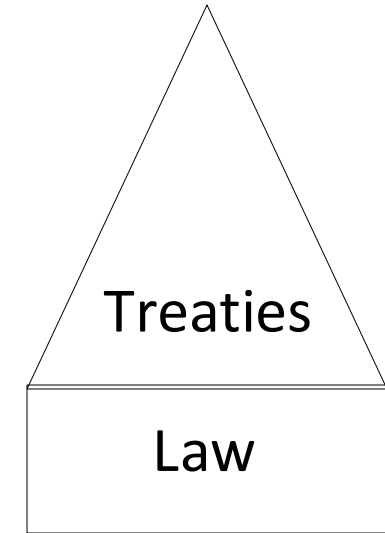
1. Biometrics, in so far as their use is permitted under relevant Union or national law:
 - (a) remote biometric identification systems.

This shall not include AI systems intended to be used for biometric verification the sole purpose of which is to confirm that a specific natural person is the person he or she claims to be;
 - (b) AI systems intended to be used for biometric categorisation, according to sensitive or protected attributes or characteristics based on the inference of those attributes or characteristics;
 - (c) AI systems intended to be used for emotion recognition.
2. Critical infrastructure: AI systems intended to be used as safety components in the management and operation of critical digital infrastructure, road traffic, or in the supply of water, gas, heating or electricity.
3. Education and vocational training:

AIA: The stair-less house, with a twist



- **Art 114 TFEU: AIA as part of New Legislative Framework**
 - Historical connection between top & middle (with presumption of conformity at bottom)
 - Historically not applied to software
- **Art 16 TFEU: historically tied to rights**
- **Standards & rights historically travel on different tracks**
- **But AIA Rec 121, Art 40(3) wish to marry them**
 - “The common specification [as exceptional fall back solution]... when the standardisation request has not been accepted by any of the European standardisation organisations, or when the relevant harmonised standards insufficiently address fundamental rights concerns”
 - “...strengthening global cooperation on standardisation and taking into account existing international standards in the field of AI that are consistent with Union values, fundamental rights and interests...”





Resolution adopted by the Human Rights Council on 13 July 2021 47/23. New and emerging digital technologies and human rights

Call for inputs: “The relationship between human rights and technical standard-setting processes for new and emerging digital technologies (2023)” - Report of the High Commissioner for Human Rights

<https://www.ohchr.org/en/calls-for-input/2023/call-inputs-relationship-between-human-rights-and-technical-standard-setting>



Human Rights and ICT Standardisation: examples across diverse SDOs, current challenges and recommendations

Authors: Shakira Bedoya, Gabriela Garnham, Christian Grafenauer, Veronique Lerch, Maria Grazia Porcedda, Monica Martinez Vargas and Charles Kiser Webb

Editors and Contributors: Maria Giuffrida, Silvana Muscella

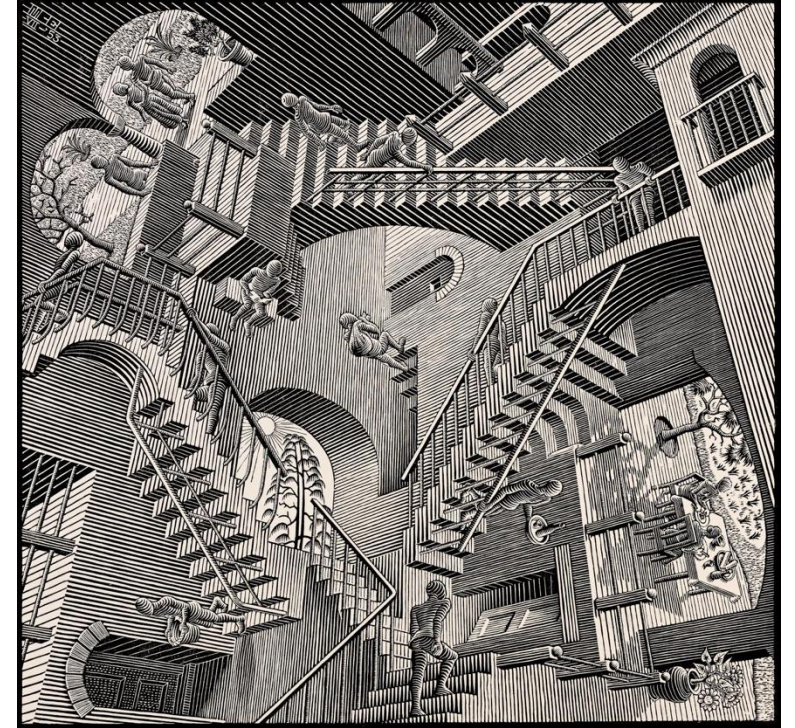
Acknowledgements

[HSbooster.eu](https://www.hsbooster.eu)* and [StandICT.eu](https://www.standict.eu)** greatly acknowledge the dedicated work of the authors outlined below who have contributed to this document, released as an output of the workshop “Human Rights and ICT Standardisation” organised with the European Commission on 6th June 2024.

<https://zenodo.org/records/13769418>



- Qualitative differences:
 - Standards: (voluntary) private law, fast(er), private-sector driven, high-level but self-contained
 - Rights: (mandatory) public law, slow(er), court-driven, open-ended and evolving
- No method yet to connect them, plenty of hurdles
 - Tooling
 - Indeterminacy loop: EU judgments ignore tech
 - Standardisation efforts take blackletter meaning of legal instrument (Eg terminology, ontologies, Machine-readability)



[Maurits Cornelis Escher \(Relativity\)](#)

<https://archive.org/details/EscherMetamorphosisMachine>



- Tooling (~ 20/50 references)

Rec 6: “As a pre-requisite, ...should serve as a tool for people, with the ultimate aim of increasing human well-being”

Tech-neutrality implicit in definitions + functional approach to key features of AI systems + future-proofing

- Design-blindness (~ 20/108 references)

Rec 27: «Application of [HLEG] principles [for trustworthy AI] should be translated, when possible, in design and use of AI models.»



<https://www.startpage.com/av/proxy-image?piurl=https%3A%2F%2Ftse1.mm.bing.net%2Fth%3Fid%3DOIP.pV2Pv9oe5W-sHCVThy7VaQHdW%26pid%3DApi&sp=1718207831Td354cc7930ecad94d2ea581763db68a72e0942bf336aff81fd63edf7fdafa43e>



**II. Does engineering
execute?**

On chickens and eggs

[Maurits Cornelis Escher \(Metamorphosis Machine\)](https://archive.org/details/EscherMetamorphosisMachine/5-Escher-Waterfall_0.jpg)

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AI Act Oversight Authorities



The diagram illustrates the oversight structure for AI under the EU AI Act. It is organized into three main levels: EU, Member State, and the AI ecosystem. At the EU level, the Parliament, Council, and Courts are at the top. Below them are the Commission (containing the AI Office and AI Board) and the Scientific panel and Advisory forum. At the Member State level, the National Competent Authority is the central body, supported by Courts, a Sandbox, and Fundamental Right Protection. Below these are three key functional areas: GDPR supervisory, Product Certification, and Market Surveillance. At the bottom, the AI ecosystem consists of Data Provider, AI Provider, AI Deployer, and Model Provider, all interconnected with bidirectional arrows. A large red arrow points from the Member State level towards the text on the right. A red arrow labeled 'GPAI' points from the AI Office to the AI ecosystem. A decorative graphic of a neural network is in the top right corner.

- Sectorial **product certification bodies**
- Sectorial **market surveillance authorities & right protection bodies** in each Member State
- **AI Office** provides guidelines, coordination and GPAI oversight
- **European AI Board** representing **national competent authorities**

Complex network of authorities across sectors and member states – **Coordination and Knowledge Sharing are key to consistent enforcement**

Ireland example:



- TBA: National Authority and Annex III MSA
- 12 Annex I MSA
- 9 FR bodies
- 1 Notified bodies

GPAI



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AI Act Impact/Risk Assessment : Three little words “and fundamental rights.”

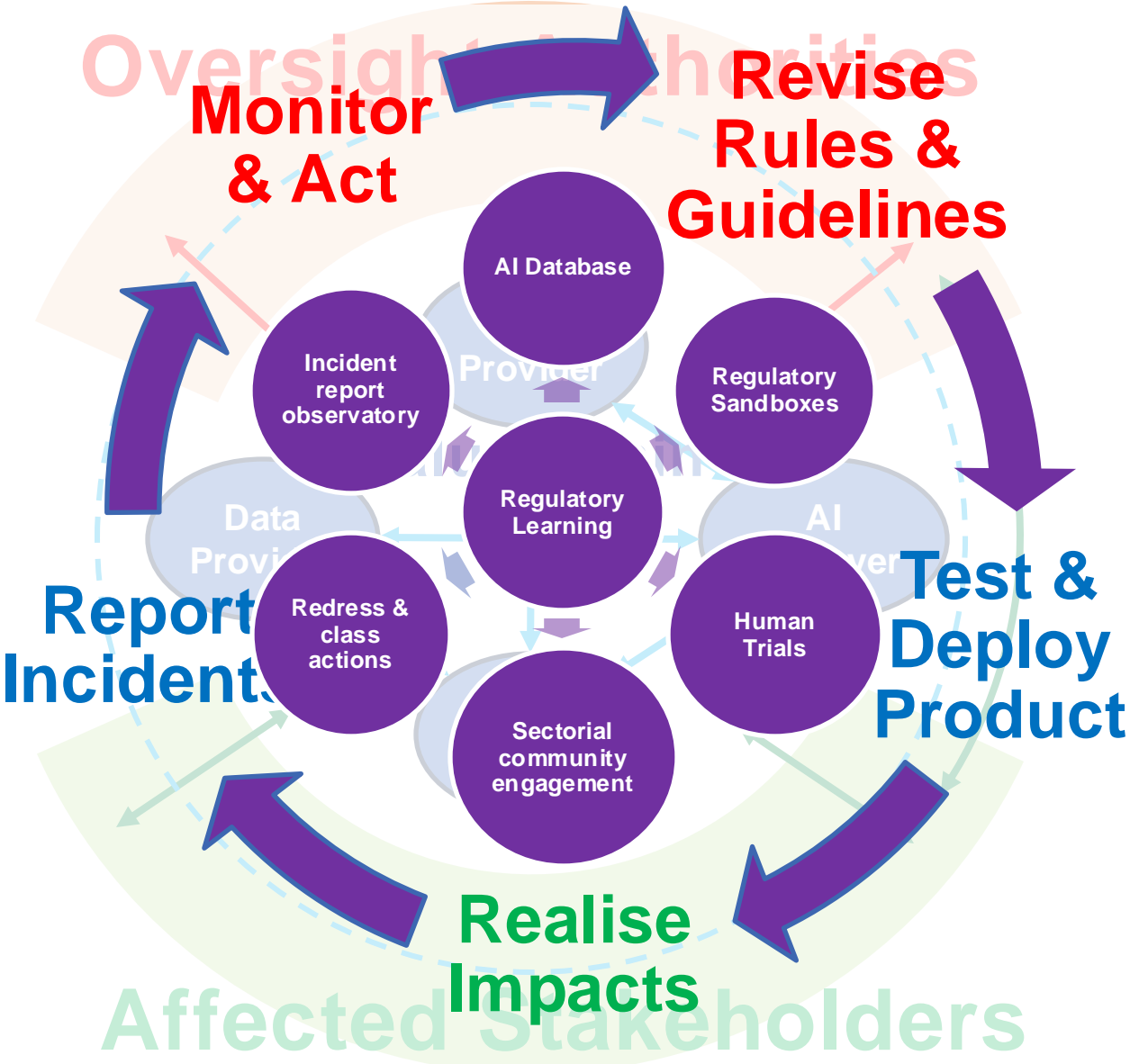


Preamble	Peace – common values	Universal values	Diversity, etc	Rights more visible	Reaffirms const. and int'l rights	Rights, duties, responsibilities	Rights, freedoms and principles
I Dignity (Articles 1–5)	1 Human dignity	2 Life	3 Integrity of the person	4 Torture and inhuman degrading treatment or punishment	5 Slavery and forced labour		
II Freedoms (Articles 6–19)	6 Liberty and security	7 Private and family life	8 Personal data	9 Marry and found family	10 Thought conscience and religion		
	11 Expression and information	12 Assembly and association	13 Arts and sciences	14 Education	15 Choose occupation and engage in work		
	16 Conduct a business	17 Property	18 Asylum	19 Removal, expulsion or extradition			
III Equality (Articles 20–26)	20 Equality before the law	21 Non-discrimination	22 Cultural, religious and linguistic diversity	23 Equality: men and women	24 The child	25 Elderly	26 Integration of persons with disabilities
IV Solidarity (Articles 27–38)	27 Workers right to information and consultation	28 collective bargaining and action	29 Access to placement services	30 Unjustified dismissal	31 Fair and just working conditions		
	32 Prohibition of child labour and protection of young people at work	33 Family and professional life	34 Social security and assistance	35 Health care	36 Access to services of general economic interest		
	37 Environmental protection	38 Consumer protection					
V Citizens' rights (Articles 39–46)	39 Vote and stand as candidate to EP	40 Vote and stand as candidate at municipal elections	41 Good administration	42 Access to documents	43 European ombudsman		
	44 Petition (EP)	45 Movement and residence	46 Diplomatic and consular protection				
VI Justice (Articles 47–50)	47 Effective remedy and fair trial	48 Presumption of innocence and right of defence	49 Legality and proportionality of criminal offences and penalties	50 <i>Ne bis in idem</i>			
VII General provisions (Articles 51–54)	51 Application	52 Scope and interpretation	53 Level of protection	54 Prohibition of abuse of rights			

https://commission.europa.eu/aid-development-cooperation-fundamental-rights/your-rights-eu/eu-charter-fundamental-rights_en

- Direct but undifferentiated Reference to European Fundamental Rights
- Broad expansion in current scope of EU product certification on health and safety
- Requires understanding of legislation that protect these rights
- Introduces **Legal Uncertainties**
 - Which rights have direct effect?
 - Which secondary legislation will be relied on?
 - What discretion do Market Surveillance Authorities have in enforcing rights?
 - How will consistency across member states and verticals be handled?

AI Act as a Learning Loop

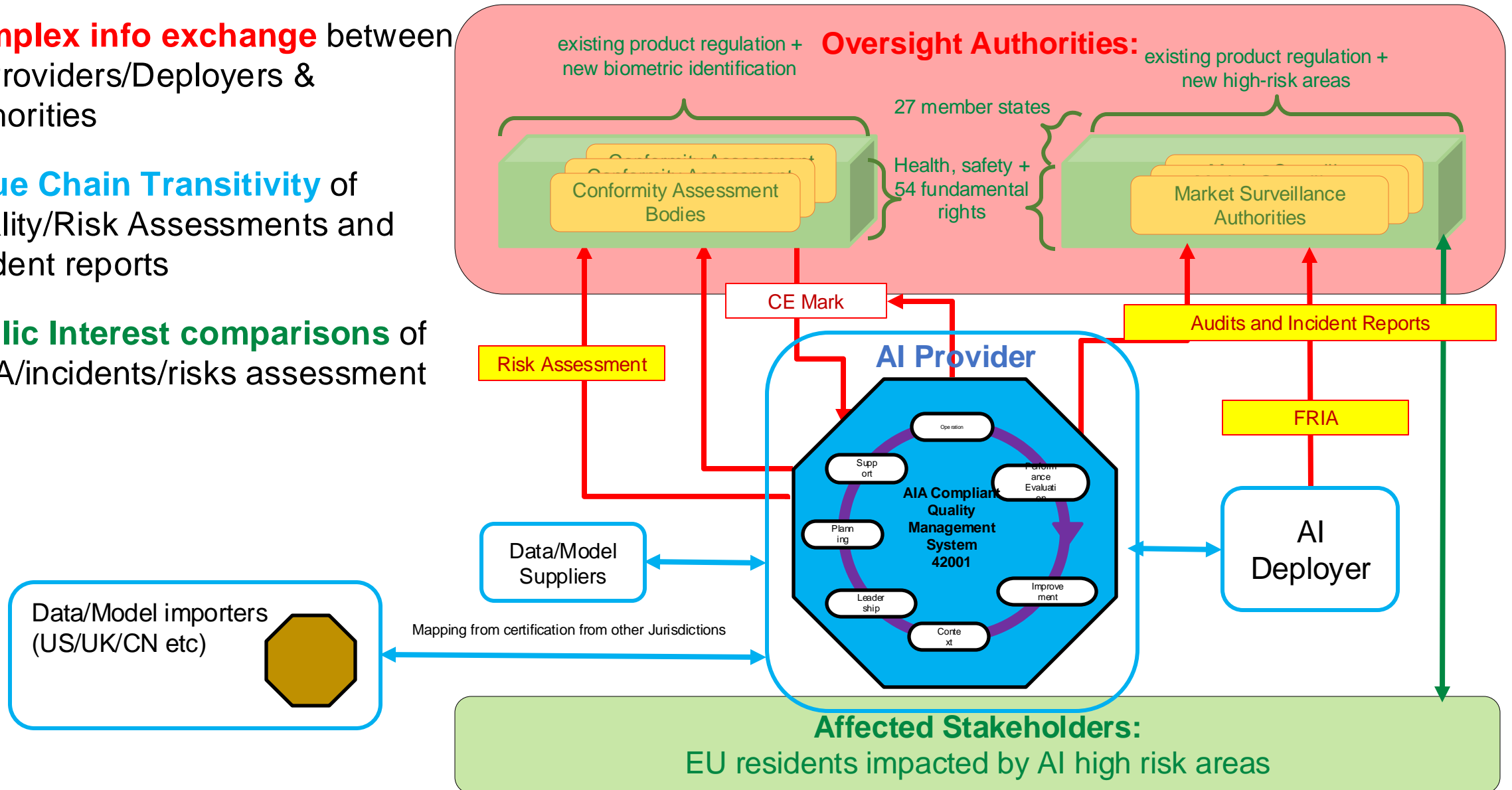


AI Act is a Regulatory Learning Framework

- AI Providers must assess and treat risks
- For severe risks with known treatments – external certification required
- Otherwise providers can self-certify
- If Risks materialize post-deployment, products can be removed, correctives demanded and fines levied
- Learning on new risks shared across market & authorities
- Regulator Learning via Sandboxes and Human Trials accelerate learning and sharing knowledge on risks

Standardisation and Interoperability Challenges for the AI Act

- **Complex info exchange** between AI Providers/Deployers & Authorities
- **Value Chain Transitivity** of Quality/Risk Assessments and incident reports
- **Public Interest comparisons** of FRIA/incidents/risks assessment





Benefits

- Standards request reflects international consensus in areas of interest
- ISO management system standards well aligned with existing EU product certification processes
- Standards embody industry technical consensus

Challenges

- International standards (ISO/IEC) cannot directly address specific jurisdictional needs/norms
- Terminology and concepts differ between regulation and standards
- Regulation define legal compliance (more 'shalls'/'musts') vs standards often focus on process norms ('should'/'may')
- Different author communities: legislators vs. technical experts
- Different revision processes, authorities and timelines
- Alternative EC-specific Common Specification may diverge from international norms

Standards and the AI Act



Requirement for European Standard

https://ec.europa.eu/growth/tools-databases/enorm/mandate/593_en

Candidate SC42 standards



Risk Management Systems for AI systems	ISO/IEC 23894 - Ai Risk Management
Governance and quality of datasets used to build AI systems	ISO/IEC 5259.1-5 - Data quality for analytics and machine learning
Record keeping through logging capabilities by AI systems	ISO/IEC 24970 — AI system logging
Transparency and information provisions for users of AI systems	ISO/IEC DIS 12792 - Transparency taxonomy of AI systems
Human oversight of AI systems	ISO/IEC AWI 42105 - Guidance for human oversight of AI systems
Accuracy specifications for AI systems	ISO/IEC AWI TS 25223 - Guidance and requirements for uncertainty quantification in AI systems & ISO/IEC AWI 23282 - Evaluation methods for accurate NLP systems
Robustness specifications for AI systems	ISO/IEC TR 24029.1-2 Assessment of the robustness of neural networks
Cybersecurity specifications for AI systems	ISO 27090, ETSI?
Quality management systems for providers of AI systems, including post-market monitoring processes	ISO/IEC 42001 AI management system & ISO/IEC 27001:2013 Information security management systems
Conformity assessment for AI systems	ISO/IEC DIS 42006 - Requirements for bodies providing audit and certification of AI management systems

- EC Request for Harmonized Standards from European Standards Organisations (ESO_
- Compliance by Providers conveys presumption of conformity
- But Provider would remain responsible for satisfying Act requirements and harmonized standard remain under review
- If ESO unsuccessful, EC can define Common Specifications
- ESO may adopt existing international standards for AI processes or develop new ones

<https://publications.jrc.ec.europa.eu/repository/handle/JRC132833>

<https://publications.jrc.ec.europa.eu/repository/handle/JRC139430>



Extract defined terms from Act as SKOS Concept Scheme (Art 3)

Separate atomic requirement statements from Act Provisions (Art 10.1 to 10.6) and add Requirement concept for each to a requirement collection

Extract and link concepts deemed relevant to satisfying each requirement into further SKOS concept scheme

Article3-29	training data
Article3-30	validation data
Article3-31	validation data set
Article3-32	testing data
Article3-33	input data
Article3-34	biometric data
Article3-35	biometric identification
Article3-37	special categories of personal data
Article3-38	sensitive operational data
Article3-50	personal data
Article3-51	non-personal; data

10.2. Training, validation and testing data sets shall be subject to data governance and management practices appropriate for the intended purpose of the high-risk AI system. Those practices shall concern in particular:

- (a) the relevant design choices;
- (b) data collection processes and the origin of data, and in the case of personal data, the original purpose of the data collection;
-
- (h)....

Article10-2-r1	Training, validation and testing data sets shall be subject to data governance and management practices appropriate for the intended purpose of the high-risk AI system.
Article10-2-a-r1	[Data governance and management practices shall concern in particular] the relevant design choices
Article10-2-b-r1	[Data governance and management practices shall concern in particular] data collection processes and the origin of data, and in the case of personal data, the original purpose of the data collection

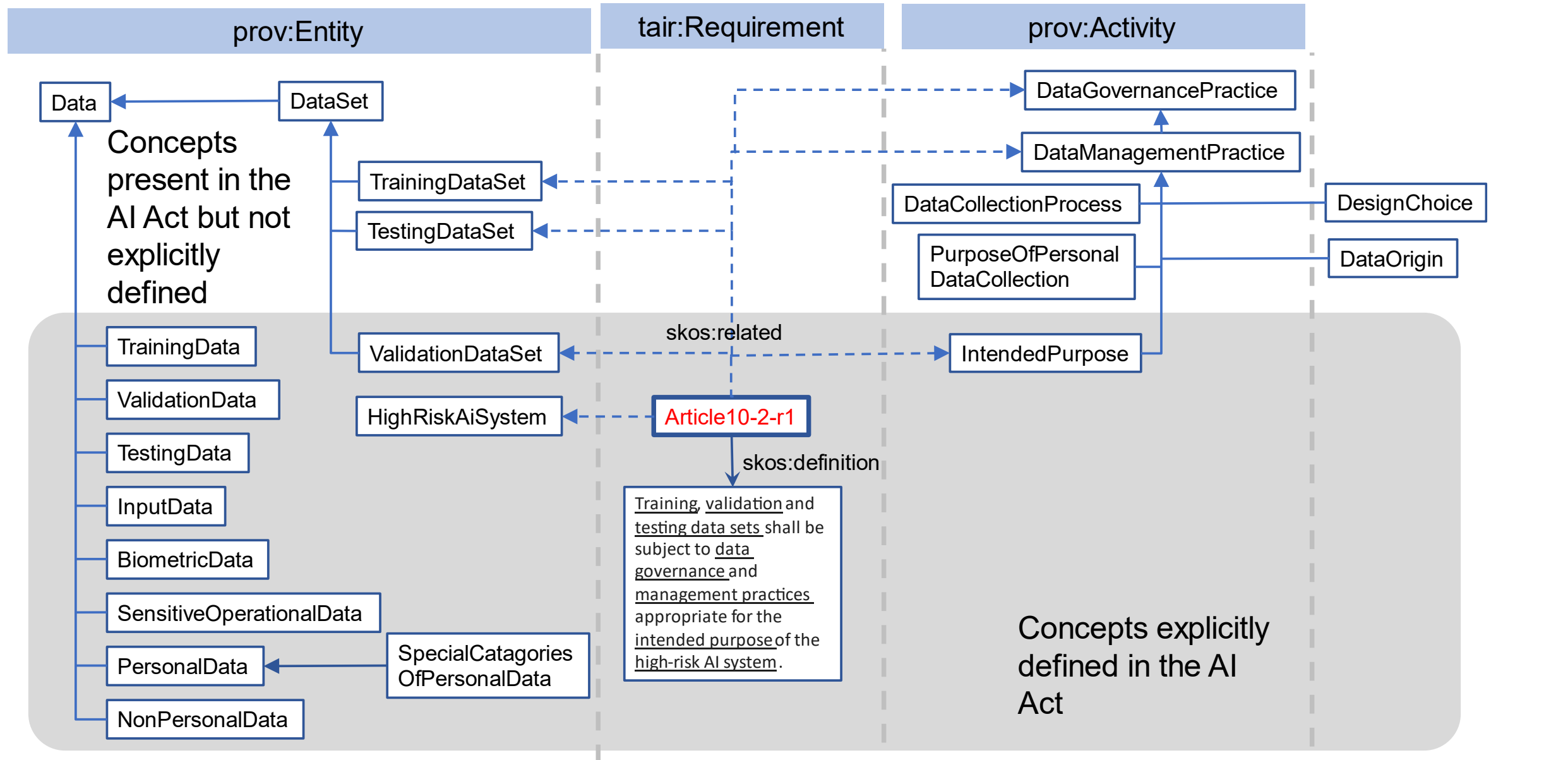


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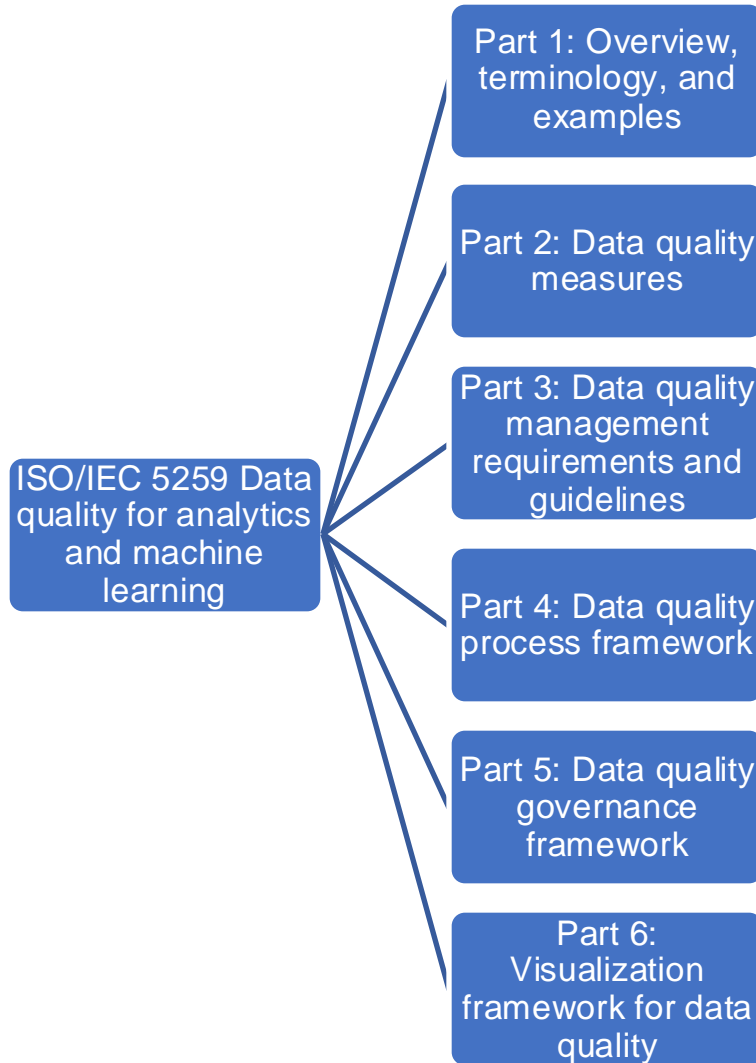
AI Act Art 10 Requirement Example

skos:broader

skos:related



Example – Art 10 Comparison to ISO/IEC 5259: Data quality for Analytics and Machine Learning



ISO/IEC 5259

- Part 1 - 22 defined concepts – none coincide with the AI Act definitions
- Part 3 offers 135+ normative statements, many with list components

AI Act Article 10 on Data Governance

- 22 atomic requirements
- Requirements involve 74 undefined terms – majority were classed as activities (44)

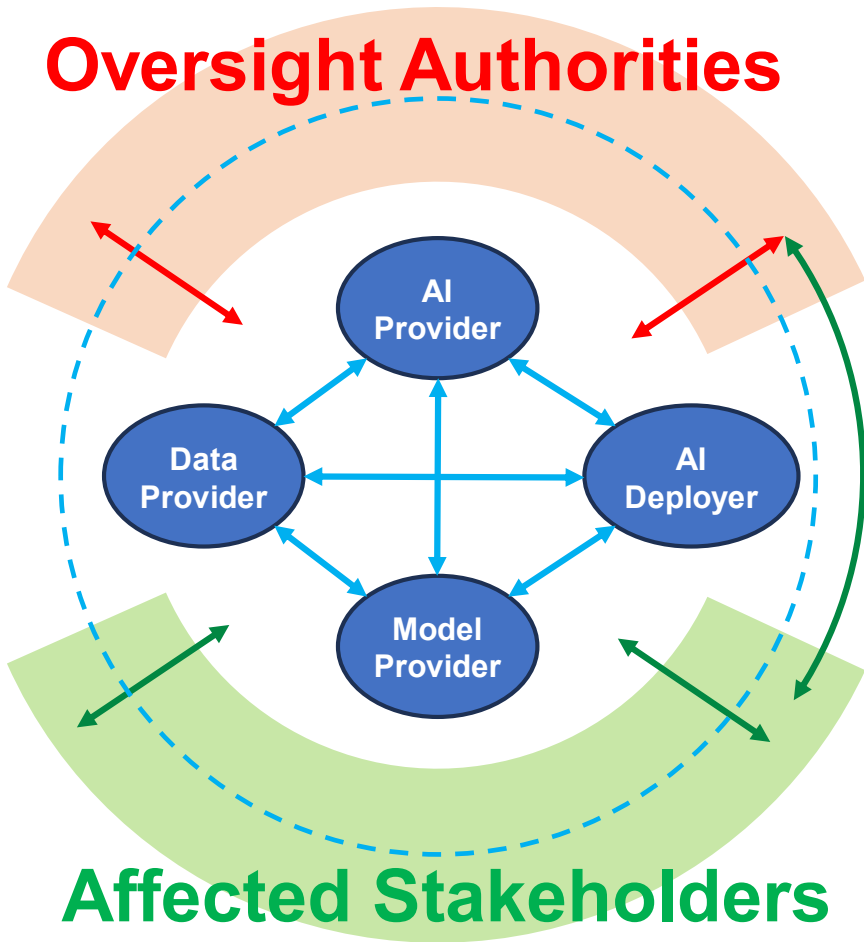
Challenges in Mapping

- Largely disjoint sets of defined terms
- Different granularity in requirements

Mapping the Act's Regulatory Learning Space

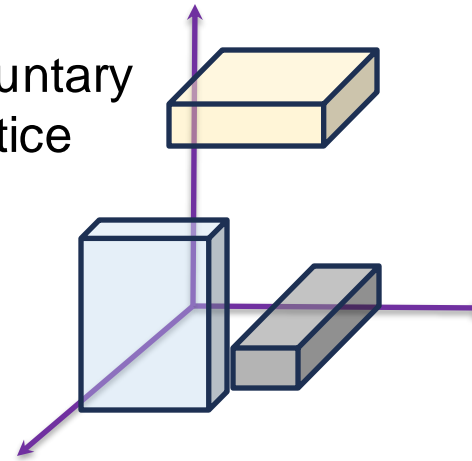


Oversight Authorities



AI System Types

- Prohibited
- Annex I
- Annex III
- Non-High Risk
- GPAI
- Subject to voluntary codes of practice



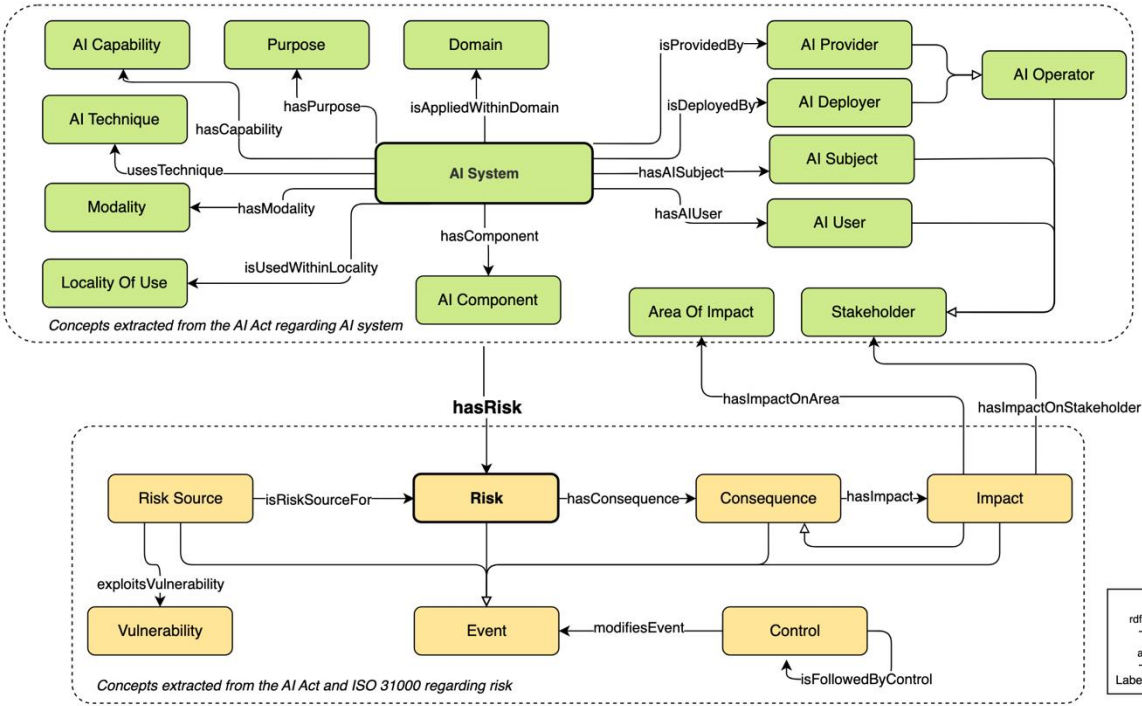
Value Chain Use Cases

- Deployer FRIA
- HRAI Provider-Deployer
- Public Procurement of HRAI
- GPAI Provider-HRAI Provider
- GPAI Provider—HRAI Deployer
- HRAI Deployer Substantial Change
- Risk Materialisation/ Incident Reporting

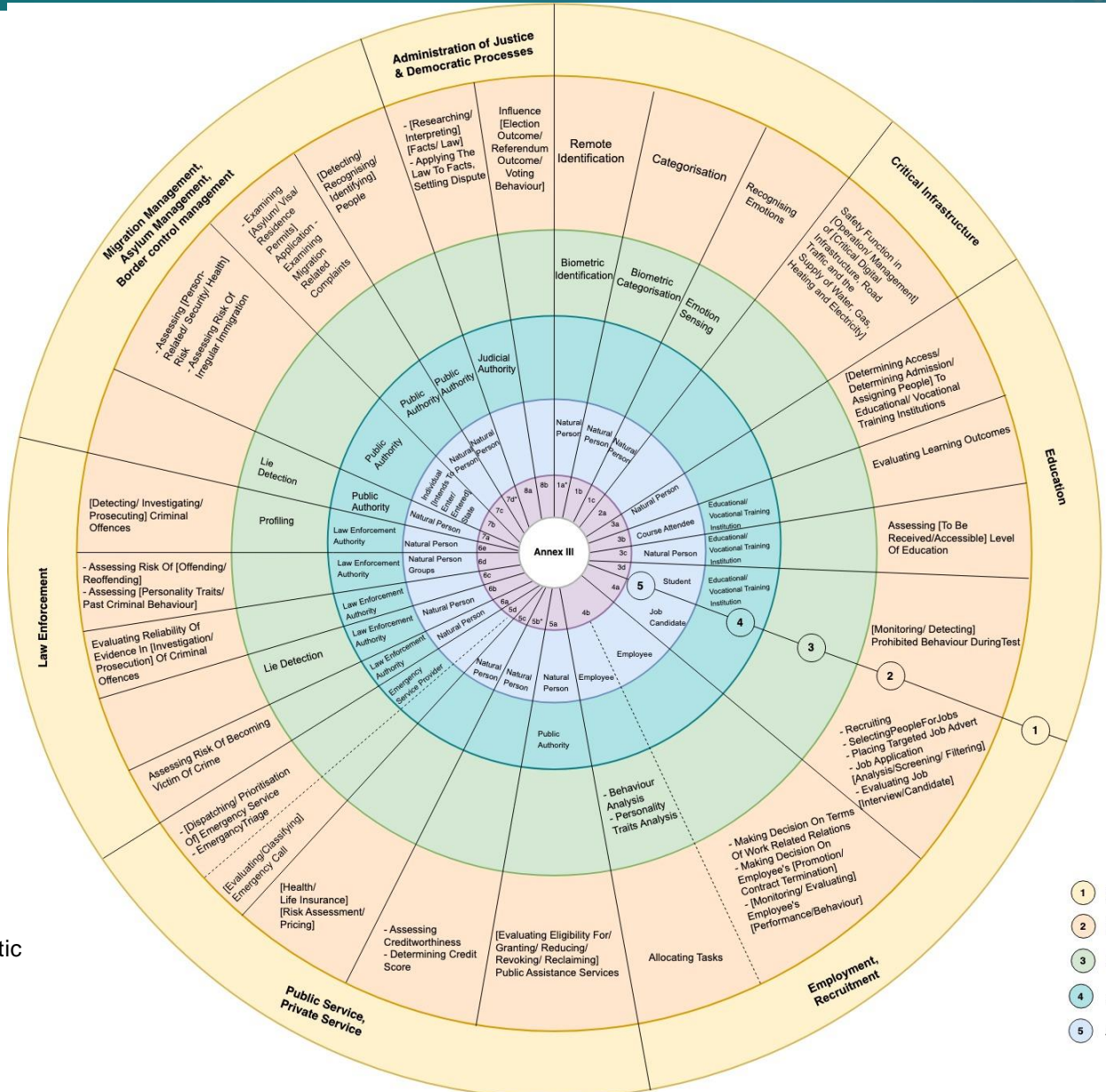
Areas of Protections

- Safety
- Health
- Fundamental Rights
- Democracy
- Environment

Mapping Vertical-Horizontal Concepts



<https://regtech.adaptcentre.ie>



Delaram Golpayegani, Harshvardhan J. Pandit, and Dave Lewis. "AIRO: An ontology for representing AI risks based on the proposed EU AI Act and ISO risk management standards". In: *Towards a Knowledge-Aware AI*. Vol. 55. IOS Press. 2022, pp. 51–65. <https://doi.org/10.3233/SSW220008>

Delaram Golpayegani, Harshvardhan J. Pandit, and Dave Lewis. "To Be High-Risk, or Not To Be—Semantic Specifications and Implications of the AI Act’s High-Risk AI Applications and Harmonised Standards". In: *Proceedings of the 2023 ACM Conference on Fairness, Accountability, and Transparency*. 2023, pp. 905–915 <https://doi.org/10.1145/3593013.3594050>



III. Conclusions

**How to achieve circular
regulatory learning**

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https://archive.org/details/EscherMetamorphosisMachine/5-Escher-Waterfall_0.jpg



- **EU regulations & Standards forced on parallel tracks**
 - Finding patterns of ongoing interdisciplinary engagement
- **AI Act precipitates link between technical standards & fundamental rights**
 - Collaboration over terminology and design/implementation
 - Managing coordination among stakeholders
- **Candidate & under-development standard are AI-horizontal, but AIA/NLF enforcement is vertical**
 - Challenges the EU regulatory and standardisation silos
- **European standards development to integrate with wider regulatory learning and regulatory architecture**
 - Stakeholder, jurisdictional and legal hierarchical challenges