AI ACT

A grasp of the future EU regulation on AI and its impact on AI practitioners

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WHAT IS THE AI ACT ?

A bill of law under definition

Issued by EU Commission on April 21st 2021 [1]

Proposed as a EU directive

No transposition

EUROPEAN
COMMISSION

Brussels, 21.4.2021
COM(2021) 206 final

2021/0106 (COD)

Proposal for a

REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

LAYING DOWN HARMONISED RULES ON ARTIFICIAL INTELLIGENCE (ARTIFICIAL INTELLIGENCE ACT) AND AMENDING CERTAIN UNION LEGISLATIVE ACTS

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DISCLAIMER

This content is based on the initial version

submitted April 21st 2021

Many feedback and amendments proposed since then

EU council presidency (2022 02)
Committees

- Industry, Research and Energy
- Legal affairs

Might not reflect exactly the final version

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AI SYSTEM DEFINITION

Very large definition that encompasses

Machine Learning
Analytics (statistical approaches, bayesian estimation)
Optimisation
Knowledge representation and analysis

Ontologies

Inference systems

“Any system that can make a decision that can harm a EU citizen or its rights”

Martin Ulbrich, Policy officer
DG CONNECT
Ready4AI conference,
chambre de commerce, May
16th 2022

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SCOPE OF AI ACT

Providers of AI systems on the EU market (regardless their establihsment location)

Users of AI systems in EU

providers and users outside EU *if output is used in EU*

NOT for AI systems exclusively military

WHAT WILL AI ACT COVER ?

Classification of AI systems deployed in EU

Unnacceptable risks: prohibited

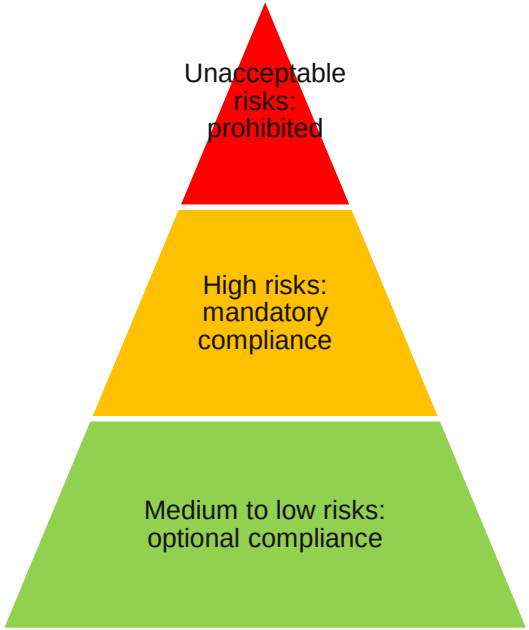
High risks: mandatory compliance with requirements

Medium to low risks: optional (but recommended) compliance to requirements

Compliance requirements (detailed in next slides)

Compliance mechanism (accountability principles)

Enforcement (fines up to 6% of yearly worldwide turnover or 30M€)



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PROHIBITED AI SYSTEMS

Systems presenting *unacceptable risks for human beings or fundamental rights*

Persons manipulation

Generic social scoring by public authority

Real-time remote biometric identification in public space for law enforcement

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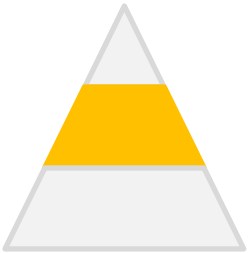
HIGH RISK AI SYSTEMS



1. **Biometric identification**
2. **Saftey components in critical infrastructures**
3. **Education & vocational training**

access to training
assessment

4. **Employment**

recruitment / selection
decision on promotion or contract termintation
monitoring / performance evaluation

5. **Essential services**

eligibility evaluation
creditworthiness evaluation
emergency dispatching

6. **Law enforcement**
7. **Migration and border control**
8. **Justice & law**

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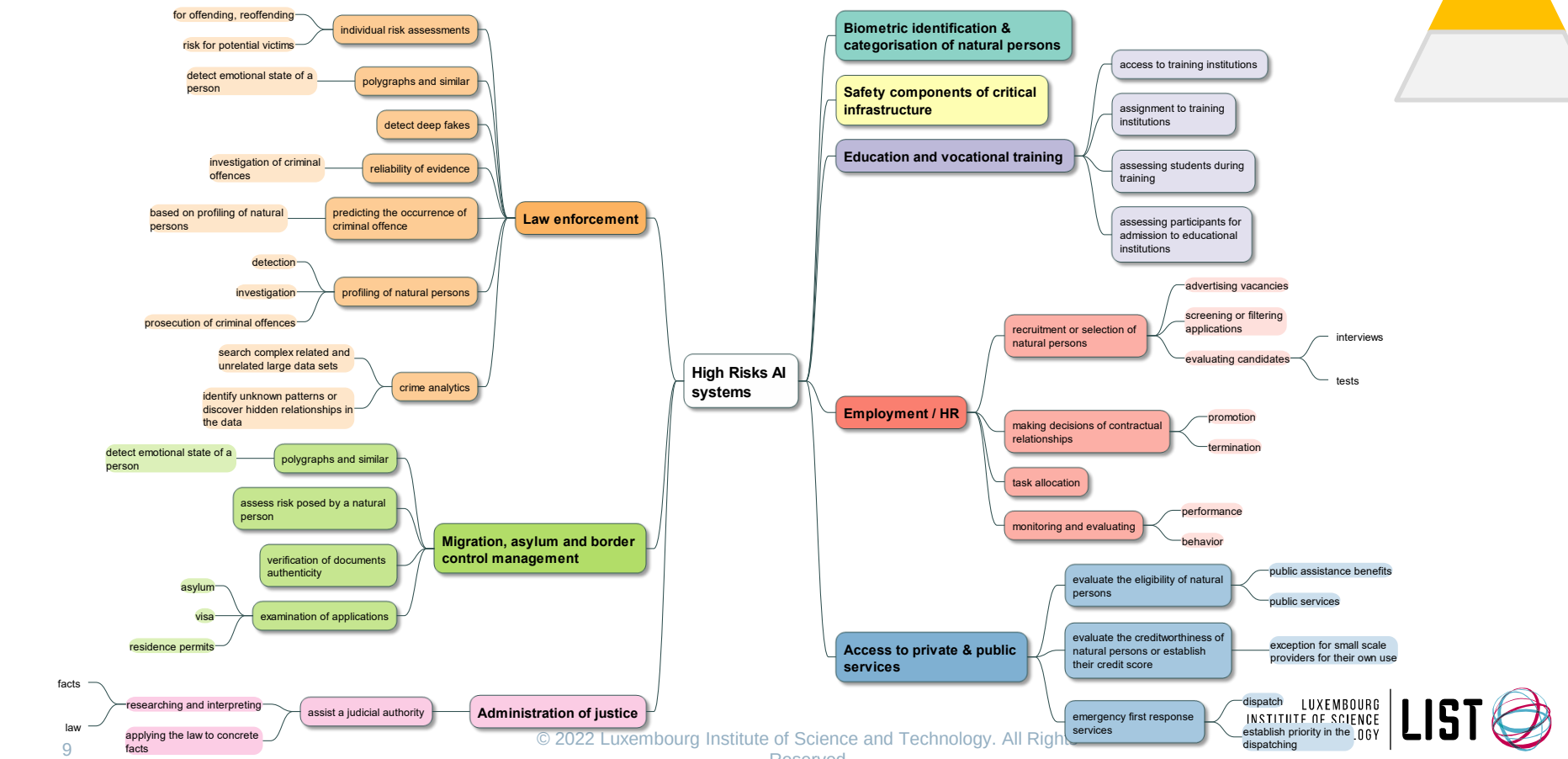
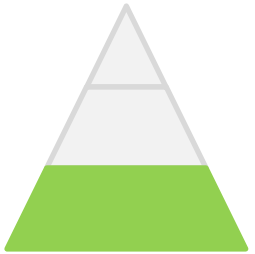
HIGH RISK AI SYSTEMS



Summary of high risks AI systems as defined by the Annex III of AI Act

MEDIUM TO LOW RISKS AI SYSTEM



All other systems not classified unacceptable or high

No obligation to compliance, but recommendation to do so, through codes of conducts

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EU AI ACT

Compliance scope and obligations for high-risks AI systems

Compliance scope

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

Horizontal obligations

- Quality management system
- Conformity assessments
- Activity logging
- Corrective actions
- Information & cooperation with authorities

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IMPACTED ORGANISATIONS

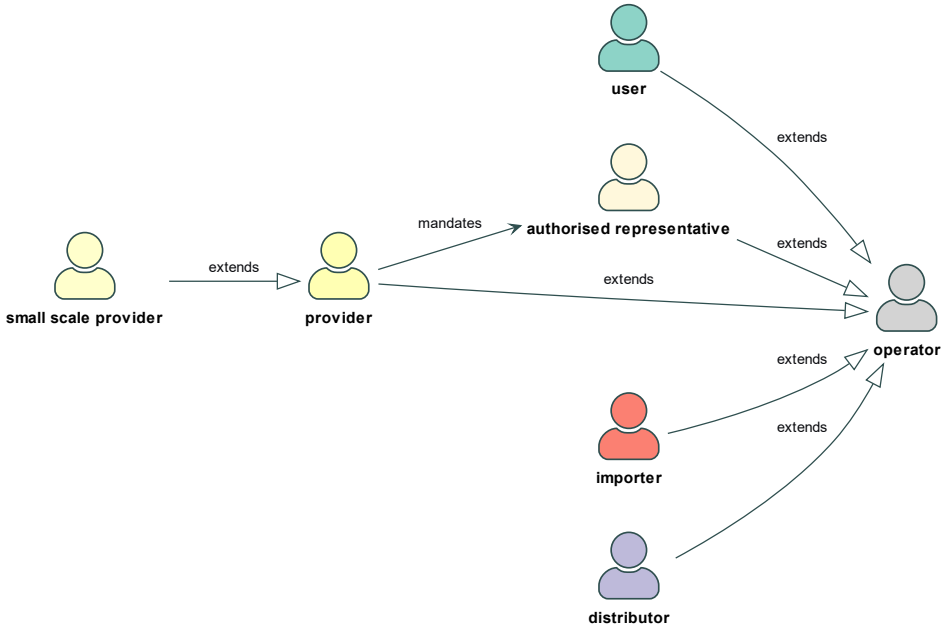
Users of AI systems

AI providers

Products manufacturers

Importers

Distributors



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CONFORMITY ASSESSMENT

For high risks systems

Based on internal control except for biometric identification AI system, which requires external assessment focus on

quality management system

technical documentation

post-market monitoring

New conformity assessment required for each substantial modification

Can be certified (max. 5 years)

(NEW) ORGANISATIONAL ACTORS

EU AI board (arts 56, 57, 58)

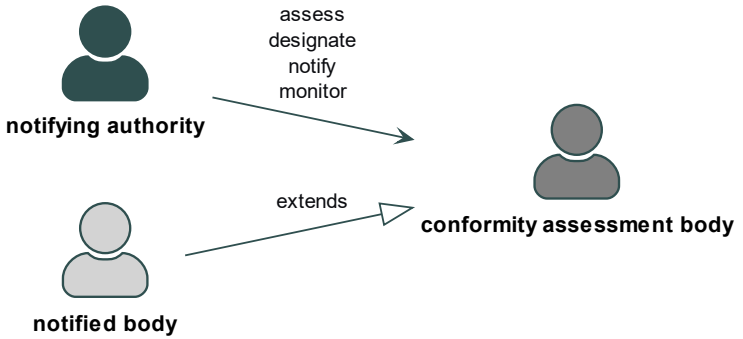
AI national authority (art. 59) per member state

Notifying authority (art. 30)

supervision/accreditation of conformity assessment bodies

(Conformity assessment) bodies (art. 33)

apply conformity assessment procedures



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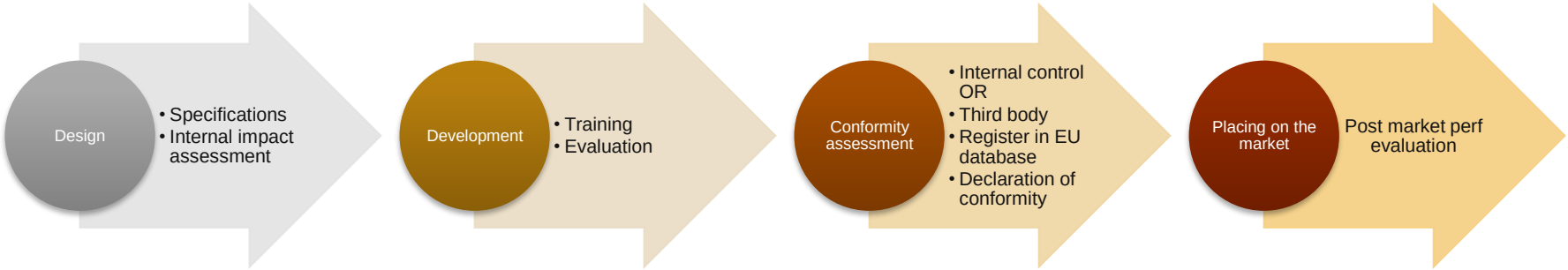
TIMELINE OF A HIGH RISK AI SYSTEM



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PENALTIES

For private companies

Fines based on annual worldwide turnover (AWT) (or lump-sum), the highest of the two (art 71)

Non-compliance to prohibited AI: 6% AWT / 30 M€

other non compliance: 4% AWT / 20 M€

information default: 2% AWT / 10 M€

For administrations & public bodies (art 72)

Fining is possible, but at a lower scale

REGULATORY SANDBOX

Controlled environment for development, testing and validation of AI

waiving some regulatory constraints (e.g. GDPR)
limited time period
before their placement on the market

No impact on supervisory and corrective powers

Sandbox participants remain liable

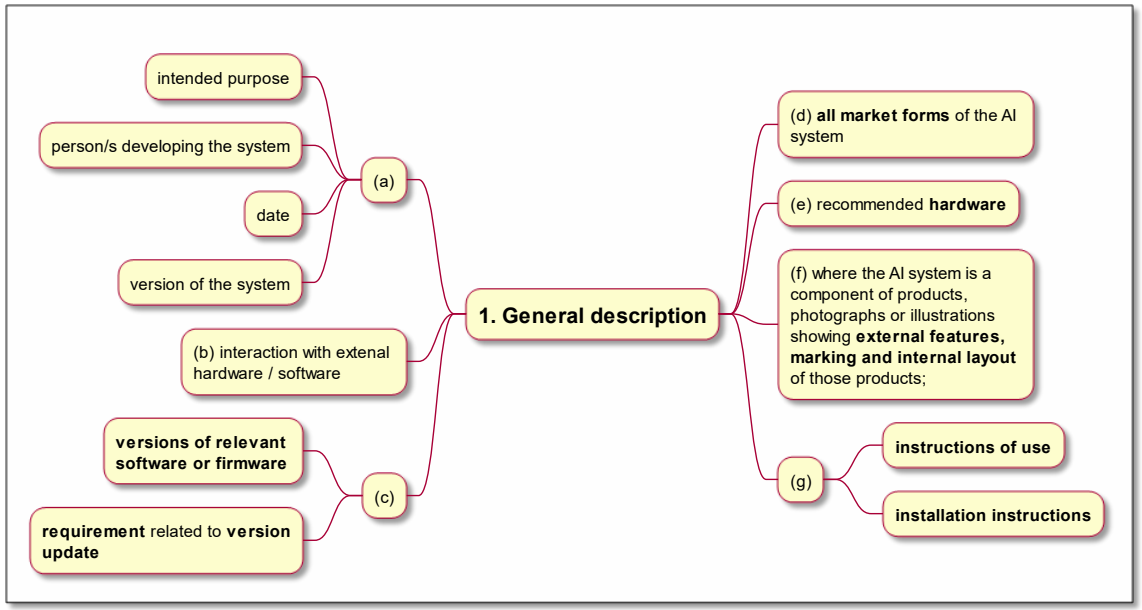
Priority access to SMEs and start-ups

TECHNICAL DOCUMENTATION

Excerpt from AIA annex IV

Technical documentation

1. General description
2. Detailed description
3. Information on monitoring functionning and control
4. Description of the risks management system
5. Changelog
6. List of standards applied
7. EU declaration of conformity
8. Post market performance evaluation



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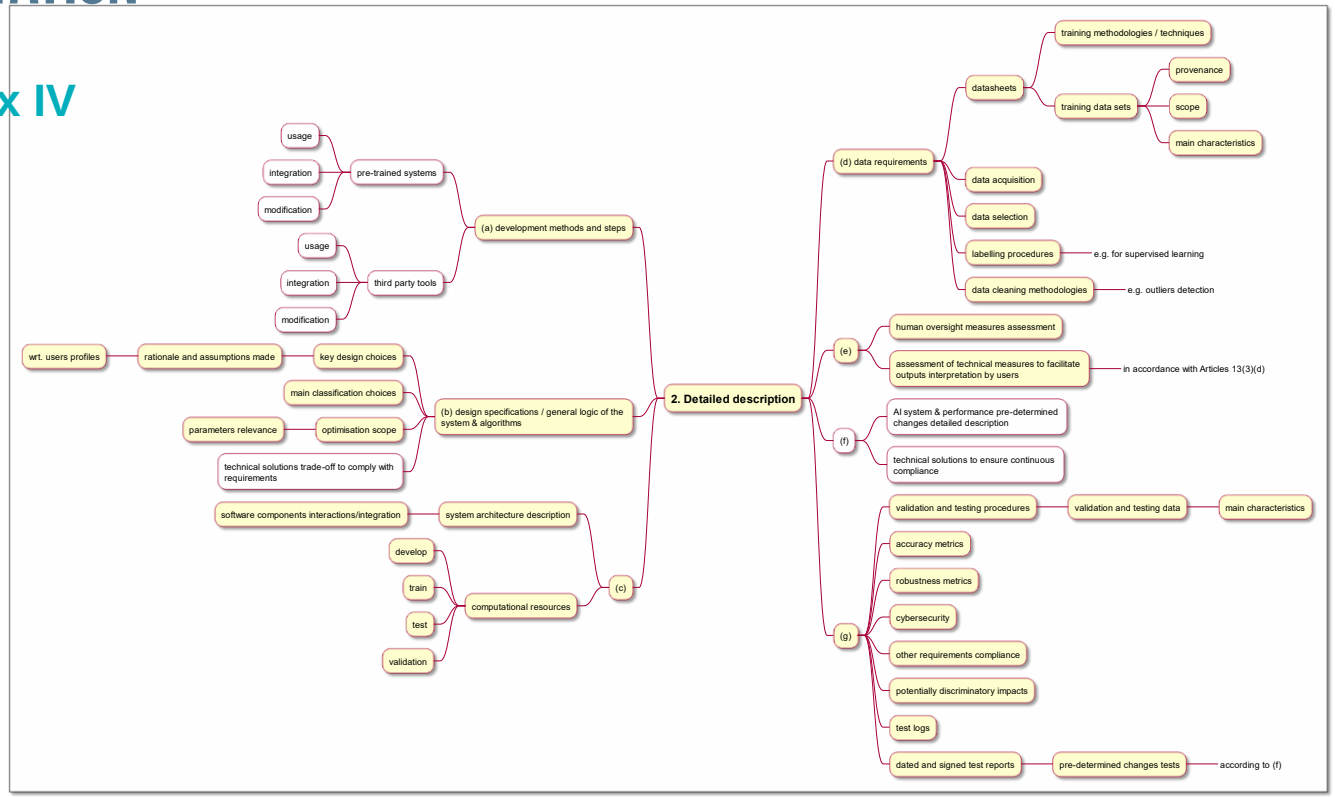

Summary of AI Act Annex IV

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TECHNICAL DOCUMENTATION

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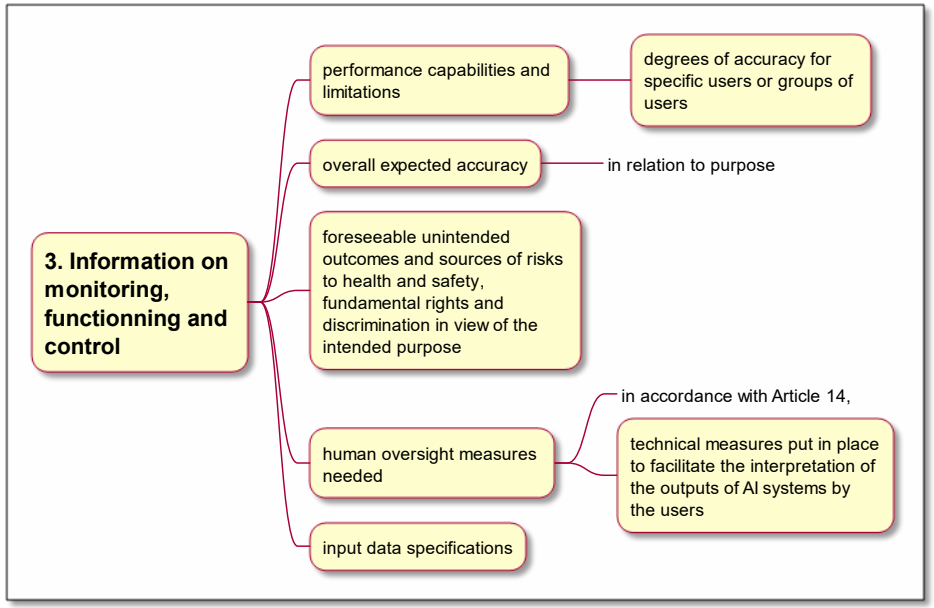

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IMPACT OF AIA

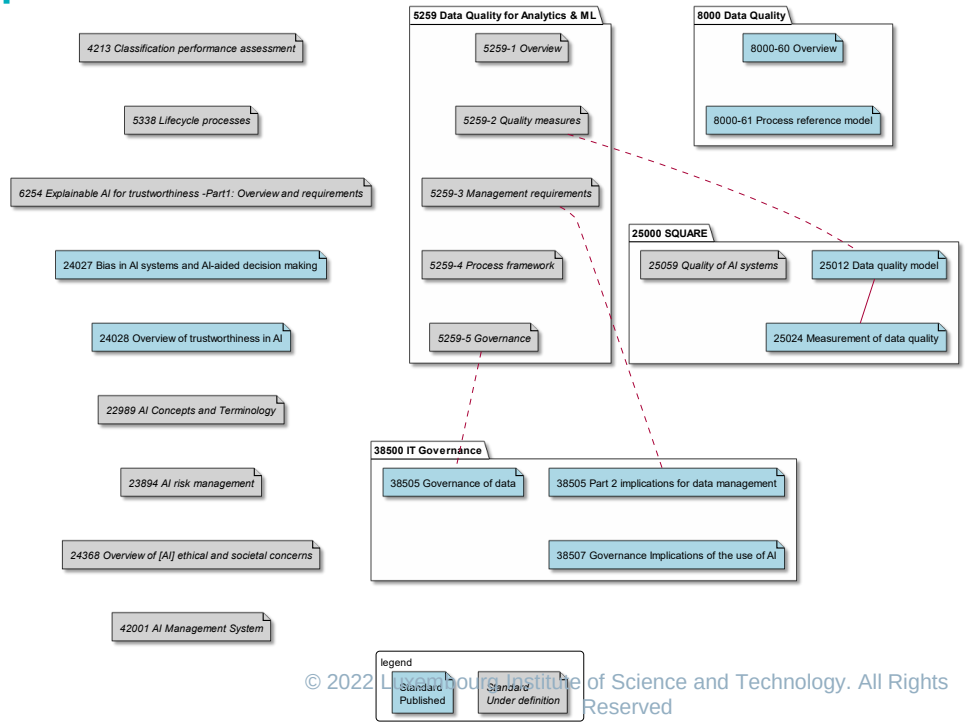
Or how to anticipate the regulation

IMPORTANCE OF AI STANDARDISATION

~ 35 standards relevant to AI Act (JRC AIWatch[2] + ILNAS white paper[3])

40% already published

60% still in definition



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IMPACT ON ORGANISATION

During system development

Perform an impact assessment

Will the future AI system be at risk? ➔ AI system classification
If generic purpose AI system, can the system be used in one of the risky situation?

What actions can you set-up to limit the risks ? ➔ risk management
Need to go through a regulatory sandbox ?

At design phase

Choice of data for training / testing ➔ risks ? bias ?
Choice of AI/ML algorithm

Prefer whitebox to blackbox

If not possible, use explainable AI methods & tools

IMPACT ON ORGANISATION

During system development

Data management

Know your data (provenance, distribution assumptions…)
Track the data wrangling steps

Logging & versionning

Versionning of model development code
Keep track of data used for training / testing
Keep track of model training (hyper) parameters
Use logging mechanisms (and keep the logs)

Documentation

Document the code
Document the development process (tests, fallback, manual steps)
Follow good practices of software engineering (e.g. linters, logging, testing)

IMPACT ON ORGANISATION

Before putting on the market

Conformity assessment

Decide on the conformity assessment process (internal vs. external)
Pre-check the conformity

Post assessment

Register the system in the EU DB
Mark for EU conformity (where applicable)

IMPACT ON ORGANISATION

At organisational level

If not already done, set up

Quality management system

Processes description + regular review

Risk management system

Risk plan + regular review

No obligation to bear an ISO certification

…

but it will ease

conformity assessment

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THANK YOU

Questions & discussion

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NOTES

1. AI Act

https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0206

2. JRC AI Watch

https://data.europa.eu/doi/10.2760/376602

3. ILNAS White Paper on AI

https://portail-qualite.public.lu/dam-assets/publications/normalisation/2021/ilnas-white-paper-artificial-intelligence.pdf