Addressing AI cybersecurity requirements

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AI Cybersecurity Certification – Requirements and Standards

certification of **security requirements**

Standards in AI Cybersecurity

- ISO 27000 series partially applicable to AI as a software
- International standards (ISO, CEN, ETSI…) in development,
- Early stages in the drafting process for harmonised European standards

Legal Requirements

- **AI Act: requirements on cybersecurity (Art. 15)** - other trustworthy requirements - presumption of conformity with standards (Article 42)
- CRA: software security baseline standards
- CSA: certification schemes

AI Cybersecurity Requirements – the AI Act

Addressing the cybersecurity of AI **in the context of the AI Act and expected European harmonised standards**

Cybersecurity-specific elements in the AI Act

- Article 15 paragraph 4 on cybersecurity,
- Annex II 2.8 of standardisation request (SR)
- Integration of existing cybersecurity risk management approaches (recital 51, SR).
- Address AI and non-AI cybersecurity technological questions (e.g. adversarial machine learning)
- Connections with other EU regulations (GDPR, CRA, CSA)

Cybersecurity in the context of other trustworthiness requirements in the AI Act

- Most relevant requirements: risk (Art. 9), data (Art. 10), human oversight (Art. 14), conformity (Art.16)
- Laid down together with accuracy and robustness in (Art. 15)

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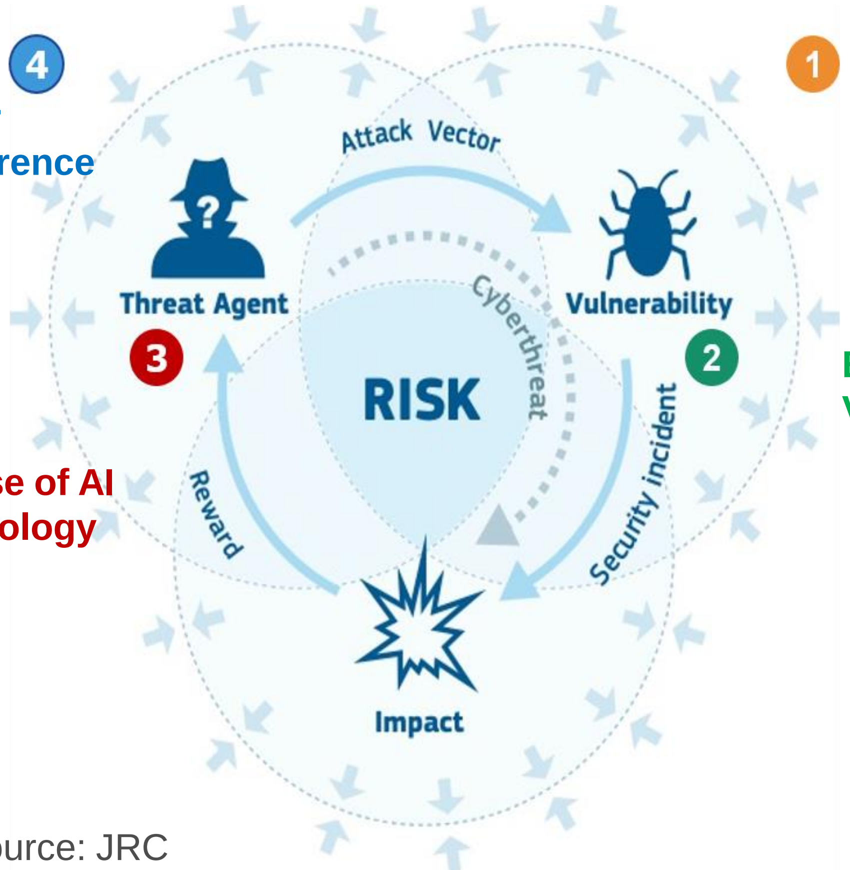
Technological challenges in AI Cybersecurity



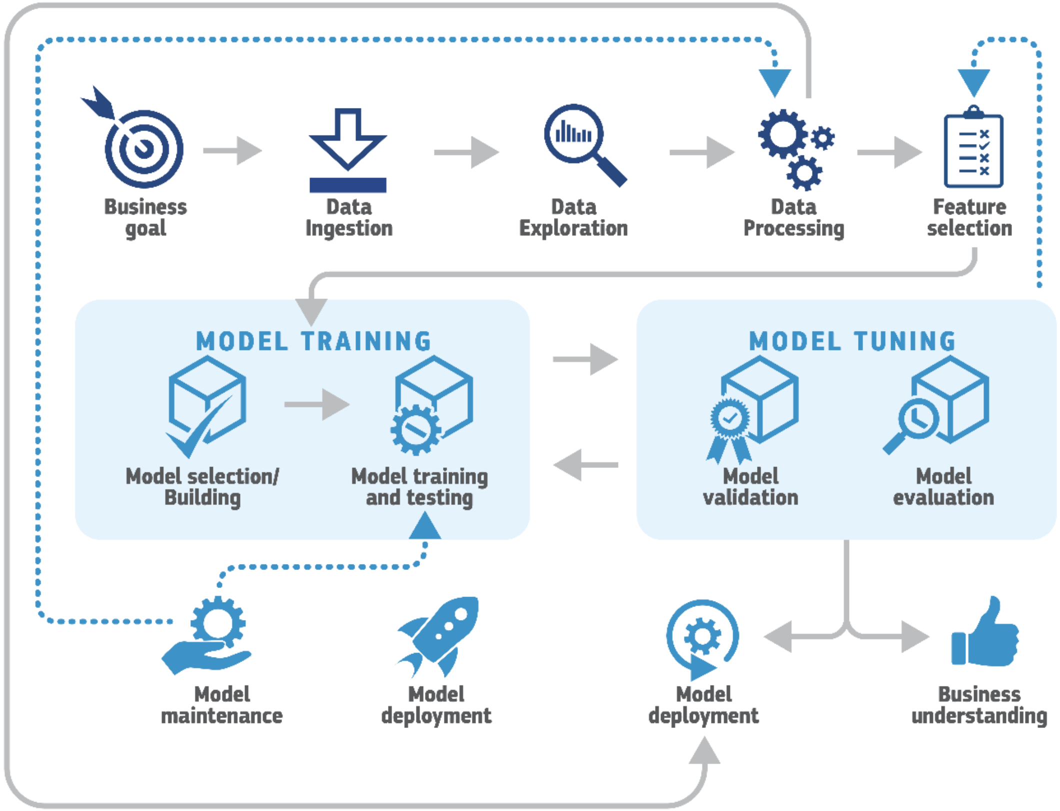
AI for deterrence

AI security: Mitigation and Control

Exploiting AI Vulnerabilities

Misuse of AI technology

Source: JRC



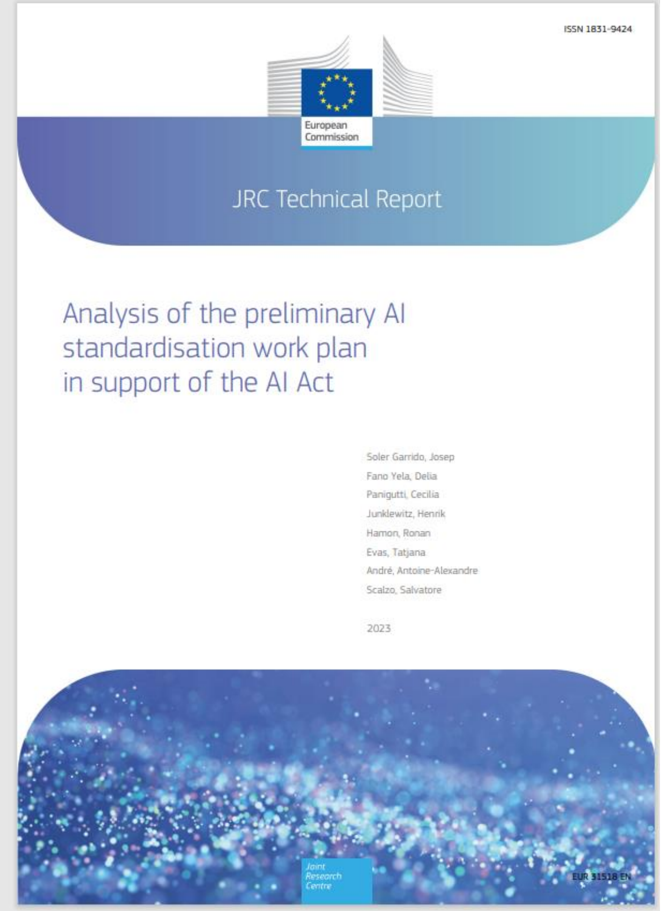
Source: JRC

Technological challenges in AI Cybersecurity

- Addressing model-specific adversarial attacks
- Integration of AI cybersecurity into AI lifecycle management
- Real world AI threat modelling experience
- Robustness measures and cybersecurity metrics for complex AI models
- AI-model-level mitigation measures and defences
- Known trade-offs between requirements (e.g. accuracy vs.adversarial robustness; transparency vs. cybersecurity)
- AI data and model supply chain security
- Preventing misuses of complex AI models
- …

State of Play in AI Cybersecurity Standardisation

Source: JRC; Stable Diffusion 1.4. Text prompt: "AI Cybersecurity Standardisation"



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Analysis of the preliminary AI
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State of Play in AI Cybersecurity Standardisation

Source: JRC; Stable Diffusion 1.4. Text prompt: "AI Cybersecurity Standardisation"

- **Defined by the current AI state-of-the-art** (see EC standardisation request)
- **Non-AI-specific:** ISO 27000 series: should be **applicable to “AI-as-Software”** including security controls (27002) and risk management (27005), **but need adaptation.**
- **AI-specific:** growing number of taxonomies (NIST, MITRE, ENISA) and technical reports (ISO, ETSI); **international standards on AI-specific cybersecurity in development** (e.g. ISO 27090)

What to do in practice?

Source: JRC; Stable Diffusion 1.4. Text prompt: "AI Cybersecurity Standardisation"

I. **The focus of the AI Act is on AI systems.**

II. **Acknowledge limits in the technological state-of-the-art**

III. **Leverage AI- and non-AI security techniques depending on AI component model maturity.**

IV. **No size fits all – importance of risk based approach to cybersecurity.**

Thank you
and keep in touch

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