

FRONTEX



EUROPEAN BORDER AND COAST GUARD AGENCY

ARTIFICIAL INTELLIGENCE AND BORDER SECURITY

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Research and Innovation Unit

The Agency's tasks



2020 in brief: <https://frontex.europa.eu/publications/2020-in-brief-lrbEOG>

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FRONTEX MANDATE - ART. 66 +

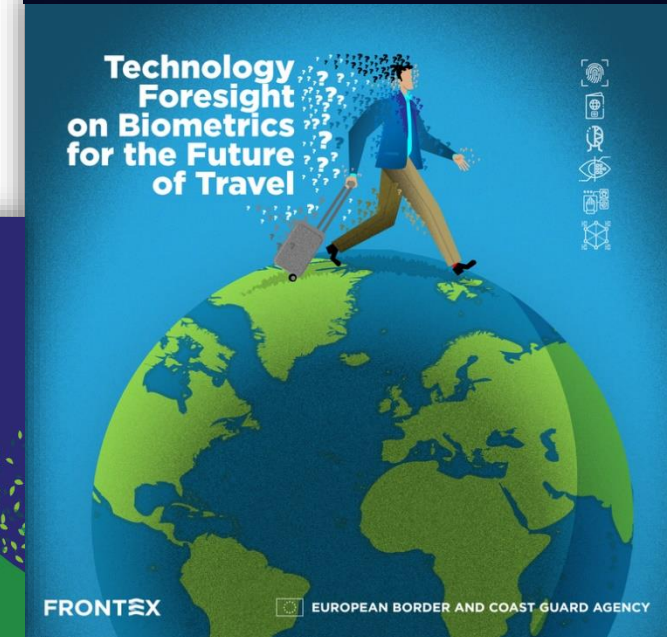
- monitor and contribute to research and innovation
- identify key research themes
- implement parts of Horizon (Border Security)
- implement pilot projects
- Standards *

FRONTEX MANDATE



FRONTEx RESEARCH

- Artificial Intelligence (2020)
- Tech Foresight on Biometrics (2021)
- EU Green Deal / Sustainability (2021)
- 2-3 studies planned (2022)



AI RESEARCH STUDY



<https://frontex.europa.eu/media-centre/news/news-release/artificial-intelligence-based-capabilities-for-european-border-and-coast-guard-1Dczge>

AI RESEARCH STUDY



- Provide an understanding of opportunities and challenges for the EBCG
- Provide an assessment of potential impact and feasibility of implementation
- Roadmaps outline requirements, potential barriers and pathway to adoption

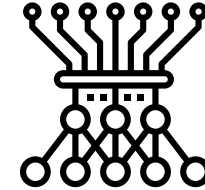
RESEARCH STUDY - SELECTED USE CASES



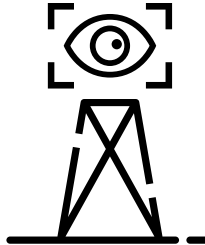
Automated border control



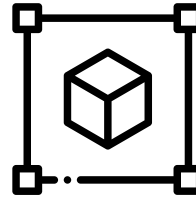
Maritime domain awareness



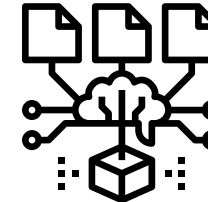
Machine learning (ML) optimisation



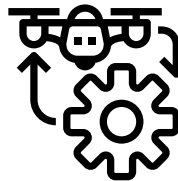
Surveillance towers



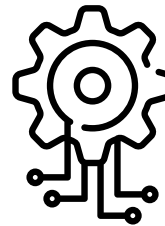
Object recognition



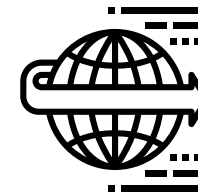
Predictive asset maintenance



sUAS

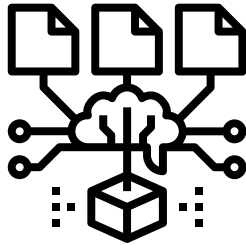


Heterogeneous robotic systems

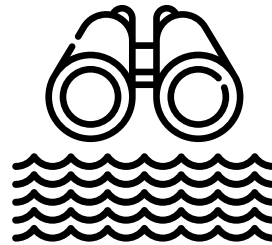


Geospatial data analytics

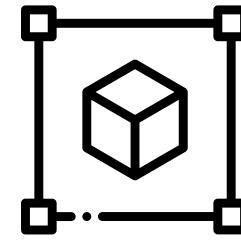
FEASIBILITY OF IMPLEMENTATION



**Predictive asset
maintenance**



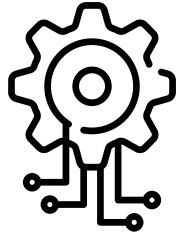
**Maritime domain
awareness**



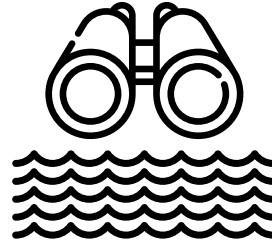
**Object
recognition**



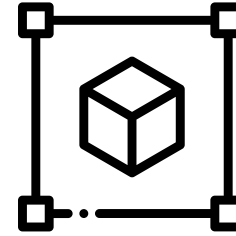
EXPECTED IMPACT



**Heterogeneous
robotic systems**



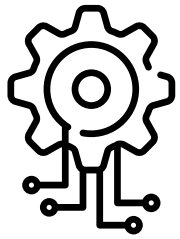
**Maritime domain
awareness**



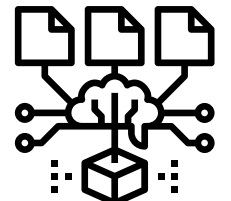
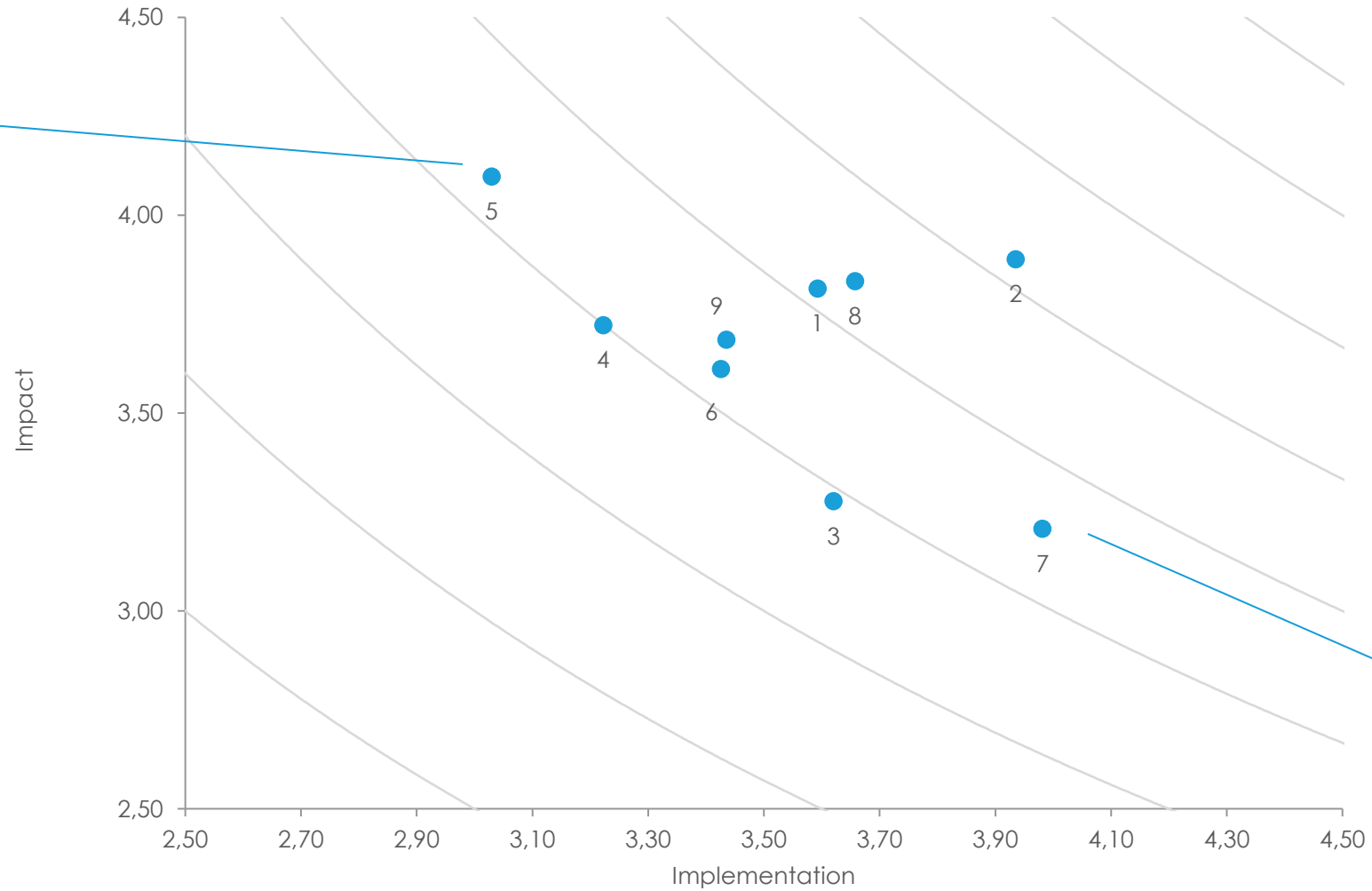
**Object
recognition**



IMPACT AND FEASIBILITY SCORES

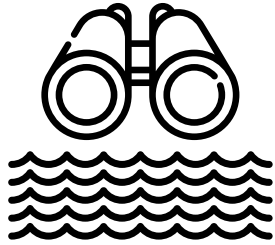


Heterogeneous robotic systems

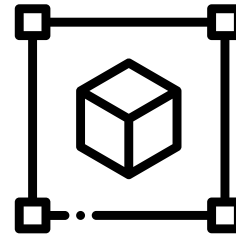


Predictive asset maintenance

COMBINED (FEASIBILITY + IMPACT)



Maritime domain awareness



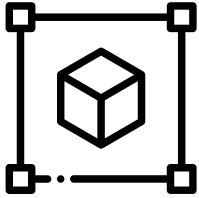
Object recognition



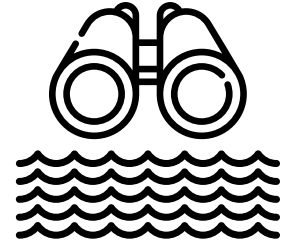
Automated border control



IMPACT AND FEASIBILITY SCORES



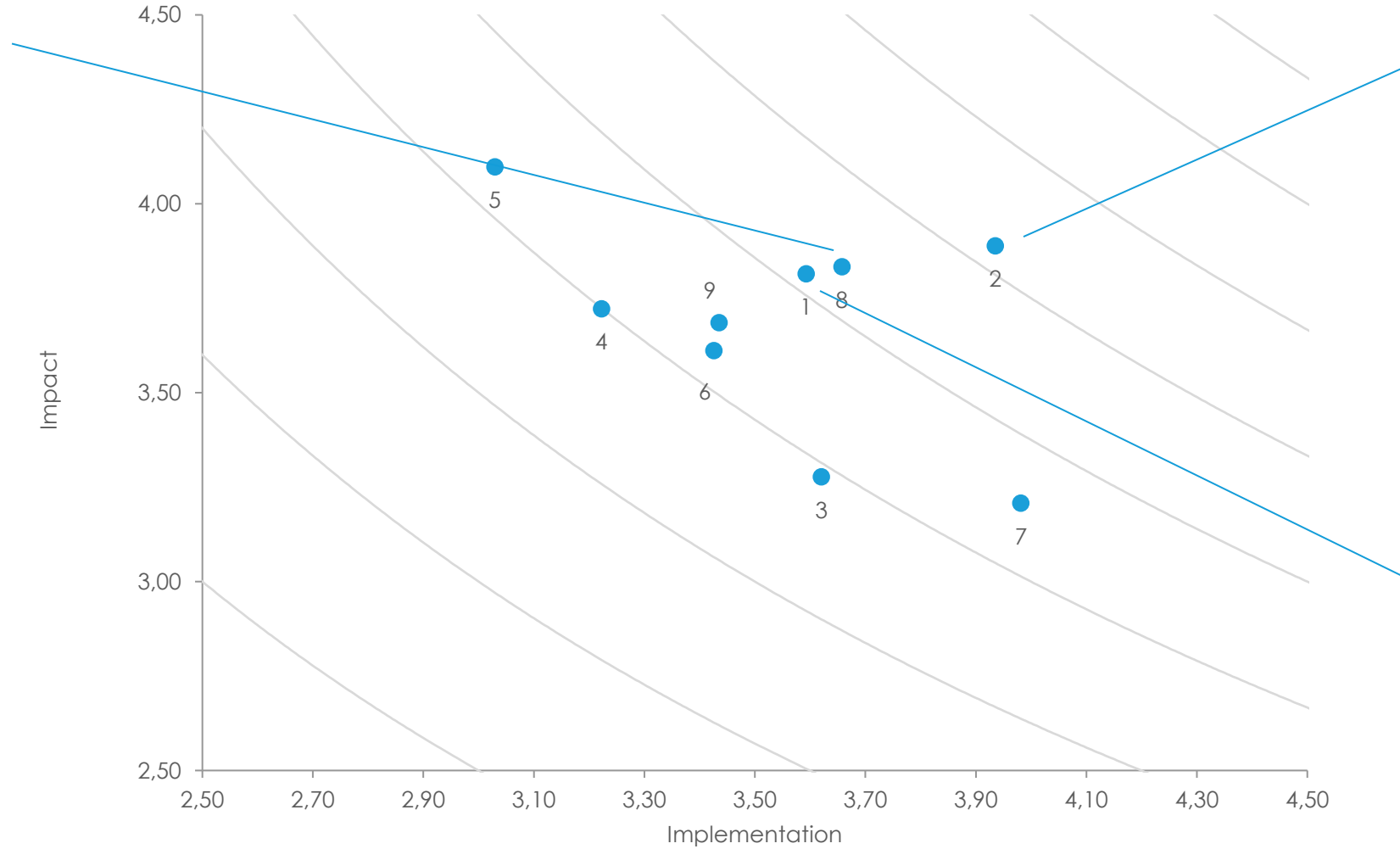
Object recognition



Maritime domain awareness



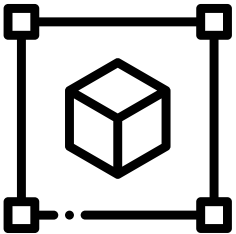
Automated border control



“AI-FRIENDLINESS” SECRET?



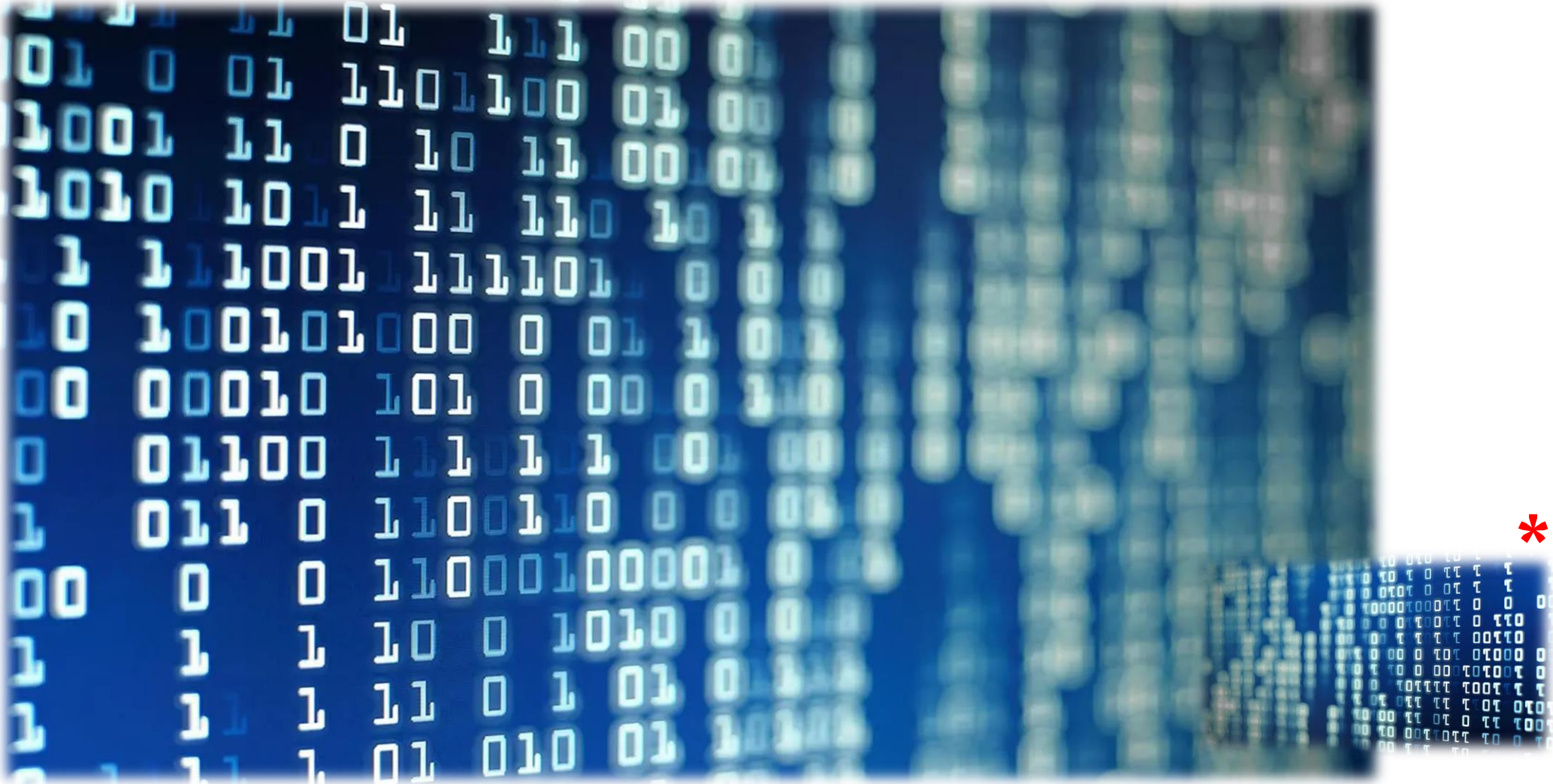
Maritime domain awareness



Object recognition








Automated border control



GENERAL INFLUENCING FACTORS FOR AI ADOPTION

Barriers

-  Technological
-  Cost and commercial
-  Understanding and awareness
-  Skills and expertise
-  Access to relevant technologies

Enablers

-  Technological development
-  Improvements in usability
-  Democratisation of AI
-  Global and regional initiatives
-  Public awareness and acceptance



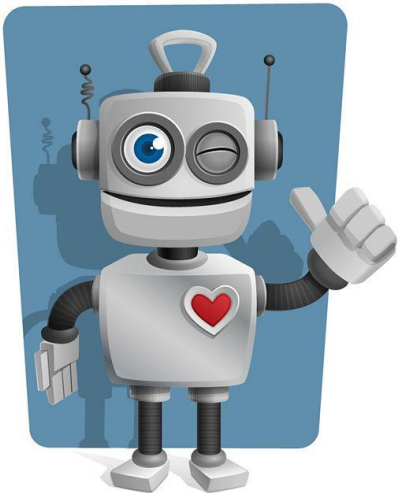
Ethics, Human Rights and regulations

TOP TECH ENABLERS FOR FUTURE AI CAPABILITIES



LAST THOUGHTS

- “AI” a part of our new reality
- Solution ≠ all problems
- AI → “tool” → good = “programmer”
- Experts + operators + facilitators = high % success
- Selected AI-based solutions → perfect fit for EBCG



The
End