appliedAI institute for europe

Risk Classification Database

A comprehensive list of practical examples of high risk and non-high risk use cases on AI systems

N = 641 AI Systems

Presentation | 24th of September, 2024 | Munich

A joint initiative

UNTERNEHMER TUM | IPAI

appliedAI Institute for Europe gGmbh (non-profit) is the Open Access Accelerator for Trustworthy AI in the EU

Our open and free Risk Classification Database is intended

- as empirical reference for anyone seeking to classify an AI System
- as a means of alignment between providers and authorities
- as a data source for academic research on the EU AI Act

A joint initiative

Content

What data can I find here?

Link to database: https://www.appliedai-institute.de/en/risk-classification-database

The Risk Classification Database contains a total of 641 AI Systems (aka. Use Cases) along with a Risk Classification according to the European AI Act.

Batch	Count of AI Systems	Who classified?	Origin of the Data	Date of classification	Addition to the Risk Classification DB
#1	106	appliedAI	Use Case Library that was published as an outcome of a project with the Federal Ministry for Economic Affairs and Climate Action	Before March 2023	Initial Launch, Feb 2023
#2	535	University of Kaiserslautern	"Map on AI" by Germany's Platform for Artificial Intelligence	Before April 2023	September 2024

What data can I find here?

Field	Values	Language	Description
ID	Number	//	Unique Identifier
Title	Text	[EN & DE]	For AI Systems from Hauer et al. (2023), the title has been automated using GPT3.5. The titles were translated to German using MS Copilot.
Description	Text	[EN & DE]	The text was translated from German to English using Google Translate.
Enterprise Function	Categories [e.g. HR, Legal, Marketing, Production, ...]	[EN & DE]	For AI Systems from Hauer et al. (2023), the assignment of use cases into enterprise functions has been automated using GPT3.5.
Risk Class	Categories [High-Risk, Low-Risk, Prohibited, Unclear]	[EN only]	The Risk Class was determined manually using the method described here for appliedAI and in this paper by Hauer et al. (2023).
Transparency Obligations	Categories [Applicable, Not applicable, Unclear, Not verified]	[EN only]	For use cases from Hauer et al. (2023), the applicability of transparency obligations has not been verified for high-risk use cases. See section 4.4 in the paper for further details.
Applicable Annex*	Categories [II or III]	//	• For Annex II: The applicable section [A, B] and sub-section [1-12 for section A, 1-7 for section B] • For Annex III: The applicable item [1-8] and sub-item • If high-risk or unclear classification: Comment with a rationale [for appliedAI use cases]

* The classification was done before the final numbering in the AI Act was published. Annex II changed to Annex I. See slide 14 for the detailed limitations.

Who benefits from this data?

Industry & Public Sector

AI Providers & Deployers

AI providers and deployers can leverage the Risk Classification Database when assessing the risk classification of their (potential) AI use cases.

They can use the database to:

- identify similar use cases,
- review their risk classification, and
- check if the rationale is relevant for them.

Benefit: The database facilitates consistent risk classification.

Regulators & authorities

Supervisory bodies & certifiers

The database provides regulators and policymakers with a comprehensive overview of use cases and their classification into risk classes.

The database assists by

- showing the impact of specific classification criteria
- indicating AI applications that face regulatory uncertainty
- highlighting areas where policy support might be needed

Benefit: The database supports evidence based policy making and enforcement.

Academia & Research Institutes

Researchers and investigators

Researchers can analyze the database to gain insights into risk classes across areas of application, to study the implementation and impact of the AI Act and AI policy in general.

The database

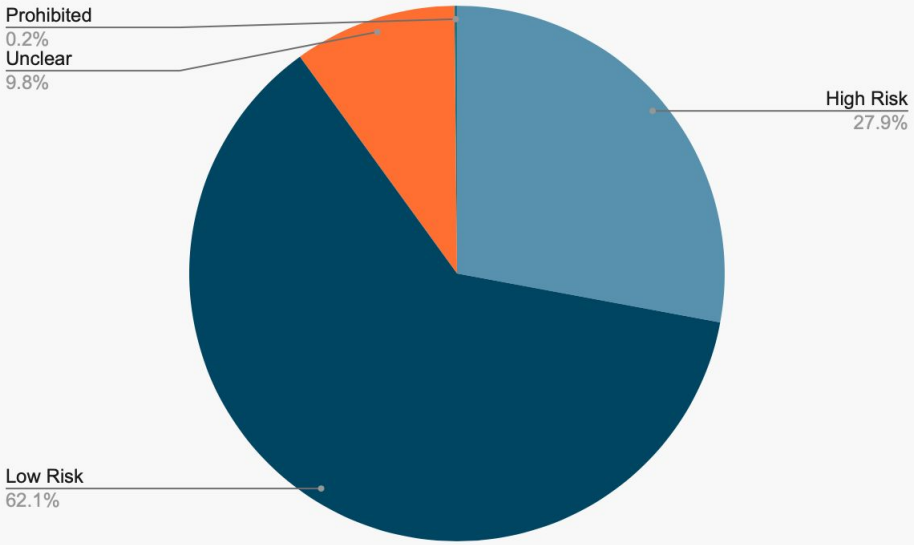
- can be downloaded as plain table
- features (in part) a rationale for the classification
- offers further details about the use cases

Benefit: The Database accelerates regulatory learning that complements regulatory sandboxes

Distribution across the four risk classes*

How many use cases fall into each of the risk classes? (N = 641)

Almost 3 in 10 use cases are classified as high-risk.
For about 1 in 10 use cases, classification was unclear.

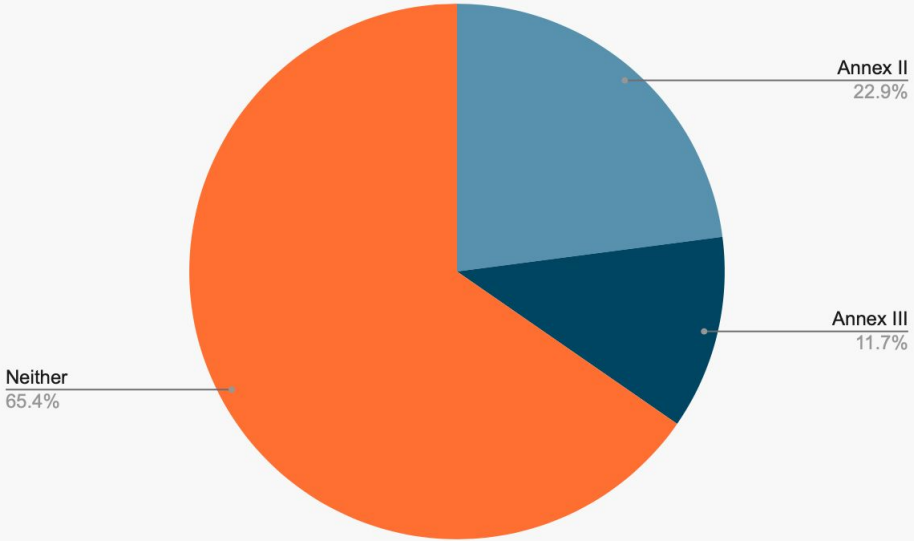


* The classification was done before the introduction of the “high-risk-filter” in Article 6 (3), which is thus not reflected in this dataset. See slide 14 for the detailed limitations.

High Risk AI Systems per Annex, II* or III

How many use cases are related to Annex II, III, or neither? (N = 641)

Roughly 1 in 5 use cases is subject to existing EU legislation in Annex II. About 1 in 10 use cases falls under the list of high-risk systems explicitly mentioned in Annex III.

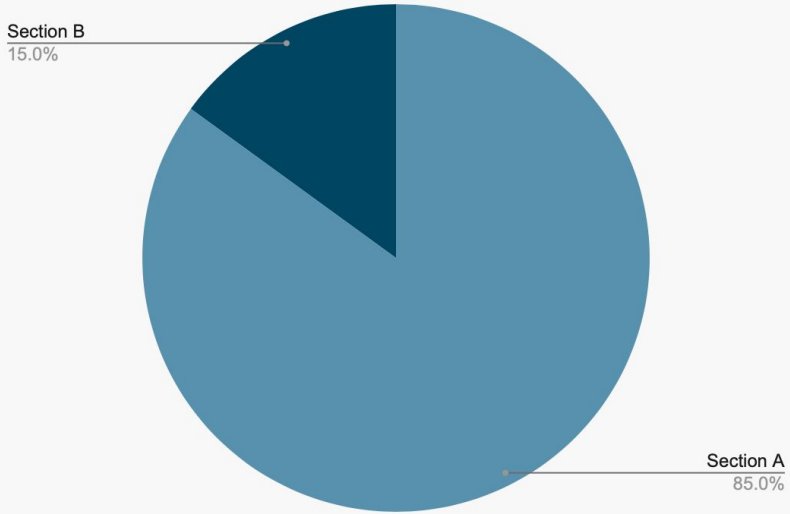


* The classification was done before the final numbering in the AI Act was published. Annex II changed to Annex I. See slide 14 for the detailed limitations.

High Risk AI Systems in Annex II*, Section A or B

Among AI Systems related to Annex II, how many are related to Section A or B? (N = 147)

About 5 in 6 AI Systems related to Annex II fall into Section A.

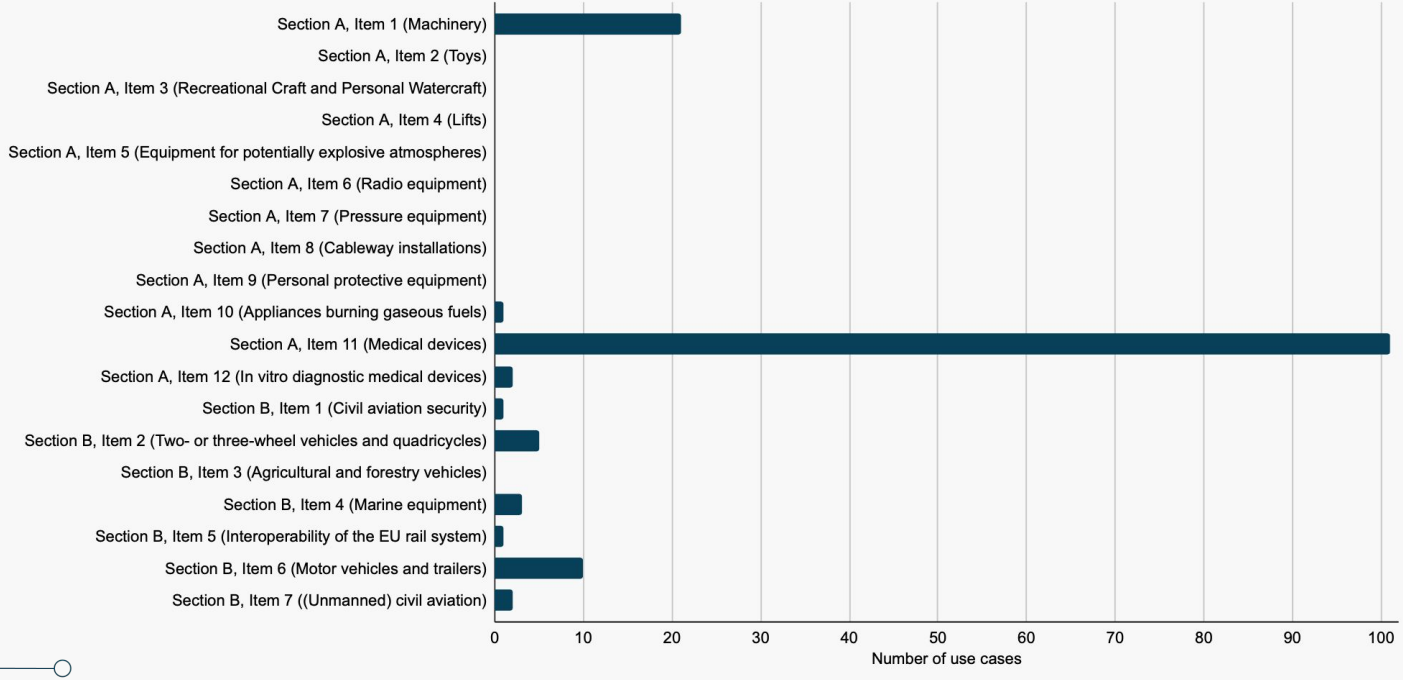


* The classification was done before the final numbering in the AI Act was published. Annex II changed to Annex I. See slide 14 for the detailed limitations.

Breakdown of High Risk AI Systems in Annex II*

Among AI Systems falling into Annex II, how many are related to each sub-item? (N = 147)

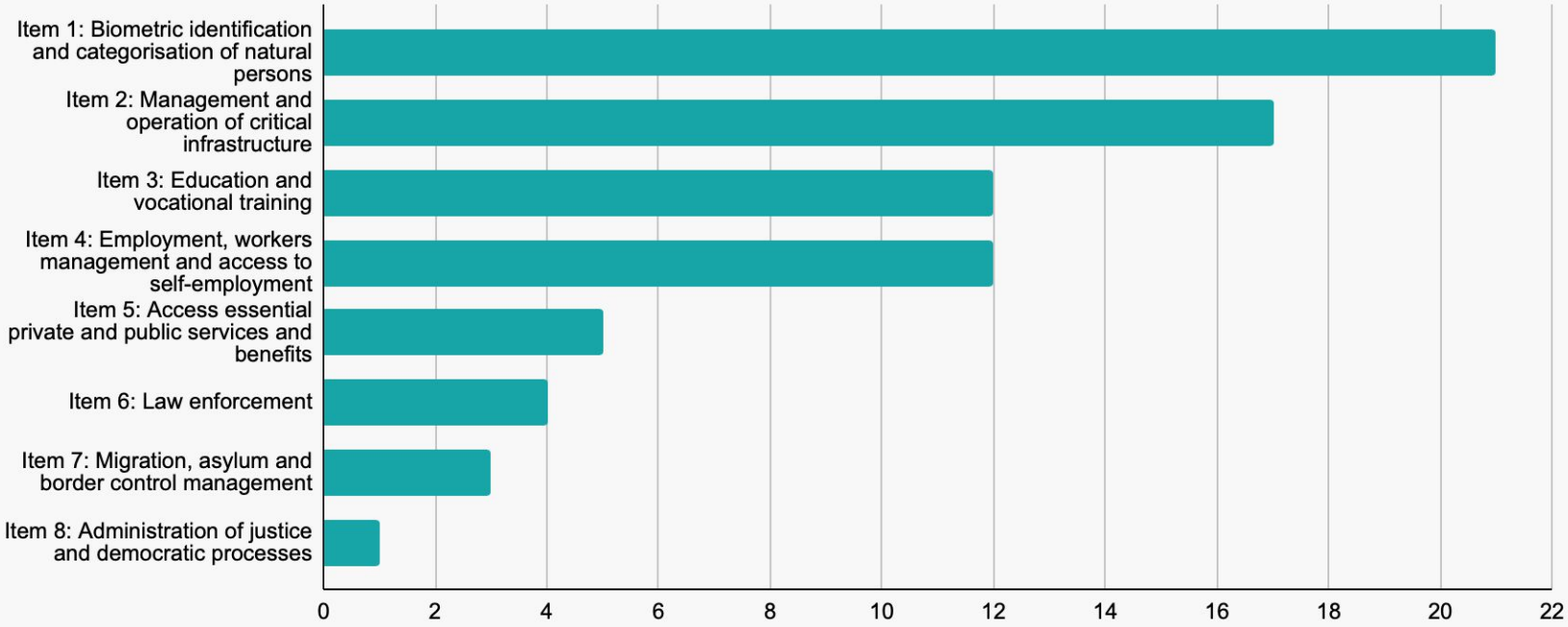
Note that the high number of AI Systems related to medical devices might result from the sample and might not be representative for the overall distribution in the EU.



* The classification was done before the final numbering in the AI Act was published. Annex II changed to Annex I. See slide 14 for the detailed limitations.

Breakdown of High Risk* AI Systems in Annex III

Among use cases related to Annex III, how many are related to each of its items? (N = 75)

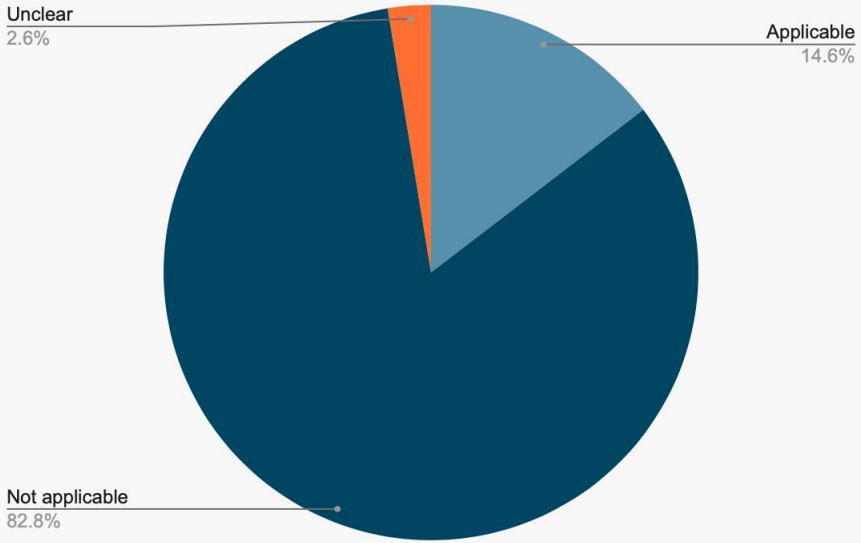


* The classification was done in 2023 before the introduction of the “high-risk-filter” in Article 6 (3), which is thus not reflected in this dataset. See slide 14 for the detailed limitations.

Transparency Obligations

How many use cases would fall under the transparency requirement? (N = 466)

About 1 in 7 use cases is subject to the transparency requirement (Art. 52*).

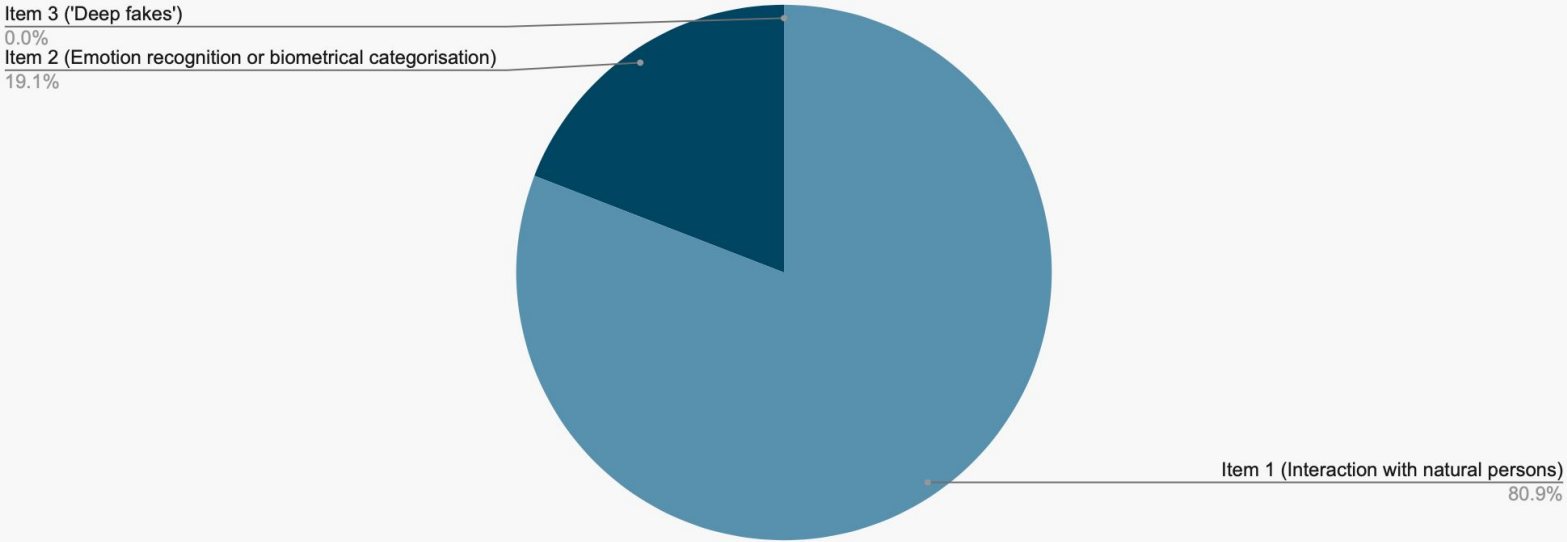


* The classification was done before the final numbering in the AI Act was published. Article 52 changed to Article 50. See slide 14 for the detailed limitations.

Breakdown of Transparency Obligations

Among use cases to which Art. 52* is applicable, how many are related to each of its items? (N = 68)

Among use cases subject to the transparency requirement, in 4 out of 5 use cases this is due to interactions with natural persons.



* The classification was done before the final numbering in the AI Act was published. Article 52 changed to Article 50. See slide 14 for the detailed limitations.

What are the limitations of the data and the analysis?

Focus on AI in the enterprise
The AI systems studied are all taken from the enterprise context, i.e. AI in other application areas, such as for specific industries (e.g. medicine, aerospace, automotive) or sectors (e.g. education, public administration, healthcare), are not included. Thus, the results are not representative for the totality of all AI applications, but give a very good and broad overview of AI in functional areas of companies.

Geographical distribution: Germany, EU & beyond
The AI systems considered are currently in use, but they are unevenly distributed in space. The AI Systems from appliedAI are from Europe and locations outside the EU. AI Systems reviewed by Hauer et al. (2023) are exclusively from Germany. Therefore, we cannot make a statement about whether and to what extent the selection of AI systems is representative for AI in Europe.

Limited information about AI systems
The descriptions of the AI systems were limited and in some cases the lack of details was a reason for unclear classification. With more information, the proportion of unclear cases would possibly decrease. This observation shows that comprehensive details about the AI system are needed for an unambiguous risk classification.

Changing Criteria and references in the AI Act
Both, the risk classification and the development of this database was done during the negotiations of the AI Act and before the publication of the final numbering of the provisions. Thus some provisions, such as the “high-risk filter” in Article 6 (3) are not reflected, and some references are outdated:

- Annex II changed to Annex I
- Article 52 changed to Article 50

Potential errors during classification
The AI Act is a comprehensive and complex set of rules, and AI is a complex and multi-faceted technology. Both are continually evolving. The team at appliedAI has dealt extensively with both issues and there have been various review cycles on the classification, including external experts. The data from TU Kaiserslautern was classified as per the method described in their paper, including peer reviews. Nevertheless, it cannot be ruled out that human errors have occurred and altered the classifications.

Automated translations
The content was partially translated or generated using Google Translate, Microsoft Copilot and GPT 3.5. Thus, the resulting content may be imperfect, affecting its’ quality and accuracy.

How can I contribute or ask for help?

Contribute

The more the merrier!

We want to grow the database and you can contribute.

For individual Use Cases, please use this form.

To share Use Cases in bulk, please email us at: info@appliedai-institute.de

Ask for help

You're not sure? You're not alone!

We are here to help and you can simply reach out with your questions.

Whether you struggle with the Risk Classification or some other part of the EU AI Act, please email us at: info@appliedai-institute.de

Final remarks and about us

Share, adapt and use the database

Version 1.0 (September 2024);

About us

The **non-profit appliedAI Institute for Europe gGmbH** is a subsidiary of the appliedAI Initiative GmbH.

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