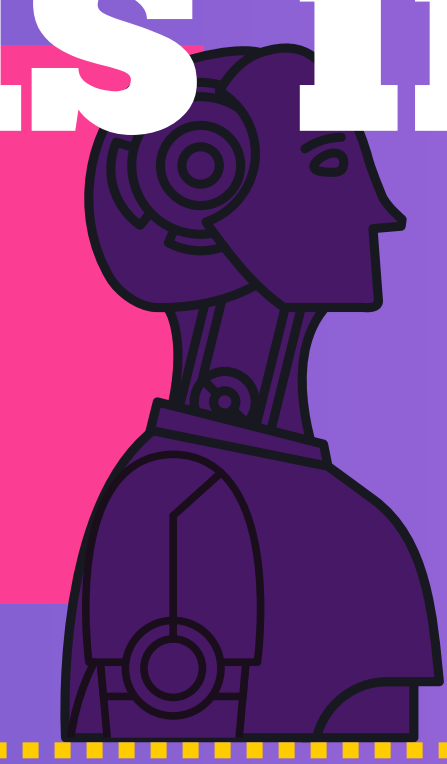


The implementation of AI diagnostic tools in oncology

What is the impact of new technologies on humans and society?



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Research Question:

How could the Western World implement AI diagnostic tools in oncology?

Methods:

- Survey to medical professionals and students
- Legal document analysis on matters of liability

Survey Findings:

Q1: Is current AI training sufficient?

- Hypothesis: Current AI **training** for medical professionals is **insufficient** to ensure competence in effectively utilizing AI tools.
- Results: The perceived preparedness of medical professional demonstrates that a substantial majority **does not feel equipped** to employ tools in practice (around **60%** of medical graduates consider training insufficient)

Q2: Are medical professionals fearful that AI might substitute them?

- Hypothesis: Factors such as **age, experience and skills** play a role in opinions on current job security when it comes to use and possible replacement of AI tools
- Results: There is a **significant negative relationship** between age and AI tools (1% uncertainty level), but there is no evidence that experience and AI skills have an effect on concerns of replacement.

Q3: Who should be held liable in case of malfunction?

- 1st Hypothesis: Doctors feel **more legal responsibility** when using **white box AI** compared to non-transparent black box AI
- Results: The mean of legal responsibility for white box AI is **slightly higher** than for a black box AI, the difference is non-significant. The latter is however larger for employed medical professionals than for medical students.
- 2nd Hypothesis: A doctor will feel **more legal responsibility** in a scenario where a correct AI diagnosis is ignored (with best intentions) than when an incorrect AI diagnosis is adopted.
- Results: At an uncertainty level of 1%, we find that **our hypothesis holds** under the use of **both** a transparent white box and a non-transparent black box AI.

Q4: Does liability influence willingness to use AI tools?

- Hypothesis: Doctors likely prefer to **minimize their liability**.
- Results: Doctors show a significantly **lower willingness** to utilize AI tools when they carry **full liability**, rather than where liability is shared or entirely borne by the AI developer.

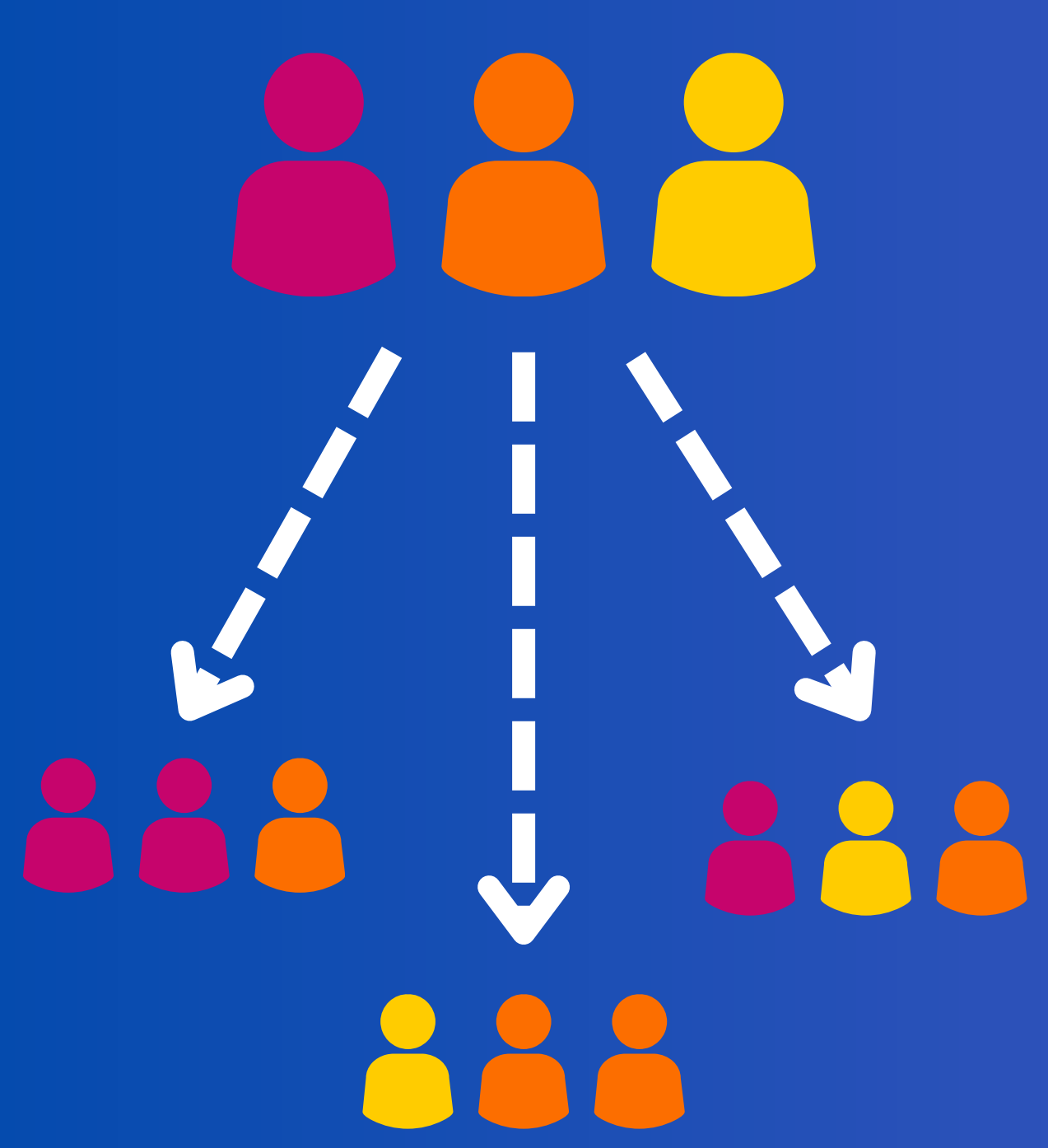
Survey Analysis:

Bootstrap analysis method:

Computations are based on a thousand new samples that are drawn with replacement from our original sample

Advantages of the method:

- 1) Variables don't have to be normally distributed
- 2) Less susceptible to outliers
- 3) More accurate for a low sample size



Legal Analysis:

