

Unpacking the blackbox: Transparency

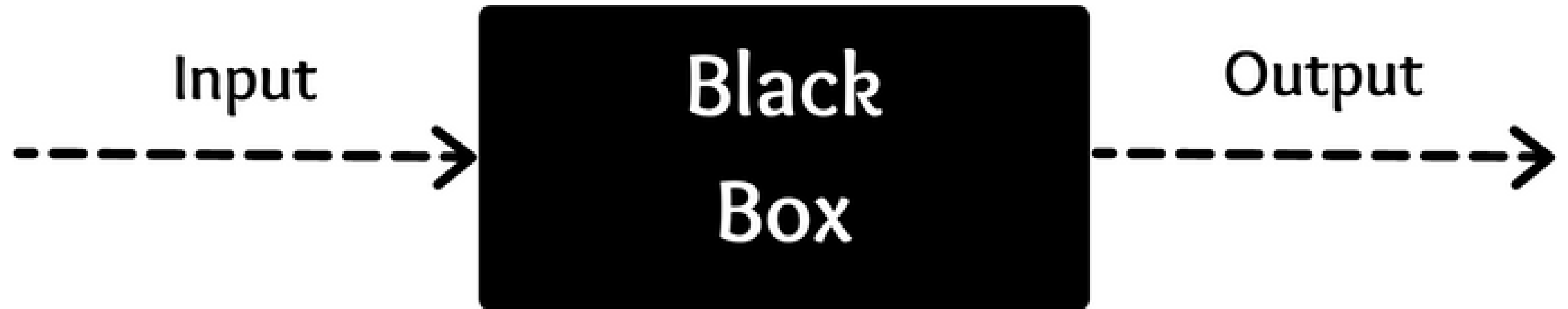
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Black-box nature

- AI implementations are often black boxes
- A black box in AI:
 - Known **inputs** and **outputs**



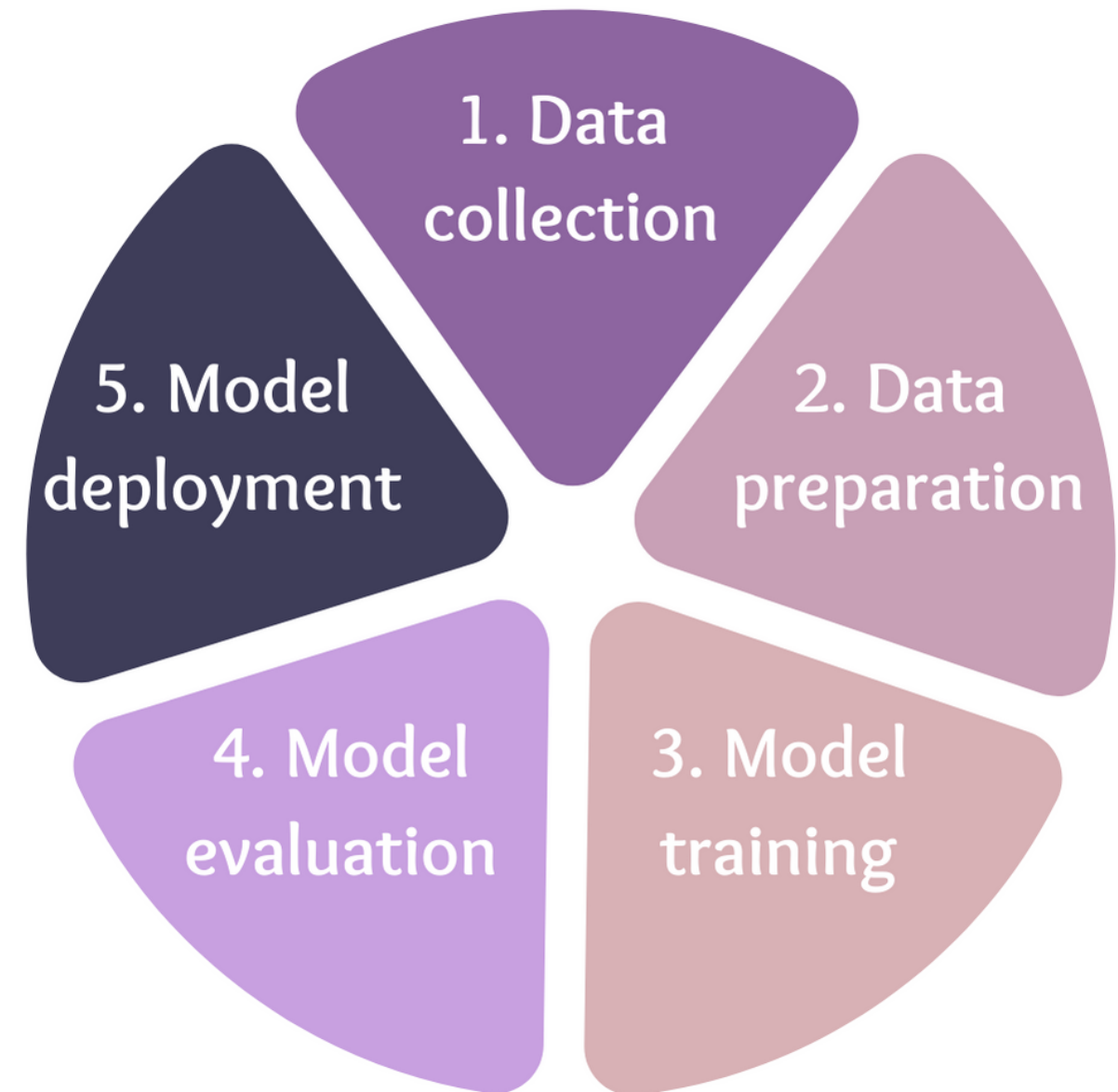
Ambiguity is non-ideal

- Ambiguity in AI: Ethical challenge
- Question of trust:
 - Can we validate AI decisions without understanding them?
- Transparency:
 - Making an AI's decision-making process understandable
- Example:
 - Factors in AI sales model



Throughout the AI life cycle

- Transparency in AI involves all stages of the AI life-cycle
- Purpose:
 - Understand the workings of the AI system
 - Gauge comfort level with its operation



A deciding factor

- Current state:
 - Transparency in AI is uncommon
 - **Hesitation** in AI adoption
- Future implications:
 - Transparency will become a **deciding factor** in users' choice of AI systems
- Actionable:
 - Organizations should prioritize transparency



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Openness is key

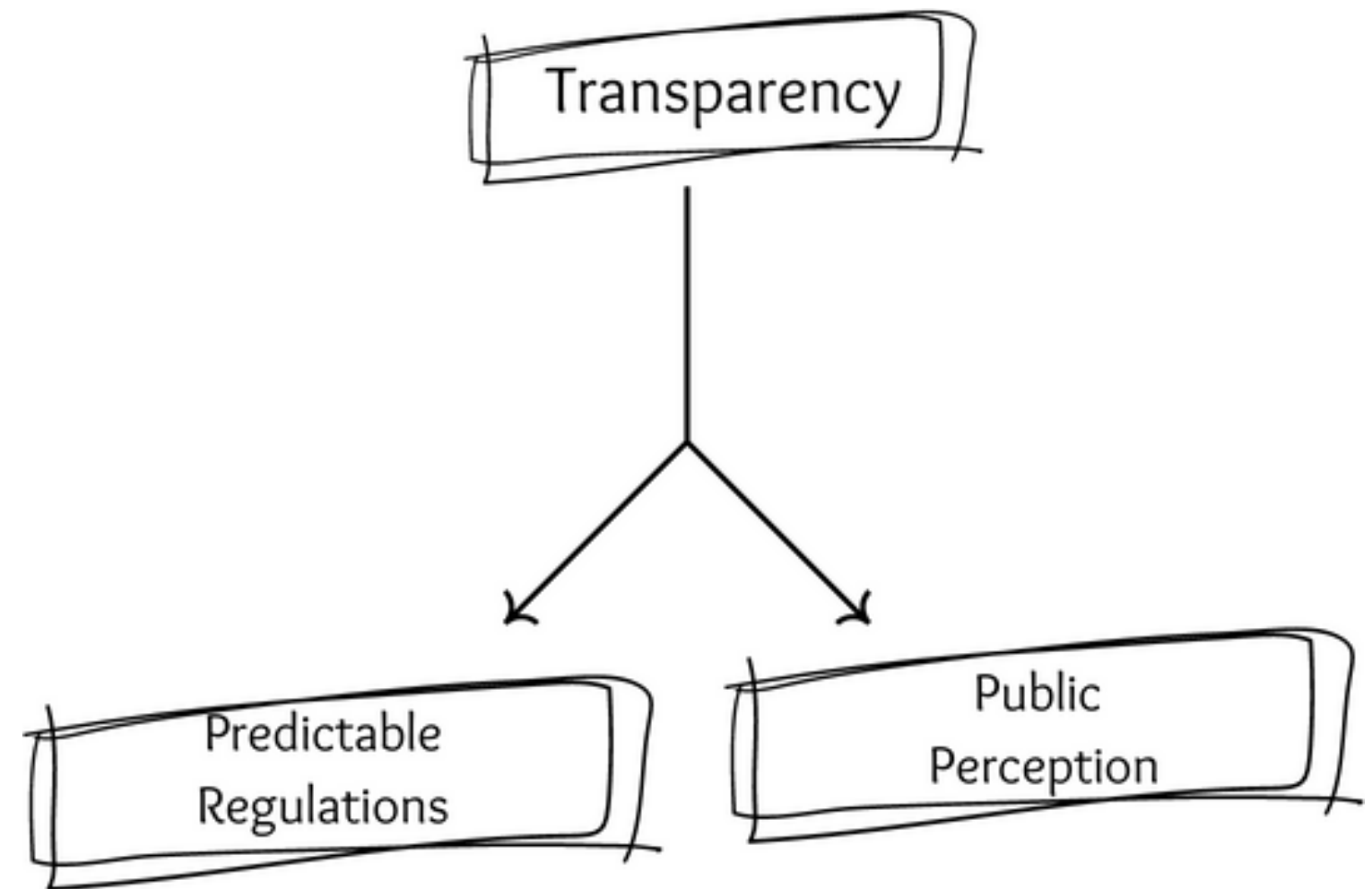
- Openness about AI challenges and learnings is **key**
- **Transparency** encourages **innovation** in AI
- It leads to more advanced, reliable AI systems



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Embracing transparency in AI

- Transparency in AI can be intimidating but is beneficial for businesses
- Transparency leads to **predictable regulations** and **public perception**
- Companies can compete based on **strengths, culture, customer relationships** rather than secrecy



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AI fairness: not just a dream

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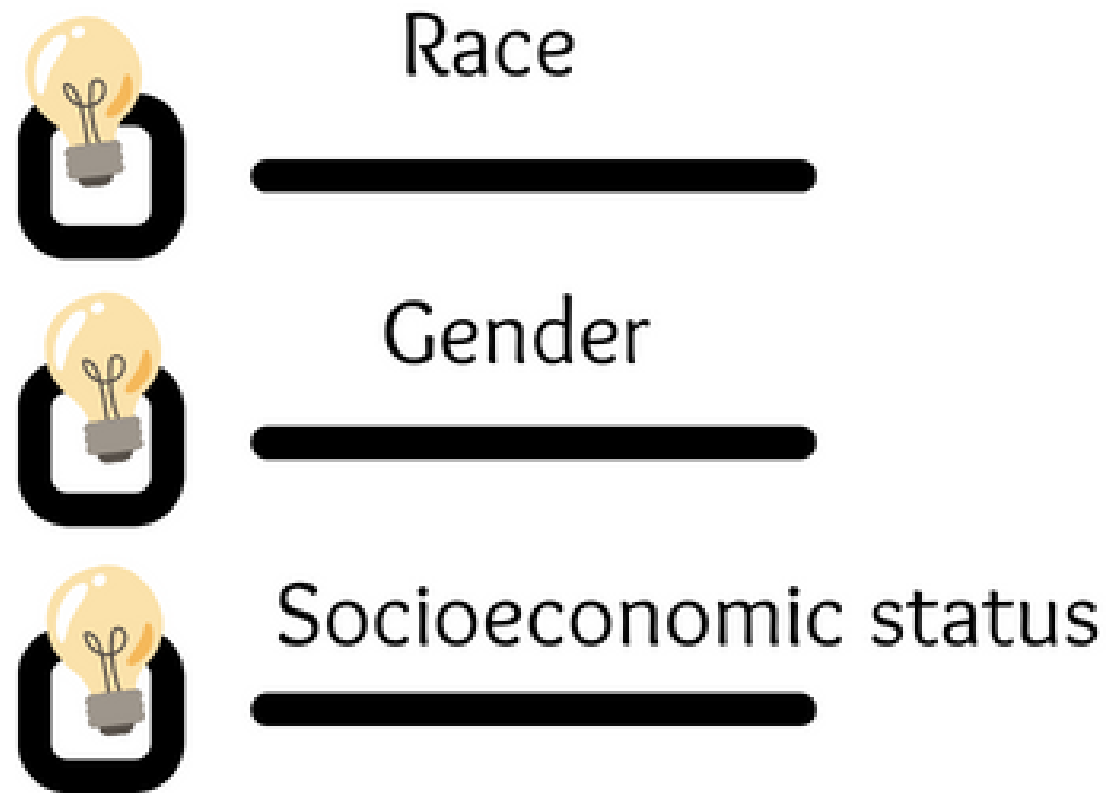


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Fairness in AI

- Fairness: Ensure no group is favored over another
- Concerns race, gender, socioeconomic status, etc.

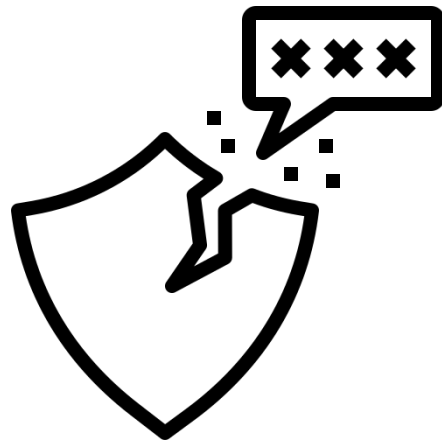
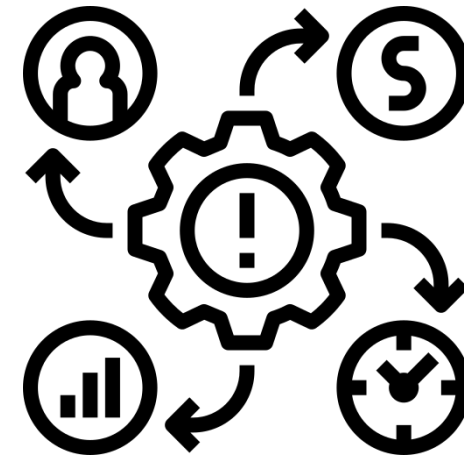


- AI should predict patient outcomes equitably
- There should be no bias towards any specific group



Why does fairness matter?

- AI's rapid processing can result in large-scale impacts



- Fairness prevents negative targeting of vulnerable populations
- Essential for responsible AI implementation, ensures equitable consideration for all

¹ Icons made by noomtah & Parzival' 1997 from www.flaticon.com

Promoting fairness

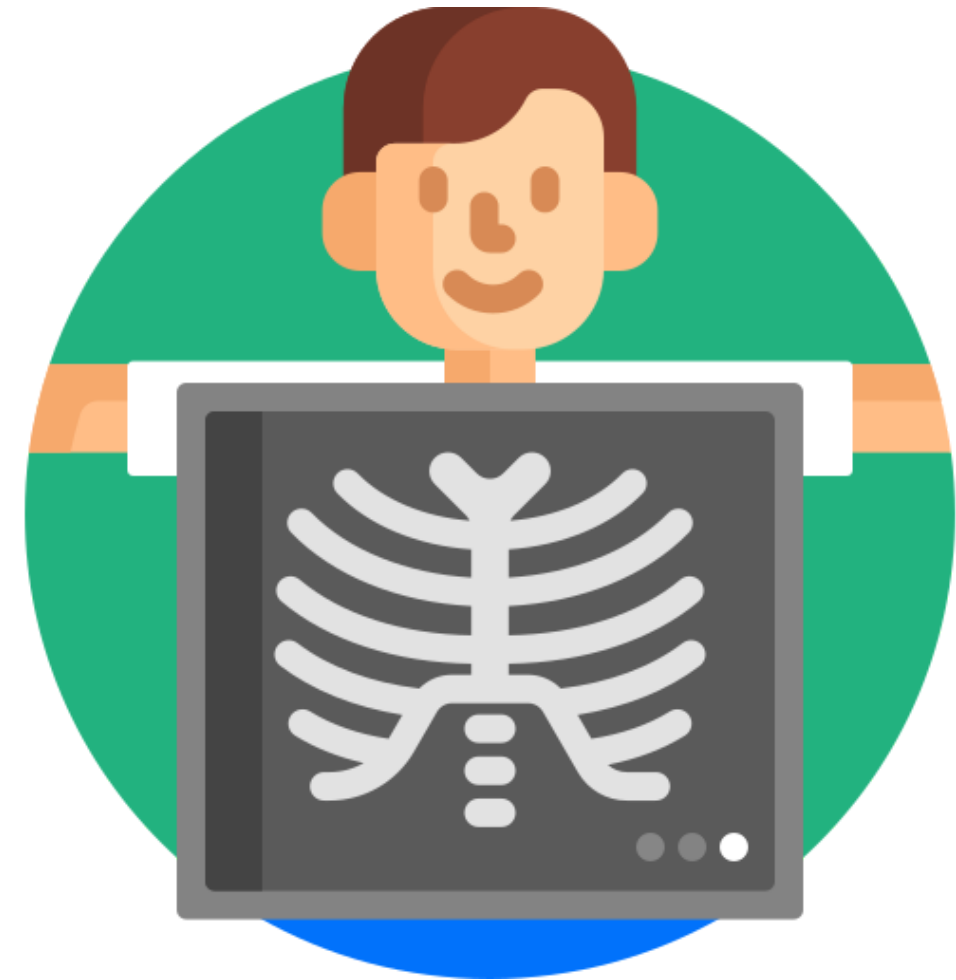
- Fairness promotion is challenging but possible
- Reduces potential bias by omitting certain variables
- Variables include race, gender, age, socioeconomic status, sexual orientation, religion

Fairness through unawareness



Unintentional issues exist

- Even with unawareness, unintentional bias can still occur
- Robust strategies needed to ensure fairness



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Minimizing bias

- The main objective of AI fairness is minimizing **bias**
- The first step is **acknowledging** bias exists
- Remain **skeptical** and **vigilant** of AI
- Conduct frequent monitoring and audits for fairness

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Safeguarding AI: Accountability

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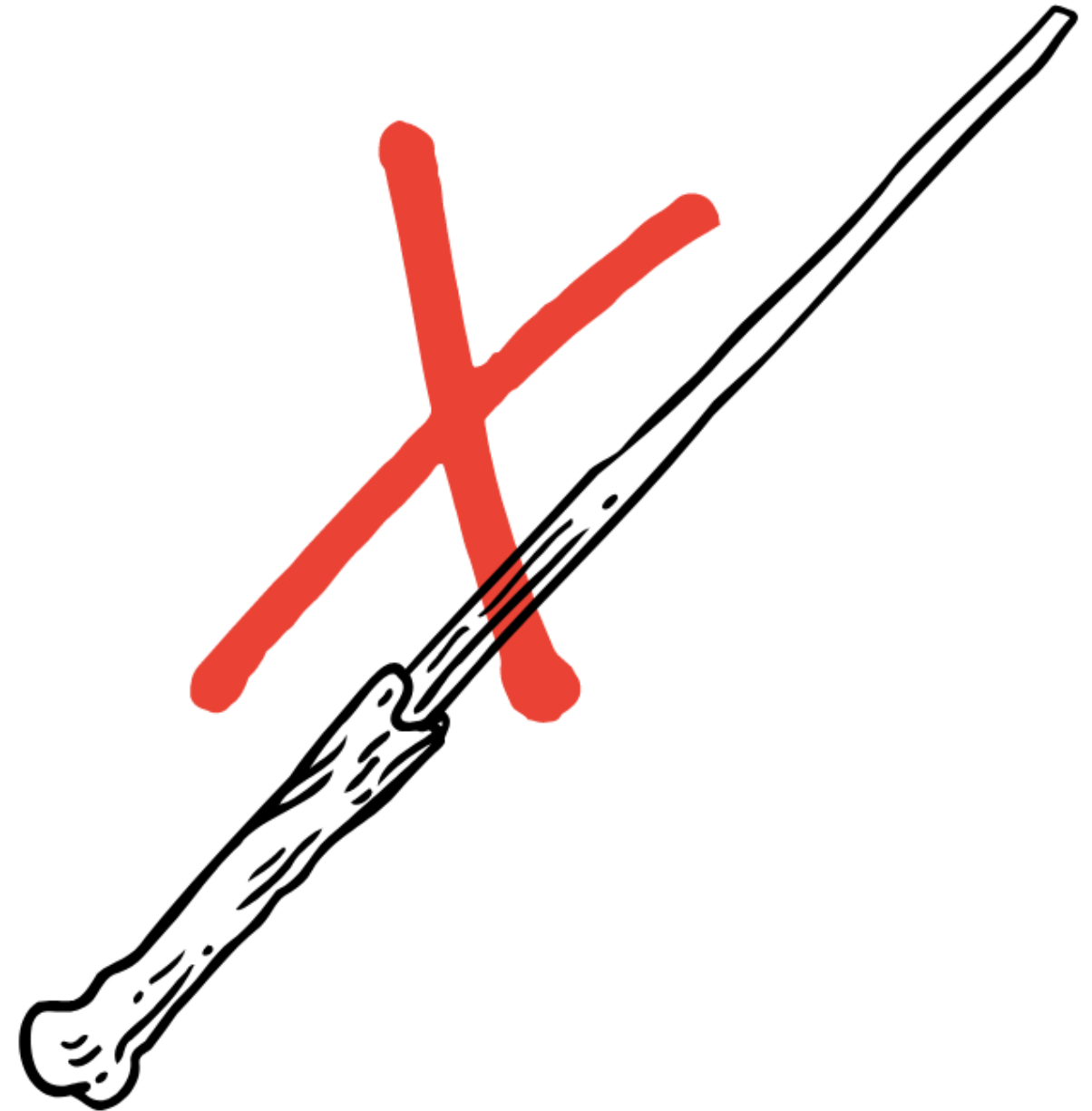


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Define accountability

- Accountability:
 - Assigning responsibility for AI outcomes
- Critical in AI's development, deployment, and use
- AI isn't a responsibility-evading "magic wand"



Accountability is vital

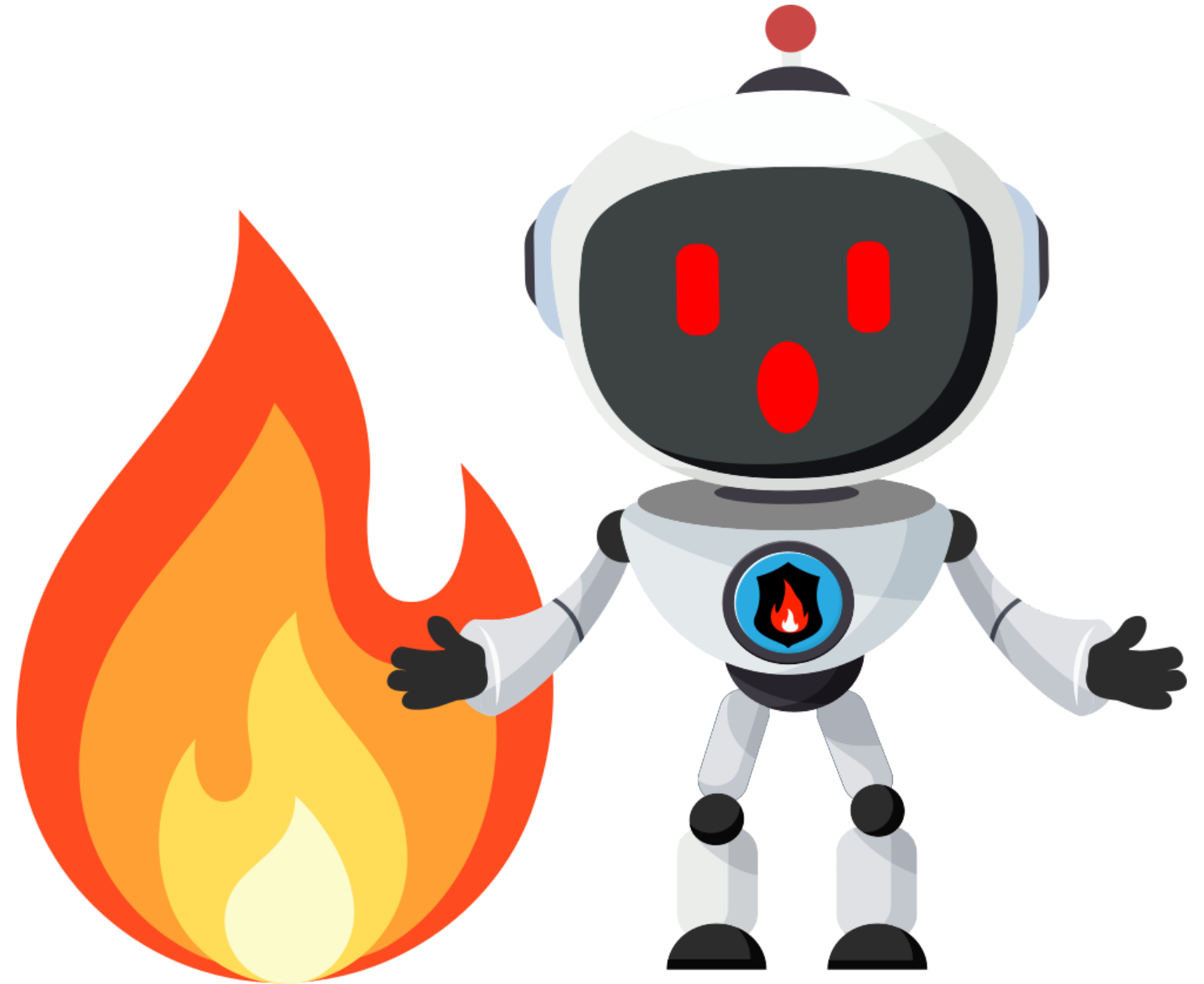
- People trust AI systems more when there is accountability
- Accountability ensures ethical use and mitigates potential harm
- Accountability means not absolving humans from responsibility



Final decision-maker

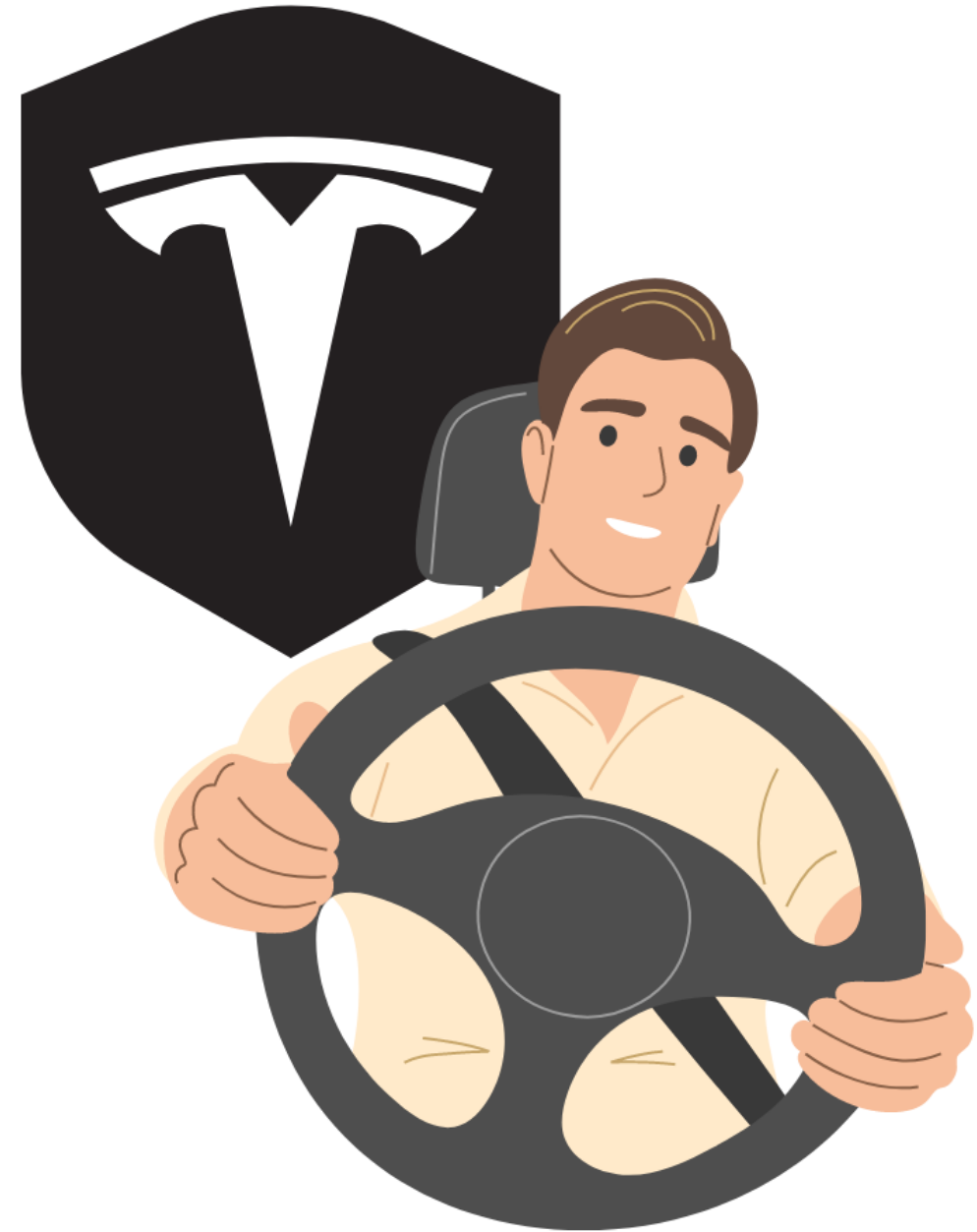
The paradox of accountability

- Increasing AI accountability can improve trust
- Yet, excessive trust in AI can lead to misguided decisions
- Example:
 - Georgia Tech study where participants followed misguided robot guidance



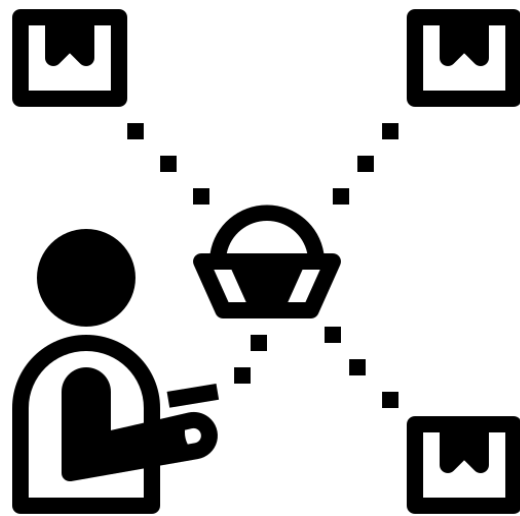
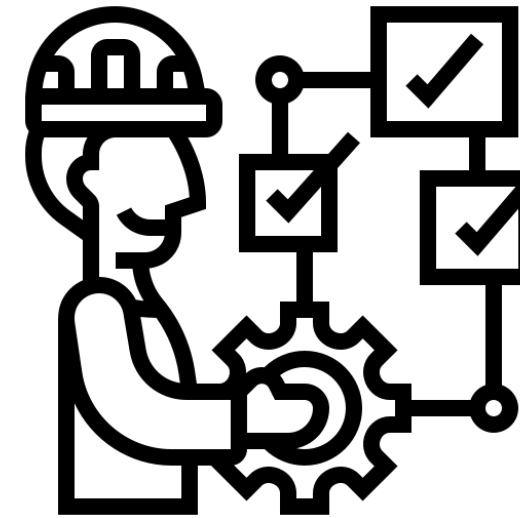
The Tesla story

- Misunderstanding of the auto-pilot capabilities among consumers
- Criticism for Tesla's insufficient safeguards
- Both Tesla and consumers share responsibility



Achieving accountability

- AI producers:
 - Achieving accountability involves transparency and solving the 'Black Box' problem
 - Attributing responsibility is key

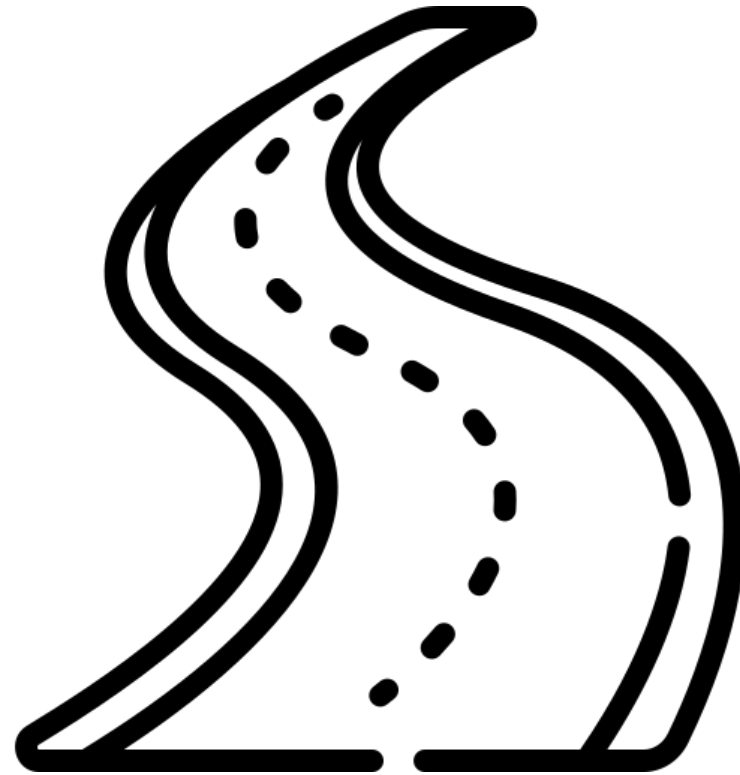


- AI consumers:
 - 'Trust but verify'
- Producers and consumers both play a role in creating ethical AI
- Challenges are opportunities for innovation

¹ Icons made by Eucalyp & Sumitsaengtong from www.flaticon.com

No one-size-fits-all

- Accountability in AI is a **continuous journey**
- With each AI advancement, the **accountability** conversation evolves
- No one-size-fits-all approach; varies across industries



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Explainable AI

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What's explainable AI?

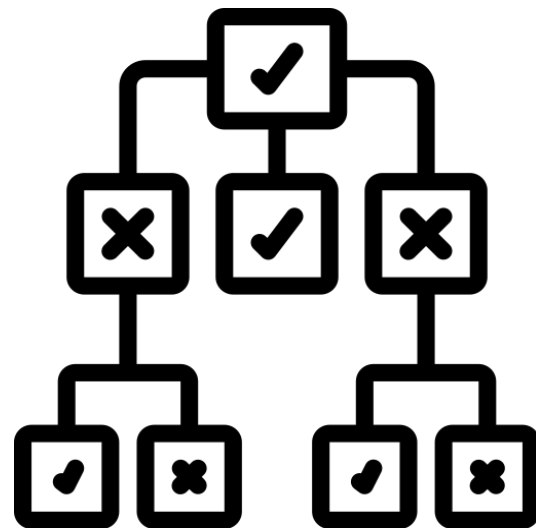
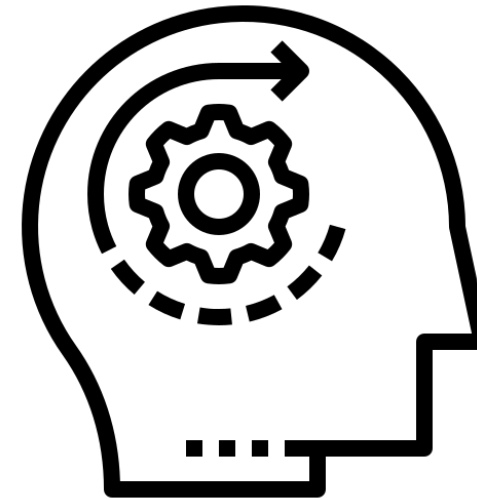
- AI systems whose internal workings are understood by humans
- Goal: Making AI's decision-making clear, understandable, and explainable
- Helps understand why and how AI makes decisions
- Major step towards ethical AI usage



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The central pillars

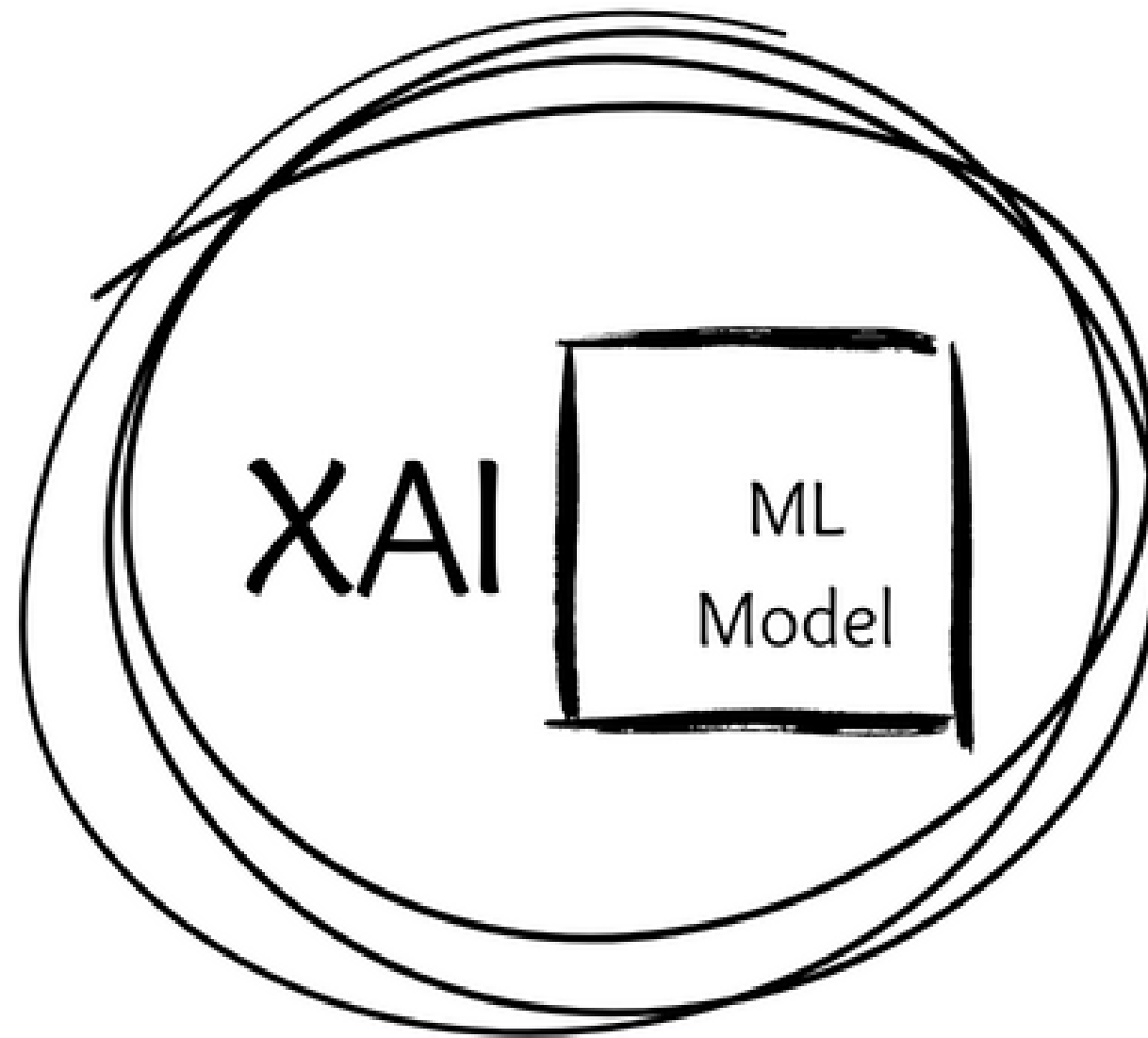
- Transparency, fairness, accountability are central
- AI conclusions should be accessible and logical to humans



- Models built with explainability at their core
- Uses interpretable models like **decision trees** or **linear regression**
- Power in seeing the process, despite possibly lower performance

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How does it work?

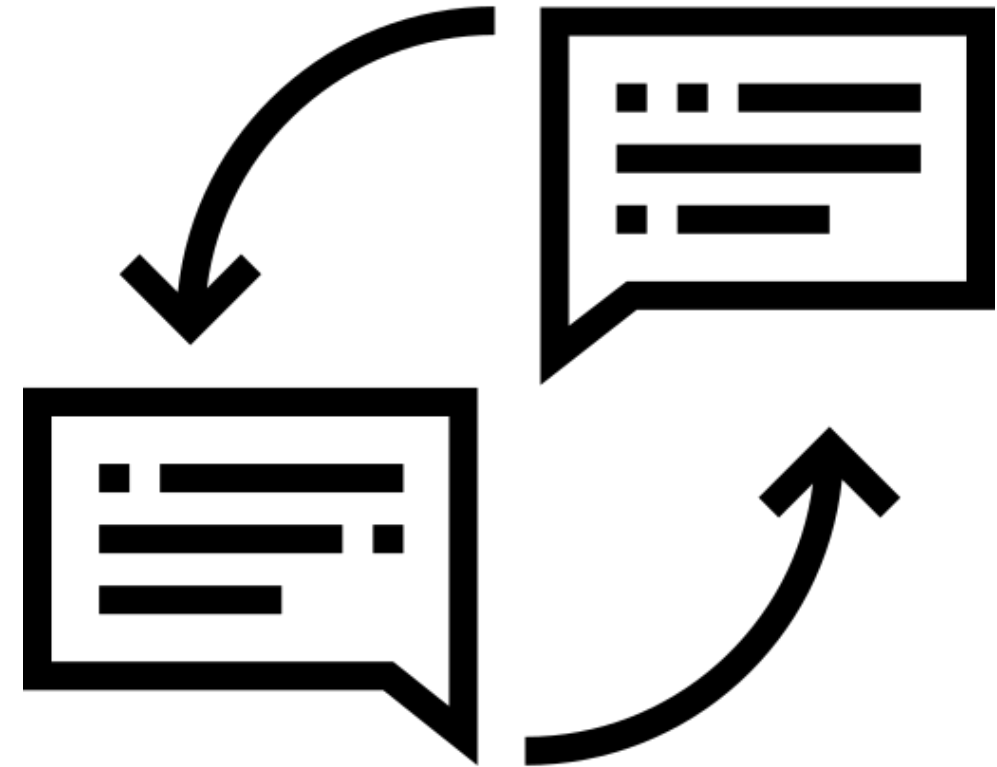


How does it work?



Local Interpretable Model-agnostic Explanations (LIME)

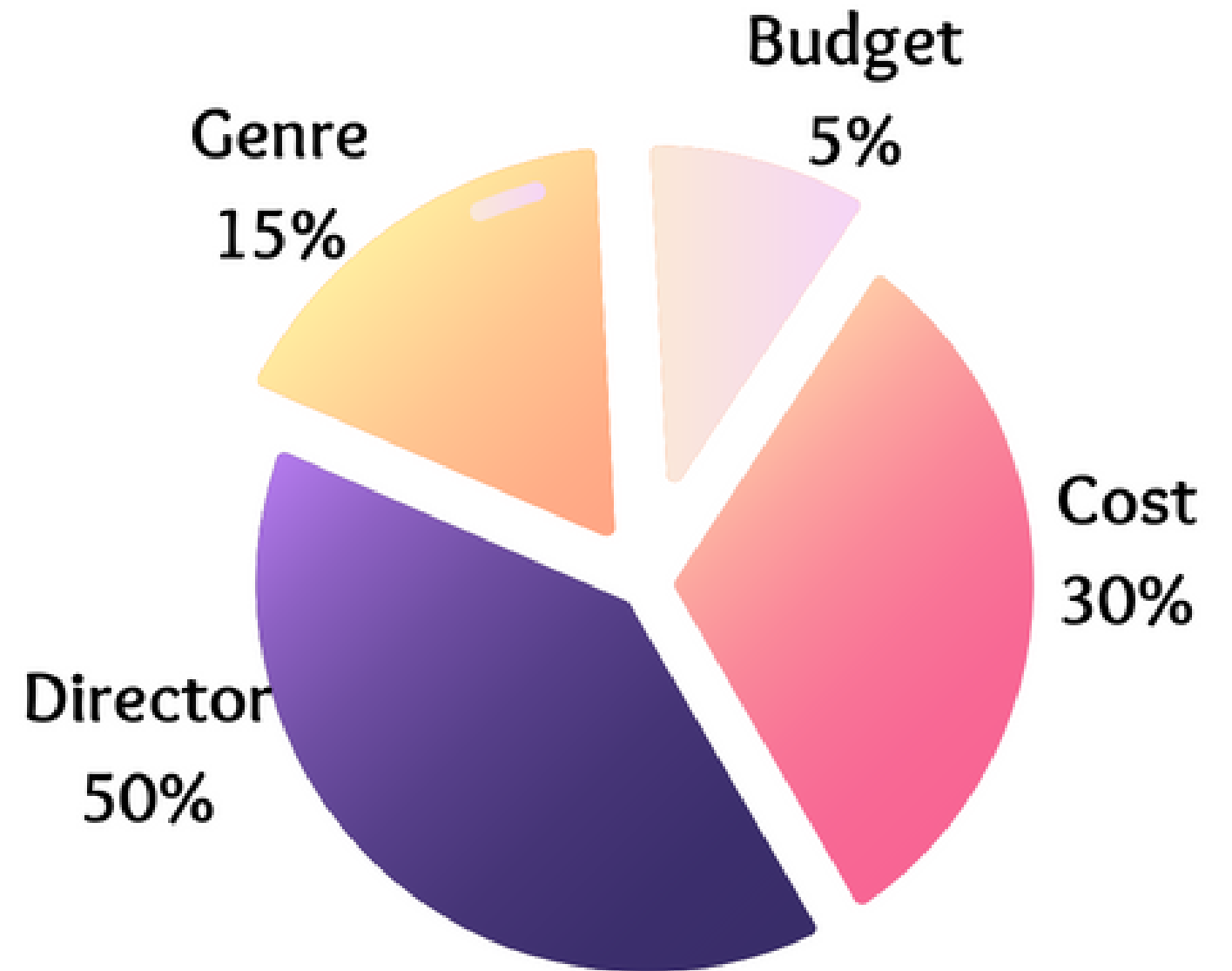
- LIME as a translator that helps the model communicate
- Creates a simpler version of the model's decision process for a specific prediction
- Example:
 - Explains a movie's hit prediction based on factors like director popularity and high budget



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SHapley Additive exPlanations (SHAP)

- SHAP: A detective of AI, revealing feature importance
- SHAP in Action
 - Director: 50%
 - Cast: 30%
 - Genre: 15%
 - Budget: 5%



Future of XAI

- Many more **techniques** and **approaches** exist in XAI
- The gap between XAI and traditional AI is **shrinking**
- Ongoing research is improving AI interpretability

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