Overview of AI

IMPLEMENTING AI SOLUTIONS IN BUSINESS



Jacob H. Marquez
Data Scientist

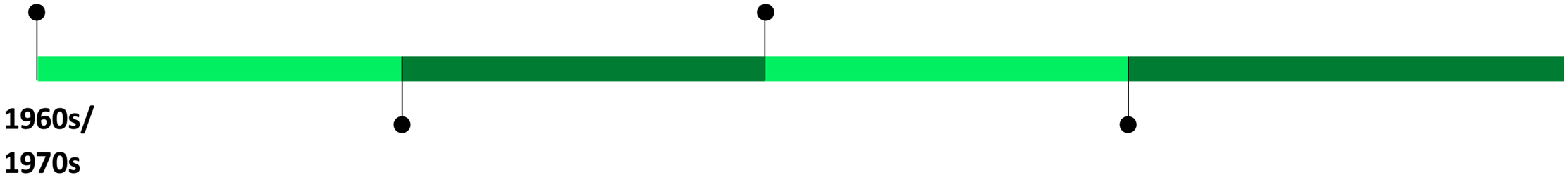
datacamp

Definition

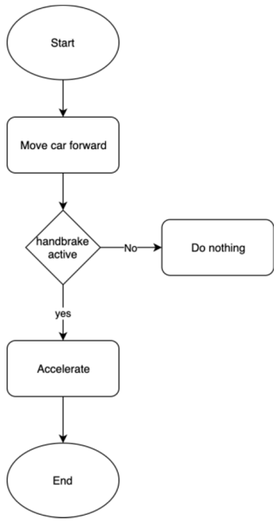
- *Computer systems*
- *Perform tasks*
- *Normally require humans*
- *Examples: perception, reasoning, learning, and decision-making*



The Evolution of AI



The Evolution of AI



Symbolic AI

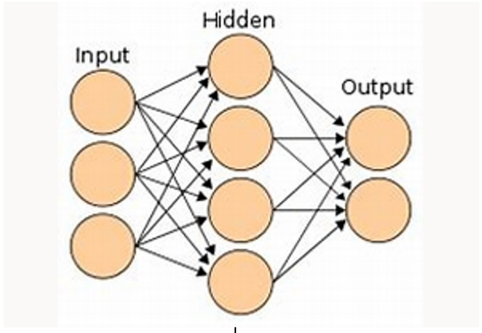
1960s/ 1970s

The Evolution of AI

Symbolic AI

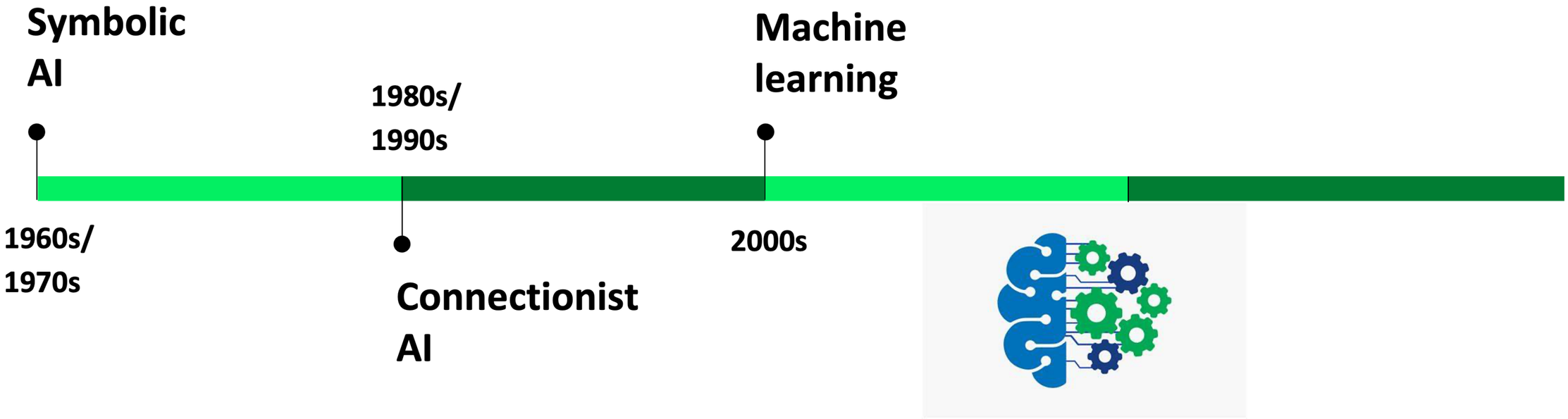
1960s/ 1970s

1980s/ 1990s

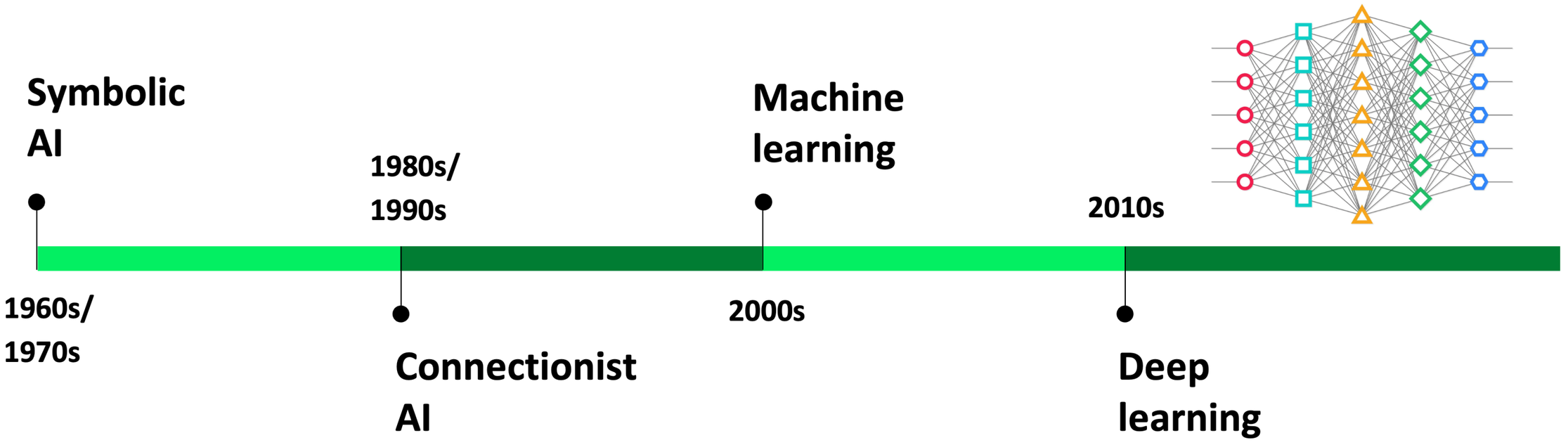


Connectionist AI

The Evolution of AI



The Evolution of AI



Types of applications for AI

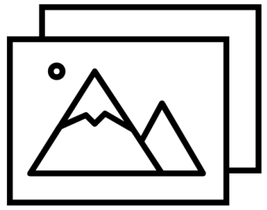


Image Processing

Types of applications for AI

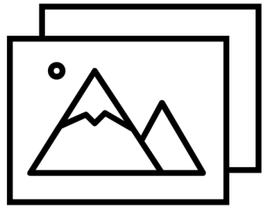


Image Processing



Speech Recognition

Types of applications for AI

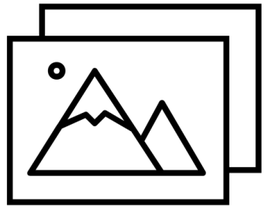


Image Processing



Speech Recognition



Natural Language Processing

Types of applications for AI

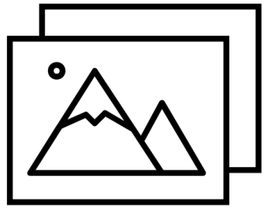


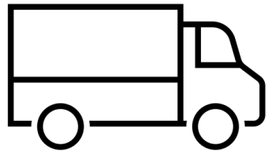
Image Processing



Speech Recognition



Natural Language Processing



Autonomous Vehicles

Types of applications for AI

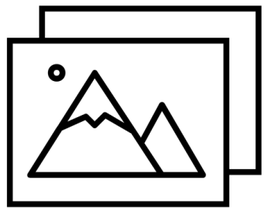


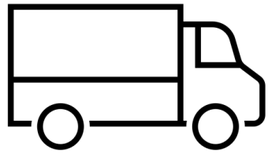
Image Processing



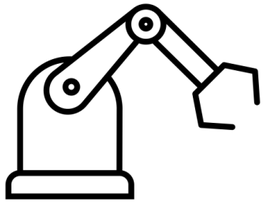
Speech Recognition



Natural Language Processing



Autonomous Vehicles



Robotics

Types of applications for AI

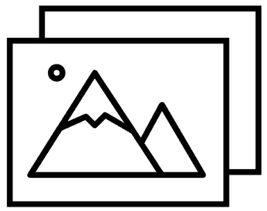


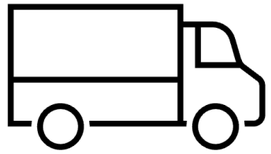
Image Processing



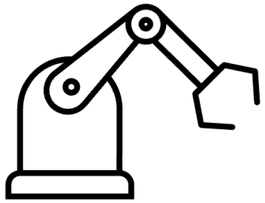
Speech Recognition



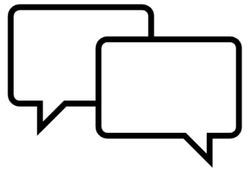
Natural Language Processing



Autonomous Vehicles



Robotics



Autocorrect

The key elements of an AI strategy



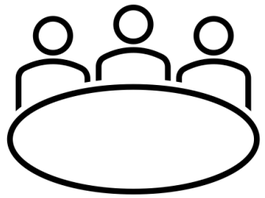
Vision

[1] https://www.gartner.com/en/topics/artificial-intelligence

The key elements of an AI strategy



Vision

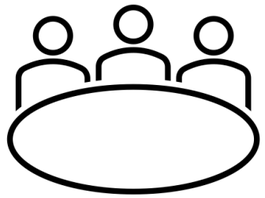


Risks

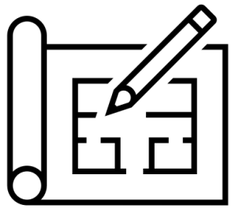
The key elements of an AI strategy



Vision



Risks

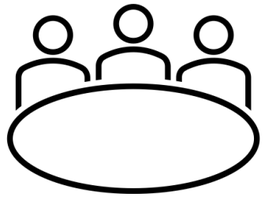


Action Plan

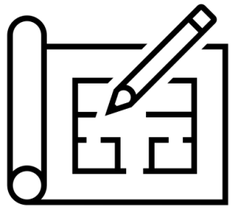
The key elements of an AI strategy



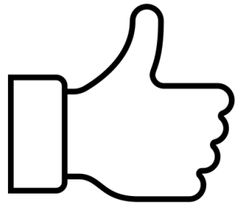
Vision



Risks



Action Plan



Buy-in

The 5 phases of an AI implementation

1. **Education** - understand what AI is and use cases it is great for
2. **Identification** - determine which use case in your business is ripe for AI
3. **Proof of Concept** - build out a small-scale AI solution to test and learn
4. **Scale** - implement a full AI solution
5. **Align Culture and Skills** - change processes and upskill the workforce to leverage the AI solution

Let's practice!

IMPLEMENTING AI SOLUTIONS IN BUSINESS

10,000 ft view: how does AI work?

IMPLEMENTING AI SOLUTIONS IN BUSINESS

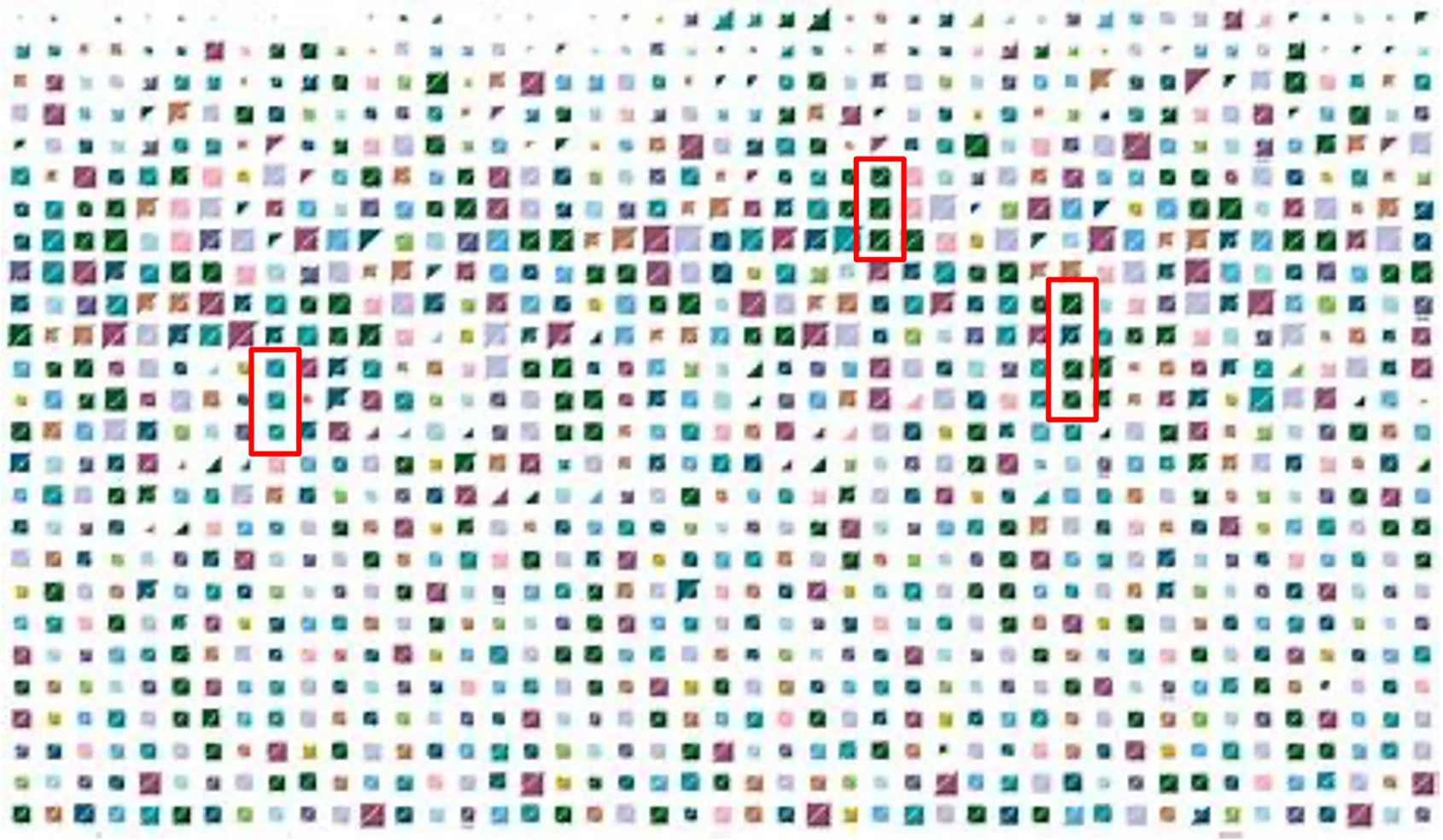


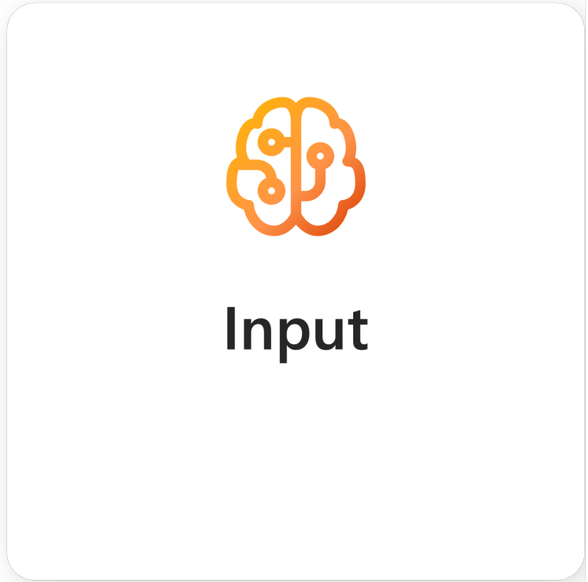
Jacob H. Marquez
Data Scientist

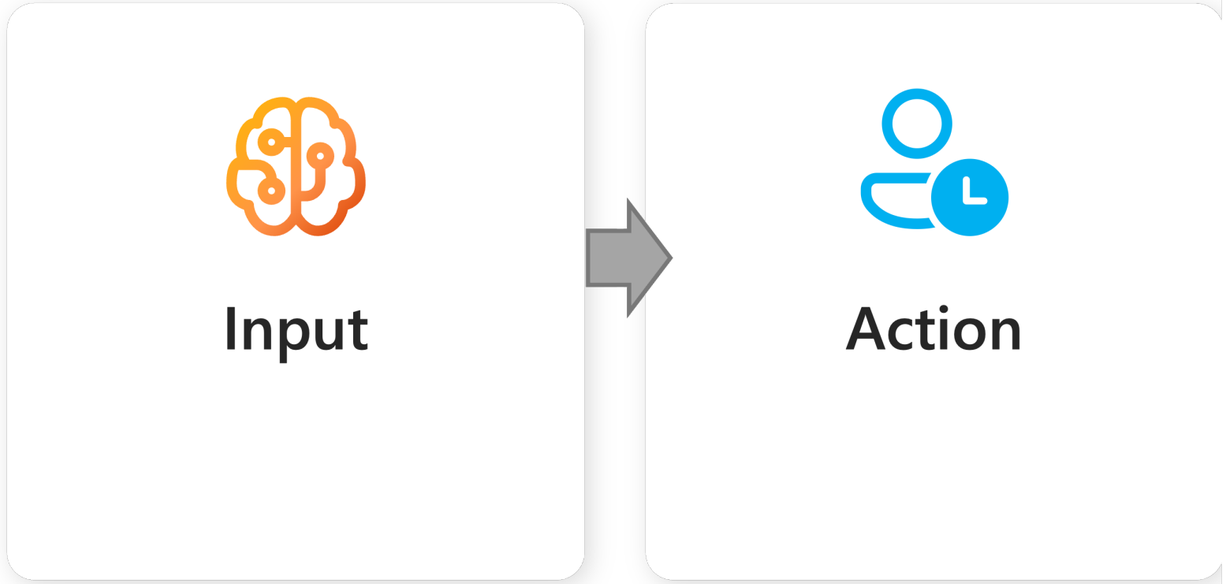
Finding patterns in big data



Finding patterns in big data

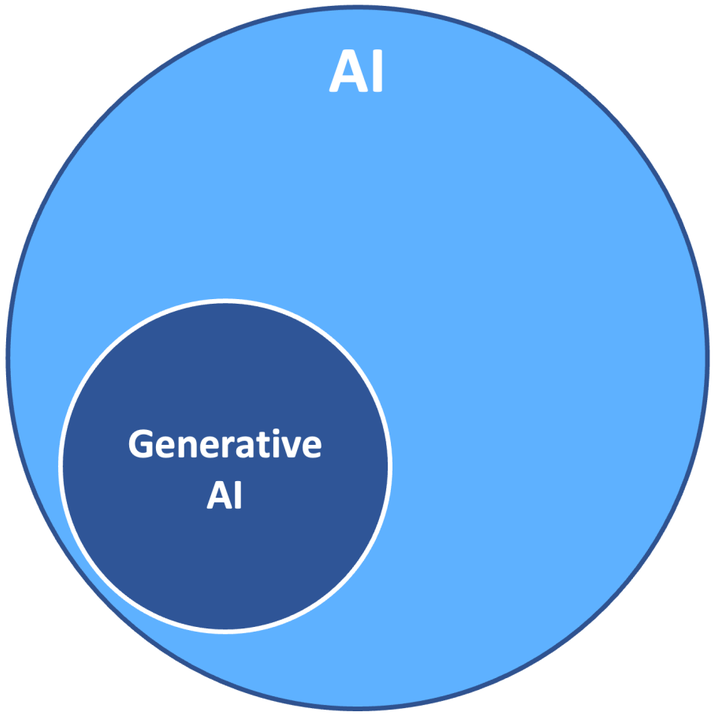



Input


Input
Action


Input
Action
Output

How is generative AI different?

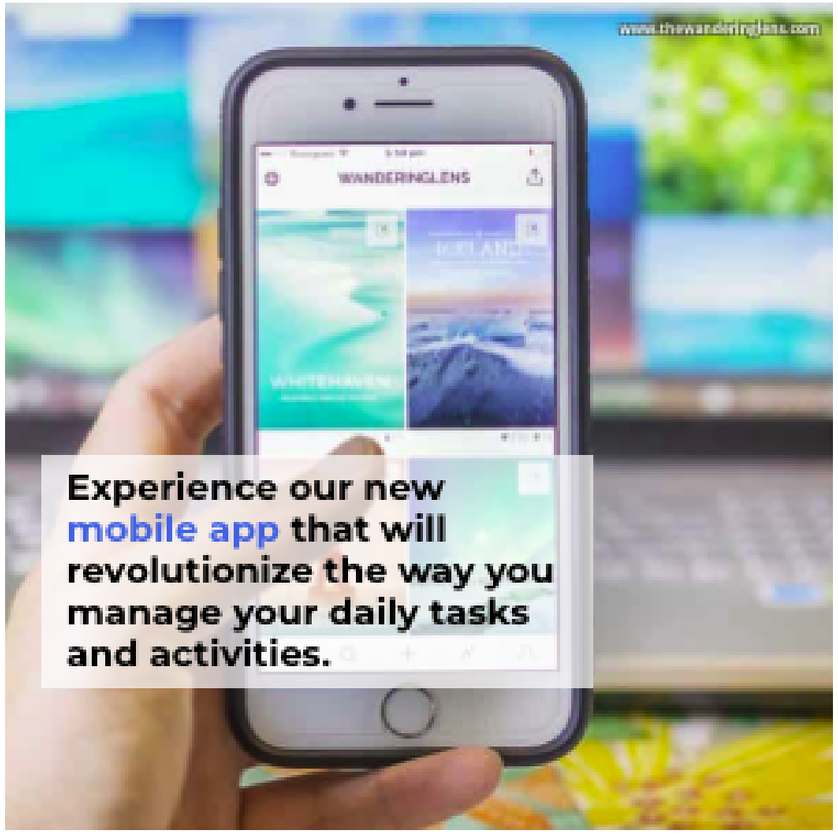


Generative AI:

- *Generates* new content based on inputs
- Examples: images, text, audio
- Natural language interactions
- Multiple functions
- Be careful: great but not 100% accurate

Create new content with generative AI

Text-to-image Generation

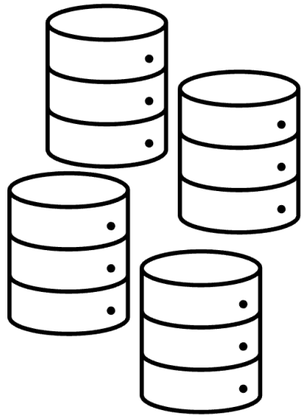


Text Summarization



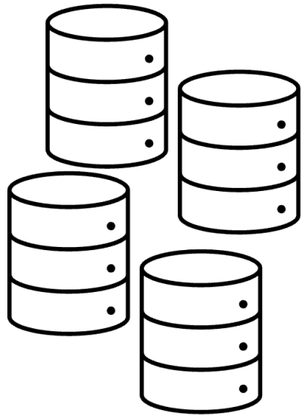
Basic AI solution

LOTS
of data



Basic AI solution

LOTS of data

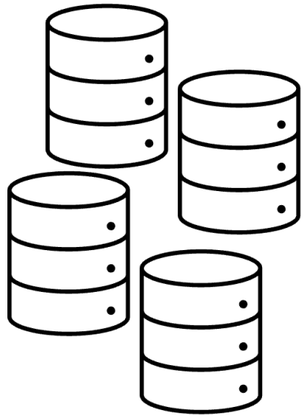


AI Model



Basic AI solution

LOTS of data



AI Model

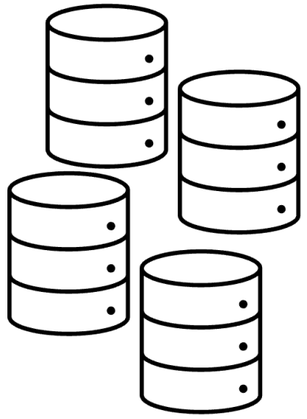


System



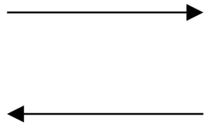
Basic AI solution

LOTS of data



AI Model



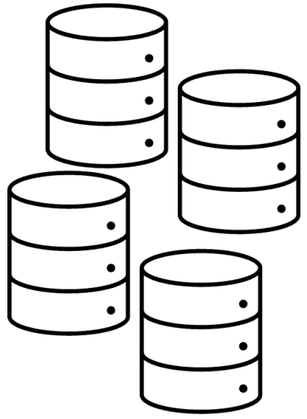


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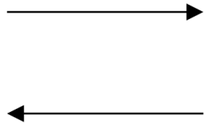
Basic AI solution

LOTS of data



AI Model

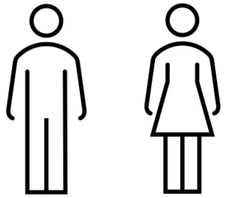




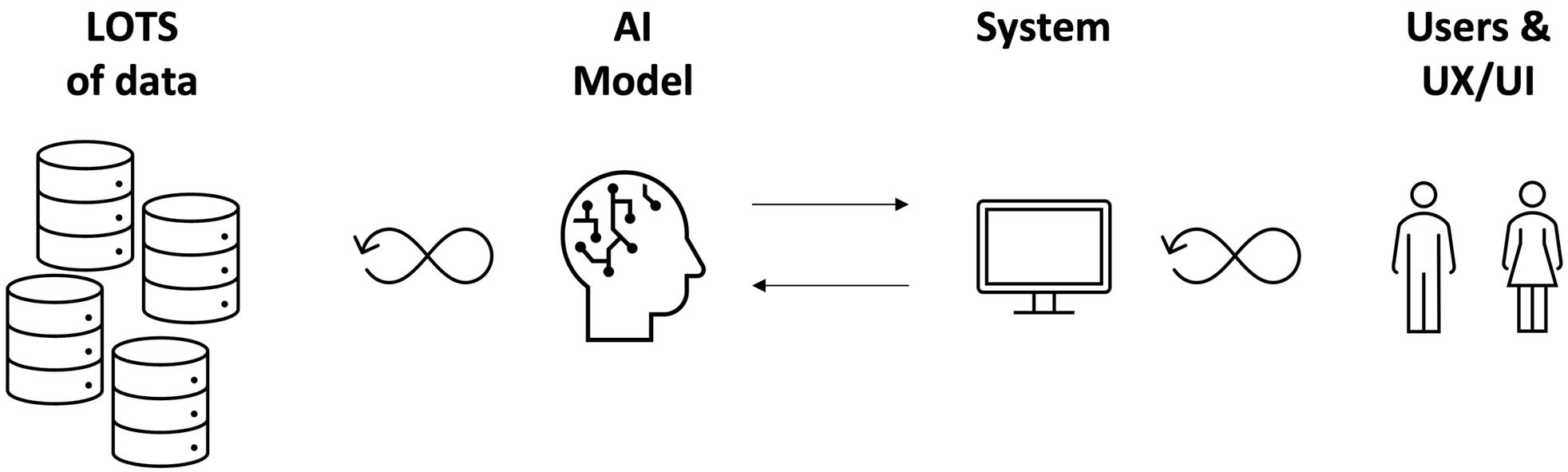
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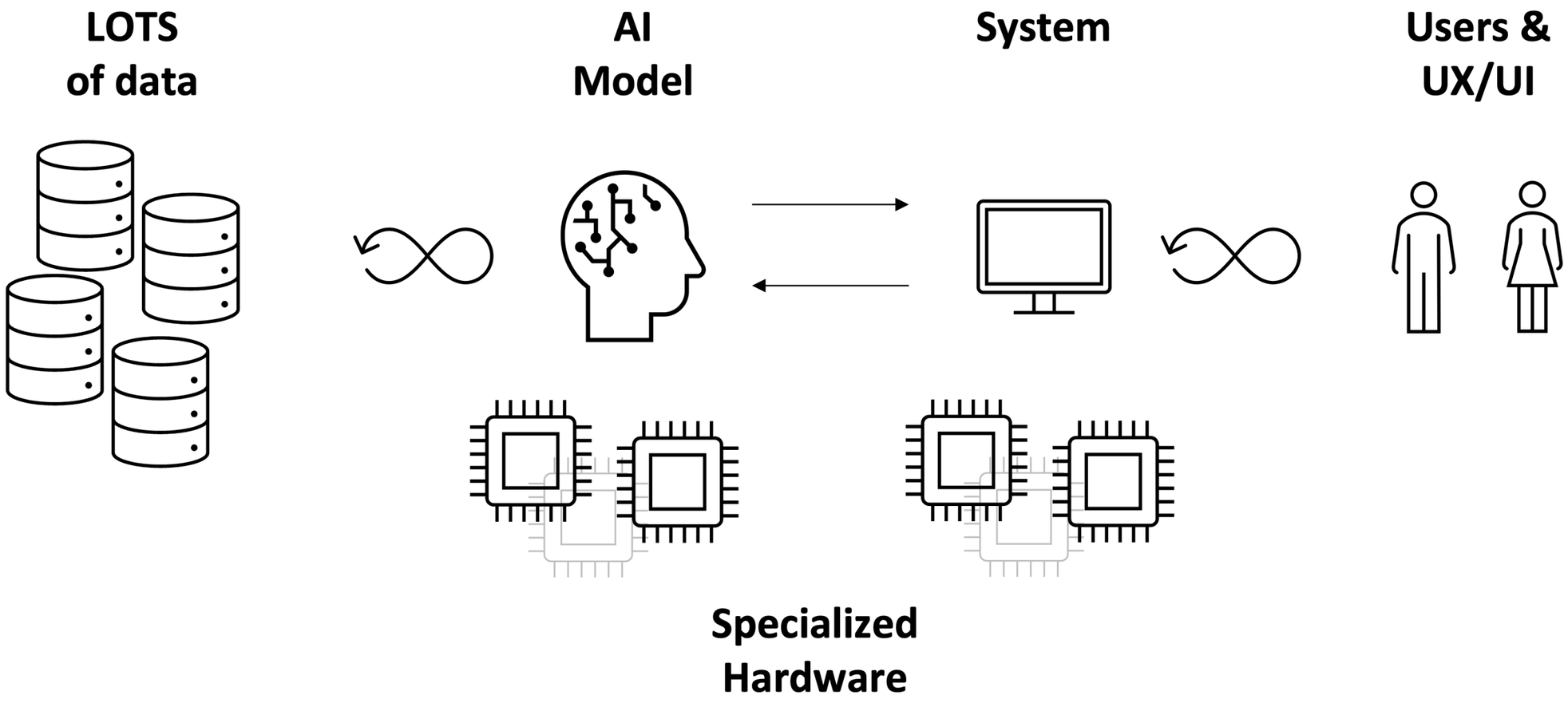
Users & UX/UI



Basic AI solution



Basic AI solution



AI solutions vs. non-AI data solutions

- Lots more data
- Intensive processing i.e., advanced machine learning and deep learning
- Infrastructure for the AI model and for the system
- UX/UI, e.g. chat experience
- Technical infrastructure, i.e. specialized hardware
- Monitoring system for the AI model
- More emphasis on risk, privacy, and compliance

Let's practice!

IMPLEMENTING AI SOLUTIONS IN BUSINESS

Responsible AI

IMPLEMENTING AI SOLUTIONS IN BUSINESS



Jacob H. Marquez
Data Scientist

datacamp







Responsible AI Governance







[1] https://www.unesco.org/en/artificial-intelligence/recommendation-ethics

Define Responsible AI

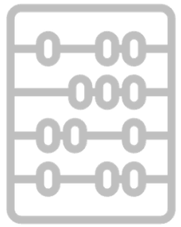
An approach to developing, assessing, and deploying AI systems in a safe, trustworthy, and ethical way.

Focus on:

- Ethics
- Legality
- Social Impact

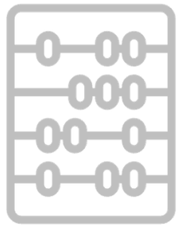
Elements of Responsible AI

Accountability



Elements of Responsible AI

Accountability

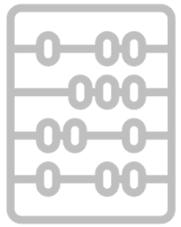


Inclusivity



Elements of Responsible AI

Accountability



Inclusivity

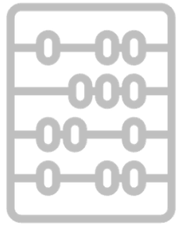


Fairness



Elements of Responsible AI

Accountability



Inclusivity



Fairness

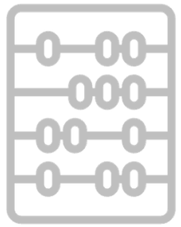


Transparency



Elements of Responsible AI

Accountability



Inclusivity



Fairness



Transparency

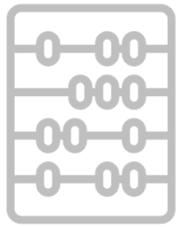


Security



Elements of Responsible AI

Accountability



Inclusivity



Fairness



Transparency



Security

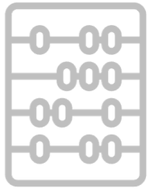


Reliability



Responsible AI throughout implementation

Accountability



Inclusivity



Fairness



Transparency



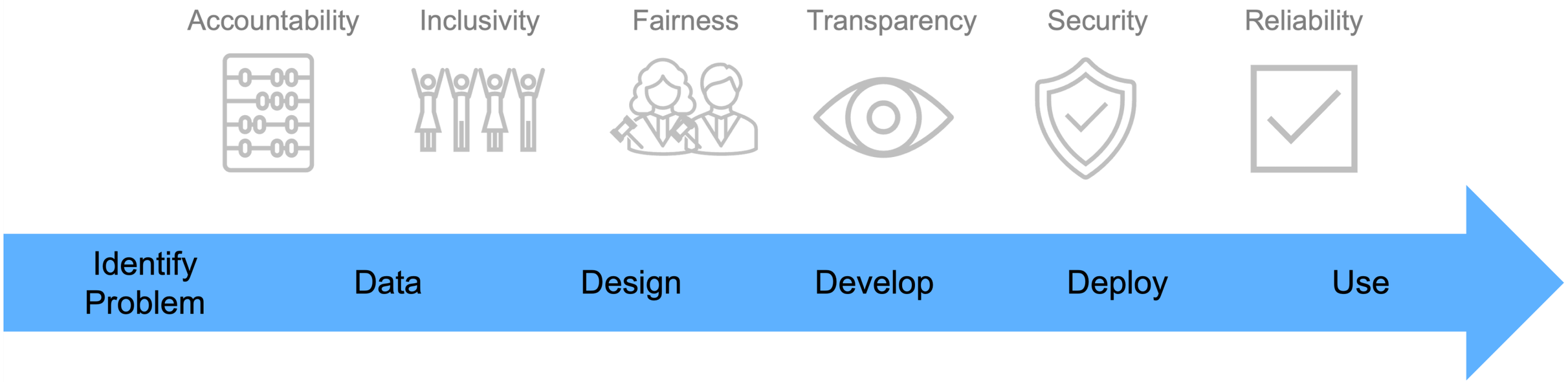
Security



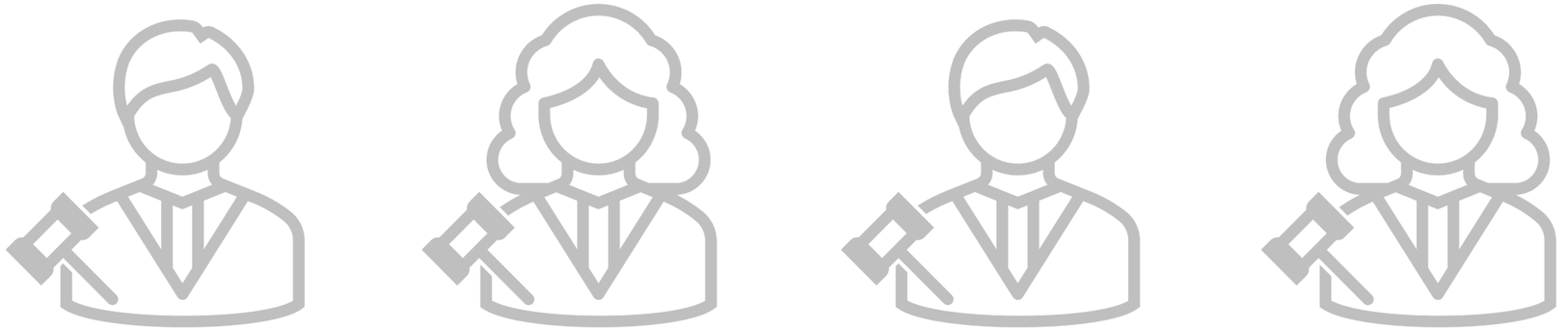
Reliability



Responsible AI throughout implementation



Ethics board



- Build principles to be more specific to the business
- Strengthen governance framework
- Collaborate with other businesses

Risk and Impact Assessment

- Series of questions and prompts
- Inventory the AI solution and characteristics
- Purpose, end-users, intend use, data, etc.

- Who will use or be exposed to the system?
- What types of decisions will the system make?
- Who will the decisions be about?
- What type of research, evidence, or other technology is being used in this system?

Let's practice!

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