Measuring the POC

IMPLEMENTING AI SOLUTIONS IN BUSINESS



Jacob H. Marquez
Data Scientist

datacamp

How to define success?

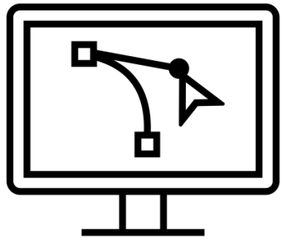


Business Value

How to define success?



Business Value

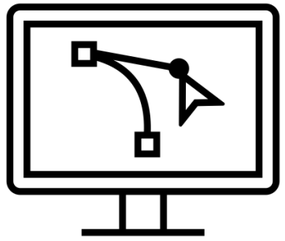


AI Model Performance

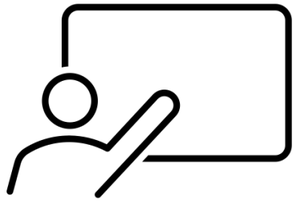
How to define success?



Business Value



AI Model Performance

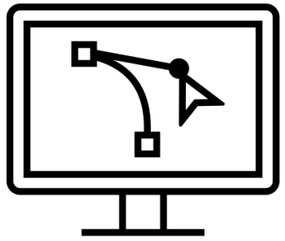


Explainability

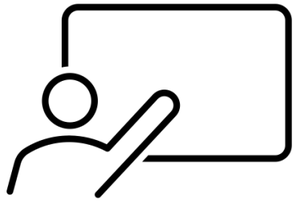
How to define success?



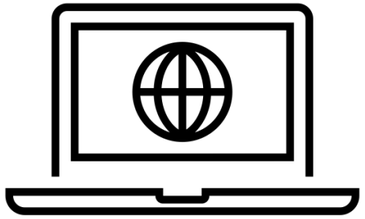
Business Value



AI Model Performance



Explainability

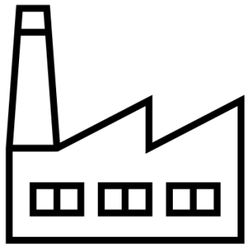


Solution Performance

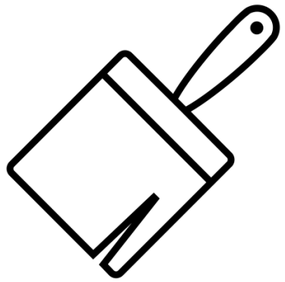
Measuring business value



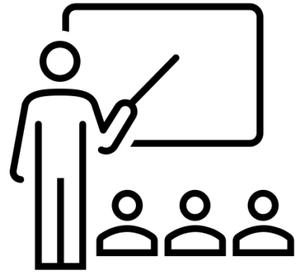
Efficiency



Productivity



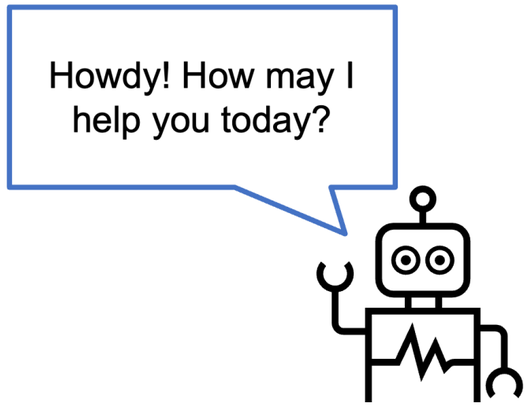
Creativity



Skilling

Measuring business value

Scheduling chat bot



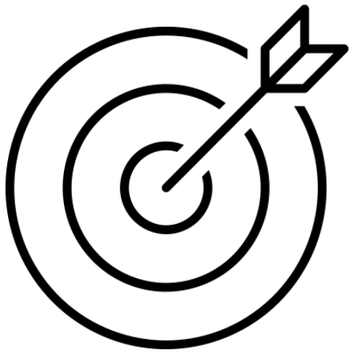
OBJECTIVES

- Reduce customer service agent hours spent on scheduling
- More time for high-level tasks
- Increase the number of scheduled clients

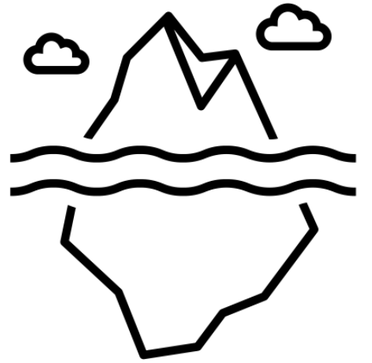
Metrics

- Agent time spent scheduling
- Number of appointments scheduled
- Percentage of interested clients scheduled
- Time to booked appointment
- Percentage of canceled appointments rescheduled

Measuring the AI model

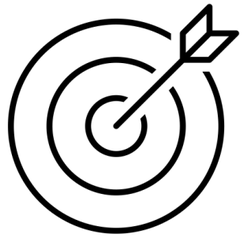


Accuracy

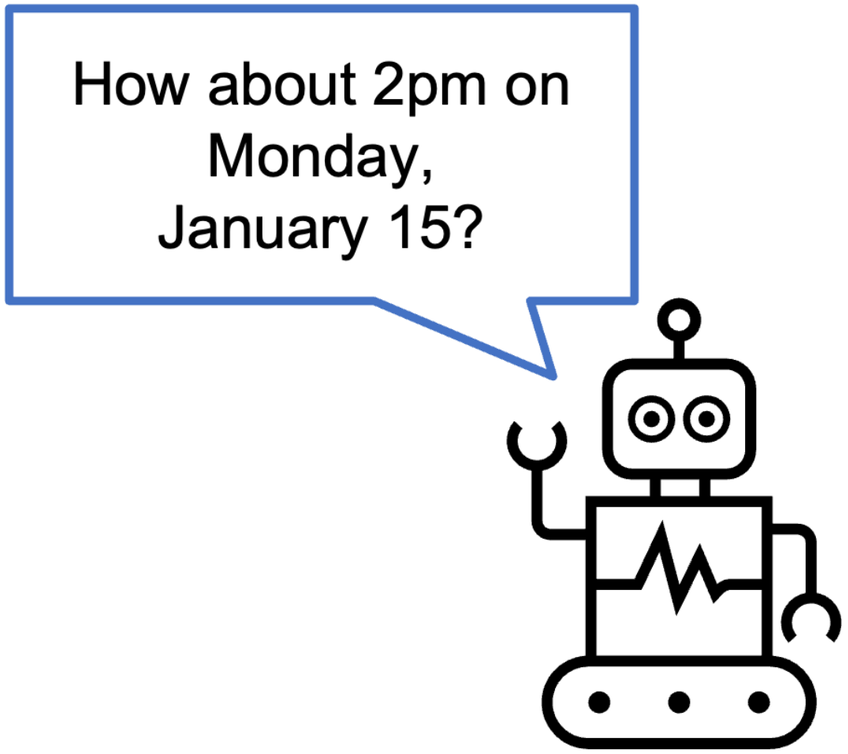


Relevance

Measuring the AI model



Accuracy

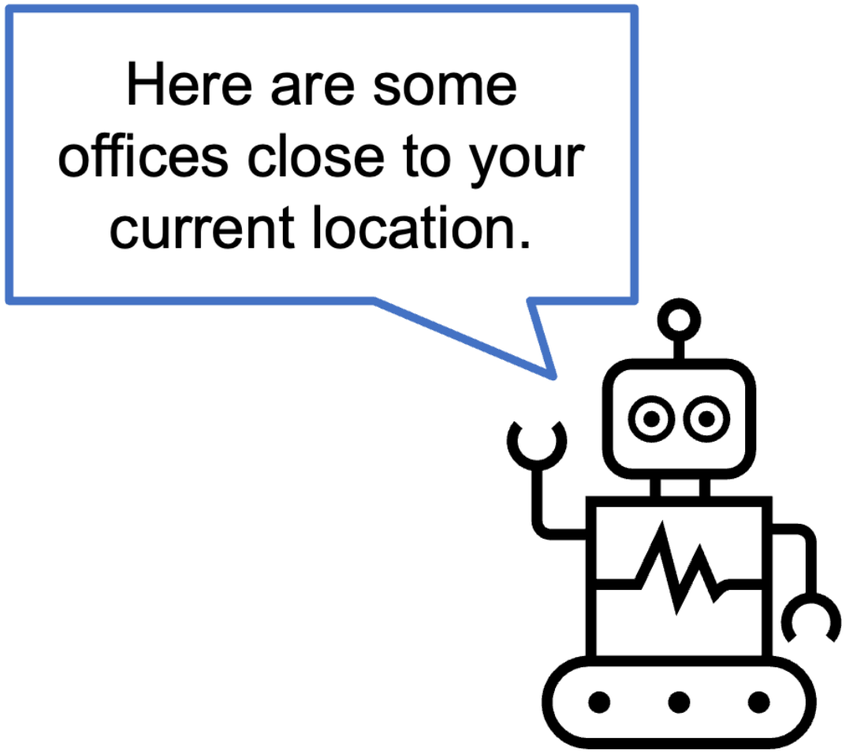


- Accuracy: percentage of correct predictions
- Important metric for most AI solutions

Measuring the AI model



Relevance



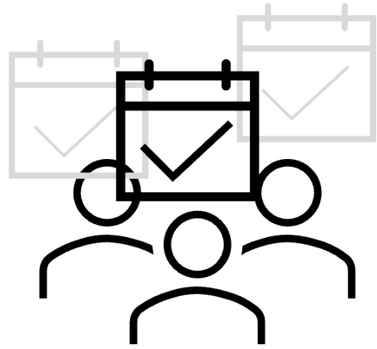
- Relevant results based on input
- Direct and indirect

Explainability of the AI

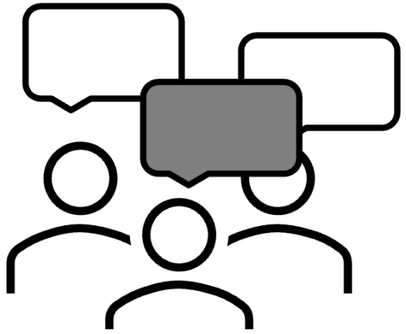
Explainability is the ability to understand the decision-making process of the AI solution.

- Fairness, transparency, bias, and safety

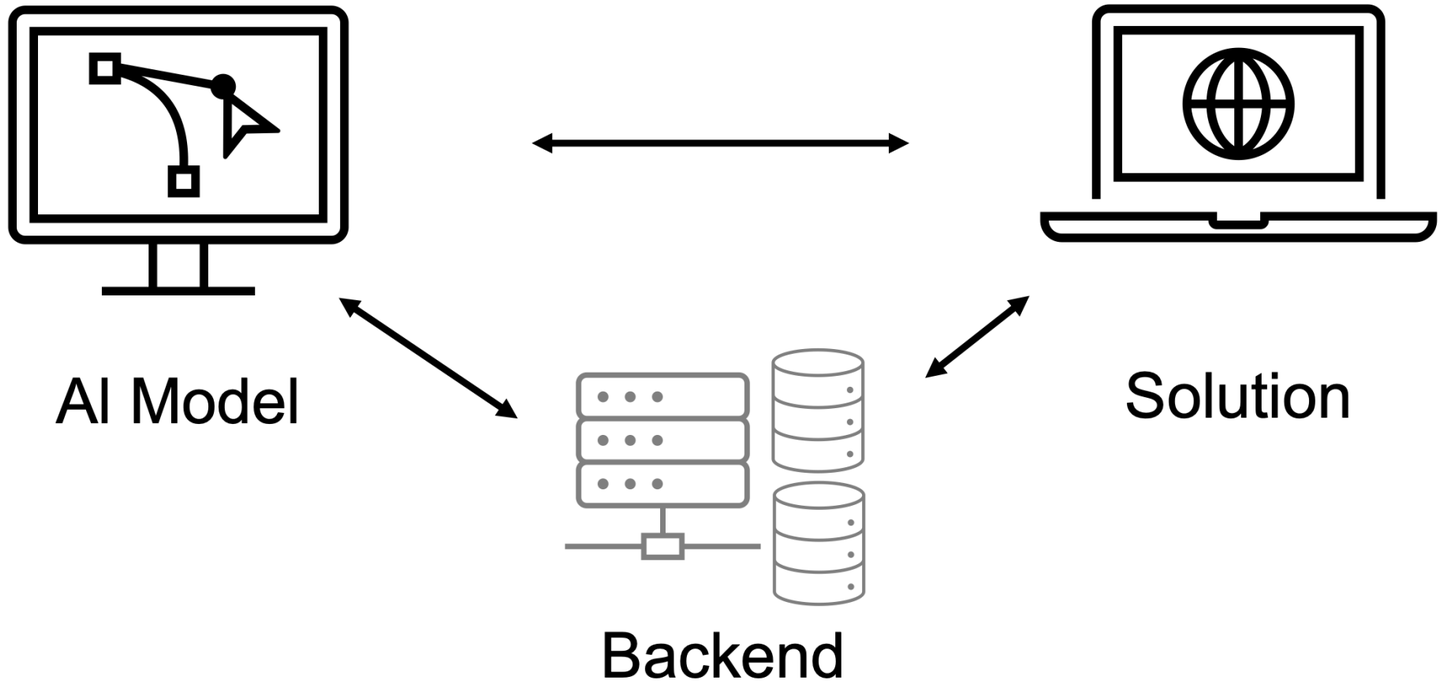
Fairness



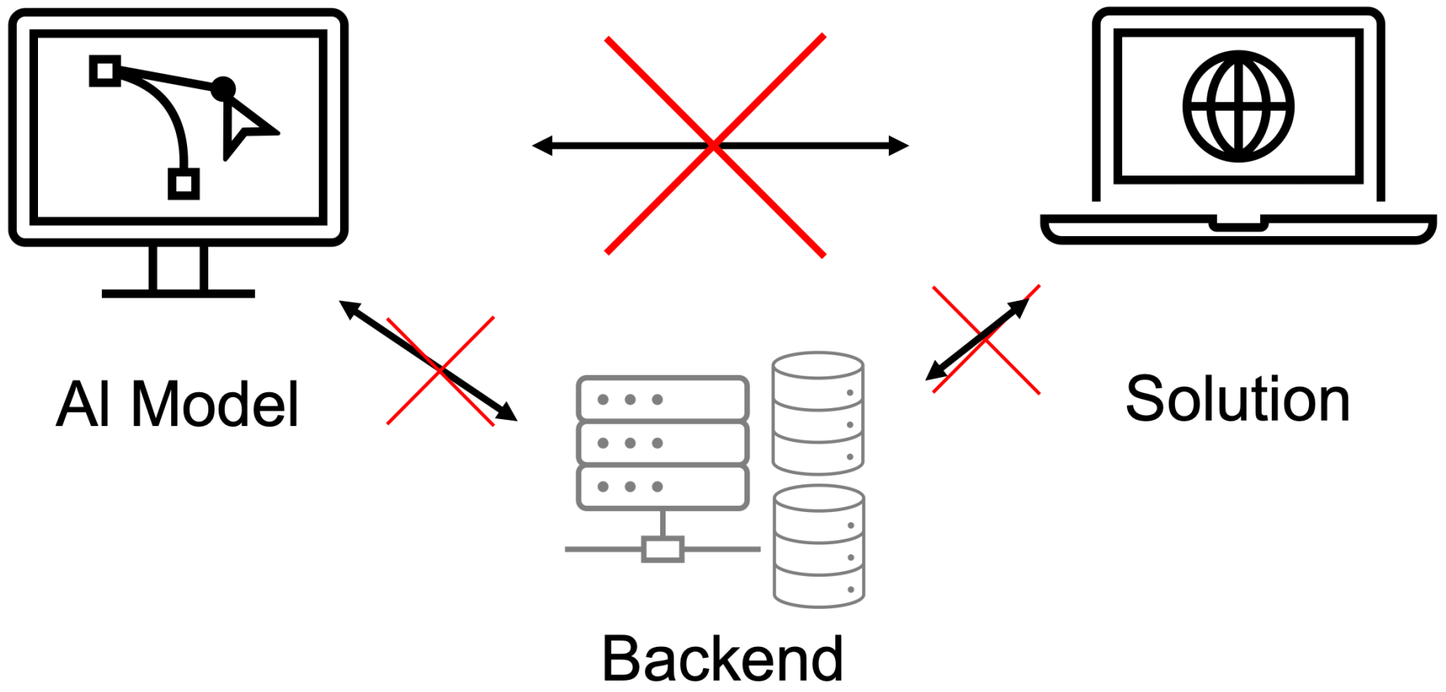
Transparency



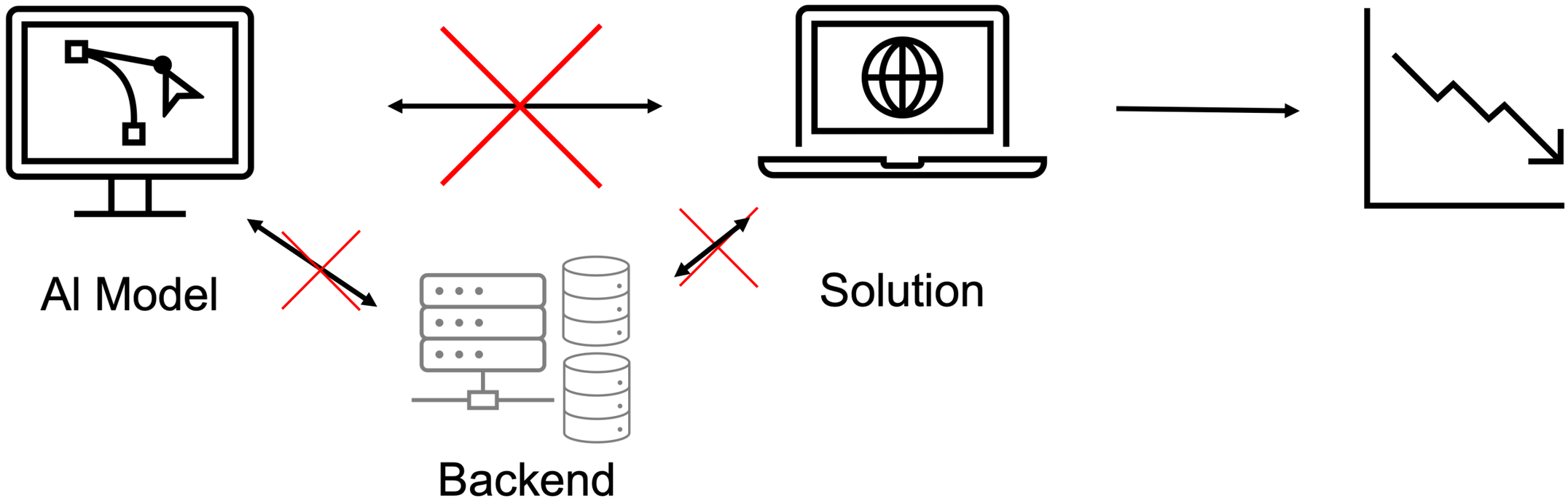
Measuring solution performance



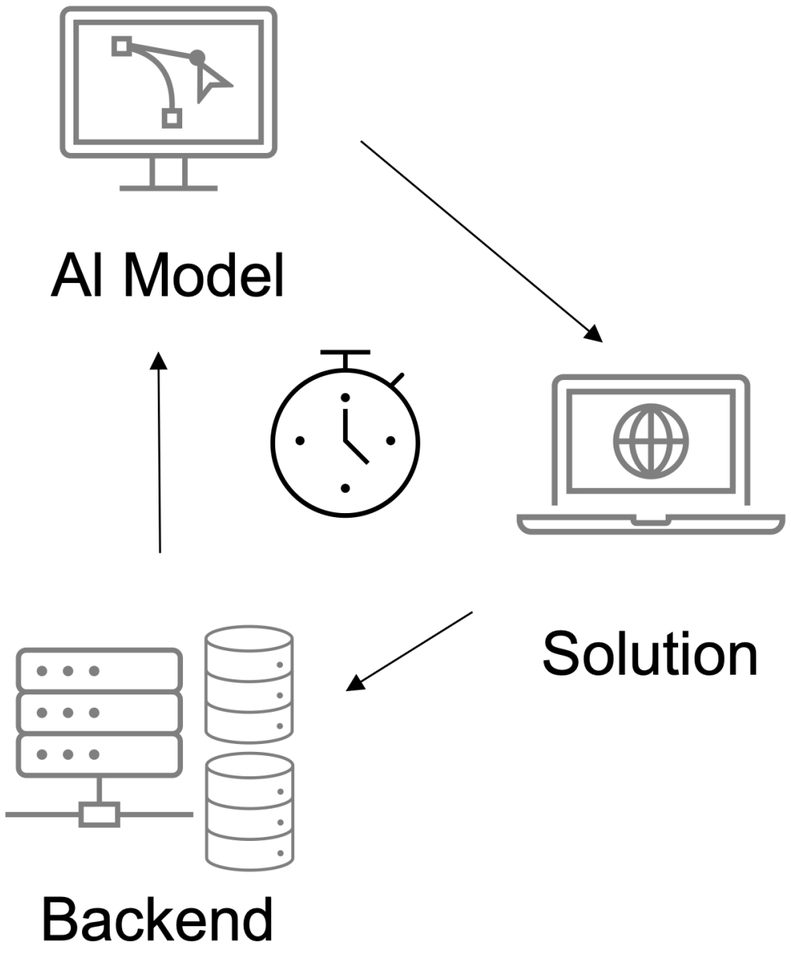
Measuring solution performance

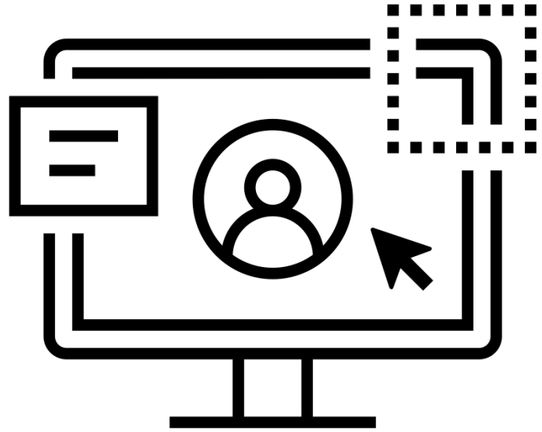


Measuring solution performance



Measuring solution performance





Metrics

- Load Time
- Time to appointment confirmation
- Customer satisfaction

Let's practice!

IMPLEMENTING AI SOLUTIONS IN BUSINESS

Assessing the POC

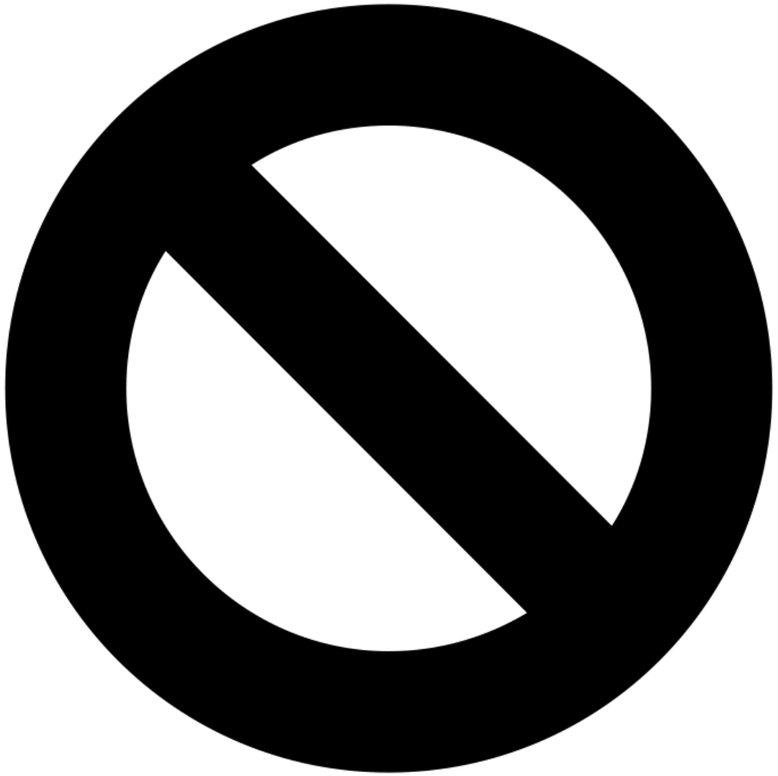
IMPLEMENTING AI SOLUTIONS IN BUSINESS



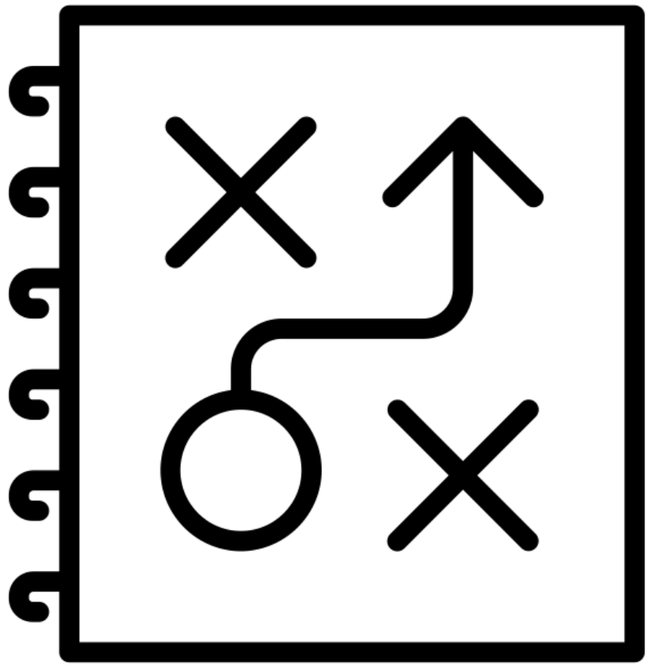
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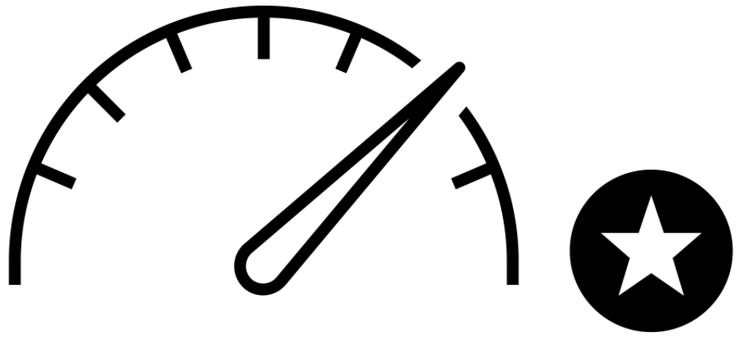
PAUSE

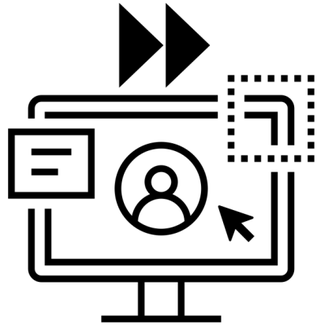


RE-EVALUATE

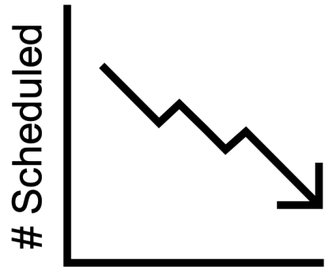


Adjust





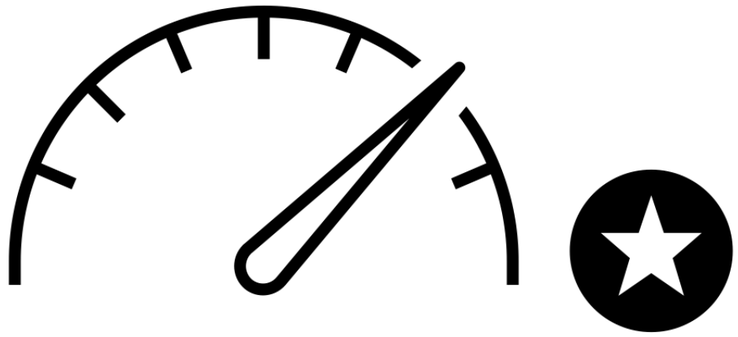
Responsive
and Fast UI



- Adjust and determine areas of optimization
- Test and learn

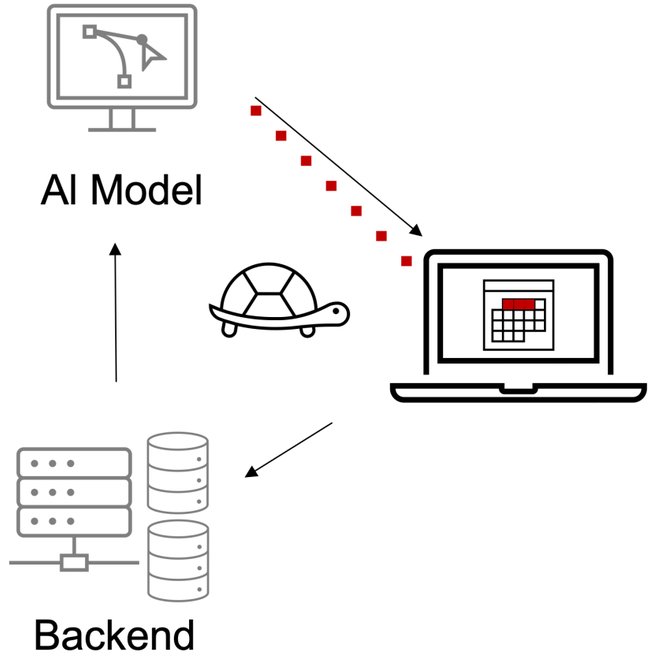
- Check accuracy and relevance of AI suggestions

Adjust



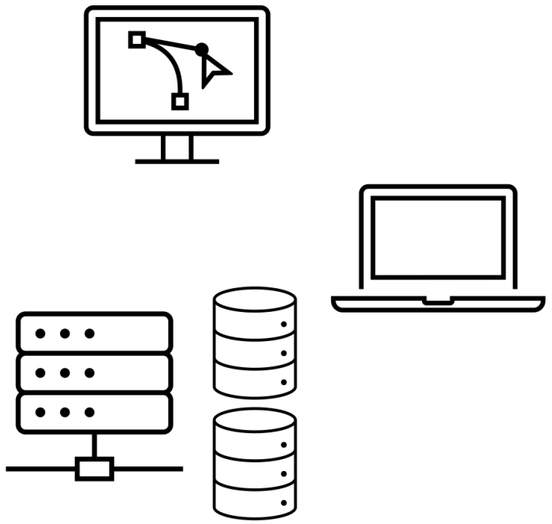
- Determine areas of optimization
- Test and learn

Slow system and bad suggestions



- Evaluate the data pipelines, compute, or other infrastructure

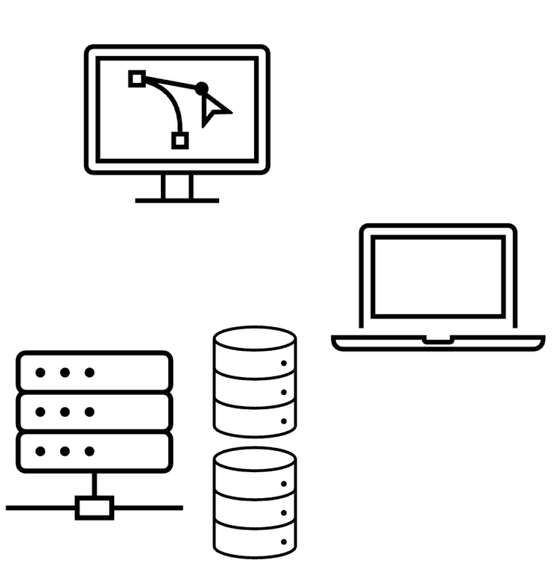
Estimate potential ROI



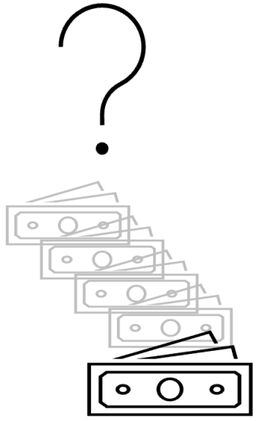
Estimate potential ROI



Estimate potential ROI



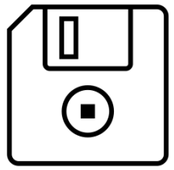




Feasible?

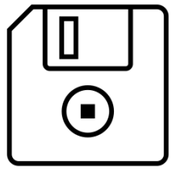
Capabilities for the company to execute given current and known future resources

Questions to help determine scale decision

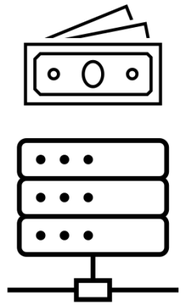


Data

Questions to help determine scale decision

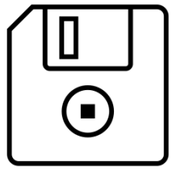


Data

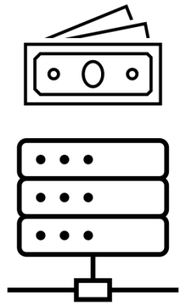


Infrastructure

Questions to help determine scale decision



Data

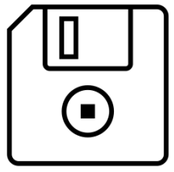


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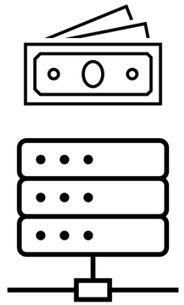


AI Algorithm

Questions to help determine scale decision



Data



Infrastructure

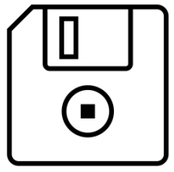


AI Algorithm

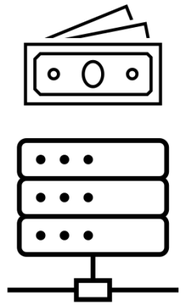


Robustness

Questions to help determine scale decision



Data



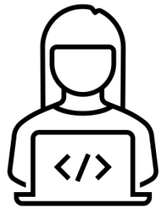
Infrastructure



AI Algorithm

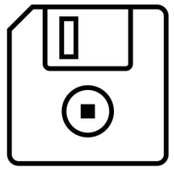


Robustness

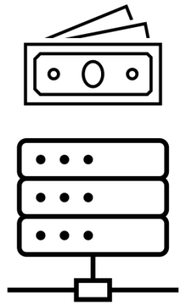


Talent

Questions to help determine scale decision



Data



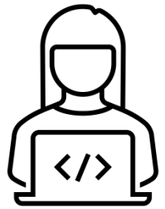
Infrastructure



AI Algorithm



Robustness



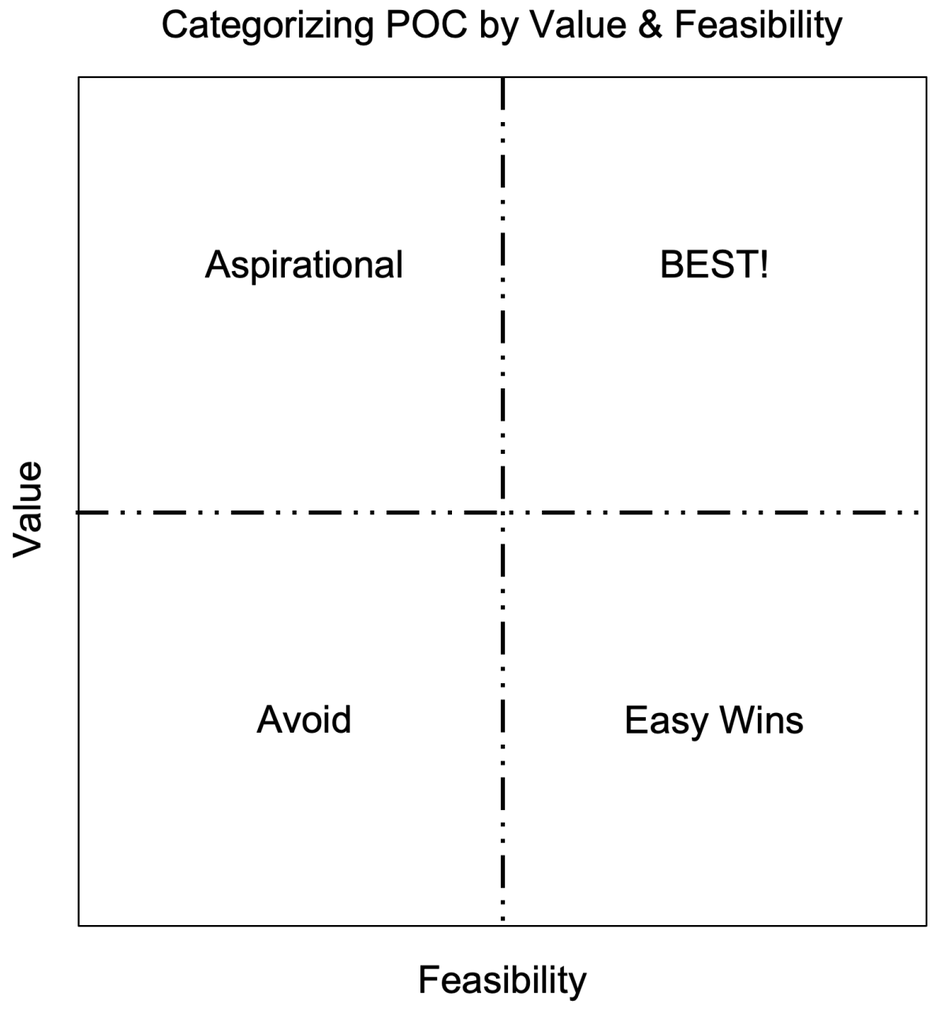
Talent



Responsible AI

Finding the right choice

- Upfront conversations are crucial
- Still align with business goals?
- Value vs. Feasibility Matrix



[1] https://towardsdatascience.com/how-to-apply-artificial-intelligence-to-solve-business-problems-2b6fefd2683b

Let's practice!

IMPLEMENTING AI SOLUTIONS IN BUSINESS

Considerations for full implementation

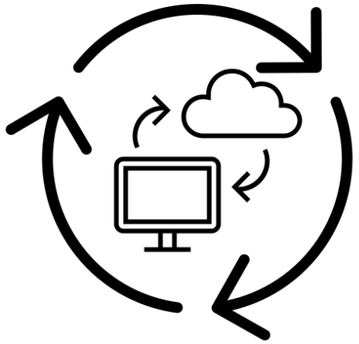
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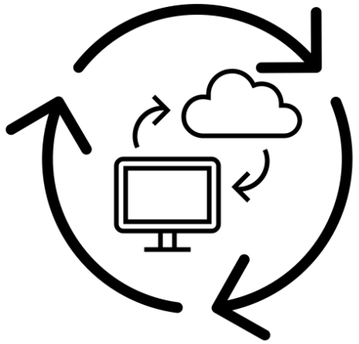
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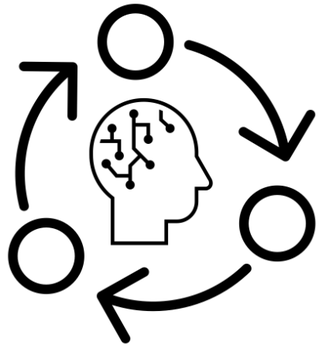
Scale and sustain an AI solution



Scale and sustain an AI solution

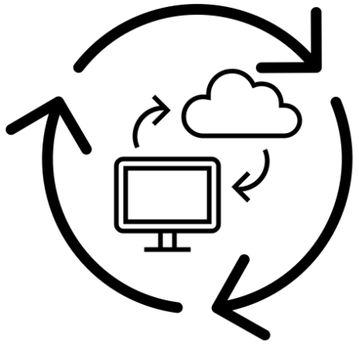


DevOps

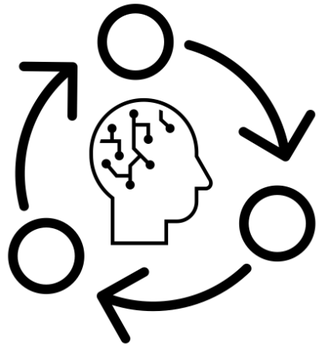


MLOps

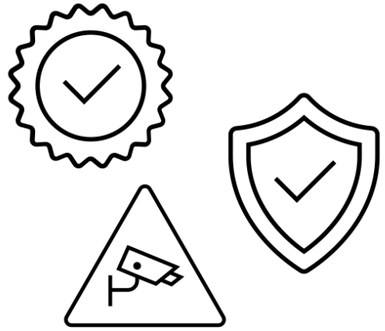
Scale and sustain an AI solution



DevOps



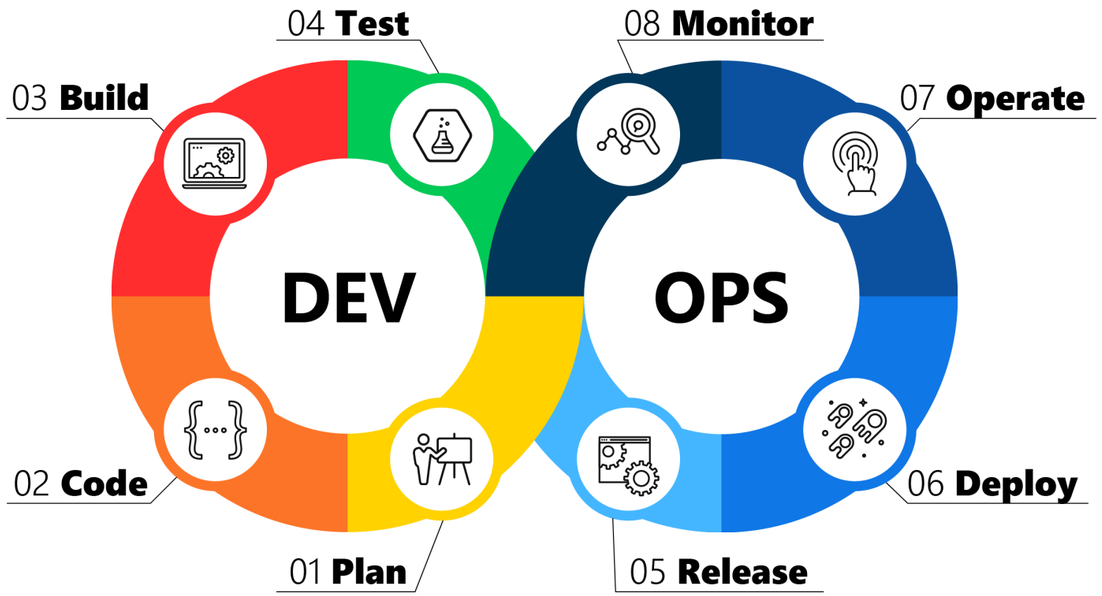
MLOps



Compliance, Privacy, and Security

DevOps

- "Development Operations"
- Better collaboration, integration, deployment
- Automation of processes
- Continuous improvement and monitoring



MLOps

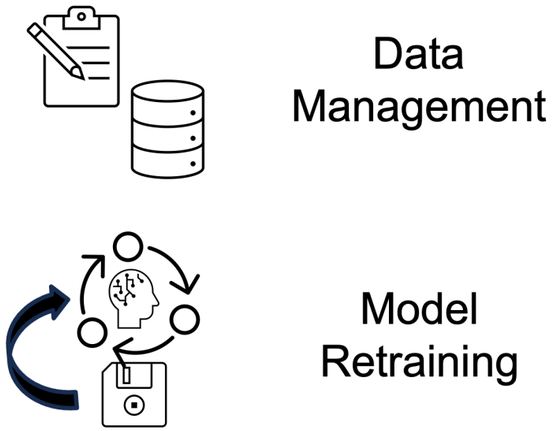
- "Machine Learning Operations"
- Similar to DevOps
- Operationalize processes for data and algorithms



Data Management

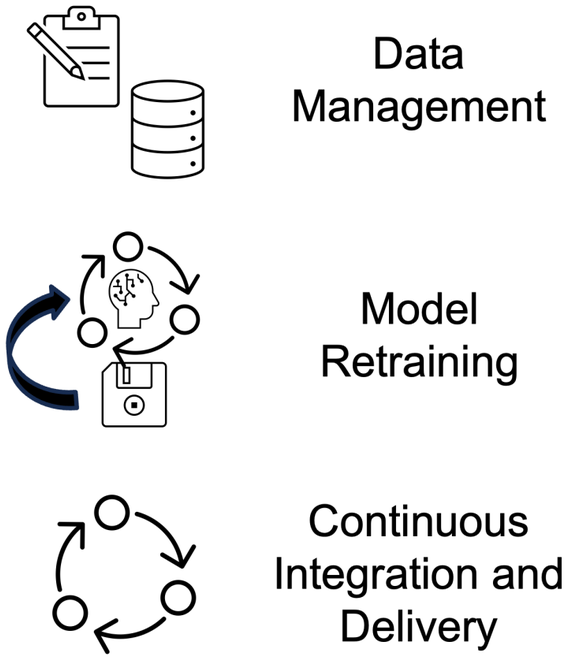
MLOps

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- Similar to DevOps
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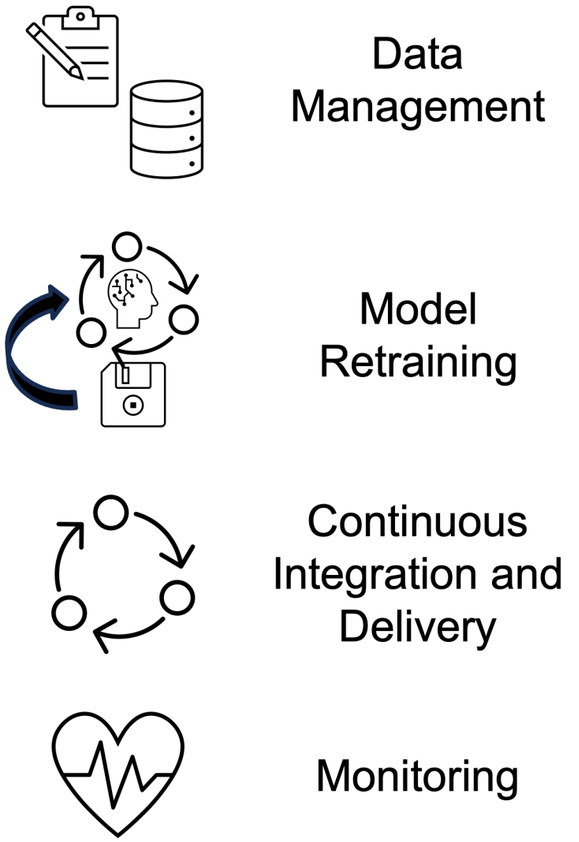
MLOps

- "Machine Learning Operations"
- Similar to DevOps
- Operationalize processes for data and algorithms



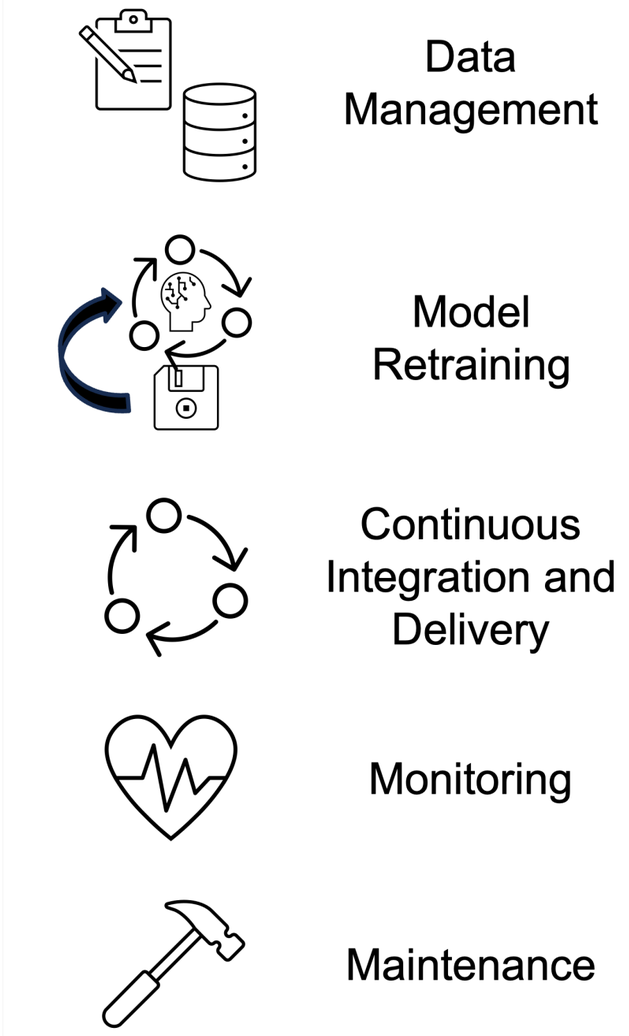
MLOps

- "Machine Learning Operations"
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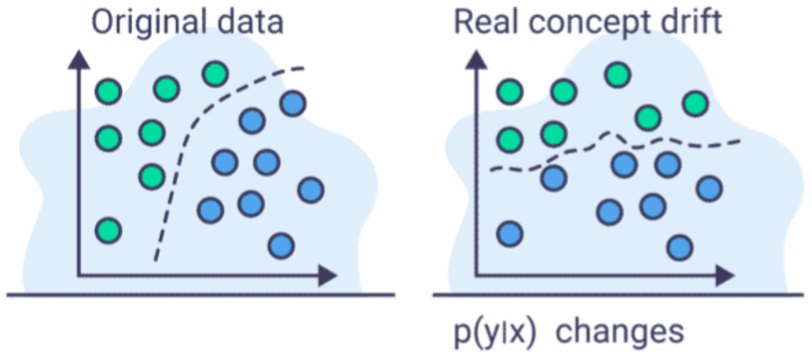
MLOps

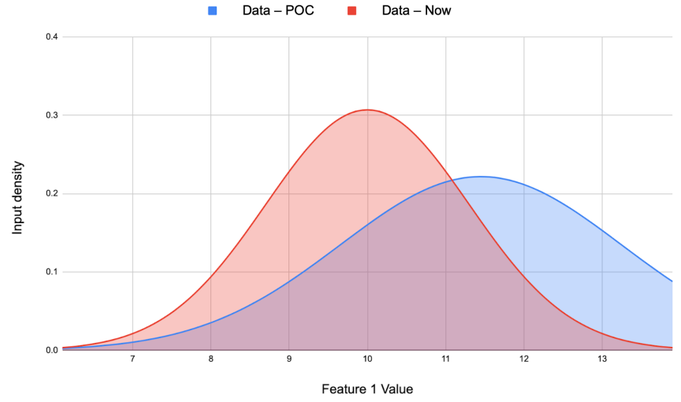
- "Machine Learning Operations"
- Similar to DevOps
- Operationalize processes for data and algorithms
- Allows for horizontal scaling



MLOps - Monitoring the AI

- Compare model performance to baseline
- **Example:** accuracy of predictions during first month of deployment
- **Model Drift** when performance declines
- Negatively impact decision-making





Compliance, privacy, and security

- Important during POC
- Can achieve with minimal measures
- Essential for scaling to full implementation
- Part of Responsible AI



Legal and regulatory requirements

- Meet regulatory requirements in EACH location
- Especially with sensitive and personal data
- Avoid penalties and legal consequences



Security

- Ensure data, infrastructure, and product are secure
- Authentication
- Authorization



Risk management and mitigation

- Avoid damage to the solution, customer, and business
- Audit the solution
- Legal examinations
- Risk assessments
- Simulations



Let's practice!

IMPLEMENTING AI SOLUTIONS IN BUSINESS

Adoption and skilling

IMPLEMENTING AI SOLUTIONS IN BUSINESS



Jacob H. Marquez
Data Scientist

datacamp

Most companies **never** move past a POC

[1] https://sloanreview.mit.edu/projects/expanding-ais-impact-with-organizational-learning/

Most companies **never** move past a POC

10%

of companies gained financial benefits from AI.

Why?

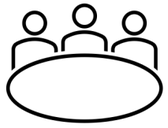


Business
Metrics

Why?



Business Metrics

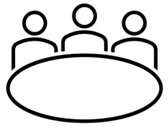


Project Team

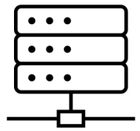
Why?



Business Metrics



Project Team

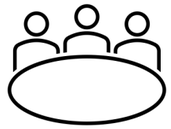


Infrastructure

Why?



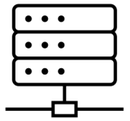
Business Metrics



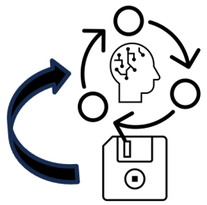
Change Management



Project Team



Infrastructure



AI Algorithm

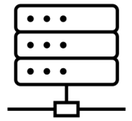
Why?



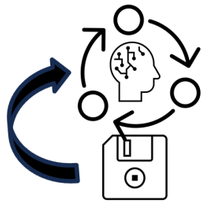
Business Metrics



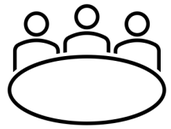
Project Team



Infrastructure



AI Algorithm



Change Management



Culture

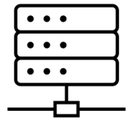
Why?



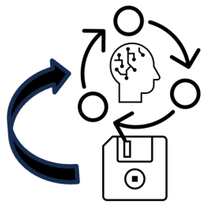
Business Metrics



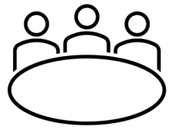
Project Team



Infrastructure



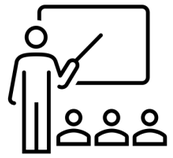
AI Algorithm



Change Management



Culture



Upskilling

Resistance to AI

3/4

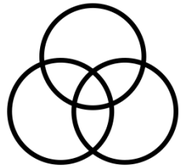
concerned AI will lead to human job loss.

- AI may not be readily adopted by everyone
- Resistant to changes, especially to their known processes and roles
- Transparent communication is **important**

[1] https://www.forbes.com/advisor/business/software/ai-in-business/#concerns_business_owners_have_using_artificial_intelligence_section

Change management

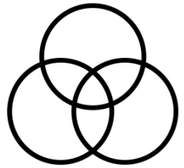
A set of processes designed to successfully implement new initiatives such as AI solutions.



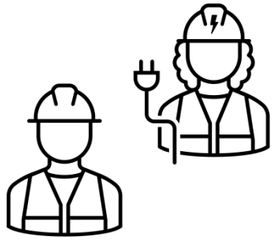
Inclusion

Change management

A set of processes designed to successfully implement new initiatives such as AI solutions.



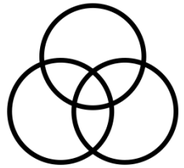
Inclusion



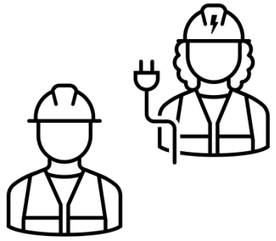
Roles and Responsibilities

Change management

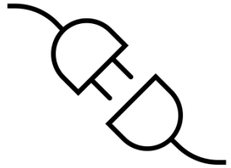
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Inclusion



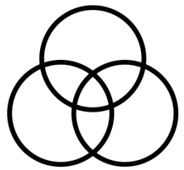
Roles and Responsibilities



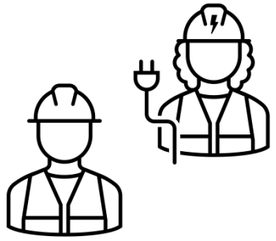
Integration Plans

Change management

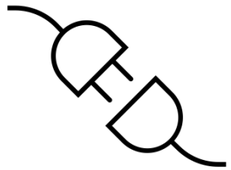
A set of processes designed to successfully implement new initiatives such as AI solutions.



Inclusion



Roles and Responsibilities



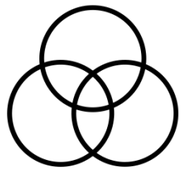
Integration Plans



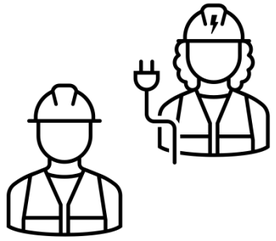
Assessments

Change management

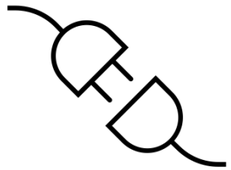
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Inclusion



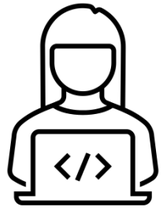
Roles and Responsibilities



Integration Plans



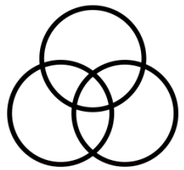
Assessments



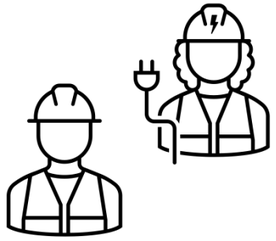
Training

Change management

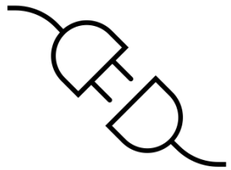
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Inclusion



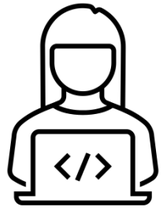
Roles and Responsibilities



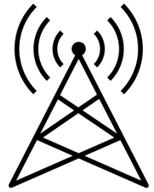
Integration Plans



Assessments



Training



Communication

Intentional updates to culture

Embrace a culture that includes:

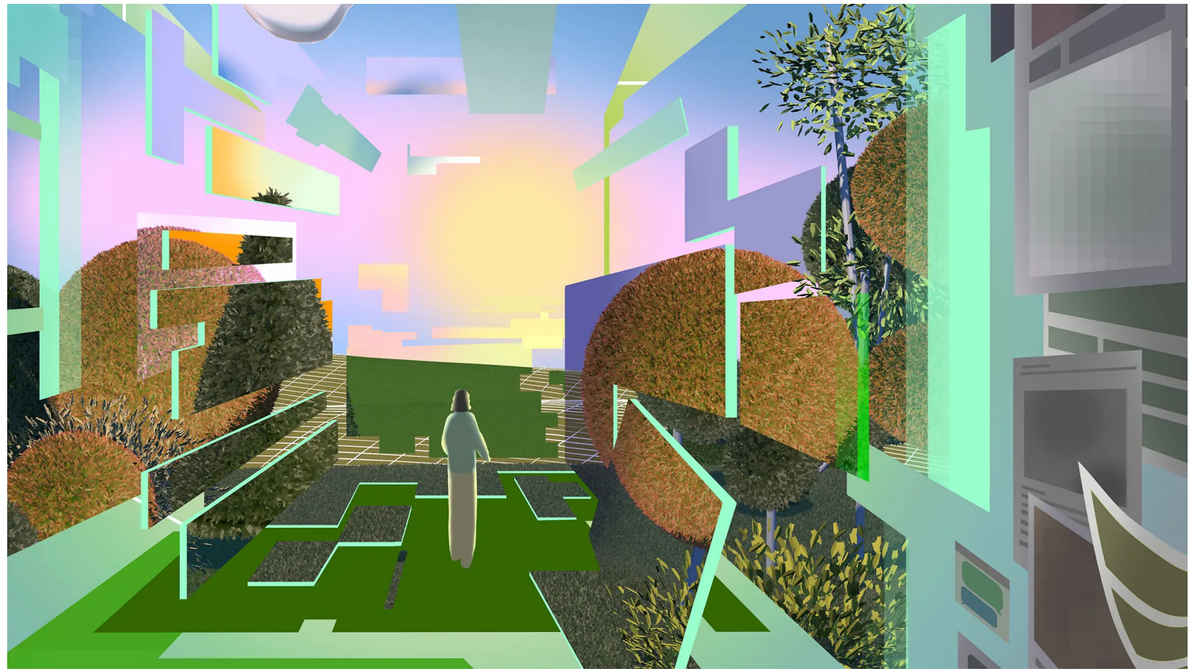
- Innovation
- Continuous learning
- Augmentation
- Experimentation

Use AI to catapult your business to do new instead of just do more.



[1] https://hbr.org/podcast/2023/05/how-generative-ai-changes-organizational-culture

Upskilling



- Focus on everyone in the company impacted by AI solutions
- Likely everyone
- Training
- Data Literacy
- Developing AI
- Responsible AI

[1] https://www.microsoft.com/en-us/worklab/podcast/how-ai-will-change-the-way-you-work

Let's practice!

IMPLEMENTING AI SOLUTIONS IN BUSINESS

Wrap-up

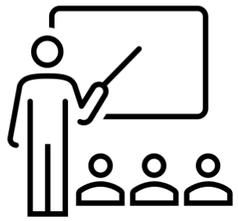
IMPLEMENTING AI SOLUTIONS IN BUSINESS



Jacob H. Marquez
Data Scientist

datacamp

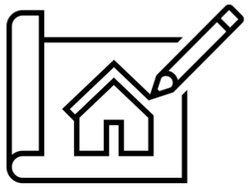
Phases of AI Implementation



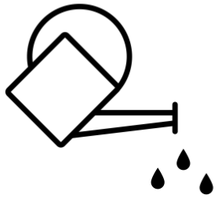
Education



Identification



Proof of Concept



Scale



Align Culture and Skills

Use cases

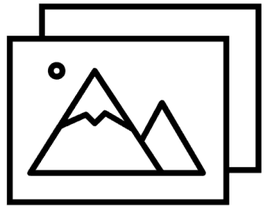


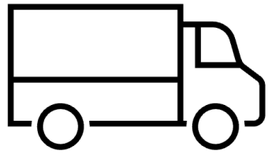
Image Processing



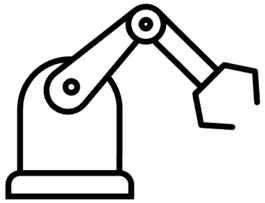
Speech Recognition



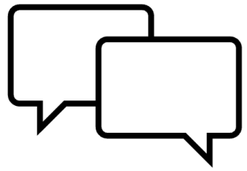
Natural Language Processing



Autonomous Vehicles



Robotics



Autocorrect

Benefits and limitations

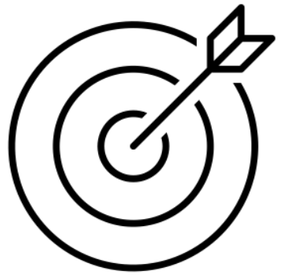
Benefits

- Efficiency
- Productivity
- Creativity
- Skilling

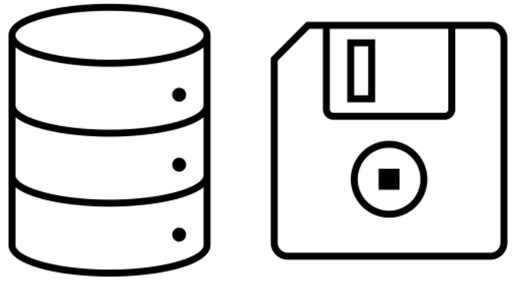
Limitations

- Lack of human empathy
- Understanding
- Ethics
- Creativity
- Dexterity

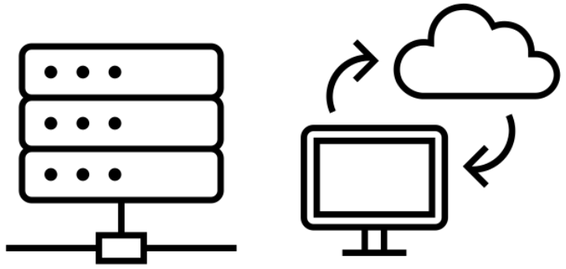
Proof of concept



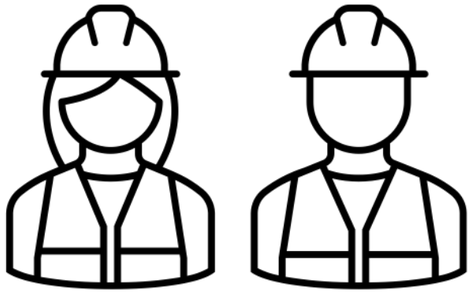
Clear goals & exit criteria



Available & representative data

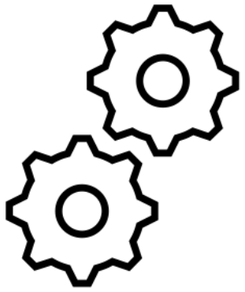


Efficient infrastructure



Skilled developers

Some focuses for full AI solution



Ops
(DevOps, MLOps)



Governance



Responsible AI

Let's practice!

IMPLEMENTING AI SOLUTIONS IN BUSINESS