

What is DevOps?

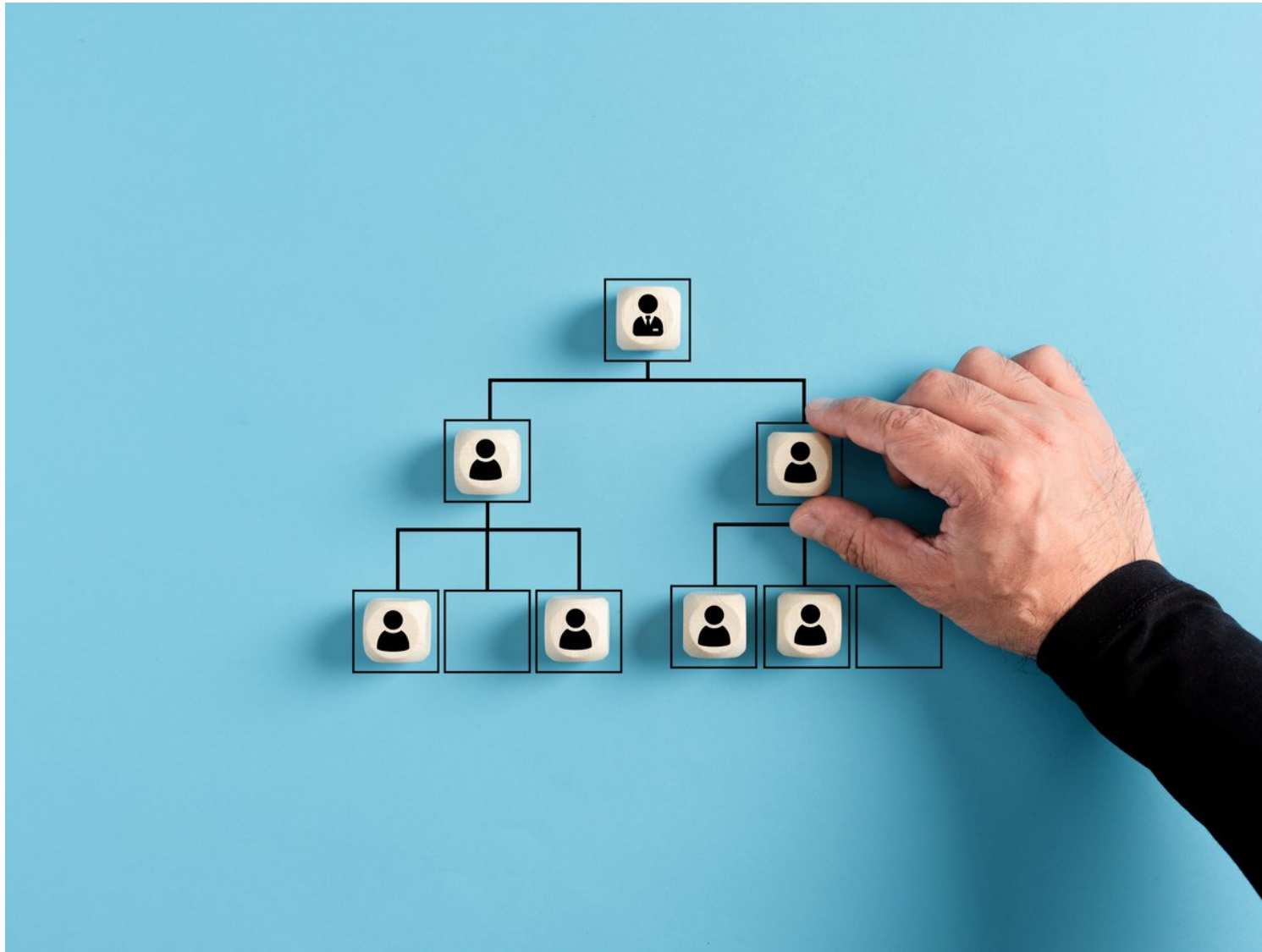
DEVOPS CONCEPTS



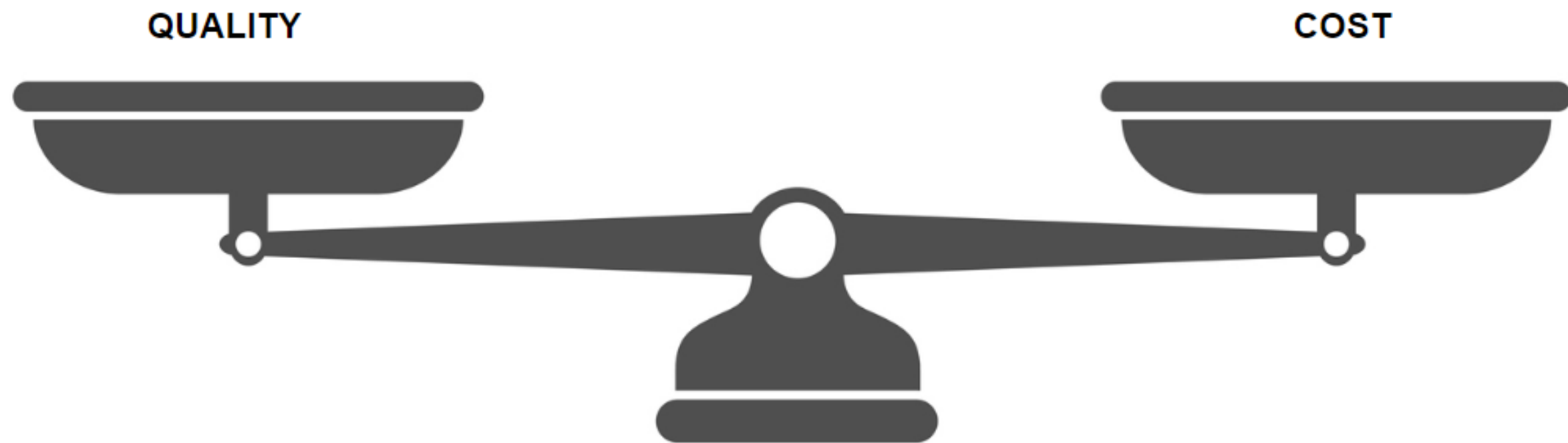
Cem Sakarya
DevOps Risk Advisor



Organizational structure



- Online products are complex
- Expensive to develop and maintain
- Thousands of engineers
- How to collaborate efficiently?



DevOps

DevOps is a combination of

- methods,
- tools, and
- cultural behavior

that improves how software is developed and maintained.

It helps organizations deliver higher-quality online products faster.

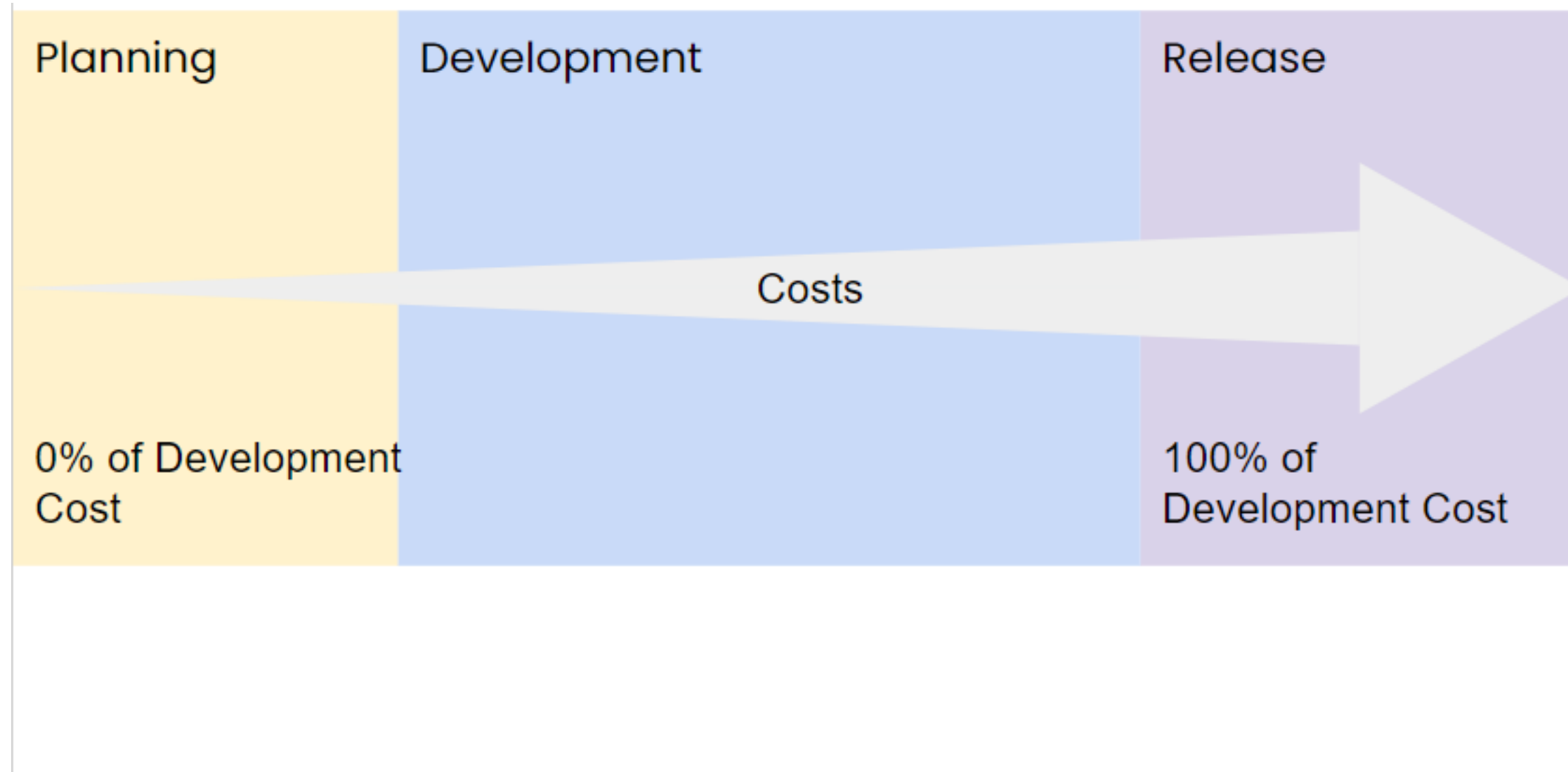
Traditional Change Management

- Independent teams
- Different teams have different goals
- Slow development

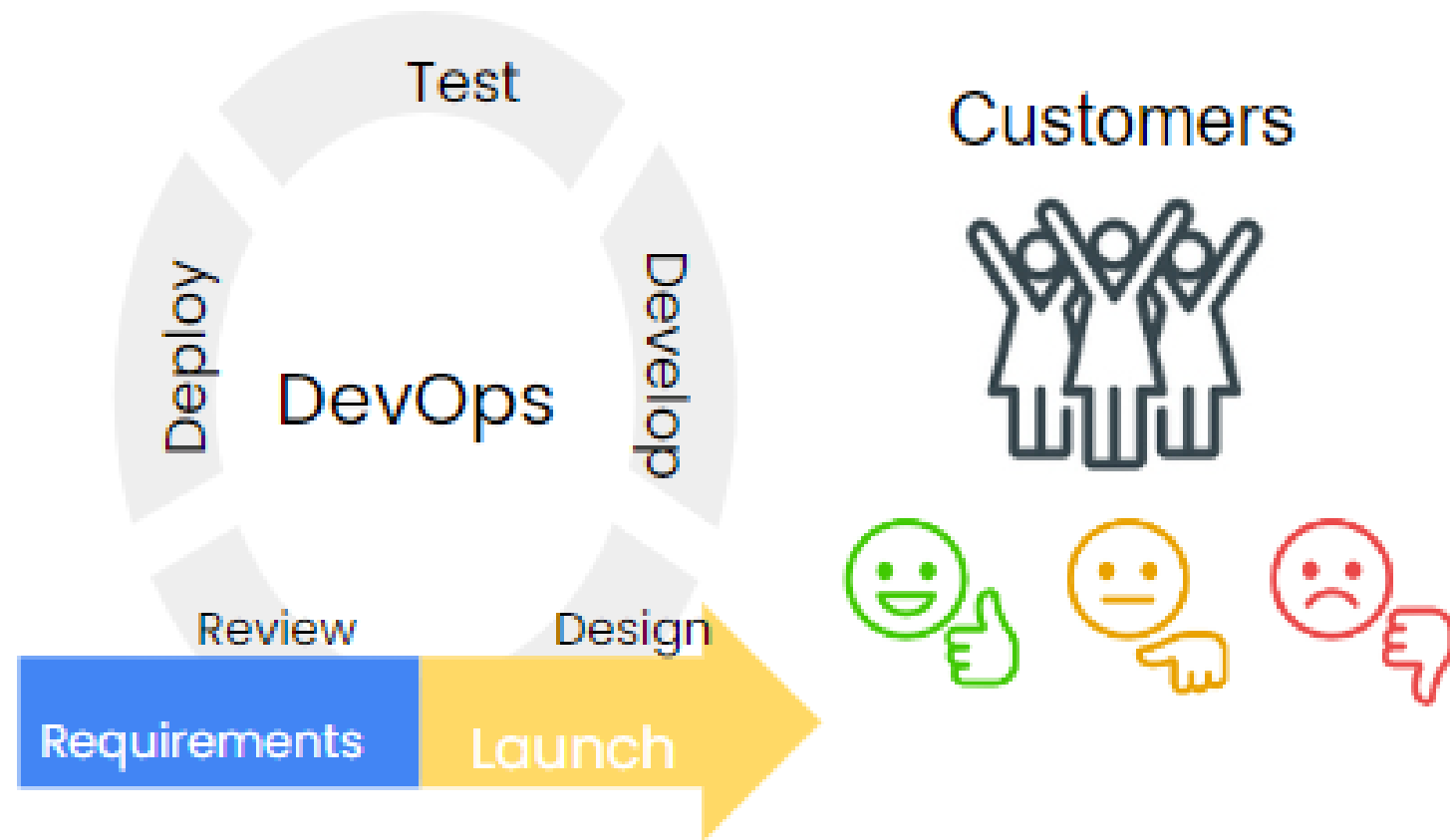
DevOps

- Different teams work together
- Software **Development** + IT **Operations** = DevOps
- Different teams have similar goals
- High speed development

Traditional release



Release Cycle 1



Minimum Viable Product

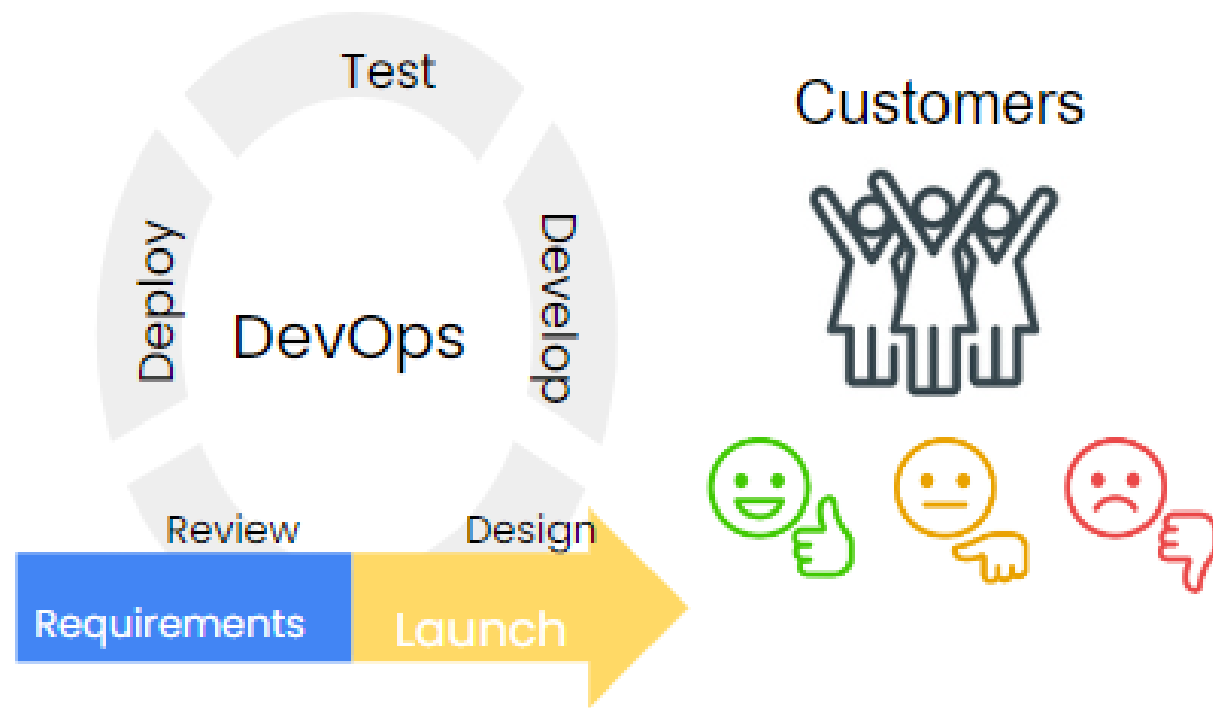
Minimum Viable Product

A minimum viable product (MVP) is an early version of a product with limited functionality.

- Cheaper to build
- High speed time-to-market

Product improvements

Release Cycle 1



Minimum Viable Product

Customers



Release Cycle 2

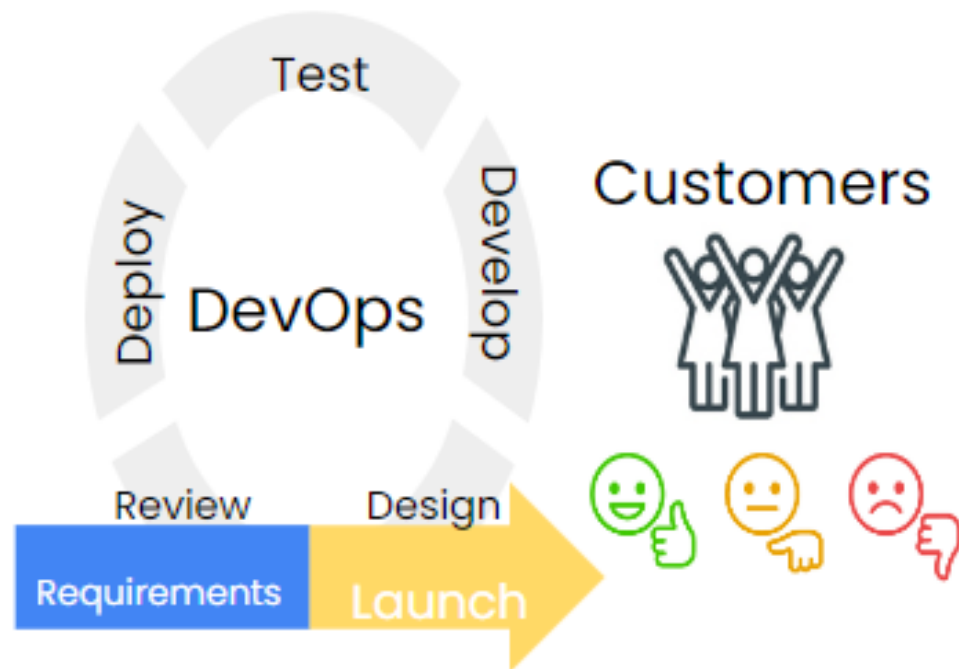
Improve the product
Invest more resources



Understand the reasons and
adapt
Drop it without much
damage

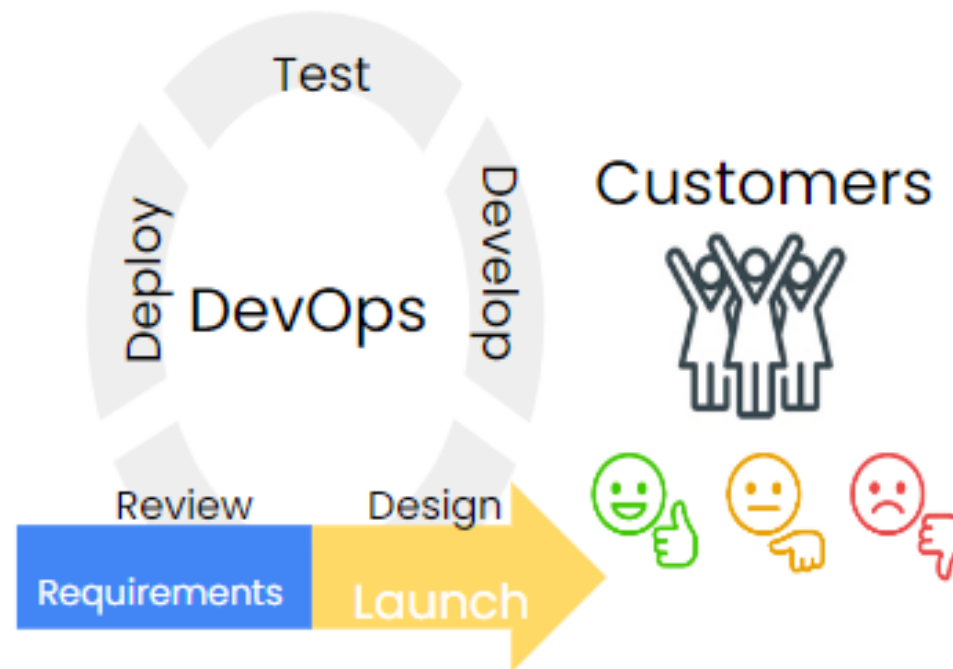
DevOps benefits

Release Cycle 1



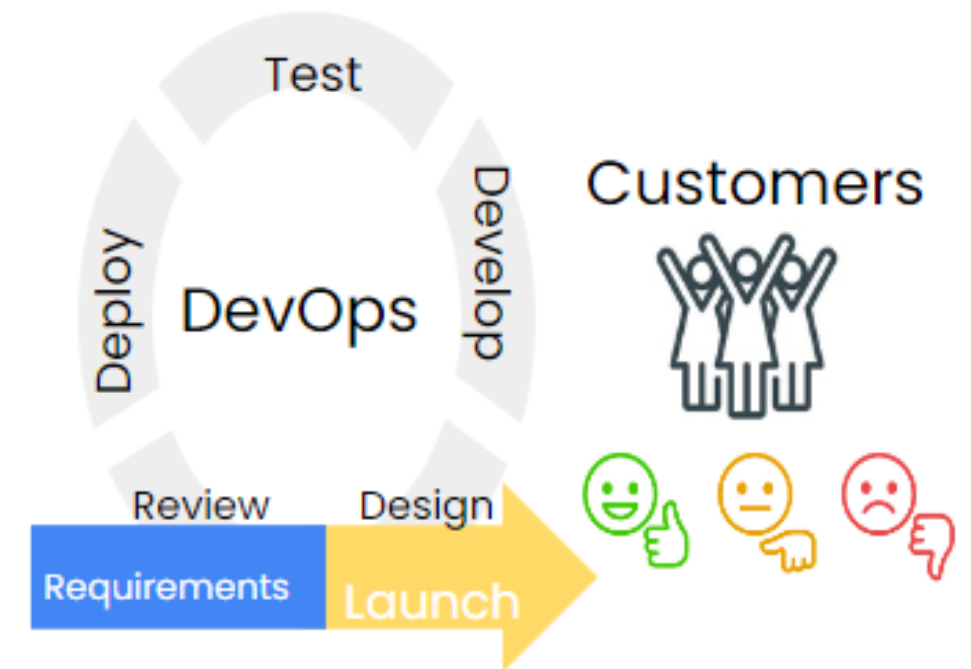
Minimum Viable Product

Release Cycle 2



Product Improvements

Release Cycle 3



End Product

Let's practice!
DEVOPS CONCEPTS

Use Cases for DevOps

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DevOps



- DevOps: Software Development + IT Operations
- Collaborative and Shared Responsibilities
- MVP Releases
- Adaptable to various use cases

Infrastructure Engineering

- Design, Develop, and Maintain the IT infrastructure
- This infrastructure requires power from the cloud or from hardware the company owns
- Infrastructure engineers take care of the hardware, network, and cloud components



Infrastructure
Engineering

Safety

Internal Tools

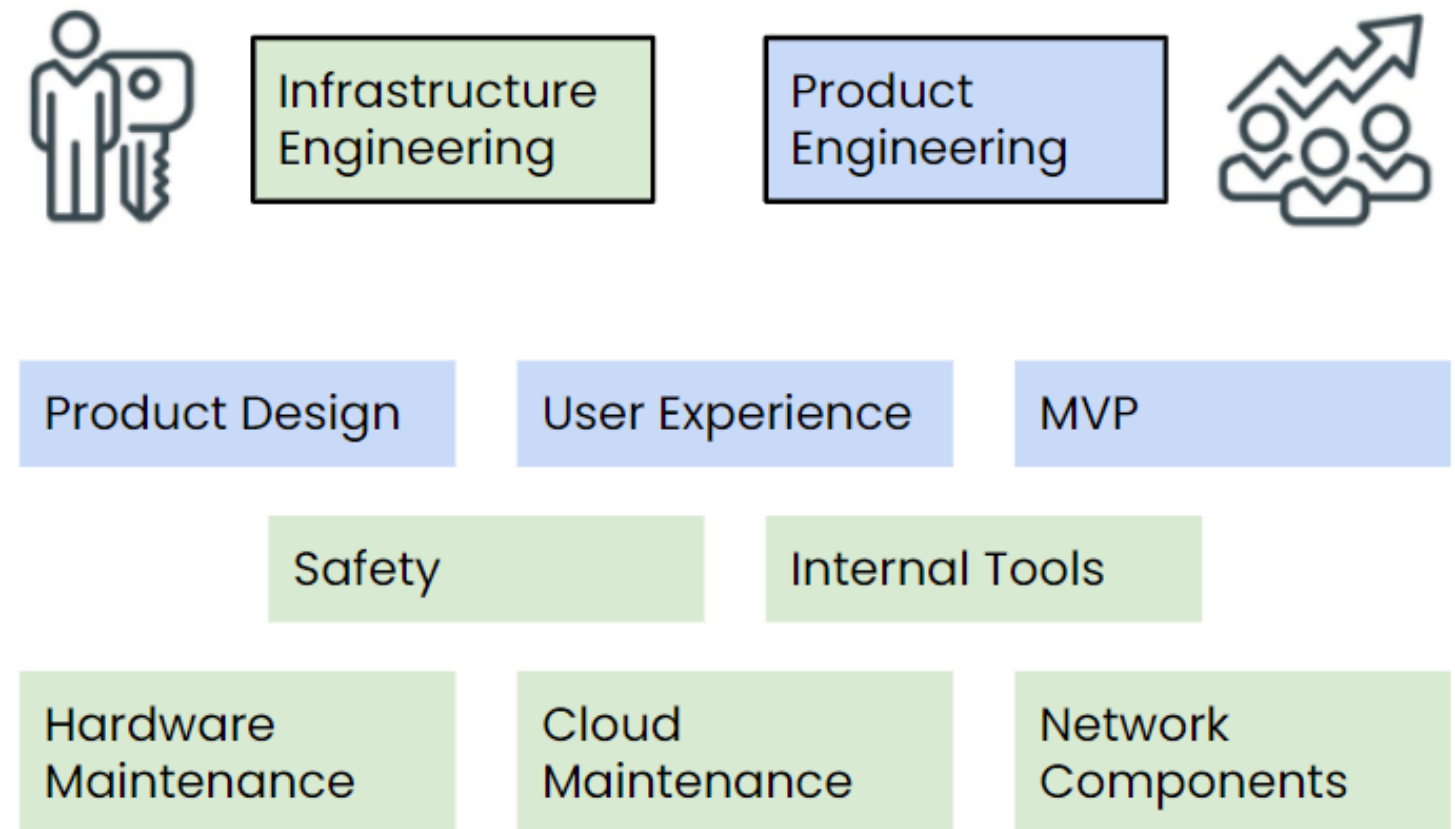
Hardware
Maintenance

Cloud
Maintenance

Network
Components

Product Engineering

- Design, develop, and maintain the Software Products
- Customer serving components



Data Engineering

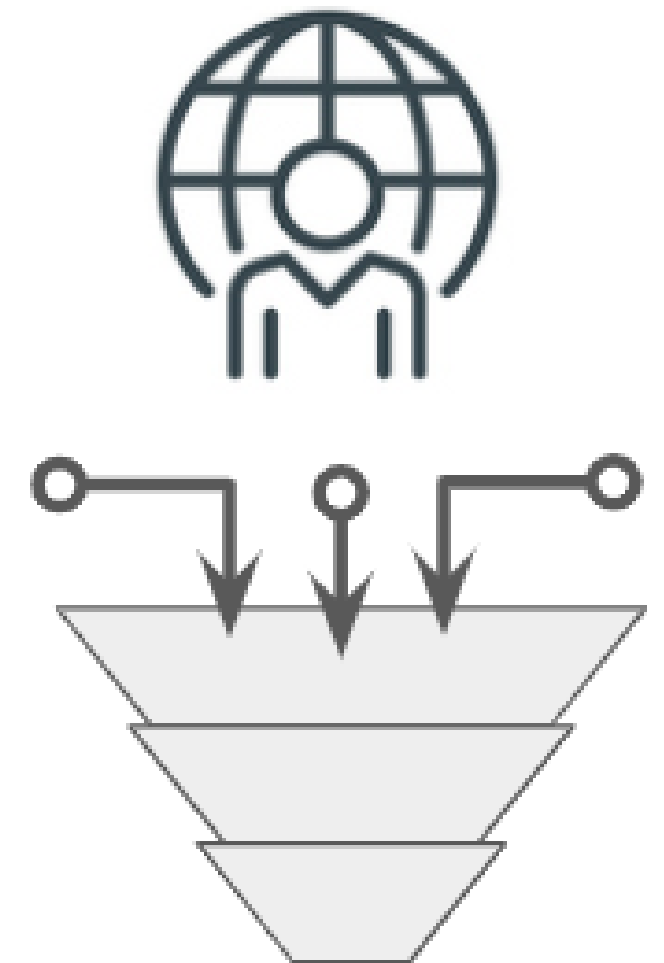
Data engineering refers to the building of systems to enable the collection and usage of data.

Product
Engineering

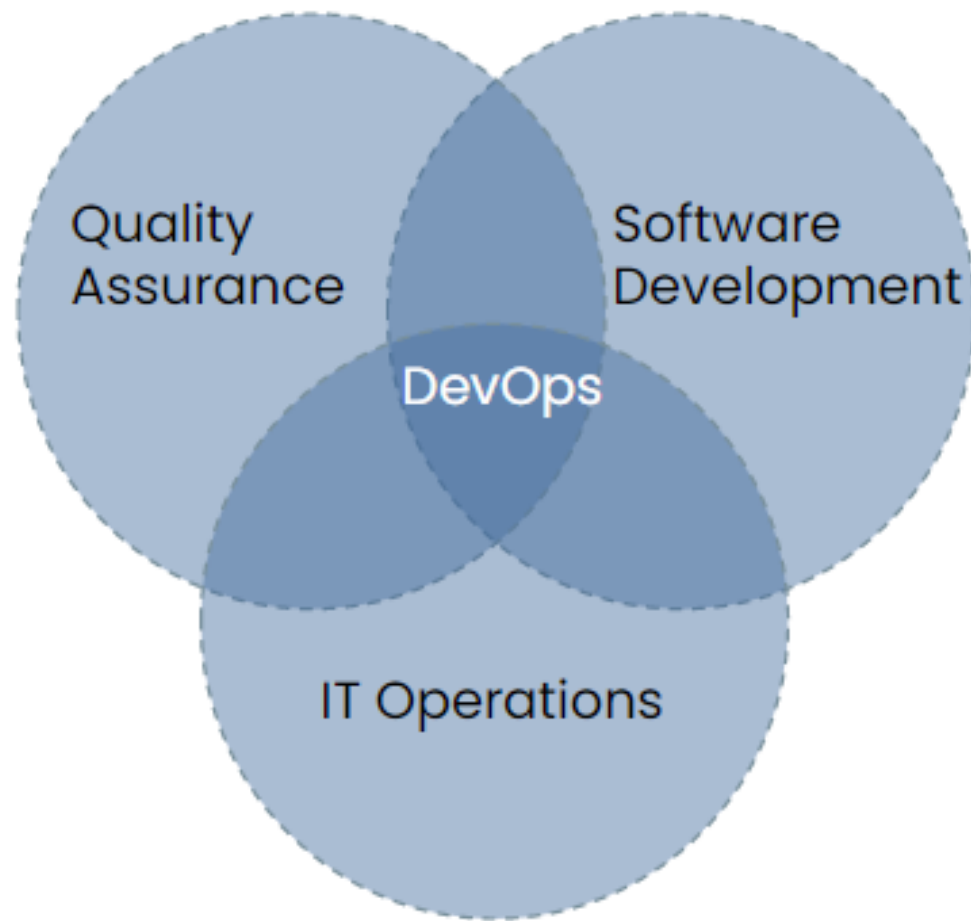
Builds a customer facing
feature

Data
Engineering

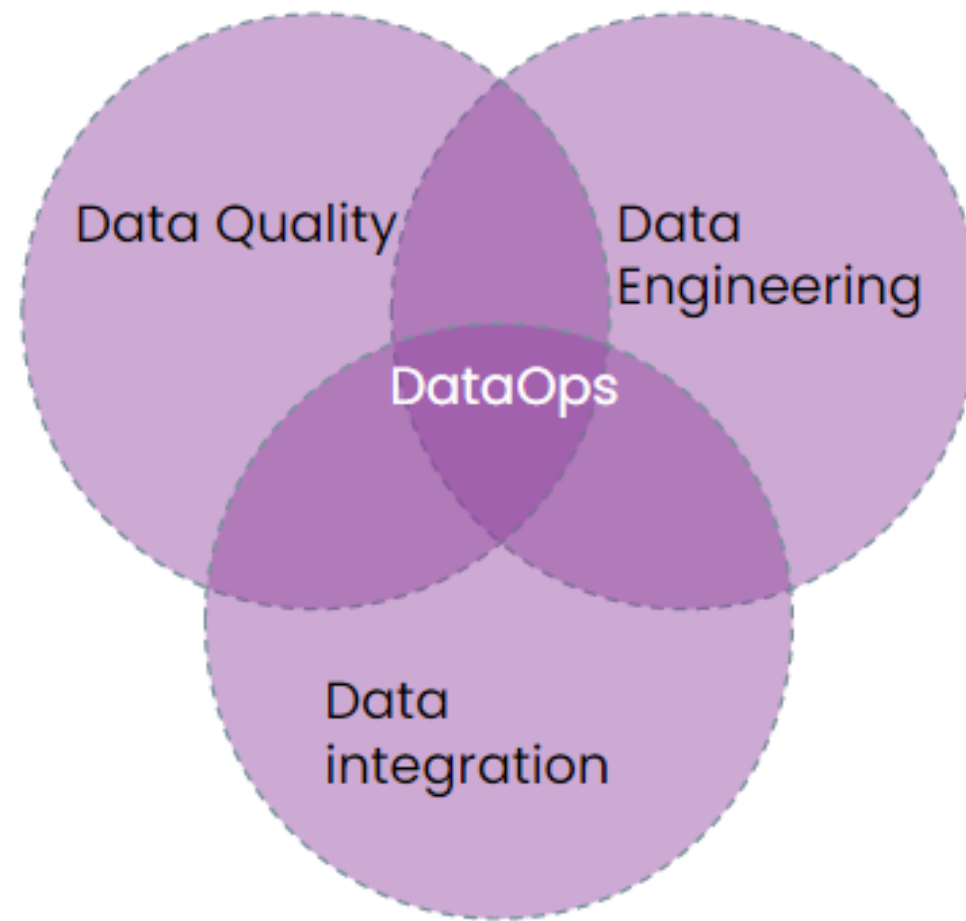
Collects, stores, and make
data available for use



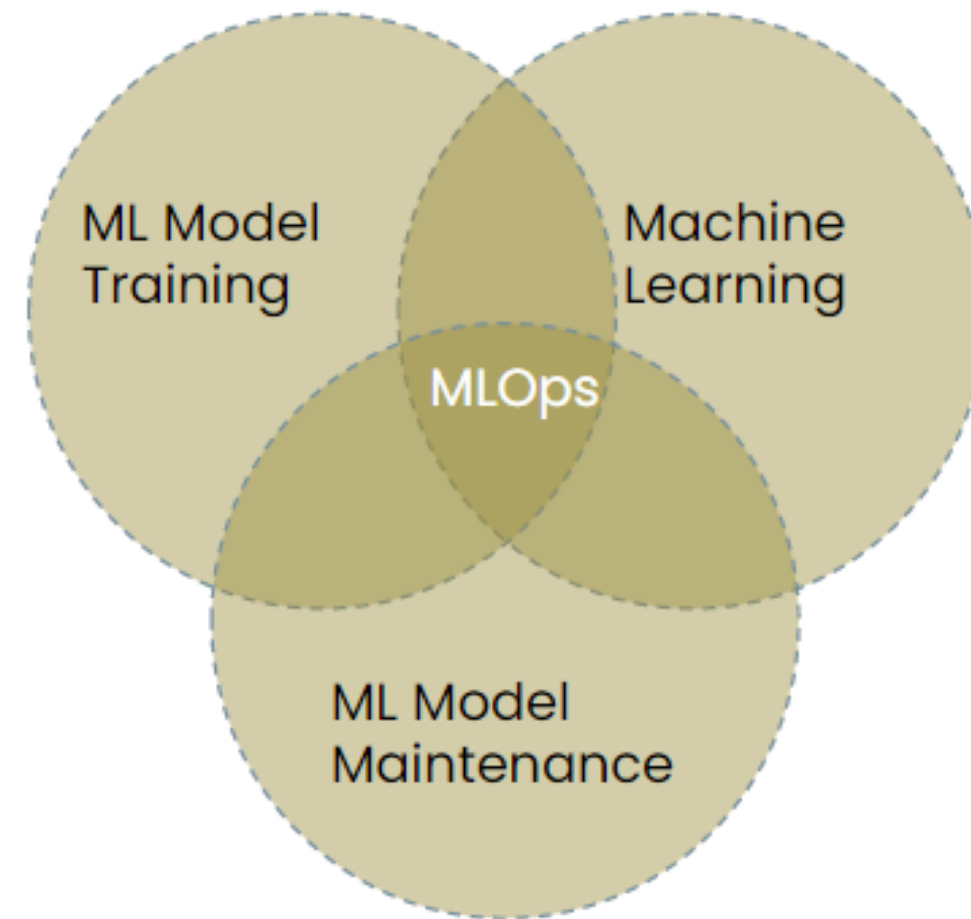
¹ https://en.wikipedia.org/wiki/Data_engineering



DevOps



DataOps



MLOps

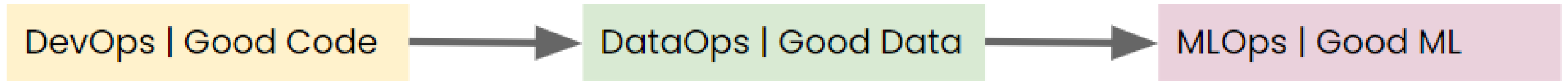
DataOps

- Software is powered by data
- Data is moved in data pipelines
- Ensuring data moves smoothly
- Data is not lost while moving
- Move the data for the use of data scientists and ML Engineers

MLOps

- Predicting the future using the past data
- Data Preparation (Historical data)
- Model Training
- Model Testing
- Deployment
- Maintenance

No competition



Let's practice!
DEVOPS CONCEPTS

Project Management Methodologies for DevOps

DEVOPS CONCEPTS



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Why is project management important to DevOps?

- Defines how the team will operate
- Drives change
- Timeline/Resource Management
- Collaboration within/across teams

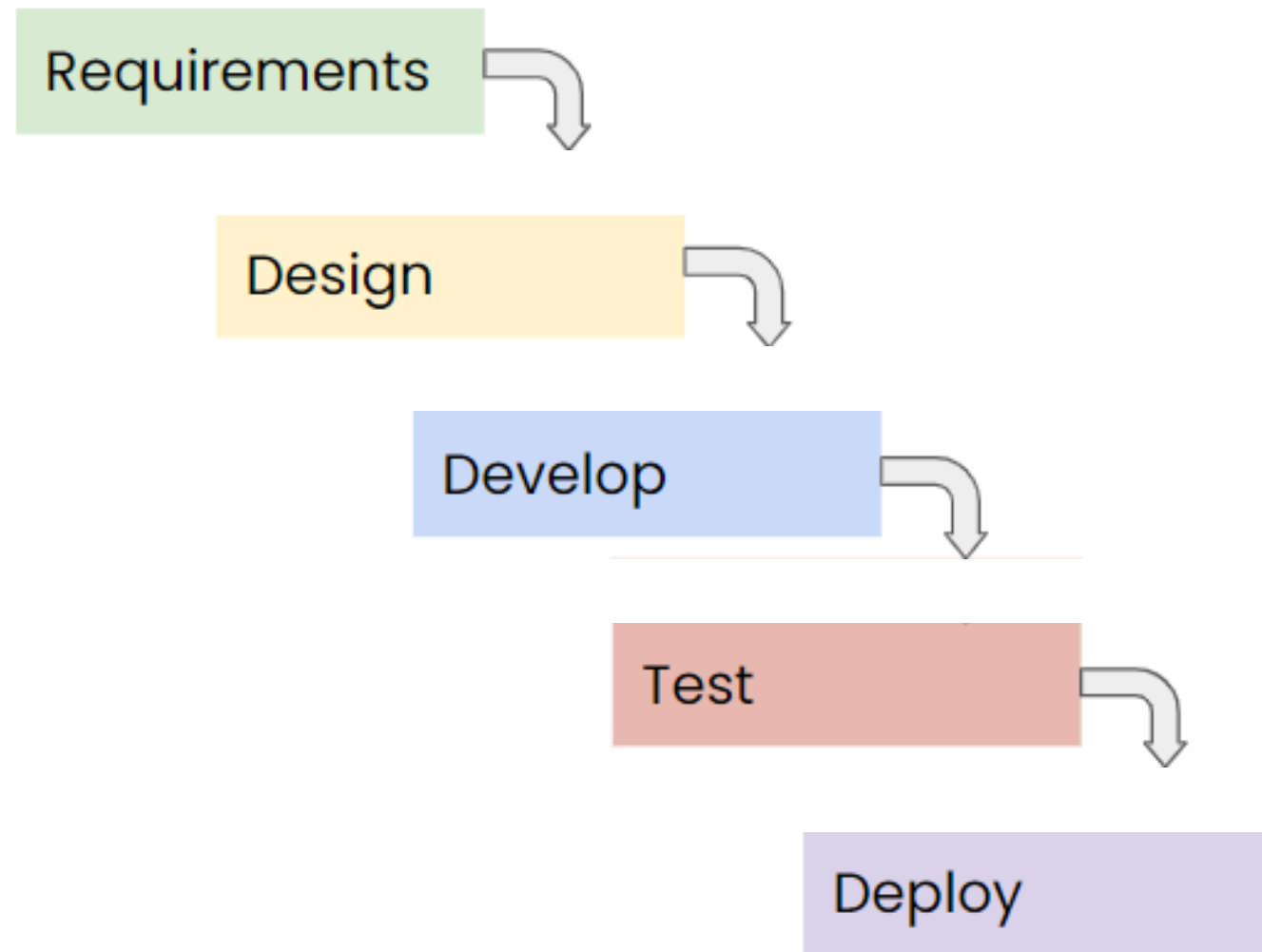
What is project management?

Project management is the use of

- specific knowledge,
- skills,
- tools, and
- techniques

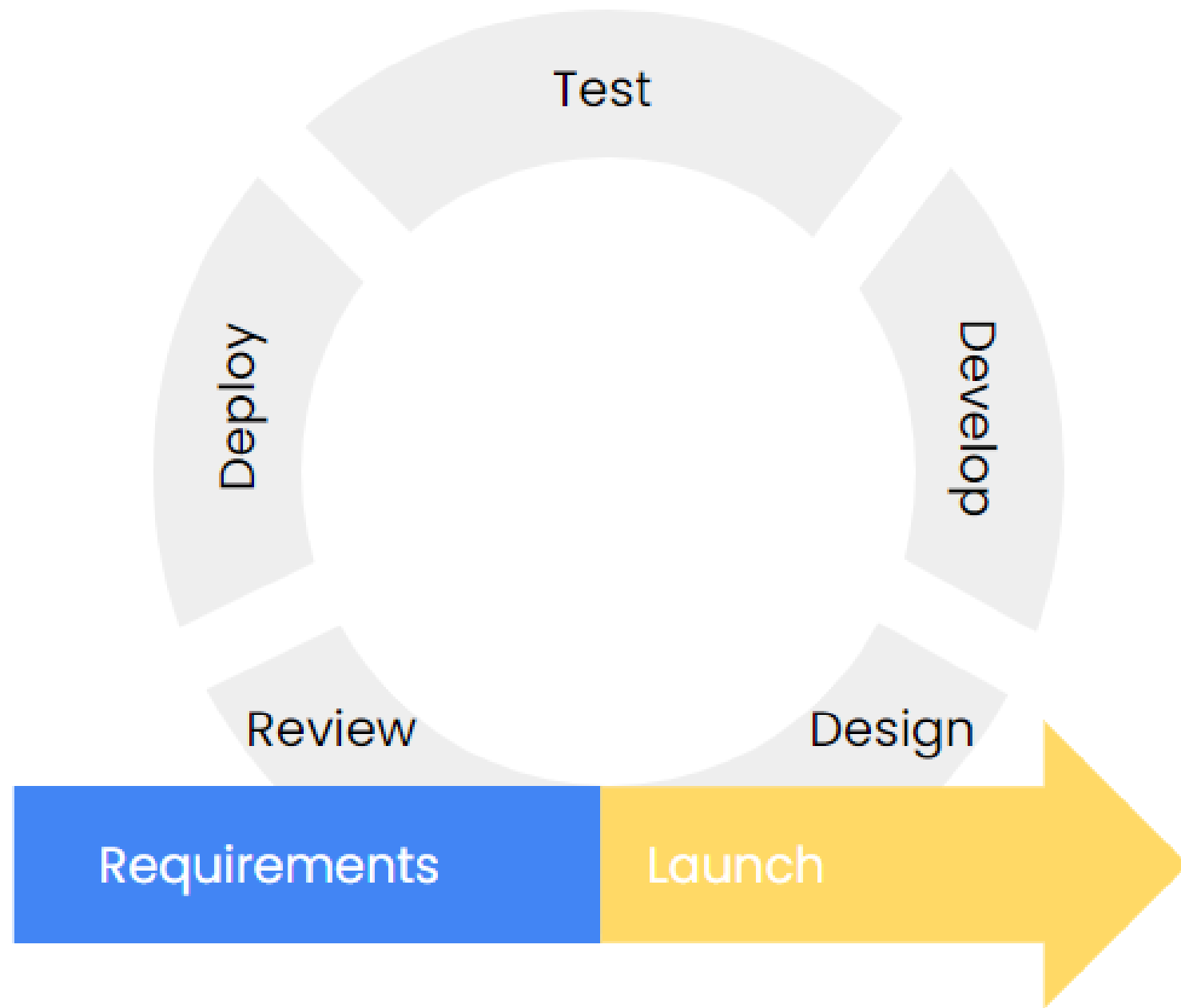
to deliver something of value to people.

Waterfall



- An old methodology
- No return back to earlier stage
- Develop all of the product at once

Agile



- Series of cycles
- Achieving one small goal at a time
- First MVP, then improvements
- Going through the cycle each time

Choosing the right project management model



The best methodology depends on:

- Team's skill set
- Budget
- Complexity of the project
- Expectations

Agile is the de facto standard for most software development teams.

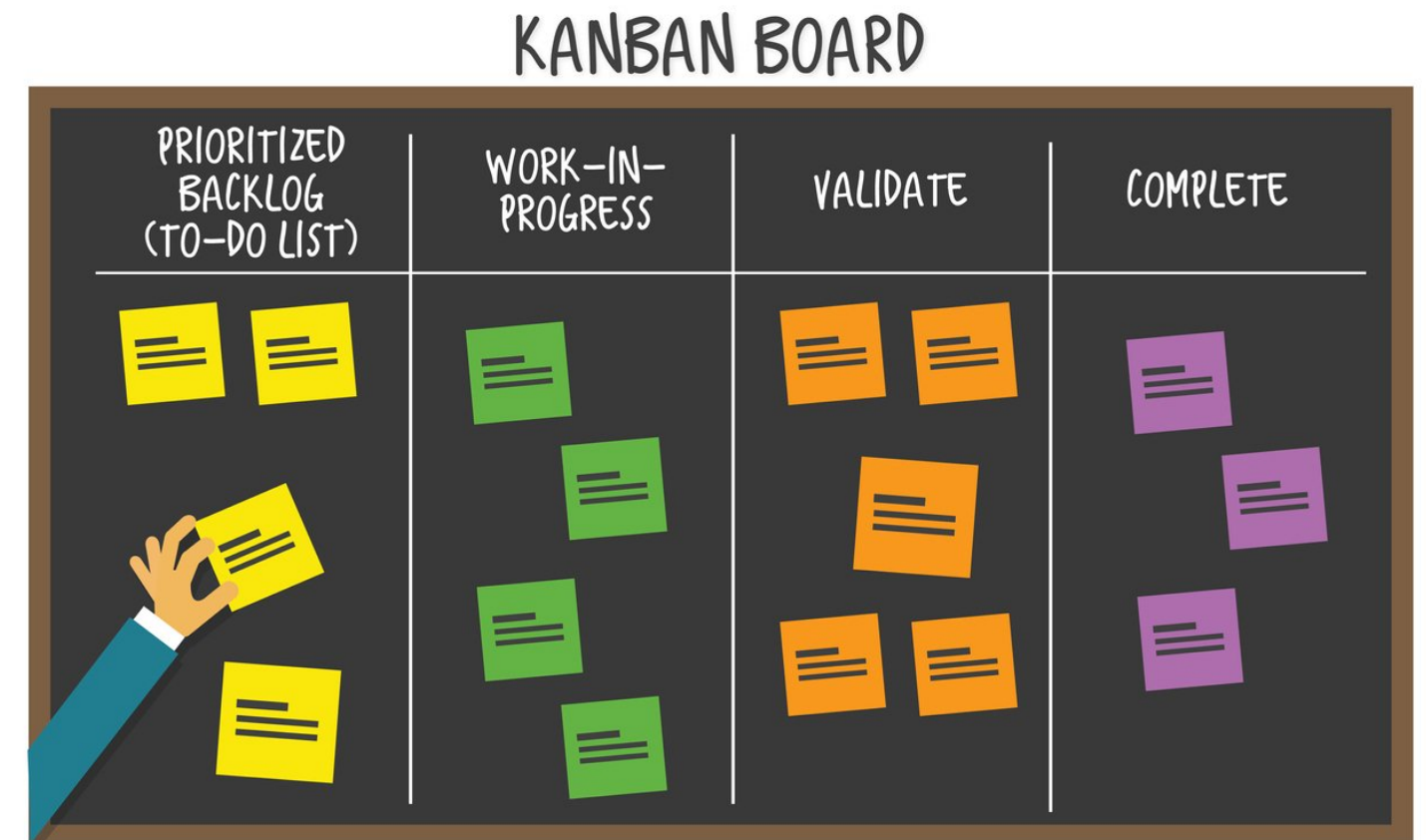
Scrum

A sprint in Scrum is a two-to-four week timeframe with a light development goal for the team.



Kanban

No sprints in Kanban, instead tracking improvements continuously.



Scrum

- Regular, fixed-length sprints (i.e., two weeks)
- Learn through experiences
- Sprint planning, sprint, daily standup, sprint review, sprint retrospective
- Product owner, scrum master, development team

Kanban

- Continuous flow
- Use visuals to improve work-in-progress
- Visualize the flow of work, limit work-in-progress, manage flow, incorporate feedback loops
- No defined roles

¹ <https://www.atlassian.com/agile/kanban/kanban-vs-scrum>

- Both Scrum and Kanban are under Agile methodology
- Both Scrum and Kanban improves collaboration
- Both powerful methodologies when applied to correct use case

Let's practice!
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