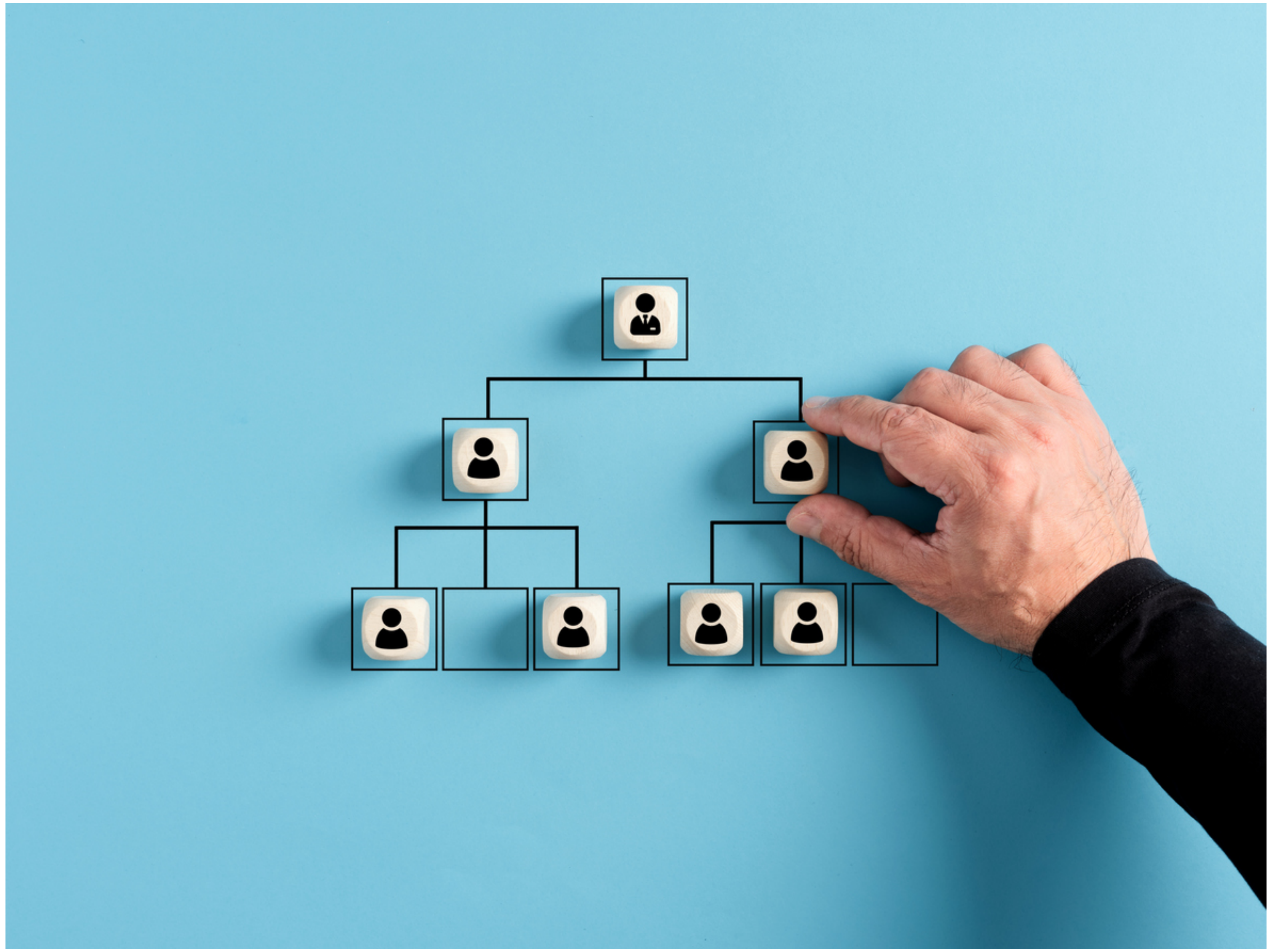
What is DevOps?

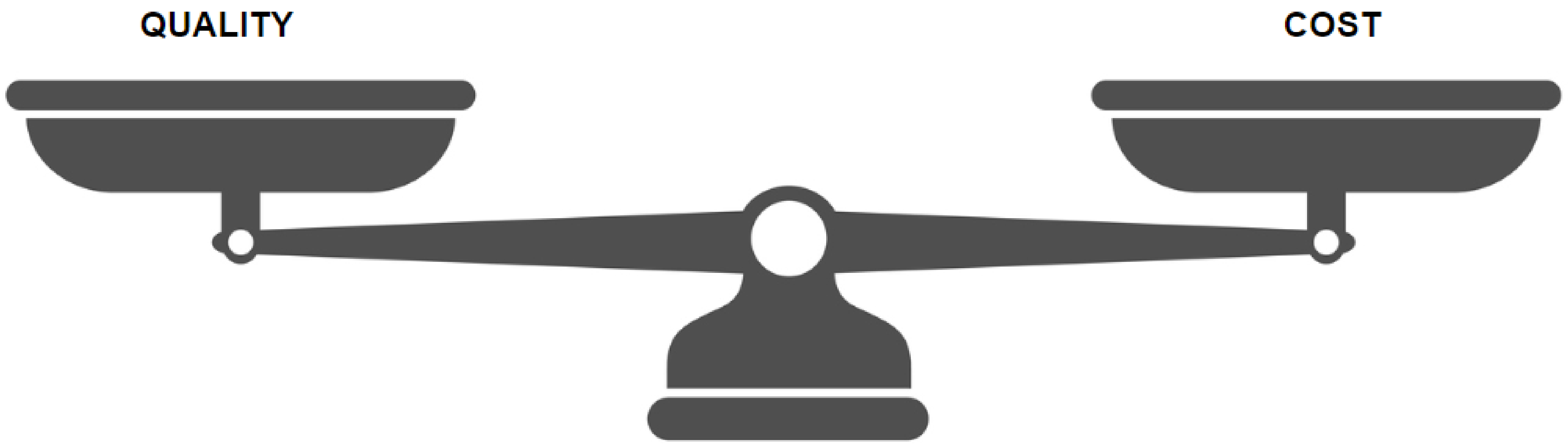
INTRODUCTION TO DEVOPS

Cem Sakarya
DevOps Risk Advisor

Organizational structure



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


QUALITY
COST

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.

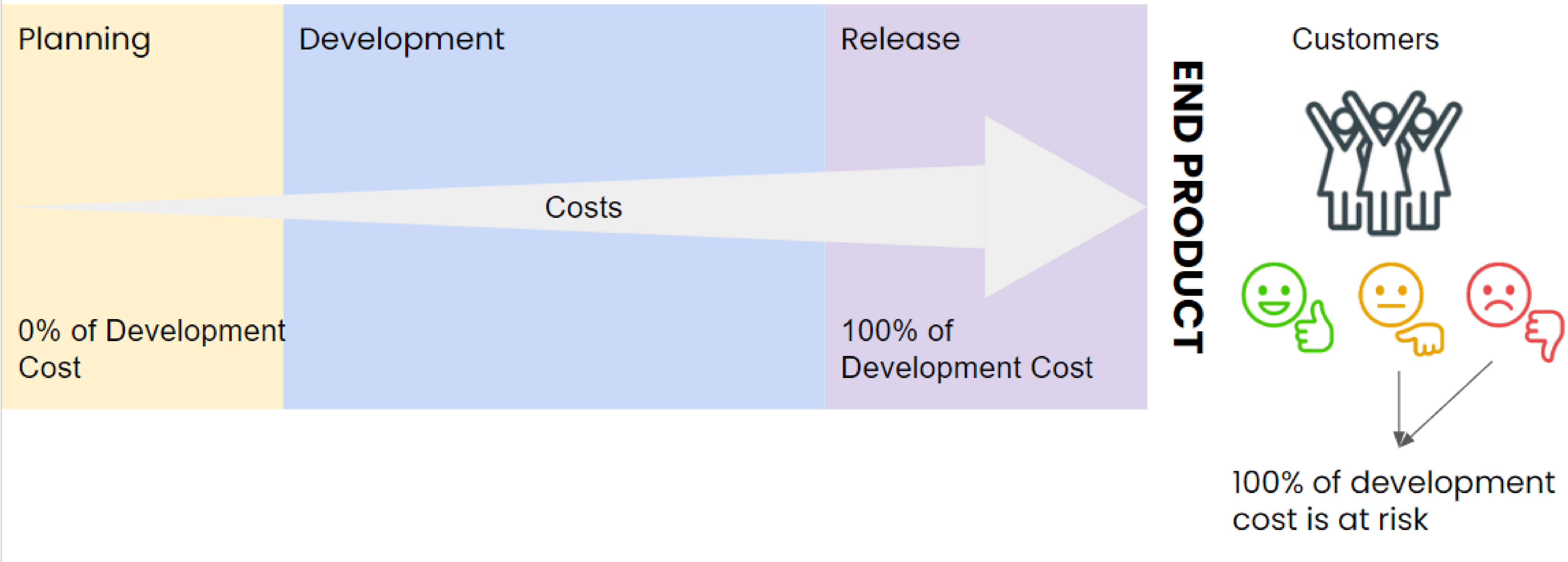
Traditional Change Management

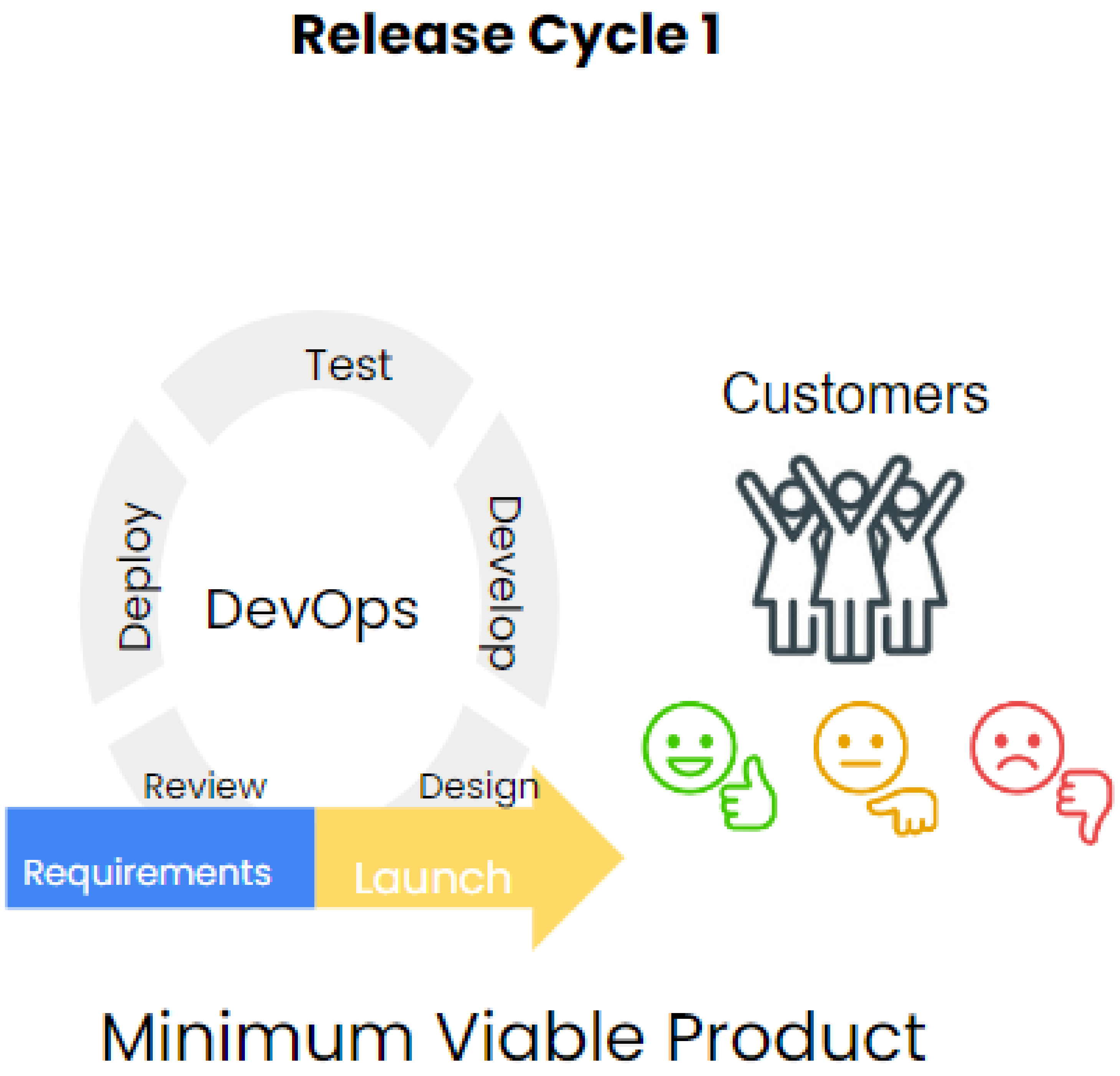
- Independent teams
- Different teams have different goals
- Slow development

DevOps

- Different teams work together
- Software **Dev**elopment + IT **Op**erations = DevOps
- Different teams have similar goals
- High speed development

Traditional release



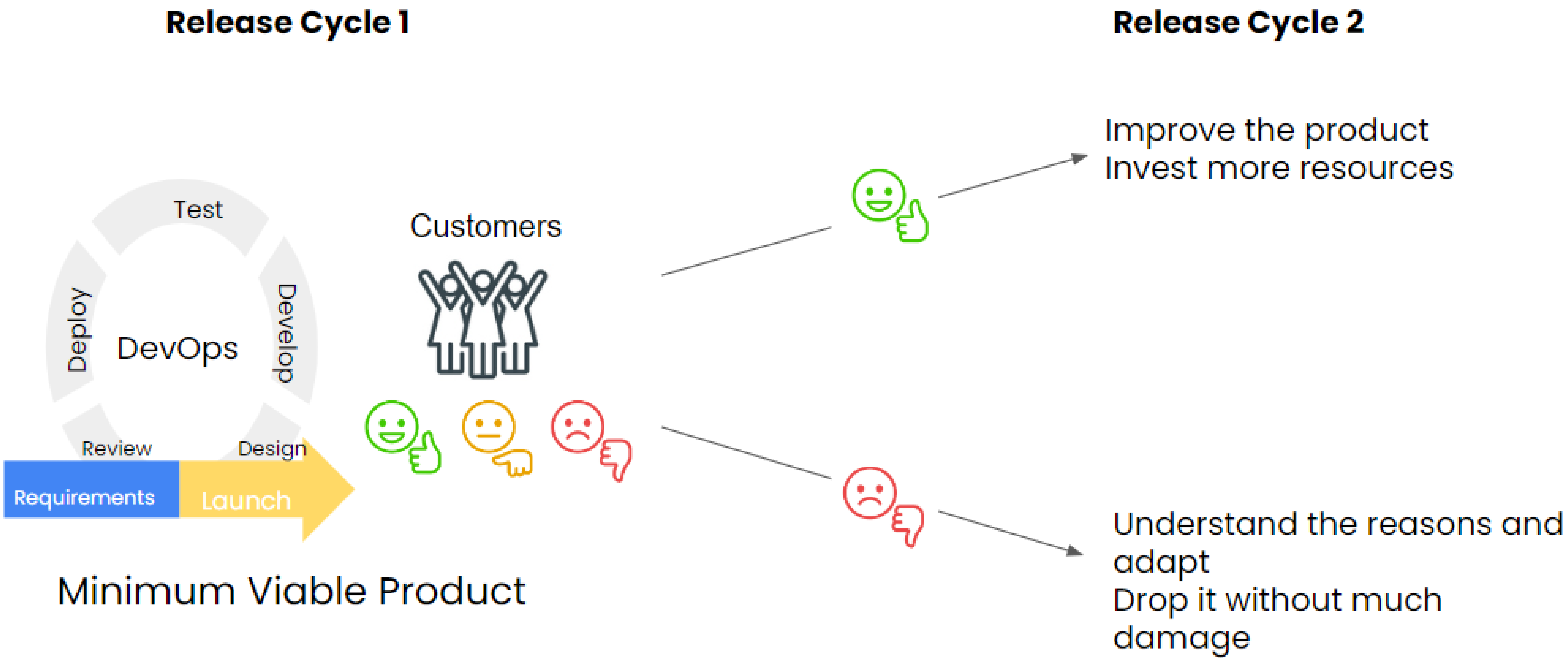


Minimum Viable Product

> 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

Release Cycle 2

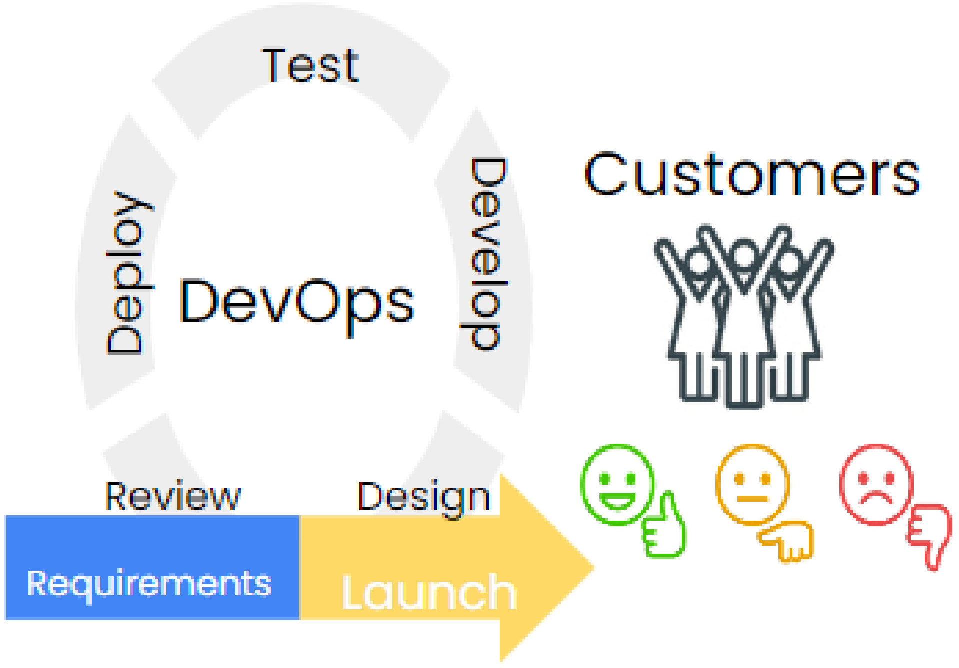
Minimum Viable Product

Improve the product
Invest more resources

Understand the reasons and adapt
Drop it without much damage

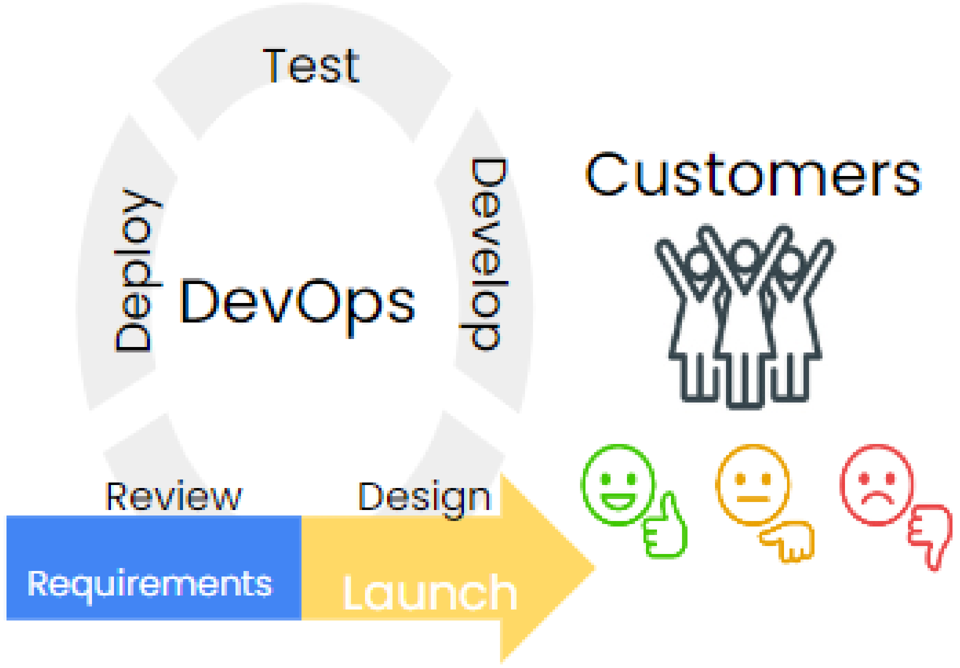
DevOps benefits

Release Cycle 1



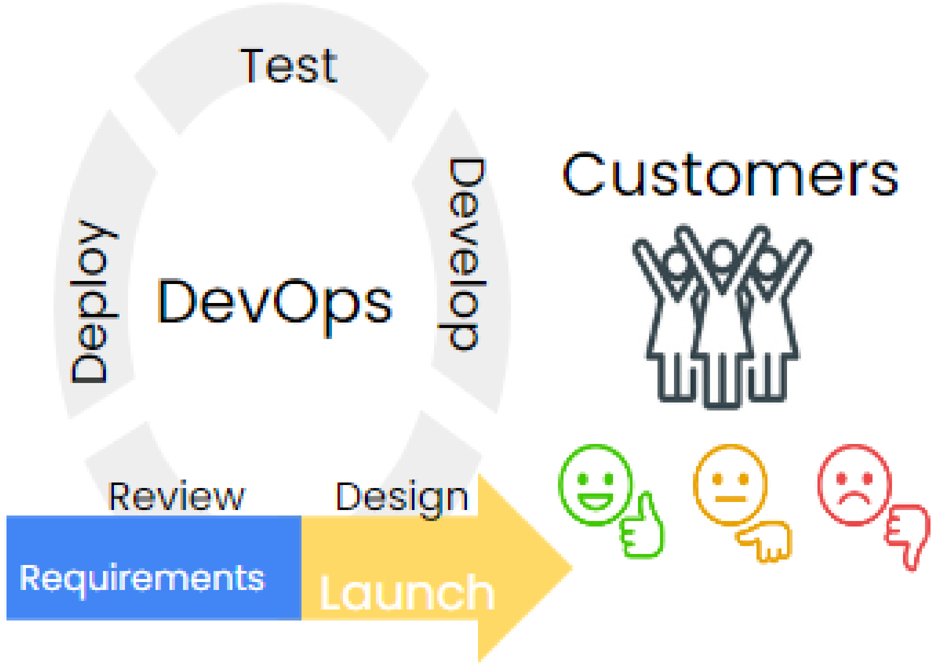
Minimum Viable Product

Release Cycle 2



Product Improvements

Release Cycle 3



End Product

Let's practice!

INTRODUCTION TO DEVOPS

Use Cases for DevOps

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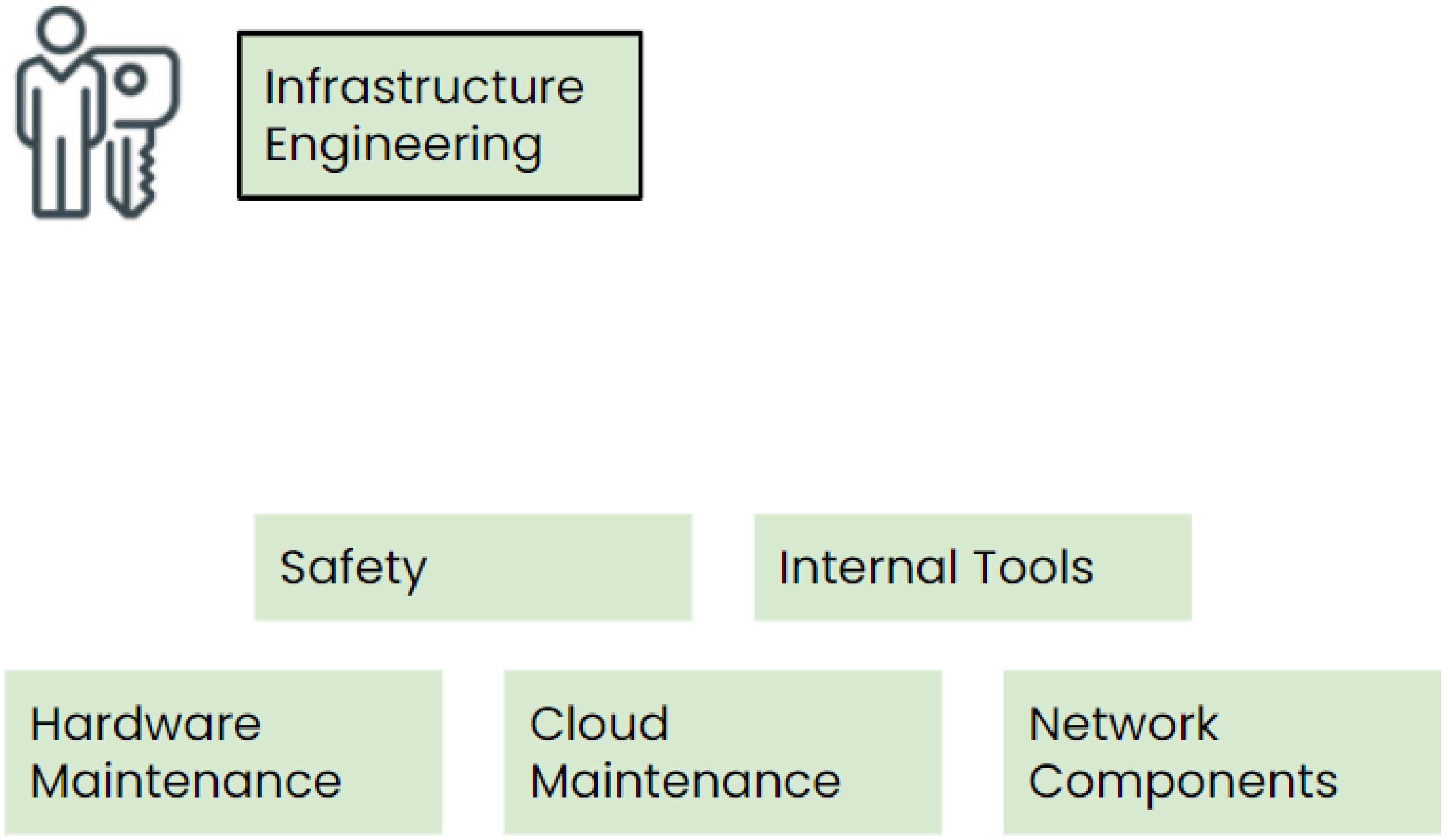
DevOps

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

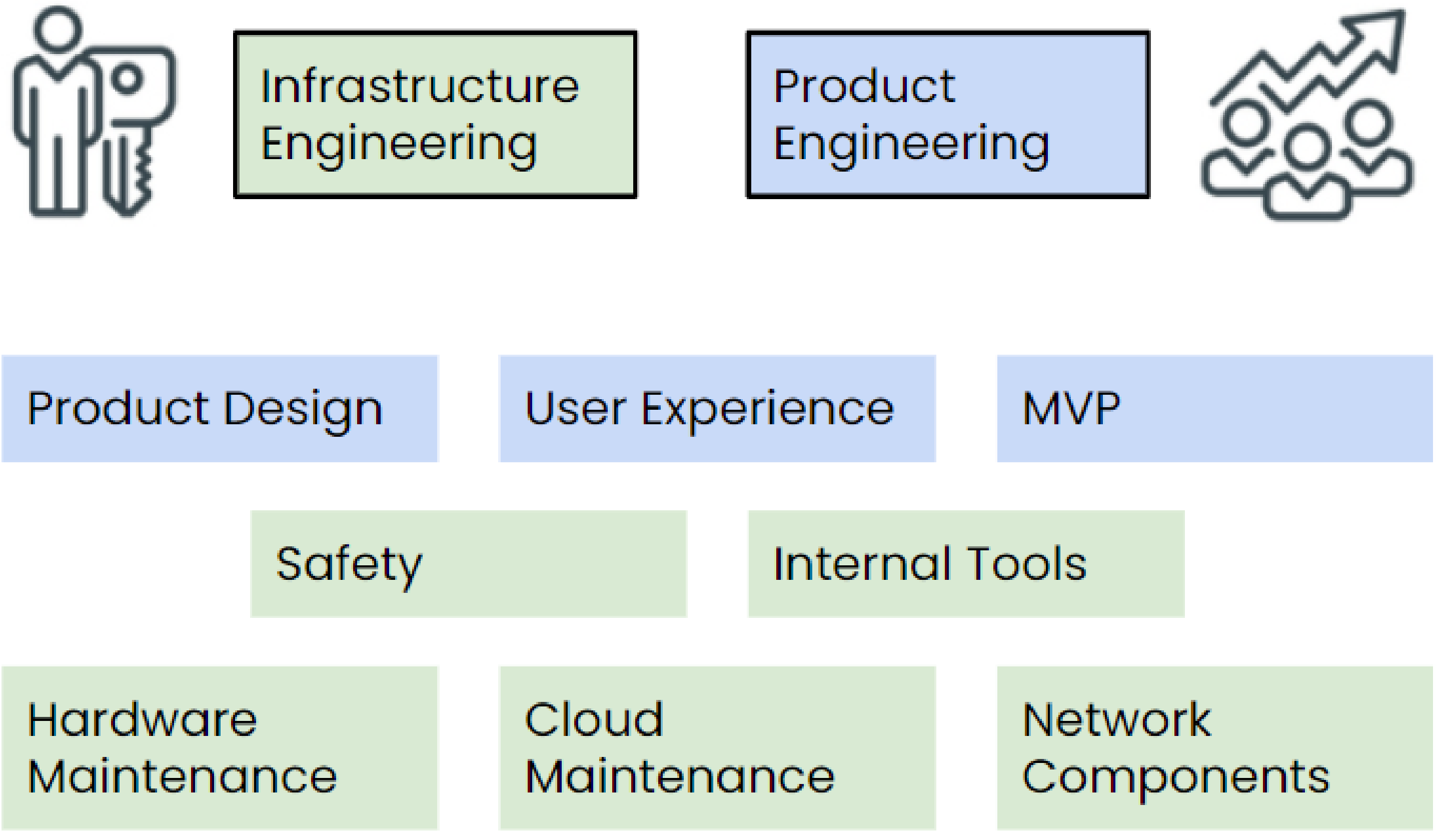
Infrastructure Engineering

- 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



Product Engineering

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



Infrastructure Engineering

Product Engineering

Product Design

User Experience

MVP

Safety

Internal Tools

Hardware Maintenance

Cloud Maintenance

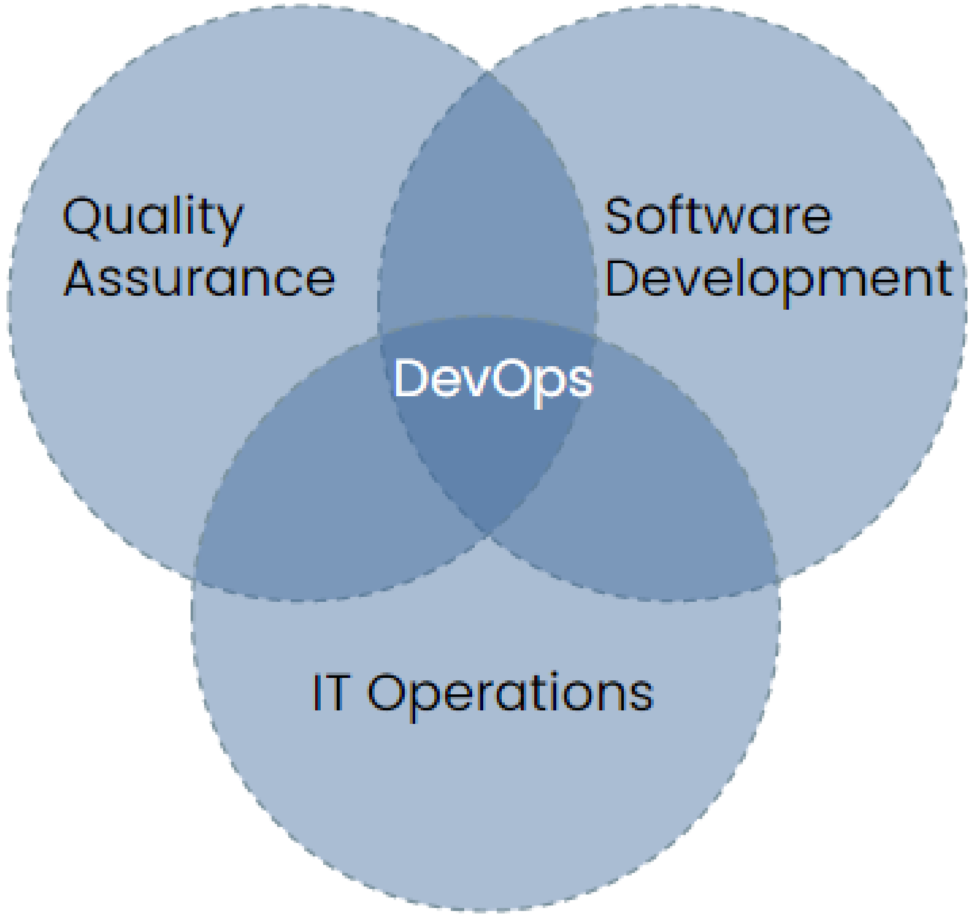
Network Components

Data Engineering

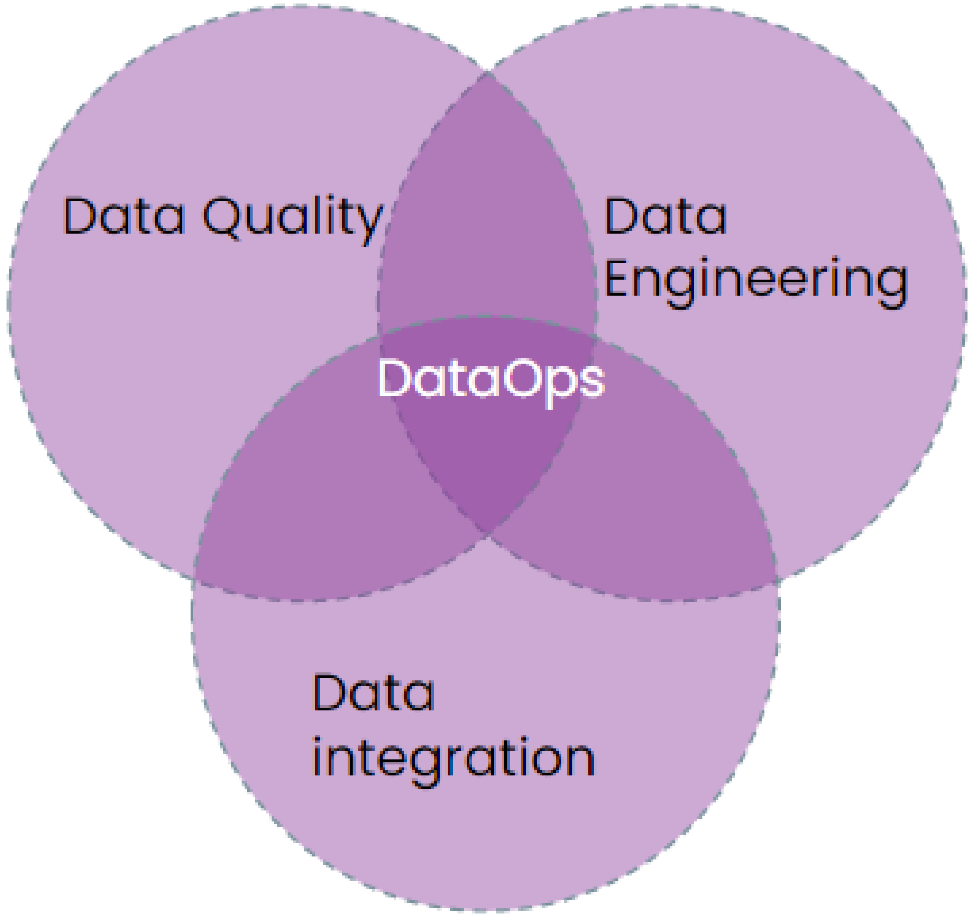
> Data engineering refers to the building of systems to enable the collection and usage of data.

Product Engineering	Builds a customer facing feature
Data Engineering	Collects, stores, and make data available for use

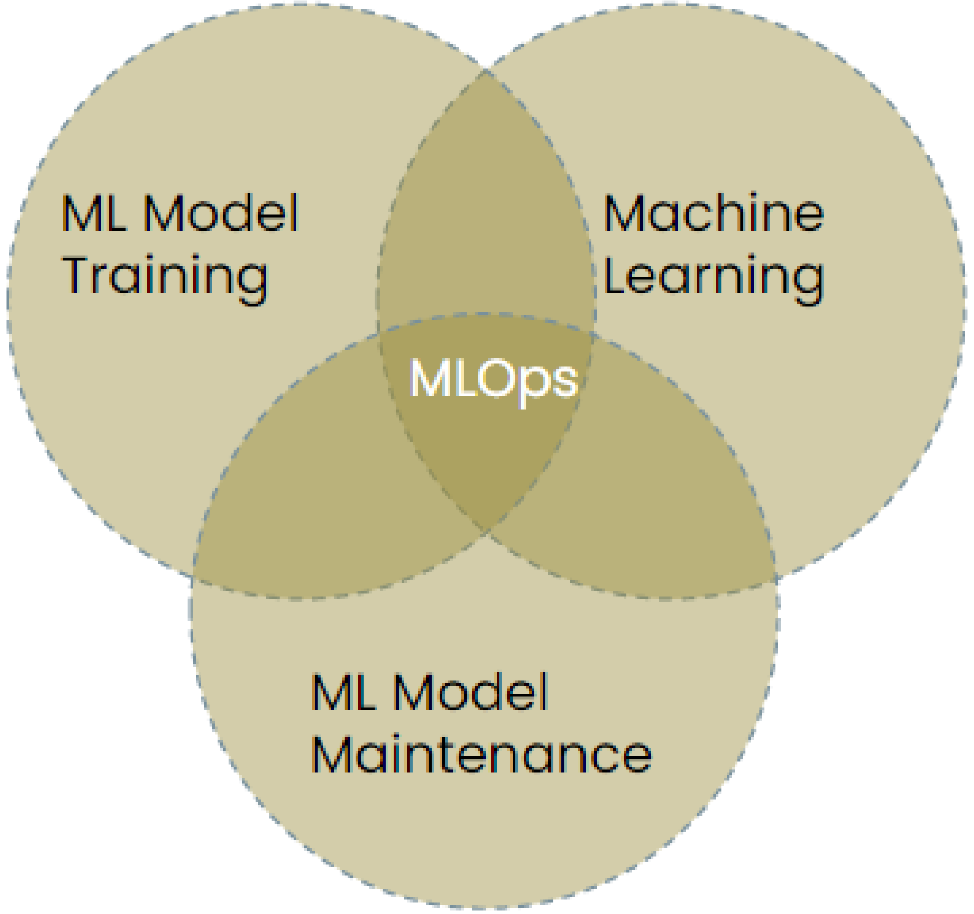
[1] https://en.wikipedia.org/wiki/Data_engineering



DevOps



DataOps



MLOps

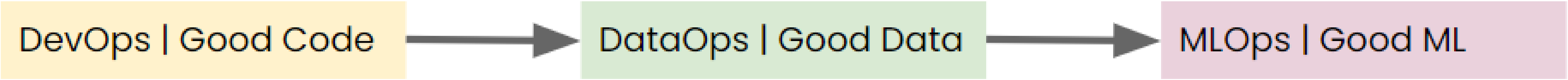
DataOps

- 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



DevOps | Good Code

DataOps | Good Data

MLOps | Good ML

Let's practice!

INTRODUCTION TO DEVOPS

Project Management Methodologies for DevOps

INTRODUCTION TO DEVOPS

Cem Sakarya
DevOps Risk Advisor

datacamp

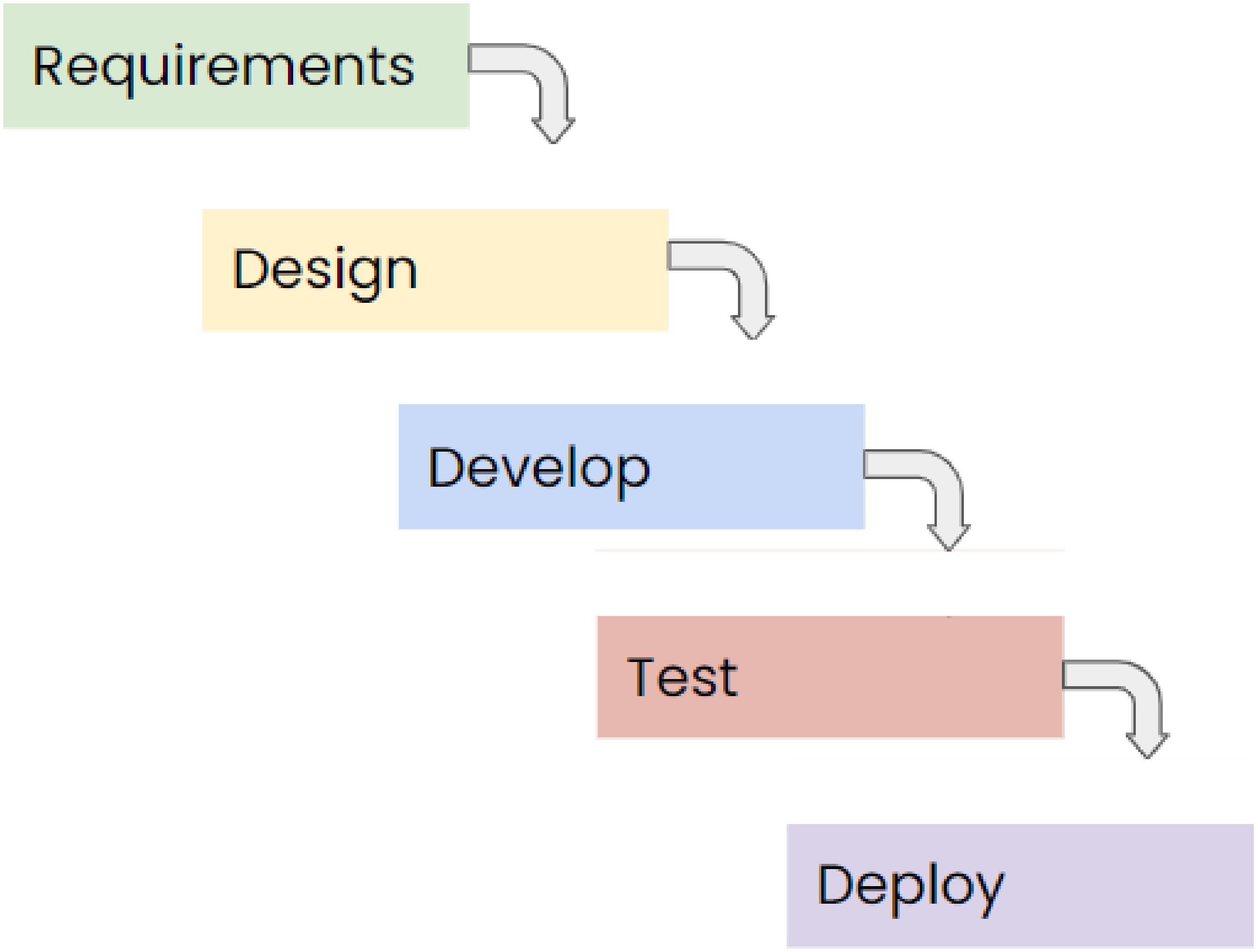
Why is project management important to DevOps?

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

What is project management?

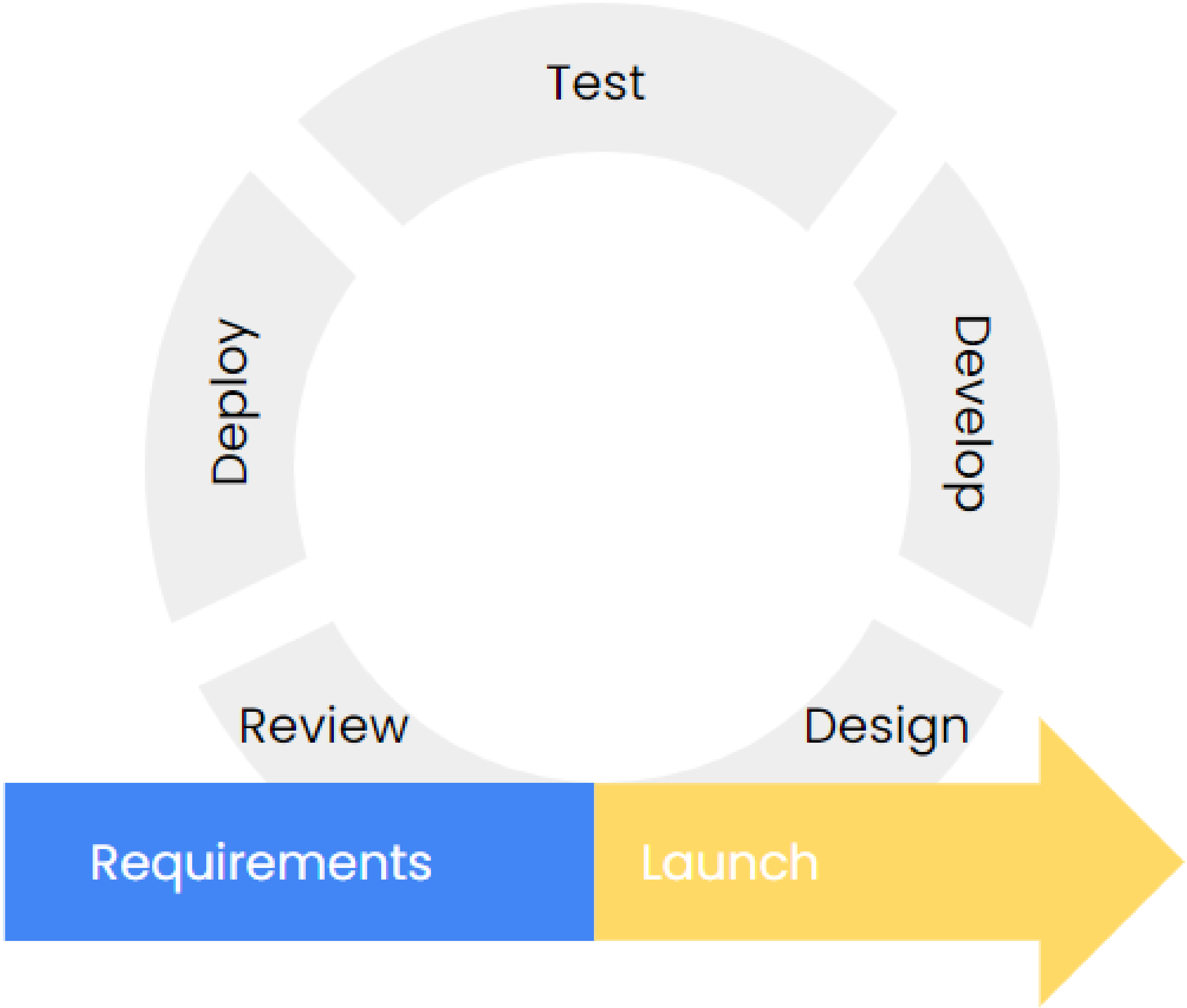
> Project management is the use of
>
> - specific knowledge,
> - skills,
> - tools, and
> - techniques
>
> to deliver something of value to people.

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

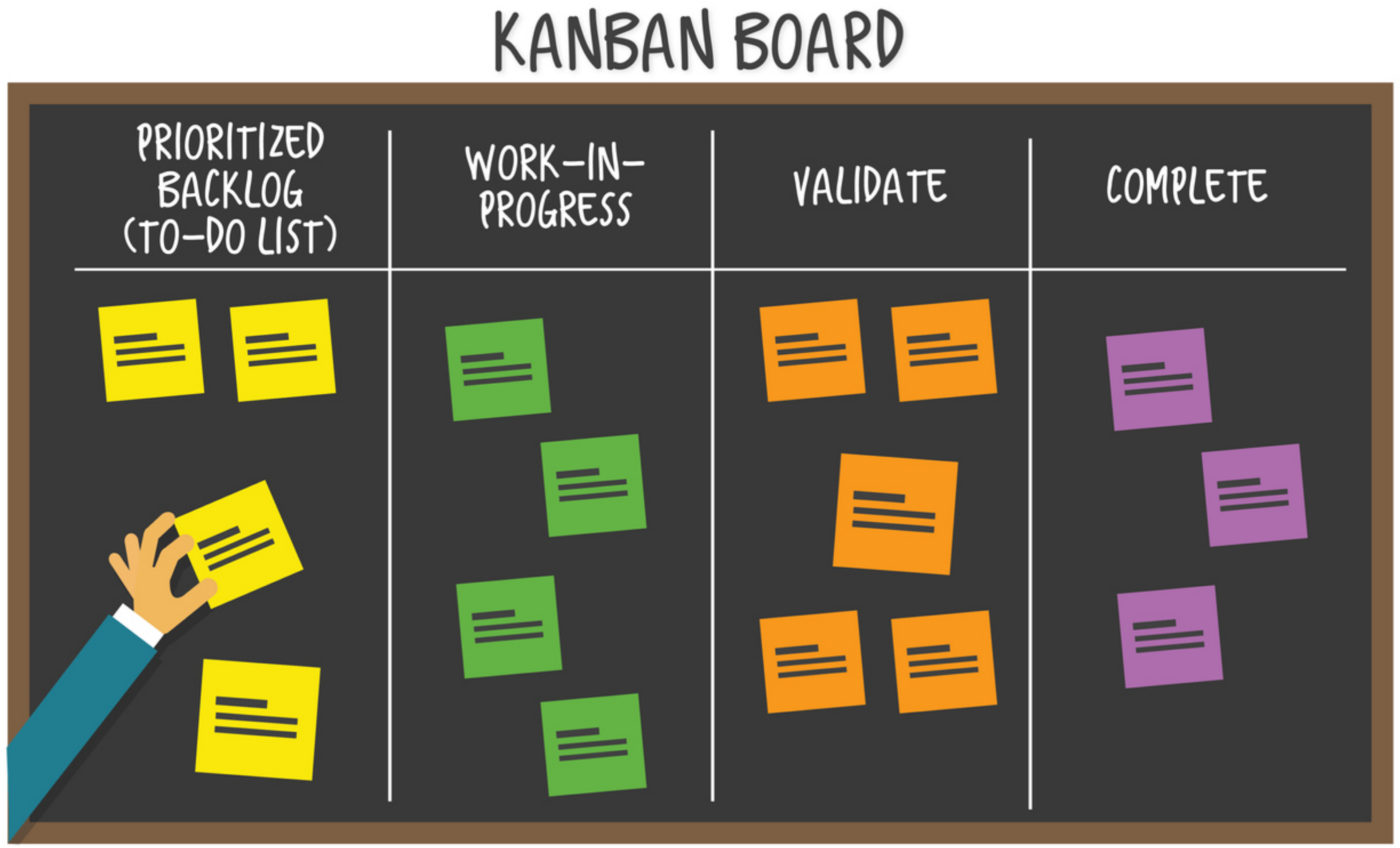
Agile is the de facto standard for most software development teams.

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!