

# Modern Software Development Approaches

CS-C3150, Software Engineering

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# Modern Processes

- Most “modern” software development processes are adaptations of IID
- Often called **agile software development**
- Typically shorter iterations - faster response time
- Higher degrees of automation



# Agile Development

# Agile Software Development

- The agile manifesto
- Old ideas, good marketing, new packaging
- Well-known methods
  - eXtreme Programming (XP)
  - Scrum
  - Kanban

# The Agile Manifesto

Kent Beck et alii 2000

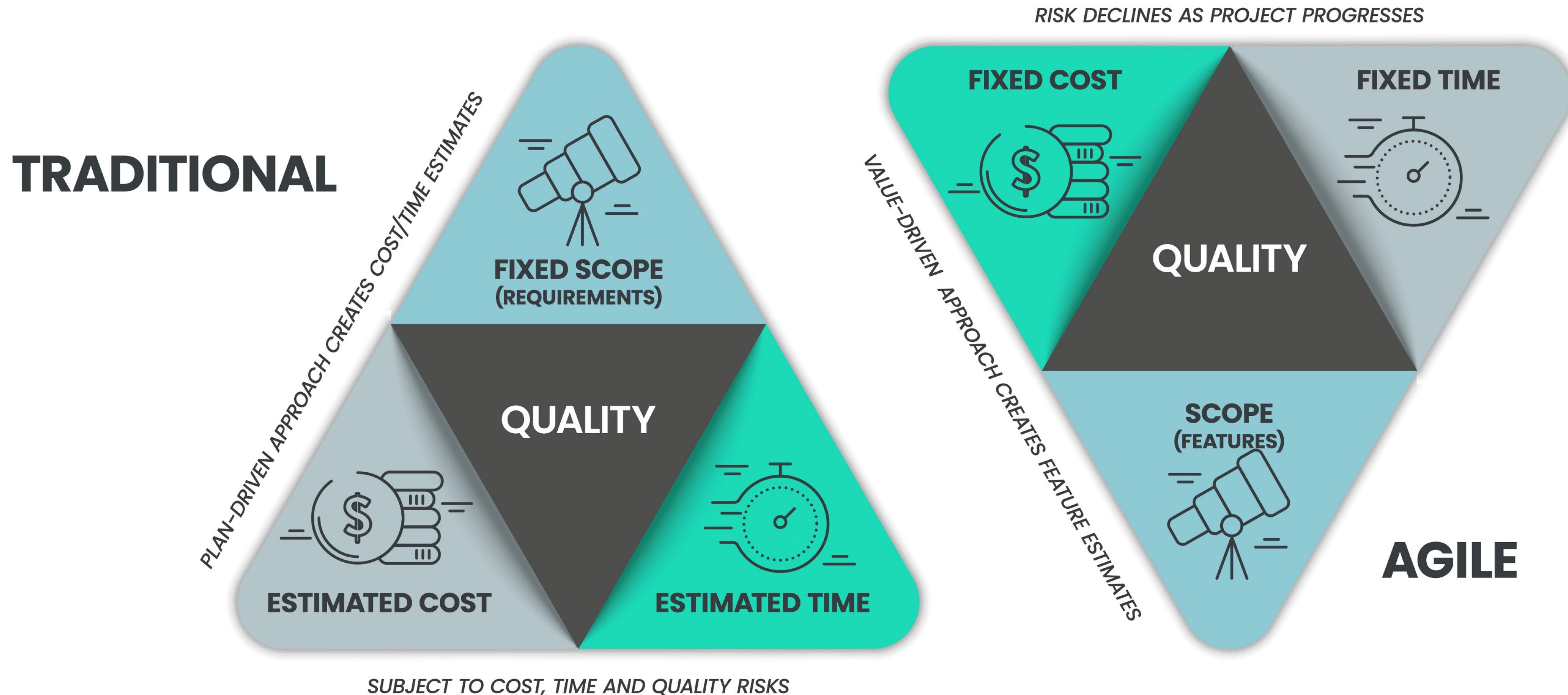
“We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:

- **Individuals and interactions** over processes and tools
- **Working software** over comprehensive documentation
- **Customer collaboration** over contract negotiation
- **Responding to change** over following a plan

That is, while there is value in the items on the right, we value the items on the left more.”

# IRON TRIANGLE

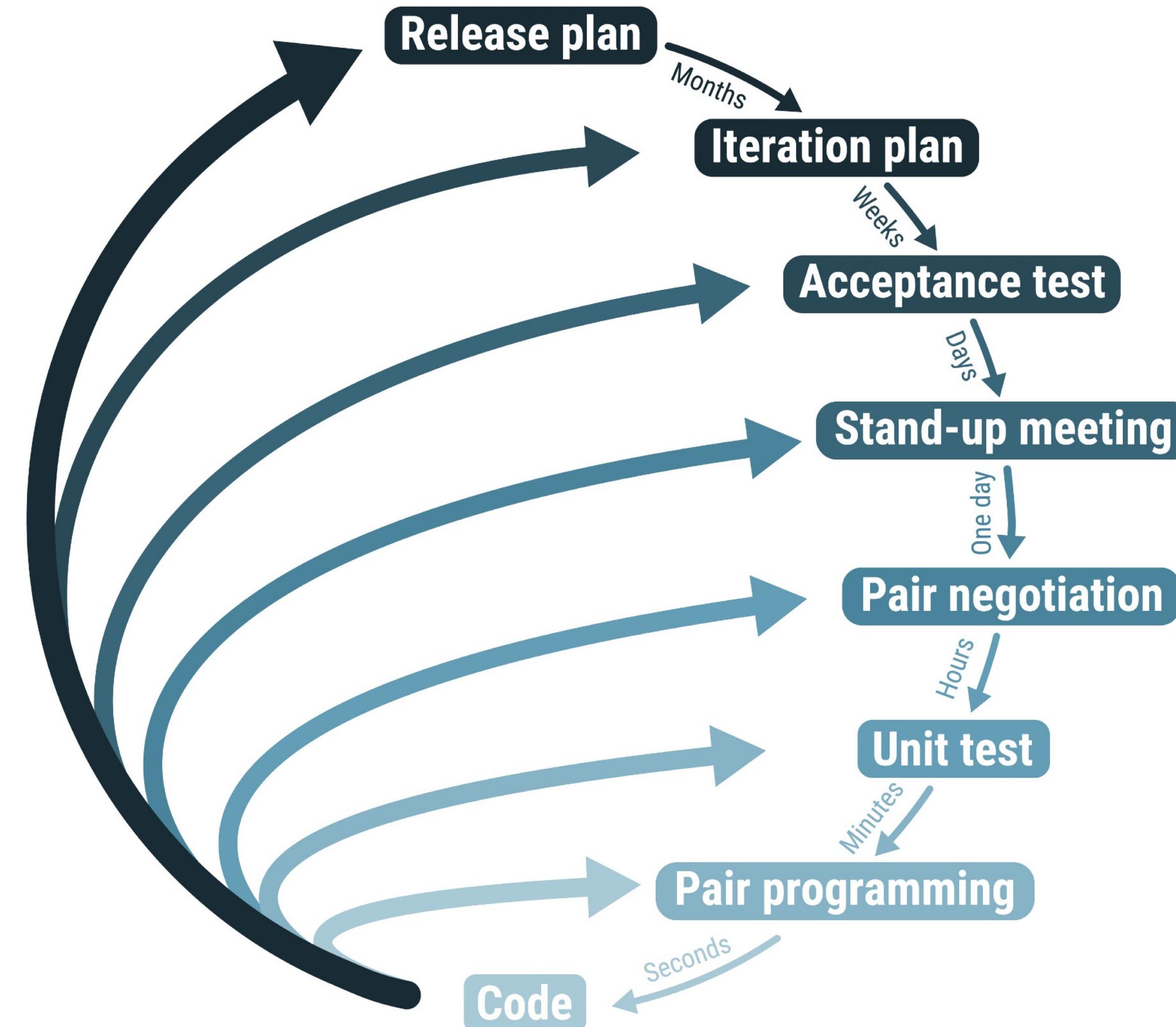
## PARADIGM SHIFT



# Time-boxing

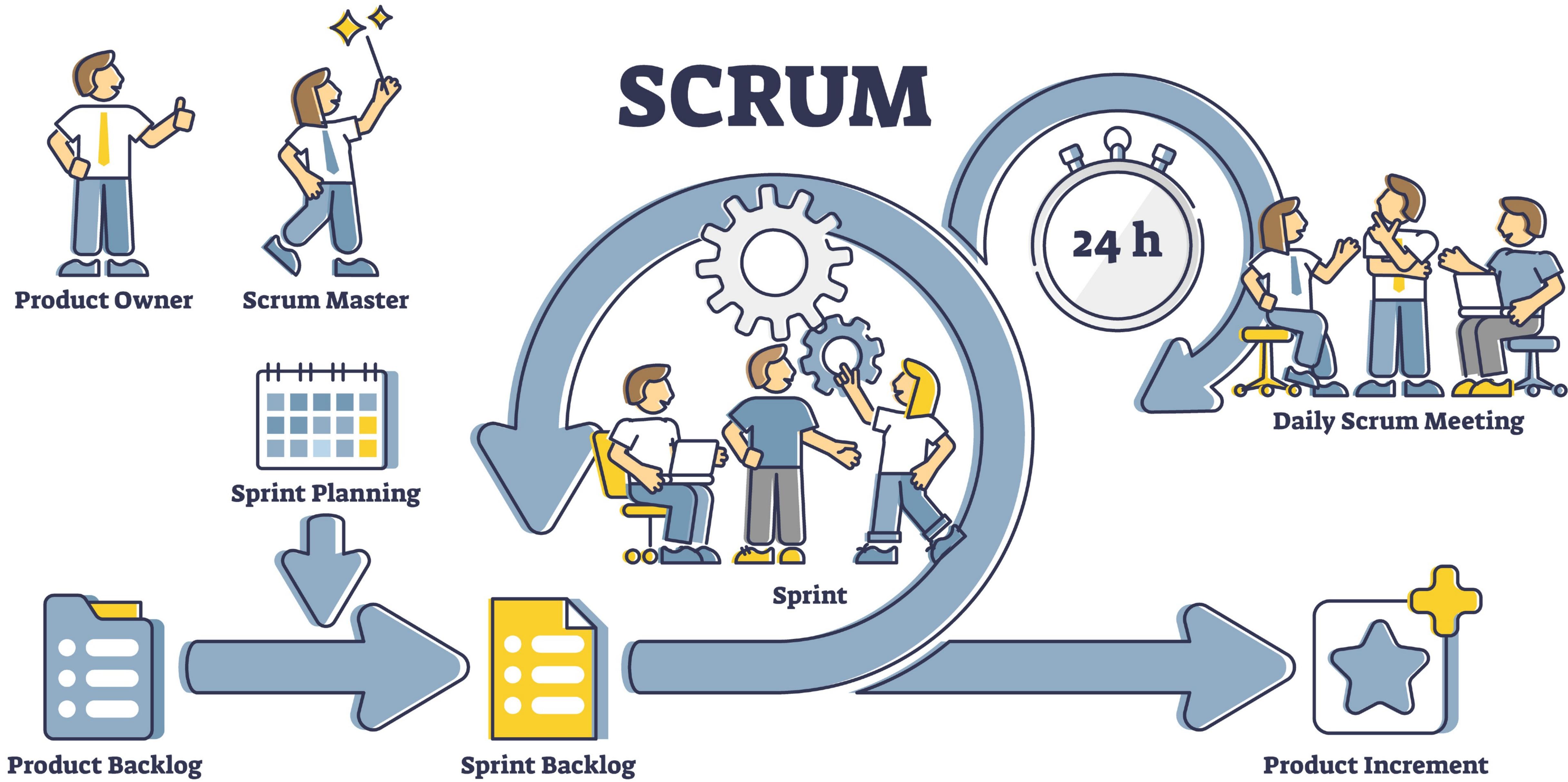
- Fixing the iteration end date and not allowing it to change
  - 1-6 weeks is the normal length for a time-boxed iteration
  - 3-6 months is usually too long and misses the point and value
- Shorter steps have lower complexity and risk, better feedback, and higher productivity and success rates
- The scope is reduced, rather than slip the iteration end date
- Lower priority requests back on the wish list
- Should not be used to pressure developers to work long hours to meet the deadline -> If the normal pace of work is insufficient, do less

# PLANNING/FEEDBACK LOOPS



EXTREME PROGRAMMING (XP)

# SCRUM



# Kanban

## To Do

- Install New Update
- Upgrade Production Server
- Migrate Graphic Assets to Cloud
- Database Query Profiling
- Improve Retention
- Promotion Discounts
- Optimize Loading Time
- Merge New Engine Build
- Test New Workstations
- Predictive Analytics
- Export Item Shop

## In Progress

- Add Ads to App
- Server Load Balancing
- Add VR Overlay
- Revenue Dashboard
- New Search Panel
- Upgrade Automatic Build System
- Detailed Server Logs
- Dynamic Pricing
- Automatic Crash Logs Upload

## Testing

- Item Shop Optimization
- Switch to new Database
- AI Image Recognition
- Fix Automatic Build
- UI Redesign
- Test New Performance Profiler

## Done

- New UI Icons
- Build System Configuration
- AI Keyword Sorting
- Create Alpha2 Branch
- AI Lead Coder Job Desc
- Dashboard KPI
- Localize to German
- Renew Digital Sig



# Kanban

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In Progress 5

**WIP (Work-in-Progress) Limits!**

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Testing 5

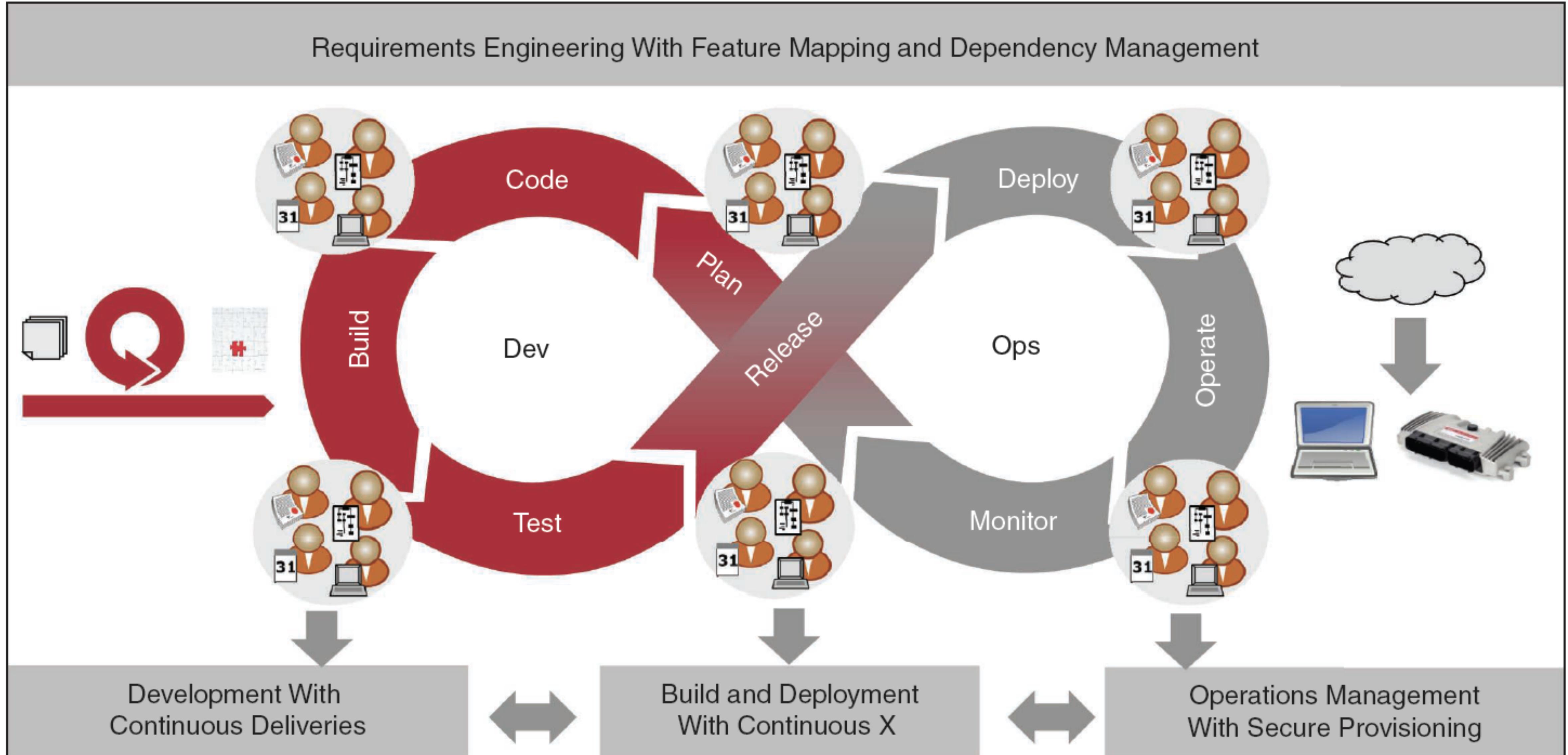
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# DevOps



**Thanks & Have Fun!**