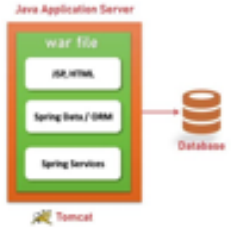
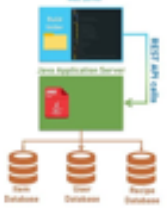
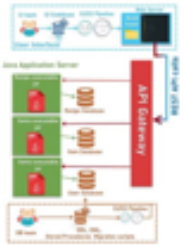
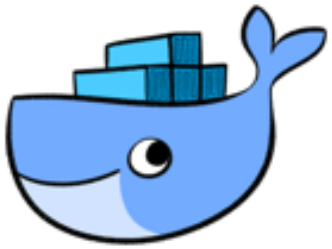
Project Planning

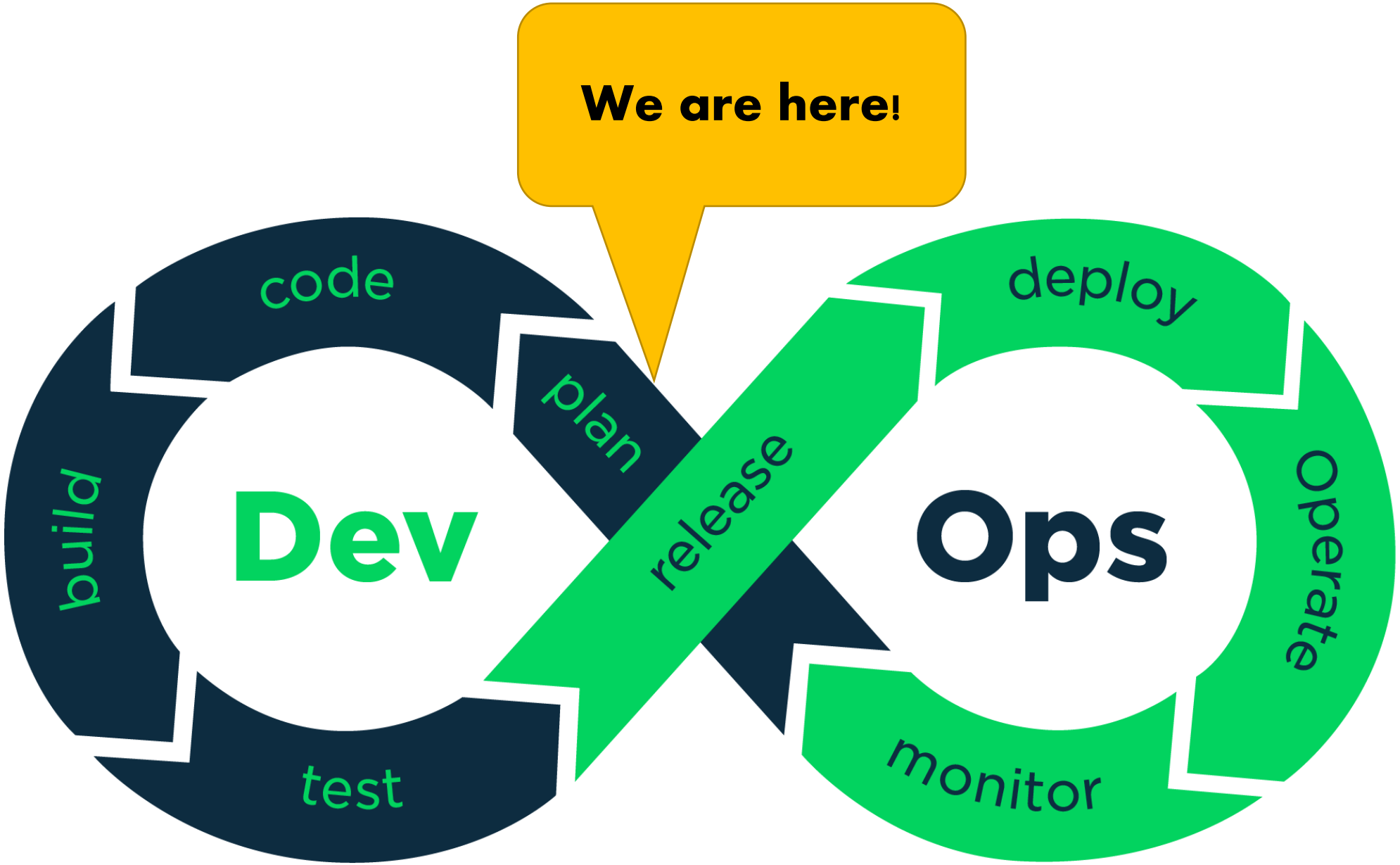
Majid Babaei

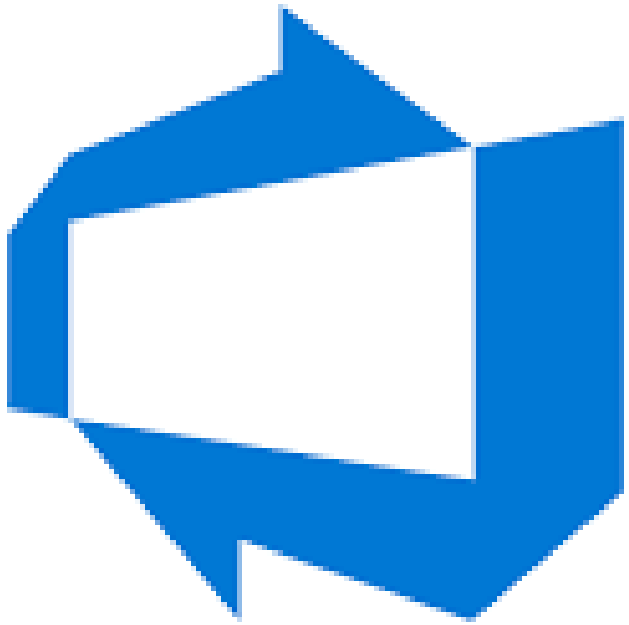

REVIEW

Dates	Software Engineering Methodology	App Architecture	App Deployment	Data Storage
~1990 – 2000	 Waterfall	Monolithic 	 Physical Server	 Local DCs
~2000 – 2010	 Agile	N-Tier 	 Virtual Server	 Virtual DCs
~2010 – Now		Microservices 	 Containers	 Cloud DCs
Future				

Filling the gap

- People in development try to understand challenges in operations
- People in operation try to understand dev's concerns
- Find the *best* solution as fast as possible
- Don't lose the market share!

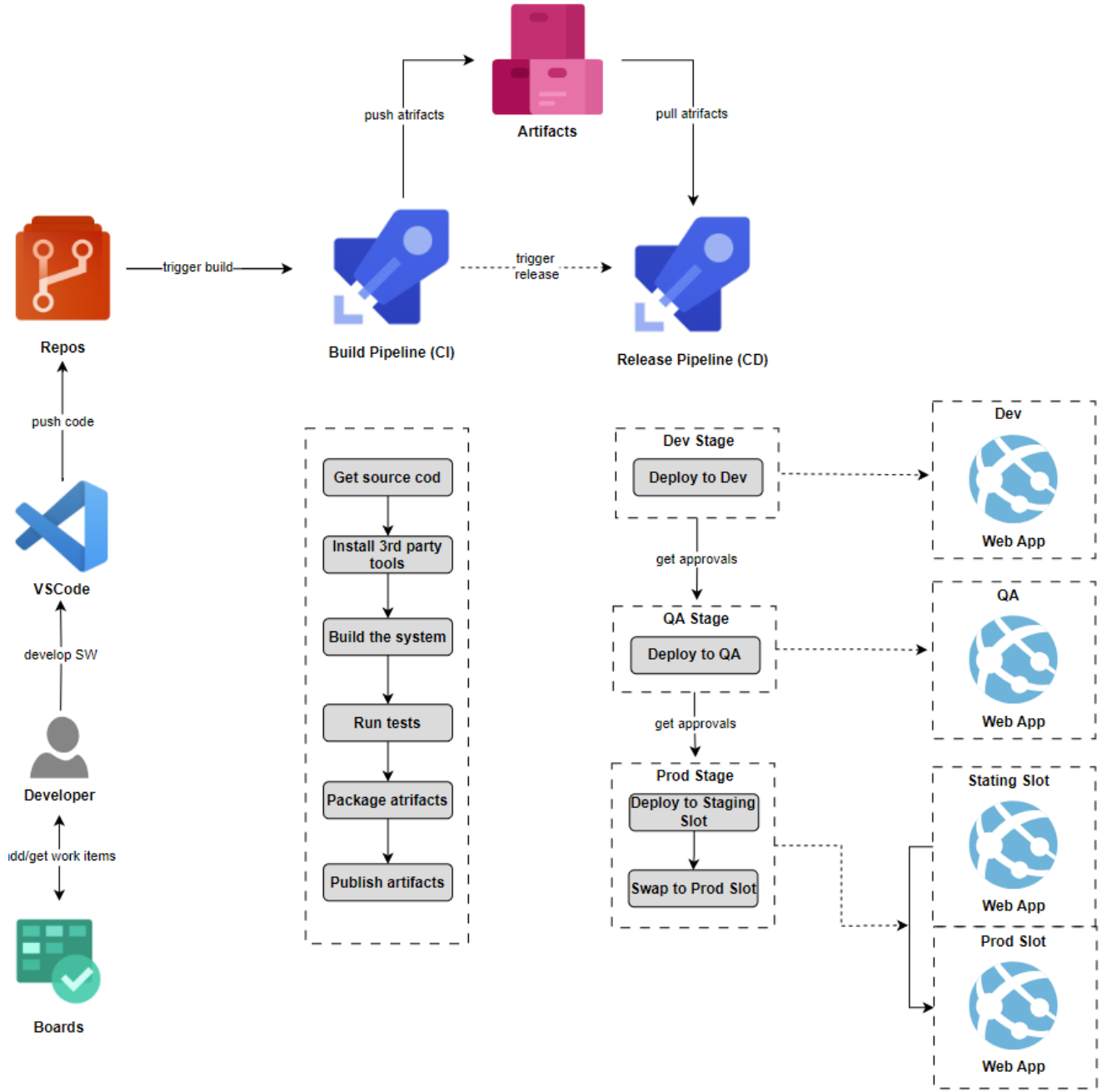

We are here!
code
plan
build
test
release
deploy
operate
monitor
Dev
Ops



Azure DevOps

WHAT IS AZURE DevOps?

- It provides an end-to-end DevOps toolchain for developing and deploying software.
- It provides services for software development teams to plan work, collaborate on code implementation, and build and deploy software products.
- It supports a collaborative culture and methodologies that bring together software developers, project managers, and contributors to develop software.
- There are various integrated components that you can access via your web browser or integrated development environment (IDE).
- Depending on your project and team's requirements, you may need to use some or all of the components, including *Azure Boards, Azure Repos, Azure Pipelines, Azure Test Plans, and Azure Artifacts*.


push atrifacts
Artifacts
pull atrifacts
Repos
trigger build
Build Pipeline (CI)
trigger release
Release Pipeline (CD)
push code
VSCode
develop SW
Developer
ıdd/get work items
Boards
Get source cod
Install 3rd party tools
Build the system
Run tests
Package atrifacts
Publish artifacts
Dev Stage
Deploy to Dev
get approvals
QA Stage
Deploy to QA
get approvals
Prod Stage
Deploy to Staging Slot
Swap to Prod Slot
Dev
Web App
QA
Web App
Stating Slot
Web App
Prod Slot
Web App

AZURE DevOps ORGANIZATIONS

- An organization in Azure DevOps is a mechanism for organizing and connecting groups of related projects. E.g., business divisions, regional divisions, or other enterprise structures

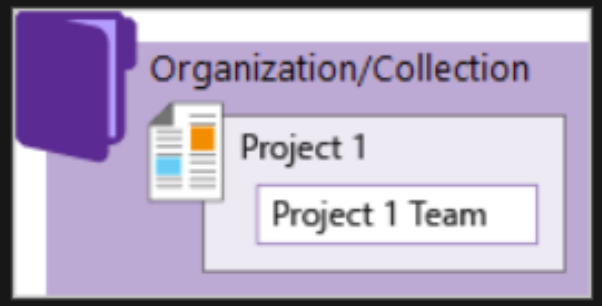
- An Azure DevOps organization can be company-wide, or it can be for specific business units in your company.

- Azure DevOps organizations give you access to the Azure DevOps toolchain :
  - Azure Pipelines: *One hosted job and one self-hosted job*
  - Azure Boards: *Work item tracking and Kanban boards*
  - Azure Repos: *Unlimited private Git repos*
  - Azure Artifacts: *Package management*

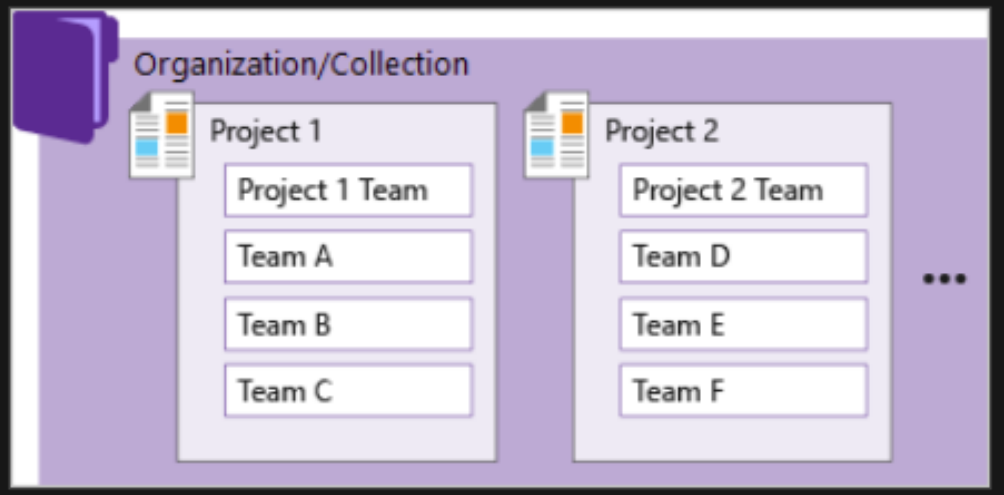
How many organizations do you need?

- Start with one organization in Azure DevOps. Then, you can add more organizations—which may require different security models—later.
- A single code repo or project only needs one organization.
- If you have separate teams that need to work on code or other projects in isolation, consider creating separate organizations for those teams.
- Add projects, teams, and repos, as necessary, before you add another organization.

One project + team



Multiple projects + teams



- When you create your project, Azure DevOps automatically creates a team of the same name, which is sufficient for small organizations.
- For enterprise-level organizations, it may be necessary to scale up and create more teams and projects.
- You can have up to 1000 projects within an organization in Azure DevOps.

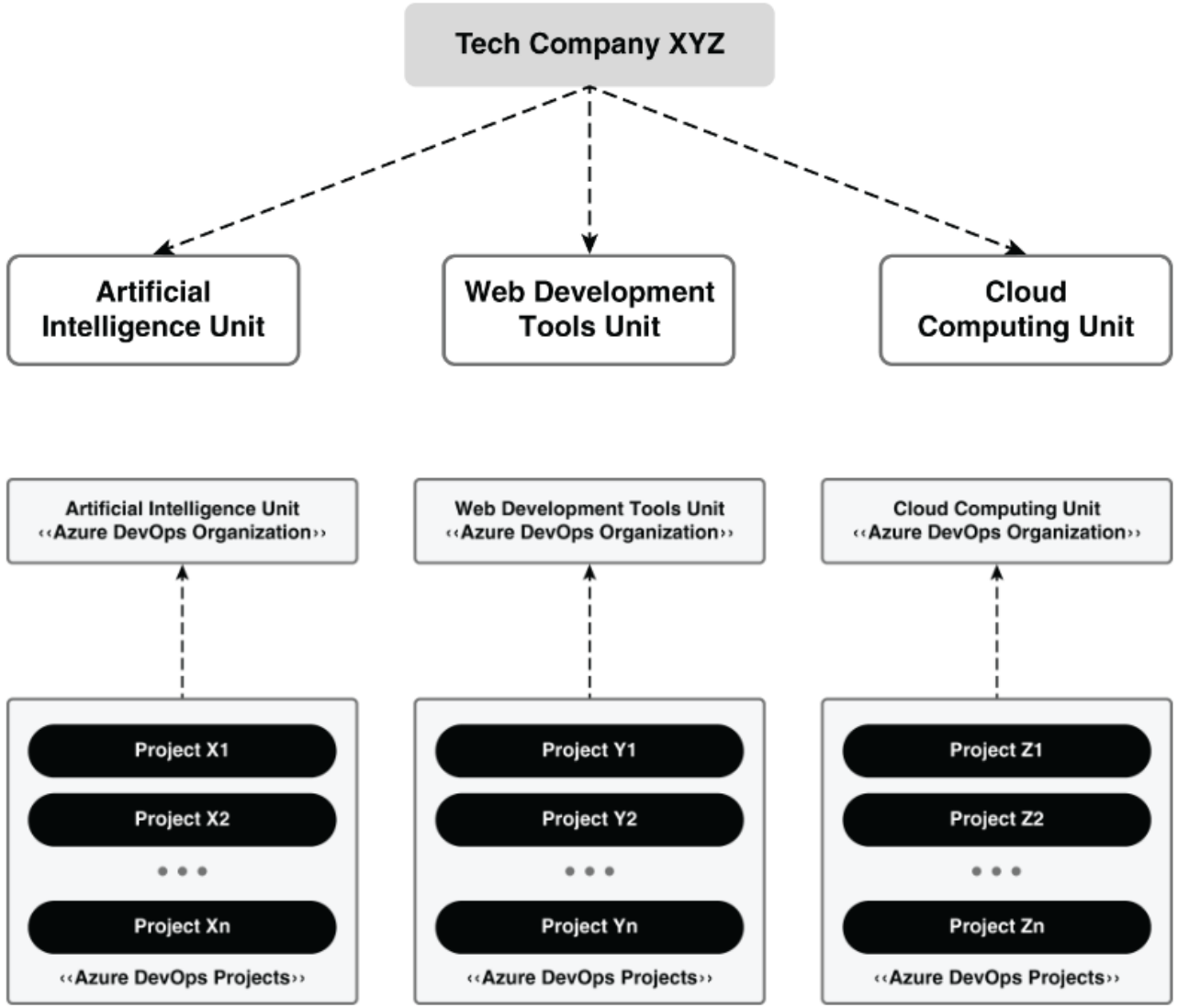
What you can do in a team

- Add team members
- Add another team administrator
- Configure areas and iteration paths
- Configure backlogs, boards, and general settings
- Configure and manage team dashboards
- Configure team notifications

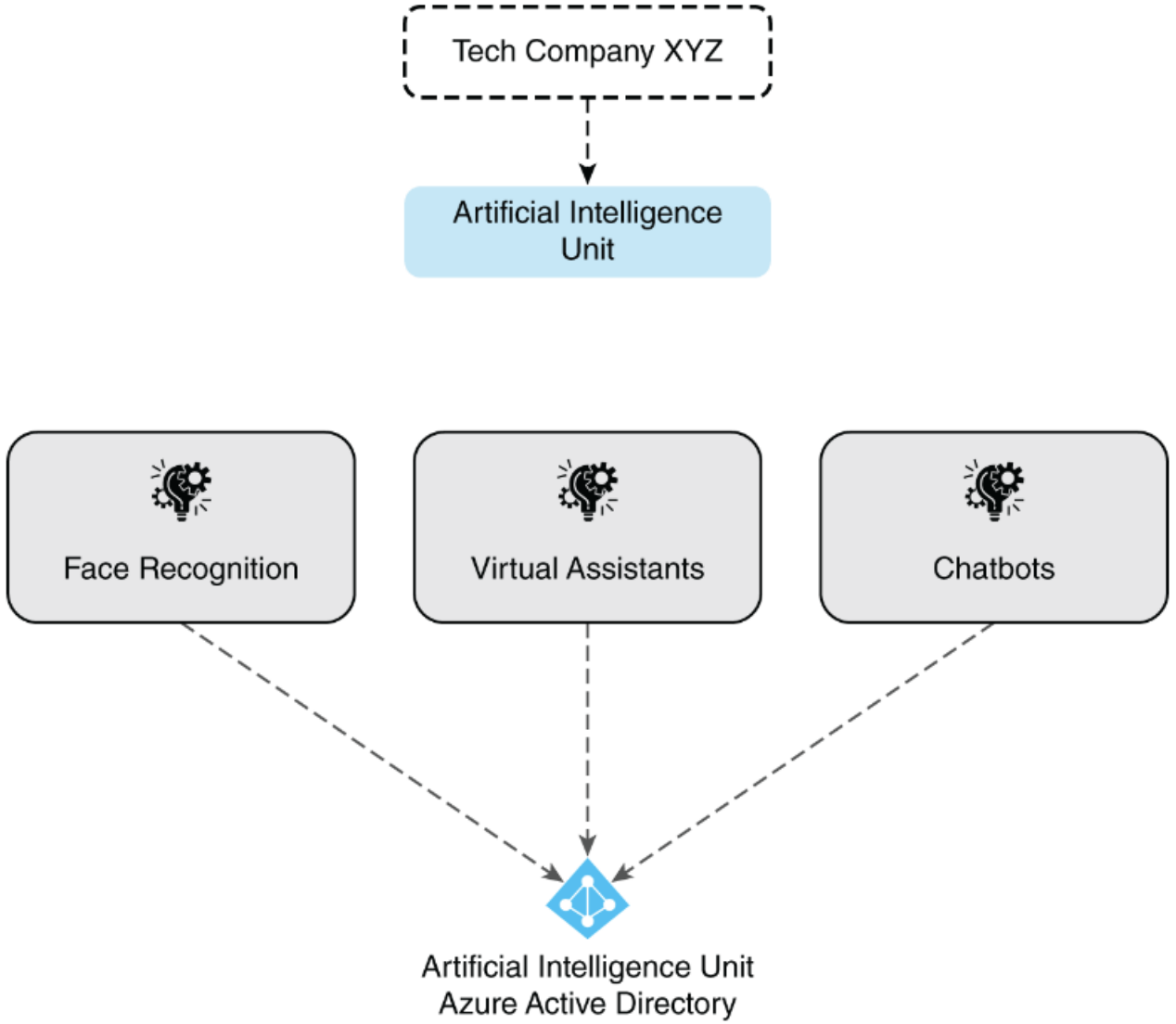
About area and iteration (sprint) paths

- **Area paths** allow you to group work items by team, product, or feature area.
- **Iteration paths** allow you to group work into sprints, milestones, or other event-specific or time-related period.
- Both these fields allow you to define a hierarchy of paths.
- The areas and iterations depend on the process you used to create your project. (*explained later!*)

- A large technology company that works on multiple customer products
- It has different units
- Each business unit in the organization might function as its own organization
- In cases like this, each organization can have its own Azure DevOps organization, and each organization houses projects for a particular business unit.



- In an organization, you can have a single project or multiple projects.
- The Artificial Intelligence organization had three projects.
- This organization can also have one project with all the project items for the three subprojects compressed into one.



Types of Projects

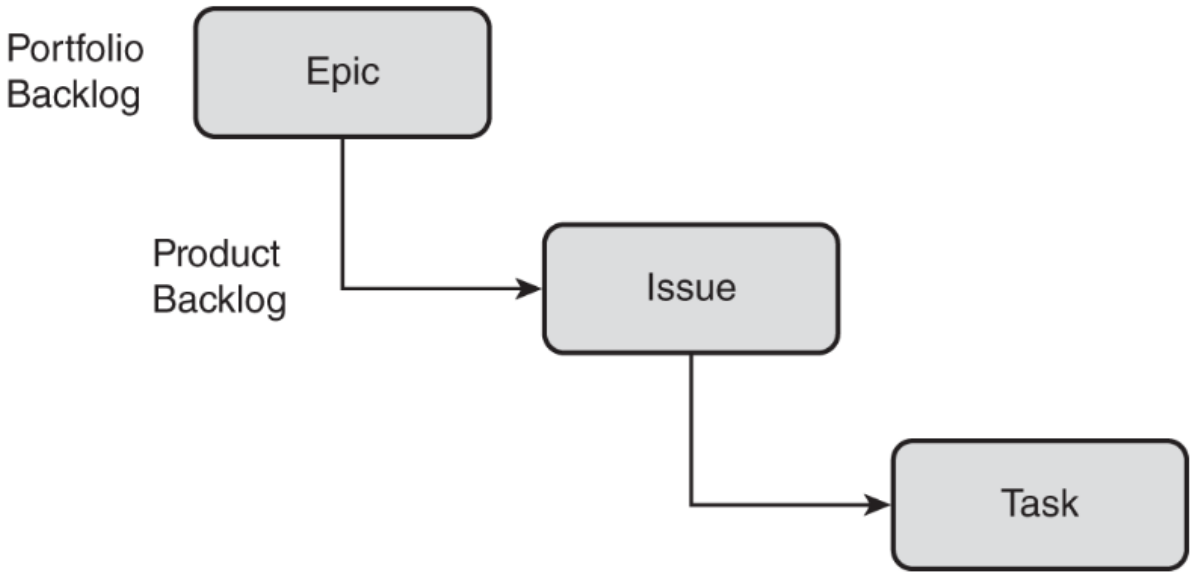
- Single Project:
  - A single project places all work at one level across the organization.
  - In a single project, teams can share source repositories, build definitions, release definitions, reports, and package sources. You may have a large product or service managed by multiple teams.
  - Having a single project is good for transparency, but it has its drawbacks.
  - It's hard to find what you're looking for with multiple searches and boards.
  - Depending on the product architecture, this issue may spread to other areas such as releases, builds, and repositories.

- Many Projects:
  - Having multiple projects shifts the managerial burden and gives the team more autonomy to manage projects as they see fit. It also provides access to asset and security controls within projects.
  - You want to restrict or control access to information in the projects within your organization.
  - Your organization likes to use custom techniques for tracking work items and tasks for its distinctive business units.
  - Your organization wants to support respective business units with their own managed policies.
  - Your organization may want to add custom tests or extensions before making changes to a project you're working on.

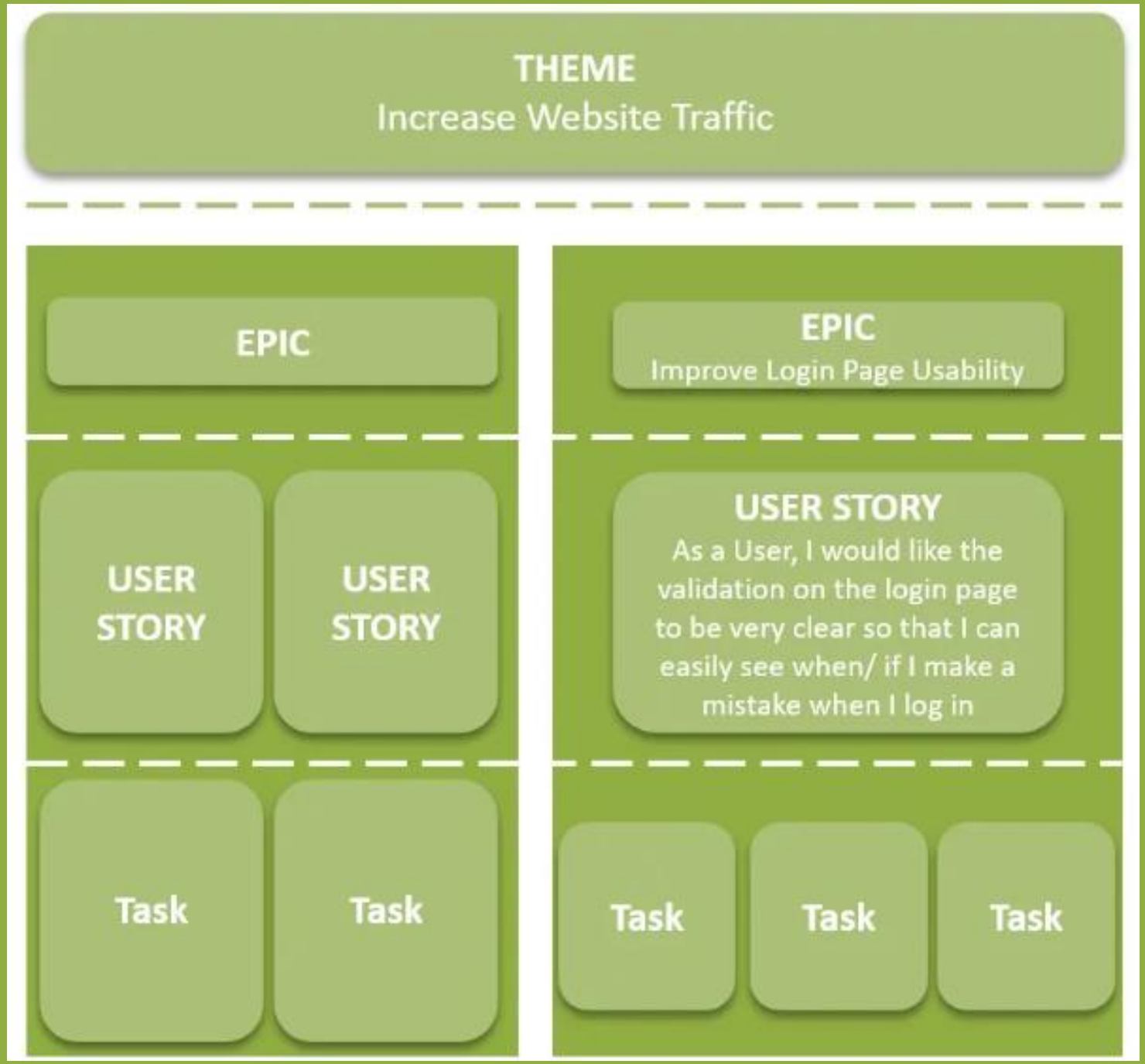
Project Processes

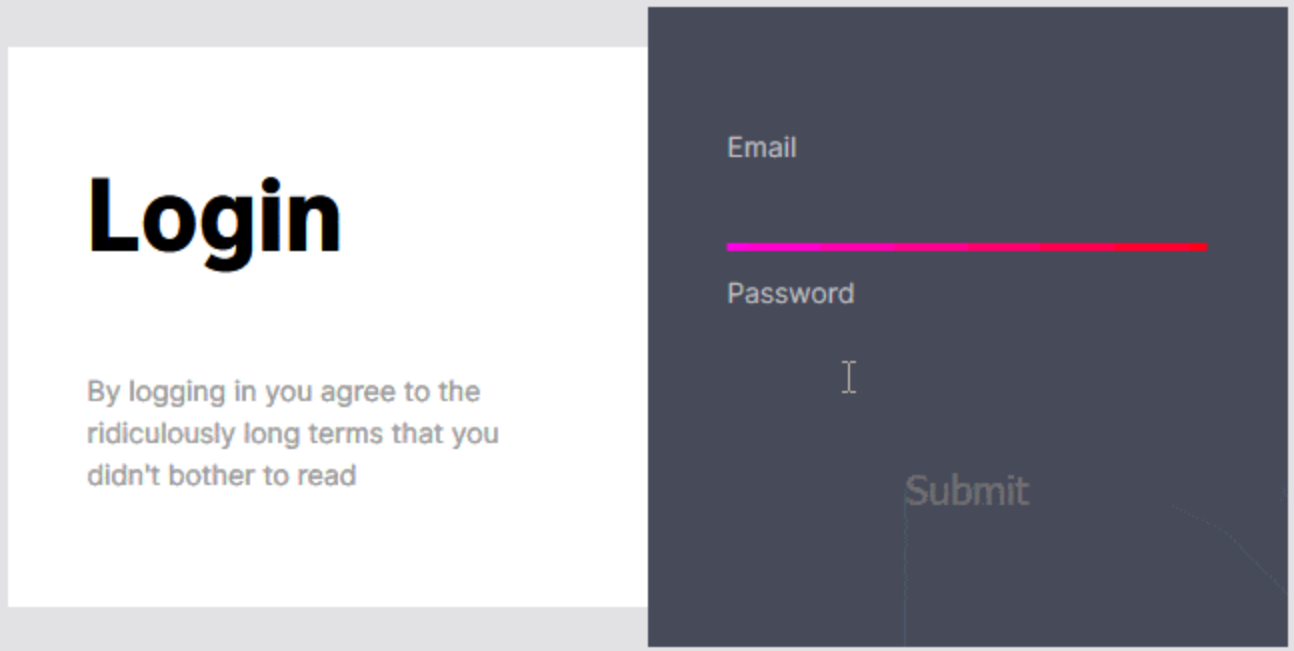
- When your team initiates an Azure DevOps project, the team has to determine which process and templates to use.
- Processes and templates define the basic details of the work item tracking system used by Azure Boards.
- Basic, Agile, or Scrum

Basic

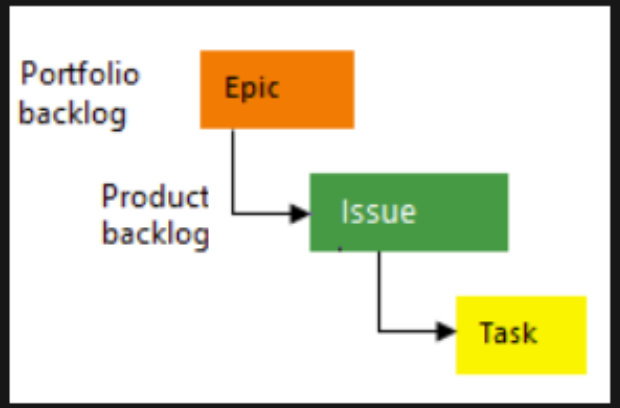


- The Basic process offers three work item types - epics, issues, and tasks - for planning and tracking work.
- An epic is a body of work that can be broken down into specific tasks (called user stories or issues) based on the needs/requests of customers or end-users.
- For grouping, define epics. To track more details, add tasks to an issue.


THEME
Increase Website Traffic
EPIC
USER STORY
USER STORY
Task
Task
EPIC
Improve Login Page Usability
USER STORY
As a User, I would like the validation on the login page to be very clear so that I can easily see when/ if I make a mistake when I log in
Task
Task
Task


Login
By logging in you agree to the ridiculously long terms that you didn't bother to read
Email
Password
Submit

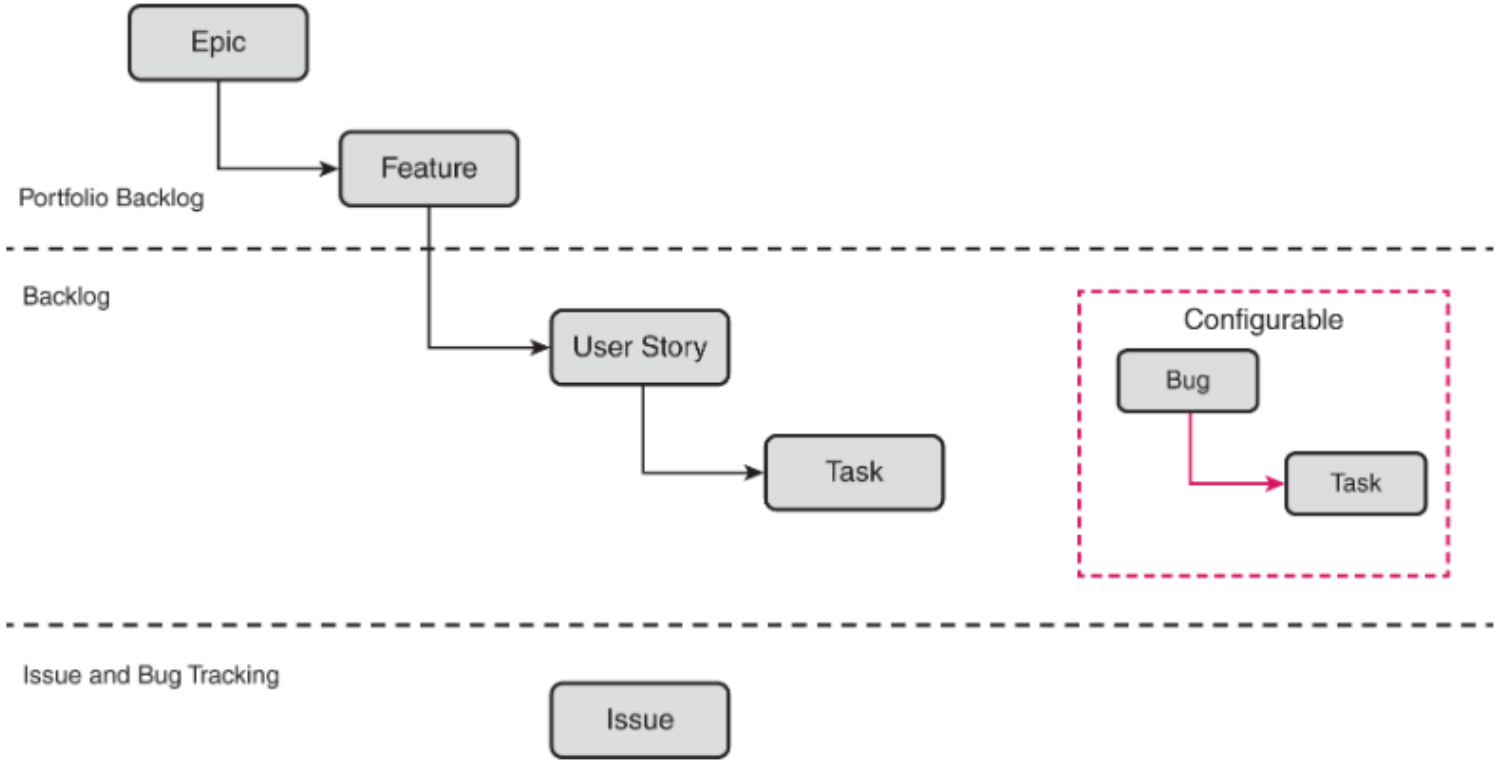
Work item types



Backlog hierarchy

State	Title
To Do	Web site updates
Doing	Secure sign-in
Doing	Hello World web site
To Do	Design welcome screen
To Do	Standarize form factors
To Do	Change background color
To Do	About screen
To Do	Welcome back page
To Do	Change initial view
To Do	Service status
Doing	Resolve service status issues
Doing	Check performance
To Do	Change new item

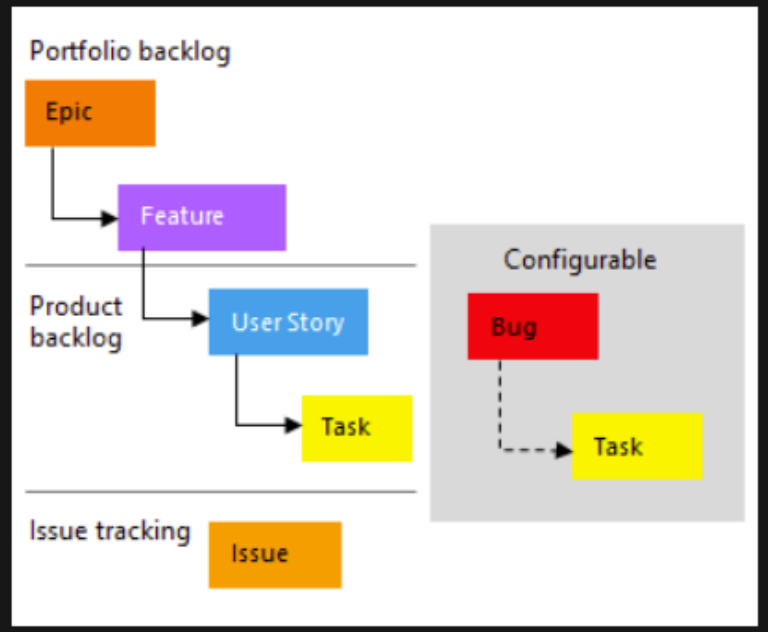
Agile



- Choose Agile when your team uses Agile planning methods, including Scrum, and tracks development and test activities separately.

- This process works great if you want to track user stories and (optionally) bugs on the Kanban board, or track bugs and tasks on the task-board.

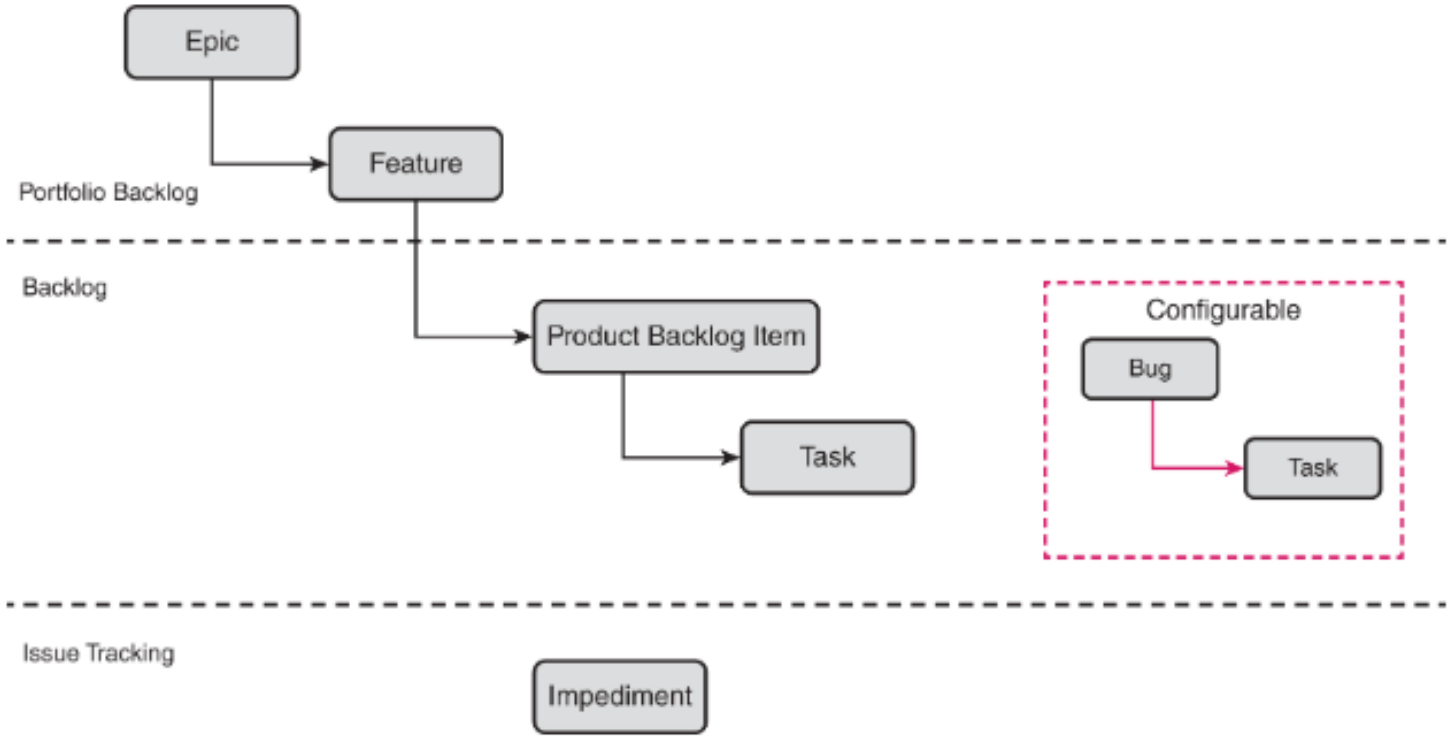
Work item types



Backlog hierarchy

State	Title
New	Web site updates
New	Web pages
New	Cancel order form
Active	Hello World web site
Active	Change background color
New	Change page layout
New	Develop about page
New	Slow response on form
Active	Secure Sign-in
New	Improve User Experience
Active	Emoticon feedback enabled in client
New	Service status
New	Service support
New	Lookup service outages
Resolved	Canadian addresses don't display
Active	Voicemail hang issue
Active	Check issues with permissions

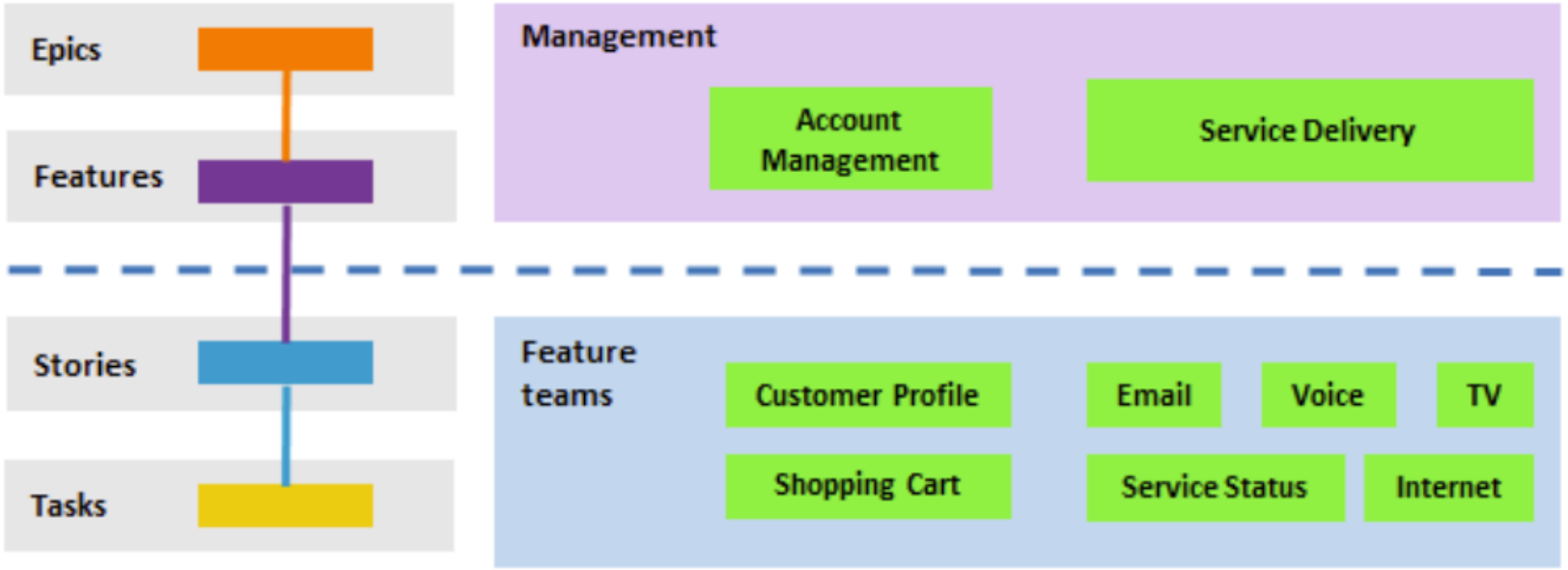
Scrum



- Choose Scrum when your team practices Scrum.
- This process works great for tracking product backlog items (PBIs) and bugs on the Kanban board.
- A user story describes a product feature from the perspective of the end user and clearly defines a software requirement. Product backlog items are estimated in points or time based on the difficulty and effort required to implement them.

About teams and Agile tools

- When your team grows beyond its intended size—typically anywhere from 6 to 9 members—you might consider moving from a one team structure to a two-team structure.
- You can then set up a hierarchical team structure, which provides several advantages to managers for tracking progress across teams.



The following scenarios apply:

- each feature team can be associated with a single feature area path—such as Customer Profile, Shopping Cart, Email—or several area paths
- each management team, which focuses on a set of features, can choose several area paths to monitor
- each feature team has its distinct backlog to plan, determine priority, and track work

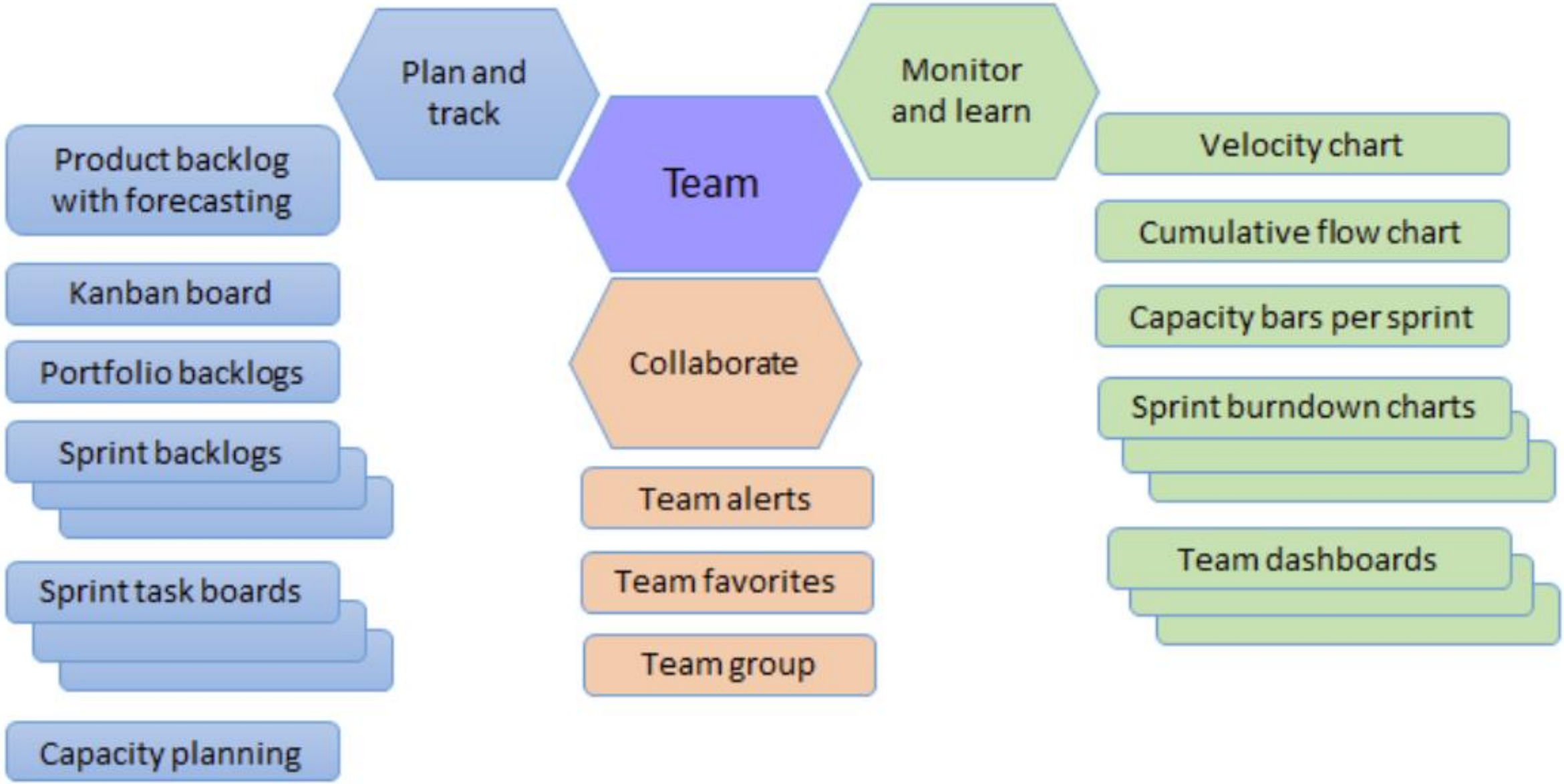
Why do we need different area paths?

Area paths serve the following purposes in Azure Boards:

- Filter the work items that appear on a team backlog or board.
- Group work that shares some relationship, such as belonging to the same product, feature, or other work-level grouping.
- Restrict access to work by setting permissions.

Each team gets their own set of tools!

- Each team you create gets access to a suite of Agile tools and team assets.
- These tools let teams work autonomously and collaborate with other teams across the enterprise.
- Each team can configure and customize each tool to support how they work.

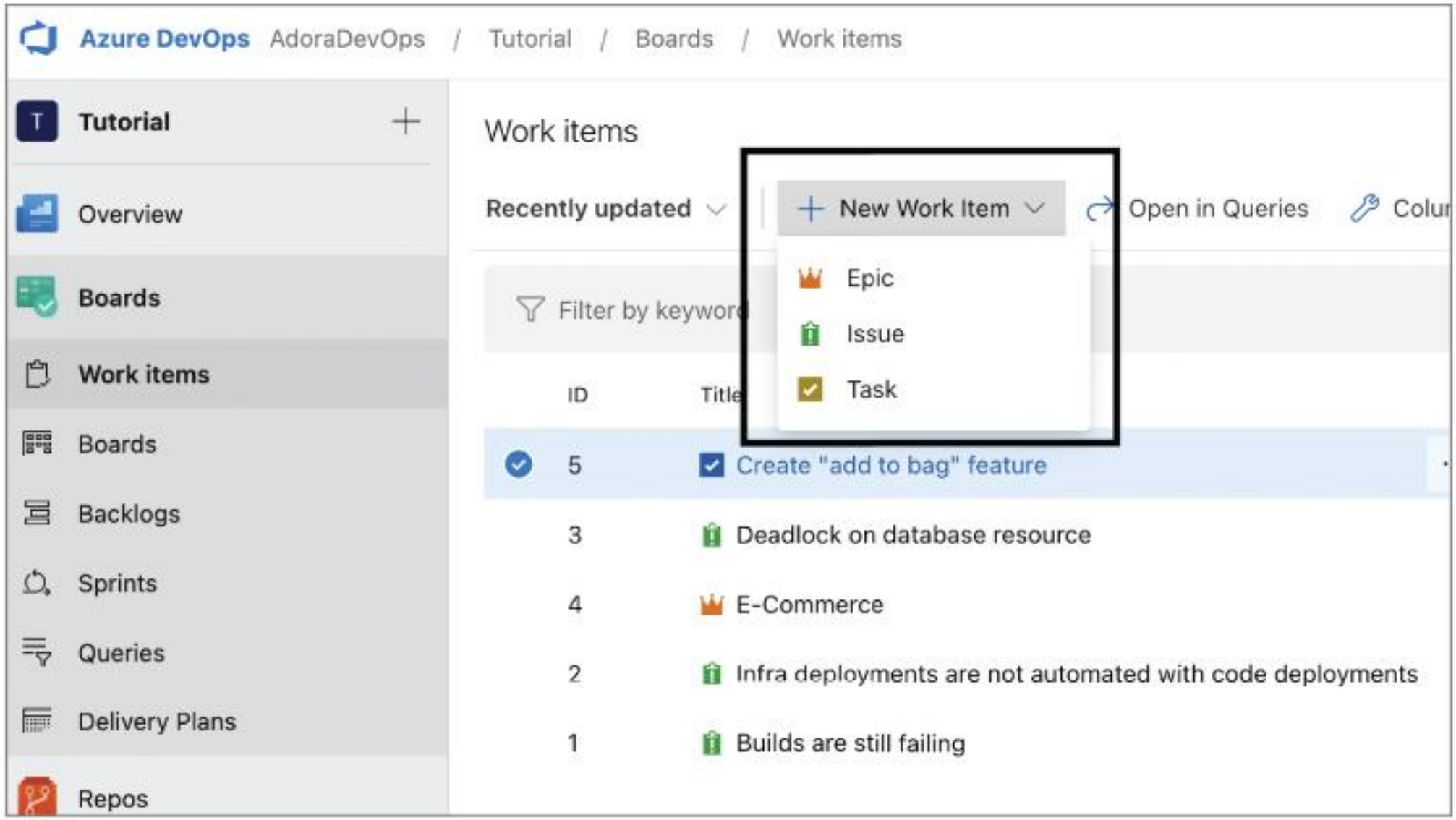

Plan and track
Monitor and learn
Team
Collaborate
Product backlog with forecasting
Kanban board
Portfolio backlogs
Sprint backlogs
Sprint task boards
Capacity planning
Team alerts
Team favorites
Team group
Velocity chart
Cumulative flow chart
Capacity bars per sprint
Sprint burndown charts
Team dashboards

What is Azure Boards?

- Azure Boards is a web-based service that enables teams to plan, track, and discuss work across the entire development process
- It supports agile methodologies, including Scrum and Kanban.
- Azure Boards provides a customizable platform for managing work items, allowing teams to collaborate effectively and streamline their workflow.

Azure Boards (Work Items)

- Azure Boards give software development teams interactive and custom tools to oversee their product tasks.
- These tools include work items, backlogs, boards, plans, sprints, and queries.
- Teams use work items to measure all the work done as a team. You can track features and requirements, code defects or bugs, and anything else.
- The Basic process, we can create epics, issues, or tasks
- Work items in the Basic process have three states: To Do, Doing, and Done.
- As development goes on, the team members can edit the work items accordingly so that everyone has a holistic picture of the work related to the project.


Azure DevOps
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Tutorial
Overview
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Work items
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Queries
Delivery Plans
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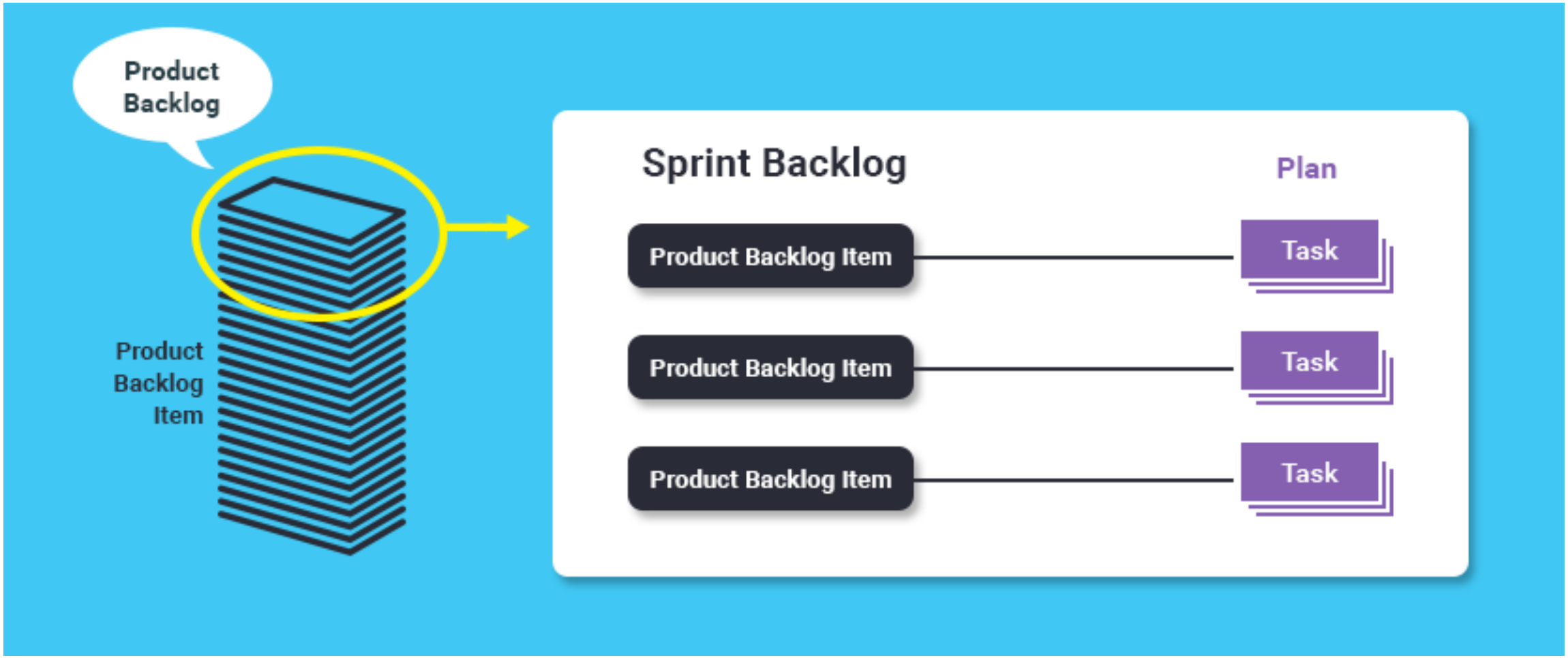
Work items
Recently updated
New Work Item
Open in Queries
Epic
Issue
Task
Filter by keywor
ID
Title
5
Create "add to bag" feature
3
Deadlock on database resource
4
E-Commerce
2
Infra deployments are not automated with code deployments
1
Builds are still failing

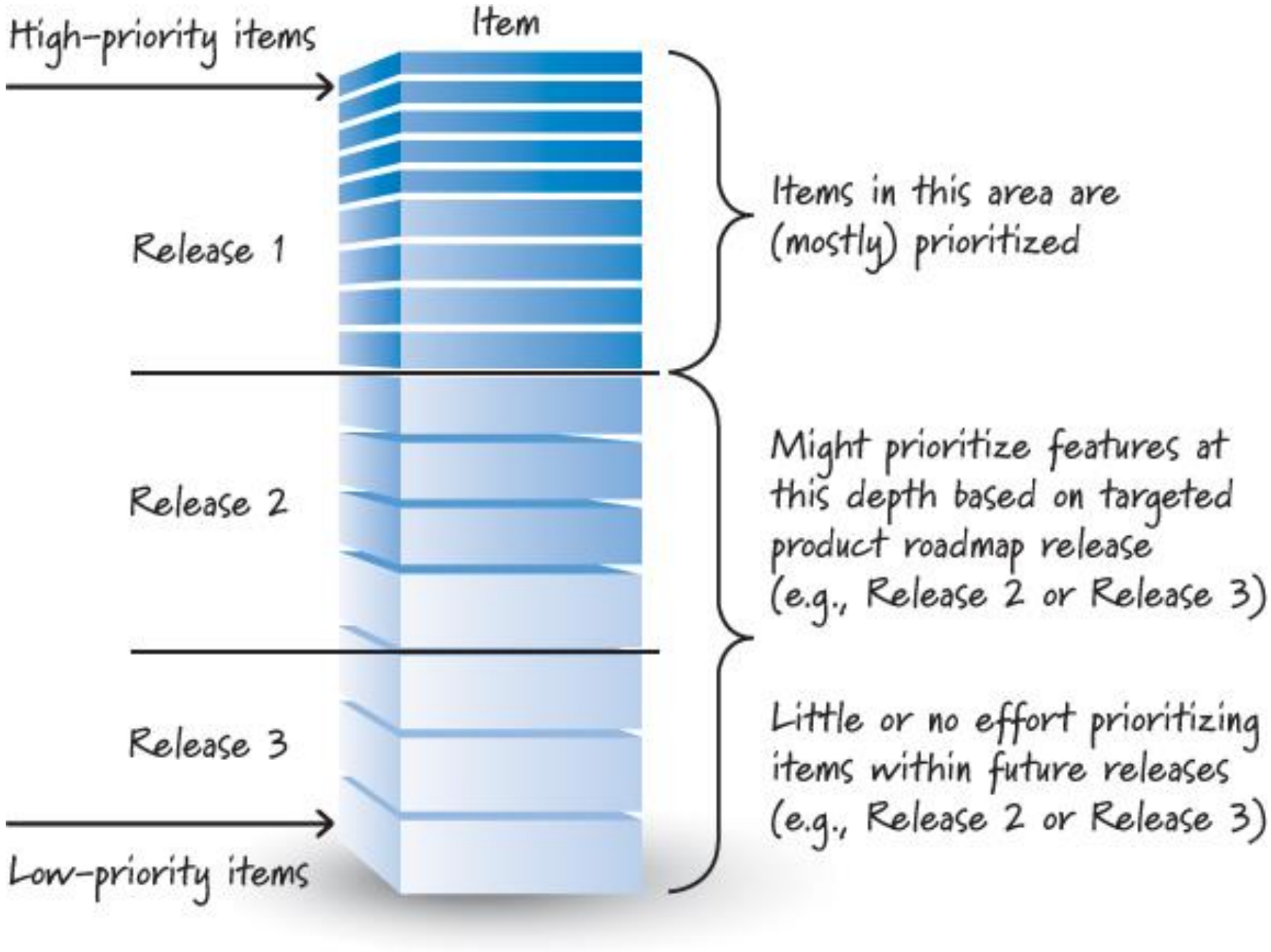
Azure Boards (Backlogs)

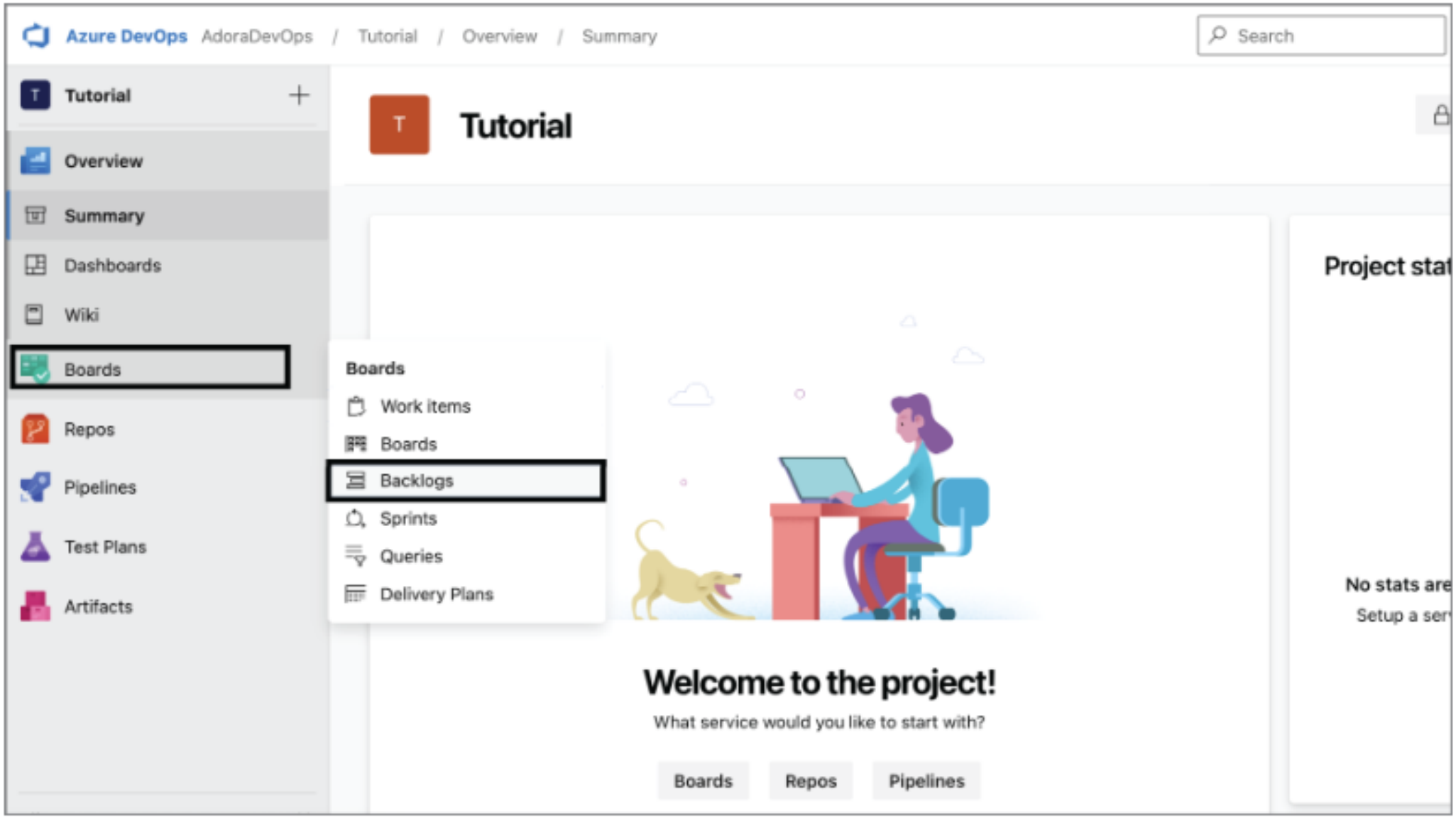
- A product backlog is a prioritized list of work for the development team that is derived from the roadmap and its requirements.

- The most important items are shown at the top of the product backlog so the team knows what to deliver first.

- The following are some of these features:
  - Reorder your backlog to make sure you're working on the most important work items first
  - Add details and estimates to your backlog items
  - Quickly assign backlog items to team members and sprints
  - Predict tasks to evaluate what can be delivered within a sprint


Product Backlog
Product Backlog Item
Sprint Backlog
Plan
Product Backlog Item
Task
Product Backlog Item
Task
Product Backlog Item
Task


High-priority items
Item
Release 1
Release 2
Release 3
Low-priority items
Items in this area are (mostly) prioritized
Might prioritize features at this depth based on targeted product roadmap release (e.g., Release 2 or Release 3)
Little or no effort prioritizing items within future releases (e.g., Release 2 or Release 3)


Azure DevOps
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Dashboards
Wiki
Boards
Repos
Pipelines
Test Plans
Artifacts
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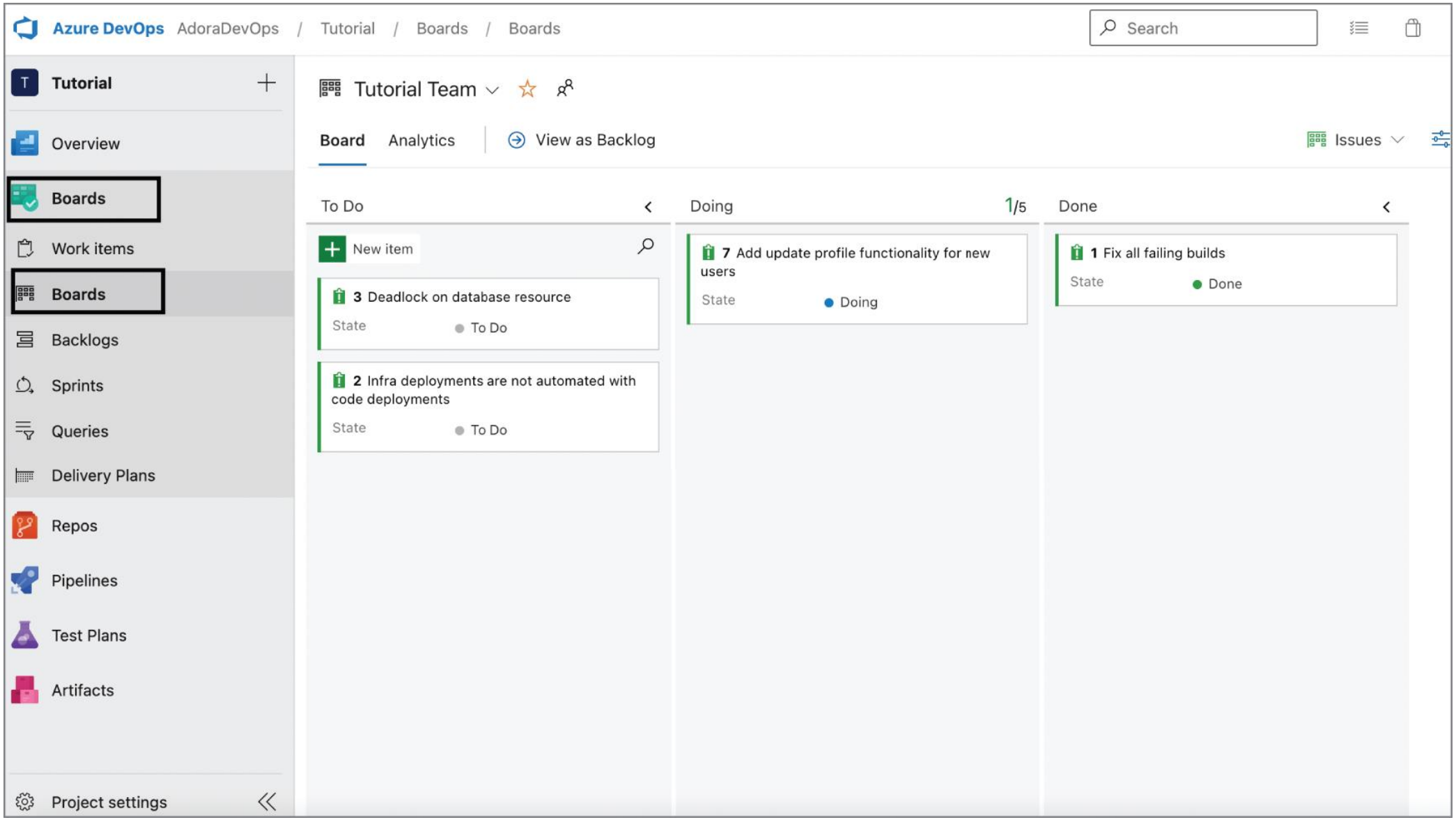
Boards
Work items
Boards
Backlogs
Sprints
Queries
Delivery Plans
Project stat
No stats are
Setup a ser
Welcome to the project!
What service would you like to start with?
Boards
Repos
Pipelines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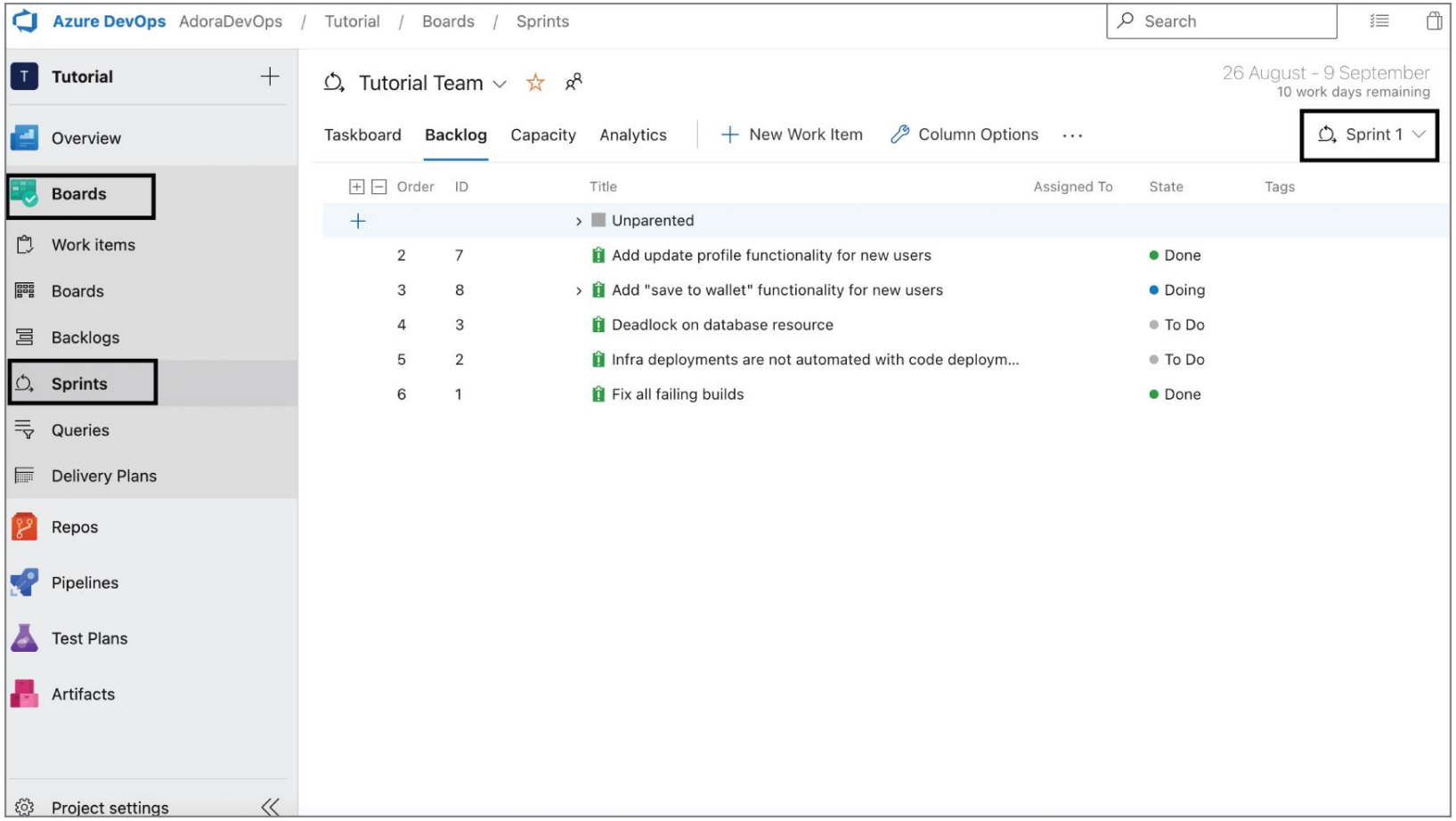
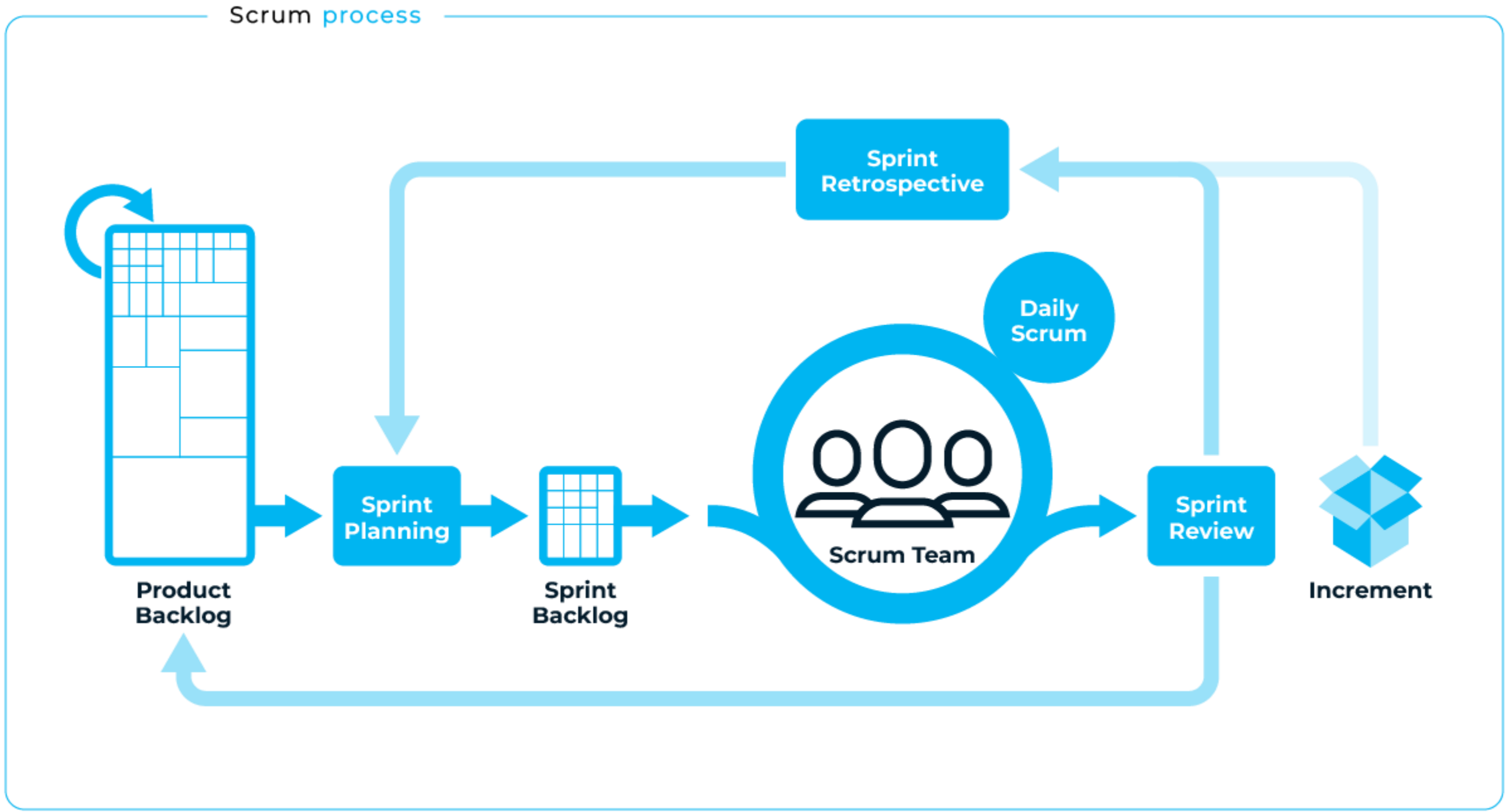
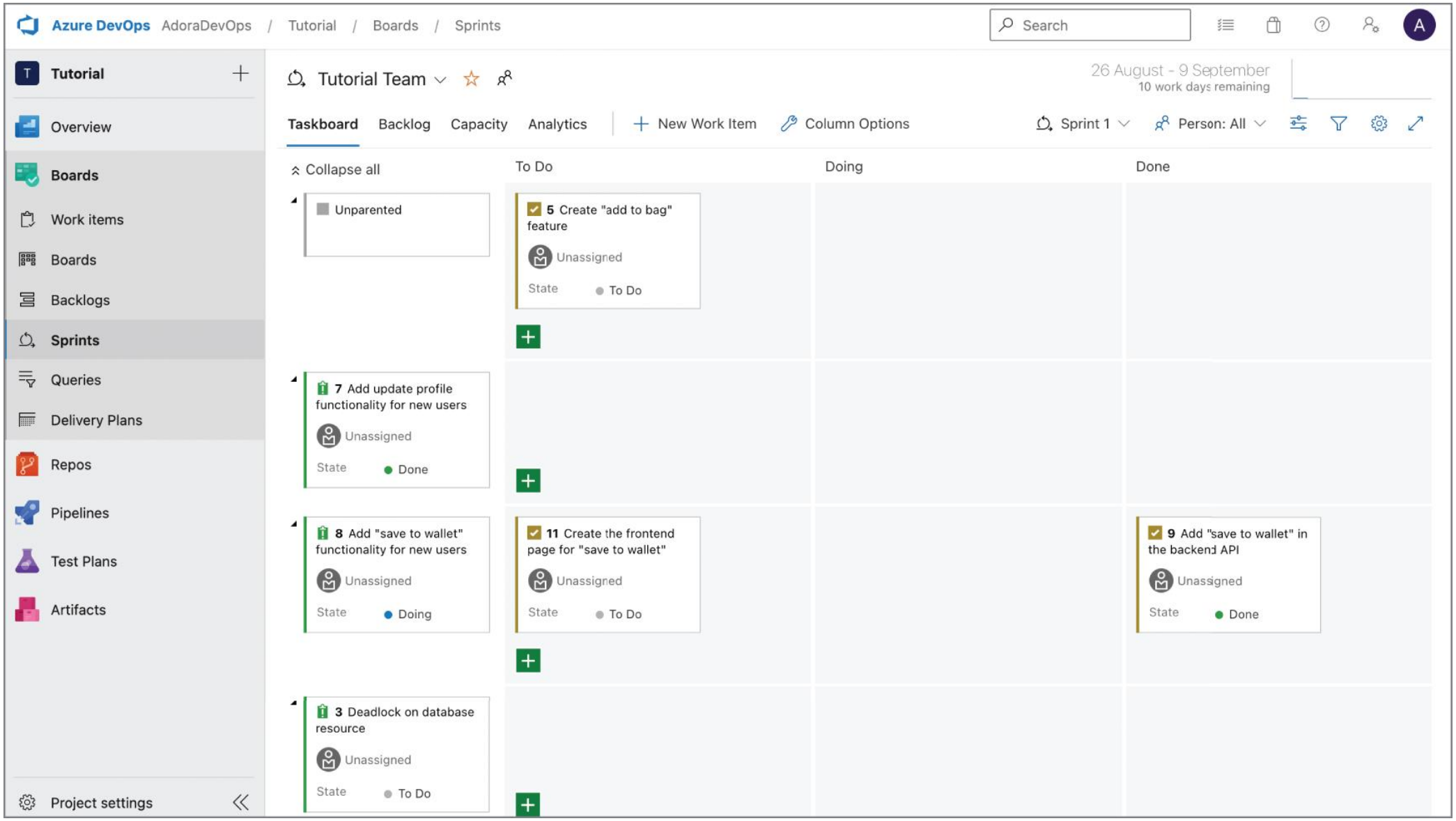
Pipelines
Test Plans
Artifacts
Project settings
Tutorial Team
Board
Analytics
View as Backlog
Issues
To Do
Doing 1/5
Done
New item
3 Deadlock on database resource
State To Do
2 Infra deployments are not automated with code deployments
State To Do
7 Add update profile functionality for new users
State Doing
1 Fix all failing builds
State Done

Azure Boards (Sprints)

- Sprints (or iterations) are used to divide the work into specific periods.
- Teams use two or three weeks for their sprints depending on what works for them.
- This is based on the momentum that a team can endure, that is, the rate at which the team is finishing the tasks.




Scrum process
Sprint Retrospective
Daily Scrum
Product Backlog
Sprint Planning
Sprint Backlog
Scrum Team
Sprint Review
Increment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Work items
Boards
Backlogs
Sprints
Queries
Delivery Plans
Repos
Pipelines
Test Plans
Artifacts
Project settings
Tutorial Team
26 August - 9 September
10 work days remaining
Taskboard
Backlog
Capacity
Analytics
New Work Item
Column Options
Sprint 1
Person: All
Collapse all
To Do
Doing
Done
Unparented
5 Create "add to bag" feature
Unassigned
State To Do
7 Add update profile functionality for new users
Unassigned
State Done
8 Add "save to wallet" functionality for new users
Unassigned
State Doing
11 Create the frontend page for "save to wallet"
Unassigned
State To Do
9 Add "save to wallet" in the backend API
Unassigned
State Done
3 Deadlock on database resource
Unassigned
State To Do