



# Project resources & methodology

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DETI-UA/TQS

Ilídio Oliveira ([ico@ua.pt](mailto:ico@ua.pt))

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# **Team project: goal**

Apply SQA practices in a small project

## Mind the PRODUCT

- ▶ Scope of implemented features
- ▶ Attributes: usability, robustness,...

## Mind the (agile) PROCESS

- ▶ Software development process model
- ▶ Team practices and management
- ▶ Evidence of SQA practices



# Main resources & deliverables

Project objectives, expected results and activities:

- [“Project Guidelines”](#)

2 Technical reports [templates available]:

- [Product specification](#) report
- [Quality manual](#) report

Project activities:

- 5 x 1-week iterations
- In “Práticas”:
  - Review previous iteration
  - Plan next iteration
- Final presentation:
  - Week 01/06
  - + project defense (to be scheduled)



# Project scope

## Web marketplace

- ▶ “Aggregator” business
- ▶ E.g.: <https://www.rocket-internet.com/companies>

## Main architectural blocks

- ▶ Front end: web app.
  - You may pick the technology. Lightweight Java-templating/JavaScript would be natural
- ▶ Java backend (Spring Boot or “core” Java EE )
- ▶ Requires an integration API + external client(s)
- ▶ External client is expected to be very simplified
  - Emulate the Partner’s own system
  - Mobile app for end-users



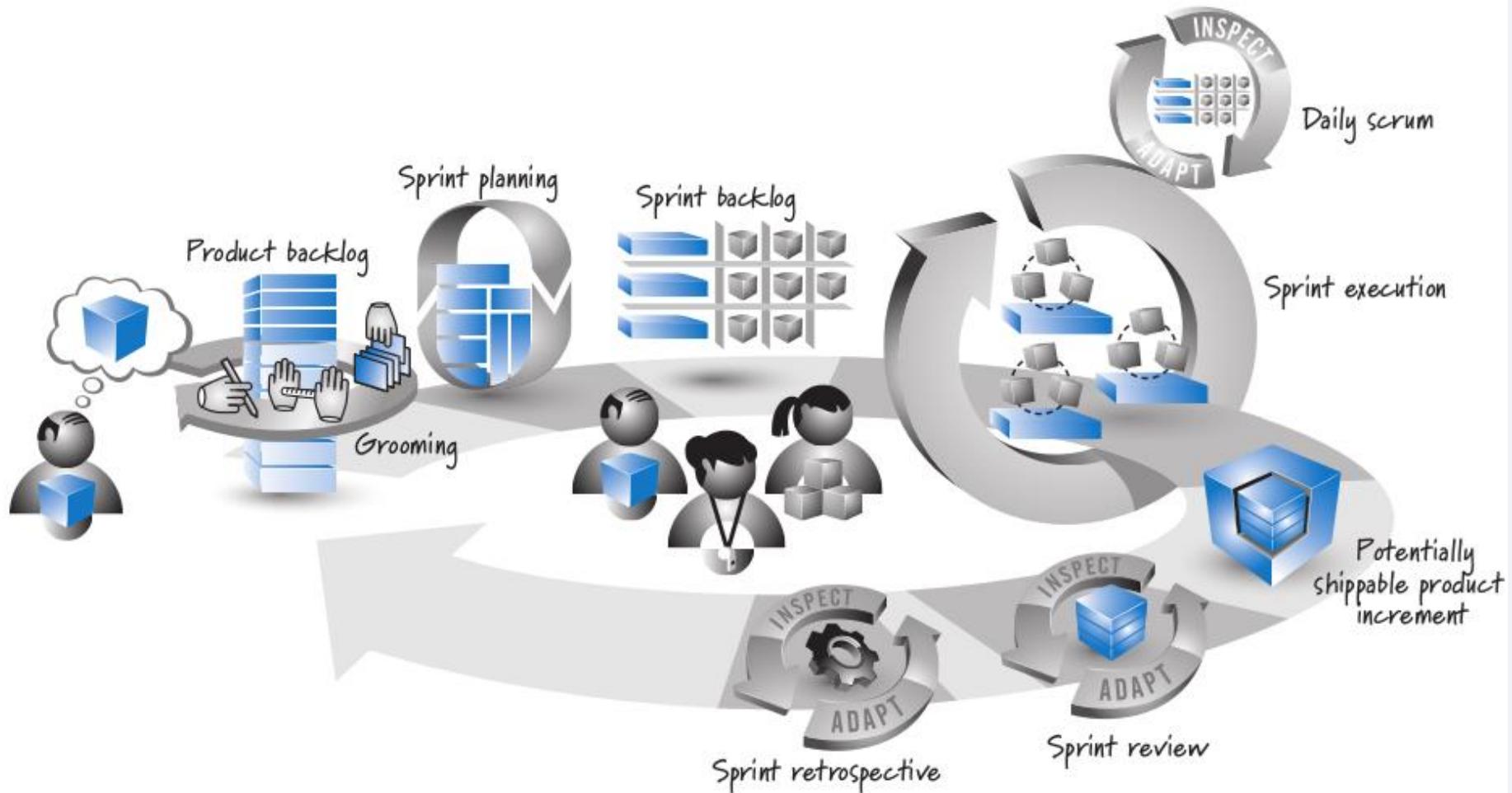
# **Agile development practices required**

Use the concepts and tooling for:

- user stories (granular sample usage scenarios)
- iterations (length = 1week)
- backlog grooming (proactive tracking)
- estimation and velocity
- development workflow.

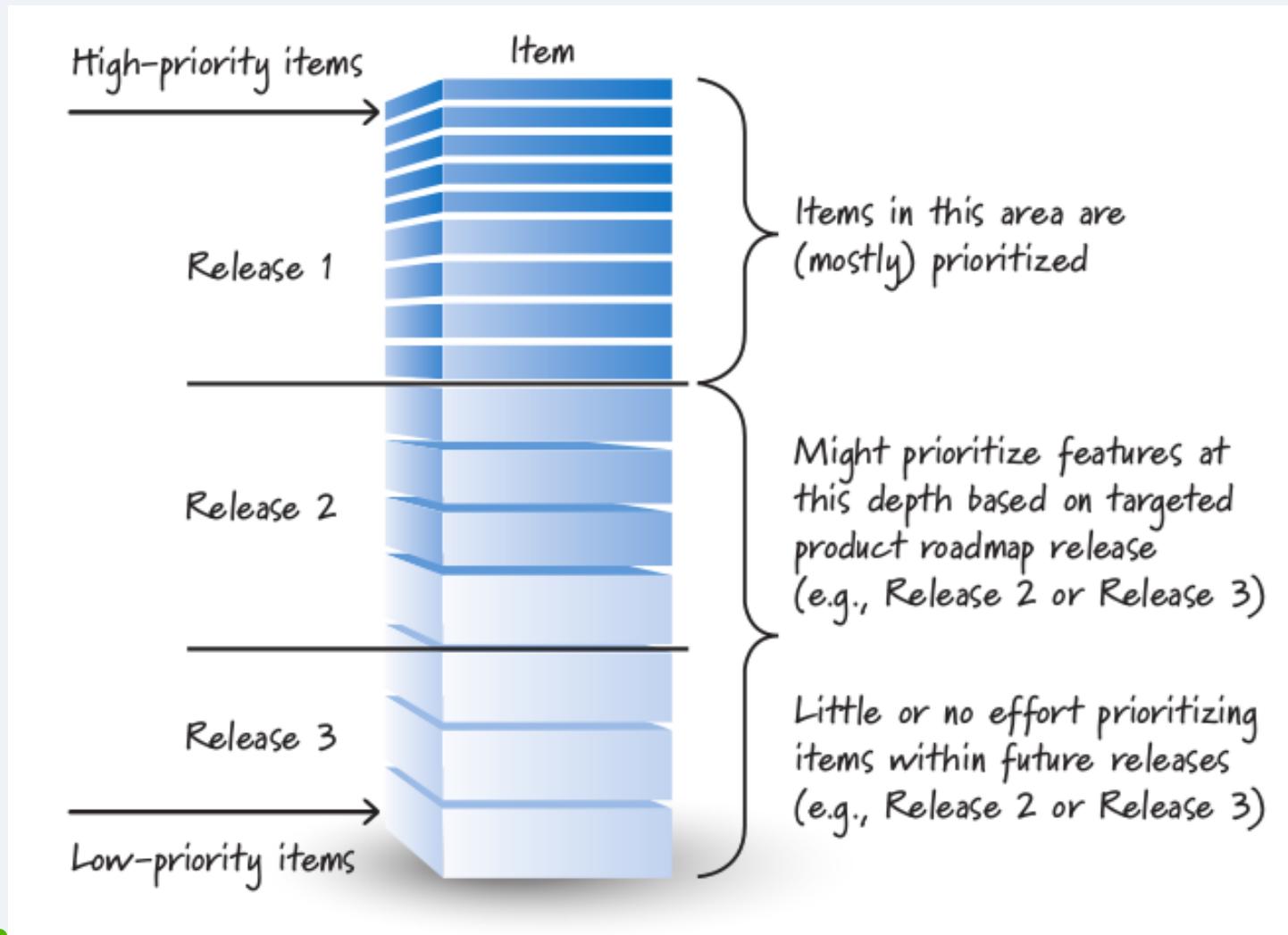


# (Scrum) Agile process



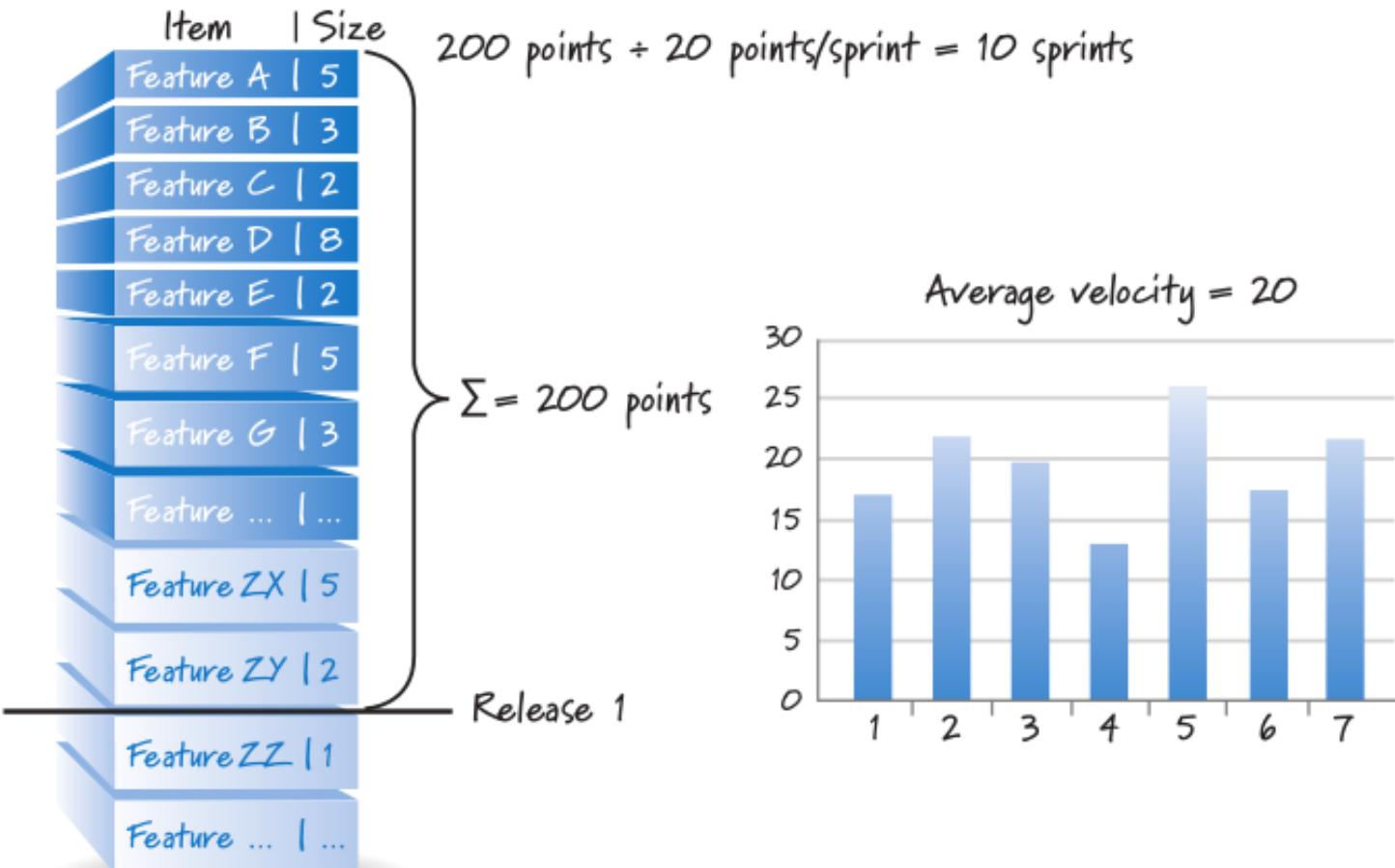
**FIGURE 2.3** Scrum framework  
I Oliveira

# Backlog must be prioritized



# Estimation & velocity

Estimated size ÷ measured velocity = (number of sprints)



# Backlog granularity: **user stories**

The image shows a user story template on the left and a completed user story card on the right. The template has fields for 'User Story Title', 'As a <user role> I want to <goal> so that <benefit>', and a large 'Template' placeholder. The completed card has a title 'Find Reviews Near Address', the goal 'As a typical user I want to see unbiased reviews of a restaurant near an address so that I can decide where to go for dinner.', and a large 'Template' placeholder.

User Story Title
As a <user role> I want to <goal> so that <benefit>

Template

Find Reviews Near Address
As a typical user I want to see unbiased reviews of a restaurant near an address so that I can decide where to go for dinner.

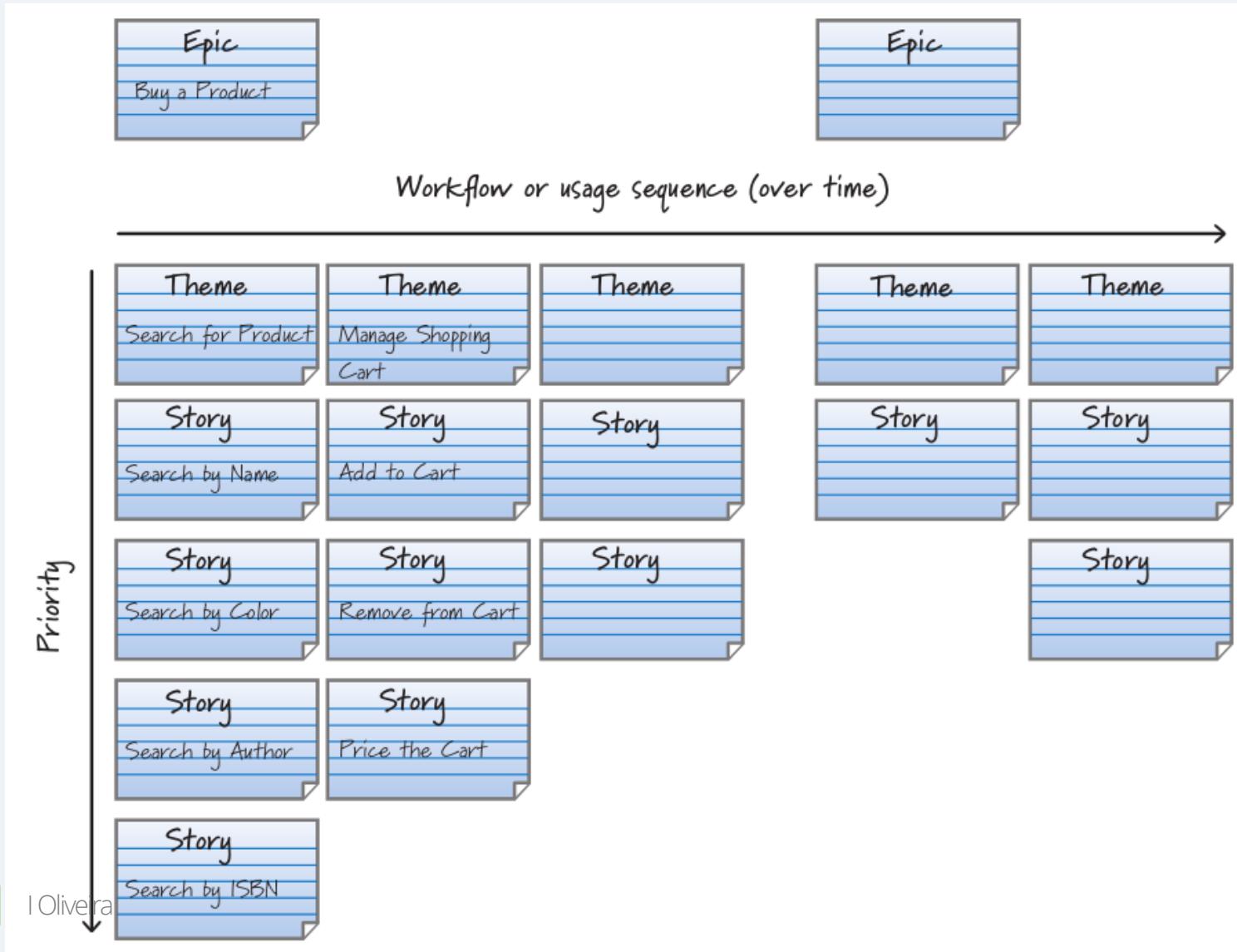
**FIGURE 5.2** A user story template and card

The image shows a single card for an 'Undesirable technical story'. It has a title 'Automatic Builds', the goal 'As a developer I want the builds to automatically run when I check in code so that regression errors are detected when they are introduced.', and a large 'Template' placeholder.

Automatic Builds
As a developer I want the builds to automatically run when I check in code so that regression errors are detected when they are introduced.



# Finding good stories



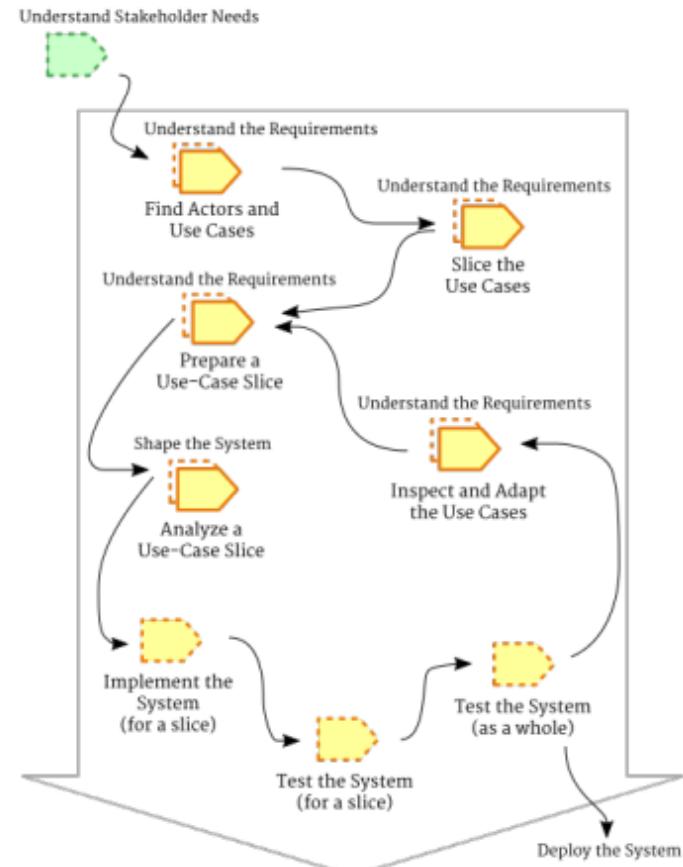
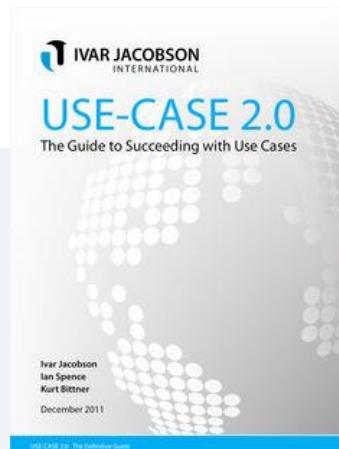
# Things to Do

The practice starts by finding actors and use cases, and selecting and prioritizing the parts (slices) of the use cases to be developed.

It continues by detailing the use-case slices and, more importantly, the test cases required to verify each slice. Focus then switches to implementing software in order to pass the test cases. The practice concludes by tracking progress in terms of verified, working software and feeding back the outcomes in order to handle change and better support the team.

Acceptance criteria.

<https://www.ivarjacobson.com/publications/brochure/use-case-essentials-practice-flyer>



# User stories

## Use-case slice

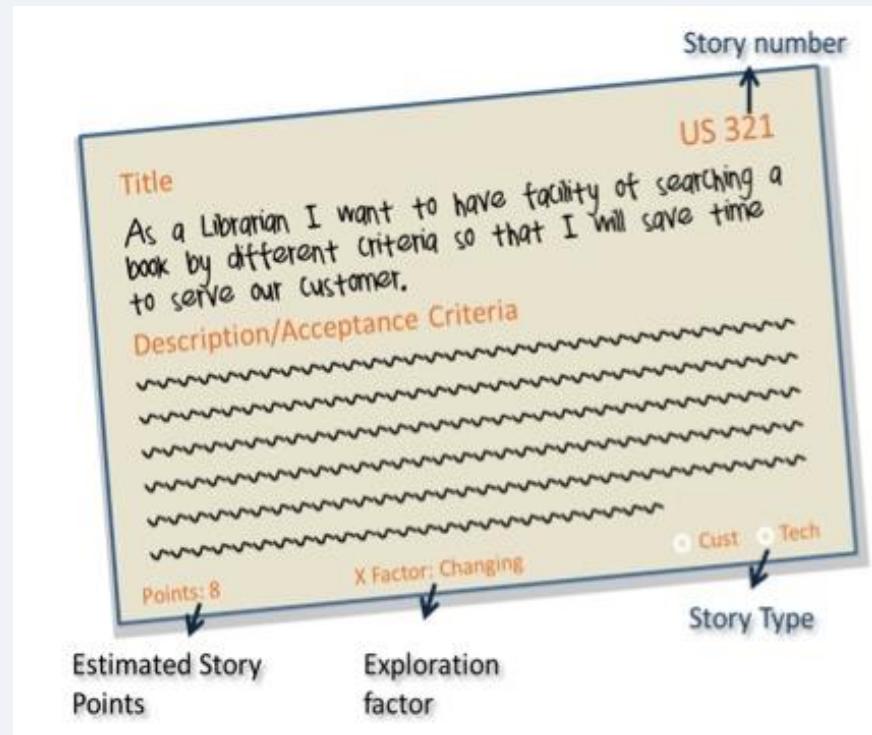
a collection of front-to-back flows through a use case, including the associated test cases that is of clear value to the customer → story.

## Story

a description of a requirement and its business benefit, and a set of criteria by which we all agree that it is “done”.

provide verifiable business value to the team’s customer (e.g., “Add a Special Instructions field to the checkout page,” “As a shopper, I want to see my purchase history load in half a second so that I can find previously purchased items”).

→ [Examples](#)



# Story “template” elements

The narrative should include a role, a feature and a benefit

- ▶ Title (one line describing the story)

Narrative:

- ▶ As a [role]
- ▶ I want [feature]
- ▶ So that [benefit]

The template “*As a [role] I want [feature] so that [benefit]*” has advantages → you cause the story writer to consider *why* they want a feature.

Writing stories is likely be an iterative process.

- ▶ The stakeholder will have an idea of what they want but will usually not know how much work will be involved, or how that work will be allocated.
- ▶ With the help of the technical and testing experts, they will understand the cost/benefit trade-off of each scenario



## Stories define your project

Every project starts with a story, no matter what you're building. Tracker helps your team better develop and keep track of them while they progress from start to delivered.

### Start with a good story

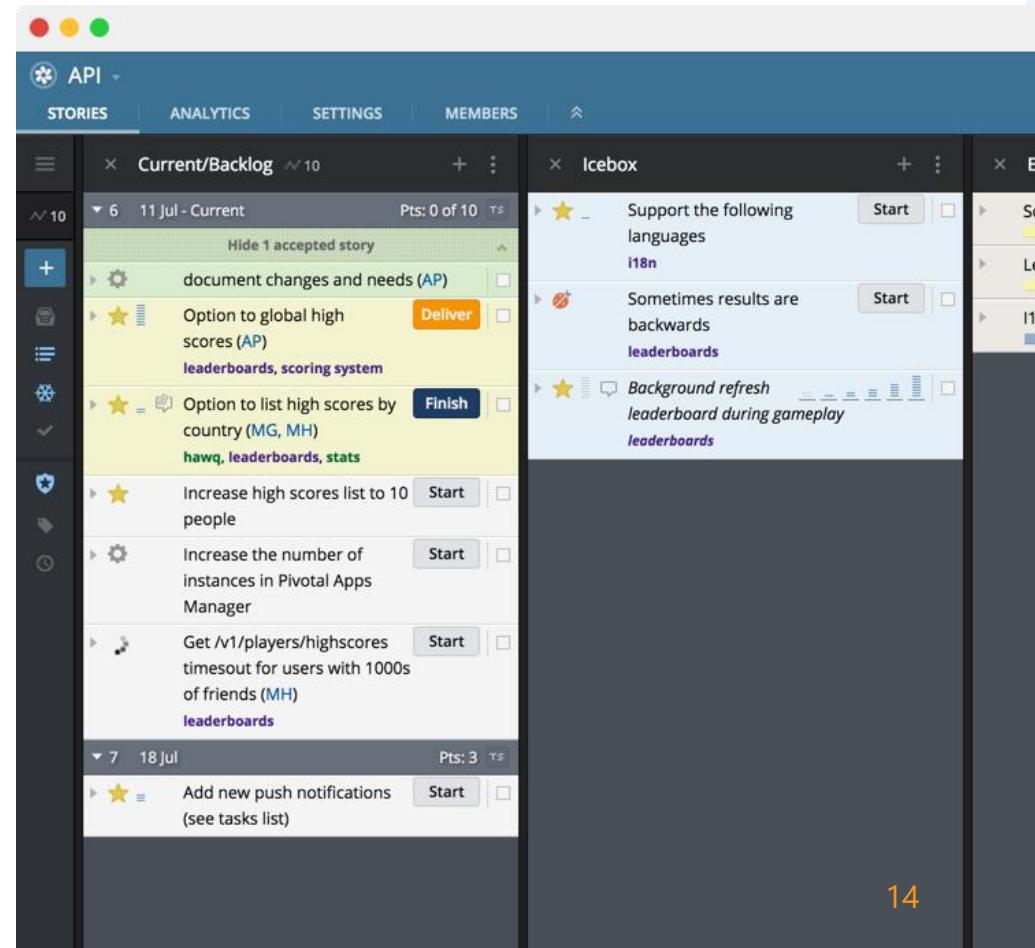
A story is a small, actionable bit of work that's either a placeholder for a future conversation or a reflection of one that already happened. Outlining what a user needs helps you focus on the what, not the how.

### Define the story

Select among features, bugs, and chores to strike a healthy balance between building new features, staying ahead of technical debt, and keeping the bugs from piling up.

### Estimate, then prioritize

Writing the story is just the beginning—now you get to rap about it. Estimate as a team to uncover the story's complexity. Choose among several point scales, then drag-and-drop to prioritize by iteration.



# (Pivotal) Tracker style

Tracker lists stories in a project's Current and Backlog [panels](#) in priority order.

Dragging a story to the top of your Backlog makes it the top priority

Tracker is a "pull" scheduling system — it pulls in stories to fill the team's WIP limit, based on [velocity](#).

Tracker automatically moves stories from the top of your project's Backlog into the current iteration according to the current [velocity](#). (depending on the individual [story estimates](#)).

Tracker projects use a linear point scale (i.e., 0, 1, 2, 3). You can change

The screenshot shows the Pivotal Tracker interface with two main panels: 'Current' and 'Backlog'.  
The 'Current' panel (left) displays stories for the '20 Jun - Current' iteration. It includes a header with 'SETTINGS', 'MEMBERS', and a search bar. Below the header, there are sections for 'Accepted stories' (0 of 8), 'In progress' (1 story), and 'Upcoming stories' (1 story). The stories listed are:

- Initial demo to investors (admin, blocked)
- Signed in shopper should be able to post product reviews (DST) (user generated content)
- Product browsing pagination not working in IE6 (MR) (admin, ref)
- Some product photos not scaled properly when browsing products (DST) (shopping)
- Request higher number of production slices, for scaling (DST) (deployment)
- We may experience some slight turbulence and then...explode. (DST)
- Integrate with payment gateway (MR) (checkout, shopping)
- Shopper should be able to reset forgotten password (MR) (shopping, signup / signin)
- Cart manipulation should be AJAXy (MR) (cart, shopping)
- Set up Engine Yard production environment (deployment, shopping)
- Beta launch (highlighted with a red background)
- State Test
- Provide feedback to designer about look/feel of site (design)
- Signed in shopper should be able to rate product, by choosing 1-5 stars (user generated content)

Each story has a 'Finish' button next to its title.  
The 'Backlog' panel (right) displays stories for the '27 Jun' iteration. It includes a header with 'WHAT'S NEW', 'HELP', and 'DRSIMON'. Below the header, there are sections for 'Upcoming stories' (8 stories) and 'Accepted stories' (0 of 8). The stories listed are:

- When shopper is browsing products, show average product rating and number of reviews next to each product (DST) (user generated content)
- Shopper should be able to read reviews for a product (user generated content)
- Admin should be able to mark a product as featured (admin, featured products, needs design, shopping)
- Featured products should appear on the site landing page (featured products, needs design)
- When checking out, shopper should have the option to sign in to their account (shopping, signup / signin)
- If authorization is successful, show order number and confirmation message to shopper (shopper, needs discussion, shopping)
- Signed in shopper should be able to review order history (shopper accounts)
- Signed in shopper should be able to save product to favorites (shopper accounts)
- Signed in shopper should be able to review and remove product from favorites (shopper accounts)
- Apply styling to all shopper facing parts of the site, based on assets from designer (design)
- Admin should be able to create and edit blog articles (admin, blog, needs design, shopping)
- Admin should be able to save blog articles in draft mode (admin, blog)
- Signed in shopper should be able to save credit card and address information used in checkout (MR) (shopper accounts)
- Published blog articles should appear on the site (blog, needs design)

Each story has a 'Start' button next to its title.

# Story-oriented workflow

1. Write a story
2. Estimate effort with points
3. Prioritize
4. Track story [next slide]

## Stories are tracked

The delivery team gives each feature a story point estimate during iteration planning.

Story states are unscheduled, unstarted, started, finished, delivered, accepted, or rejected.

The screenshot shows a story tracking interface with the following details:

- ID:** #107079960
- STORY TYPE:** Feature
- POINTS:** Unestimated
- STATE:** Start, Unscheduled
- REQUESTER:** Jayne Cobb
- OWNERS:** <none>
- FOLLOW THIS STORY:** (1 follower)
- Updated:** 3 minutes ago

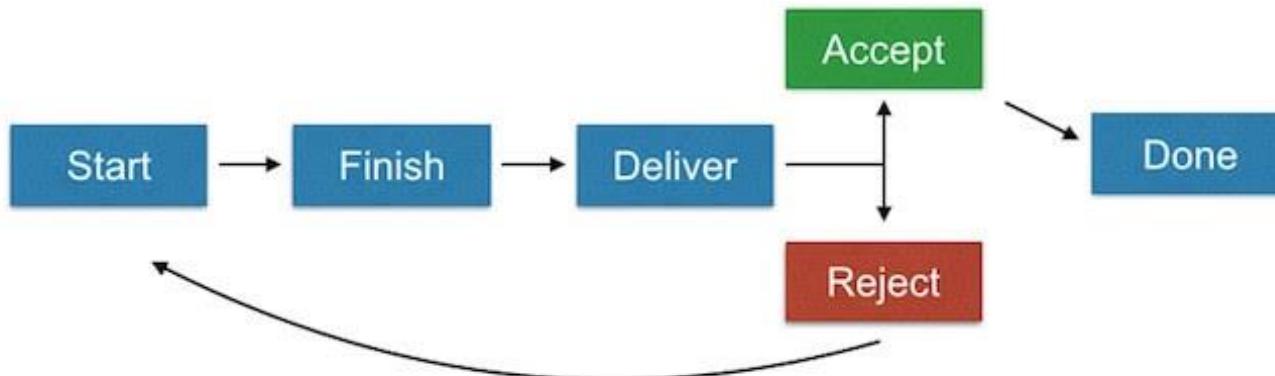
**DESCRIPTION:** (edit) [Empty text area]

**LABELS:** [Empty dropdown menu]

**TASKS:** [Add a task] Add [Input field for tasks]

**ACTIVITY:**

- MR Mal Reynolds @malr [Profile icon]
- Add a comment or paste an image [Text input field]



The screenshot shows a Kanban board interface for managing user stories across four columns: Done, Current, Backlog, and Icebox.

- Done:** Contains 8 stories, including:
  - message to shopper (Priority 2)
  - Admin can review all order questions and send responses to shoppers (admin, blocked)
  - Some product photos not scaled properly when browsing products (shopping)
  - Product browsing pagination not working in JIE (admin, i18n)
  - Signed in shopper should be able to post product reviews (user generated content)
- Current:** Contains 7 stories, including:
  - When checking out, shopper should have the option to sign in to their account (MR) (Integrate with, Priority 3)
  - Integration fails using Alliance credits (Reason for Rejection: Integration fails using Alliance credits, Priority 2)
  - Shopper should be able to reset forgotten password (MR) (Restart, Priority 2)
  - Cart manipulation should be AJAXy (MR) (Priority 1)
  - Initial demo to Investors (Priority 1)
- Backlog:** Contains 3 stories, including:
  - Set up Cloud production environment deployment (shopping) (Priority 3)
  - Signed in shopper should be able to review order history (shopper accounts)
  - Beta launch (Priority 2)
- Icebox:** Contains 1 story:
  - Signed in shopper should be able to review order details (Priority 1)

[https://www.pivotaltracker.com/help/articles/tracker\\_workflow/](https://www.pivotaltracker.com/help/articles/tracker_workflow/)



## More on stories @PT

Be Good To Your Devs: Write User Stories That Are Easy To Understand

<https://content.pivotal.io/blog/be-good-to-your-devs-write-user-stories-that-are-easy-to-understand>



# Resources and tools

## Agile Backlog

- ▶ Public project at PivotalTacker, or
- ▶ “boards” in [other tools](#) (as long you capture the backlog + stories + iterations + estimation)

## Tech stack

- ▶ Spring Boot in the backend
- ▶ Container-based deployment

## CI/CD

- ▶ You may choose your “weapons”...  
GitLab CI, GitHub Actions, Jenkins (dockerized)
- ▶ CD should deploy the services

## Infrastructure

- ▶ VM hosted at UA (Ubuntu server)
- ▶ Or your “own”: □ Heroku, Azure,...



# Recap

## Agile process

- ▶ Backlog grooming with user stories
- ▶ Stories include acceptance criteria
- ▶ Iteration focus

## Product

- ▶ Full stack: Front end + backend
- ▶ Your API
- ▶ Simplified external client

## SQA

- ▶ Feature-driven (trace to user stories)
- ▶ Automated testing (multiple types)
- ▶ DoD must include tests
- ▶ Code analysis quality gates
- ▶ CI w/ Peer Review
- ▶ CD pipeline
- ▶ Practices specified in the Quality Manual



# Challenge

Enrich your development enviroment with integrations & feedback



Product ▾

Customer Stories

Blog

Sign in

Sign up

All Integrations

Utility

Productivity

Issue Tracking

Project Management

More ▾

## Integrations complete the picture

Browse the growing list of integrations, tools, and applications shared by members of our community that extend Tracker's functionality via the API.

Search...

### Top Integrations



JIRA

Productivity

Integrate your project with JIRA instances...



Zendesk

Customer Support

Link stories created from Zendesk tickets...



GitHub

Productivity

Link your GitHub commits to Tracker stories...



Slack

Productivity

Post story activity updates to a Slack channel...