TFS Agile 101

January 2019

TOYOTA FINANCIAL SERVICES

What Agility Means

Deliver Faster

Higher Quality

Lower Cost

Reduce Complexity

Faster Decisions

Stay Ahead

Agile Values and Principles

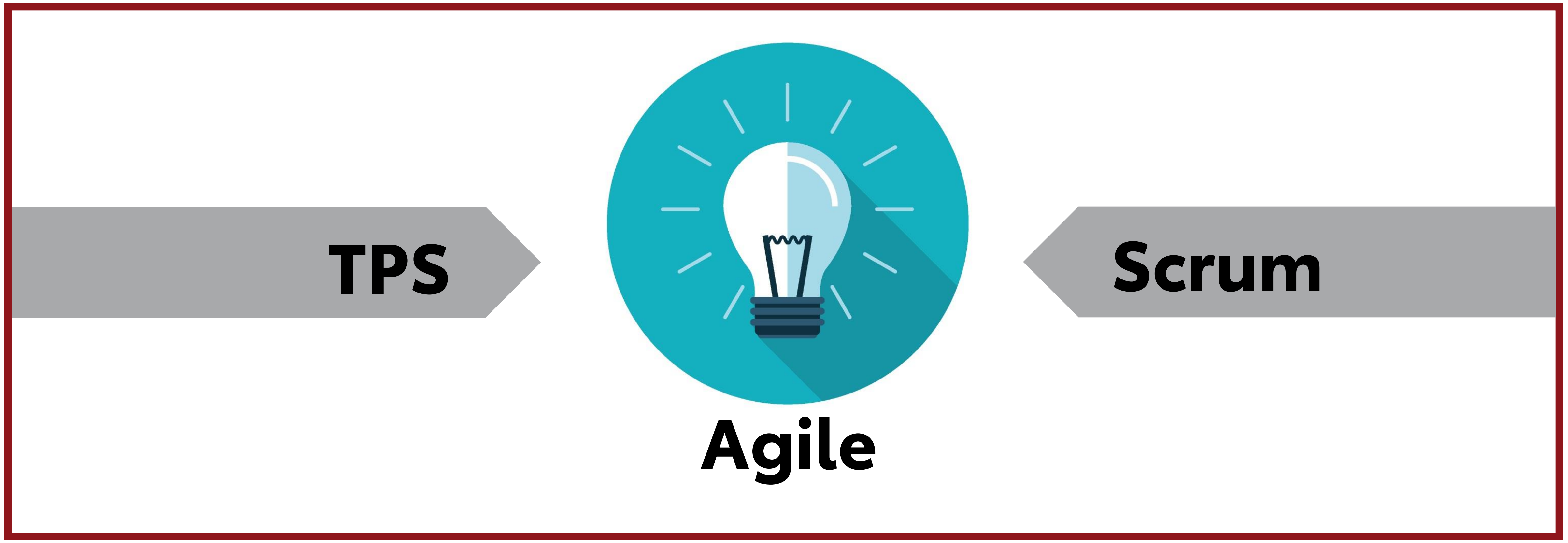
PEOPLE OVER PROCESSES AND TOOLS

WORKING PROTOTYPES OVER EXCESSIVE DOCUMENTATION

RESPOND TO CHANGE RATHER THAN FOLLOW A PLAN

CUSTOMER COLLABORATION OVER RIGID CONTRACTS

Agile is a Mindset



Empowerment | Embrace Change | Transparency

Agile Thinking

Agile and Scrum Practices

1. Customer Value
2. Being focused on the sprint and it's goal
3. Courage to Challenge & Change
4. Make Work Visible
5. Inspect & Adapt using Empirical Data
6. Committing yourself to the team and the Goal
7. Responding to Change over Following a Plan
8. Openness & Transparency
9. Individuals & interactions over Processes & Tools
10. Get Feedback from Real Customers

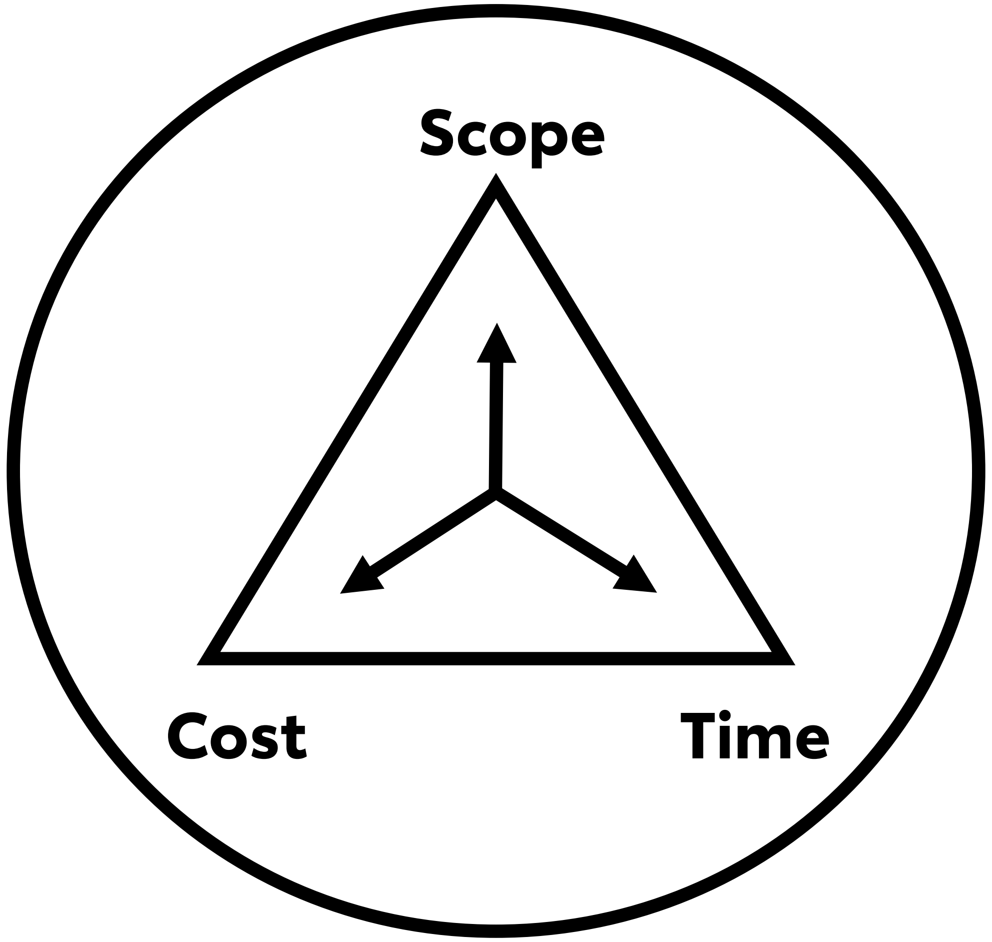
Toyota fundamentals:

1. Customer First *(Okyakusama daiichi)*
2. Leveling *(Heijunka)*
3. One Piece Flow
4. Visualization *(Mieruka)*
5. Automation with human judgement *(Jidoka)*
6. Teamwork and people development *(Hitozukuri)*
7. Just in time *(JIT)*
8. Continuous improvement of process and product
9. *(Kaizen / PDCA)*

Product Delivery Focused

Project Mindset

- Success Defined Upfront
- Management Centric
- Rigid/Discourages change
- Lacks Transparency
- Delays Customer Feedback
- Task vs Value Focused
- Increased Risk



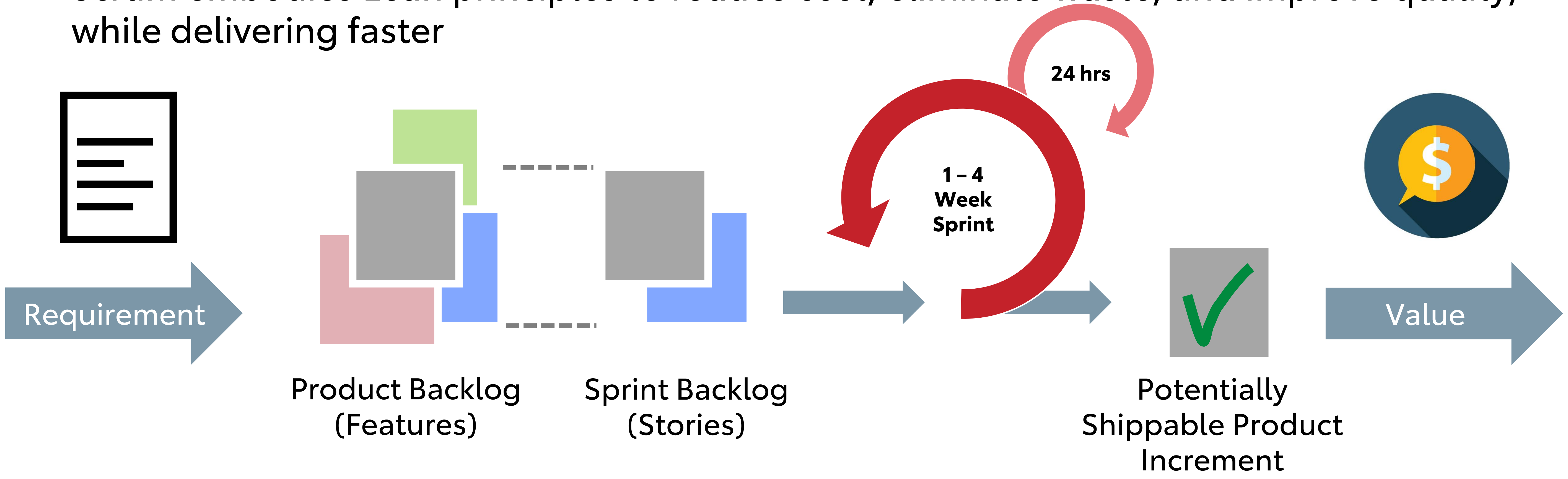
Product Mindset

- Success Defined Continuously
- Customer Centric
- Encourages Change
- Embraces Transparency
- Incorporates Customer Feedback
- Reduces Waste
- Increased Creativity

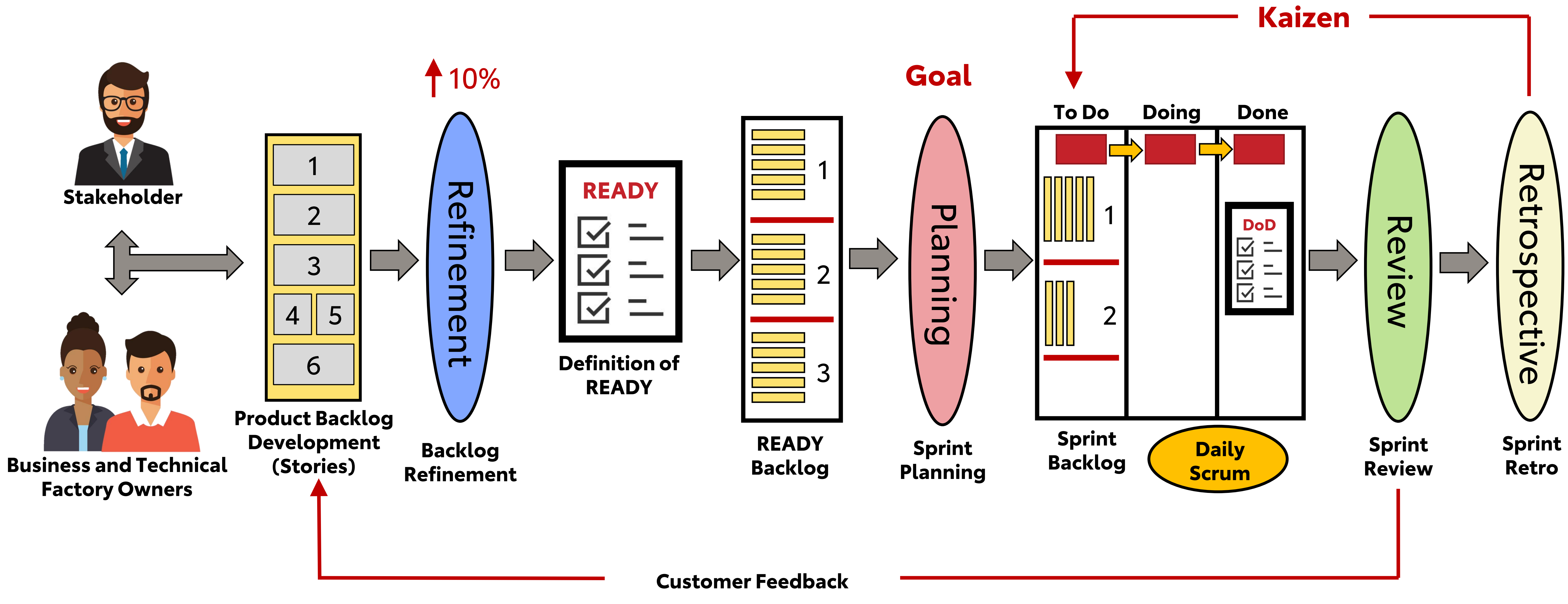
Scrum Framework

Scrum – An Agile Framework

- Scrum is a lightweight framework, and not a prescriptive methodology
- Teaches basic discipline to enable small teams to deliver rapid increments of value in short time boxes
- Scrum embodies Lean principles to reduce cost, eliminate waste, and improve quality, while delivering faster


24 hrs
Requirement
1 – 4 Week Sprint
Value
Product Backlog (Features)
Sprint Backlog (Stories)
Potentially Shippable Product Increment

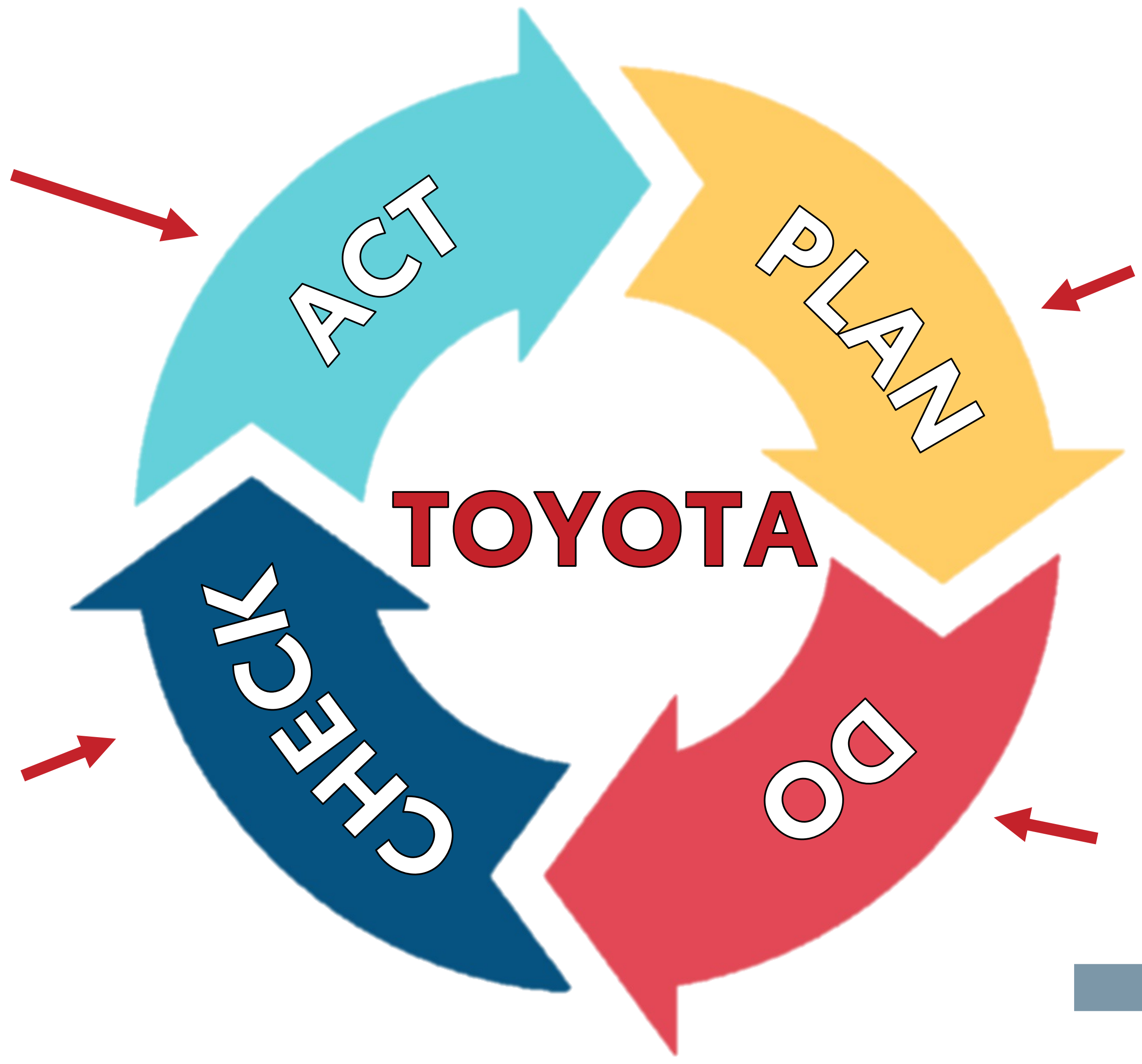
How Scrum Works



PDCA and SCRUM

Sprint Retrospective

- Sprint Planning
- Product Backlog Refinement

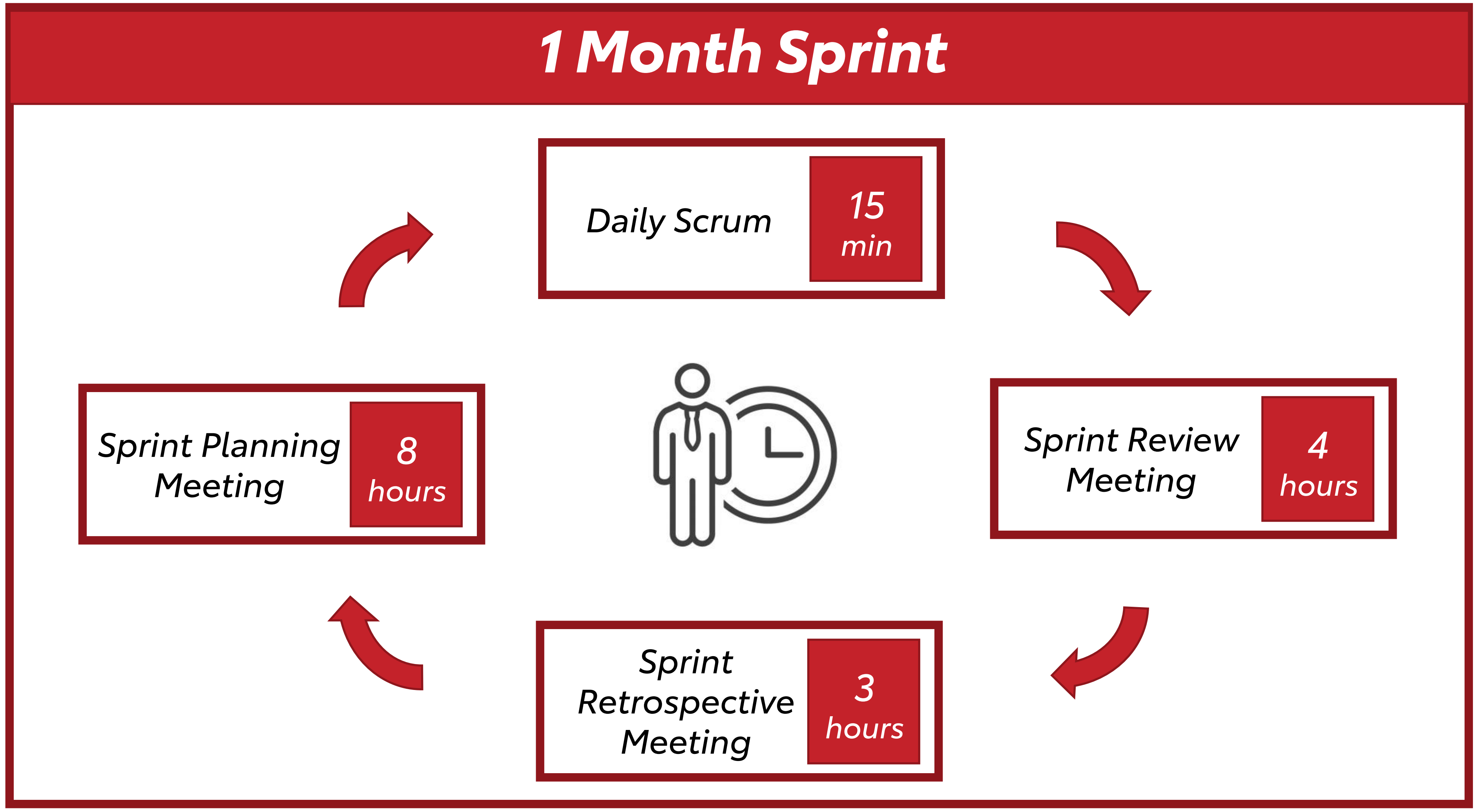


- Sprint Review
- Daily Scrum

Sprint
1–4 Weeks

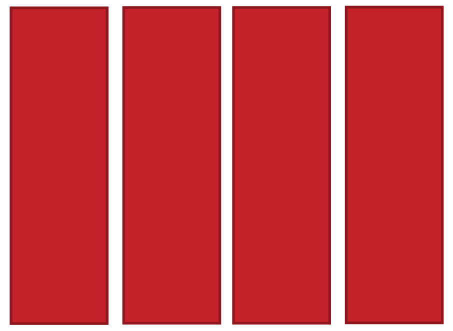
Ceremonies

Time boxing is allotting a fixed, maximum unit of time for an activity. That unit is called a Time Box.



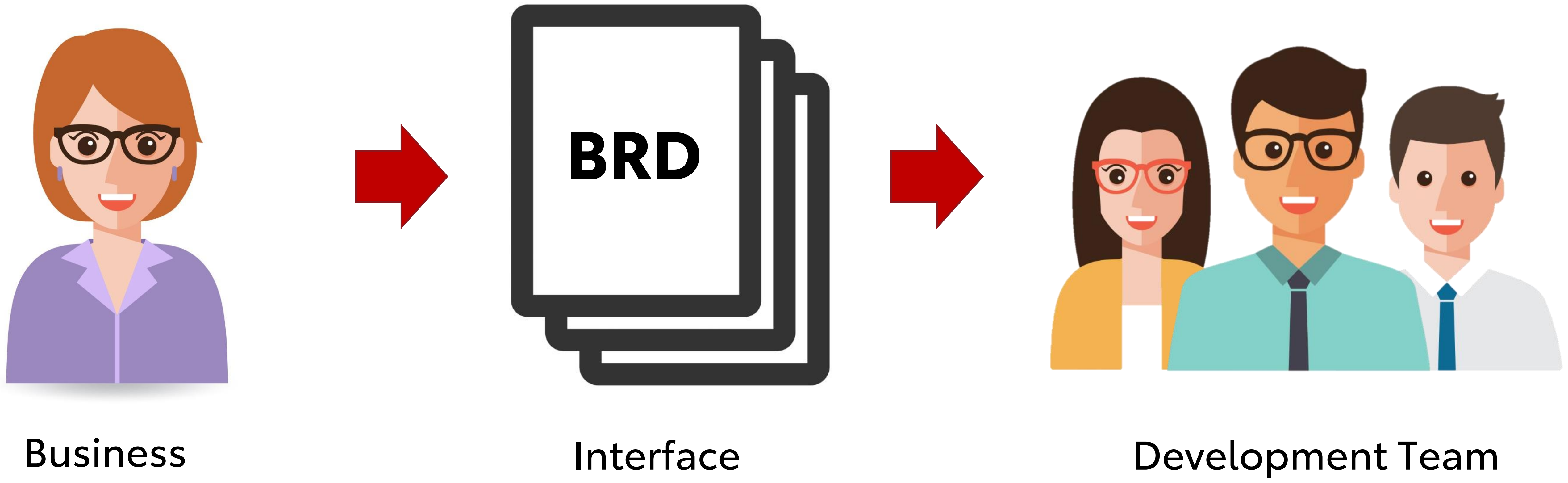
Shorter Sprints?

Proportionate for Planning, Review, and Retro



Planning 2 hrs/wk/sp
Review 1 hr/wk/sp
Retro 45 min/wk/sp

Old Known Stable Interface



Factory Team

Factory Team

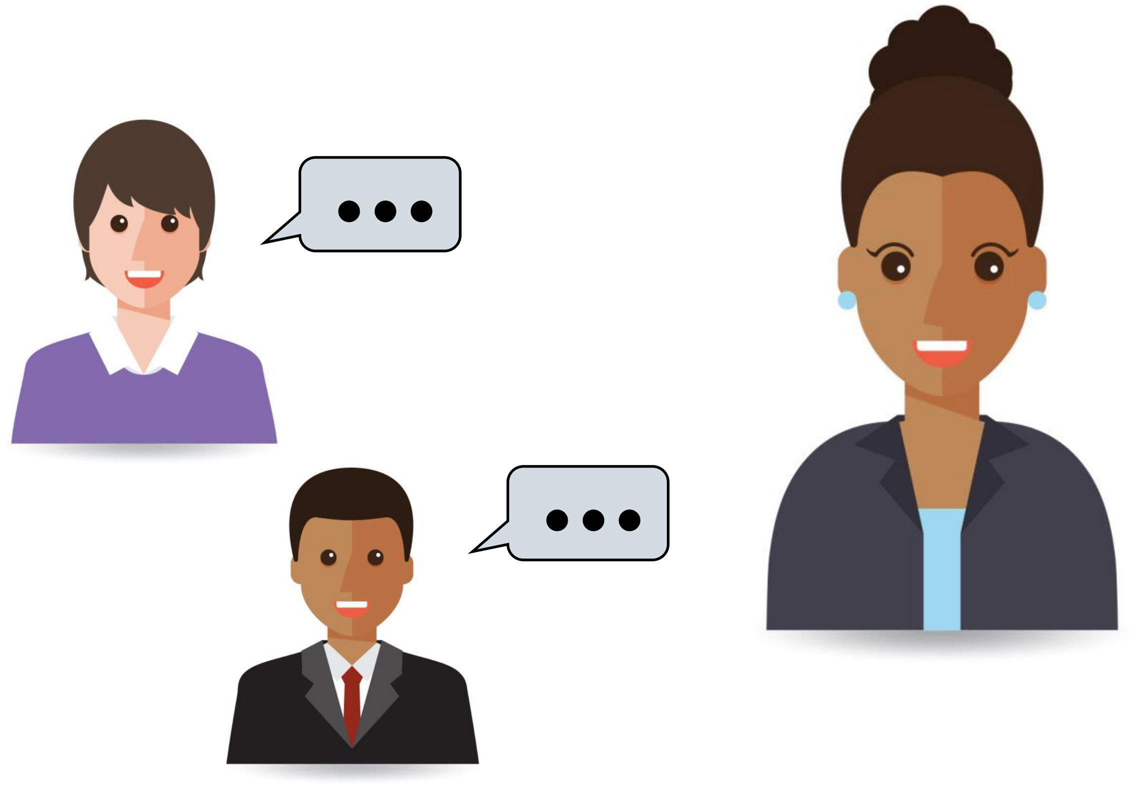
Business & Technical Factory Owner

Squad

Scrum Master

The Factory Owner Owns the WHAT

- Has a compelling product vision that is executable
- Builds a roadmap for rolling out the vision that aligns everyone
- Builds a Product Backlog of 'enabling items' that are 'just enough & just in time' that enables a team to build the Product
- Spends half their time with customers & stakeholders, and the other half closely with the team
- Is accountable for the value delivered to the customer

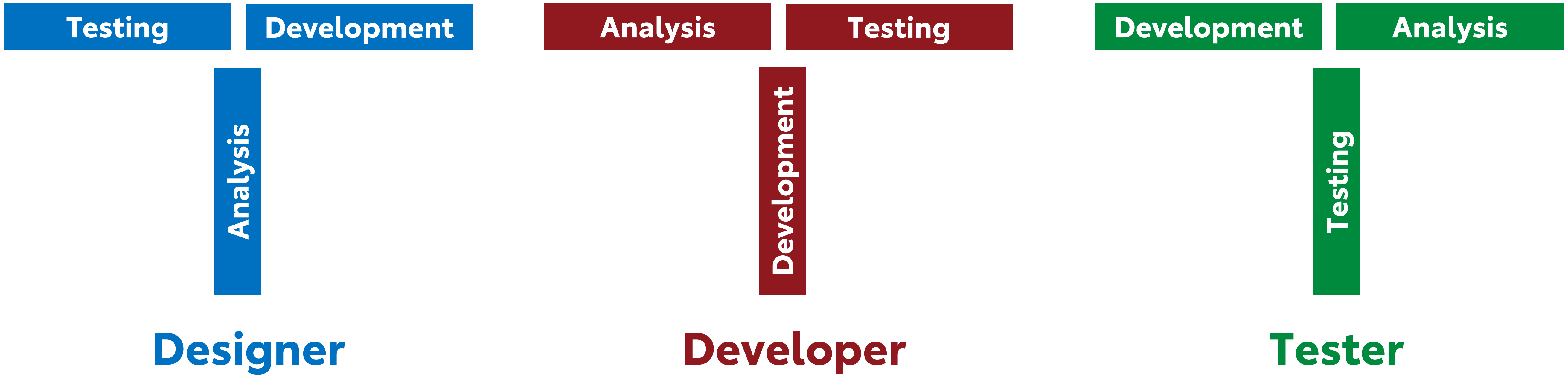


The Scrum Master Owns the Process

- Coaches the Team and Factory Owner in Scrum techniques
- Understands and implements the values of the Agile Manifesto
- Facilitates Scrum Events defined in the Scrum framework
- Ensures work is made visible & encourages openness & transparency
- Identifies and ensures impediments are resolved
- Promotes Kaizen thinking and waste reduction

Squad Owns the How

- **Multi-skilled** – most members can do more than one thing (T-shaped skillsets, wide in many areas deep in one)
- **Self-organizing** – they decide **how** they will work
- **Self-managing** – they decide **how much** work they can do in a Sprint
- **Collaborative** – they work together to achieve a **Sprint Goal**
- A team size of between **3 – 9 people**



So What is the Role of Management

- **Eliminate Organizational Debt**
  - Remove Bureaucracy and Red Tape
  - Remove all Non Value Added Activities
  - Stop telling people what to do. Empower them instead

- **Remove Impediments**
  - Commit to meet daily and deal with any impediment to team delivery
  - Work with other managers to optimize the flow of value

- Hold **Factory Owners** accountable for value delivered

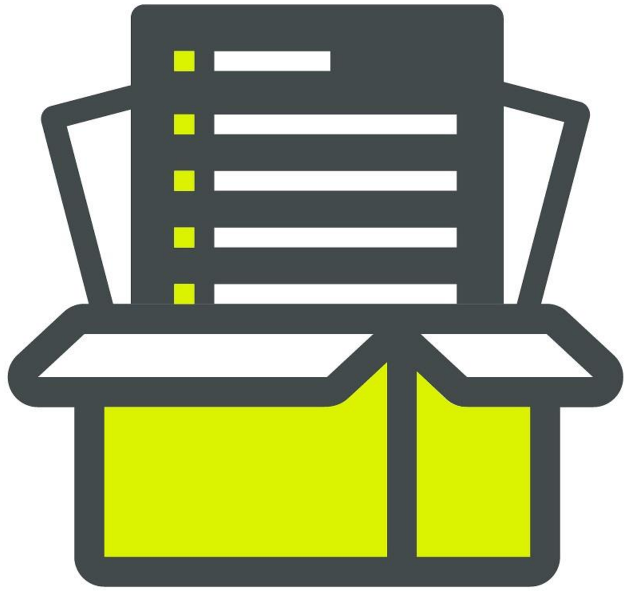
- Hold **Scrum Masters** accountable for process improvement and team happiness

- Hold **Development Teams** accountable for improving quality and removing technical debt

Product Backlog

The Product Backlog

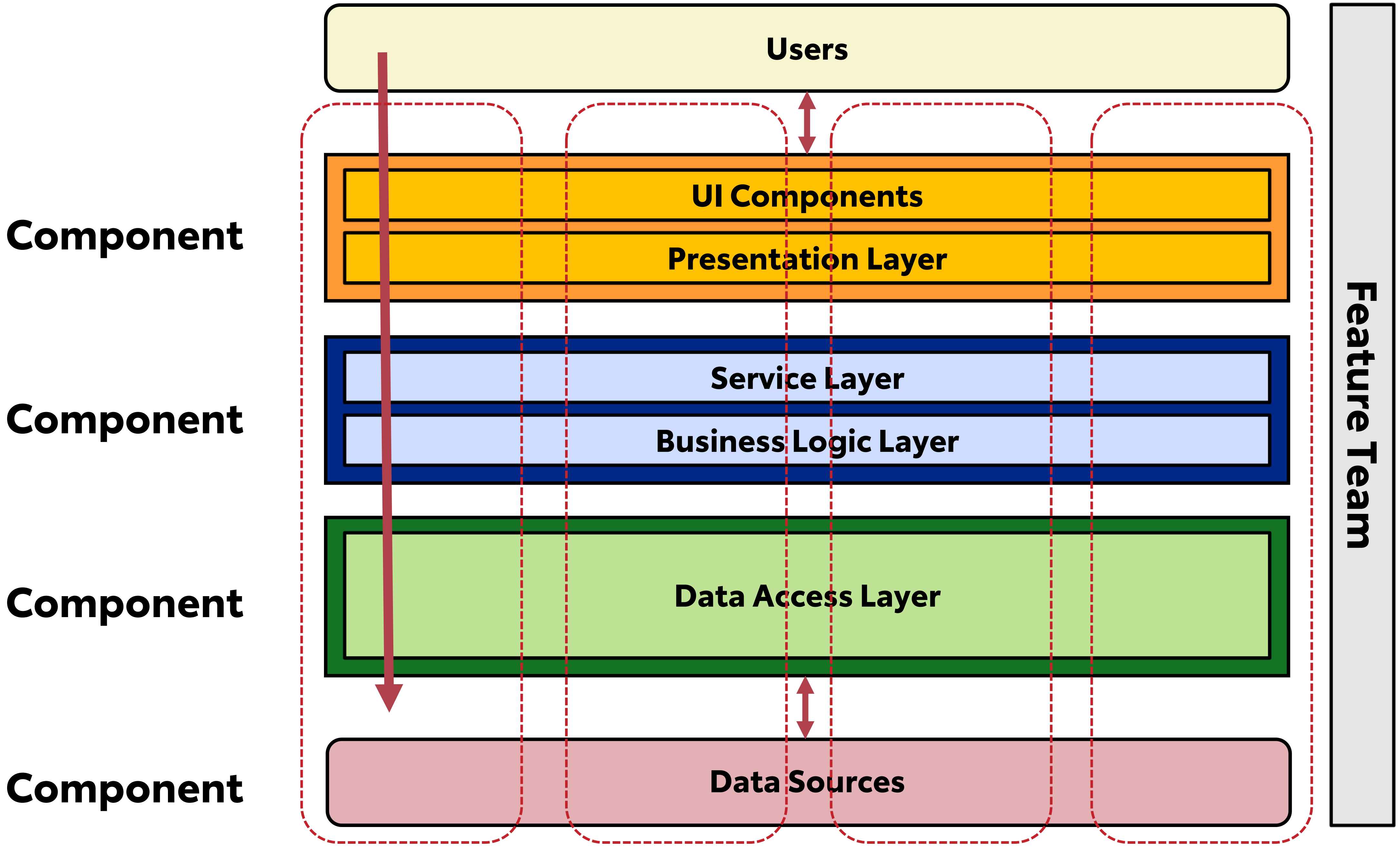
- The Product Backlog consists of **work to be done** ordered by customer value
- There is only one Product Backlog which is shared across teams working on the same product
- Anyone can put anything in the backlog
- In Scrum the Factory Owner is the final authority on ordering the backlog
- The Backlog consists of Product Backlog Items (PBIs)
- The majority of Scrum teams use user Stories as PBIs



The Backlog is DEEP

D	E	E	P
Detailed Appropriately	Estimated	Emergent	Prioritized

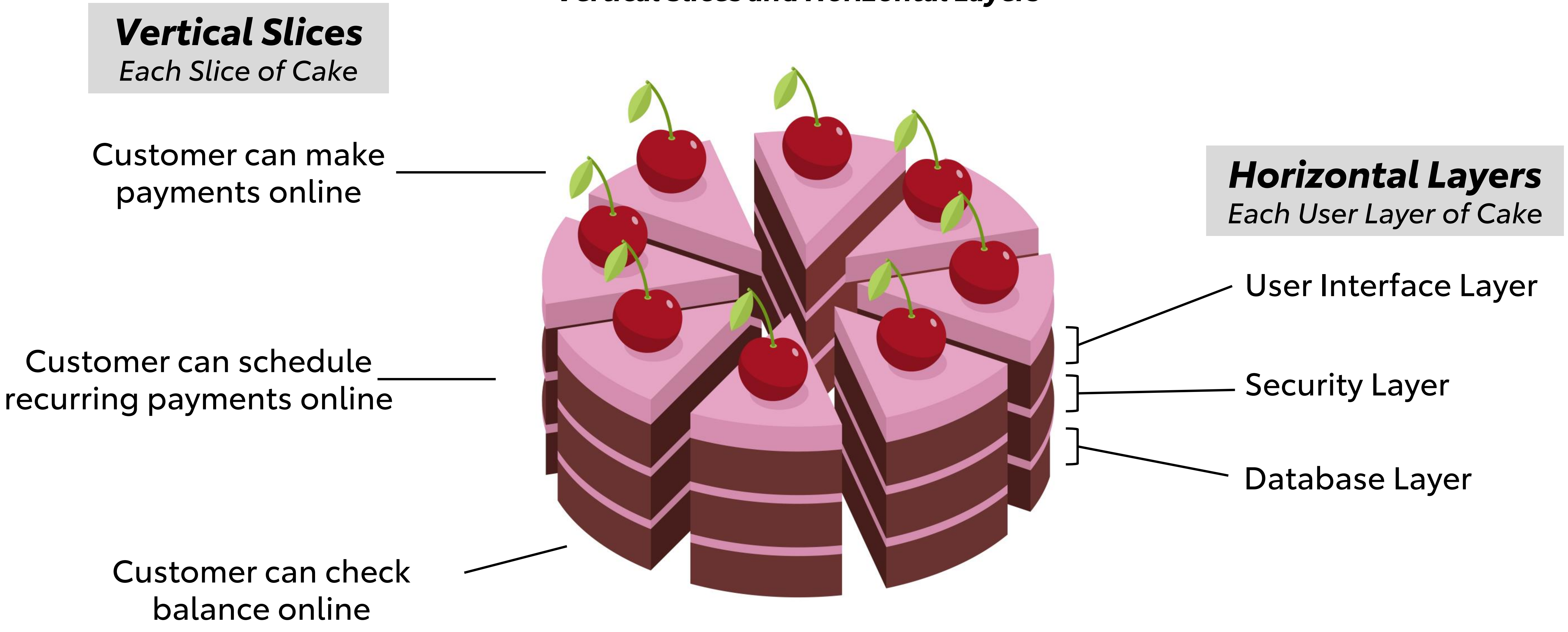
Features not Components



Slicing User Stories

Online Customer Payment

Vertical Slices and Horizontal Layers


Vertical Slices
Each Slice of Cake
Customer can make payments online
Customer can schedule recurring payments online
Customer can check balance online
Horizontal Layers
Each User Layer of Cake
User Interface Layer
Security Layer
Database Layer

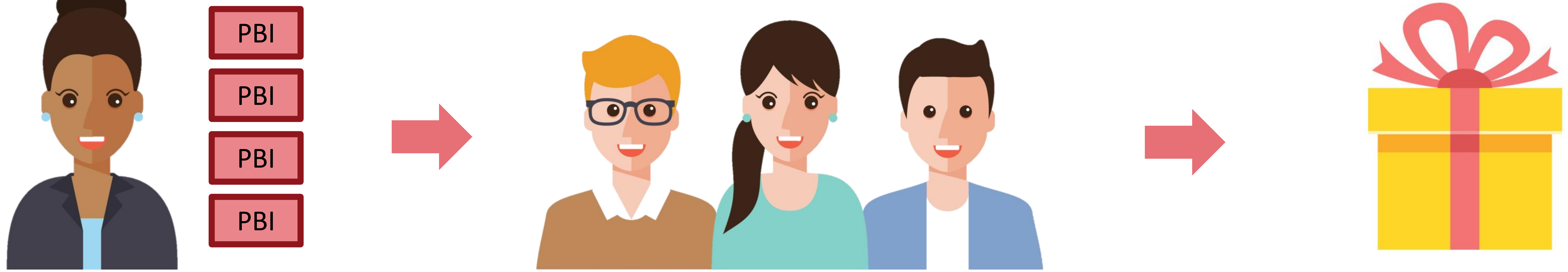
1 Cake Slice = 1 User Story

Scrum Teams Deliver Features

Feature Squad

- Cross Functional (T-Shaped Skillsets)
- Cross Component
- Stable & Long Lived

Customer Centric PBIs



Factory Owner

Squad

Potentially Shippable Product Increment

The team has the necessary knowledge and skills to complete an end-to-end customer centric feature. If not, the team is expected to learn or acquire the needed knowledge and skills

Definition of Ready Backlog

I NDEPENDENT and Immediately Actionable

N EGOTIABLE

V ALUABLE

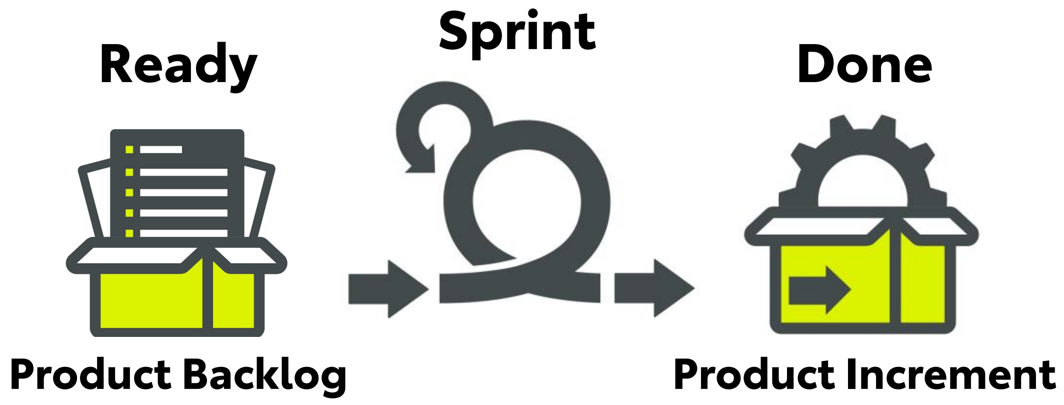
E STIMABLE

S MALL

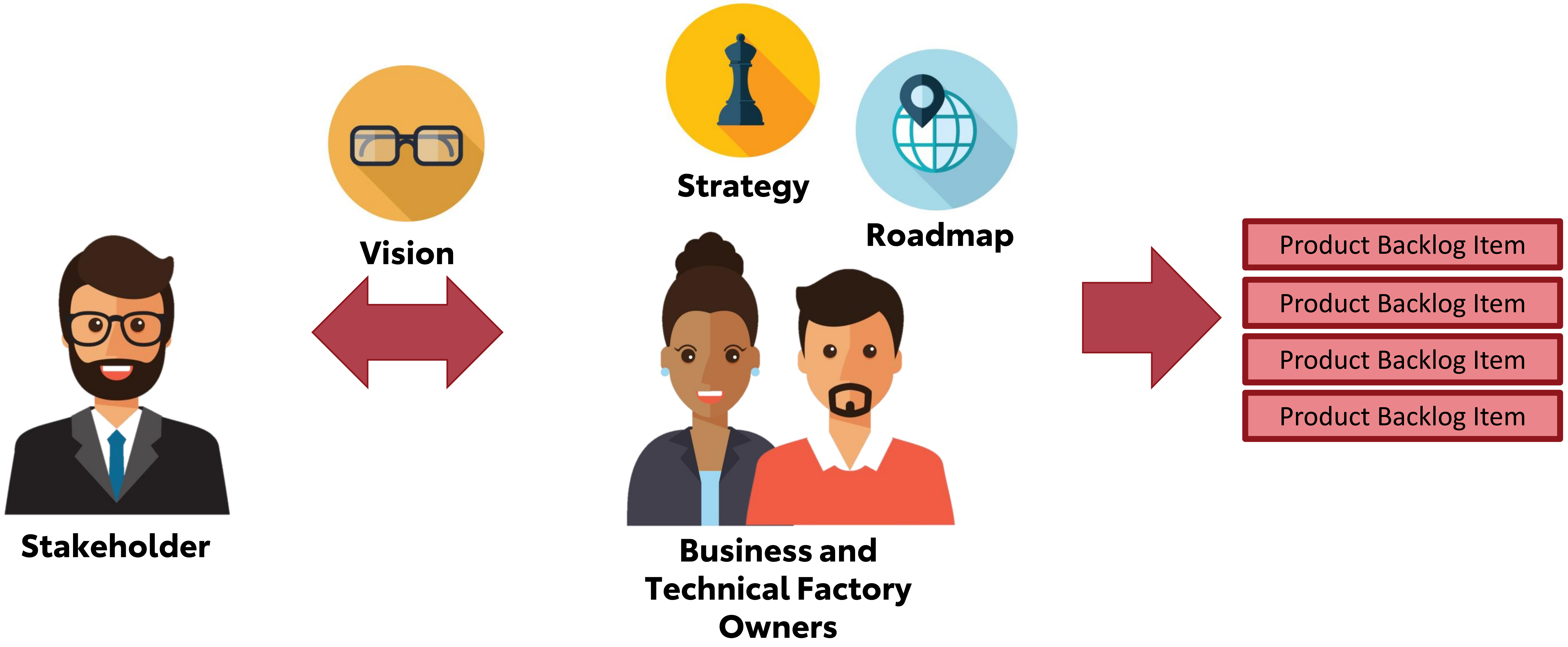
T ESTABLE

Definition of Ready Backlog

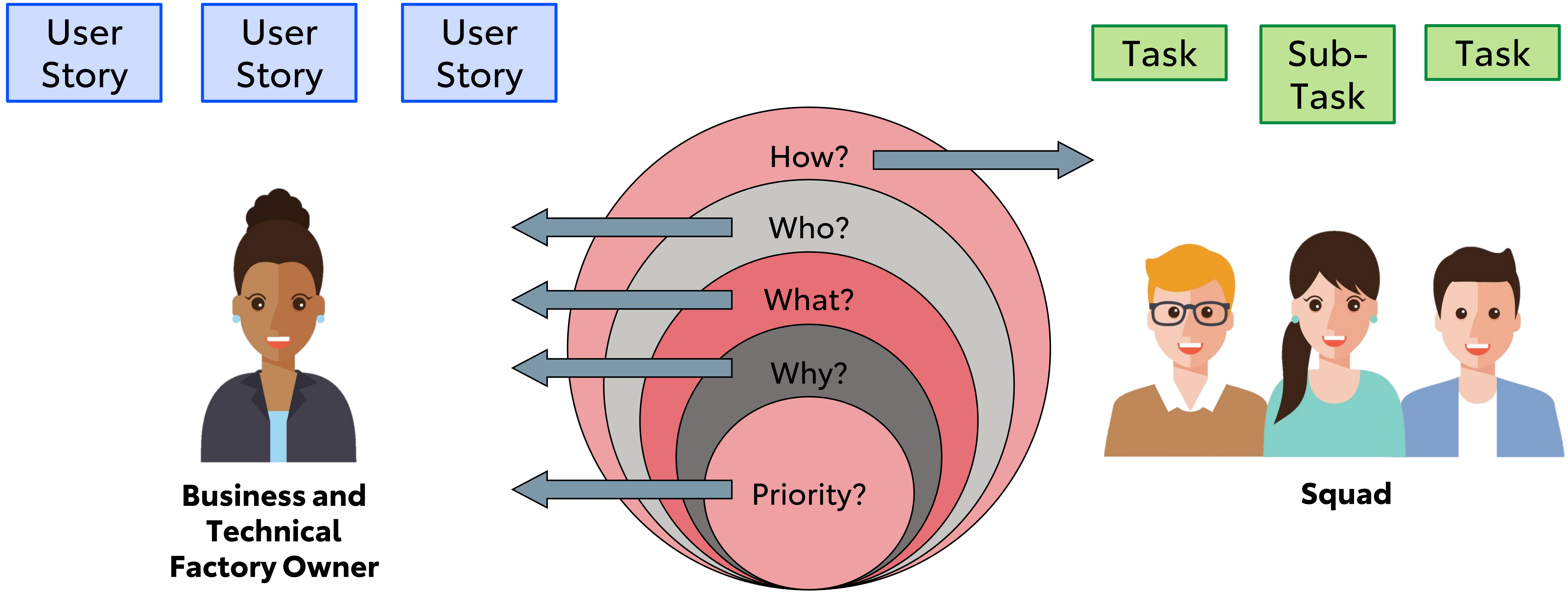
1. The Story Meets INVEST
2. All enabling items are present; Specs, Wireframes, etc.
3. The team has, or will acquire, the skills to complete the work
4. Acceptance criteria are clear and testable
5. Performance criteria, if any, are defined and testable
6. Scrum team understands how to demonstrate the story at the sprint review



Product Backlog Development



Factory Owner Should Write User stories, Not Tasks



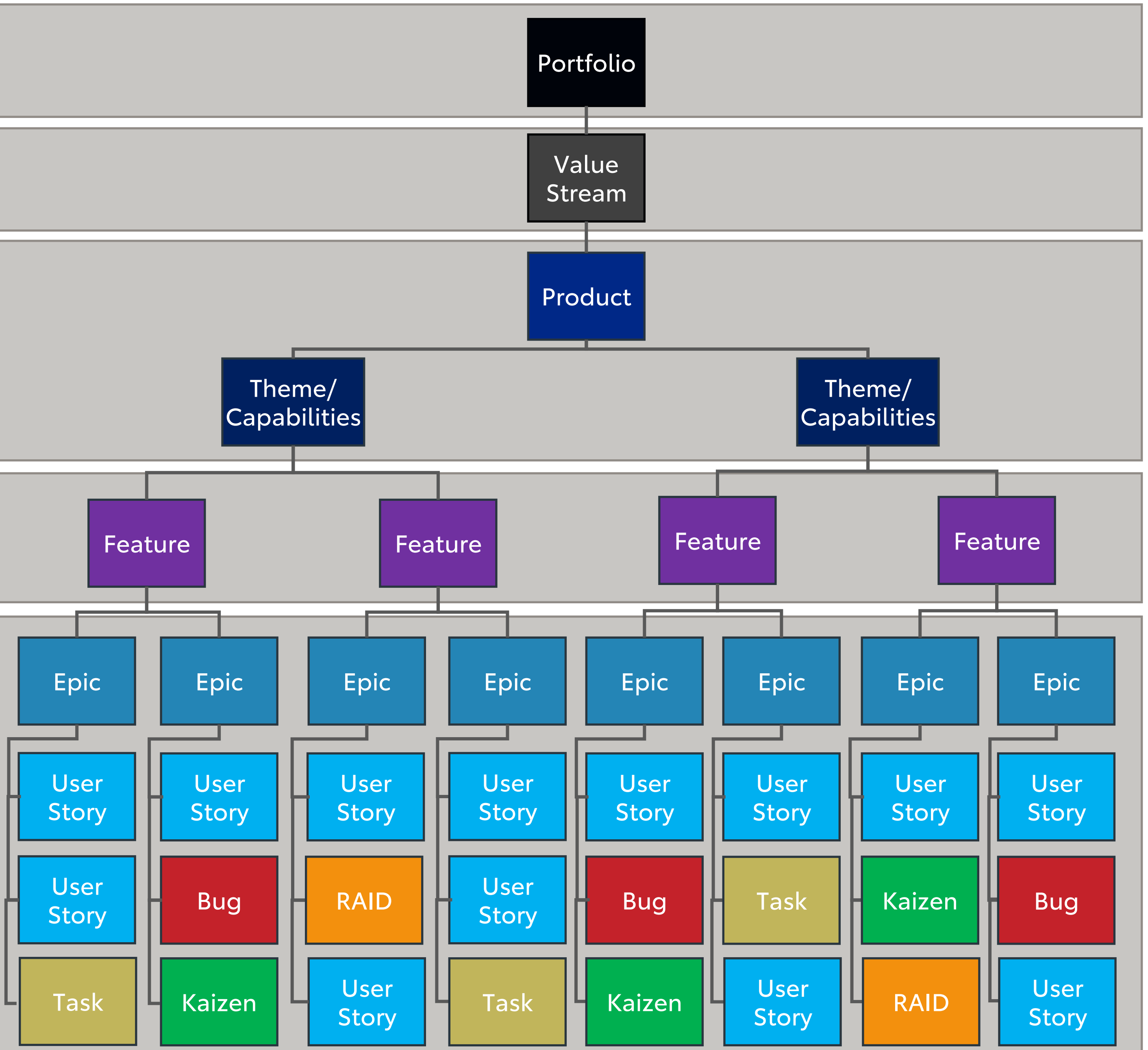
Business and Technical Factory Owner

Squad

ABC Digital Factory Story Mapping

Jira Attributes

Jira Attributes	Definition
Project Category	**Domain:** A group of technology and service segment.
Project	**Factory:** The collection of products & services that deliver value to the customer.
Component	**Assembly Line:** The good or service that the customer consumes. **Theme/Capabilities:** A collection of features for a product.
Labels	**Feature:** A grouping of epics that offer the end customer a larger set of functionality within the product.
item Types	**Epic:** A collection of user stories that cannot fit into a single sprint. **User Story:** A description of a business value that can be achieved in a single sprint. **Bug:** A problem which impairs or prevents the functions of the product **Task:** A task that needs to be completed. **RAID:** A Risk, Assumption, item, or Decision. **Kaizen:** An improvement task identified by the team during the sprint retrospective.



Epic Vs Stories

Epic: As a customer I want a mobile app to mange my account

As a customer I want to be able to make payments online so I can save time

User Story 1

As a customer I want to be able to schedule recurring payments online so I can save time

User Story 2

As a customer I want to be able to go online and check my balance

User Story 3

Acceptance Criteria as Refinement

User Story

<u>As a</u>

<type of user>

<u>I want to</u>

<have some feature or capability>

<u>So that</u>

<the following value is delivered>

User Story

<u>As a</u>

Auto Loan Customer

<u>I want to</u>

Be able to check my balance online

<u>So that</u>

I can save time

Acceptance Criteria

I will know this is done when…

1. *Condition is met*
2. *Condition is met*
3. *Condition is met*

Acceptance Criteria

I will know this is done when…

1. *The customer can log into account online*
2. *The customer can see his/her balance*
3. *The balance updates when payment is received*

Agile Estimation Technique

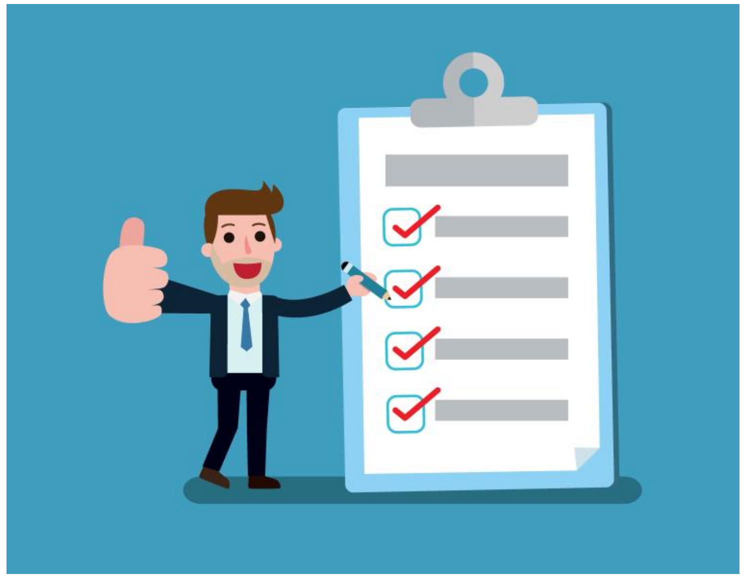
- Known as the 'Estimate – Talk – Estimate' method
- Pick smallest story and give it 5 story points
- Keeping your thoughts to yourself, estimate relative size of other stories by comparing the size of the work including effort, complexity, risk, as well as skills available
- Discuss outliers and vote again until all numbers are within 3 values, then average
- The Maximum Likelihood equation for most distributions is the average
- **Do not try to converge**
- **The best estimate will almost never be a Fibonacci number!**

As an X I want Y so that Z 1	As an X I want Y so that Z 2	As an X I want Y so that Z 3	As an X I want Y so that Z 5	As an X I want Y so that Z 8	As an X I want Y so that Z 13	As an X I want Y so that Z 21	As an X I want Y so that Z 34

What Done Means

- The purpose of each Sprint is to deliver Increments of potentially releasable functionality that adhere to the Scrum Team's current definition of "Done."
- Development Teams deliver an Increment of product functionality every Sprint. This Increment is useable, so a Factory Owner may choose to immediately release it.

DONE MEANS DONE EVERY SPRINT! THAT MEANS SHIPPABLE!



Definition of Done vs Acceptance Criteria

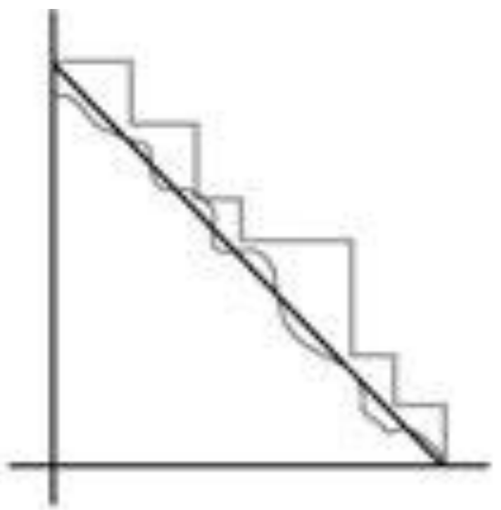
- DoD is a set of fixed criteria we apply to all user stories in a product. Think of it as a quality mark when shipping the completed stories.
- You should simply be able to rubber stamp each story as having met a master set of standards

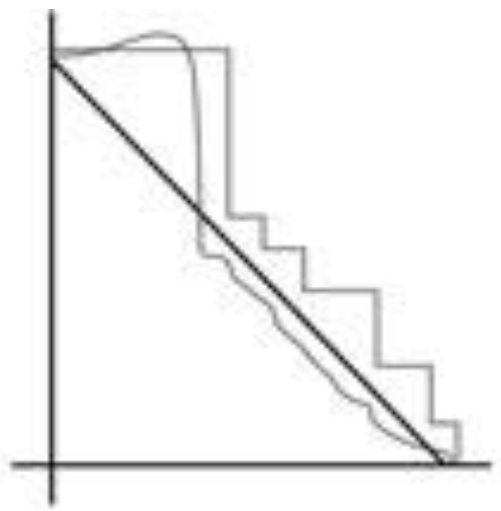
- Acceptance Criteria also known as 'conditions of satisfaction' are applied to an individual user story, and are used to confirm that the desired purpose of the story is met.
- A clear description or list of outcomes that prove the story will be acceptable to the PO that this story is completed to their satisfaction.
- These are typically written by the PO, but the team can help, and often do if it is a Kaizen or Technical Debt story.

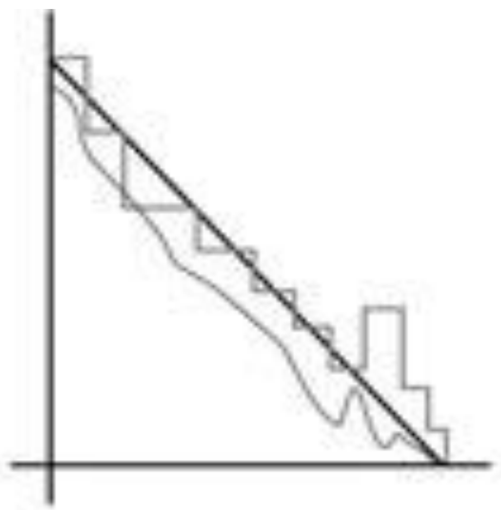
A Good Definition of Done (DOD)

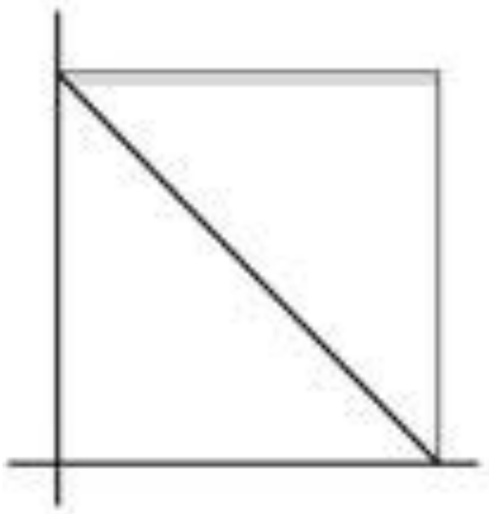
- Feature Complete
- Code Complete
- **No Known Defects**
- Passes all Acceptance Tests
- No New Manual Tests
- All New Tests Automated!
- Approved by the PO
- Production Ready – *i.e. Potentially Shippable*

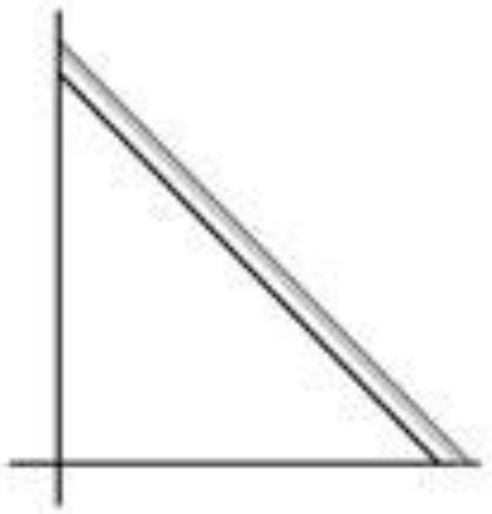
Burndown Chart

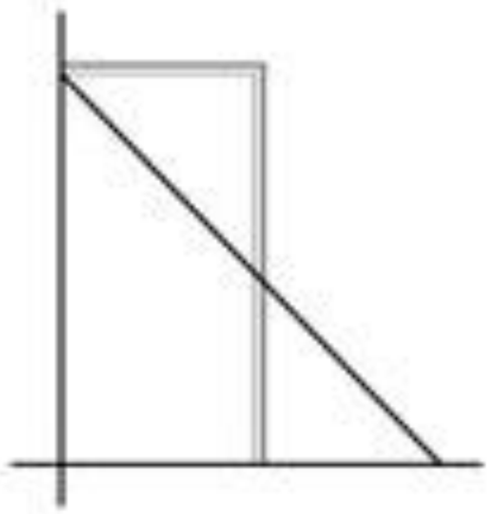

1. Expected


2. More complicated


3. Less complicated


4. Not participating


5. Lying


6. Failing fast

Manufacturing
Software

ABC Digital Factory Model

TOYOTA
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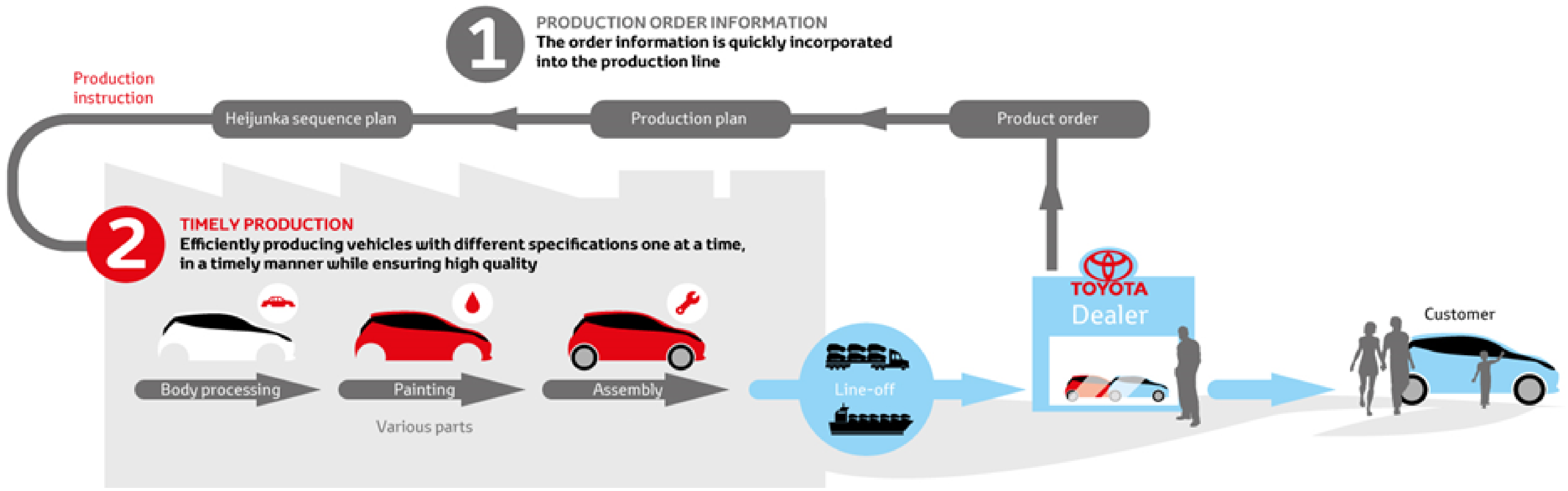
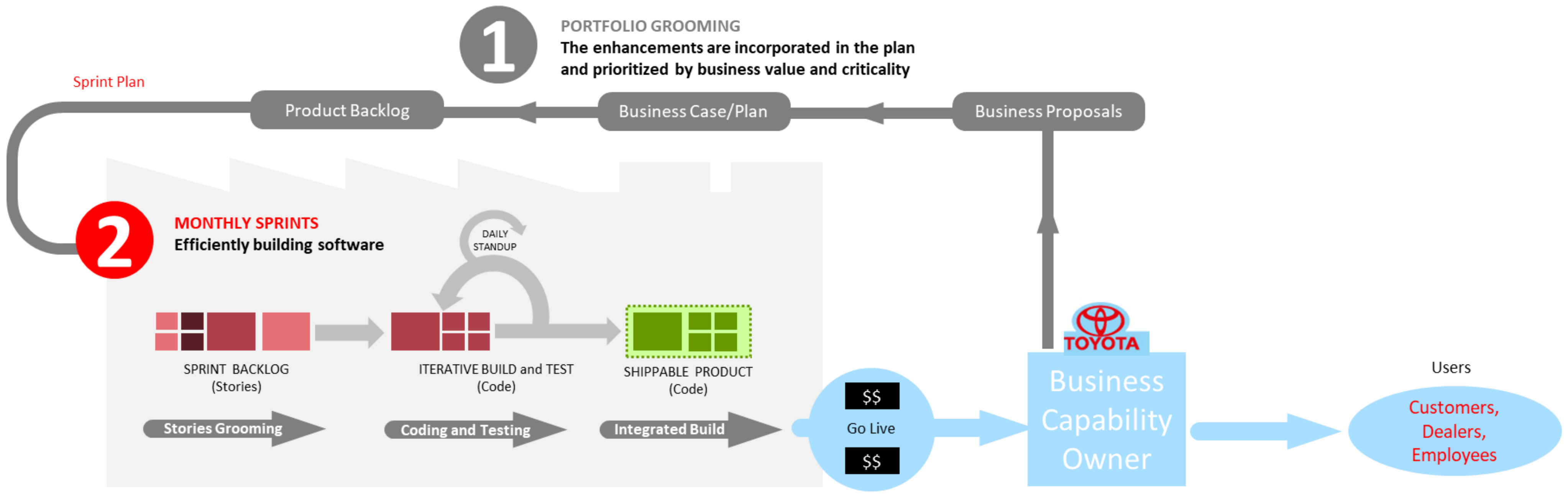
Engineering Agility

Manufacturing software like we manufacture cars…

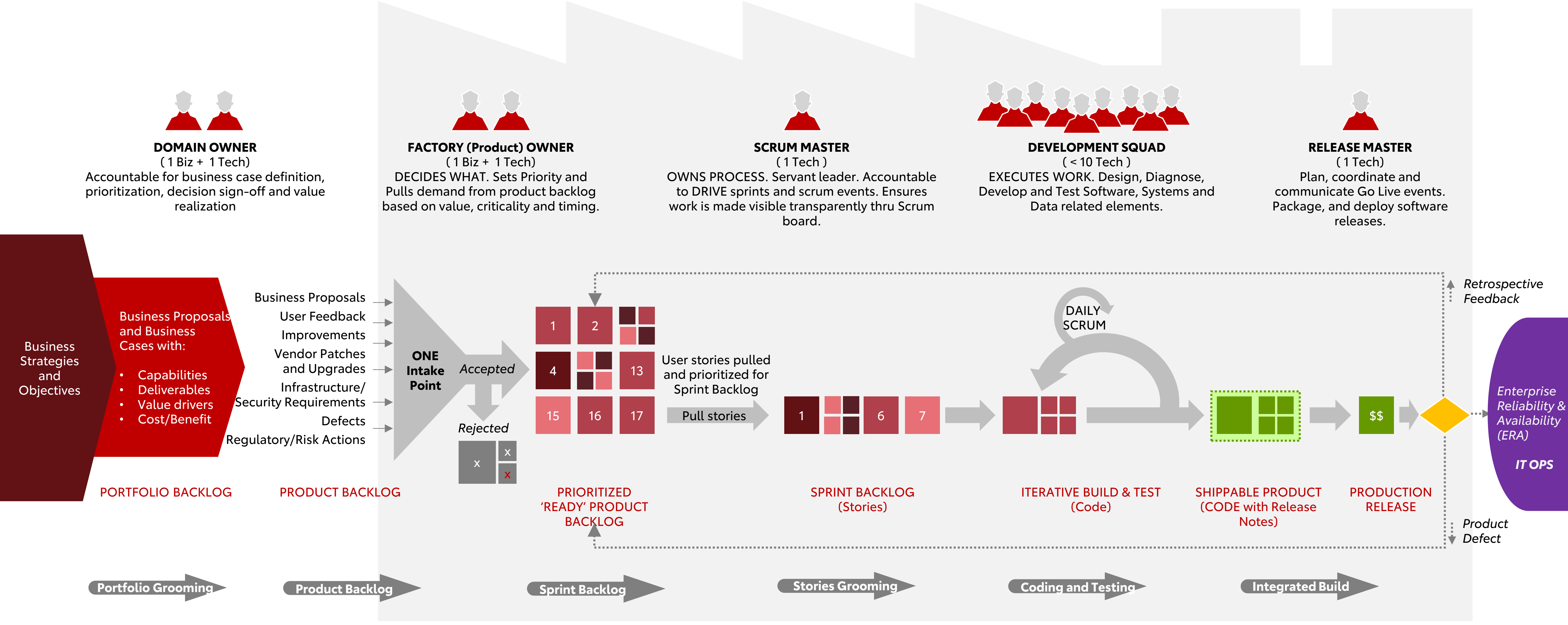
Car Production Process 'Auto Factory'


1
PRODUCTION ORDER INFORMATION
The order information is quickly incorporated into the production line
Production instruction
Heijunka sequence plan
Production plan
Product order
2
TIMELY PRODUCTION
Efficiently producing vehicles with different specifications one at a time, in a timely manner while ensuring high quality
Body processing
Painting
Assembly
Various parts
Line-off
TOYOTA
Dealer
Customer

Software Production Process 'ABC Digital Factory'



Engineering Agility
Agile Business Capability (ABC) Digital Factory



DOMAIN OWNER
(1 Biz + 1 Tech)
Accountable for business case definition, prioritization, decision sign-off and value realization
FACTORY (Product) OWNER
(1 Biz + 1 Tech)
DECIDES WHAT. Sets Priority and Pulls demand from product backlog based on value, criticality and timing.
SCRUM MASTER
(1 Tech)
OWNS PROCESS. Servant leader. Accountable to DRIVE sprints and scrum events. Ensures work is made visible transparently thru Scrum board.
DEVELOPMENT SQUAD
(< 10 Tech)
EXECUTES WORK. Design, Diagnose, Develop and Test Software, Systems and Data related elements.
RELEASE MASTER
(1 Tech)
Plan, coordinate and communicate Go Live events. Package, and deploy software releases.
Business Strategies and Objectives
Business Proposals and Business Cases with:
Capabilities
Deliverables
Value drivers
Cost/Benefit
Business Proposals
User Feedback
Improvements
Vendor Patches and Upgrades
Infrastructure/ Security Requirements
Defects
Regulatory/Risk Actions
ONE Intake Point
Accepted
Rejected
x
x
x
1
2
4
13
15
16
17
User stories pulled and prioritized for Sprint Backlog
Pull stories
1
6
7
DAILY SCRUM
$$
Retrospective Feedback
Product Defect
Enterprise Reliability & Availability (ERA)
IT OPS
PORTFOLIO BACKLOG
PRODUCT BACKLOG
PRIORITIZED 'READY' PRODUCT BACKLOG
SPRINT BACKLOG (Stories)
ITERATIVE BUILD & TEST (Code)
SHIPPABLE PRODUCT (CODE with Release Notes)
PRODUCTION RELEASE
Portfolio Grooming
Product Backlog
Sprint Backlog
Stories Grooming
Coding and Testing
Integrated Build

Agile, Lean, Continuous, Software Manufacturing with Monthly software shipments/releases…

ABC Digital Factory Team

TOYOTA FINANCIAL SERVICES

Illustrative

Fixed Capacity, Fixed Schedule, Continuous Scope Prioritization and Pull…

9 x Business Domain

EXECUTIVE SPONSOR

DOMAIN OWNER
(1 Biz + 1 Tech)
Accountable for business case definition, prioritization, decision sign-off and value realization
2 PER DOMAIN

ENABLERS/STAKEHOLDERS

- Legal/Compliance
- Risk
- FP&A
- VMO
- InfoSec
- Infrastructure / DevOps
- Enterprise Architects
- Platform Enablement
- Enterprise Data Services

1 PER AREA PER DOMAIN (max)

50+ x Digital Factories

FACTORY (Product) OWNER
(1 Biz + 1 Tech)
DECIDES WHAT. Sets Priority and Pulls demand from product backlog based on value, criticality and timing.
2 PER FACTORY

RELEASE MASTER
(1 Tech)
Plan, coordinate and communicate Go Live events. Package, and deploy software releases.
1 PER FACTORY

SCRUM MASTER
(1 Tech)
OWNS PROCESS. Servant leader. Accountable to DRIVE sprints and scrum events. Ensures work is made visible transparently thru Scrum board
1 PER ASSEMBLY LINE

DEVELOPMENT SQUAD
(< 10 Tech)
EXECUTES WORK. Design, Diagnose, Develop and Test Software, Systems and Data related elements.

Roles:

- Business Systems Analyst / QA
- Developer
- Product Designer
- Quality Automation Engineer

< 10 SQUAD MEMBERS PER ASSEMBLY LINE

IT Production Operations

System Reliability Engineers

ENTERPRISE RELIABILITY and AVAILABILITY
PRODUCTION SUPPORT. Keeping IT on 24/7.

< 2 MEMBERS PER Domain

Q & A