Do Agile, Be Agile

Workshop

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WHOLISTIC AGILE TRANSFORMATIONS

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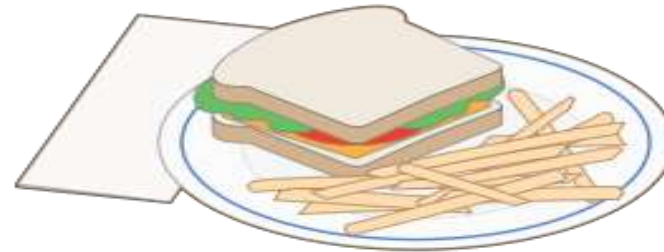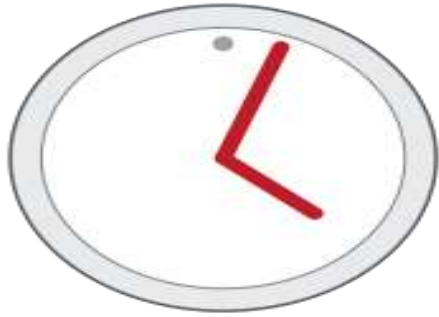
Getting to know each other

> Your Name

> Organization

> Your Current Role

> Experience with Scrum

> Expectation from the Workshop

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Logistics

EMERGENCY
EXIT

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Workshop Approach

Lecture

Exercises

Questions and answers
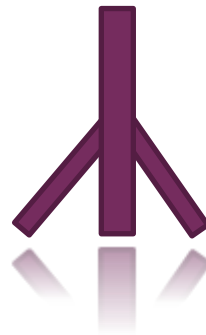
Discussions

Participation by all

Rules of Engagement

> Participate

> One person speaks at any given time

> Keep discussions and questions to the point

> Turn off your cell phones and other communication devices

> Be prompt returning from breaks

> Provide feedback as to where course can be improved – it will be useful for sub-sequent sessions

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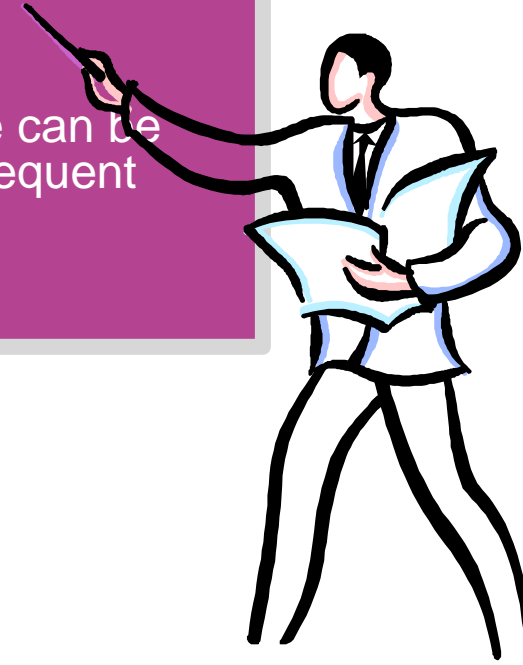
Reference Material Used

1. Agile Retrospectives: Make Good Teams Great – Esther Derby, Diana Larsen, Ken Schwaber

2. Agile Estimating and Planning – Mike Cohn

3. User Stories Applied: For Agile Software Development: Mike Cohn

4. Agile Project Management with Scrum: Ken Schwaber

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Traditional Approach

Requirements Gathered

Architecture Designed

Coding Completed

Testing

Sequential – series of steps

Product Completed after months, if not years
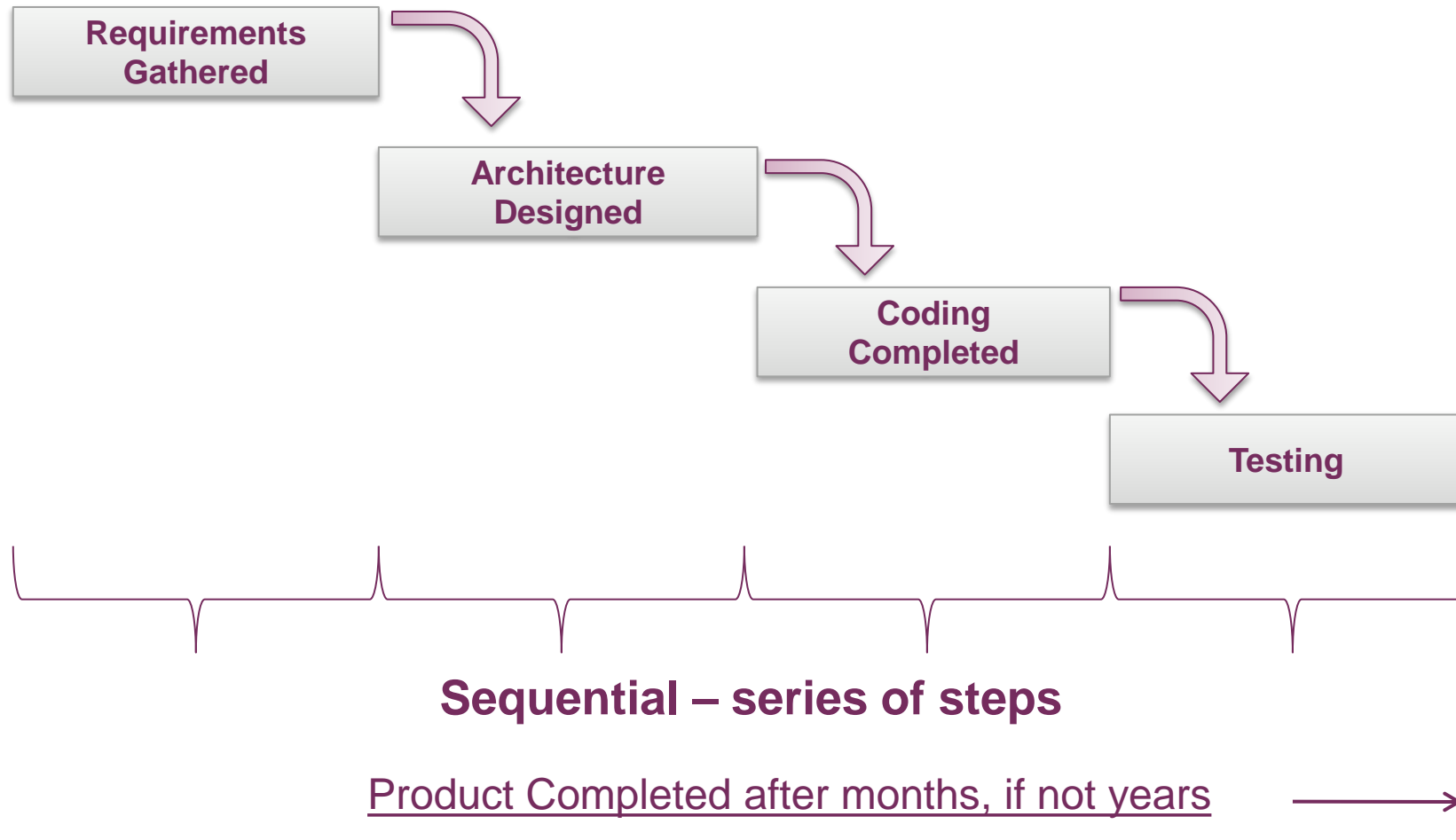
The Shunt Effect
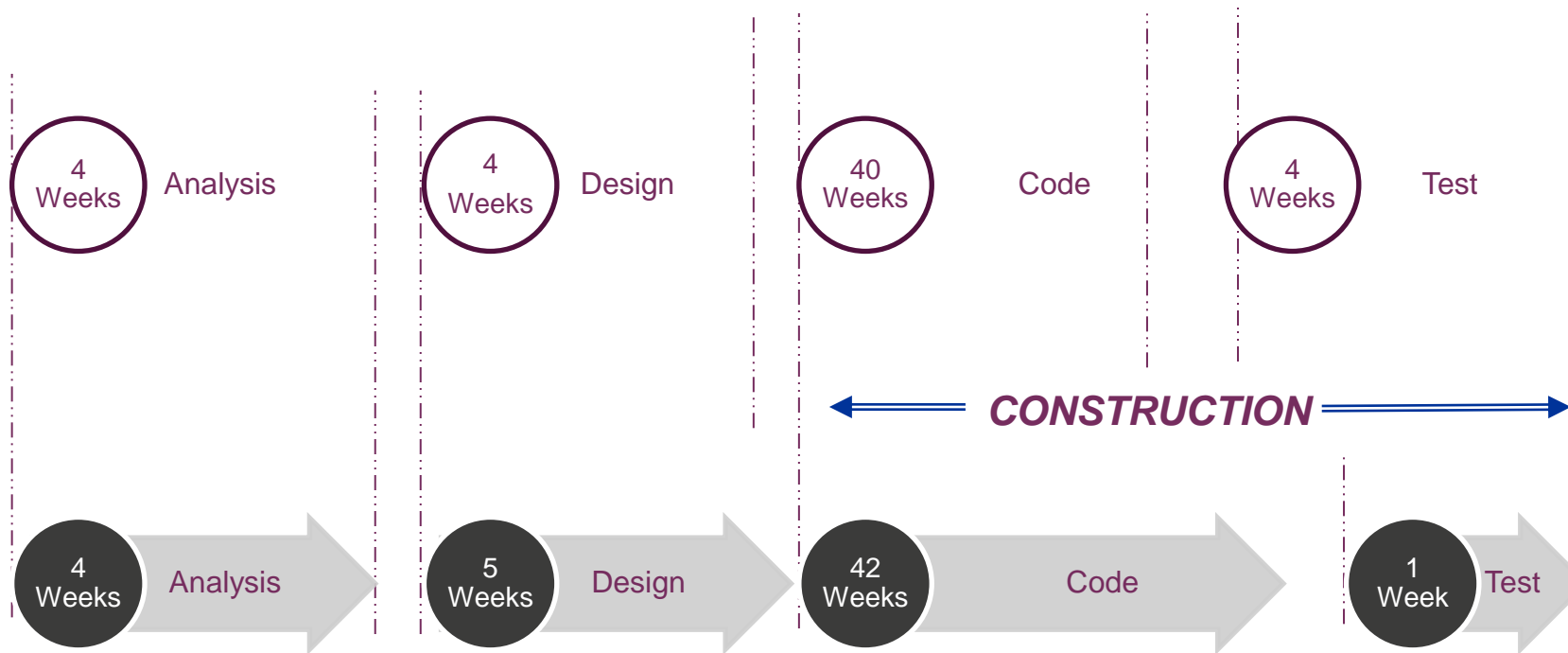
As each phase of the project is delayed, the remaining phases get moved back but the deadline remains the same, causing compression in the last stages. Delays are often caused by individuals who are reticent to sign-off the preceding stage.

Challenges in Software Development

Requirements change

Customers never knows exactly what they need

Requirements are incomplete

People rarely understand requirements from the beginning

People make mistakes but it's hard to fix them on the latter stages of development

For most middle-to-large systems it is hard (impossible) to design everything in advance

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When do requirements emerge?

New ideas for features emerge

When we see working software, we also see improvements

Our business is constantly changing, so our needs change

We must respond to our competition

We do not understand requirements

What we build doesn't always work as well as we expect

What customer really needs?

Design documents?

Plans?

UML diagrams?

New technology implementations?

Customer needs working software that improves their business!
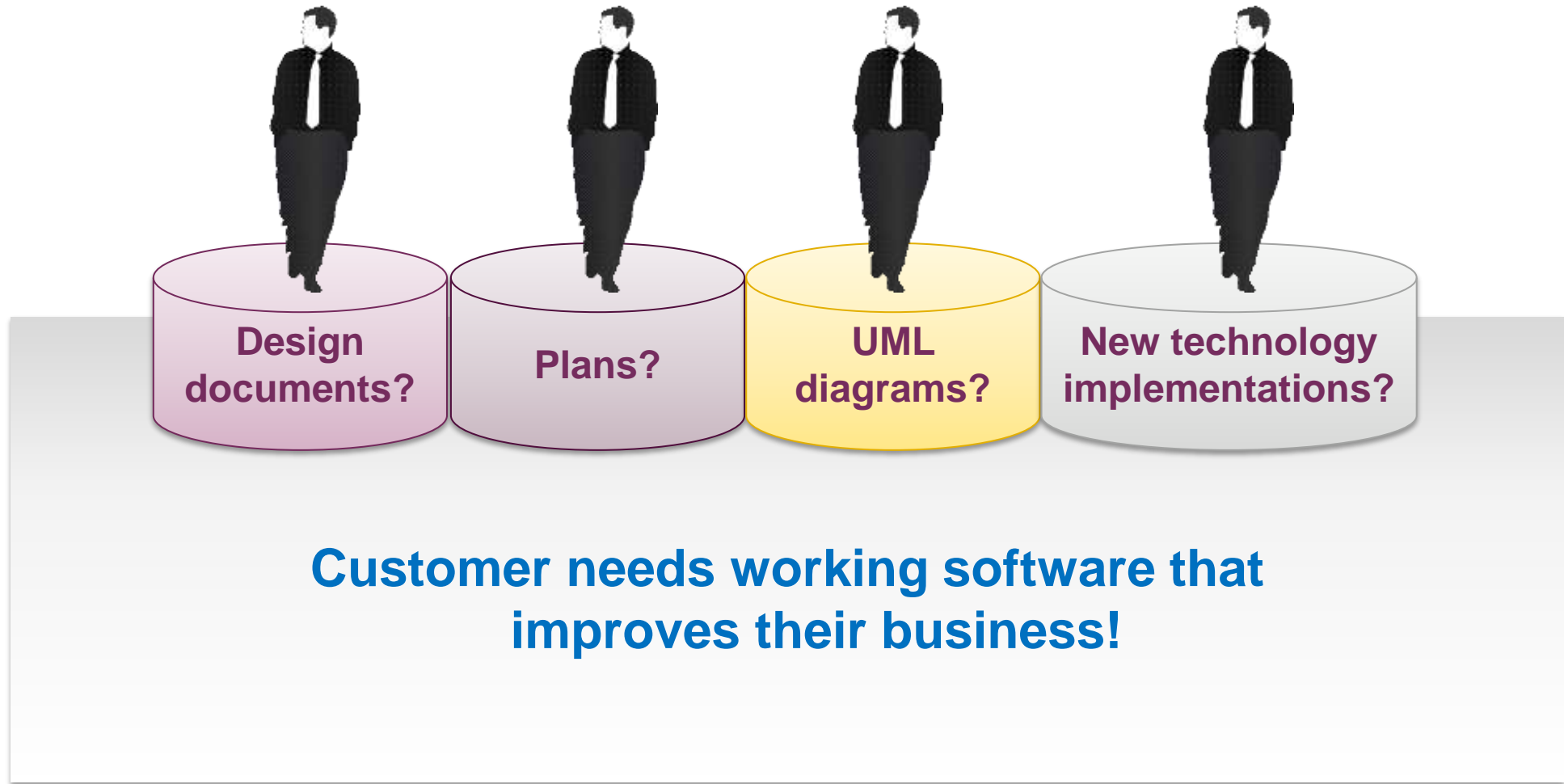
Ensuring what gets built delivers value
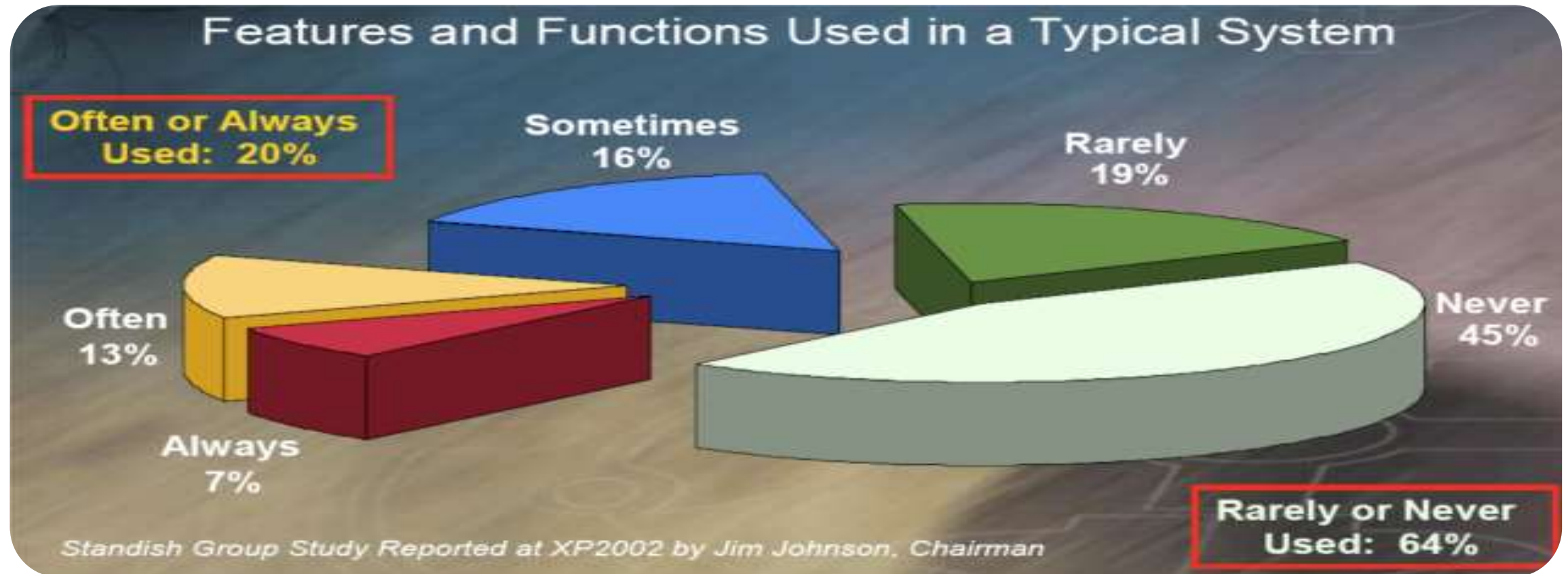
So …
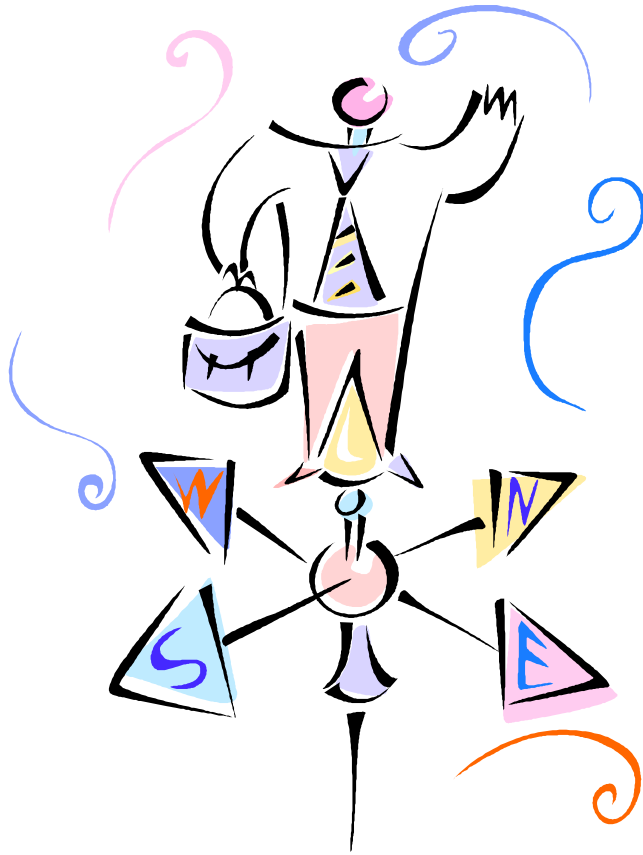
It's All About…

Change!

Therefore …

How are we adapting?
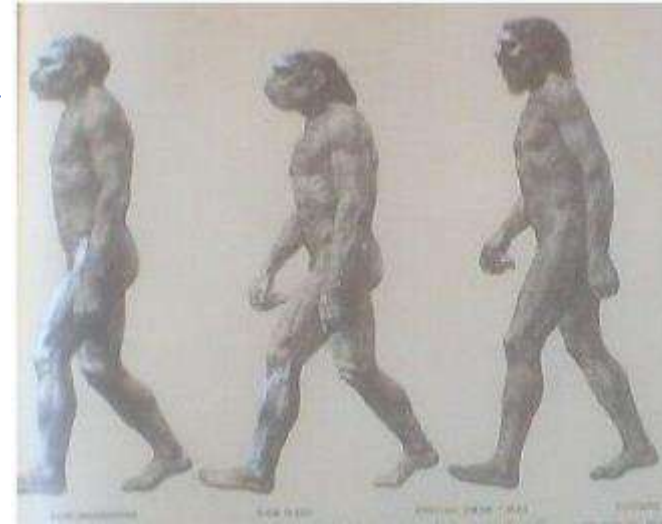
" It is not the strongest of the species that
survives, nor the most intelligent that survives.
It is the one that is most adaptable to change. "

- Charles Darwin

Introduction to Agile-Scrum

Agile Manifesto

> ❯ _**INDIVIDUALS AND INTERACTIONS**_ over _**PROCESSES AND TOOLS**_ (emphasis on the relationship of software developers than institutionalized processes and tools)

> ❯ _**WORKING SOFTWARE**_ over _**COMPREHENSIVE DOCUMENTATION**_ (continuously provide tested working software)

> ❯ _**CUSTOMER COLLABORATION**_ over _**CONTRACT NEGOTIATIONS**_ (relationship is given high preference than strict contracts. Negotiation process focuses on maintaining relationship)

> ❯ _**RESPONDING TO CHANGE**_ over _**FOLLOWING A PLAN**_ (team authorized to adjust customer needs during iterations)

**THINGS ON THE RIGHT ARE IMPORTANT.**

**THINGS ON THE LEFT ARE MORE IMPORTANT!!**

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Agile Principles

The 12 Principles of Agile

1 Our Highest priority is to satisfy the customer through early and continuous delivery of valuable software
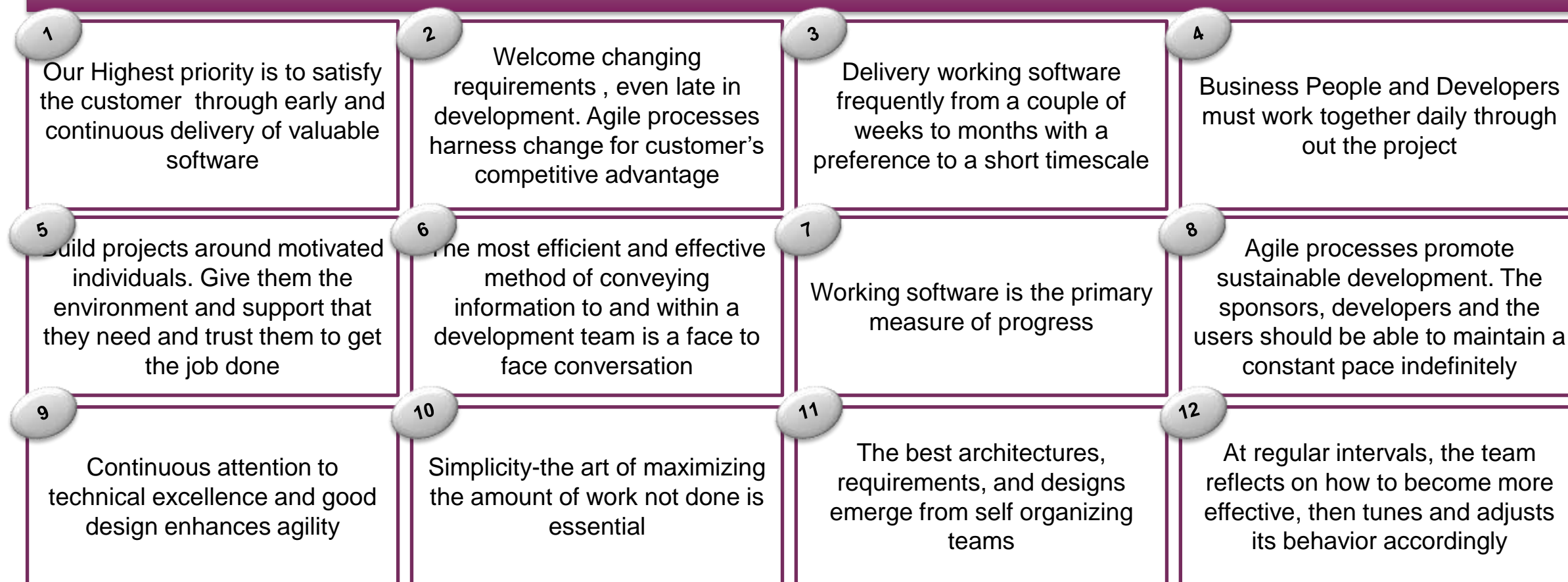
2 Welcome changing requirements , even late in development. Agile processes harness change for customer's competitive advantage

3 Delivery working software frequently from a couple of weeks to months with a preference to a short timescale

4 Business People and Developers must work together daily through out the project

5 Build projects around motivated individuals. Give them the environment and support that they need and trust them to get the job done

6 The most efficient and effective method of conveying information to and within a development team is a face to face conversation

7 Working software is the primary measure of progress

8 Agile processes promote sustainable development. The sponsors, developers and the users should be able to maintain a constant pace indefinitely

9 Continuous attention to technical excellence and good design enhances agility

10 Simplicity-the art of maximizing the amount of work not done is essential

11 The best architectures, requirements, and designs emerge from self organizing teams

12 At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly

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What Makes Agile Work?

- Better collaboration with business
- More adapted to change/learning
- Communication
- Motivation
- Shared ownership
- Time box
- Inspect & Adapt
- Focus on the real thing
- Collocation
- Information radiators
- Short feedback loops
- Team autonomy
- Accepted Responsibility

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When is Agile best?

› Creative Projects

› New Technology Introductions

› New Process Designs

› Projects driven by critical business timing.
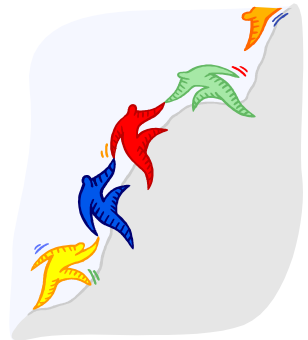
› Project with poorly defined needs

Learning Agile – Scrum Basics – At a High Level

SCRUM – At a Glance

Input from End-Users, Customers, Team and Other Stakeholders

Product Owner

Development Team

Product Backlog Refinement
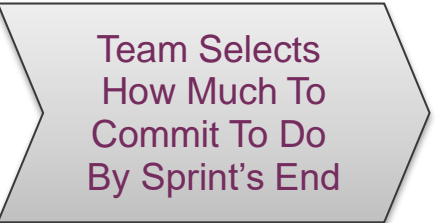
ScrumMaster

Daily Scrum Meeting & Artifacts Update

Sprint 1-4 Weeks

Review

Product Backlog

Team Selects How Much To Commit To Do By Sprint's End

Sprint Planning Meeting

TASKS
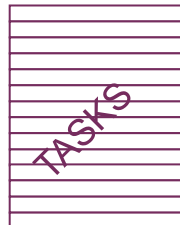
Sprint Backlog
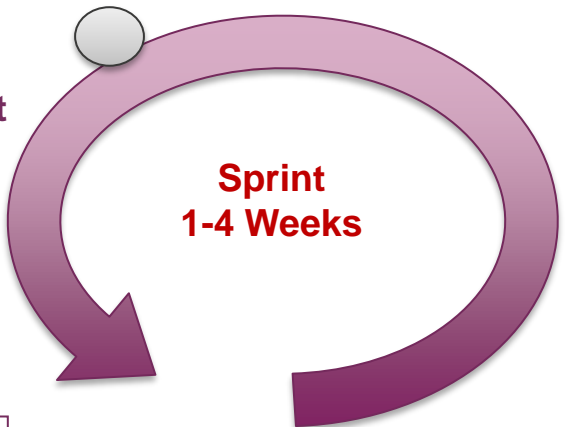
No Changes in Duration or Goal

Potentially Shippable Product Increment

Retrospective

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SCRUM is Timeboxed

1 day Sprint planning meeting
4hr/4hr

1 day Sprint review and retrospective
4hr/4hr

Development Work

30 day Sprint at sustainable pace

Scrum Roles

Scrum Master

Product Owner

Development Team
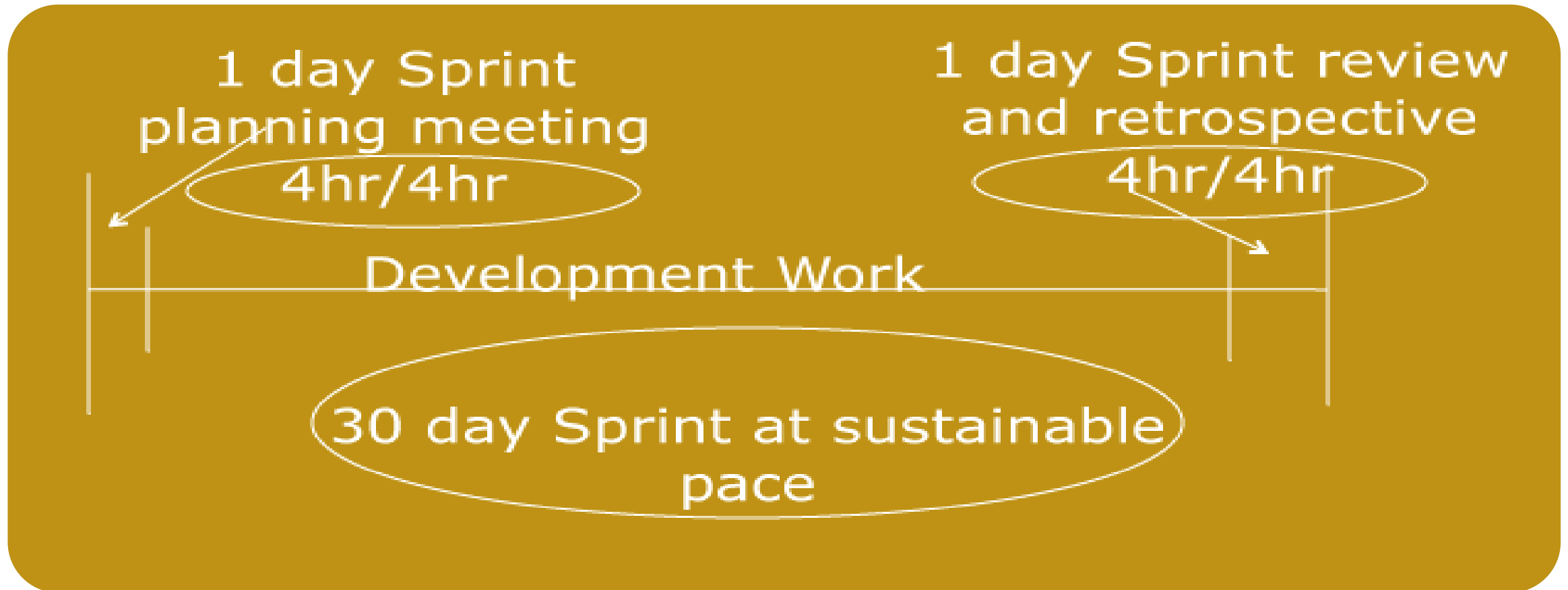
SCRUM Roles
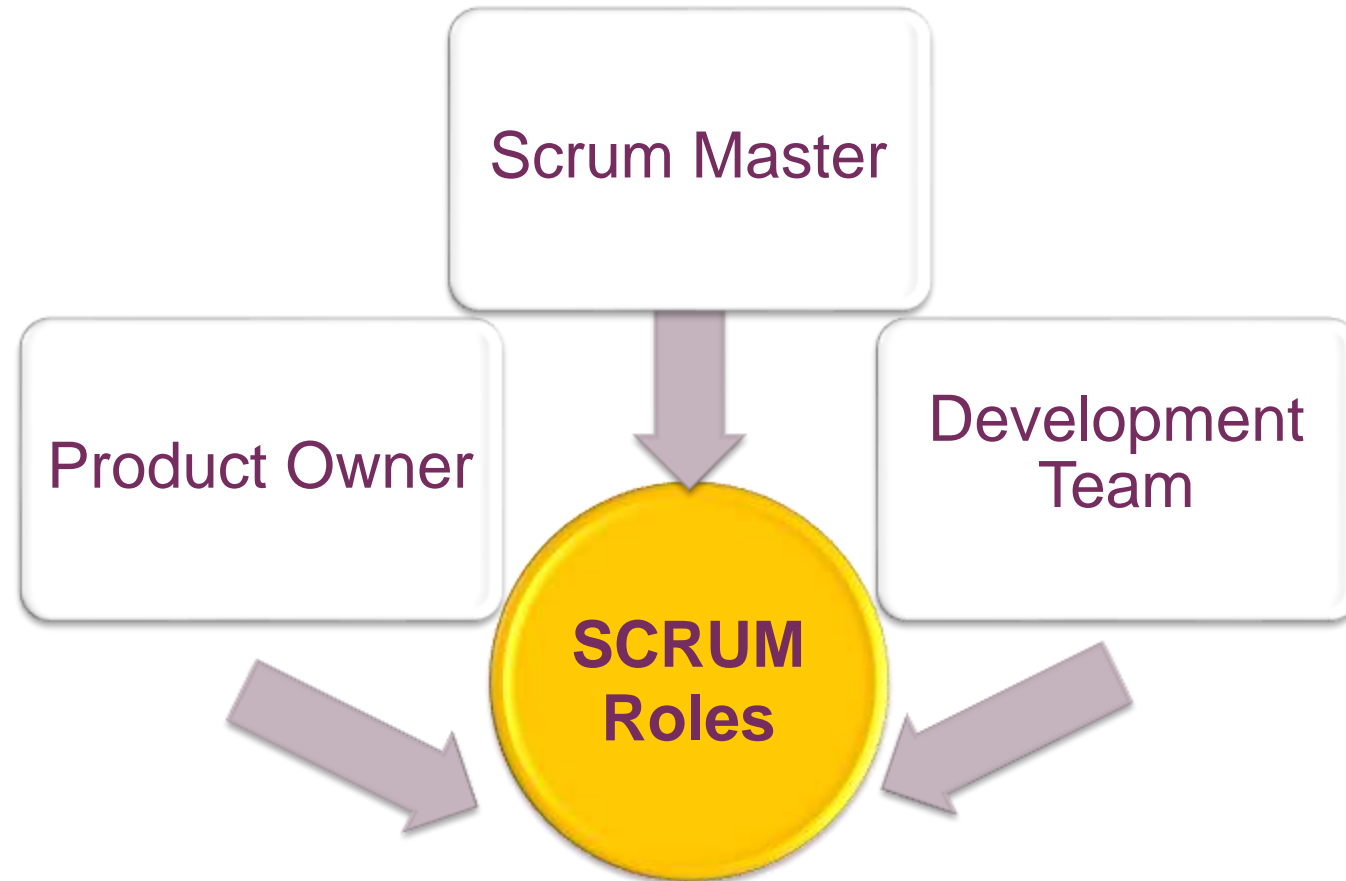
Details explained for each role in next few slides

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Scrum Master

Most projects deliver software every 6 to 18 months. Scrum reduces this to 2-4 weeks

This puts stress on the team and organizations, exposing underlying problems and limitations

The Scrum Master's job is to prioritize these problems and help the organization overcome them

1 person

Removes the Team's constraints and impediments ("blocks")

Protects the Team from disruption or disturbance

Coaches everyone to be successful with Scrum

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Scrum Master Responsibilities

Removing the barriers between the team and the customer

Teaching the customer how to maximize ROI and meet their objectives.

Improving productivity of the development team in any way possible

It Leader vs. Facilitator concept, Ideally

1 person per Scrum Team

Responsible, Humble,

Collaborative,

Committed,

Influential,

Knowledgeable

Ideally 100% dedicated to this role – but in some cases it could be a team-member playing the role and also doing development, testing

Avoid having a manager as SM

– Team won't self-organize or take true ownership

Development Team

> Every one necessary to go from product backlog to potentially shippable product increment, including
>   - Programmers, Testers Analysts, DBA's, Tech Writers, UI Designers
>   - Others as required

> 3 to 9

> Cross-functional (must include design, coding, testing, and any other skills required for potentially shippable software at end of Sprint)

> Self-organizing and self-managing

Development Team Attributes

- Self organizing
- Cross functional with no roles
- Three to Nine
- Responsible for committing to work
- Authority to do whatever is needed to meet commitment
- Open, collocated space
- Resolution of conflicts, Rules of Etiquette
- Motivated to deliver excellent software
- Motivated to improve their skills and abilities
- Willing to help each other, and to work outside their "comfort zone"

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Team Space and Co-Location

> A key element of Agile project is the need for real time dynamic communication with in the team and across the team (with external stakeholders)

> One way of accomplishing this is to use co-located teams and usage of low tech communication tools that are easy to understand and easy for the team to keep the information upto-date

> Physical space and co-location
> - The most effective layout for the physical team location is co-located desks and shared access to plans, status, next steps, and other project planning and management tools.
> - Team members are not separated from each other by offices or cubicles, but rather share desk and team space in an open concept environment.

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Definition of "Done"

Definition of Done (DoD)

Definition of Done is a simple list of activities:

Writing code,

Coding comments,

Unit testing,

Integration testing,

Release notes,

Design documents,

etc.

DoD is the primary reporting mechanism for team members

DoD would add verifiable/demonstrable value to the product

Focusing on value-added steps allows the team to focus on what must be completed in order to build software while eliminating wasteful activities that only complicate sw efforts."

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Definition of "Done" for the project across Sprints
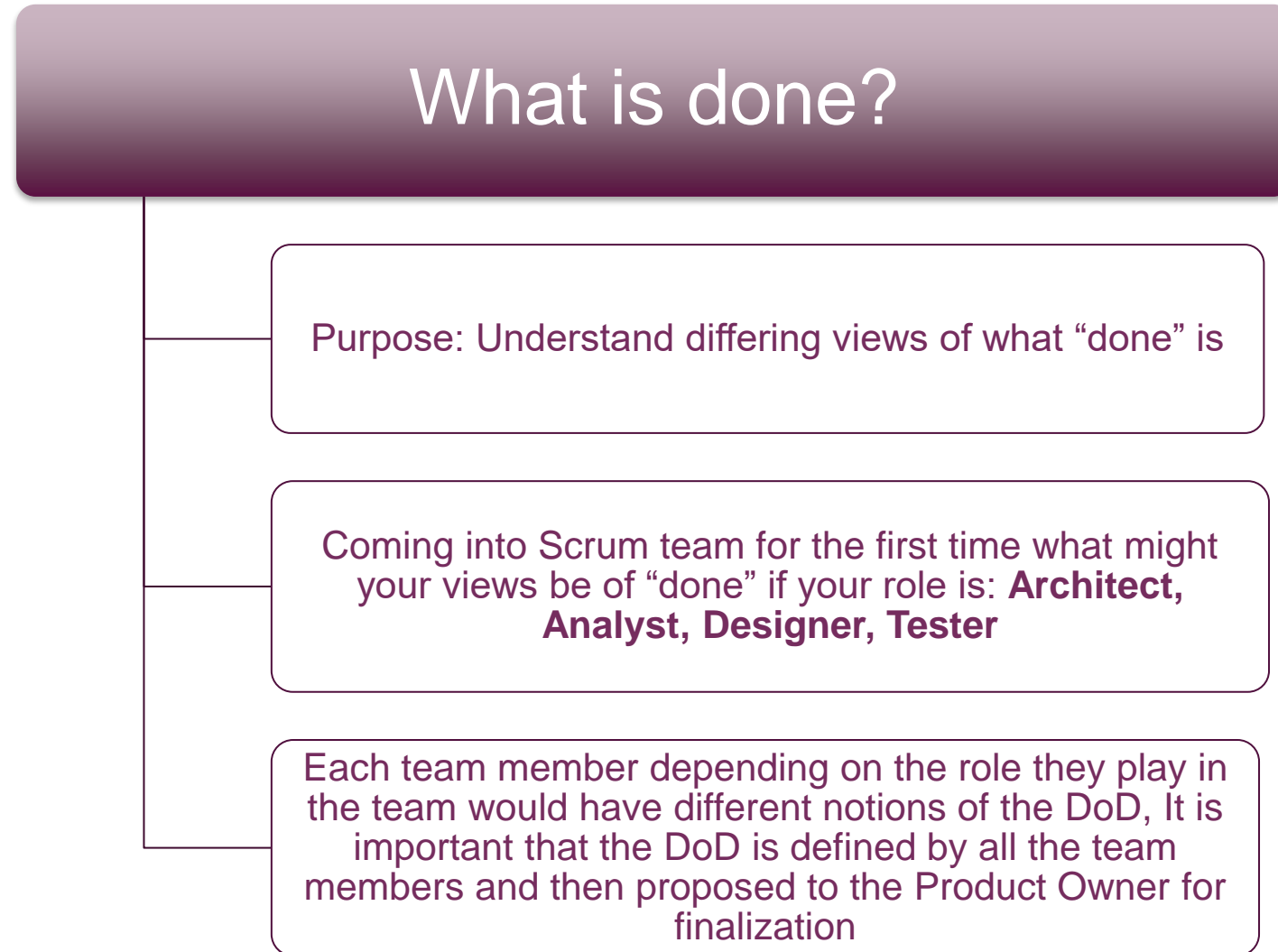
Definition of "Done"
For functionality to be "Done" at the end of a sprint, it must have completed the following steps
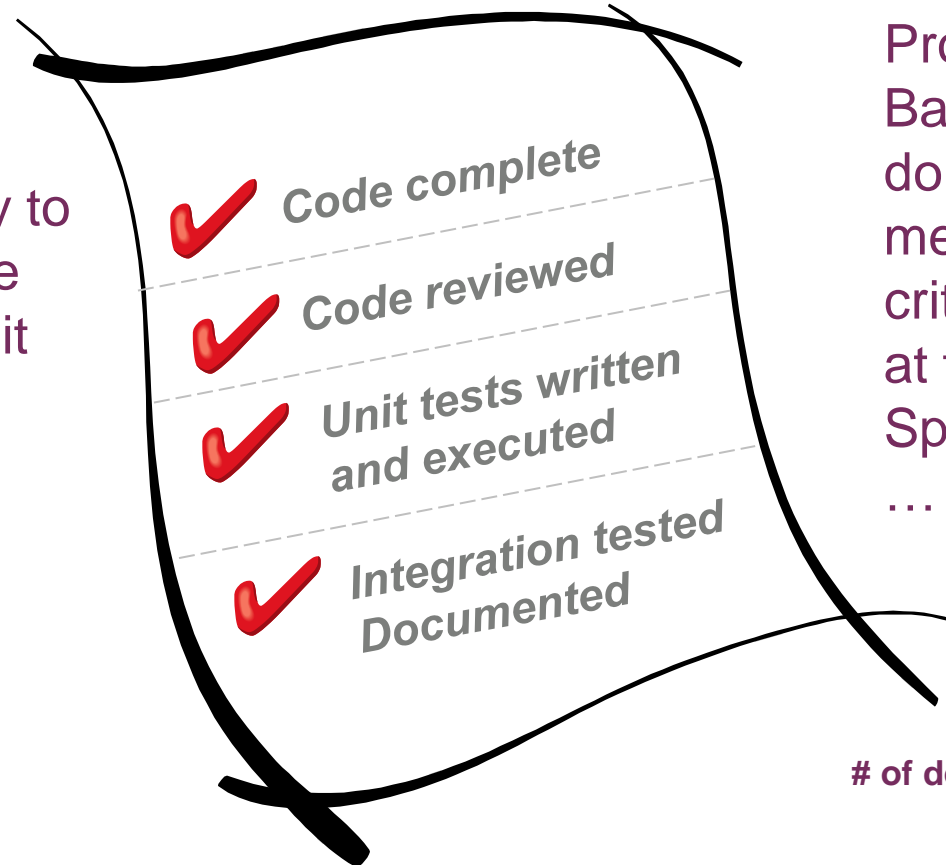
For this team, Product Backlog Items that don't meet <u>all</u> these criteria at the end of the Sprint … isn't Done!

✔ Code complete

✔ Code reviewed

✔ Unit tests written and executed

✔ Integration tested Documented

# of defects permitted?
No major defects

What is done?

What is done?

Purpose: Understand differing views of what "done" is

Coming into Scrum team for the first time what might your views be of "done" if your role is: **Architect, Analyst, Designer, Tester**

Each team member depending on the role they play in the team would have different notions of the DoD, It is important that the DoD is defined by all the team members and then proposed to the Product Owner for finalization

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Definition of Done (DoD)

> **DoD is not static**
> - The DoD changes over time.
> - Organizational support and the team's ability to remove impediments may enable the inclusion of additional activities into the DoD for features or sprints.
> - Data from retrospectives are added to DoD as the team learns and understands better
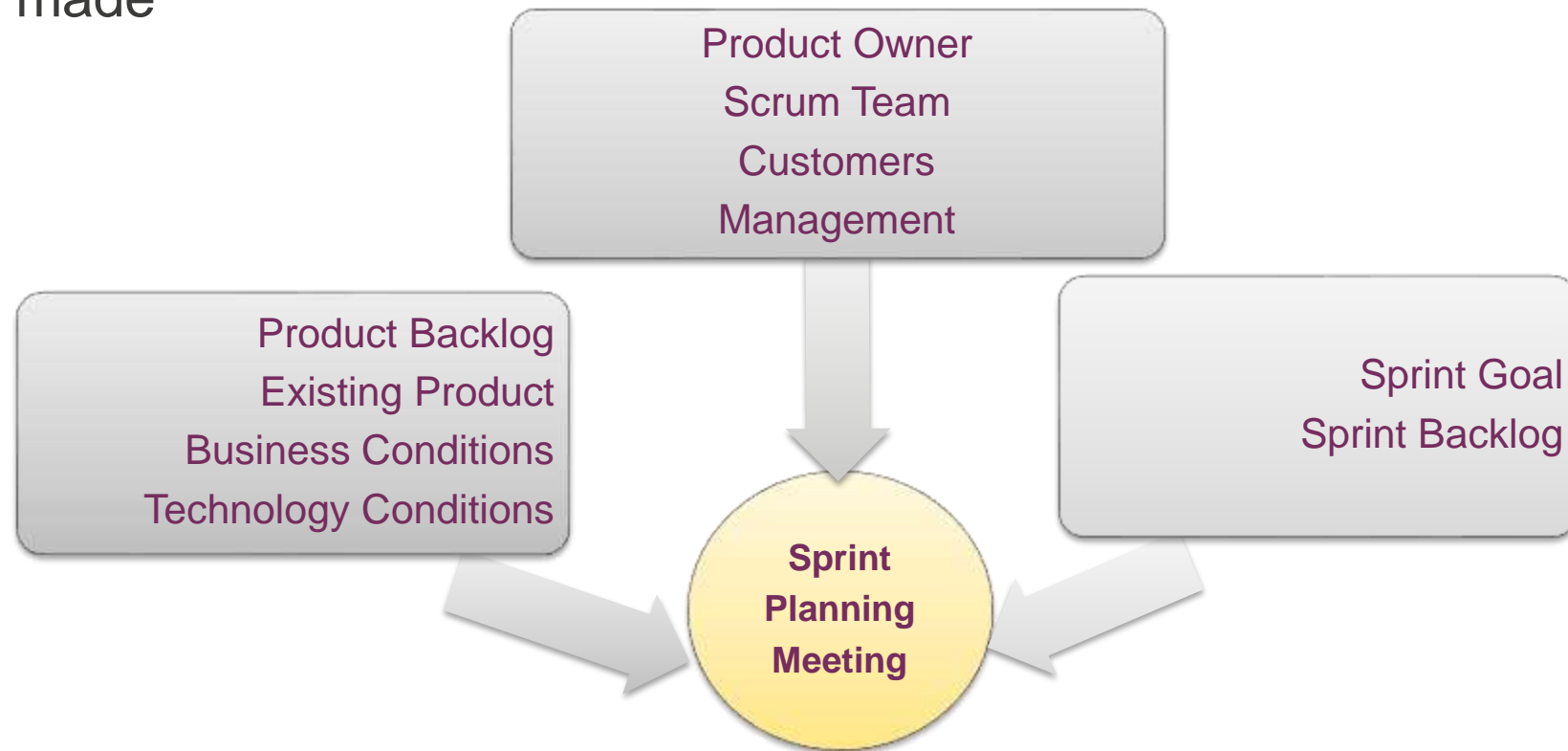
Ceremonies & Outputs in Scrum

Sprint Planning Meeting

> Sprint Planning Meeting
>> - Each sprint is preceded by a planning meeting, where the User Stories for the sprint are identified and an estimated commitment for the sprint goal is made

Product Owner
Scrum Team
Customers
Management

Product Backlog
Existing Product
Business Conditions
Technology Conditions

Sprint Goal
Sprint Backlog

Sprint Planning Meeting

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Sample Product Backlog

USER STORIES	Size
As a BUYFROMME user, I want to see a page that shows detailed information about a books (such as price, high level abstract, user reviews, etc.), along with thumbnail photos of the books	8
As a BUYFROMME user, I want to click the "buy" button to put the book in my shopping cart	5
As a BUYFROMME user, I want to click the shopping cart icon and see what's in my shopping cart	5
As a BUYFROMME user, I want to remove an item from my shopping cart or change the quantities	3
As a BUYFROMME user, I want to click on a thumbnail photo to see a full-sized photo of a book	3
As a BUYFROMME user, I want to select a price range, and see all the books that are within that price range	3
As a BUYFROMME user, I want to select a type of book (paperback, E-book, Hardback etc.) from a drop-down list, hit submit and then see a list of all the books that are of that type	5
As a BUYFROMME user, I want to enter a piece of text and click "Search books" and then see a list of all books that match any part of that text (product search)	13

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Sprint Planning – Inputs and Process

› Product Owner must prepare the product backlog prior to the meeting.
  - It is also his responsibility to prioritizes the Product Backlog based on the understanding as derived from meeting stakeholders and customers

› The goal of the first segment, is for the team to select those product backlog items that it believes it can commit to turning into an increment of potentially shippable product functionality.

› The team can make suggestions, but the decision to what product backlog can constitute the sprint is the responsibility of the product owner.

› The team is responsible for determining how much of the product backlog that the product owner wants worked on the team will attempt to do during the sprint.

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Sprint Planning – Some more critical information

› Customers, stakeholders, product owners, sales & marketing, scrum team attends (minimum required – Product Owner, Development team, Scrum Master)

› Team makes a commitment to do their best to finish the Product Backlog items they've selected

› Product Owner makes a commitment not to make changes during the Sprint

› Sprints are only planned one-at-a-time, and just-in-time (at the beginning of each).

› Scrum Team builds the Sprint Backlog

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Sprint Goal to the Sprint Backlog

> Development team takes the Sprint Goal and decides what tasks are necessary to complete the selected features.

> Team self-organizes around how they'll meet the Sprint Goal.

> Scrum Masters don't make decisions for the team.

> Sprint Backlog (a list of tasks to be completed during the Sprint is created).

Sprint Backlog

Scrum Team builds the sprint backlog

The sprint backlog is the list of work the development team must address during the next sprint.

The list is derived by selecting stories/features from the top of the product backlog until the development team feels it has enough work to fill the sprint.

The stories are broken down into tasks by the development team, which, as a best practice, should normally be between 1 to 16 hours of work.

With this level of detail the development team understands exactly what to do, and potentially, anyone can pick a task from the list.

Tasks on the sprint backlog are never assigned; rather, tasks are signed up for by the team members as needed during the daily scrum, according to the set priority and the development team member skills.

Sprint Backlog

User Story #	Task Details	Committed By	Status	Days Remaining	10	9	8	7	6	5	4
				Effort Remaining	325	298	251	230			
1	Draw a rough stekch of the concept	Neha	Completed		12	8	0	0			
1	Develop the UI	Nandlal	Completed		10	1	0	0			
1	Write the test case	Peter	Completed		9	0	0	0			
1	Execute UTP	Sam	Completed		5	2	0	0			
1	Perform Code Review	Dan	Completed		3	3	3	0			
2	Develop the UI	Nandlal	In Progress		14	12	7	5			
2	Write the test case	Dan	Completed		8	0	0	0			
2	Execute UTP	Sam			6	6	6	6			
2	Perform Code Review	Peter			3	3	0	0			
2	Setup database triggers	Susan	In Progress		10	12	9	1			
3	Develop the Report format	Neha	In Progress								
3	Define data for the report generation	Susan	Completed		3	0	0	0			
3	Write the test case	Dan	Completed								
3	Perform Code Review	Peter									
3	Execute UTP	Sam									
3	Integration with Menu	Nandlal									

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Story Cards on Task Board

Daily Stand Up – During the Sprint

Goal:

Enable Team to inspect and adapt daily

Enable Team to share progress with each other

Surface what's blocking or slowing down Team

15 minutes max for Team

No discussion or debate: listening only

Team and Scrum Master only

No Product Owner, Managers or others present.

Team can invite Product Owner if they wish, but it's up to the team, Should the PO get invited to the meet, PO does not contribute, but only listens

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Daily Stand in Scrum – The How part

> Same place and time every day

> Three questions answered by each team member:
- What I did yesterday?
- What I plan to do today?
- What impediments are preventing progress?

> ScrumMaster listens for Risks and Issues / Impediments

> Is NOT a problem solving session

> Is NOT a way to collect information about WHO is behind the schedule

> Is a meeting in which team members make commitments to each other and to the ScrumMaster

> Is a good way for a ScrumMaster to understand the progress of the Team
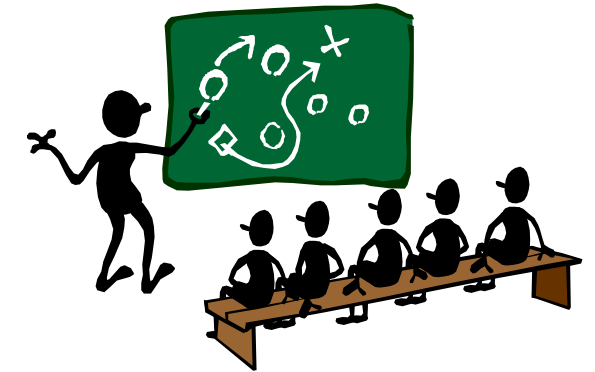
Daily Stand up in Scrum – Tips & Tricks of the Game

> **Feel of a stand-up**
  - Quick, high energy
  - Motivated
  - Supportive
  - Self-organizing, facilitation not needed

> **Rules of the game**
  - At start of the day to set focus
  - Close the circle, more of a huddle, standing!
  - Everyone has something to say: round robin fashion
  - Keep it short: no story telling or problem solving
  - Scrum Master takes the notes of blockers

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Sprint Review Meeting

1 Same people as planning meeting plus any other interested parties (e.g. end users)

2 Team demonstrates that they have completed the work as planned in the Sprint Goal.

3 Customers / PO can provide feedback, new ideas, changed requirements, changed priorities.

4 Typically takes the form of a demo of new features or underlying architecture

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Managing Change in Scrum

> **Changes occur outside a Sprint when**
- Items on the product backlog are
  - Added
  - Removed
  - Reprioritized
- Resources previously dedicated to a Sprint need to be used for other priorities

> **Possibilities**
- Changes to the Product Backlog usually do not affect in-progress sprints.
- When a change does affect a sprint.
  - The goal may need to be re-planned.
  - The sprint may need to be cancelled.

Sprint Retrospective

> Process improvement at end of every Sprint

> All team members reflect on the past sprint

> Make continuous process improvements

> Two main questions are asked in the sprint retrospective:
  - What went well during the sprint?
  - What could be improved in the next sprint?

> Facilitated by ScrumMaster

> What went well, what could be improved.

> Scrum Master prioritizes based on team direction

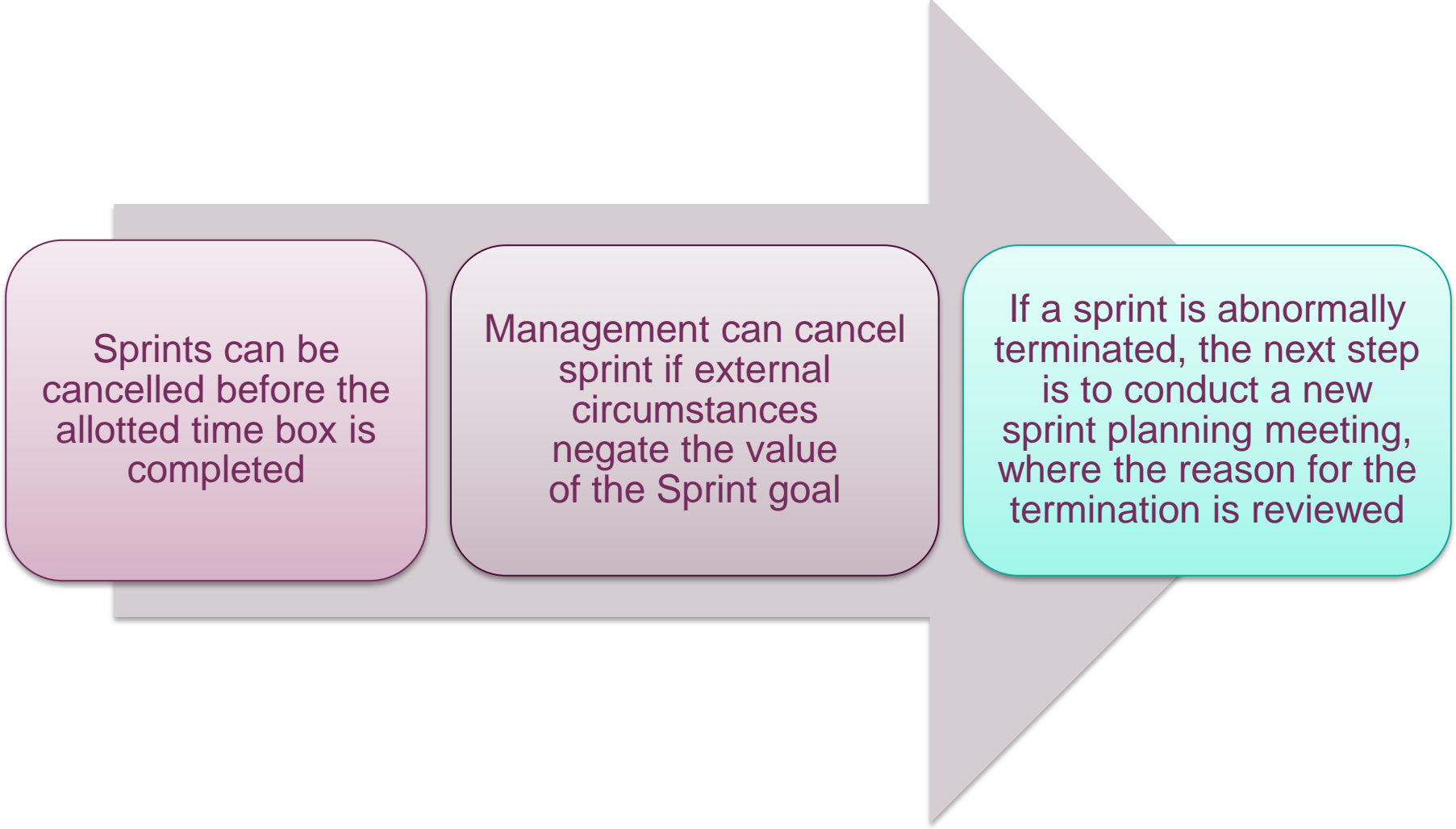> Team devises solution to most vexing problems

Why have a retrospective?

❯ Without retrospectives you will find that the team keeps making the same mistakes over and over again.
- Focus conversations around learning and improvements
- Spend half the retrospective looking back over the past iteration
- Uncover insights about what happened and Why
- Develop action plans for next iterations

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Abnormal Termination of Sprint

Sprints can be cancelled before the allotted time box is completed

Management can cancel sprint if external circumstances negate the value of the Sprint goal

If a sprint is abnormally terminated, the next step is to conduct a new sprint planning meeting, where the reason for the termination is reviewed

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Product Backlog Refinement – During the Sprint

- Goal
  - Look ahead to Product Backlog that's coming soon
  - Split large Product Backlog items into smaller ones
  - Start to get more detailed understanding of items

Product Backlog Refinement

- Begin to think about how they'll be implemented

- Set a regular date and time to do this every Sprint
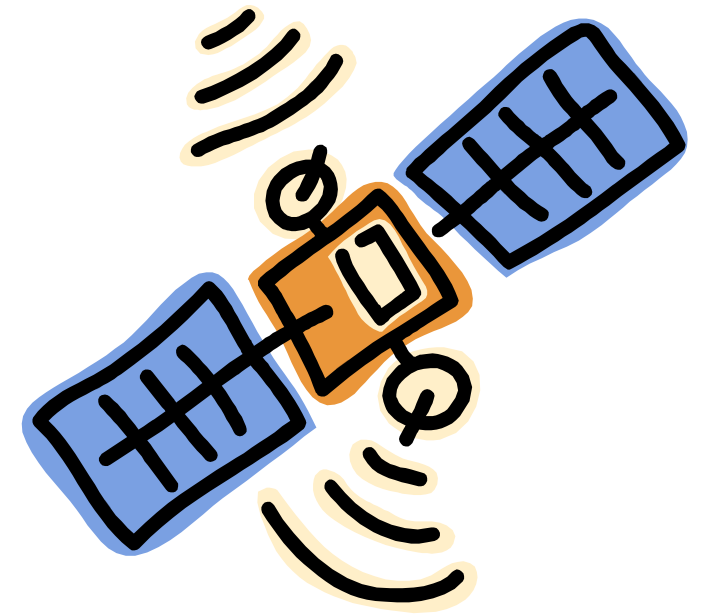
Product Backlog Refinement

- PO, Team & SM do this together each Sprint, at a time of their choosing, and for a duration of their choosing.

- Initially provide about 10% of the time to this activity and then Inspect and Adapt
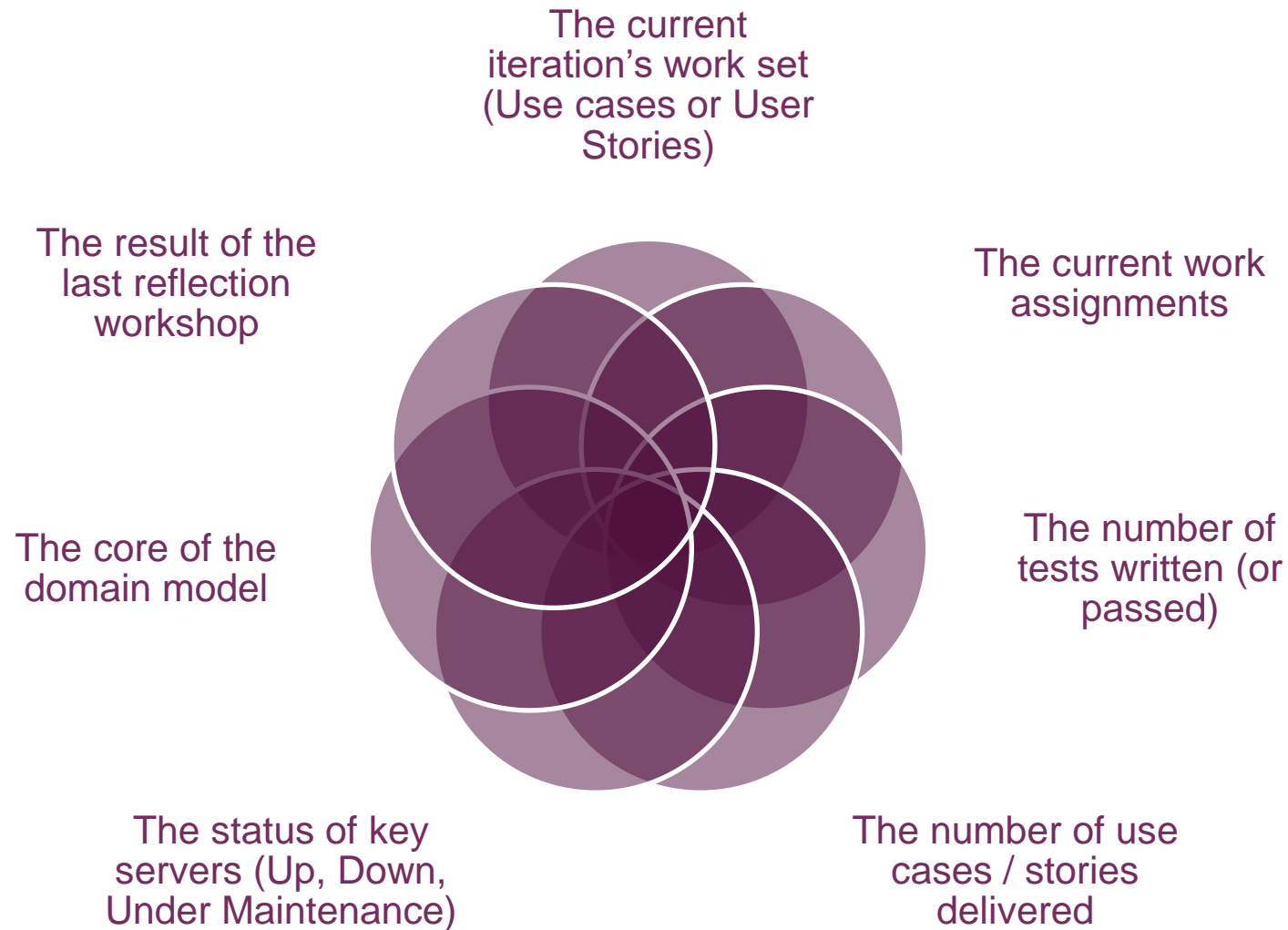
Product Backlog Refinement

What is a Information radiator?

"Two characteristics are key to a good information radiator. The first is that the information changes over time. This makes it worth a person's while to look at the display... The other characteristic is that it takes very little energy to view the display."
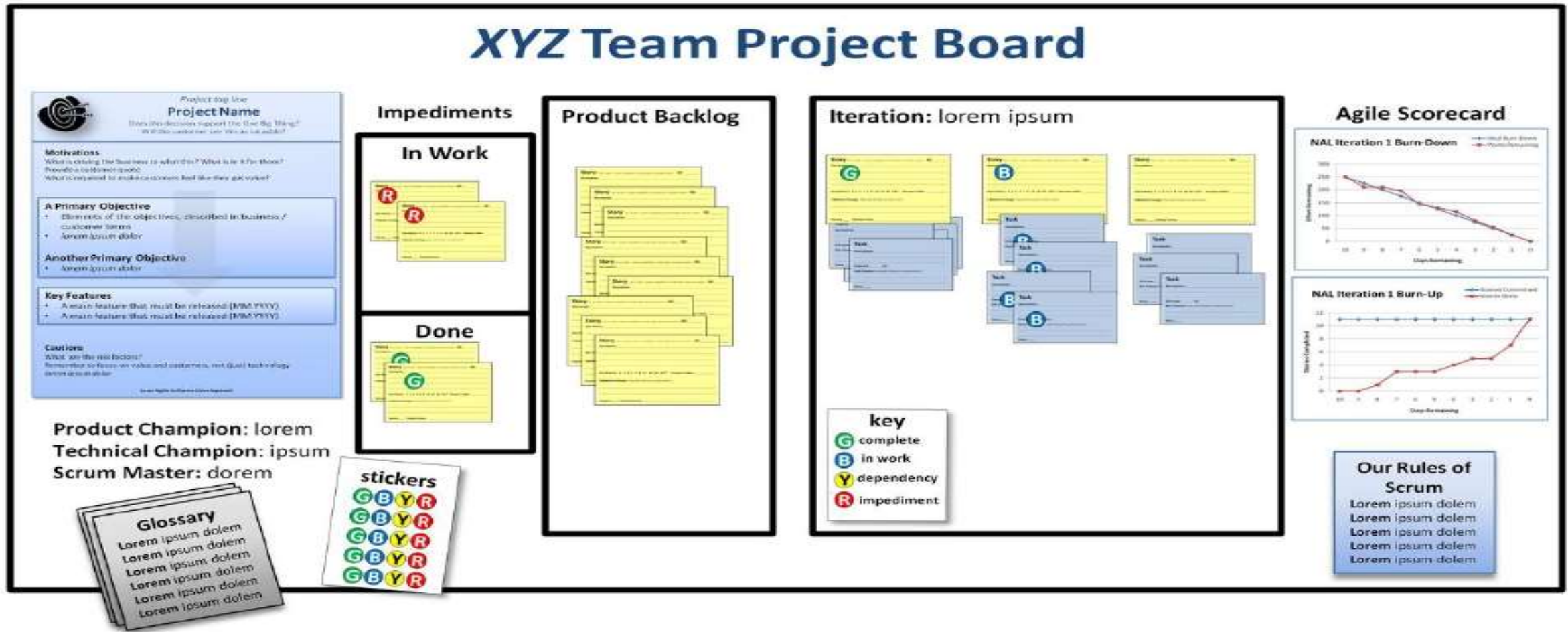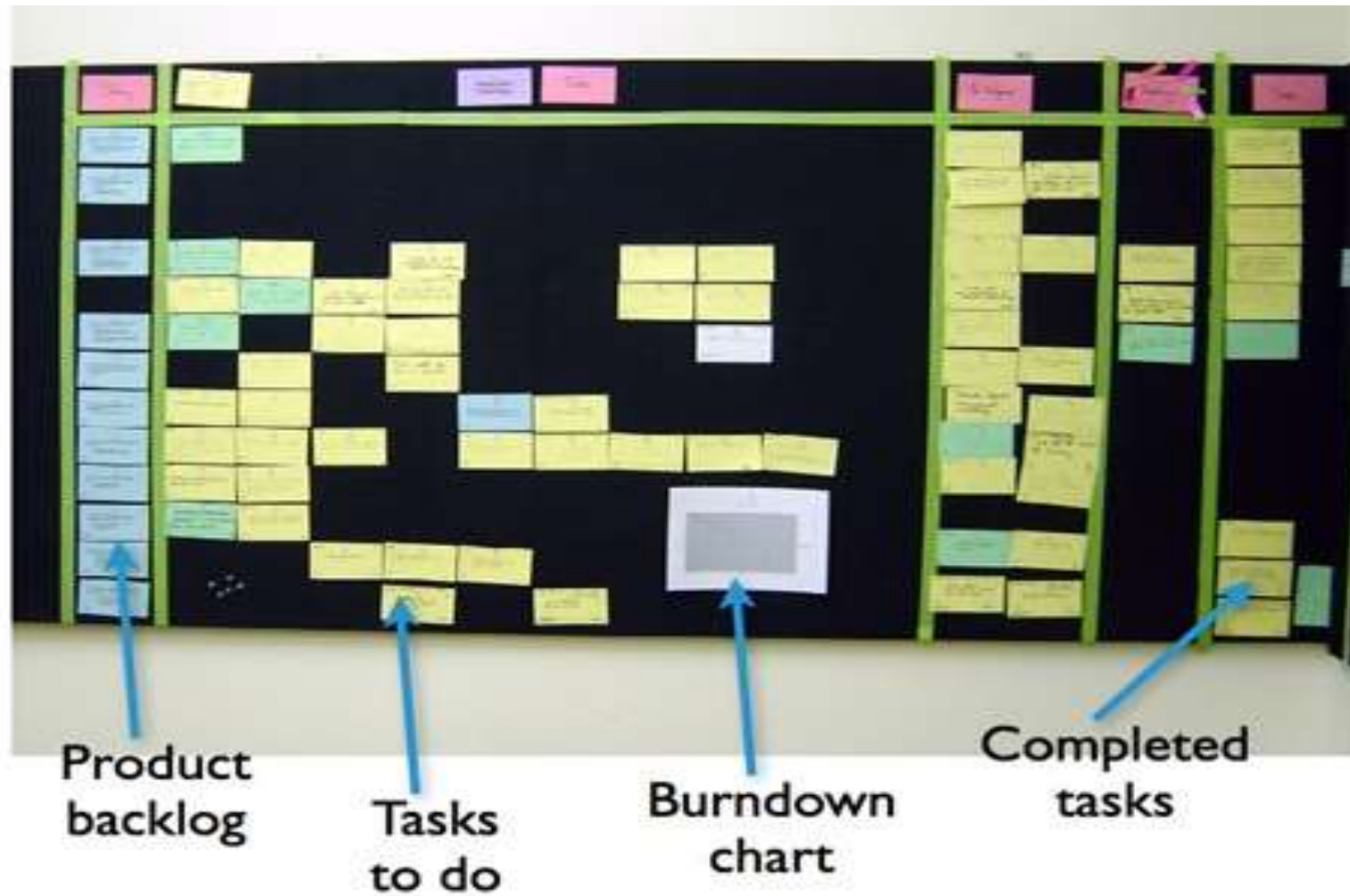
Information Radiators – What can be displayed

The current iteration's work set (Use cases or User Stories)

The current work assignments

The result of the last reflection workshop

The number of tests written (or passed)

The core of the domain model

The number of use cases / stories delivered

The status of key servers (Up, Down, Under Maintenance)

Make Information / results visible

Example Team Project Board Layout

Information Radiators

Product backlog
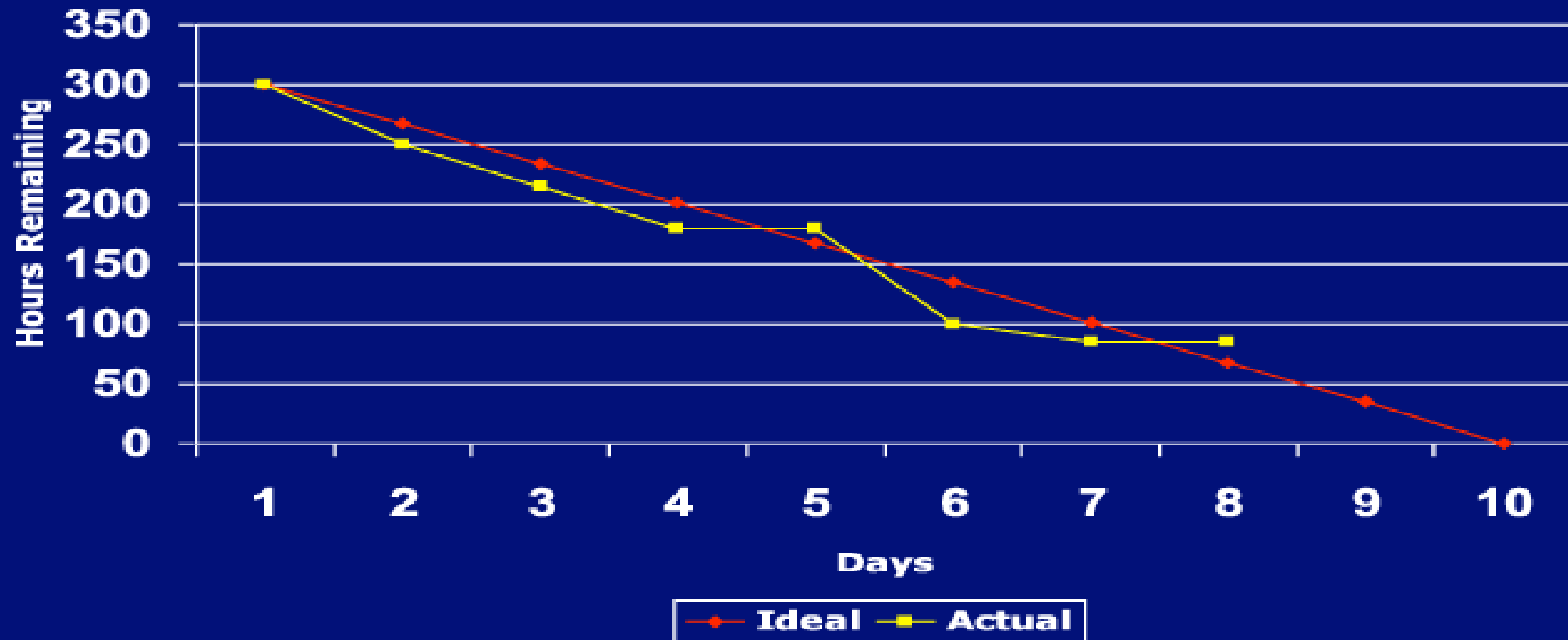
Tasks to do

Burndown chart

Completed tasks

Burn Down Charts

> Are used to represent "work done".

> Are wonderful Information Radiators

> 3 Types:
>   - Sprint Burn down Chart (progress of the Sprint)
>   - Release Burn down Chart (progress of release)
>   - Product Burn down chart (progress of the Product)

Sprint Burn Down Charts

Depicts the amount of work remaining to complete the Sprint.

Estimation & Planning in Agile – Scrum

Why Planning fails?

- Planning is by activity rather than feature
- Activities Don't Finish Early
  - Parkinson's Law (1957), which states that:
  - Work expands so as to fill the time available for its completion
- Lateness Is passed down the schedule
- Activities are not independent
- Multitasking causes further delays
- Features are not developed by priority
- We ignore uncertainty
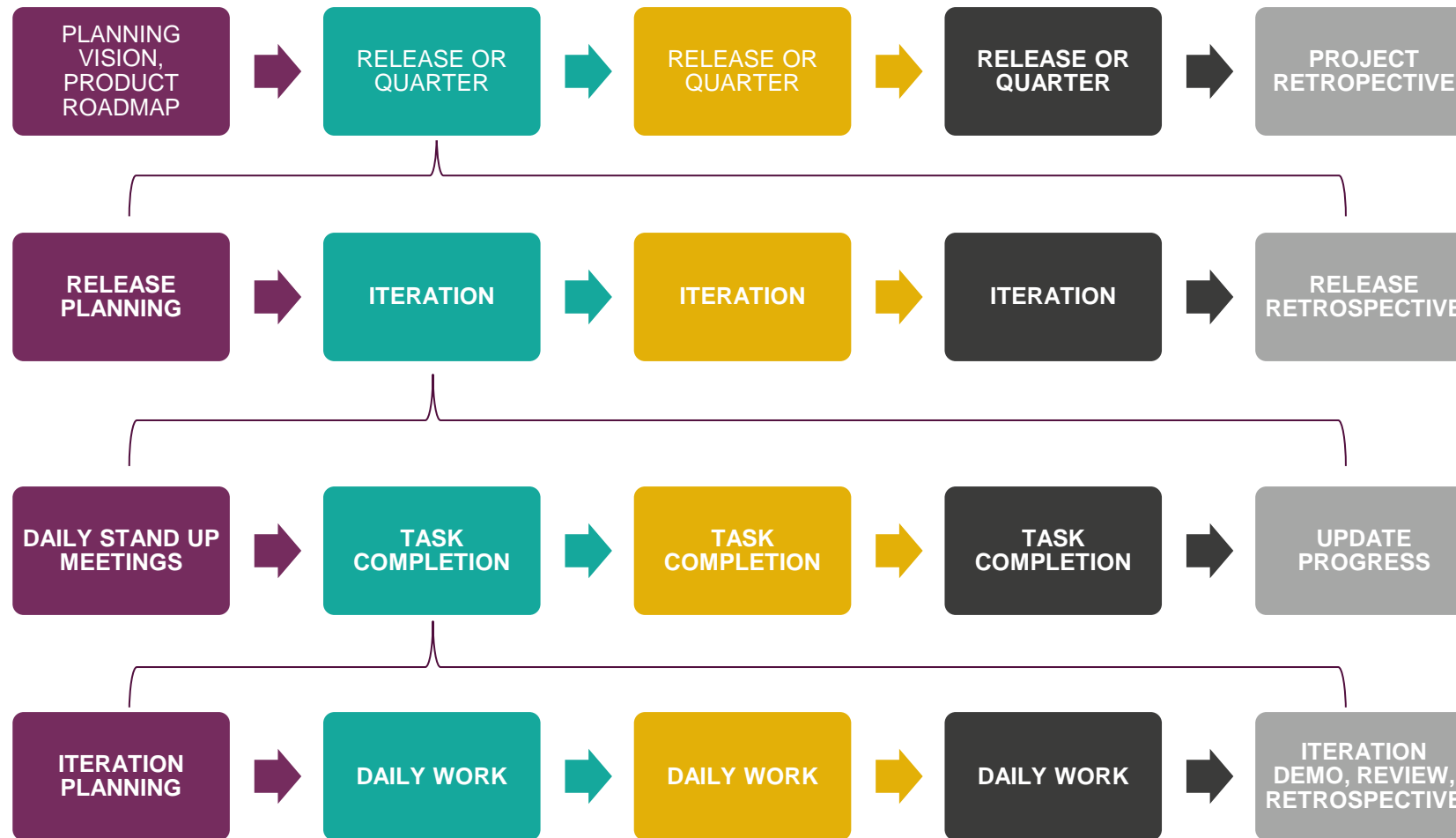- Estimates become commitments
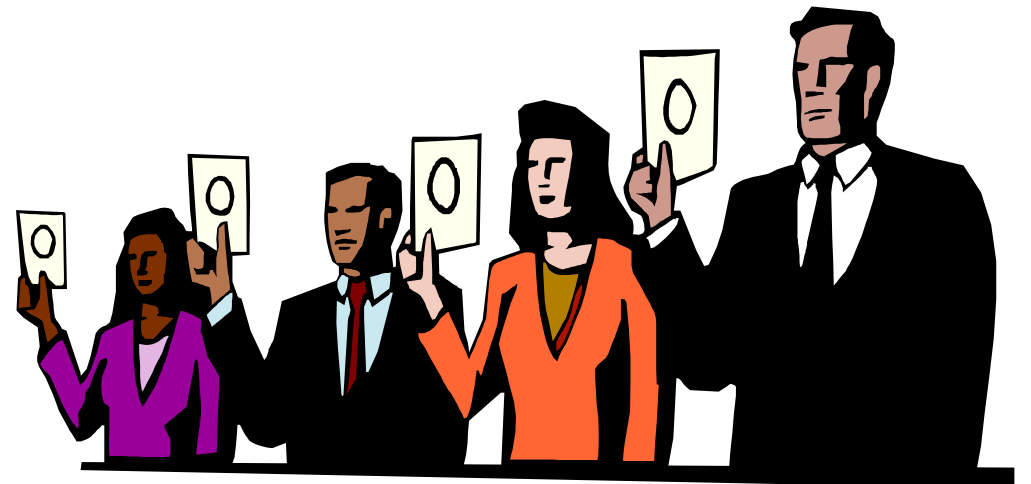
What makes planning Agile?

> Is focused more on the planning than the plan

> Encourages change

> Results in plans that are easily changed

> Is spread throughout the project

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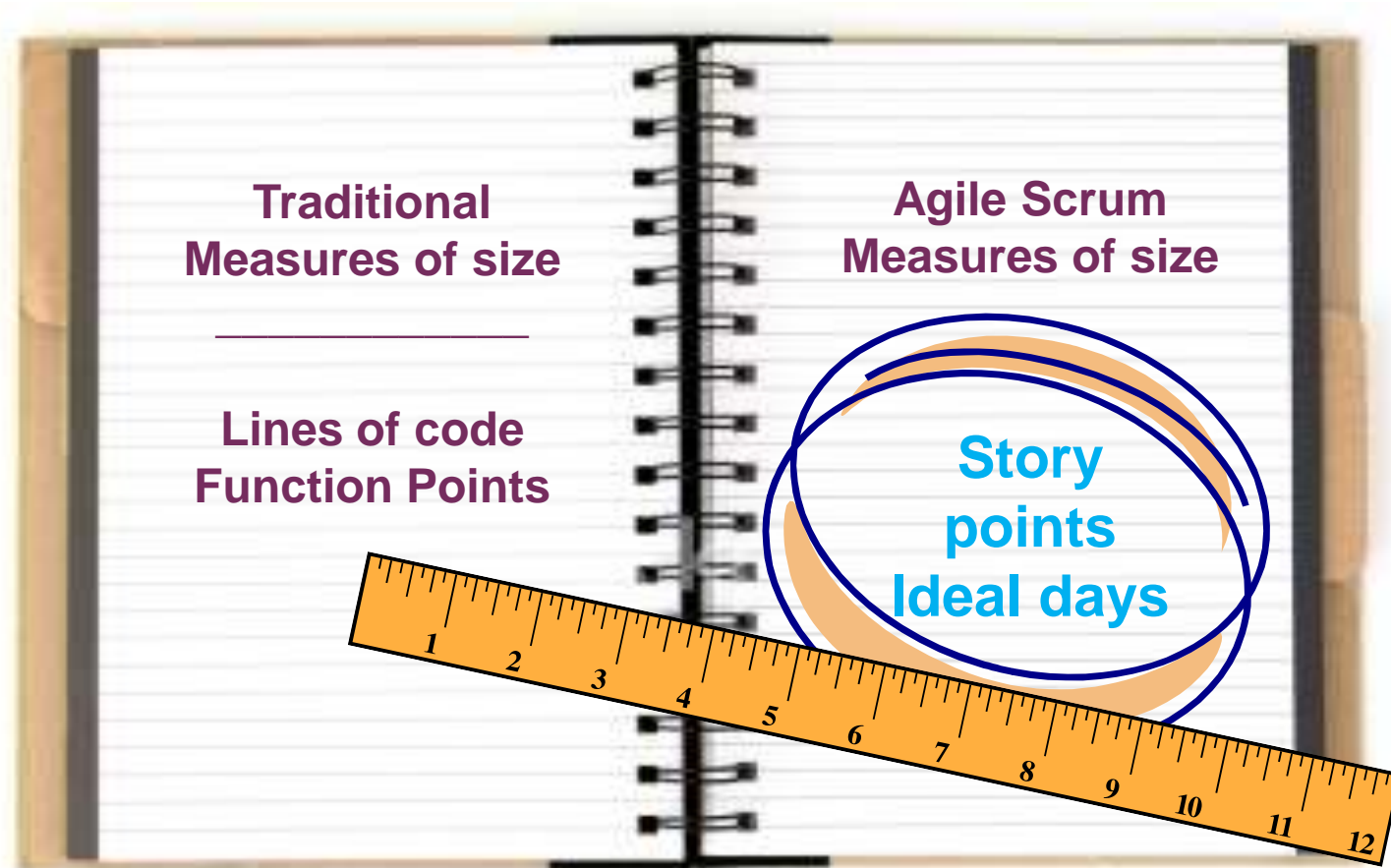# Agile Scrum Project Lifecycle

Measures of Size

> Traditional and Agile Scrum measure size differently

Traditional Measures of size

_____

Lines of code Function Points

Agile Scrum Measures of size

Story points Ideal days

Sizing in Scrum

Sizing in Scrum is performed using story points

Story points are a unit of measure for expressing the overall size of a user story feature

The number of story points associated with a story represents the overall size of the story

There is no set formula for defining a size of the story

Story point is an amalgamation of effort involved in developing the feature, the complexity of developing it, the risk inherent in it and so on

Sizing using story points is a relative concept, It is unit less in nature

A user story estimated as 10 story points is twice as big or risky as a story estimated as 5 story points

What matters are the relative values assigned to a different stories

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Story Points

The "bigness" of a task

Influenced by
- How hard it is
- How much of it there is

Relative values are what is important
- A login screen is a 2.
- A search feature is a 8.

Points are unit-less

Story Point Scale

Based on Fibonacci sequence, a recurring organizational pattern

The story point scale has no statistically reliable relationship to man hours

Value	Meaning
0	No effort required
1	No. problem, We could do this in few hours
2	
3	
5	Most common use
8	
13	
20	
40	
100	Impossible, this is very large
? …	Need more information

Estimates are shared

› Estimates are not created by a single individual on the team

› Agile team do not rely on a single expert to estimate

› Estimates are best derived collaboratively by the team, which includes those who will do the work. There are 2 reasons for this:
  - First on an agile project, one would not tend to know who specifically would be working on a given task
  - Secondly even though one may not be doing the work (like for examples specialized testing), others may have something to say about the estimate

› Additional accuracy in estimation efforts yields very little value beyond a certain point

Deriving an Estimate

The 3 most common techniques for estimating are:
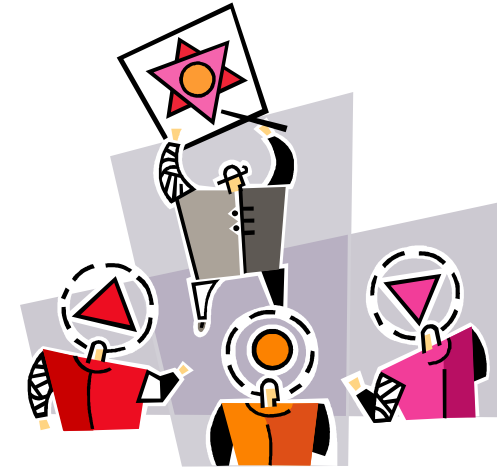
> **Expert Opinion**
>   - Ask an expert of the subject, as to how long will it take to do a work.
>   - The expert relies on their intuition or gut feel and provide an estimate

> **Analogy**
>   - When estimating by analogy, the estimator compares the story being estimated with one or more other stories. In this technique one compares the new story to the assortment of stories already completed or estimated

> **Disaggregation**
>   - Refers to splitting a story or a feature into smaller, easier to estimate pieces.
>   - It would be very difficult to estimate a single story of 100 days.
>   - The solutions to this is to break the large story or feature into multiple smaller items and then estimate those

Planning Poker

Planning Poker

> The recommended method of estimation in agile is by playing planning poker

> Planning Poker combines expert opinion, analogy and disaggregation, which results in reliable estimates

> Participants in planning poker include of all the agile-scrum team

> For each user story, the moderator (usually the Product Owner) would read the user story. The PO would answer any questions that the estimators would have

> After all questions are answered, each estimator selects a card present their estimates. Cards are not shown until all estimators have made their selections. At the same time all cards are turned-over

> Everyone shows their cards at the same time (Scrum Master says "1-2-3-Show")

> Should the estimates differ significantly, the high's and the low's are requested to explain their rationale

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Planning Poker

> It is important that this difference should become an attacking point in discussion, it is more to understand the other view

> Post discussion on the differences, the planning poker is played again to see if the differences are reconciled

> In many cases, the differences will already converge by 2nd round, but if not, then continue the same process

> It will rarely take more than 3 rounds to converge.

> Should the differences be like 5, 8, 8, 8, 8, 8. One can ask the lower estimator if the person is OK with the high estimates

> Should the differences be like 5, 5, 5, 5, 5, 8. Go with the highest estimator

> Pick a number that everyone can live with

> It is important to understand that point is not absolute precision but more on reasonableness

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Story Points Estimation with Planning Poker

Team discusses User Story

Each person chooses their estimate

Simultaneously, each person shows estimate

People with high & low estimates explain their reasoning

Until the numbers are close

Sprint Planning – Best Practices

Divide the planning into 2 halves

- In the 1st half, the PO briefs the team on the next priorities from the product backlog and the team selects a set of items they deem reasonable

- In the 2nd half, the team decomposition the commitments into the sprint backlog of action items and tasks needed to accomplish those commitments

Defer Task Assignment

- Many teams spend too much time and effort pre-assigning sprint backlog items to team members

- Consider leaving the task assignment until later. This will allow team members the opportunity to self-assign the tasks, thus generating more buy-in

Defer Unknown Details

- Consider deferring the task definition for those things that are not fully understood and simply

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Three Levels of Planning / Release Plan

Sprint Plan/Release

Daily plan

Sprint Planning

Release Planning

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Iteration 1

As a BUYFROM ME user, I want to…	3
As a BUY FROM ME user, I want to…	5

Iteration 2

As a Shipping Manager , I want to…	5
As a BUY FROM ME user, I want to…	2

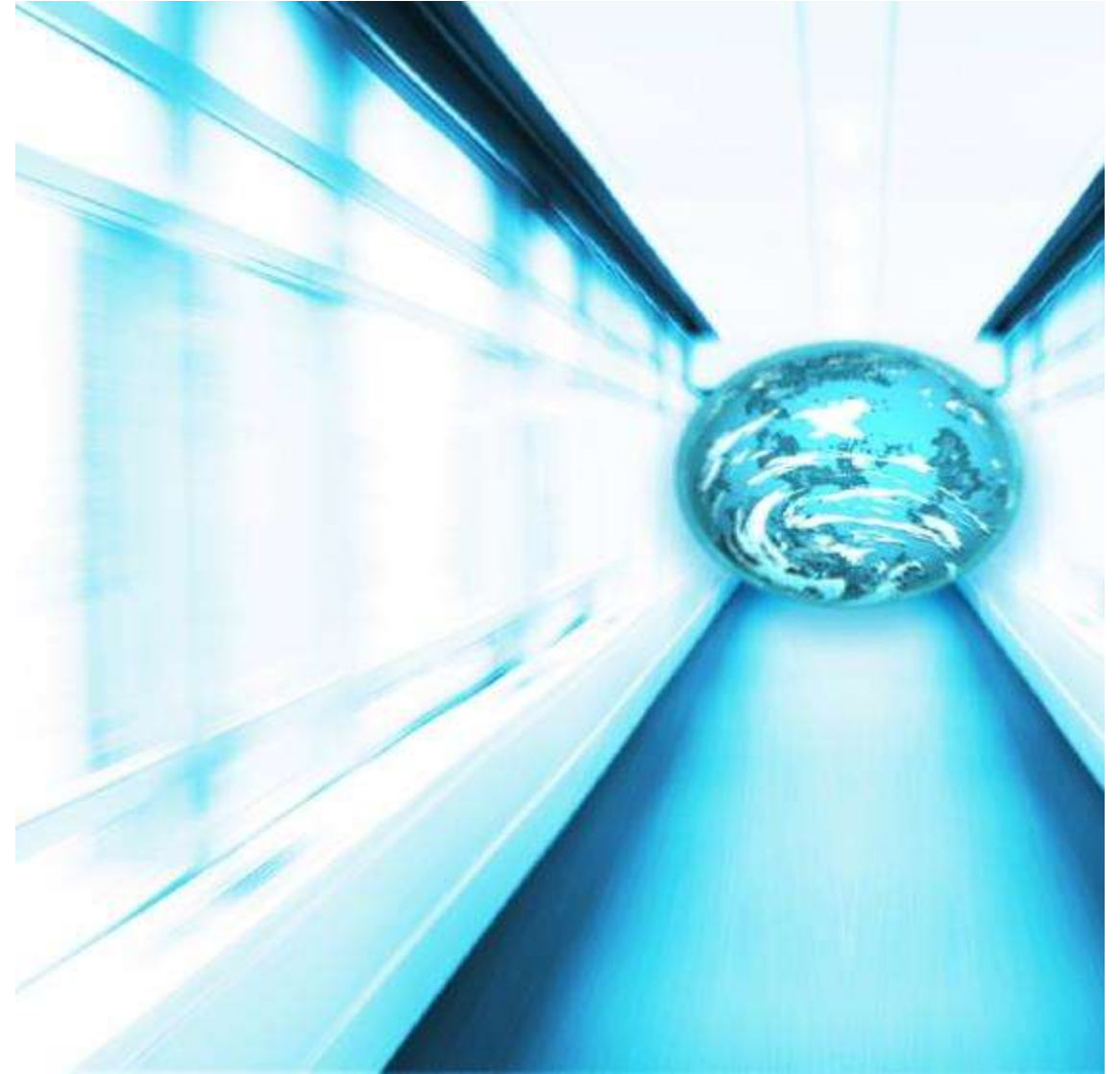|	
Code the UI	8
Write test fixture	6
Code middle tier	12
Write tests	5

Creating this is Sprint planning

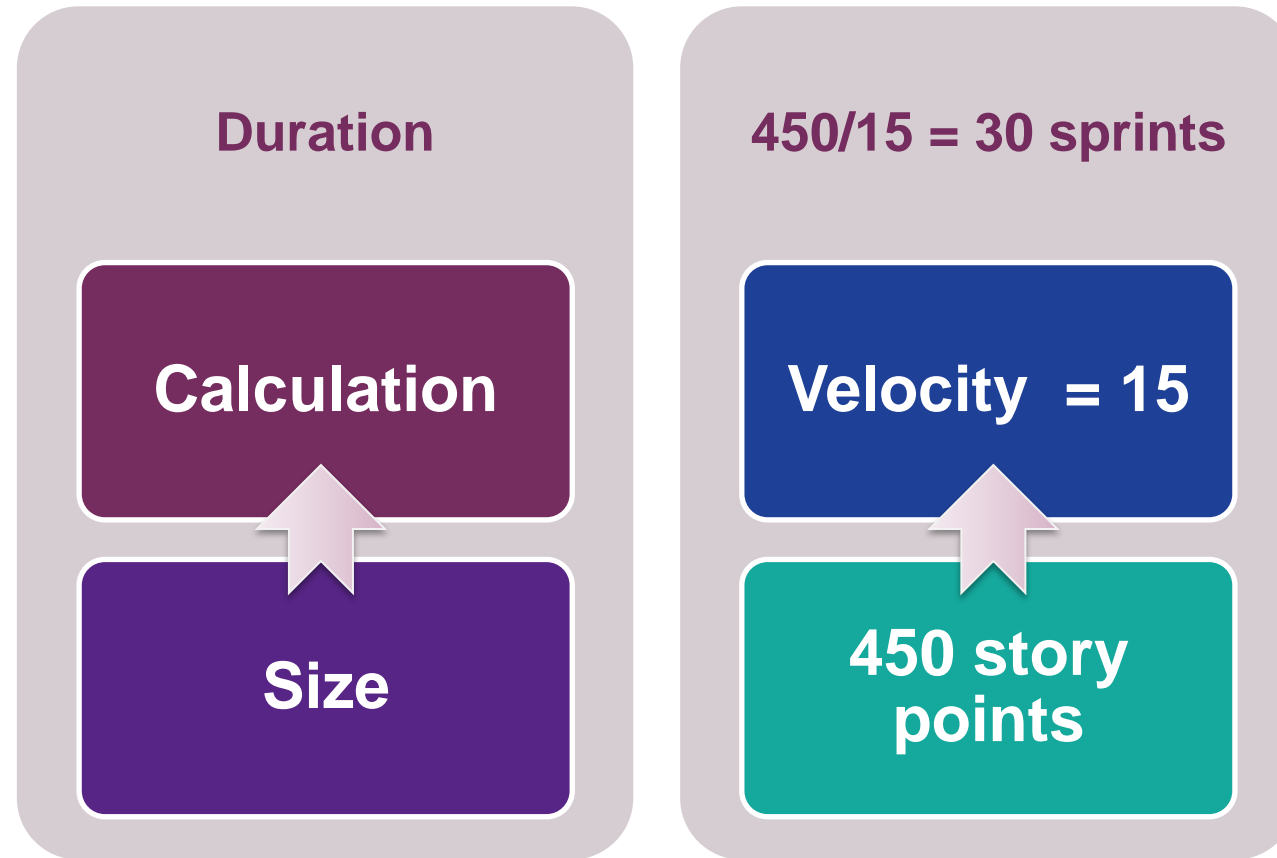"Yesterday I started on the UI; should finish before the end of today."
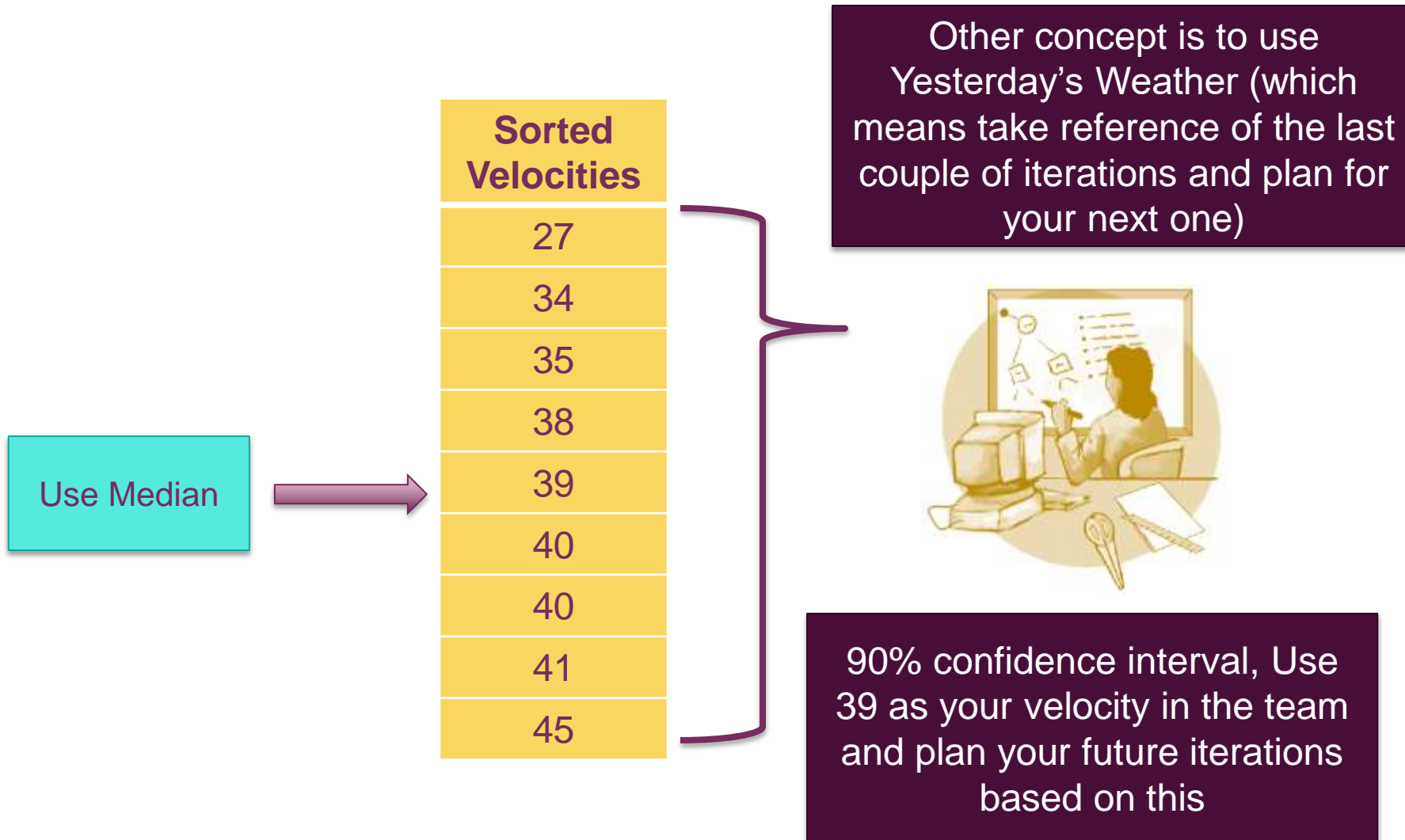
Velocity and Size

- To understand how unit less story points would work, we need to introduce a new concept – VELOCITY

- Velocity is a measure of a team's rate of progress. It calculated summing up the number of story points completed during a sprint

- Therefore if a team completes 5 user story of 3 points each, then we would say that the team velocity is 15

- Now if a team completes 4 user story of 5 points each, then we would say that the team velocity is 20
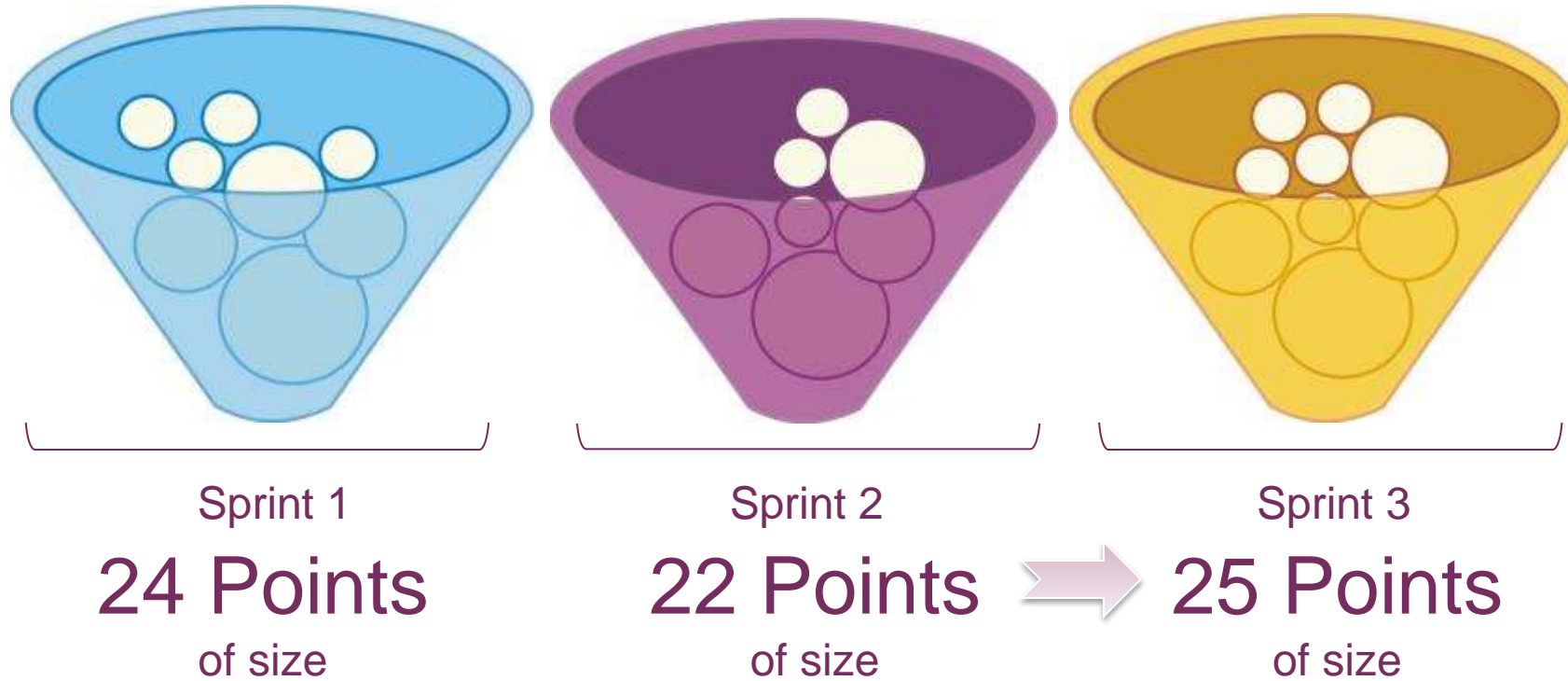
Velocity as Productivity concept

Duration

Calculation

↑

Size

450/15 = 30 sprints

Velocity = 15

↑

450 story points

Use Historical Data - Where Possible

Use Median →

Sorted Velocities
27
34
35
38
39
40
40
41
45

Other concept is to use Yesterday's Weather (which means take reference of the last couple of iterations and plan for your next one)

90% confidence interval, Use 39 as your velocity in the team and plan your future iterations based on this

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Release Planning
– Lets run an example

Velocity of Team A

Sprint 1

24 Points

of size

Sprint 2

22 Points

of size

Sprint 3

25 Points

of size

Average of ~ 24 Points per Sprint is the "Velocity"

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Stabilization Sprints

Sprint 1	Sprint 2	Sprint 3	Sprint 4
Sprint 1	Sprint 2	Sprint 3	Stabilization Sprint
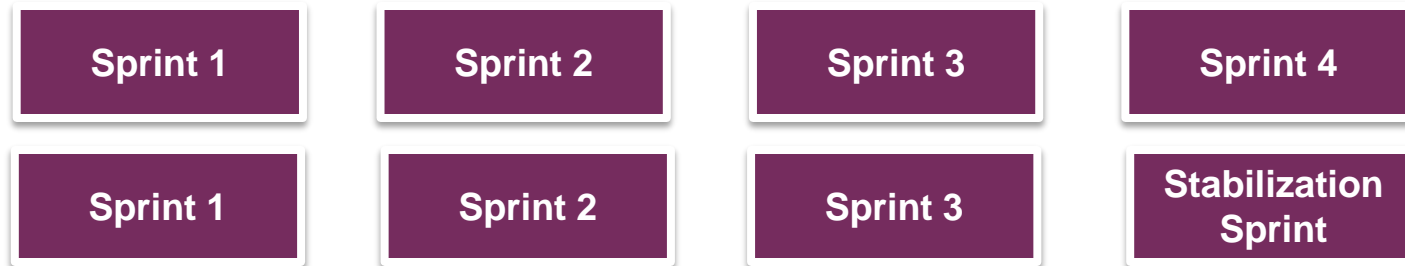
> During "regular" sprints target friendly first use
> - Beta customers and similar can use immediately after sprint

> During "stabilization sprints"
> - Team prepares a product for release
> - Useful during
>   - active beta periods
>   - when transitioning a team to Scrum
>   - if quality isn't quite where it should be on an initial release

> Not a part of standard Scrum, but could be useful

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Product Backlog as made available from the PO

Priority	High-Level Capability	User Story	Initial Est	Sprint 1	Sprint 2	Sprint 3	Sprint 4	Sprint 5	Sprint 6	Sprint 7	Sprint 8	Sprint 9	Sprint 10	Sprint 11
1	Home Page	As a Clockazon user, I want to be able to type the Clockazone URL in my browser and load Clockazon's home page	3											
2	Buy a clock	As a Clockazon user, I want to click the "buy" button to put a clock in my shopping cart	5											
3	Buy a clock	As a Clockazon user, I want to complete the purchase of the items in my shopping cart	8											
4	Buy a clock	As a Clockazon user, I want to receive an email with the details of my order, after it's finishing processing	3											
5	Shipping	As the shipping manager, I want to log onto the system and see the orders that need to be shipped	5											
6	Shipping	As the shipping manager, I want to print a shipping label and packing list	5											
7	Buy a clock	As a Clockazon user, I want to click the shopping cart icon and see what's in my shopping cart	3											
8	Buy a clock	As a Clockazon user, I want to remove an item from my shopping cart, or change the quantities	3											
9	Browse	As a Clockazon user, I want to see a page that shows detailed information about a single clock (such as price, specifications, user reviews, etc.), along with thumbnail photos of the clock	5											
10	Browse	As a Clockazon user, I want to click on a thumbnail photo to see a full-size photo of the clock	2											
11	Browse	As a Clockazon user, I want to select a type of clock (wristwatch, alarm clock, etc.), and see the clocks of that type	3											
12	Browse	As a Clockazon user, I want to select a manufacturer, and see all the clocks available from that manufacturer	5											
13	Browse	As a Clockazon user, I want select a number of rating stars, and see all the clocks that were rated at that level or higher	5											
14	Browse	As a Clockazon user, I want to see a list of clocks that have reduced prices or are "on sale"	5											
15	Search for clocks	As a Clockazon user, I want to enter a piece of text and click "search clocks", and then see a list of all clocks that match any part of that text (product search)	8											
16	Ratings	As a Clockazon user, I want to be able to log in and enter a star rating (1-5 stars) for a product which I have purchased, for several different criteria (timekeeping accuracy, value for money, etc.)	3											
17	Acct Mgmt	As a Clockazon user, I want to log onto my account and see whether my order has shipped or not	5											
18	Promos	As the promotions manager, I want to be able to show a list of all the clocks in our inventory, and be able to enter a sale price for any or all of them	13											
19	Promos	As the promotions manager, I want to enter free-form HTML for the content of a promotional box on the home page	5											
20	Mgmt Tools	As the sales manager, I want to upload the specifications, pricing, and photos for a single clock	8											
21	Mgmt Tools	As the sales manager, I want to do a bulk upload of clock specifications, pricing, and photos	13											
22	Shipping	As the shipping manager, I want to look up the status of a particular order	5											
23	Shipping	As the shipping manager, I want to change the status of a particular order	5											
24	Metrics	As the business manager, I want to generate a report showing total sales for a period of time	8											
25	Browse	As a Clockazon user, I want to select a price range, and see all the clocks that are within that price range	3											
26	Browse	As a Clockazon user, I want to see a list of "new arrivals" (clocks that have recently been added to the Clockazon inventory)	3											
27	Browse	As a Clockazon user, I want see a list of the best-selling clocks on the site	5											
		TOTAL	**144**											

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Assume that now we should only be planning for "Must" + "Should" = 144

144 / 24 = 6 Sprints

Estimation Buffer +15%
Rework Buffer +10%
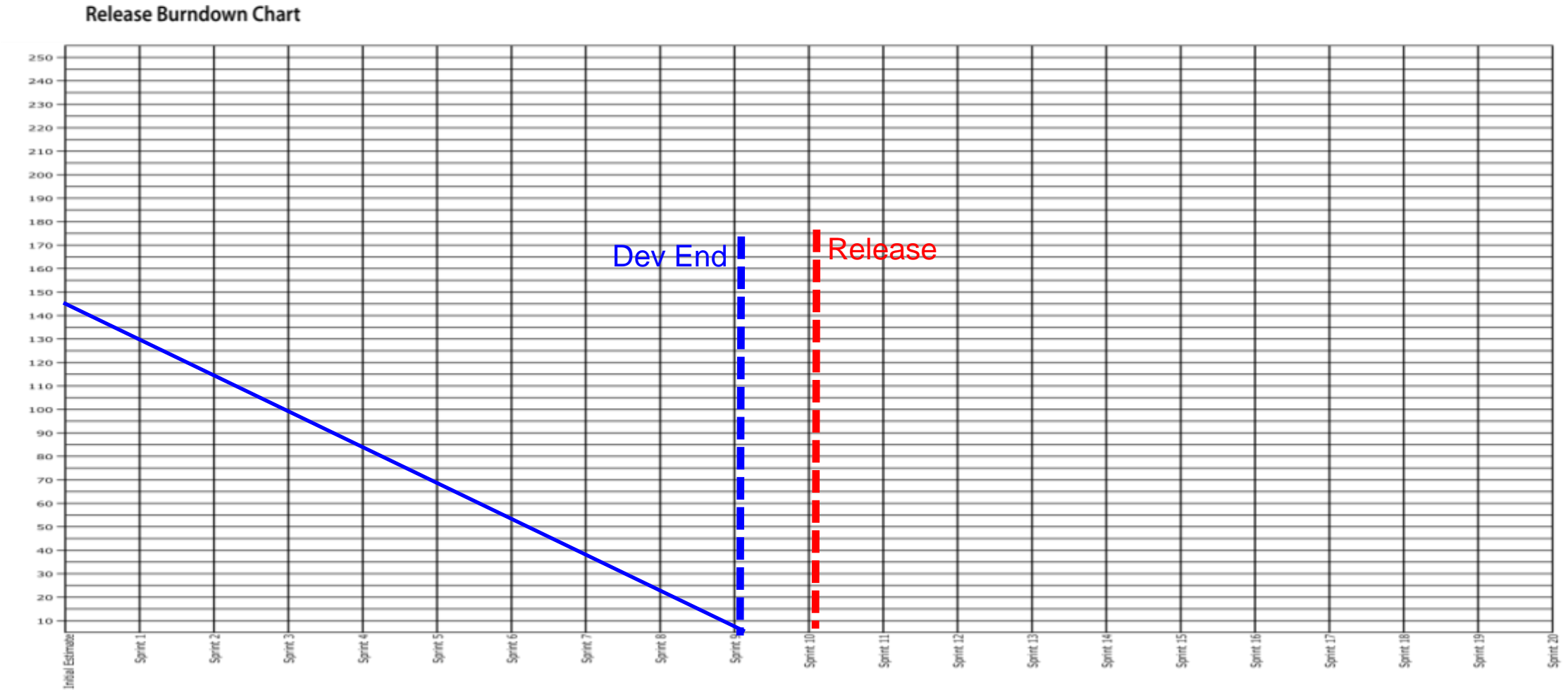Additions Buffer +10%

= 8.3 Sprints
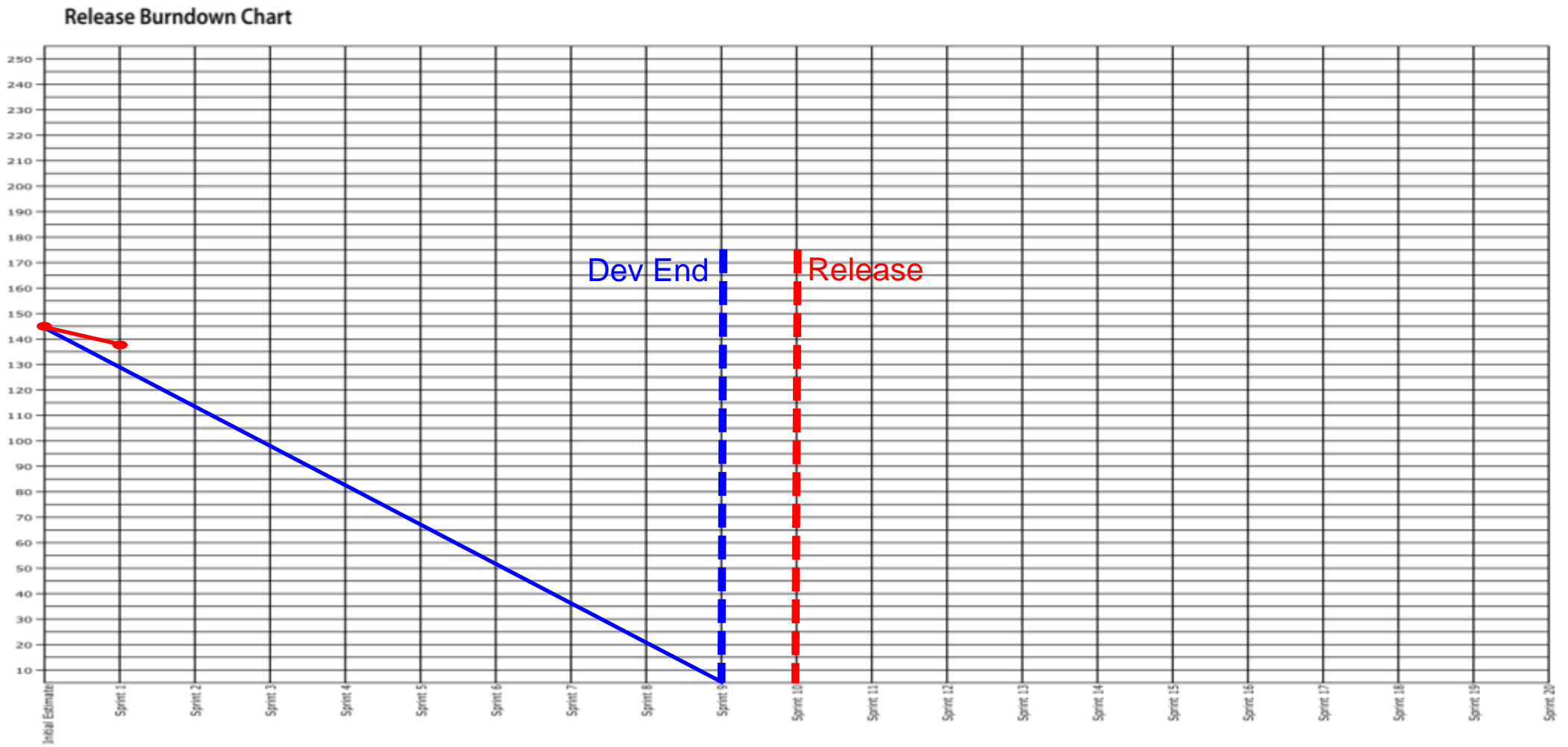
Pre-release Sprint +1

= 9.3 Sprints

= 10 Sprints

Release Burndown Chart

Release Burndown Chart

Release Burndown Chart

Priority	High-Level Capability	User Story	Initial Est	Sprint 1	Sprint 2	Sprint 3	Sprint 4	Sprir
1	Home Page	As a Clockazon user, I want to be able to type the Clockazone URL in my browser and load Clockazon's home page	3	0	0	0	0	
2	Buy a clock	As a Clockazon user, I want to click the "buy" button to put a clock in my shopping cart	5	1	0	0	0	
3	Buy a clock	As a Clockazon user, I want to complete the purchase of the items in my shopping cart	8	8	0	0	0	
4	Buy a clock	As a Clockazon user, I want to receive an email with the details of my order, after it's finishing processing	3	3	0	0	0	
5	Shipping	As the shipping manager, I want to log onto the system and see the orders that need to be shipped	5	5	0	0	0	
6	Shipping	As the shipping manager, I want to print a shipping label and packing list	5	5	2	0	0	
7	Buy a clock	As a Clockazon user, I want to click the shopping cart icon and see what's in my shopping cart	3	3	3	0	0	
8	Buy a clock	As a Clockazon user, I want to remove an item from my shopping cart, or change the quantities	3	3	3	0	0	
9	Browse	As a Clockazon user, I want to see a page that shows detailed information about a single clock (such as price, specifications, user reviews, etc.), along with thumbnail photos of the clock	5	5	5	2	0	
		As a Clockazon user, I want to click on a thumbnail photo to see a full-size photo						
27	Browse	As a Clockazon user, I want see a list of the best-selling clocks on the site	5	5	5	5	5	
		TOTAL	144	137	117	111	95	

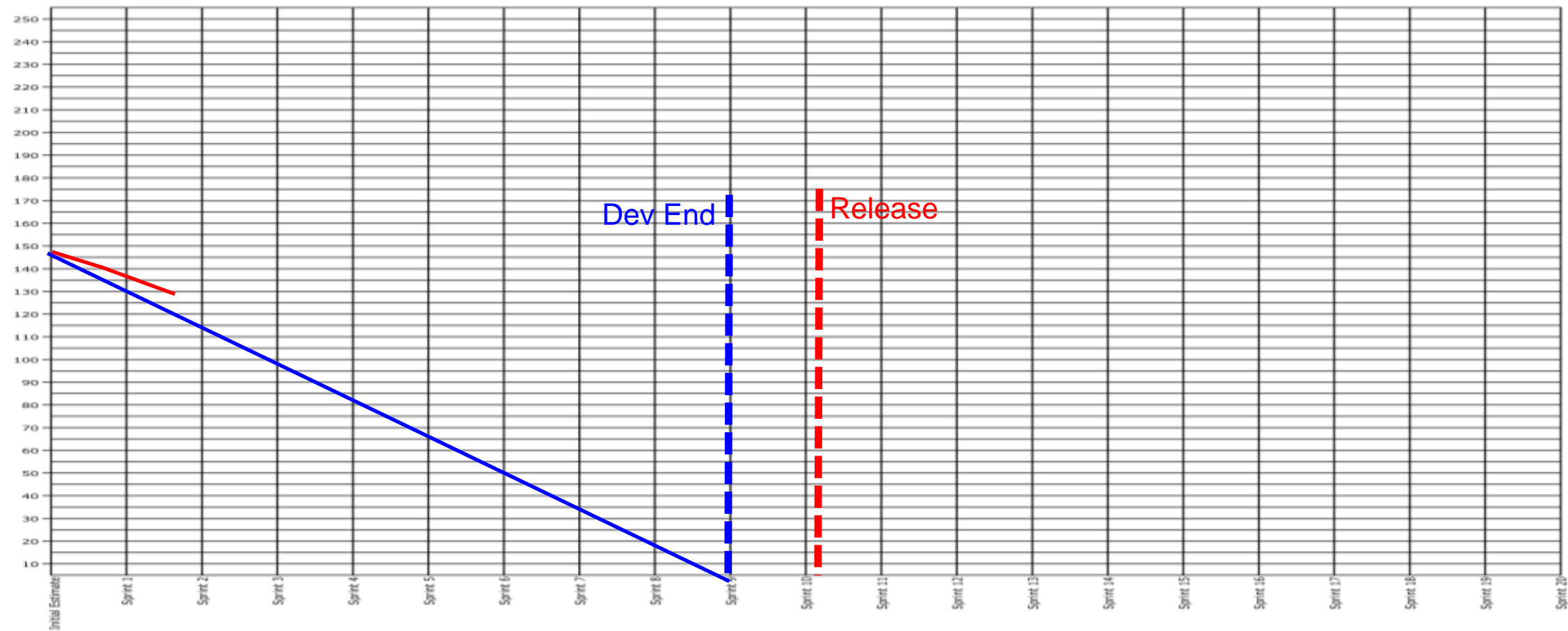Xebia

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3	Buy a clock	As a Clockazon user, I want to complete the purchase of the items in my shopping cart	8	8	0	0	0	
4	Buy a clock	As a Clockazon user, I want to receive an email with the details of my order, after it's finishing processing	3	3	0	0	0	
5	Shipping	As the shipping manager, I want to log onto the system and see the orders that need to be shipped	5	5	0	0	0	
6	Shipping	As the shipping manager, I want to print a shipping label and packing list	5	5	2	0	0	
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		As a Clockazon user, I want to click on a thumbnail photo to see a full-size photo						
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		TOTAL	**144**	**137**	**117**	**111**	**95**	