The Periodic Table of Scrum

In 1 — INCREMENT	**Cu** >0 — CUSTOMER	**Re** 4 — SPRINT REVIEW
	Po 1 — PRODUCT OWNER / **Pb** 1 — PRODUCT BACKLOG	**Rf** 10% — REFINEMENT / **Pl** 4+4 — SPRINT PLANNING

In 1 — INCREMENT

Cu >0 — CUSTOMER

Re 4 — SPRINT REVIEW

Po 1 — PRODUCT OWNER

Pb 1 — PRODUCT BACKLOG

Rf 10% — REFINEMENT

Pl 4+4 — SPRINT PLANNING

Do 1 — DEFINITION OF DONE

Dt 3-9 — DEVELOPMENT TEAM

Sb 1 — SPRINT BACKLOG

Sg 1 — SPRINT GOAL

Ds :15 — DAILY SCRUM

Rt 3 — SPRINT RETROSPECTIVE

Tb ☐ — TIMEBOX

Sm 1 — SCRUM MASTER

Sp 1-4w — SPRINT

The Periodic Table of Scrum

	Customer	Product Owner	Development Team	Scrum Master	Zones
Happenings	**Re** — SPRINT REVIEW [4]	**Pl** — SPRINT PLANNING [4+4]	**Rt** — SPRINT RETROSPECTIVE [3]		
Happenings		**Rf** — REFINEMENT [10%]	**Ds** — DAILY SCRUM [:15]	**Sp** — SPRINT [1-4w]	
			Sg — SPRINT GOAL [1]		
Backlogs		**Pb** — PRODUCT BACKLOG [1]	**Sb** — SPRINT BACKLOG [1]		
People	**Cu** — CUSTOMER [>0]	**Po** — PRODUCT OWNER [1]	**Dt** — DEVELOPMENT TEAM [3-9]	**Sm** — SCRUM MASTER [1]	
	In — INCREMENT [1]		**Do** — DEFINITION OF DONE [1]	**Tb** — TIMEBOX [ ]	

Key

Symbol → **Sg**

Name → SPRINT GOAL

Attribute → 1

Type →

Attributes

1	**Quantity**
1	**Number of people**

Timebox in:

4	**hours for monthly sprint** (proportionately less for shorter Sprints)
:4	**minutes**
4w	**weeks**

Types

⬜	**Scrum Artifacts**
⬜	**Scrum Roles**
⬜	**Scrum Events**
⬜	**Other essential Scrum elements**

$$Do + Dt_* + Sg$$

CATALYST
Does not take part in the reaction, but enables it or makes it more efficient

QUANTITY
Component quantity An asterisk indicates one or more

$$Sg + Dt_1 + Sm = Pl_{P2} + Sb$$

A written reaction outcome indicates that there is more than the sole element created in the reaction.
In this example along with the Planning part 2 a Sprint Backlog is created.

Square brackets indicate an optional element

$$[Sm] + Dt_1$$

How to read reactions?

Po

PRODUCT OWNER

A single person responsible for maximizing value delivered and long term ROI

- Must be a single person
- Is responsible for the budget
- Manages the Product Backlog
- Supplies vision
- Supplies overall direction of development
- Works with stakeholders
- Is a member of the Scrum Team
- Is the business/customer representative inside a Scrum Team
- May be the customer if he/she understands Scrum
- Collaborates with the Development Team on forecasting product development
- May not be a Scrum Master
- May supply requirements to the Development Team

Product Owners are highly reactive and are essential compounds, but they cannot be obtained with a reaction.

**Business Owner
Businessman**

3-9

Dt

DEVELOPMENT TEAM

A self-organized and cross-functional team of professionals

- Has all the skills required to turn a Product Backlog Item into a releasable Increment
- May contain non-IT members
- Creates the Increment
- Estimates work
- Plans how to achieve a Sprint Goal
- Owns the Sprint Backlog
- Consists of 3-9 people
- Forecasts how much it can complete in a Sprint
- Selects the Scrum Master
- Is accountable for the work done
- There may be more than one Development Team on the Scrum Team
- Serves the Product Owner

Development Teams are highly reactive and are essential compounds, but they cannot be obtained with a reaction.

Reaction

The Team

Isotopes

Sm

1

SCRUM MASTER

Scrum Team's servant leader ensuring that Scrum is understood and properly executed

- Removes impediments from Development Team's way to increase their performance
- Observes and gives feedback
- Is not a secretary or a scribe
- Has to ensure all element of Scrum are in place, but does not have to participate
- Ensures transparency
- Guards Scrum and Development Team rules
- Ensures that the Scrum Team inspects and adapts
- Is a member of the Scrum Team
- Educates people involved about Scrum
- Coaches the Scrum Team
- Extends Scrum values to the organization

Scrum Masters are essential catalysts, but they cannot be obtained with a reaction.

**Servant Leader
Coach
Master of Disaster**

In

1

INCREMENT

A usable version of the product ready to release at Product Owner's command.

- Is available at the end of every Sprint
- It has the highest possible value for the Customer
- Yields optimum long-term return on investment
- Created by the Development Team
- Quality level is obtained by a Definition of Done
- Represents the realization of the Sprint Goal
- May become Customer's property after each Sprint
- May be created by many Development Teams

$$Do + Dt_* + Sg$$

Solution **System**

Release **Product**

Pb
1
PRODUCT BACKLOG

Scrum Artifact

An ordered list of identified work managed by the Product Owner.

- Product Backlog consists of Product Backlog Items
- PBIs can be any type of work representation
- Is ordered by the Product Owner based on factors such as priority, cohesion, value, cost, risk etc.
- If there is work to be done it has to be represented in the Product Backlog
- Changes as more becomes known
- May be created by one or more Development Teams
- Is estimated by the Development Team
- Usually ordered and estimated during Grooming

$$Cu + Po + Dt_* + Rf$$

Work Repository
Inventory Backlog
Requirements List

Sb

1

SPRINT BACKLOG

A plan to reach the Sprint Goal created and maintained by the Development Team

- Contains a selection of PBIs
- Can contain tasks, stories, tests or other atomic work particles
- Sprint Backlog is created by the Development Team in the second part of the Sprint Planning
- Work in the Sprint Backlog is tracked at least daily
- Changes as more becomes known
- Reflects current state of work
- Often represented as a physical taskboard
- May be a kanban workflow board
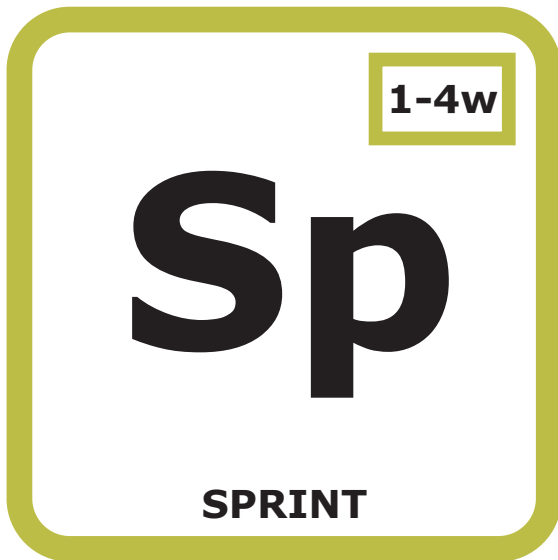- Each Development Team creates one Sprint Backlog per Sprint

$$Pl_{P1} + Sg + Pl_{P2} + Dt_{*}$$

Plan

Task list

PBI decomposition

Sp

1-4w

SPRINT

A container where Scrum is executed, a project used to accomplish a goal

- Takes between a week and a calendar month
- Has constant duration
- Provides a rythm for work
- There is no gap between Sprints, second begins immediately after first is over
- Development Teams' composition remains constant
- Pace of work is sustainable over many sprints
- May be terminated by the Product Owner
- Scope may be reneogotiated
- Goal remains constant

$$In + Po + Pb + Cu + Gr + Do + Dt_* + Sb + Sg + Ds + Tb + Pl + Re + Rt + Sm$$

Iteration

Cadence

Cycle

Pl

8

SPRINT PLANNING

An event for setting the Sprint Goal and deciding how to reach it

- Can be divided into two parts, part one answering "what" and part two answering "how"
- In the first part items to be done are selected from the Product Backlog by the Development Team
- The Development Team creates a forecast on how much it can accomplish in the upcoming Sprint
- A plan of reaching the Sprint Goal is constructed in the form of a Sprint Backlog
- With more than one Development Team part one is conducted with all teams present

$$Pb + Po + Dt_* + Sm = Pl_{P1} + Sg$$

$$Sg + Dt_1 + Sm = Pl_{P2} + Sb$$

OR

$$Pb + Po + Dt_* + Sm = Pl + Sg + Sb$$

Planning
Planning Meeting

:15

Ds

DAILY SCRUM

A meeting to optimize Development Team's actions for the upcoming 24 hours

- Is timeboxed to 15 minutes regardless of Sprint lenght and Development Team size
- Is separate for each Development Team
- Is not a staus meeting
- Only the Development Team participates
- Scrum Master may facilitate
- It is the most granular planning meeting in Scrum
- Spectators are welcome, although they cannot interfere
- Development Team may use a Sprint Backlog

$$[Sm] + Dt_1 + Sg$$

Daily Huddle
Daily Meeting
Standup
Daily Standup

Rt

3

SPRINT RETROSPECTIVE

An event for the Scrum Team to inspect and adapt the process of work

- Whole Scrum Team participates
- Scrum Master may facilitate
- Process, impediments, tools and alike are discussed
- A retrospective ends with concrete actions, each having an owner and success criteria
- Retrospectives tend to get boring if conducted the same way for an extended period of time
- Insights for a retrospective might be collected during the Sprint
- Retrospectives should be fun
- It is often conducted outside the office
- Anonimity is advised
- Often overlooked by immature teams

$$Dt_* + Sm + Po + [Sb_*]$$

Retro
Project Retrospective

Re

4

SPRINT REVIEW

An event for the Scrum Team and its stakeholders to inspect and adapt the work progress

- Whole Scrum Team participates
- Customers and stakeholders are most welcome
- Usually starts with a demonstration of what has been done in this Sprint
- Product Owner may present product forecasts
- Product Owner and stakeholders give feedback
- Usually there are changes made to Product Backlog
- A direction for upcoming Sprints is established
- Product Owner may decide of product deployment
- Product Owner may decide to stop development
- Development Team's composition may change
- Additional Development Teams may be recruited
- Increment is inspected and the plan is adapted to the current business conditions

$$In + [Pb] + Dt_* + Po + [Cu_*] + Sm$$

Presentation
Demo
Demonstration

Cu

>0

CUSTOMER

Scrum Element

Benefactor of the value delivered in the increment or his representative

- May be one or many
- May be the same as the user
- May represent the user
- May be a person or an institution represented by a person or many people
- Product Owner is customer's first contact point
- Customer understanding Scrum may become the Product Owner
- Is involved in inspect-and-adapt feedback loops for the product
- Pace of work is sustainable over many sprints

Customers mainly react with Product Owners, but they cannot be obtained with a reaction.

Client

Do

1

DEFINITION OF DONE

A definition of quality level of the increment

- Defines what needs to be done to a Product Backlog Item to turn it into a potentially releasable piece of software
- Is an outcome of negotiation between the Product Owner and the Development Team
- Usually involves different levels of testing, code quality practices, teamwork and elements specific to the domain
- All estimates are produced with the Definition of Done in mind
- Pace of work is sustainable over many sprints
- May change between Sprints

$$Dt_* + Po + Sm$$

Quality Criteria
The Done

Tb

TIMEBOX

Scrum Element

A time limit for an event

- All events in Scrum are Timeboxes
- If something is timeboxed it can take the length of the timebox or less
- Scrum Master is usually in charge of keeping an event within a Timebox
- Timeboxed events become more efficient over time
- A Timebox may not be exceeded under any circumstances
- The only Timebox that may not end earlier is the Sprint

Timeboxes can take many forms and there is an appropriate reaction to each of them

Meeting
Event
Duration

Sg

1

SPRINT GOAL

A goal of a single Sprint

- ☐ Is set during the Sprint Planning Meeting by the Development Team with the help of Product Owner
- ☐ Provides a direction for work in the Sprint
- ☐ May be a part of product roadmap goals
- ☐ May be a process improvement
- ☐ Provides some flexibility for the Development Team in how and what will they implement to reach it

$$Pb + Po + Dt_* + Sm = Pl_{P1} + Sg$$

Objective

Rf

10%

Rf

REFINEMENT

A timebox dedicated to improving the Product Backlog

- Product Owner decides when and how to do it
- Product Owner may use up to 10% of the time allotted in the Sprint for it
- Usually conducted in second half of the preceding Sprint
- Usually Product Backlog Items are estimated
- Product Backlog Items may be broken down
- The order of the Product Backlog may be changed
- New items may be added to the Product Backlog
- After Grooming, approximately two Sprints' work is known well enough to be included in a Sprint
- Future plans may be discussed
- Scrum Master may facilitate
- Customers or stakeholders may participate

$Dt_* + Pb + Po + [Sm] + [Cu]$

Reaction

Story breakdown
Pre-planning
Grooming
Estimation meeting

Isotopes