# The Periodic Table of Scrum

**In** [1] — INCREMENT

**Cu** [>0] — CUSTOMER

**Re** [4] — SPRINT REVIEW

**Po** [1] — PRODUCT OWNER

**Pb** [1] — PRODUCT BACKLOG

**Gr** [10%] — GROOMING

**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 | |
|---|---|---|---|---|---|
| | | **Pl** (4+4) SPRINT PLANNING | **Rt** (3) SPRINT RETROSPECTIVE | | Happenings |
| | **Re** (4) SPRINT REVIEW | **Gr** (10%) GROOMING | **Ds** (:15) DAILY SCRUM | **Sp** (1-4w) SPRINT | |
| | | | **Sg** (1) SPRINT GOAL | | |
| | | **Pb** (1) PRODUCT BACKLOG | **Sb** (1) SPRINT BACKLOG | | Backlogs |
| | **Cu** (>0) CUSTOMER | **Po** (1) PRODUCT OWNER | **Dt** (3-9) DEVELOPMENT TEAM | **Sm** (1) SCRUM MASTER | People |
| | **In** (1) INCREMENT | | **Do** (1) DEFINITION OF DONE | **Tb** ( ) TIMEBOX | |

**Zones**

# Key

Symbol → **Sg**

Attribute → **1**

Name → SPRINT GOAL

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** |

$$Do + Dt\phantom{*} + Sg$$

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
## 1
### 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**

## Dt

3-9

**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.**

**The Team**

# Sm

**1**

## SCRUM MASTER

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

## Info

- 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

## Reaction

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

## Isotopes

**Servant Leader**
**Coach**
**Master of Disaster**

## In

**1**

### INCREMENT

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

- An increment is available at the end of each 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 os 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
**PRODUCT BACKLOG**

1

**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

# $Cu + Po + Dt_* + Gr$

**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
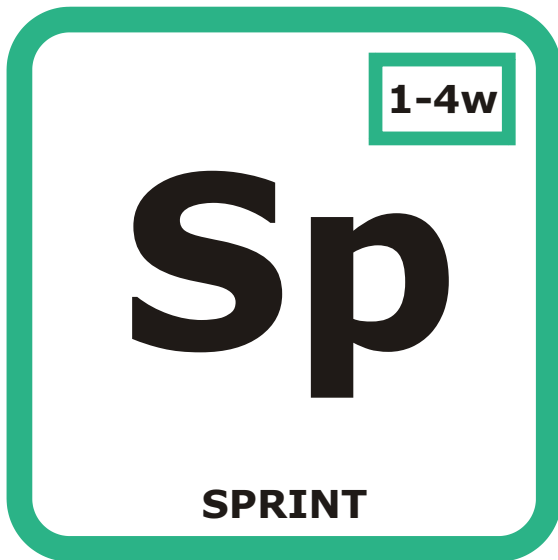- Each Development Team creates one Sprint Backlog per Sprint

**Reaction**

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

**Isotopes**

**Plan**

**Task list**

**PBI decomposition**

## Sp

**1-4w**

**SPRINT**

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

**Info**

- 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

**Reaction**

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

**Isotopes**

**Iteration**

**Cadence**

**Cycle**

## Pl

**4+4**

**SPRINT PLANNING**

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

### Info

- 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

### Reaction

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

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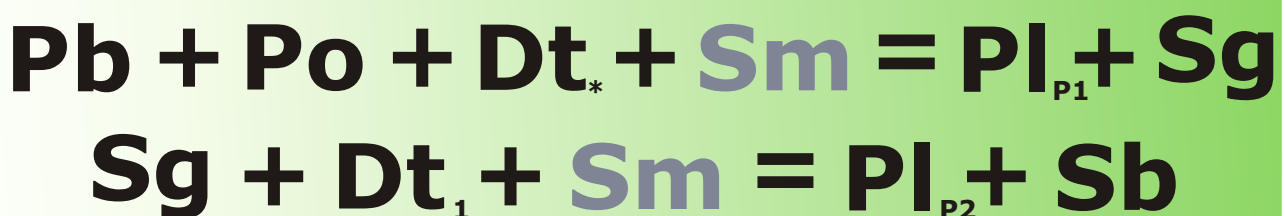
### Isotopes

**Planning**
**Planning Meeting**

## Ds :15
**DAILY SCRUM**

**Scrum Event**

# 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

$$[Sm] + Dt_1$$

**Daily Huddle**
**Daily Meeting**
**Standup**
**Daily Standup**

## Rt

**3**

# Rt

**SPRINT RETROSPECTIVE**

## Scrum Event

## 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

## 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
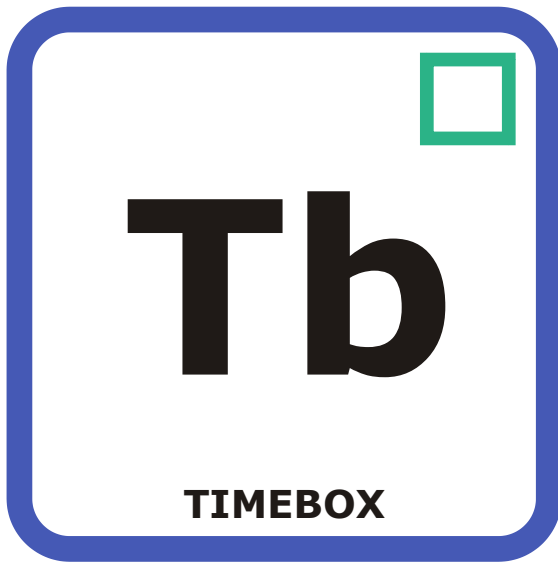- Pace of work is sustainable over many sprints
- May change between Sprints

$$Dt_* + Po + Sm$$

**Quality Criteria
The Done**

## Tb

**TIMEBOX**

# 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

**Reaction**

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

**Isotopes**

**Objective**

## Gr

**10%**

**GROOMING**

# A timebox dedicated to improving the Product Backlog

**Info**

- 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

**Reaction**

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

**Isotopes**

**Story breakdown**
**Pre-planning**
**Product Backlog refinement**
**Estimation meeting**