The Scrum Master
Training Manual

A Guide to Passing the
Professional Scrum Master (PSM) Exam

By Nader K. Rad, Frank Turley

MP MANAGEMENT PLAZA
THE MANAGEMENT CERTIFICATION COMPANY

The Scrum Master Training Manual

A Guide to Passing the Professional Scrum Master (PSM) Exam

By Nader K. Rad, Frank Turley
Management Plaza

Vr. 1.0 (check for newer versions at http://mgmtplaza.com/latestversion)

Table of Contents

About the Authors

Nader K. Rad is a project management consultant, author, and trainer at Management Plaza. His career started in 1997 and he has been involved in many projects in different industries. He has designed a number of project management courses, prepared a number of e-learning materials, and written more than 40 books and plenty of practical articles on project management concepts and standards, planning software, scheduling, etc.
He is certified as PMP®, PRINCE2® Practitioner, AgilePM® Foundation, CSM®, and PSM I.

Author's website: http://www.mgmtplaza.com

Author's LinkedIn Profile: http://www.linkedin.com/in/naderkhorramirad

Frank Turley has been a Project Manager for more than 15 years and a PRINCE2® Practitioner. He is also a PRINCE2 and Project Management trainer and coach and has written a number of PRINCE2® and Project Management related books. Frank is best known in the PRINCE2 world for his work in creating the most popular PRINCE2 Self Study training including:

- The PRINCE2 Foundation Training Manual and video course
- The PRINCE2 Practitioner Training Manual
- The PRINCE2 Sample Project

Author's website: http://www.mgmtplaza.com

Author's LinkedIn Profile: http://linkedin.com/in/frankturley

About Management Plaza

Management Plaza is a consulting and training provider organization focused on project management, covering best practices from OGC (especially PRINCE2) and PMI (especially the PMBOK Guide), Agile frameworks such as Scrum, Kanban, etc.

Management Plaza has recently launched its series of trainings and certifications for Scrum. These courses are instructed by our partners around the world. If you do not have access to our classroom courses, you still can get help from our eLearning courses (check www.mgmtplaza.com for more information).

General Scrum Module Basic	**PSM I Exam Preparation Module** Intermediate

Scrum Development Team Module Advanced	**Scrum Product Owner Module** Advanced	**Scrum Master Module** Advanced

There are also other Agile courses available, Including:

AgilePM Exam Preparation Accredited by APM Group Advanced	**DSDM Atern** Intermediate	**PMI-ACP Exam Preparation** Advanced

Some of the courses on traditional project management methods are as follows:

An Introduction to PRINCE2

Accredited by ⟲ APM Group

Also as eLearning

Advanced

PRINCE2 Foundation

Accredited by ⟲ APM Group

Also as eLearning

Intermediate

PRINCE2 Practitioner

Accredited by ⟲ APM Group

Also as eLearning

Advanced

An Introduction to the PMBOK Guide

Advanced

PMP Exam Preparation

Intermediate

And finally, some courses on project management tools and technics, including:

Work Breakdown Structures Workshop

Advanced

Project Scheduling Rules Workshop

Intermediate

Kanban in Projects Workshop

Advanced

Check our website at www.mgmtplaza.com to get more information on the upcoming courses, elearnings, ebooks, flashcards, etc.

If you are a training organization or a freelance trainer interested in partnering with us and use our material, just contact us at support@mgmtplaza.com.

MP MANAGEMENT PLAZA
THE MANAGEMENT CERTIFICATION COMPANY

About the Management Plaza Classroom Scrum Course

The Management Plaza classroom Scrum course consists of the following:

- **Scrum Knowledge**: Based on the content of this ebook with a little more detail and the addition of real world examples
- **Sample Scrum Project**: A hands-on practice for a sample Scrum project with the participants as different roles of Scrum
- **Scrum Games and practices**: Collaborative and educational training games for Scrum concepts which help you deepen your understanding of Scrum

This is a 16 hour course that is usually instructed in two full day classes or four evening classes.

If you are an individual looking to participating in our public courses or an organization interested in having an in-house course, please contact us at support@mgmtplaza.com, so that we can direct you to one of our partners around the world.

If you are a training organization or a freelance trainer interested in partnering with us in instructing these courses, please contact us at support@mgmtplaza.com to get more information.

Fact #1

Do you know that today's business drivers have encouraged many organizations to use Agile methods and these methods are getting more and more popular each day?

Fact #2

Do you know that Scrum is the most used Agile method?

Fact #3

Do you know that there are other Agile methods that also cover the complex business needs of project based organizations in more detail and are even capable of being combined with traditional methods?

Scrum.Org Certification

Scrum.org is a leading certification body for Scrum which was founded in 2009 by Ken Schwaber and Alex Armstrong. Its certification on Scrum, called PSM I (Professional Scrum Master level 1) is one of the most famous certificates in the Scrum community. It validates gained fundamental knowledge of the Scrum framework and its application.

The PSM I Exam is a set of multiple choice and true/false questions. You should answer them in 60 minutes. The exam costs just $100 and you can take it online. You can also read the official Scrum Guide, which you will find it very easy to read after reading this ebook.

This is to certify that on   < date here >

< Your name here >

demonstrated a fundamental knowledge of Scrum roles, events, artifacts, and the rules that bind them together in the Scrum process, as described in the Scrum Guide.

This indicates qualification for membership in a Scrum team.

Scrum.org is pleased to provide certification at the level of

Professional Scrum Master I

Ken Schwaber

Scrum.org

Professional Scrum Master

This is a sample PSM I certificate from Scrum.Org

The Scrum course material provided by Management Plaza can be used to prepare for the PSM I (Professional Scrum Master level 1) exam. You can easily pass the exam by reading this ebook carefully, or taking our video or classroom course. See Management Plaza website for more information: http://www.mgmtplaza.com/

Another Scrum certificate is CSM (Certified ScrumMaster) from Scrum Alliance. However, it is a certificate of attendance and does not guarantee your knowledge like PSM I, because it is not based on an exam.

MANAGEMENT PLAZA
THE MANAGEMENT CERTIFICATION COMPANY

1

Introduction

1. Introduction

1.1. What Is Scrum and Agile? not included in the PSM I exam

It is not possible in some projects (especially in IT projects) to gather all the requirements upfront because of their extreme uncertainties. Therefore, we need a project management method flexible enough to deal with many change requests that appear during the project and keep the project team productive.

There are a number of systems designed to provide these two properties, and a group of them are called Agile Frameworks. Scrum is a project management method of the Agile group; it is the most famous and the most broadly used one.

Scrum is based on a certain process, which will be explained in the Scrum Events section of this ebook. This Scrum process will not be effective, unless it is combined with certain roles and artifacts, which are the subject of the two other main sections of this ebook.

1.2. Agile Manifesto not included in the PSM I exam

In 2001, a group of software developers published a [manifesto](#) that has since been considered the heart of all Agile methods. Scrum is a way of realizing this manifesto.

The complete Agile manifesto is as follows:

> We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:
>
> | **Individuals and interactions** | Over | processes and tools |
> | **Working software** | Over | comprehensive documentation |
> | **Customer collaboration** | Over | contract negotiation |
> | **Responding to change** | Over | following a plan |
>
> That is, while there is value in the items on the right, we value the items on the left more.

1.3. When to Use Scrum vs. When to Use Traditional Methods

not included in the PSM I exam

Both approaches have their strengths, so it all depends on the type of the project and its environment. However both approaches have a good deal in common which are often forgotten; both have effective planning followed by execution, monitoring and controlling.

When to use Scrum	When to use traditional methods
Scope is not clearly defined The product will gradually appear during the project	Scope is clearly defined upfront Clear product description is available upfront Similar projects were done before
Requirements change frequently Customer learns more about what they want as the project goes on	Requirements are well defined up front Few changes are expected during the project Products are not expected to change much
Activities cannot be well defined upfront Estimating (planning) is difficult	Activities can be well defined upfront Estimating is possible and reliable
Process is iterative (numerous cycles) Each cycle heavily depends on the previous ones	Process is more long term Project might be split into phases
Success is mostly measured by customer satisfaction	Success is mostly measured by achieving the project goals for time, cost, scope…
Incremental results have value and can be used by users	Users cannot normally start using the products until the project is complete (e.g. a bridge)

To summarize, it is better to use Scrum if there are lots of unknowns, where the projects are more complex, difficult to define detailed requirements upfront and therefore to define estimates at the beginning of the project.

It is better to use the traditional approaches when there are few unknowns, project is less complex, easy to define exact requirements upfront and therefore easy to estimate and plan the project from the very beginning.

Care should also be taken not to try to apply Scrum if the organization is not ready for it, e.g. if they have not been trained, if their existing way of working hinders the Scrum roles and responsibilities and people are not open to learn. Many times the Scrum Team gets training in Scrum but the project owners miss out. It is strongly advised not to start using Scrum until every role has received the necessary training and understands the roles and responsibilities.
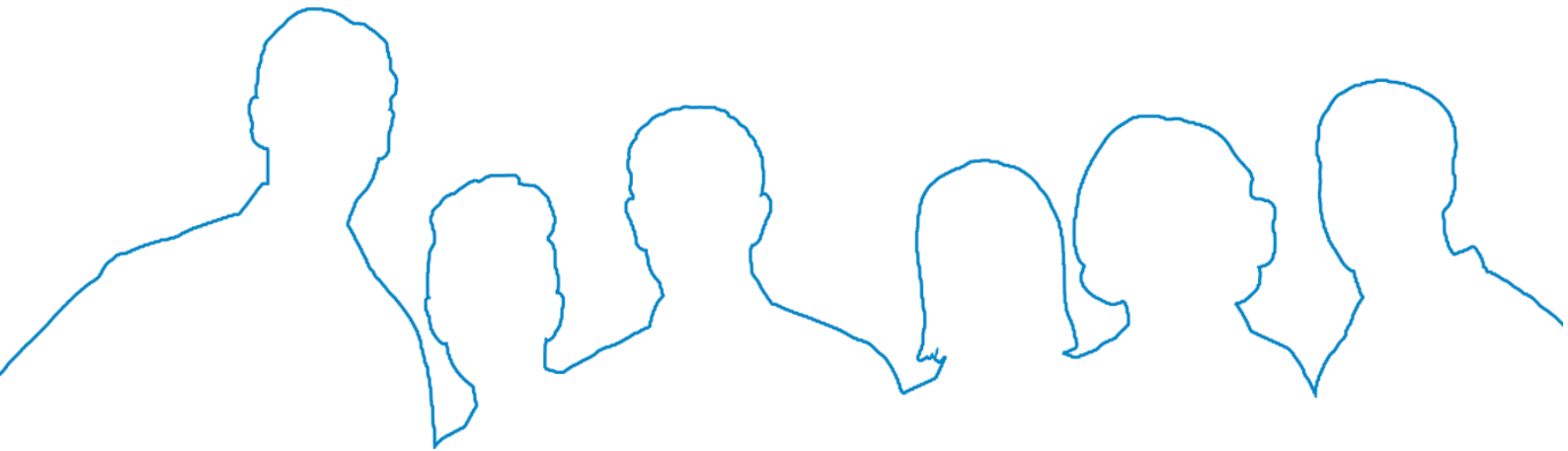
1.4. Facts and Fictions about Scrum

Some of the popular myths about Scrum, which we should be aware of, are as follows:

Fiction	Fact
Developers are free to do what they want.	Developers work in a productive and predefined framework and the Scrum Master makes sure they are following Scrum.
Scrum gets rid of all paper work and allows the team to start developing right away.	There are certain planning steps involved in every Scrum project and development can only start when the Sprint Backlog has been defined.
All requirements (in the form of stories) must be agreed before the Development Team is allowed to start working on the product.	The Development Team can start working as soon as the initial stories of the Product Backlog are in place.
Scrum is very easy to implement, even without training.	Using Scrum is a big change; It might seem easy to implement Scrum compared to other project approaches, but people must still have a good understanding of Scrum to be able to run their projects well.
Scrum is just a set of simple rules.	Scrum is a set of rules and a framework, plus a compatible work culture and ethic.
The Scrum Master is like a project manager.	There is no one similar to a traditional project manager in a Scrum project. The Scrum Master makes sure the Scrum framework is followed.
Scrum does not require you to have a Business Case.	There should be a justified reason to spend any money in any company and this should be documented. The Product Owner is responsible for ensuring that there is a feasible reason for performing the project and aligning the project with it.
Scrum allows the Development Team to decide what will be delivered.	A Team only decides on how to deliver; it is up to the Product Owner to determine what will be delivered.
The Product Owner is the project manager.	The Product Owner only creates and maintains the Product Backlog, but does not manage the day to day activities of the Team.
Scrum tells us everything about managing projects.	Scrum mostly deals with the definition and delivery of the products. Many of the business oriented aspects of the project are done outside Scrum.
The Product Owner is a representative from the customer.	The Product Owner is one of the people from the performing organization (the organization in charge of producing the final product of the project; a contractor in many cases), and the contact point with the customer.

MANAGEMENT PLAZA
THE MANAGEMENT CERTIFICATION COMPANY

2

Typical Scrum Timeline

2. Typical Scrum Timeline

not included in the PSM I exam

This section will give you a basic idea of how a Scrum project works. The business representatives has already agreed to build something for the organization through the project and a Vision Statement and Product Map will be provided to define and describe the vision and the goal of the project.

The following diagram shows the whole timeline. The Vision Statement and product roadmap are not part of Scrum, but are essential parts of managing projects and are covered in other Agile frameworks such as DSDM Atern.
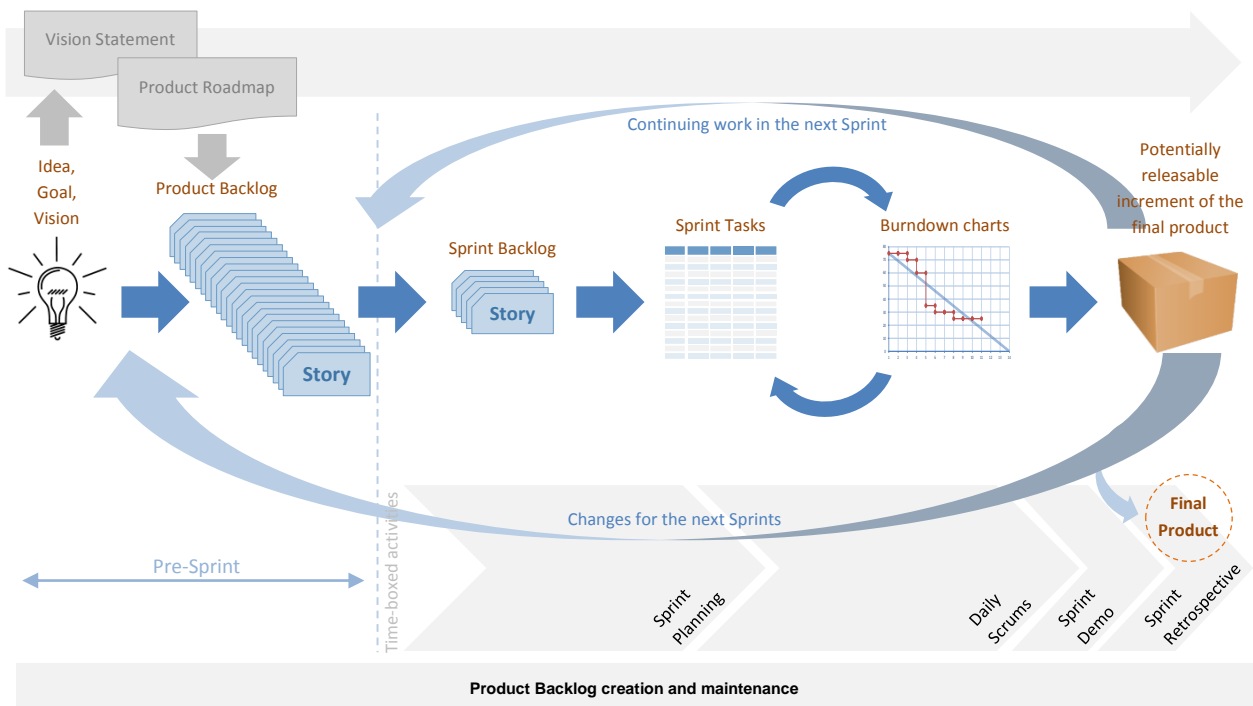
What happens prior to the Sprints:

1. The Vision Statement provides a concise description of the goals of the project which help the team stay focused on what is important from the organization point of view.
2. The Product Roadmap is an initial visual timeline of major product features to be delivered and is normally created by the Product Owner; one of the Scrum roles which will be explained later.
3. Gather user requirements, and turn them into deliverable features - these are called stories. Stories are normally written by the Product Owner and the requirements that make up these stories come from the customer.
4. All these stories make up the Product Backlog. In Scrum, we do not wait until the Product Backlog is 100% prepared with all the details to start the Sprints; we start

MANAGEMENT PLAZA
THE MANAGEMENT CERTIFICATION COMPANY

the Sprints as soon as the Product Backlog is mature enough for the near future and keep updating the backlog all the way through the project.
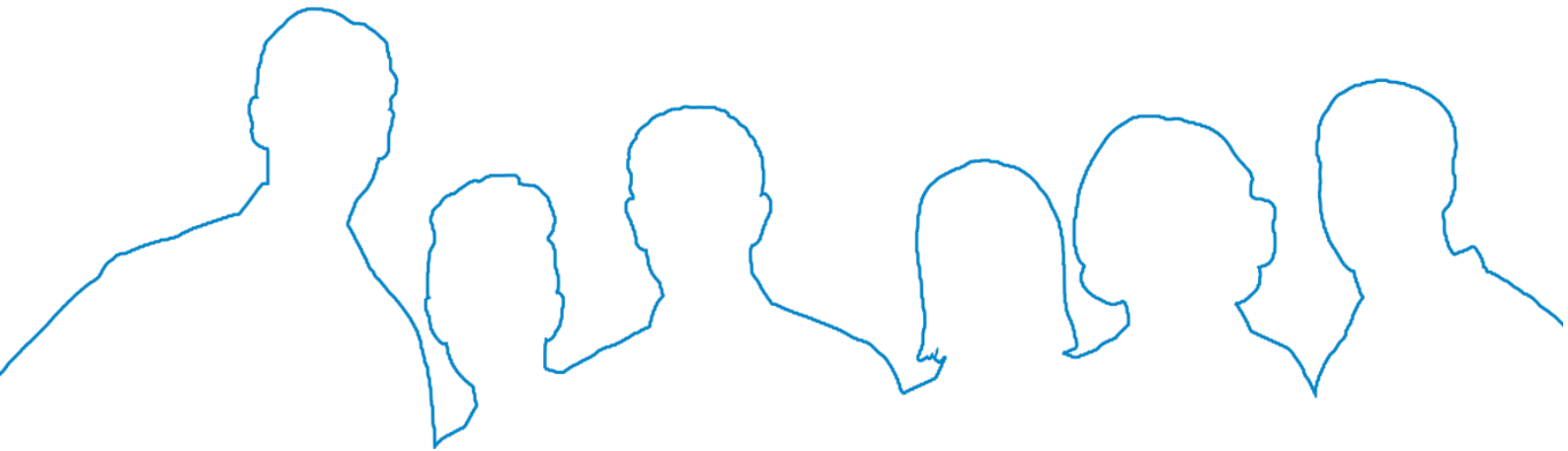
Sprint Activities:

5. Sprint Planning meetings are held to plan what will go into a Sprint (a fixed period of time used to deliver parts of the final product). The Product Owner prioritizes these requirements and therefore decides indirectly on the contents of the Sprint Backlog.

6. These stories (features, functionalities, or deliverables) make up the Sprint Backlog, so the Sprint Backlog is a list of all stories that will be developed in the next Sprint.

7. The Team breaks down (expands) these stories into tasks.

8. The Team then takes 30 days or so to deliver an agreed amount of stories.

9. The Team holds a Daily Scrum meeting of 15 minutes each day to collaborate with each other.

10. At the end of the Sprint, the Team demonstrates the completed stories (products) to the customer in a Sprint Demo (aka Sprint Review) meeting.

11. The last activity is the Scrum Retrospective meeting, where the team reviews the Sprint and looks for ways of improving (lessons learned).

12. The Scrum Master makes sure the Scrum process is followed entirely and offers coaching to everyone involved.
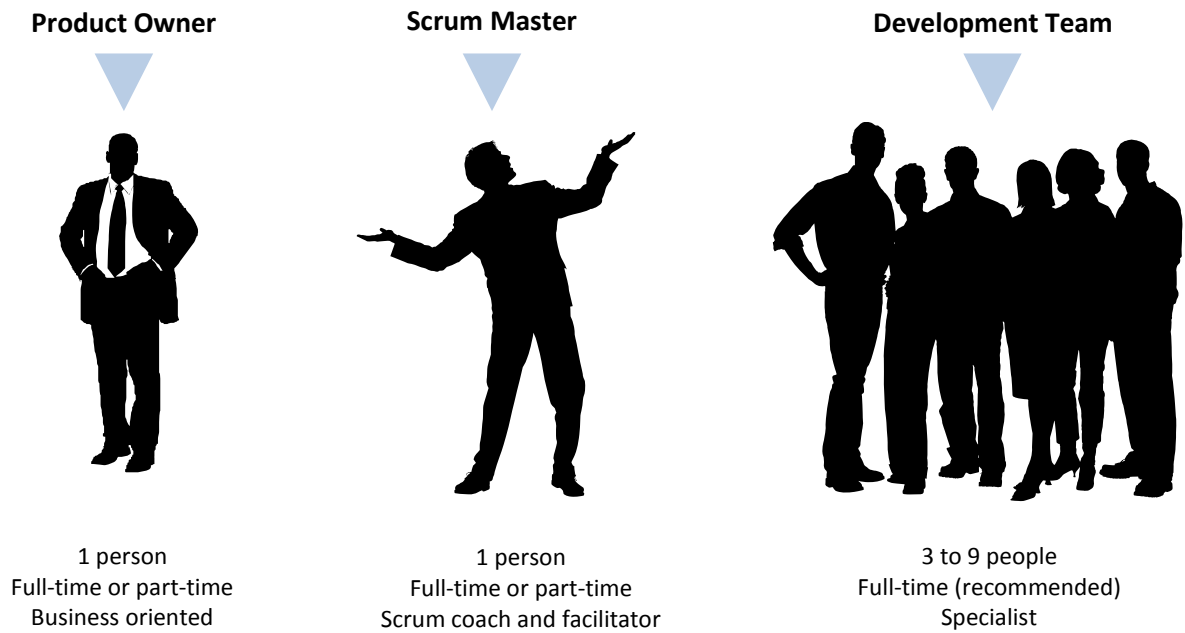
Blank Page

3

Scrum Roles

3. Scrum Roles

3.1. Scrum Team

There are three roles in a Scrum project; no less, and no more. We are not allowed to define any other roles, because it is harmful to the unity of the team, and it is not compatible with the philosophy of Scrum.

A *Scrum Team* consists of the following three roles:

Product Owner	Scrum Master	Development Team
1 person	1 person	3 to 9 people
Full-time or part-time	Full-time or part-time	Full-time (recommended)
Business oriented	Scrum coach and facilitator	Specialist

The term "Scrum Team" refers to all the project team members: everyone internal to the project. Scrum Team members usually have only one of the three standard roles of Scrum: Product Owner, Scrum Master, or Development Team member. It is possible for a single person to be assigned to more than one of the standard roles, but it is not recommended.

The Scrum Team is a part of the performing organization (the performing organization is the company which executes the project either for itself or as a contractor for an external customer).

Other persons can also be involved in the project but they are not considered *internal* to the project and Scrum theory does not cover them much. They should have a certain set of behaviors though, to make it possible for a Scrum project to succeed.

When the project is not internal to the performing organization (you are not doing the project for your own company), you should also consider the customer as another stakeholder. You may or may not have a separate customer, but you always have external

MANAGEMENT PLAZA
THE MANAGEMENT CERTIFICATION COMPANY

stakeholders (shown in the figure below) and should consider them in your development style.

▼ **The environment of an internal Scrum Project**
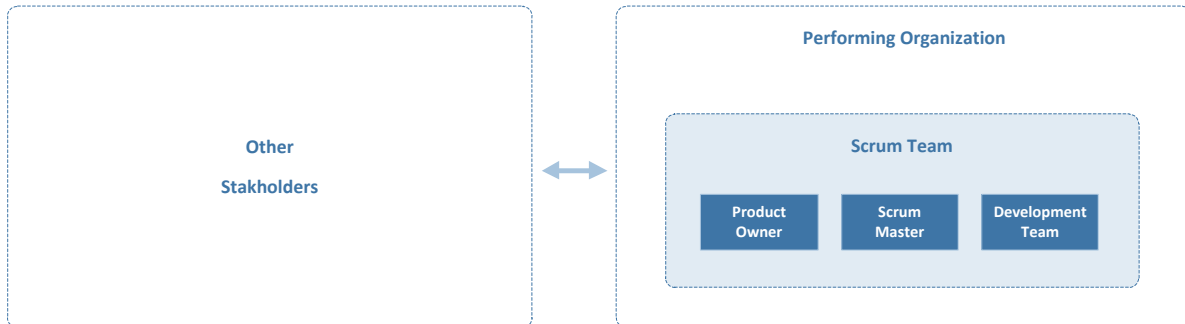
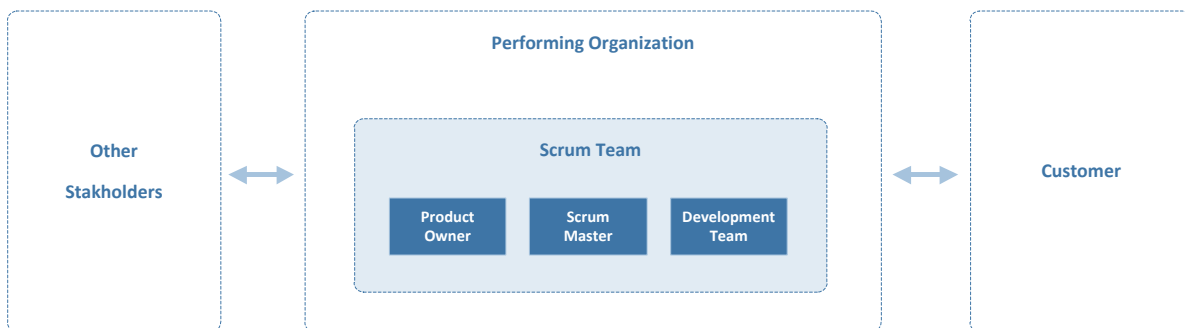▼ **The environment of an external Scrum Project**

The customer should understand and adopt Scrum framework too, as the relation between the customer and the performing organization and the way we deliver the project completely changes when we switch to the Scrum framework.

The Scrum Team has two essential characteristics:

- **Self-organized**: The Scrum Team manages its own efforts rather than being managed or directed by others. In traditional methods, management efforts are separated and centralized; a subset of the project team is responsible for project management and others are only responsible for specialist activities. However, management and specialist efforts are *not* separated in Scrum.
- **Cross-functional**: The Scrum Team has all the expertise and competencies needed to get the job done without any help from outside the team.

These two characteristics are designed to optimize flexibility, creativity, and productivity, needed for the Agile environment of Scrum.

3.2. Role 1: The Product Owner

Product Owner

Scrum Master

Development Team

1 person
Full-time or part-time
Business oriented

1 person
Full-time or part-time
Scrum coach and facilitator

3 to 9 people
Full-time (recommended)
Specialist
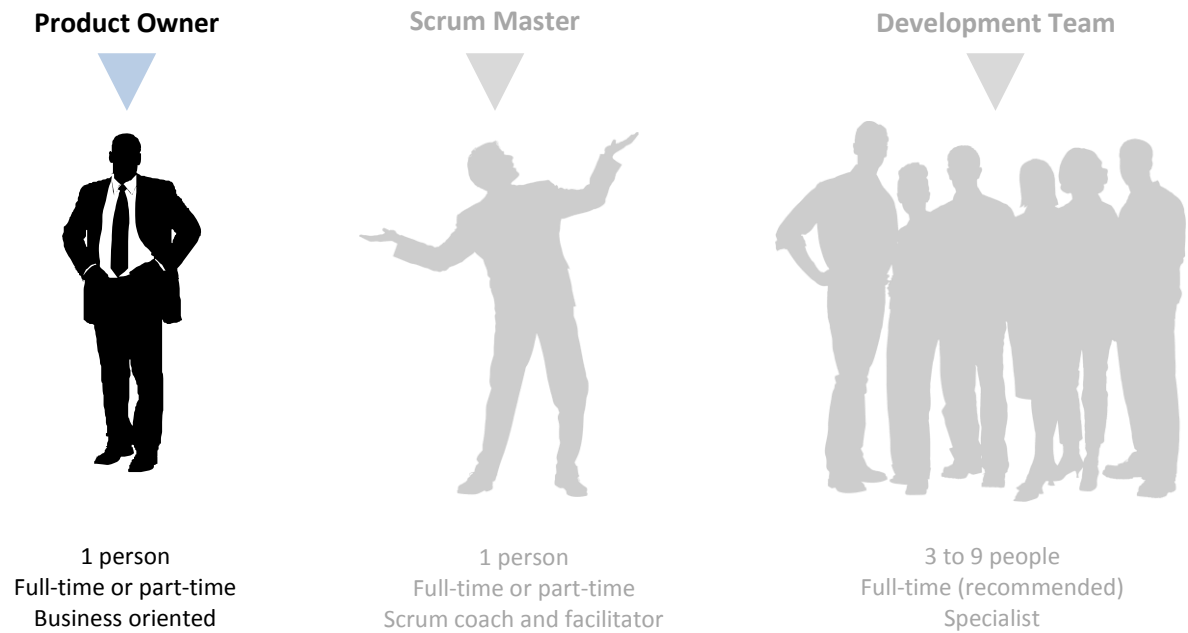
Each project needs a business oriented person, aimed at maximizing the value of the product and the work of the Development Team. In Scrum, this person is called Product Owner. Product Owners, like the two other roles, are from the performing organization, rather than from the client.

This role belongs to one person. There can be a committee to handle the responsibilities of this role, but in such a case, there should be one person representing this committee and we call this one person the Product Owner.

They do not need to have application area knowledge of the project; they are focused on the business aspect. In software development projects for example, Product Owners do not need to be developers themselves, they just need to know a little about development, but a lot about the *development business*.

The Product Owner is responsible for the *Product Backlog*. The Product Backlog is a prioritized list of items (aka stories or user stories) that the client expects from the project; this is the main planning tool in Scrum. It is also the responsibility of the Product Owner to make sure that each item (user story) is easy to understand for the Scrum Team, and other stakeholders.

Product Owners should communicate effectively with the customer (the inevitable success factor in every project management method), and use the information to keep the Product

Backlog updated with all the changes. They also measure the performance of the project, forecast the completion date, and make this information transparent to all stakeholders.

Customer

Requirements

Communications

Communications

Performing Organization
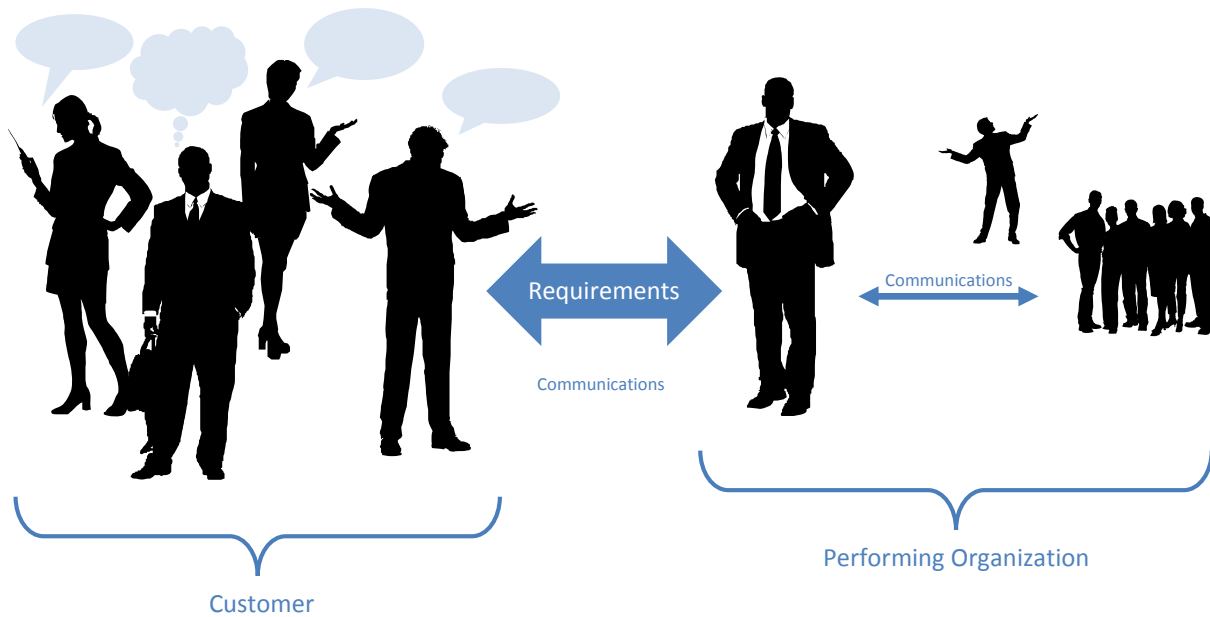
Product Owners understand the business, so they can rank each Product Backlog item based on its return on investment as well as any other factor they find suitable for the business point of view of the project. The items will be sorted based on their *value*, so the higher they are on the list, the sooner they will be developed by the Development Team.

The entire organization must respect the Product Owner decisions for the project to be successful. No one, even the CEO, should allow themselves to try to override those decisions, and no one should tell the Development Team what item to deliver, except for the Product Owner who sets and orders the items. A Product Owner's decisions might be influenced by others, but he/she must have the final say.

A Product Owner might delegate some of his/her responsibilities (such as preparing the list of items for the Product Backlog) to the Development Team, but stays accountable for them.

3.3. Role 2: The Scrum Master

Product Owner	Scrum Master	Development Team
▼	▼	▼

1 person	1 person	3 to 9 people
Full-time or part-time	Full-time or part-time	Full-time (recommended)
Business oriented	Scrum coach and facilitator	Specialist
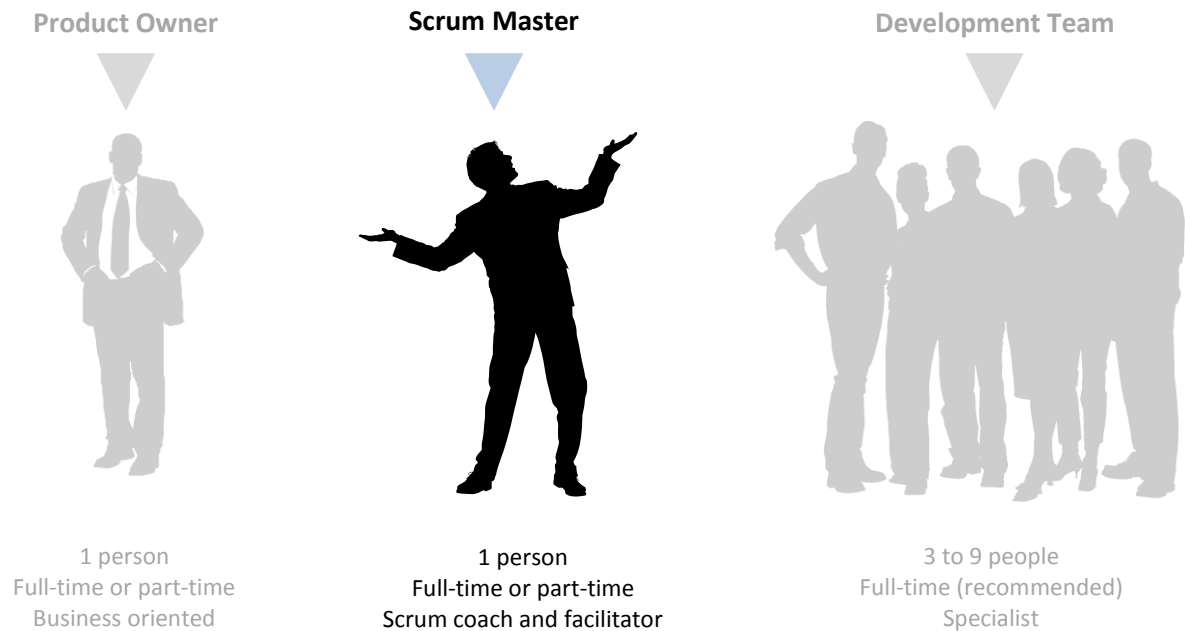
Scrum Masters are those who fully understand Scrum, and help the Scrum Team by coaching them, and ensuring that all Scrum processes are implemented correctly. The Scrum Master is a management position, which manages the Scrum process, rather than the Scrum Team. He/she is a servant-leader for the Scrum Team.

Besides ensuring that the Development Team understands and uses Scrum correctly, the Scrum Master also tries to remove impediments to the Development Team, facilitates their events, and trains or coaches them.

The Scrum Masters help the Product Owners too, by helping or consulting them on finding techniques, communicating information, and facilitating related events.

The responsibilities of the Scrum Masters are not limited to the Scrum Team. They should also help those outside the Scrum Team understand the appropriate interactions with the Scrum Team to maximize the value created by the Scrum Team. The Scrum Master usually leads the organization in its effort to adopt Scrum.

It is possible for a single person to be both Scrum Master, and a member of the Development Team, although this is not recommended. Being a Scrum Master of a project might not occupy 100% of the time of a person; in this case, the best solution is to assign that same person as the Scrum Master in more than one project, rather than making them a member of the Development Team.

> **How to spot a lazy Scrum Master:**
> A lazy Scrum Master only gives you this book and walks away!

MANAGEMENT PLAZA
THE MANAGEMENT CERTIFICATION COMPANY

3.4. Role 3: The Development Team

Product Owner	Scrum Master	**Development Team**
1 person	1 person	3 to 9 people
Full-time or part-time	Full-time or part-time	Full-time (recommended)
Business oriented	Scrum coach and facilitator	Specialist
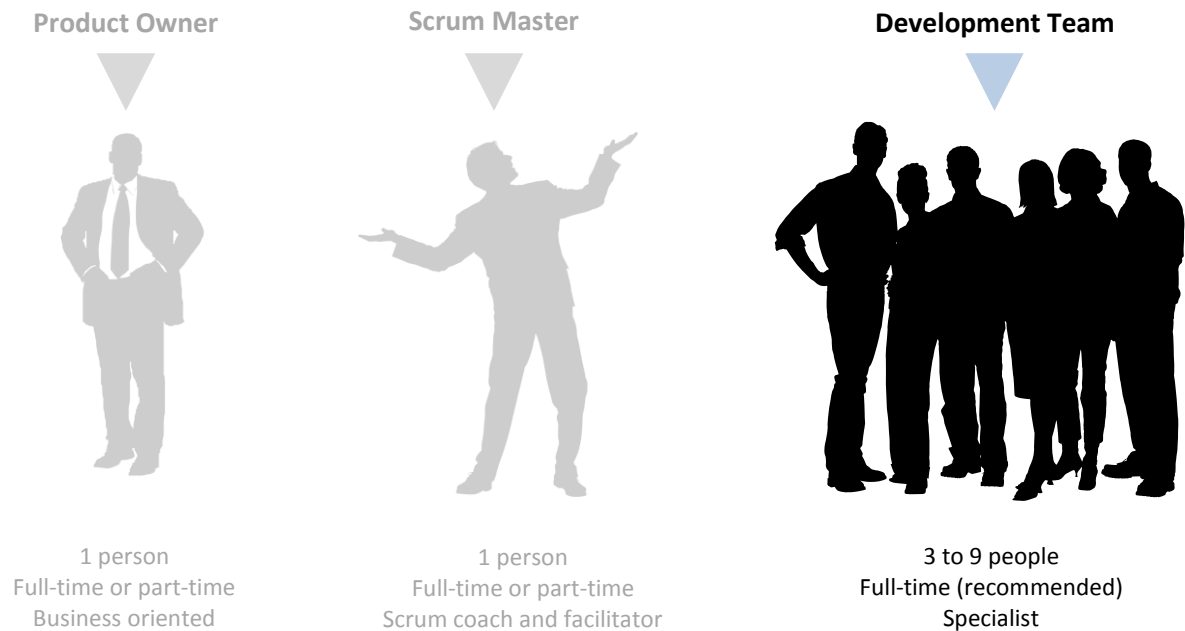
Members of the Development Team are application area experts that are responsible for delivering backlog items, *and* managing their own efforts.

They should be cross-functional; being capable of doing the A to Z of the creation of each Product Backlog item. They should be self-organized; find their own way instead of receiving orders. They should be aligned with the goal of the project instead of working blindly. A task might be assigned to a single member throughout the Sprint, but the whole Development Team will be responsible and accountable for that task; no individual owns any task.

The Development Team delivers the final product of the project in step by step Increments, as defined in the Product Backlog. They always work in a product-based way.

It is highly recommended for members of the Development Team to work full-time in a single project, to stay focused and agile. The composition of the Development Team should not change so often. If there is a need to change team members, then this change should not happen during a Sprint and there will be a short-term decrease in productivity when the composition of the team changes.

Scrum is mostly effective when there are 3 to 9 Development Team members. For large projects, we can use a scaled model with multiple Scrum Teams. However, the use of multiple teams is not common in Scrum.

3.5. Other Roles

You might have the temptation to give Development Team members more specific titles, such as designer, tester, quality inspector, and team leader; but Scrum does not allow this! All members should have the same role, and the same title: Development Team member.

Scrum is completely depended on collaboration and team-work. Development Team members should be united and completely aligned with the goal of the project. If you give them different titles or roles, they will focus on their own specific role in the project instead, and they might not pay enough attention to the final product which is necessary for agile projects. Each Development Team member is responsible for all the outputs created in the Development Team, even though each of them might be focused on a specific set of tasks.

3.6. So Who Is the Project Manager?

Now that we have reviewed all the Scrum roles, you might ask yourself, who is the *project manager*?

The answer is simple: there is no such role in Scrum; and none of the 3 roles of Scrum act as a traditional project manager.

Some people consider the Scrum Masters to be the equivalent to traditional project managers; but it is not true, because the Scrum Master responsibilities are very different than a traditional project manager.
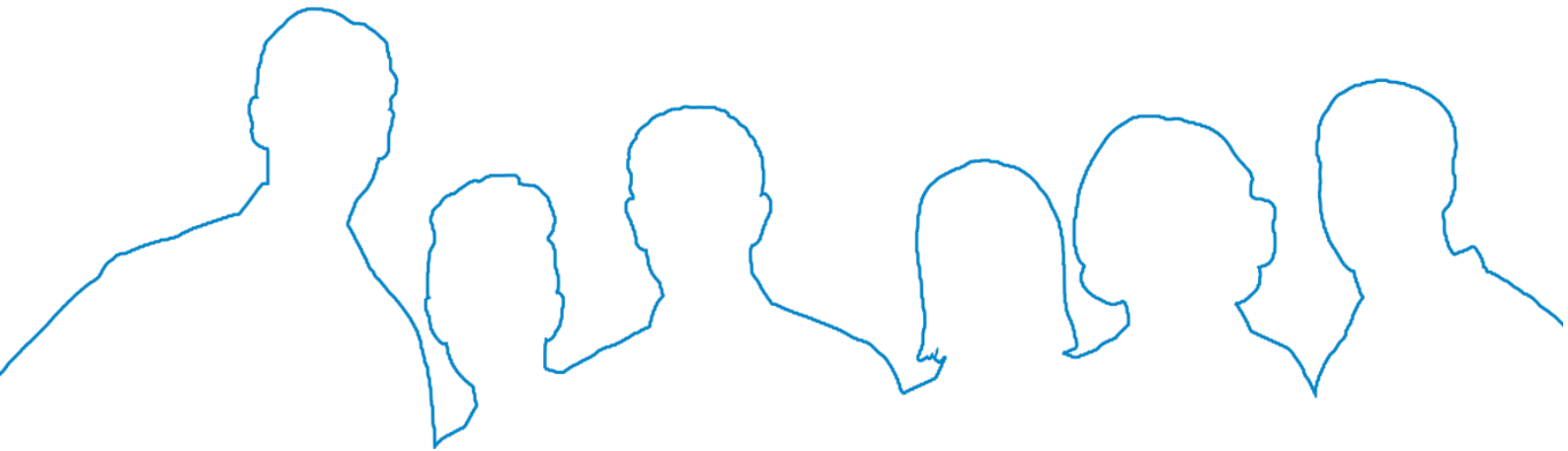
So, a better question to ask is: what happens to *project management*?

The project management responsibilities are *distributed* among the three roles of Scrum and there is no centralized project management in Scrum.

4

Scrum Events

4. Scrum Events

4.1. The Nature of Scrum Events

There are just five events in a Scrum Project:

1. **Sprint**: Each Scrum project is a set of Sprints. Sprint is a container for the four other events (as represented in the above diagram), development effort, and the maintenance of the Product Backlog.

2. **Sprint Planning**: Sprint Planning is the first event inside a Sprint. The Scrum Team plans the items they are going to deliver in the Sprint and the way they will deliver them.

3. **Daily Scrum**: The Development Team starts working on the objectives of the Sprint as soon as Sprint Planning is completed. During this time, it holds a daily meeting (normally 15 minutes) to coordinate the work for the next 24 hours, which is called Daily Scrum.

4. **Sprint Review**: Before the end of the Sprint, the Development Team presents (demonstrates) the outcome of the Sprint to the customer and receives feedback. This meeting is called Sprint Review (also known as Sprint Demo).

5. **Sprint Retrospective**: After the Sprint Review and just before the Sprint is over, the Development Team holds an internal meeting to review the Sprint and use it to improve the process (lessons learned) in the next Sprint. This is called Sprint Retrospective.

The events are designed to enable critical transparency, inspection, regularity, and adaptation. We prefer to use these predefined meetings with fixed objectives and maximum durations instead of ad-hoc meetings, which most likely waste our time.

There is an essential concept in Agile methods, called time-box: a predefined fixed maximum duration of time. In order to maximize productivity, all of the Scrum events must be time-boxed.

4.2. The Time-Box Concept

Time-box is an essential concept in Scrum. It is our way of staying focused and getting things done in an ever-changing environment. A time-box is a fixed period of time in which we freeze the target and work with full focus on certain tasks or objectives. Time-boxed events

repeat many times, until the final goal is achieved. All the changes are applied only when one time-box is finished and we are ready to start the next one.

The duration of a time-box should be agreed upon and fixed. We are free to change the duration based on lessons learned, but not frequently, and never based on single occasions. For example, we are not allowed to say that "we have a lot to do this time, so let's increase the duration for this particular case". What we are allowed to say is "based on the previous ten time-boxes, we realized that the duration of our time-boxes is not suitable, and a 30% increase in duration might better fit our needs. So, let's increase them from now on".

4.3. Event 1: The Sprint

Each Scrum project delivers the final product after a number of cycles, which are called Sprints. An Increment is developed in each Sprint. An Increment is a potentially releasable part of the final product; a sum of all Product Backlog items completed in a specific Sprint and its previous Sprints. An Increment can be considered a minor revision of the product with new features and functionalities. An Increment may or may not be released at the end of the Sprint, but it *must* be potentially releasable.

Customers usually request changes when they see the Increment (Sprint Review), and we apply changes in the Product Backlog.
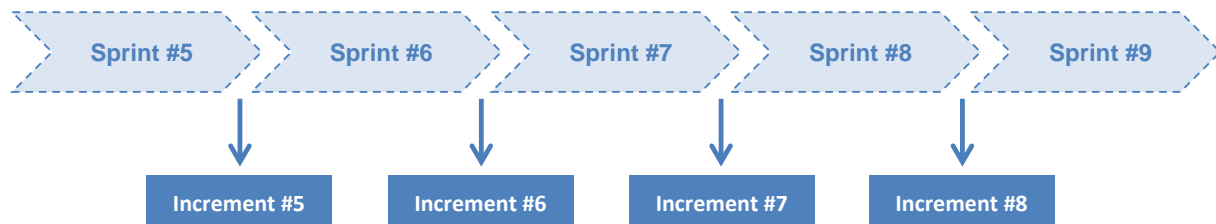
Sprint is a time-boxed event, which means we should fix its duration at the beginning of the project and do not change it frequently or occasionally. Sprints are usually fixed for one month or less.

The important point is that we do not change the items of the Sprint Backlog after the Sprint is started and the plans are set. The Sprint Goal (discussed further in Sprint Planning) should not change at all either. The Product Owner and the Development Team might try to clarify and re-negotiate the scope as more is learned, but will not *change* the Sprint Backlog. Even the composition of the Development Team should not change during a Sprint. These constraints are designed to make it possible to focus and get things done.

Each item (story) in the Product Backlog should normally be developed (completed) in a single Sprint as this is much easier to manage. The Product Owner and the Development Team select a number of items from the top of the Product Backlog (this has already been prioritized by the Product Owner) and aim to get them "Done" (100% complete). We want them to be really "Done" when the Sprint is over, and create an Increment. An Increment is the sum of all the completed items during a Sprint and all previous Sprints.

It is important to agree on a definition of "Done" at the beginning of the project. We will not call something "Done", unless it fits the definition. A 99.999% completed item is not considered as "Done", it would not be part of the Increment, and it would not be demonstrated to the customer at the Sprint Review.

Sprint Time boxes: Most companies use Sprint time boxes of 2 to 4 weeks. If we use time-boxes longer than one calendar month for Sprints, it will be likely for the unapplied changes to become large enough to create problems. This will increase the complexity and risk. Therefore, we should keep the Sprints no more than one calendar month. Sprints should not be too short either, because we would not be able to produce complete Product Backlog items during it. Our goal is to deliver the final product item by item, inside the Sprints; we do not want to split a single Product Backlog item among several Sprints.

Can a Sprint be cancelled? Even though each Sprint is frozen and does not change, the Product Owner has the authority to *cancel* a Sprint. This can happen when the Sprit Goal becomes obsolete, due to changes in the Product Backlog, strategies, approach, etc. When a Sprint is cancelled, the items that are "Done" will be reviewed and accepted, and the rest of the items (not started or partly complete) will be put back into the Product Backlog to be done in the future.

4.4. Event 2: Sprint Planning

The Development Team does not wait until the Product Backlog is 100% planned (all requirements are gathered and cleared) to start developing the project. As soon as the Product Backlog is mature enough to guide us through the near future, the Product Owner and the Development Team can start the first Sprint.

The first thing to do in each Sprint is Sprint Planning. Sprint Planning is a time-boxed meeting, usually fixed to 8 hours for a one month Sprint, or shorter for Sprints of less than a month. All three roles should attend this meeting.

Development Team should estimate the capacity of work it can deliver in a single Sprint. The Product Owner has already ranked and ordered the Product Backlog based on the value of the items. The Product Owner also ensures that the items (stories) are easy to understand. The Development Team then selects an appropriate number of items from the top of the Product Backlog, and puts them in the Sprint Backlog, to deliver in the current Sprint. The amount of work for each item is estimated by the Development Team and the total amount of work of the selected Product Backlog items is close to the estimated capacity of the Development Team.

Following the selection of the items, the Scrum Team should craft a Sprint Goal, which is an objective that should be met within the Sprint through the implementation of the Product Backlog. The Scrum Goal provides guidance to the Development Team on why it is building the Increment.

> This is a sample Sprint Goal:
>
> *We are going to enable all the essential parts of the website store to set up a complete purchase process. This makes other features of the website more meaningful to the customer and potential change requests will be raised sooner.*

There is no doubt that the Product Backlog should be ordered in a way that facilitates setting Sprint Goals.

The scope of the Sprint, which is made up of the items selected from the Product Backlog, might need addition of some details through the Sprint. These details should be aligned with the Sprint Goal, and likely re-negotiations should be done in presence of the Product Owner. The Sprint Goal is also included in the Sprint Backlog.

When the items to deliver are selected and the Sprint Goal is agreed, it is time to plan how they will turn the items into a "Done" product Increment and realize the Sprint Goal. This is the last part of the Sprint Backlog. This planning is not necessarily completed in this meeting; having a detailed plan for the first few days is enough; the Development Team can prepare detailed plans for the rest of the work later on.

A detail plan, as shown in the next figure, is a breakdown of a Product Backlog item into detailed tasks needed to be done in order to create the item. Each task might have estimates, dependencies, and similar information to make tracking possible.

A single Product Backlog item (story)

Payment gateway

Title:
ID: 108
Estimate: 6
Importance: 80
Demo: when user has something in the cart and clicks on the check-out button, they will be provided with payment methods, they select one, they would be able to pay, and then directed to the thank you page.
Tasks: 108-1, 108-2, 108-3, 108-4

Tasks needed for getting the item done
(A plan for developing the item)

Title: Registering for gateways
ID: 108-1
Parent story: Payment
Estimate:

Title: Preparing returning code
ID:

Title: Preparing gateway links
ID: 108-1

Title: Preparing gateway selection system and page
ID: 108-1
Parent story: Payment gateway
Estimate: 1.4
Predecessor: 106-7
Successor: 108-3, 108-4
Description: as explained in S108T01.PDF

The Sprint Backlog will be ready at the end of this meeting and the Development Team should be able to describe what items they will deliver through the Sprint, and how they will do it.

There is no specific rule on documenting, storing, and presenting the Sprint Backlog. It can be written on a board (wall chart) similar to one shown in the following figure.

Sprint Goal	To Do	Doing	Done
The goal of this sprint is To make the purchasing part of the website mature enough to be able to handle the whole process and users can experience a full purchasing process, through which other functionalities of the website will be more meaningful.	Item #1 t.1.6 t.1.3 t.1.2 t.1.4 t.1.1 t.1.5		
	Item #2 t.2.1 t.2.3 t.2.2		
	Item #3 t.3.4 t.3.2 t.3.1 t.3.3		
	Item #4 t.4.4 t.4.2 t.4.1		
	Item #5		

Yellow sticky notes (post-its) on the above board are tasks that are created by breaking down each of the items. These tasks define what the Development Team will do to deliver

MANAGEMENT PLAZA
THE MANAGEMENT CERTIFICATION COMPANY

each item, and they are responsible for preparing them. Some tasks are created at the Sprint Planning meeting, and some others throughout the Sprint.

The Sprint Backlog consists of the following:

1. The Sprint Goal
2. Selected items from the Product Backlog, to be delivered through the Sprint
3. A detailed plan for turning the selected items into "Done" Increment of the product and to realize the Sprint Goal (the plan would not be completely detailed in the Sprint Planning meeting)

As you can see, the three Sprint Backlog elements (Sprint Goal, Product Backlog items selected for the Sprint, and the detailed plan) are shown on the sample board. This sample Scrum board has also extra features for tracking the tasks and items in "To Do", "Doing", and "Done" columns. The next figure shows the same Sprint after the first item is complete and items #2 and #3 are in progress.

Sprint Goal	To Do	Doing	Done
The goal of this sprint is To make the purchasing part of the website mature enough to be able to handle the whole process and users can experience a full purchasing process, through which other functionalities of the website will be more meaningful.			Item #1 t.1.6 t.1.1 t.1.3 t.1.5 t.1.2
	Item #2 t.2.7	t.2.6 t.2.5	t.2.1 t.2.3 t.2.2 t.2.4
	Item #3 t.3.4 t.3.5 t.3.3 t.3.2	t.3.1	
	Item #4 t.4.4 t.4.2 t.4.5 t.4.1 t.4.3		
	Item #5 t.5.4 .3 t.5.1 t.5 t.5.5 t.5.2		

You can also see that extra tasks have been added to the lower ranked items (items #3 to #5), which is the ongoing detail planning done through the Sprint.

Items in the Sprint Backlog usually have the same order they had in the Product Backlog, therefore, the Development Team should work on the higher ordered items first.

4.5. Event 3: Daily Scrum

The Daily Scrum is normally a 15 minute meeting for the Development Team to inspect the work since the last meeting, and synchronize their work and plan for the next 24 hours. It must be held on a daily basis.

During the Daily Scrum, each member of the Development Team should answer these three questions:

1.   What has been accomplished since the last meeting?
2.   What will be done before the next meeting?
3.   What obstacles are in the way?

They should assess progress towards the Sprint Goal and forecast the likelihood of completing the items before the Sprint is over.

The Daily Scrum meeting should be held at the same time and place throughout the Sprint, to minimize the complexity. It is just for the Development Team; it is not a status meeting for all the stakeholders.

The Development Team should also monitor Sprint progress each day and therefore it is a good idea for the Sprint board (wall chart) to be visible during the Daily Scrum meeting. They can use a burn-down chart to track their remaining work and check to see if they are going to complete all items before the end of the Sprint.

Sprint Goal	To Do	Doing	Done
The goal of this sprint is To make the purchasing part of the website mature enough to be able to handle the whole process and users can experience a full purchasing process, through which other functionalities of the website will be more meaningful.			Item #1 t.1.6 t.1.1 t.1.3 t.1.5 t.1.2
	Item #2 t.2.7	t.2.6 t.2.5	t.2.1 t.2.3 t.2.2 t.2.4
	Item #3 t.3.4 t.3.5 t.3.3 t.3.2	t.3.1	
Sprint Burn-Down Chart	Item #4 t.4.4 t.4.2 t.4.5 t.4.1 t.4.3		
	Item #5 t.5 t.5.4 .3 t.5.1 t.5.5 t.5.2		

The above figure now contains the Sprint Burn-Down Chart (the tracking information) and this can be updated after each Daily Scrum meeting. Burn-Down Charts are discussed further in the next section.

4.6. Event 4: Sprint Review

The duration of this meeting is normally **four hours** for a one month Sprint. If the Sprints are shorter then this meeting will be proportionally shorter.

At the end of the Sprint, the Scrum Team and other stakeholders gather and hold a four hour meeting to present and inspect the "Done" items (the Increment) from the current Sprint and adapt the Product Backlog by marking off "Done" items as complete and add new items or change the existing ones if necessary. The presentation of the Increment in this meeting is intended to collect feedback and raise change requests at the earliest time possible.

We welcome changes in Scrum and encourage them to be demanded, because it increases the satisfaction of the customer and will create a final product that better matches the needs of the customer.

The Development Team does not present an item, unless it is 100% complete based on the agreed definition of "Done". The Product Owner makes sure (before the Scrum Review) that presented items are "Done". The Development Team demonstrates and explains the items.

The Product Owner discusses the status of the Product Backlog and the likely completion dates based on the progress.

Customer

Performing Organization
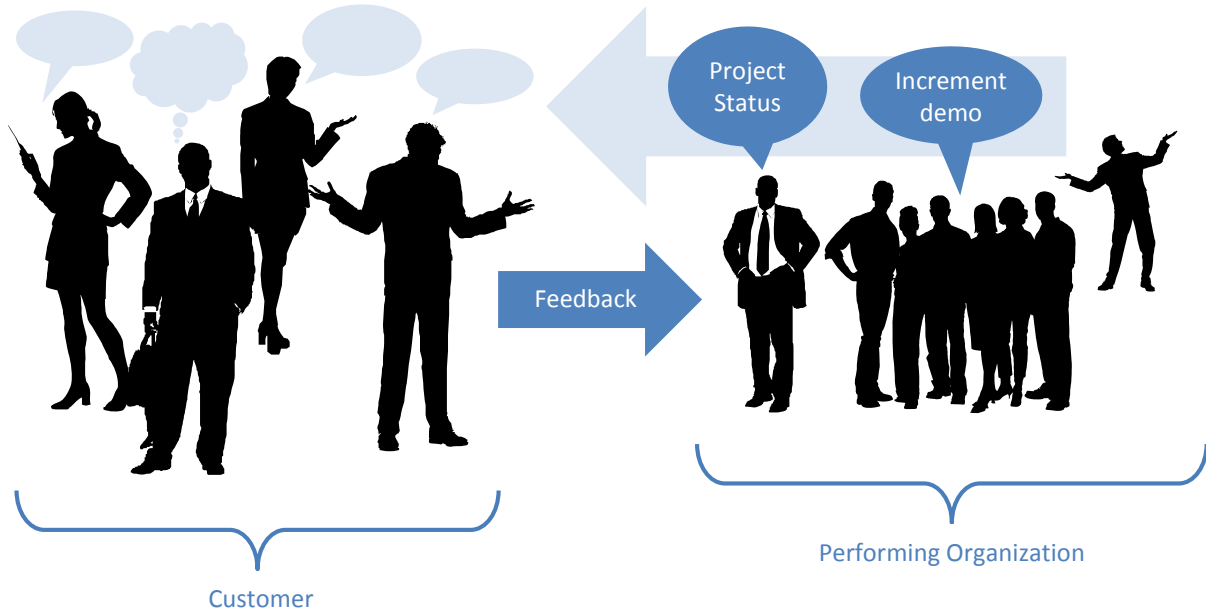
Finally, the whole Scrum Team collaborates on revising the Product Backlog based on the output of the Sprint and the feedback received from the customer.

4.7. Event 5: Sprint Retrospective

This meeting is normally **three hours** for a one month Sprint. If the Sprint is shorter than one month, this meeting will be proportionally shorter.

After the Sprint Review and just before the end of the Sprint, another meeting will be held, aimed at process improvement (learning lessons), which is called Sprint Retrospective.

There is a rule: we should always look for ways to improve. It does not matter how little the improvement is, there should be an improvement. This meeting is a formal opportunity for improvement, even though we do not limit our improvement to the results of this meeting. We will review (inspect) the Sprint, with regards to people, relationships, processes, and tools, and identify ways of improving them in the next Sprint.

4.8. Activity: Product Backlog Grooming

Besides the time boxed event discussed before, there is also an ongoing activity in Scrum projects called Product Backlog grooming. It is the act of reviewing and revising Product Backlog items, which typically involves adding detail, estimates, and order to them. The Product Owner is responsible for ordering (prioritizing) the items and the Development Team is responsible for estimating those items.

The main difference between this activity and the five Scrum events is that Scrum events are all time-boxed, but grooming is an ongoing activity that happens throughout the Sprint. This activity should not consume more than 10% of the time of the Development Team.

4.9. Slack   not included in the PSM I exam!

It does not matter how much we work; what we produce is important. We should be product-oriented, rather than activity-oriented. One way of being productive, is to limit the work time to a reasonable amount, and have frequent off times. That is why it is recommended (but not necessary) to have a slack between each two Sprints. Let's have a day or two off to recharge your batteries, read some relevant articles, and check out what other teams are doing.

Slacks can also be used for reading articles, taking part in courses or workshops, spending time on creative projects, etc.
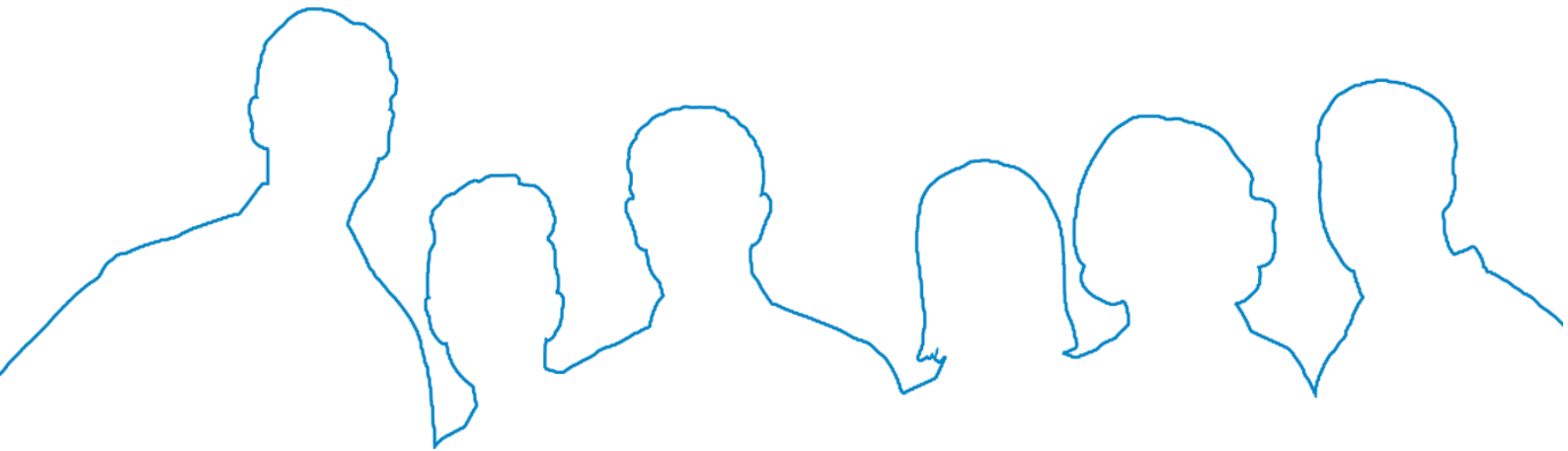
We will be back after the slack, and repeat the same cycle over and over again, each time with a little improvement, until the final product of the project is delivered, and the client is completely satisfied with it.

Blank Page

5

Scrum Artifacts

5. Scrum Artifacts

Scrum artifacts – results/products of our management activities – are designed to increase transparency of information related to the delivery of the project, and provide opportunities for inspection and adaptation.

There are six artifacts in Scrum:

1. **Product Backlog**: An ordered list of everything (aka stories) that might be needed in the final product
2. **Sprint Backlog**: Selected items (stories) from the Product Backlog to be delivered through a Sprint, along with the Sprint Goal and plans for delivering the items and realizing the Sprint Goal
3. **Increment**: The set of all the Product Backlog items completed up to the end of a certain Sprint
4. **Definition of "Done"**: The shared understanding of what it means for a piece of work to be considered complete
5. **Monitoring Progress towards a Goal**: The performance measurement and forecast for the whole project
6. **Monitoring Sprint Progress**: The performance measurement and forecasts for a single Sprint

Items 5 and 6 might look more like activities, but they are considered artifacts in the Scrum Guide, and therefore we will explain them as so. You can imagine their output (tracking information, burn-down charts, etc.) as the real artifacts and these two items as ongoing activities (like Product Backlog grooming) or part of the Scrum events (part of Sprint Review and Daily Scrum).

5.1. Artifact 1: Product Backlog

The Product Backlog is an ordered list of everything that might be needed in the final product of the project, in other words parts of the expected final product (a wishlist). All items are described in simple business language (non-technical) and all of them are presentable to every stakeholder. Every requirement and every change in the project will be reflected in the Product Backlog.

MANAGEMENT PLAZA
THE MANAGEMENT CERTIFICATION COMPANY

The Product Backlog is dynamically changing and improving; it is never complete. <mark>We do not wait until the Product Backlog is complete to start delivering the items; the first Sprint can be started as soon as the Product Backlog is showing the near future</mark>.
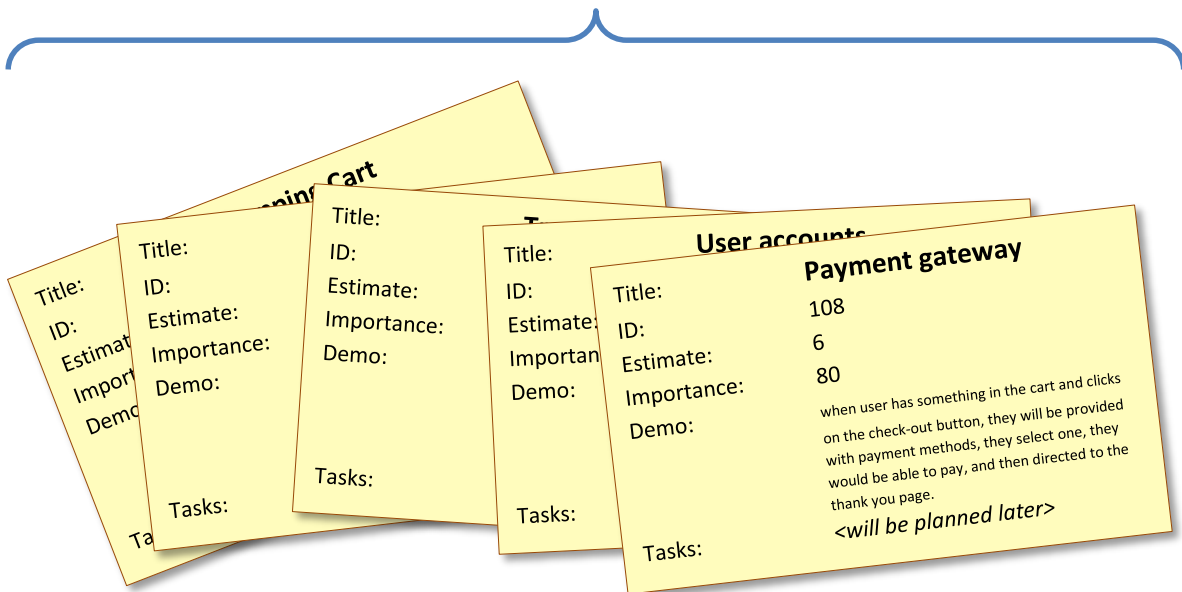
The Product Owner sets a number of factors to determine the value of each item for the business; return on investment is usually one of the factors. All these factors will be summarized into one value (**importance**) and this is shown with each item.

The Product Backlog items will then be ordered based on their value, in a way that the higher an item is, the sooner it will be delivered by the Development Team. As the items located at top of the Product Backlog will be delivered sooner, they will also be more detailed and clear compared to the lower items.

The next figure shows a sample set of Product Backlog items presented in a number of cards.

The Product Backlog is an ordered list of items (stories)

Payment gateway

108

6

80

when user has something in the cart and clicks on the check-out button, they will be provided with payment methods, they select one, they would be able to pay, and then directed to the thank you page.

<will be planned later>

Each Product Backlog item also has a work estimate. These estimates are solely done by the Development Team, and are used in comparison to the capacity of the Development Team in a single Sprint, to determine the number of items that will be selected for that certain Sprint. Many additional information might be added to each item to help the Scrum Team take control.

This figure shows the type of information available for a single Product Backlog item in a typical Scrum tool. This is also a good example of a Scrum tool.
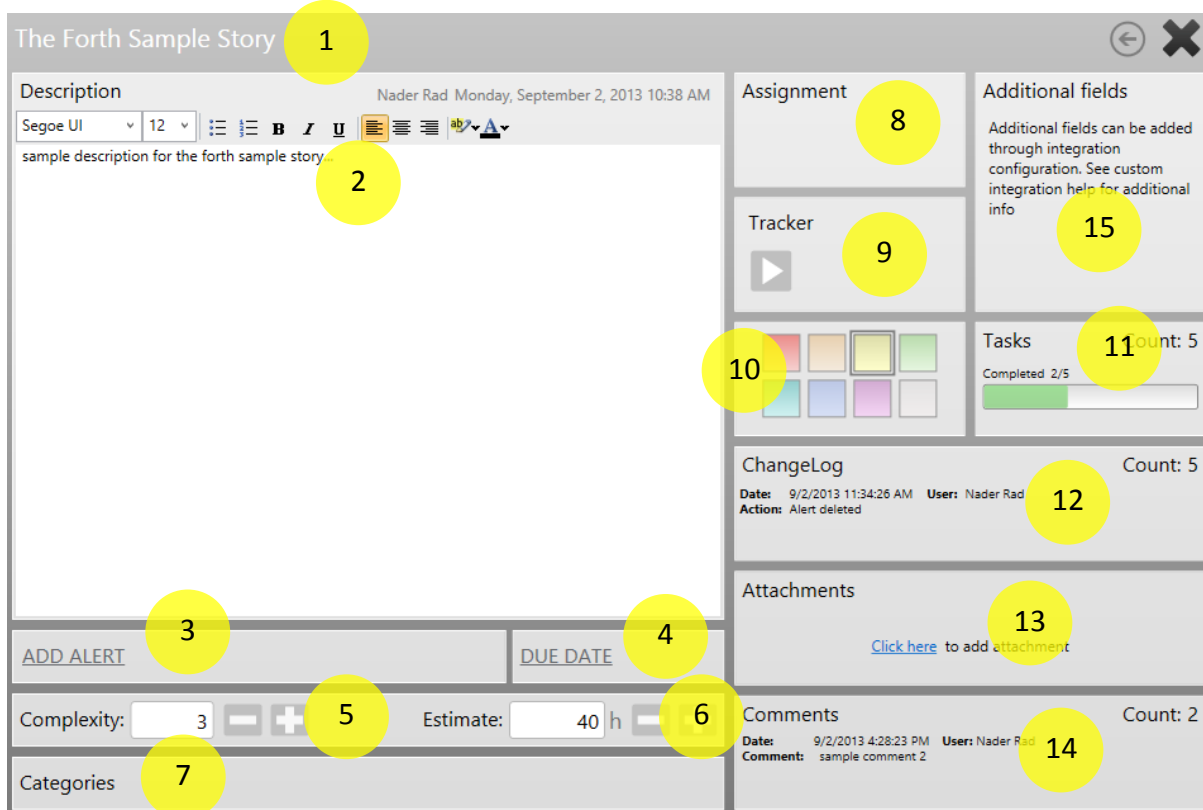
Take your time to study this diagram as it contains a lot of information. These are the different parts of this dialog box:

1. **Story Name** – "The Fourth Sample Story" in this figure.
2. **Story Description** – Quality criteria, explanation of the scope, etc. It is useful to store all the relevant information here, so that the whole Scrum Team can have access to it.
3. **Alerts** – Optional custom alerts can be set here.
4. **Due Date** – You can also add optional custom due dates and use them to track stories. For example, you have decided in the middle of the Sprint (part of the detailed planning) to finish a certain story in a particular date, and you set that date here.
5. **Complexity** – It is a field used to defining the nature of the story and can be used for Sprint Planning. Usually the more complex a story is, the more uncertain its estimate would be.
6. **Estimate** – This is the estimated volume of the story determined by the Development Team.

7. **Categories** – When there are lots of stories in the backlog, it is a good idea to categorize them for ease of access and maintenance. This can act as a normal WBS (work breakdown structure) in traditional projects where deliverables are grouped together.

8. **Assignments** – The story can be assigned to any person in the team. However, the whole Scrum Team would remain accountable for it.

9. **Tracker** – You can record time spend on each story for further analysis, refining estimates, billing, etc.

10. **Colors** – You can set different colors to each story to differentiate them visually in the Scrum board. This is a way of grouping/categorizing items.

11. **Tasks** – You can breakdown the story into tasks (detailed planning) and track them separately. A simple progress would be calculated for each story based on the number of completed tasks. Tasks are created by the Development Team.

12. **Change Log** – The history of the changes made in this story (such as creation of tasks) would be stored to be used later.

13. **Attachments** – You can attach relevant documents and use the software as a document management tool too.

14. **Comments** – Each member of the Scrum Team can leave comments and collaborate with others. This field is very helpful and we always ask team members to use it.

15. **Additional fields** – If all of the above fields are not enough for you, you can define your own custom fields and use them for other planning and control needs.

One important use of Scrum tools is collaboration. Collaboration features are more important when the Scrum Team is not co-located and traditional ways of collaboration are not possible.

The following figure shows a sample Product Backlog created in an online Scrum tool. The Product Owner has identified the stories, but the estimates are not done yet (question marks on the right side of the rows).

Current status of the sample:

- Identified stories   yes
- Estimates   no
- Sprint plan   no
- Tasks   no
- Completed tasks and stories   no
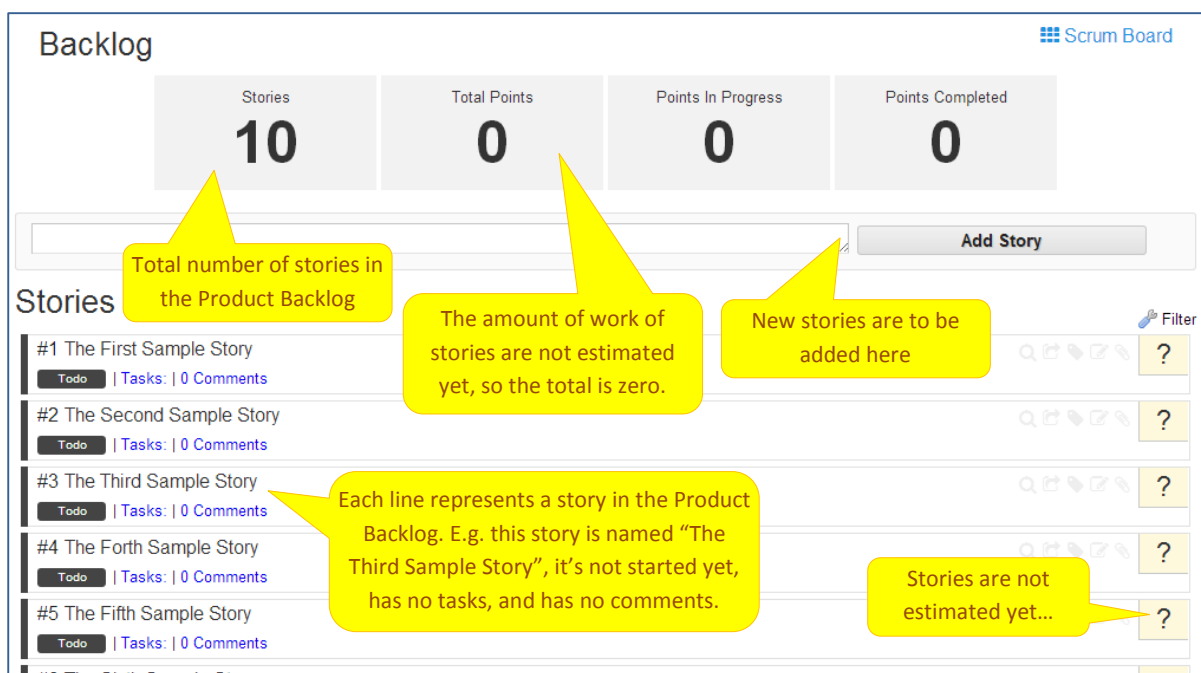
A sample screenshot from online Scrum tool, ScrumDo

The Scrum Team should add details, estimates, and order to the Product Backlog items all the way through the project, which is called *Product Backlog grooming*. It should not consume more than 10% of the time of the Development Team.

The Product Backlog is created more based on *discussion* rather than *documentation*. The Product Backlog items (aka stories) should be easy to understand for non-technical stakeholders.

The following figure shows the sample Scrum tool after the addition of the estimates.

Current status of the sample:

- Identified stories   yes
- Estimates   yes
- Sprint plan   no
- Tasks   no
- Completed tasks and stories   no
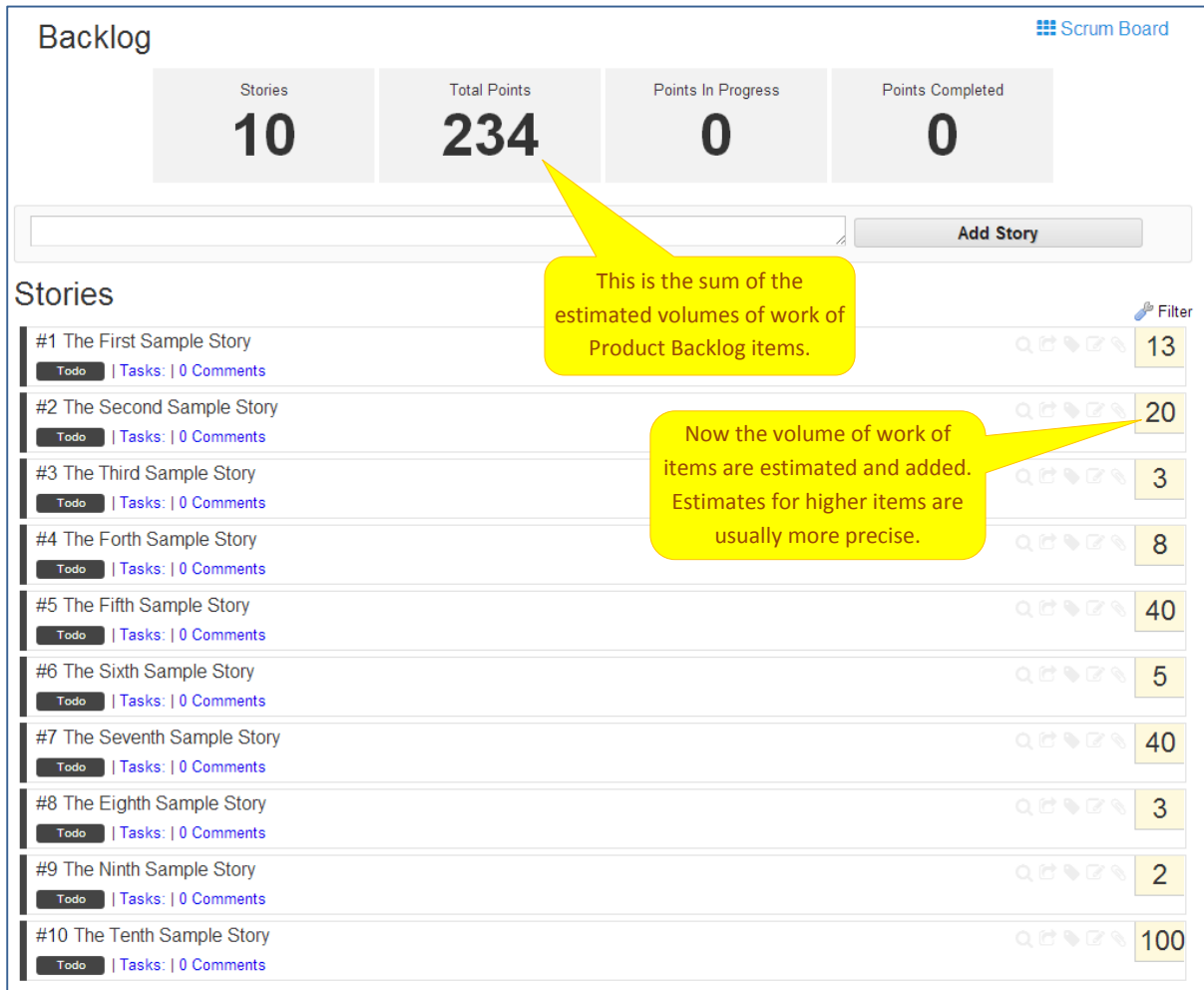
A sample screenshot from online Scrum tool, ScrumDo

The total amount of work in this sample is shown to be 234 points. It is common to break the large stories (such as the tenth story in the sample which is estimated 100 points) into two or more stories later.

Sometimes multiple Scrum Teams work on the same project. The Product Backlog is a representation of the scope of the final product and therefore, there should be only one Product Backlog, no matter how many Scrum Teams are working on the project.

5.2. Artifact 2: Sprint Backlog

The Sprint Backlog is created during the Sprint Planning event which is the first event in a sprint. During the Sprint Planning event, the Scrum Team collaborates on creating the Sprint Backlog, which consists of the following:

- A number of items selected from the top of the Product Backlog, based on their estimated work and the estimated capacity of the Development Team
- The Sprint Goal, which will help describe the real meaning of the items and direct the efforts of the Development Team
- A detailed plan for delivery of the items and realization of the Sprint Goal during the Sprint

Sprint Goal	To Do	Doing	Done
The goal of this sprint is To make the purchasing part of the website mature enough to be able to handle the whole process and users can experience a full purchasing process, through which other functionalities of the website will be more meaningful.	Item #1 — t.1.6 t.1.3 t.1.2 t.1.4 t.1.1 t.1.5		
	Item #2 — t.2.1 t.2.3 t.2.2		
	Item #3 — t.3.4 t.3.1 t.3.3 t.3.2		
	Item #4 — t.4.4 t.4.2 t.4.1		
	Item #5		

We do not wait until the Product Backlog is complete to start delivering the items; the first Sprint can be started as soon as the Product Backlog is showing the near future

The Sprint Backlog is frozen after the Sprint Planning and the Development Team will focus on delivering an Increment of "Done" based on this plan. The statement "the Sprint Backlog is frozen" means that items (stories) in the Sprint Backlog cannot be added or removed during the Sprint. However, it might be necessary to re-negotiate, justify, or clear some of the items during the Sprint, which should be done in the presence of the Product Owner. The detailed plan which is normally not complete at the end of the Sprint Planning will become more complete as the Sprint continues.

The following figure shows the sample project in Sprint Planning time: a new Sprint, called "The First Sprint" is defined with start and end dates, and Scrum Team are now ready to select items from the top of the Product Backlog to be assigned to this Sprint.

Current status of the sample:

- Identified stories   yes
- Estimates   yes
- Sprint plan   on-going
- Tasks   no
- Completed tasks and stories   no

A sample screenshot from online Scrum tool, ScrumDo

Suppose that the estimated capacity of the Sprints is 50 points. In this case, all we can choose for the Sprint is shown in the next figure.

Current status of the sample:

- Identified stories   yes
- Estimates   yes
- Sprint plan   almost finished
- Tasks   no
- Completed tasks and stories   no

A sample screenshot from online Scrum tool, ScrumDo

Now we have four items with an estimate of 44 points. We cannot add the next Product Backlog item, because it has 40 points and we only have about 6 points free in our Sprint capacity. It is common for the Product Owner in such cases to reorder the backlog; for example to bring *The Sixth Sample Story* above *The Fifth Sample Story*, and so we can add it to the Sprint Backlog (next figure).

Current status of the sample:

- Identified stories   yes
- Estimates   yes
- Sprint plan   yes
- Tasks   no
- Completed tasks and stories   no

A sample screenshot from online Scrum tool, ScrumDo

The next figure shows the Sprint items, along with a summary, and a burn-down chart.

Current status of the sample:

- Identified stories   yes
- Estimates   yes
- Sprint plan   yes
- Tasks   no
- Completed tasks and stories   no

A sample screenshot from online Scrum tool, ScrumDo

This screen acts like a dashboard and we can use it to plan and track the items. In the next figure for example, some of the items from the top of the list are broken down into tasks. Most Scrum tools are equipped with collaborative features which are especially useful for remote teams (comments for example).

Current status of the sample:

- Identified stories   yes
- Estimates   yes
- Sprint plan   yes
- Tasks   yes (only for some stories)
- Completed tasks and stories   no

Stories

Stories are broken down into tasks

#1 The First Sample Story
Todo | Tasks: 5 | 3 Comments   13

#2 The Second Sample Story   Comments are added as
Todo | Tasks: 7 | 2 Comments   Scrum Team collaborates   20

#3 The Third Sample Story
Todo | Tasks: 3 | 0 Comments   3

#4 The Forth Sample Story   No tasks are defined for
Todo | Tasks: | 0 Comments   the future stories yet.   8

#6 The Sixth Sample Story
Todo | Tasks: | 0 Comments   5

A sample screenshot from online Scrum tool, ScrumDo

As we go through the Sprint, some tasks and items get Done and more items are detailed.

Current status of the sample:

- Identified stories   yes
- Estimates   yes
- Sprint plan   yes
- Tasks   yes
- Completed tasks and stories   yes (some of them)

Stories

#1 The First Sample Story
Done | Tasks: 5 | 5 Comments   The first two stories are Done.   13

#2 The Second Sample Story
Done | Tasks: 7 | 4 Comments   20

#3 The Third Sample Story   This story is under progress, and
Todo | Tasks: 3 3 | 2 Comments   3 out of its 6 tasks are finished.   3

#4 The Forth Sample Story
Todo | Tasks: 4 | 1 Comment   8

#6 The Sixth Sample Story   Stories at the end of the list are not detailed (broken
Todo | Tasks: 6 | 2 Comments   down into tasks) as we are getting closer to them.   5

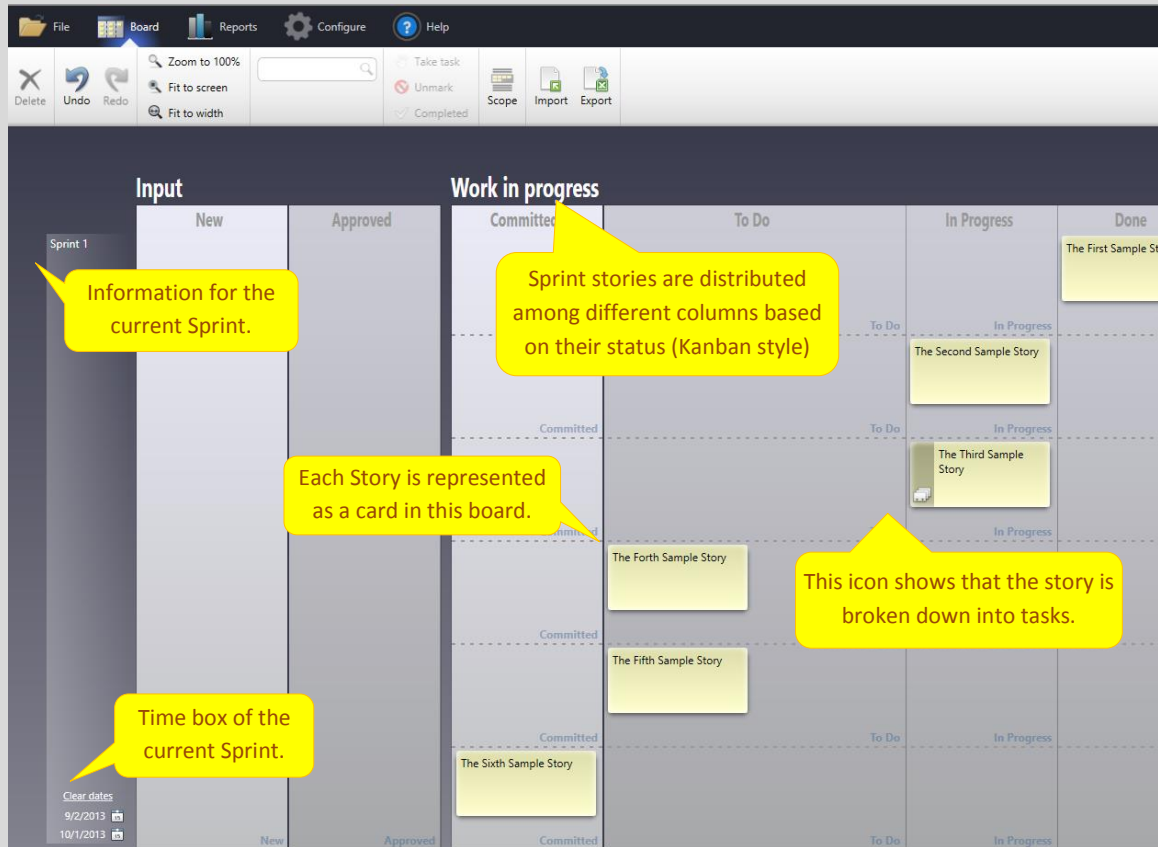*A sample screenshot from online Scrum tool, ScrumDo*

The Scrum tools usually update the burn-down chart as we progress through the Sprint.

Use of Kanban in Scrum projects

not included in the PSM I exam

It's common to visualize the Sprint items in a Kanban style board and most Scrum tools support such a view; the next figure shows a sample.

A sample screenshot from desktop Scrum tool, Eylean

The columns of the Kanban board are customizable and we can add as many steps as needed, such as designing, developing, testing, and integrating. Each card would be moved from left to right to visually indicate its current state. We can also incorporate the good practice of Kanban, limiting work in progress, by limiting the number of allowed cards in each column. By accepting this limitation, we accept to focus on a few number of stories at each point in time and get them done instead of starting new stories.

The minimum columns in a Kanban board are:

- To Do – Things waiting to be started
- Doing – Things we are doing right now (usually limited in number)
- Done – Things that are completed

5.3. Artifact 3: Increment

An Increment is a sum of all completed Product Backlog items at the end of a Sprint. Each Increment must be "Done", and must be releasable. The Product Owner may or may not release a certain Increment, but it should be releasable (shippable).

The next figure shows how the number of stories in the Product Backlog decreases Sprint by Sprint, as the number of features in the Increments increases.
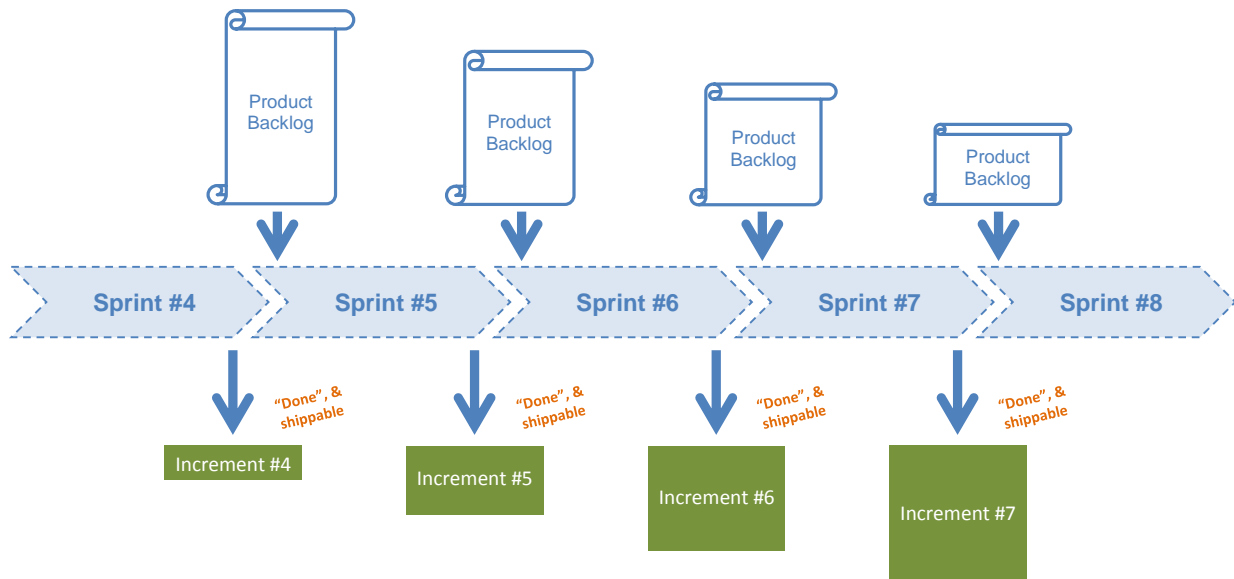
Note that the Increment concept is cumulative: each Increment also contains the features of the previous ones.

5.4. Artifact 4: Definition of "Done"

There should be a shared understanding of what it means for a piece of work to be "Done". This definition of "Done" must be discussed and agreed upon by the Scrum Team at the beginning of the project so that future Increments would be releasable.

When multiple Scrum Teams are working on a single project, it might not be possible to use the same definition of "Done" for all teams, because they might be working on items of different natures. In such a case, each Scrum Team will define its own definition of "Done" and delivers its items based on that definition. However, the integration of those definitions of "Done" should be capable of creating a potentially releasable Increment in the project level.

5.5. Artifact 5: Monitoring Progress toward a Goal

Up to now, we have use the burn-down chart to visualize the progress of development during a Sprint. You can also use a burn-down chart to visualize the progress of the whole project and this is called the project burn-down chart.

The Product Owner is responsible to monitor the progress of the whole project toward its goal. This should be done at least once per Sprint Review. The Product Owner determines the amount of remaining work and compares it to the remaining work of the previous Sprints, and forecasts the completion date of the project. All stakeholders should have access to this information.

The project burn-down chart shows the amount of **remaining work**, instead of the amount of completed work; therefore, the line for actual performance goes downward as we proceed, and the faster it goes down, the happier we will be!
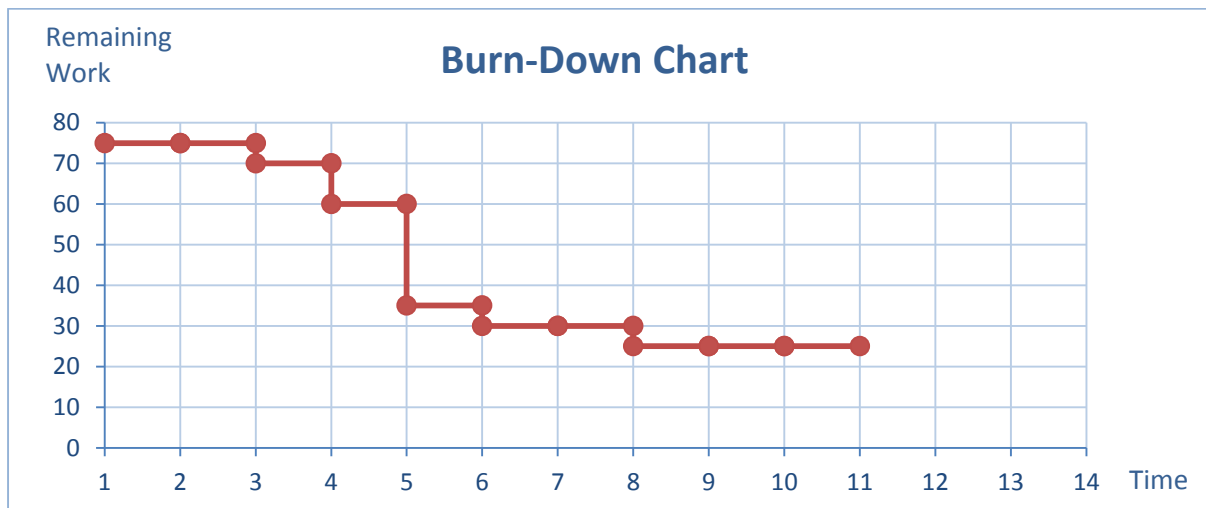
The vertical axis shows the amount of work (which is a sum of all the estimates for each item in the Product Backlog), and the horizontal axis shows the amount of time passed from the beginning of the project or the number of Sprints passed.

We usually add another line to present the uniform distribution of the volume of the work across the initially estimated number of sprints. This line acts as our planned progress, and will be used to compare to our actual values.
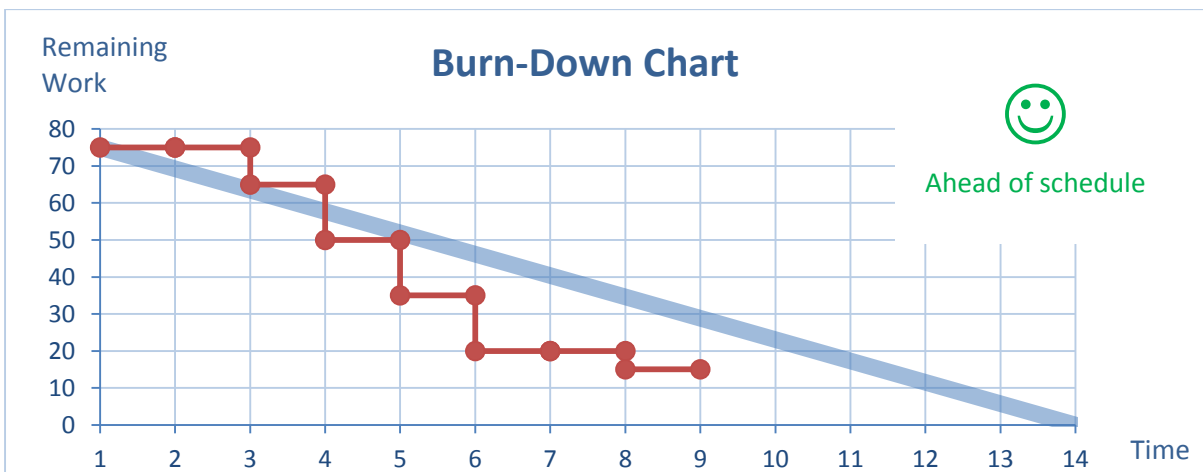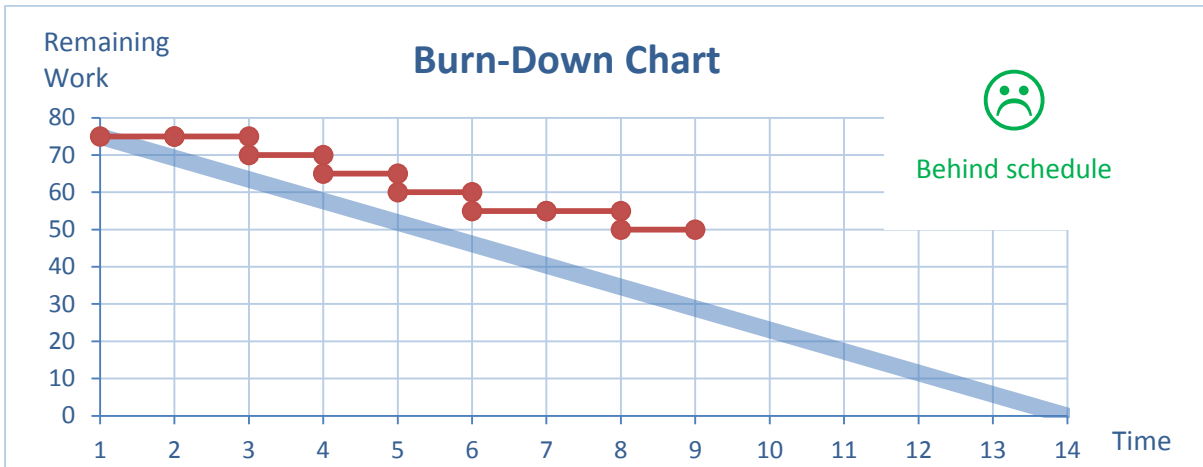
In the above chart, we can expect the project to be completed earlier than initially planned.

5.6. Artifact 6: Monitoring Sprint Progress

Besides the monitoring done for the whole project, we should also monitor the progress of each single Sprint throughout its life. This is the responsibility of the Development Team and should be done at least once per Daily Scrum.

This information is used to calculate the likelihood of achieving the Sprint Goal and completing all items of the Sprint Backlog.

Sprint Goal	To Do	Doing	Done
The goal of this sprint is To make the purchasing part of the website mature enough to be able to handle the whole process and users can experience a full purchasing process, through which other functionalities of the website will be more meaningful.			Item #1 t.1.6 t.1.1 t.1.3 t.1.5 t.1.2
			Item #2 t.2.3 t.2.7 t.2.5 t.2.1 t.2.6 t.2.2 t.2.4
	Item #3	t.3.5	t.3.2 t.3.1 t.3.3 t.3.4
Sprint Burn-Down Chart	Item #4 t.4.5	t.4.4 t.4.3	t.4.1 t.4.2
	Item #5 t.5 t.5.4 .3 t.5.1 t.5.5 t.5.2		

Sprint Burn-Down Chart values: 80 70 60 50 40 30 20 10 0 — 1 2 3 4 5 6 7 8 9 10 11 12 13 14

The Sprint progress information can be represented by a burn-down chart, and this chart can be a part of the Sprint board, where everyone can see.

6

Summary

6. Summary

6.1. Scrum Roles

| Product Owner | Scrum Master | Development Team |
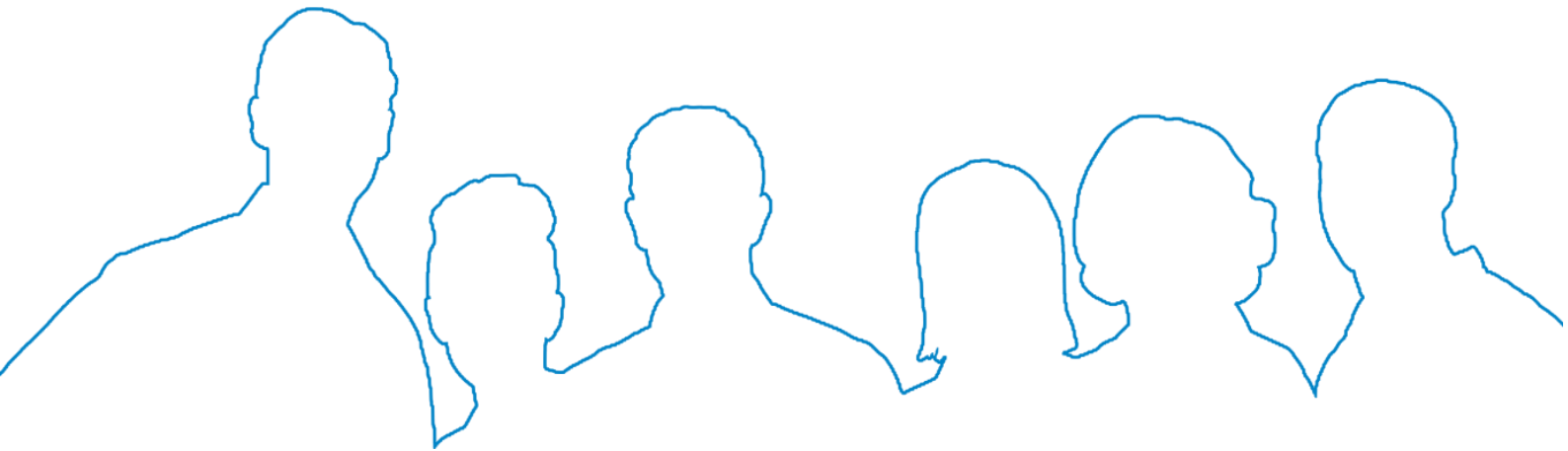
The Scrum Team has three roles, and it is forbidden to define any other roles. The three roles of Scrum are:

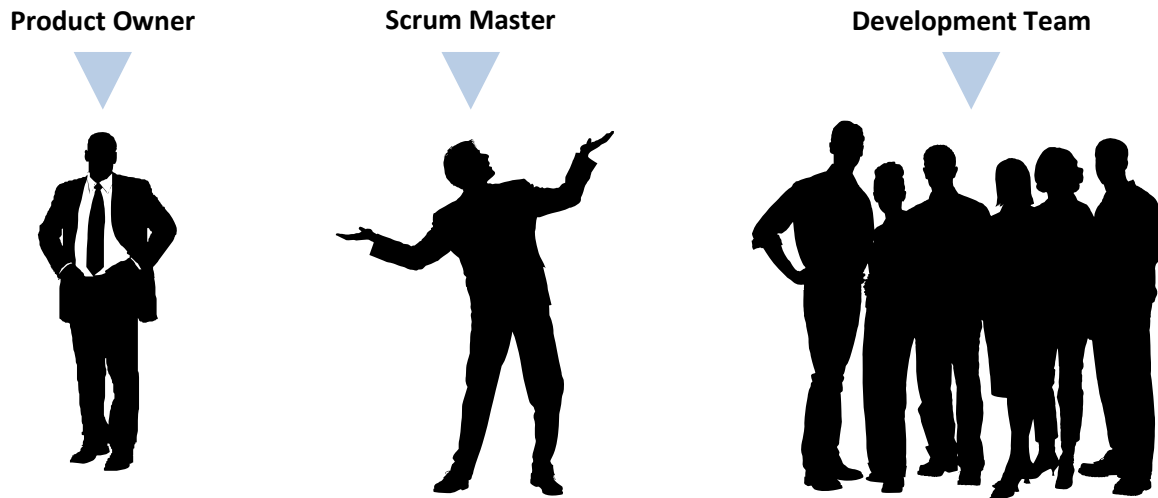- **Product Owner**: Is a business oriented person who is responsible for the Product Backlog, and maximizes the value of the project and work of the Scrum Team by ordering Product Backlog items and making sure that everyone has a clear understanding of the items. The Product Owner also monitors the progress of the whole project.
- **Scrum Master**: Is a Scrum expert who *coaches* the Scrum Team and ensures that the Scrum framework is followed entirely. He/she may help other Scrum Team members by removing impediments and facilitating their events, and helps the organization adapt Scrum development framework.
- **Development Team**: Is a team of application area experts who deliver the project product and manage their own efforts.

All of them together are called Scrum Team. A Scrum Team should have two essential characteristics:

- **Self-organized**: They themselves manage their own efforts rather than being managed or directed by others.
- **Cross-functional**: They have all the expertise and competencies needed to get the job done without any help from outside the team.

6.2. Scrum Events
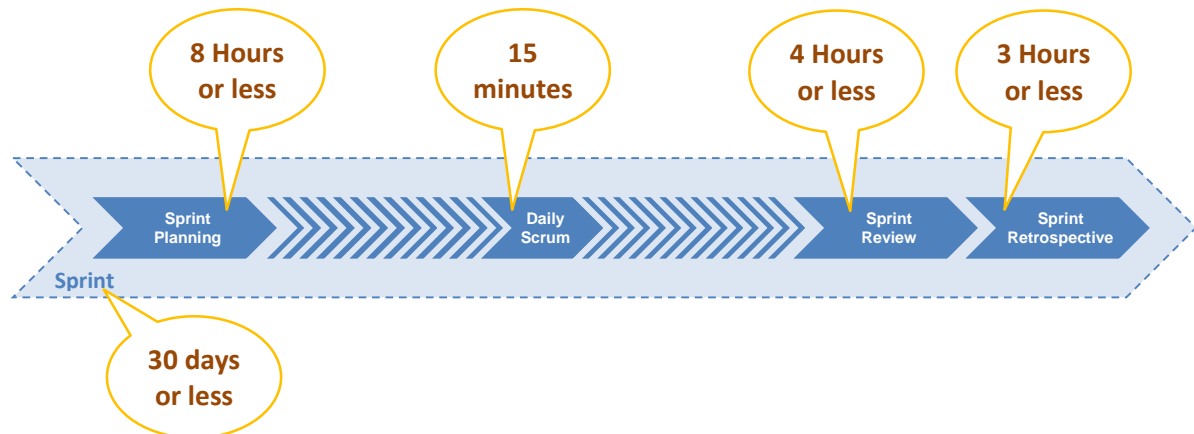
A Scrum project is done through a number of Sprints. Each Sprint is a time box of no more than one month, during which an Increment of a potentially shippable product will be delivered. A Sprint is a container for the following events:

- **Sprint Planning**: An 8 hour meeting during which Scrum Team prepares the Sprint Backlog, the plan for the current Sprint (including the items that will be developed)
- **Daily Scrum**: A 15 minute meeting for the Development Team members to inspect the work since the last meeting and synchronize their work and plan for the next 24 hours.
- **Sprint Review**: A 4 hour meeting at the end of a Sprint for the Scrum Team and other stakeholders to inspect the Increment and plan for future by collecting feedbacks.
- **Sprint Retrospective**: A 3 hour meeting for the Scrum Team to plan for improvement for the next Sprint.

The Sprint itself and all other events are time-boxed: they have a maximum duration and Scrum Team tries to achieve a certain goal during that period. They are all designed to enable critical transparency, inspection, regularity, and adaptation.

6.3. Scrum Artifacts
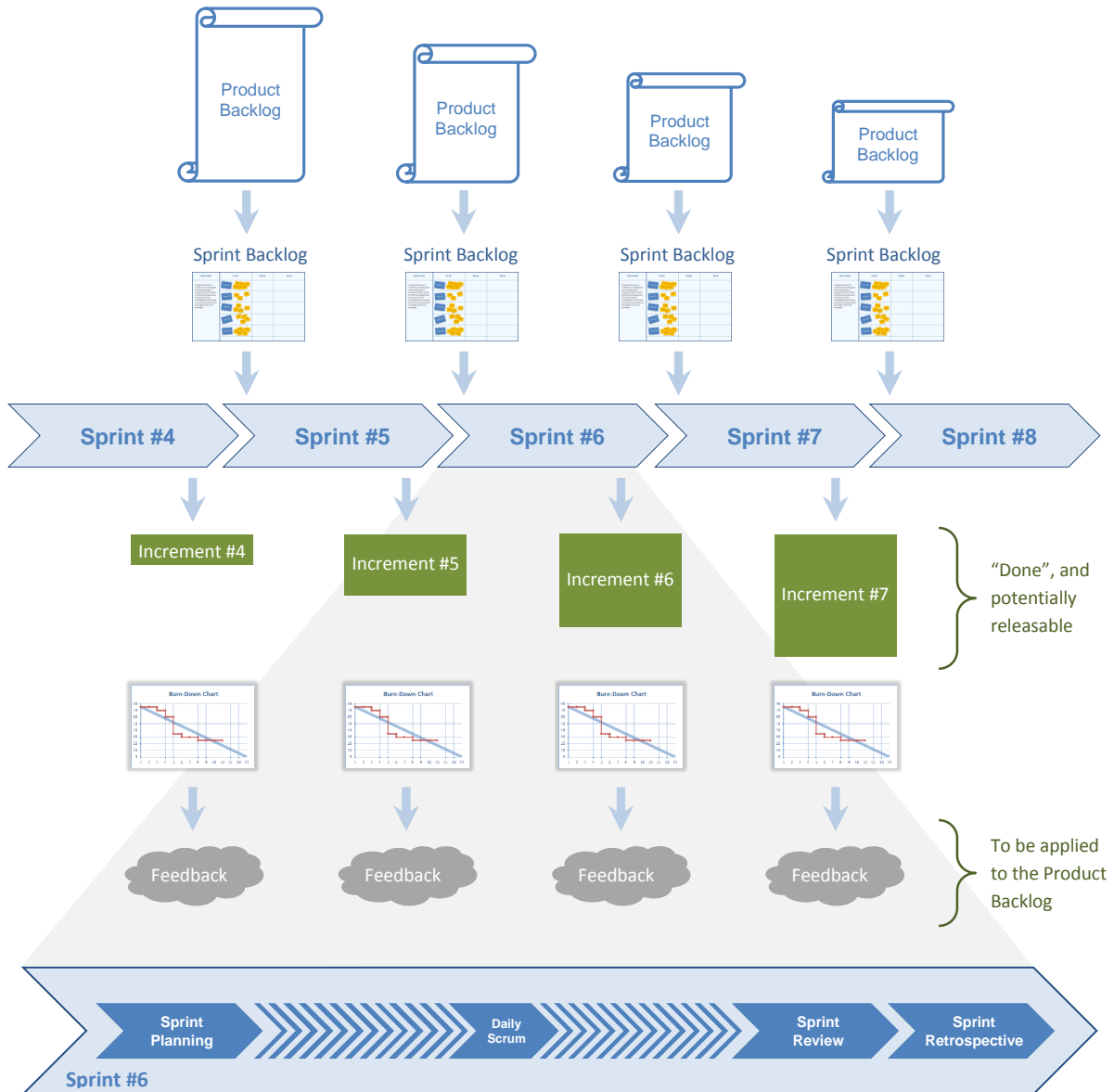
There are a number of artifacts designed to increase transparency and provide opportunity for inspection and adaptation. The Scrum artifacts are as follows:

- **Product Backlog**: an ordered list of everything that might be needed in the product
- **Sprint Backlog**: the plan for a certain Sprint, containing 1) the selected items from the Product Backlog, 2) the Sprint Goal, and 3) a detailed plan for delivery of the items and realization of the Sprint Goal (list of tasks and their information)
- **Increment**: the sum of all the Product Backlog items completed at the end of a Sprint
- **Definition of "Done":** the shared understanding of what it means for a piece of work to be considered complete
- **Monitoring Progress toward a Goal**: the performance measurement and forecast for the whole project
- **Monitoring Sprint Progress**: the performance measurement and forecasts for a single Sprint

That's it! You now have a good understanding of Scrum and can start using Scrum in your projects. You can test your Scrum knowledge using the next section "Self-Assessment".

Professional Scrum Master Exam

- After you have completed our Self-Assessment and Sample PSM Exams, you will be ready to take and pass the online PSM I exam.
- You can do the exam online and it costs just $100
- You can order the exam from here

Tips to get ready for the exam if you are new to Project Management & Agile

- Read the Scrum Guide from Scrum.Org
- Read this book a 2nd time
- Listen to the audio version of this book (if you don't mind the Irish accent too much)
- Do the Self-Assessment and Sample PSM Exams again
- Practice online sample PSM exam at Scrum.Org

Feedback

- We really hope you have enjoyed our book and it has provided the information that you required
- We appreciate any suggestions to improve the book and thanks in advance for talking about this book on the internet
- Reminder: Please send all suggestions, compliments, prayers and feedback to feedback@mgmtplaza.com or you send negative feedback to shredder@mgmtplaza.com ☺
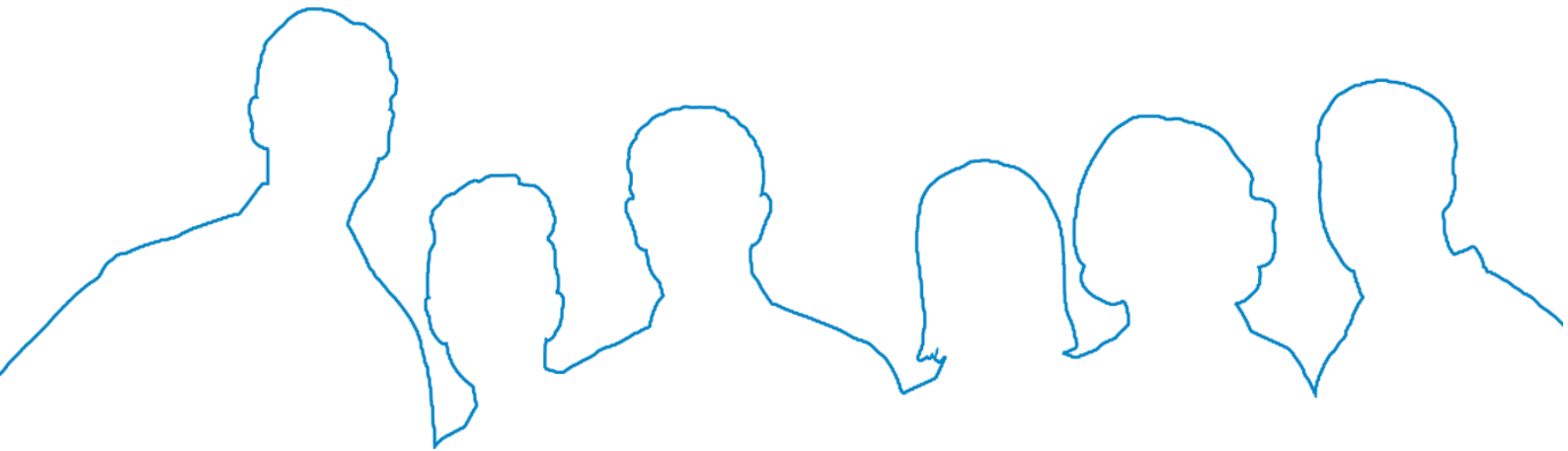
All the best with your career.

Regards,
Nader K. Rad & Frank Turley

7

Self-Assessment

7. Self-Assessment

This section provides 30 questions and answers to help you review the content of this introduction book and better understand Scrum. To add more value and increase your understanding, all questions are based on an imaginary project in an imaginary company. The scenario will be explained along with the questions.

It is important to learn from the questions the first time you try them and then you should be able to answer the majority of the questions on the second attempt.

7.1. Questions

Information: X-CO is an IT company founded three years ago. They deliver small and medium projects, and try to succeed in their business. Therefore, they have decided to test Scrum for the first time.

They are in the middle of four projects right now, and a new project named S-Prj will be started soon. They wish to use Scrum in this project.

Q1.   Do we need to discuss the Scrum with the customer too, and receive its approval for the use of this method?

   A.   Yes, because it changes our delivery method
   B.   Yes, because it increases our return on investment
   C.   No, because it is our internal way of managing the project
   D.   No, because it is acceptable nowadays to use Scrum

Q2.   We are going to assign John, our marketing manager, to the role of Product Owner; but we are not sure about that, because John has recently joined X-CO and he is not an expert in software development. Should we choose another person instead?

   A.   Yes, we need an expert on our specialist work, capable of communicating with the customer
   B.   Yes, we need an expert on our specialist work, who is part of the Team
   C.   No, he doesn't need to be an expert on our specialist work, given that he gets expert help when needed
   D.   No, he doesn't need to be an expert on our specialist work, he just needs to be business oriented

Q3.   We are going to choose either of Mary or Mark for the role of Scrum Master. Mary knows Scrum very well, but she's very young and has no real world experience. Mark

doesn't know Scrum, but has eight years of experience in managing IT projects. Which one is a better choice for the role of Scrum Master?

- A. Mary, because she knows Scrum, and doesn't have to manage the project
- B. Mary, because she knows Scrum, and she will learn project management soon
- C. Mark, because he knows project management, and doesn't have to know Scrum
- D. Mark, because he knows project management, and will learn Scrum soon

Q4. We are going to assign a number of our developers to the Team. We have the choice of (1) using 8 part-time developers that also work on other projects of our company, or (2) change the arrangement of teams and assign only 4 of them full-time and hire a new person to complete the Team. Which option is better?

- A. First one, because it is less costly
- B. First one, because it creates a more collaborative environment
- C. Second one, because it increases the number of developers in the company
- D. Second one, because it creates a more focused environment

Q5. No one in the current composition of the Team knows how to test a piece of software professionally, and we do need to test each piece of software as it's developed. What should we do?

- A. Add another person to the Development Team, who is a professional software tester
- B. Ask the test unit, which provides services to other projects of the company, to handle the tests of this project
- C. Outsource the tests to another company
- D. It's too soon to decide on a task that is due to the end of the project

Information: All roles are assigned now, and we're going to start the project. The Product Owner starts communicating with the customer to create the Product Backlog, and others are helping him, as they have nothing else to do yet.

Q6. Who should estimate the volume of work of each backlog item?

    A. Product Owner, because he has the full responsibility for the Product Backlog, and knows the items more than others

    B. Scrum Master, because she's responsible for planning

    C. Development Team members, because they are supposed to do the job, and they know best how much work is needed for each item

    D. All roles should estimate the work of items together in a democratic way

Q7. One week passes by, and less than half of the Product Backlog (requirements) is recorded. The Product Owner believes that it's best to start the first Sprint with this information, rather than waiting for the whole backlog to be completed. What should we do?

    A. Yes, it's a good time to start the first Sprint

    B. No, we should wait for the whole backlog to be completed before starting the Sprints

Q8. Who helps the Product Owner decide on the right action on the previous question?

    A. Product Owner

    B. Scrum Master

    C. Development Team

    D. There's no specific role for that, everyone should share the decision

Q9. We are going to start the first Sprint. What's the first step?

    A. Finalizing the Product Backlog items estimations

    B. Sprint Initiation

    C. Sprint Startup

    D. Sprint Planning

    E. Daily Scrum

Q10. We are going to form the Sprint Backlog. The Development Team prefers to choose 100 points of work for the first Sprint, but Product Owner believes that they should select at least 150 points. What should we do?

    A. We should discuss it and reach a common ground

    B. It should be 100 points

    C. It should be 150 points

    D. Scrum Master should decide

Q11. We are going to decide on the length of Sprints. Some people believe it should be two weeks, and some believe that it should be three weeks. What should we do?

    A. Start with either of them and change it later if needed
    B. Start the first Sprint anyway, and see how long it needs
    C. Scrum Master has the final saying on this
    D. Product Owner has the final saying on this

Information: We've started the first Sprint with 8 backlog items worth 100 points of work, and we are half way through the Sprint now.

Q12. Product Owner has detected some new expectations from the customer. When is a good time to implement them into the Product Backlog?

    A. Right after they are detected
    B. After the Sprint
    C. Before the next Sprint
    D. In the next Sprint Planning

Q13. Some Team Members are not sure about the meaning of one of the Sprint Backlog items. What should they do?

    A. They should try to understand it themselves
    B. They should contact the customer and ask for more information
    C. They should ask Scrum Master to give them more information
    D. They Should ask Product Owner about this

Q14. Team realizes that the volume of work of one of the items in the Sprint Backlog is estimated incorrectly, and the current volume of work of the whole Sprint Backlog is 130 instead of 100. What should we do?

    A. They should return some items back to the Product Backlog to keep the Sprint Backlog volume to about 100 points
    B. They should ask Scrum Master for more time in this Sprint
    C. They should ask Product Owner to decide on this
    D. They shouldn't do anything now

Information: The Sprint time is going to be over, and among 8 Sprint items, only one is completely finished, three items are almost finished, and others are just halfway through.

Q15. Team Members realize that if they focus on the three almost finished items and extend the Sprint for only two days, they will be able to complete them too. What should we do?

    A. Expand the duration of Sprint and develop them
    B. Expand the duration of Sprint, if customer accepts
    C. Expand the duration of Sprint, if both Scrum Master and Product Owner accept
    D. Do not expand the duration

Q16. Everyone is disappointed with the small number of completed items in the first Sprint. The CEO asks the Scrum Master for an explanation on who is responsible for this. What should she reply?

    A. All three roles are responsible
    B. The Development Team is responsible
    C. Two of the Development Team members that were sick for a number of days through the Sprint are responsible
    D. Product Owner has the primary responsibility

Q17. It's time for Sprint Review. Team Members believe that they should only demonstrate the one completed item, but the Product Owner believes that they should also demonstrate the three items that are almost finished. What's the right choice?

    A. Team Members are right
    B. Product Owner is right
    C. Product Owner is right, given that they mention in Sprint Review that those three items are not completed yet, and they will be done in the near future

Information: The customer's representative is replaced by a new person. This new person is a very experienced project manager that used to work in many large and medium projects before.

Q18. The new representative of the customer asks X-CO for an urgent meeting with the project manager of S-Prj. Who's the project manager?

    A. Product Owner
    B. Scrum Master
    C. Development Team
    D. None

Q19. Who should attend the meeting mentioned in the previous question?

    A. Product Owner
    B. Scrum Master
    C. Team
    D. Product Owner and Scrum Master
    E. All three roles

Q20. The new representative of the customer asks X-CO to formally introduce their tester, and arrange a meeting with him/her to discuss some important topics. What should we do?

    A. Formally introduce the person in the Team whose expertise is in testing, and send him/her to the meeting
    B. Formally introduce the person in the Team who's expert in testing, and send all the Team Members to the meeting
    C. Do not introduce anyone as the tester, and send all Team Members to the meeting
    D. Do not introduce anyone as the tester, and send Product Owner to the meeting

Information: The first Sprint is done, and we are almost ready for the next one.

Q21. We believe that it's a good choice to have a day off after the first Sprint, but the company does not accept it. Who should discuss it with the company and try to get their approval?

    A. Product Owner
    B. Scrum Master
    C. Development Team
    D. All three roles

Q22. Unfinished items of the previous Sprint (7 items out of 8) are returned to the Product Backlog. Development Team members believe that these items should be selected for the next Sprint, so that they can keep focused on them and finish them as soon as possible. However, the Product Owner believes that some other items are more important now. What should we do?

- A. Select old items, to keep focused and maximize the output
- B. Select old items, because we shouldn't start anything new, unless the in-hand tasks are finished
- C. Select new items, because Product Owner says so
- D. Select new items, because it's a good idea to start the new Sprint with new and fresh items

Information: We've planned the second Sprint, and the Sprint has started with 6 items worth 85 points. We are in the middle of the Sprint, no items are finished yet, and we are worried that we cannot develop enough items in this Sprint either.

Q23. Team Members decided to cancel Daily Scrums for the rest of this Sprint, to save time and get things done faster. How do you find this decision?

- A. Acceptable, because delivery of the products is our first priority
- B. Not right, but acceptable since they've reached this decision and it's their own responsibility to manage their own efforts
- C. Not acceptable, because Daily Scrum is required in Scrum
- D. Not acceptable, because 15-minutes a day is not that much

Q24. Scrum Master realizes that Product Owner attends all Daily Scrums and asks Team Members about their tasks and gives them directions for the following day. What should she do?

- A. It's wrong, Product Owner should not attend Daily Scrum
- B. It's wrong, Product Owner should not speak in Daily Scrum
- C. It's OK, Product Owner should do this
- D. It's OK, it's recommended for the Product Owner to give direction

Q25. Product Owner realizes that the recent changes the customer requires affect five of the Sprint Backlog items entirely. What should we do?

    A. Ask Team Members to stop working on those items and focus on the remaining item of the Sprint Backlog
    B. Change those five items in the Sprint Backlog as soon as possible
    C. Cancel the Sprint
    D. Do nothing

Information: The second Sprint is almost finished, and it's time for the Sprint Retrospective. We could only finish two Sprint Backlog items in the previous Sprint.

Q26. We couldn't finish most of the Sprint Backlog items in the past two Sprints. What should we do?

    A. Reduce the capacity of Sprints
    B. Increase the length of the future Sprints
    C. Both of the above
    D. None of the above

Information: time passes, and the results of our work is shown in the following burn-down chart:
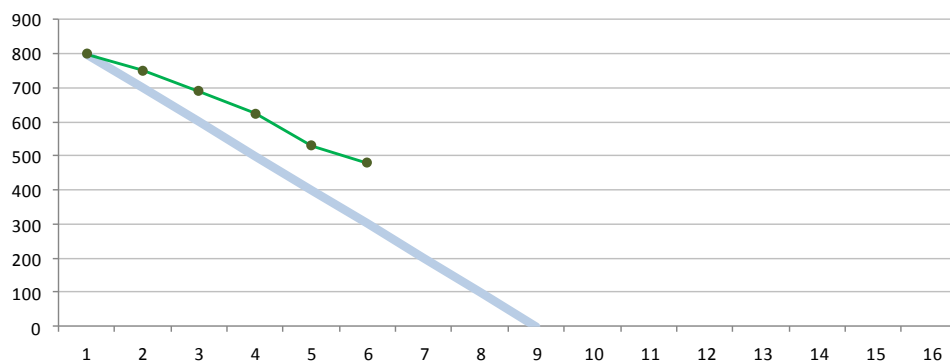
Q27. How many Sprints are done so far?

  A. One
  B. Six
  C. Nine
  D. Sixteen
  E. It's not determines by the chart

Q28. What was our initial estimate of the number of Sprints needed for this project?

  A. One
  B. Six
  C. Nine
  D. Sixteen
  E. It's not determined by the chart

Q29. How many Sprints will it probably take us to actually complete the project?

  A. About nine sprints
  B. About ten sprints
  C. About eleven sprints
  D. About fourteen sprints
  E. About sixteen sprints

Q30. Customer wants to add some new features worth 400 points to the project, and expects us to provide them with an estimate on the additional time needed for them. What's your idea?

  A. About four additional sprints
  B. About five additional sprints
  C. About seven additional sprints
  D. About nine additional sprints

7.2. Answers

Q	A	Comment
1	A	Scrum changes the way we are going to deliver the final product of the project, so we had better gain the approval of the customer to apply this method; they should be ready to receive the final product in small Increments and give feedbacks, instead of waiting for the project to finish and receive the final product as a whole.
2	D	The Product Owner is to be mainly business-oriented, and they do not need to be technical; Development Team handles all the technical aspects of the project.
3	A	The management of the project is distributed among all three roles, and the Scrum Master is only responsible for making sure that Scrum framework is followed correctly and entirely. Therefore, the main qualifications that a Scrum Master should have are 1) full knowledge of Scrum, and 2) the ability to coach the Team and the Product Owner.
4	D	It is recommended for the Development Team members to be working on a single project at a time to stay focused and be more productive consequently.
5	A	Team should be cross-functional, capable of doing the A to Z of the project. As long as we deliver the product in small increments throughout the project, we need to conduct the test all along, instead of the end of the project.
6	C	Creating and maintaining the backlog is the responsibility of the Product Owner, and he/she asks the Development Team to estimate the volume of the work of each item.
7	A	We can (and should) start delivering the project as soon as the backlog is mature enough to provide us with the information for the near future.
8	B	Scrum Master coaches everyone and helps them understand the way Scrum works.
9	D	The first step is Sprint Planning. Backlog maintenance should be continuously done throughout the project, and isn't considered a step.
10	B	It's only up to the Development Team to estimate the volume of the work of backlog items and their own capacity of work in each sprint.
11	A	The most important point is that Sprints should be time-boxed. We can start with an initial duration and change it later; but it should always be time-boxed.
12	A	The Product Backlog is dynamically changing all the time, in contrast to the Sprint Backlog which is frozen when the Sprint Planning is done.

| 13	D	It is the Product Owner's responsibility to clarify the meaning of the backlog items
14	D	The Sprint Backlog is frozen when the Sprint Planning is done, and no one can change it for any reason. In extreme cases, Product Owner has the authority to cancel the Sprint though.
15	D	Sprints are time-boxed. Being time-boxed means we cannot change the duration per case.
16	A	Scrum roles work as a single unit, and all the achievements and problems are shared among them equally.
17	A	Only the 100% "Done" items are to be demonstrated; even the 99.999% done items should not be presented to the customer.
18	D	Scrum projects do not possess a role named Project Manager
19	A	Because Product Owner is the contact point, and responsible for all the communications
20	D	Everything is shared among Team Members and no one has any specific title or role among them, and it's only the responsibility of Product Owner to communicate with the customer. We expect the customer to understand this, because they have accepted the Scrum methodology to be used in this project at the beginning.
21	B	It's the Scrum Master's responsibility to resolve these kinds of problems
22	C	It's only the Product Owner who sorts the items based on whatever factors he/she finds beneficial for the project
23	C	Daily Scrum is part of the Scrum framework and should not be cancelled for any reason. Scrum Master ensures that Development Team members attend the Daily Scrums at the time and place defined in the Sprint Planning. If Development Team members are not willing to attend the meeting, it is the Scrum Master's responsibility to explain the reasons to them and convince them to do it.
24	B	Daily Scrum is intended for the Development Team members only, and has its own goals. If Development Team needs guidance from the Product Owner, this will be done out of Daily Scrum.
25	C	The Sprint Backlog is frozen after the Sprint Planning. When the changes are so extreme that finishing the Sprint with the frozen backlog is no longer viable, Product Owner has the authority to cancel the Sprint.

26	C	In order to be able to finish all Sprint Backlog items in time, it seems like we need less planned work and more time in each Sprint. We prefer not to change the time-box of Sprints, but since we were not sure about the proper duration from the beginning and were only testing a duration, it's a good idea to change it too.

The answer is shown in the following figure:

27	B	
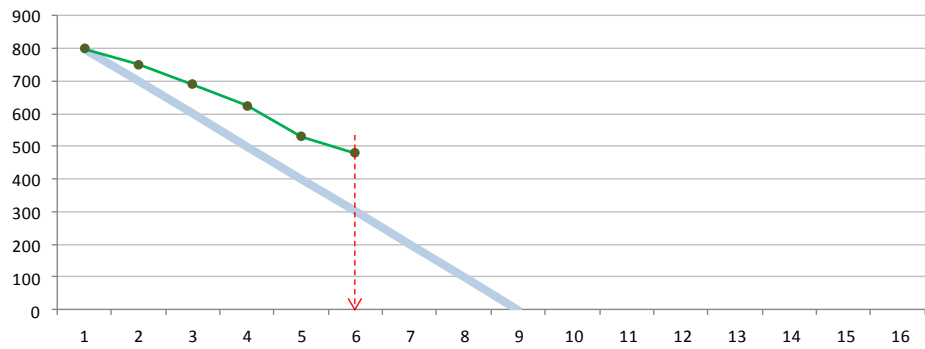
The answer is shown in the following figure:

28	C	
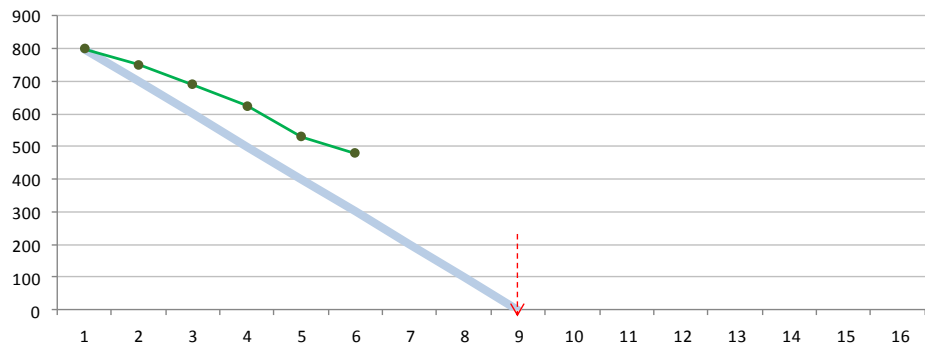
We can use a rough extrapolation for this:

29	D	
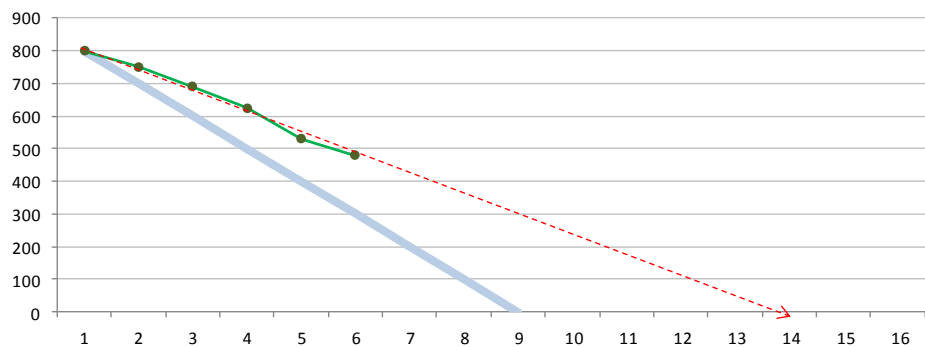
30	C	We've just calculated that our initial 800 points will be finished in about 14 sprints, so an additional 400 points (half of the initial points) will take about 7 additional sprints (half of the previous value) to complete.

Blank Page

8

Sample PSM Exams

8. Sample PSM Exams

8.1. Sample Exam #1

There are 20 questions in this exam, true/false, multiple-choice with one correct answer, and multiple-choice with multiple correct answers. You have 30 minutes to complete the exam, and the answer is provided at the end of this section.

1. There is no one in a Scrum Team called "project manager".

    A. True
    B. False

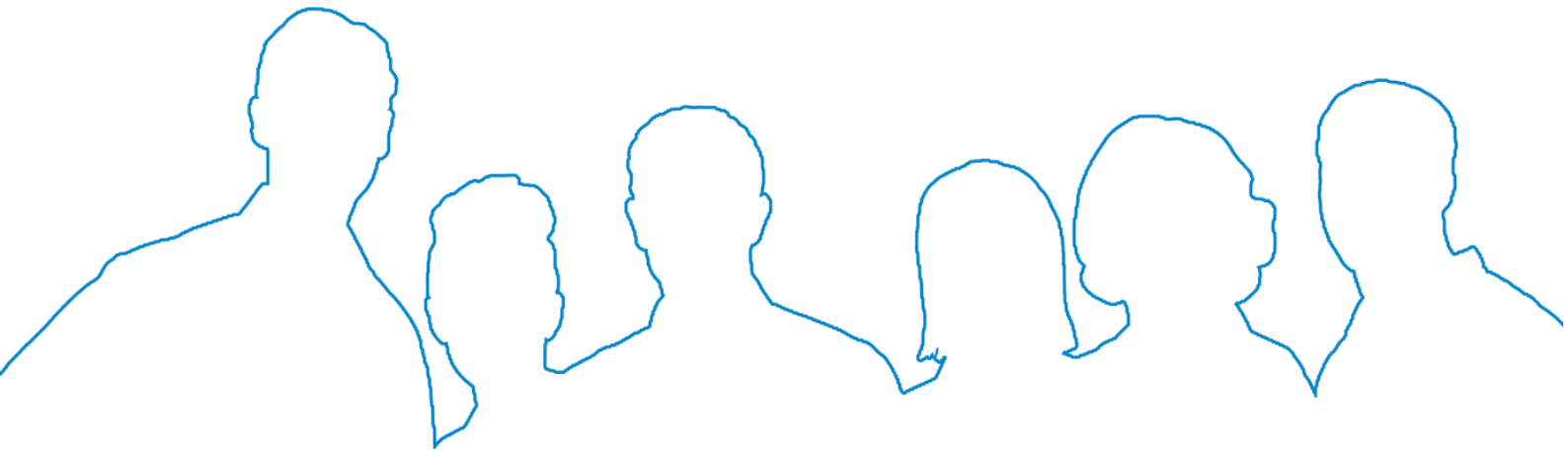2. How a Product Backlog should be ordered?

    A. Based on the size of the items
    B. Based on the risk of the items
    C. Based on the float of the items
    D. Based on the value of the items
    E. Based on the relationship among items

3. It is <u>not</u> allowed to change the members of the Development Team.

    A. True
    B. False

4. How much should Development Team work on a specific Product Backlog item?

    A. As much as needs to be Done based on the definition of Done.
    B. Until the Product Owner accepts it
    C. Until the customer accepts it
    D. Until the QC/QA formally accepts it
    E. Until it is potentially releasable
    F. As much as we have time in the Sprint

5. Which of the following are roles in a Scrum Team (multiple answers)?

    A. Development Team
    B. Project Manager
    C. Customer
    D. Product Owner
    E. Executive
    F. Quality Assurance
    G. Scrum Master

6. When is a Sprint over?

    A. When the time-box expires
    B. When the Product Owner says so
    C. When the Scrum Master Says so
    D. When the Sprint Backlog is all developed

7. How long is a Sprint Review in a one month Sprint?

    A. 1 hour
    B. 2 hours
    C. 4 hours
    D. 8 hours
    E. It is not time-boxed (as long as needed)

8. The Scrum Team has decided to use three week long Sprints. How long should their Daily Scrum meetings take?

    A. 5 minutes
    B. 11 minutes
    C. 15 minutes
    D. 20 minutes

9. Which of the following should be cross-functional?

    A. Product Owner
    B. Scrum Master
    C. Development Team
    D. All of the above

10. A Scrum Master has a list of open impediments which is growing without proper resolutions. The Scrum Master consults with the Development Team on the problem. Is it right?

    A. Yes
    B. No

11. A CEO asks the Development Team to add a new item to the Sprint. What should the Development do in response?

    A. Add the item to the Sprint
    B. Replace an item of the Sprint with the new one
    C. Add the item to the Product Backlog
    D. Refer it to the Product Owner

12. Each Sprint Backlog item should be owned by a member of the Development Team.

    A. True
    B. False

13. Which of the following is the main responsibility of the Product Owner?

    A. Directing the Development Team
    B. Managing the Development Team
    C. Managing the project
    D. Maintaining the Product Backlog

14. What does the Development Team do in the first Sprint?

    A. Deliver an Increment of potentially shippable functionality
    B. Fully plan for the whole project in detail
    C. Prepare a high level plan for the whole project

15. When is a Sprint cancelled?

    A. When we realize that we cannot deliver all of the Sprint Backlog items
    B. When priorities change in the Product Backlog, in a way that Sprint Backlog items are no longer the highest ones
    C. When the Product Owner determines that it makes no sense to finish the Sprint
    D. When Scrum Master realizes that the Scrum framework is not followed entirely

16. A Development Team realizes that it has over committed itself for a Sprint, and it's needed to have a meeting to review and adjust the Sprint work. Who should attend this meeting?

    A. Only the Development Team
    B. Only the Product Owner
    C. Only the Scrum Master
    D. The Development Team and the Product Owner
    E. The Development Team and the Scrum Master
    F. The Product Owner and the Scrum Master
    G. All three roles

17. A Product Owner has the authority to replace an item in the Sprint Backlog.

    A. True
    B. False

18. Who decides on the order of the items in the Product Backlog?

    A. The Product Owner
    B. The Scrum Master
    C. The Development Team
    D. All of them together

19. Which of the following is an opportunity to inspect and adapt (multiple answers)?

    A. Scrum Planning
    B. Scrum Review
    C. Scrum Retrospective
    D. Daily Scrum

20. Even though the Scrum Team is following the Scrum framework entirely and their project is going well, the organization as a whole does not have a good understanding of Scrum, which makes some troubles for the Scrum Team. Who should try to fix it?

    A. The Product Owner
    B. The Scrum Master
    C. The Development Team
    D. A subset of the Development Team assigned to this task

8.2. Sample Exam #2

There are 20 questions in this exam, true/false, multiple-choice with one correct answer, and multiple-choice with multiple correct answers. You have 30 minutes to complete the exam, and the answer is provided at the end of this section.

1. A representative of the customer has asked the Development Team to add a very important item to an ongoing Sprint. What should they do?

    A. Refer the representative to the Product Owner to discuss it
    B. Refer the representative to the Scrum Master to discuss it
    C. Refuse it, because they are in the middle of the Sprint
    D. Accept it only if they are willing to ask for it formally

2. How a Product Backlog should be ordered?

    A. Based on the size of the items
    B. Based on the risk of the items
    C. Based on the float of the items
    D. Based on the relationship among items
    E. Based on any factor that the Product Owner find most appropriate

3. What should we consider in setting the time-box for Sprints?

    A. The amount of risk that increases by longer durations
    B. The limitations in delivery of items that increases by shorter durations
    C. Not more than one calendar month
    D. All of the above

4. Scrum Master is a "management" position.

    A. True
    B. False

5. Which statement best describes Scrum?

    A. A management process
    B. A framework for development of complex products in complex environments
    C. A set of best practices for software development
    D. A complete project management methodology on software development

6. Which of the following items is not time-boxed?

    A. Sprint
    B. Sprint Review
    C. Sprint Planning
    D. Sprint Retrospective
    E. Backlog Maintenance
    F. Daily Scrum

7. How long is a Sprint Retrospective in a one month Sprint?

    A. 1 hour
    B. 3 hours
    C. 4 hours
    D. 8 hours
    E. It is not time-boxed (as long as needed)

8. A Development Team with 5 members has been using 15 minute Daily Scrums. Three new members have joined the team. How long should the Daily Scrum meetings be after that?

    A. 10 minutes
    B. 15 minutes
    C. 20 minutes
    D. 25 minutes

9. The Development Team should have all the skills and competencies required to…

    A. Turn Sprint Backlogs into Increments of potentially releasable product.
    B. Deliver Sprint Backlog items to QA/QC department
    C. Complete the project in time and within budget
    D. Plan the whole project and complete it according to the plan

10. Who estimates the work of items in Product Backlog?

    A. Product Owner
    B. Scrum Master
    C. Development Team
    D. All of them

11. Who is required to attend the Daily Scrums?

    A. Product Owner
    B. Scrum Master
    C. Development Team
    D. Scrum Master and Development Team
    E. Product Owner and Development Team
    F. The whole Scrum Team

12. The Daily Scrums should be held at the same time and same place for the entire duration of a Sprint.

    A. True
    B. False

13. What is the recommended size of a Development Team?

    A. 3 to 15
    B. 3 to 12
    C. 3 to 9
    D. 3 to 6
    E. 5 to 9
    F. 5 to 12
    G. 5 to 15

14. Who has the authority to cancel a Sprint?

    A. Product Owner
    B. Scrum Master
    C. Development Team
    D. All roles together
    E. Any of the roles

15. Why should the Scrum Master attend the Daily Scrum?

    A. To make sure everyone answers the three standard questions
    B. To make a list of the problems that Development Team is facing and try to solve them
    C. To gather data needed for reporting to the higher management
    D. The Scrum Master does not have to attend the meeting, he/she only has to ensure that the Development Team has such a meeting

16. How a Scrum Master increases the productivity of the Development Team?

    A. By facilitating their decision and removing impediments
    B. By preventing changes to the Sprint Backlog
    C. By ensuring that Product Backlog items are ordered properly
    D. By ensuring that Scrum meetings start and end at the right time

17. What happens to the definition of "Done" when multiple Development Teams are working on a single project?

    A. Each team defines its own "Done", and communicates it with others so that everyone knows what it means when a team claims that they are Done with something
    B. Each team defines its own "Done", in a way that the integration of their work results in a definition of "Done" that is potentially releasable
    C. They all use the same definition of "Done"
    D. Any of the above answers, based on the nature of the project and the environment of the organization

18. Which statement best describes the Sprint Review?

    A. It is a review of the Development Team activities during the Sprint
    B. It is a review of the Scrum Team activities during the Sprint
    C. It is a demo and inspection of the outcome of the Sprint
    D. It is a review of what went well and what did not went well throughout the Sprint

19. Each Increment should be released at the end of each Sprint.

    A. True
    B. False

20. Which statement is true about the projects which has multiple teams?

    A. It should have one Product Backlog and one Product Owner
    B. It should have one Product Backlog and multiple Product Owners
    C. It should have multiple Product Backlogs and one Product Owner
    D. It should have multiple Product Backlogs and Multiple Product Owners

8.3. Answers for Exam #1

Q	A	Comment
1	A	There are only three roles in a Scrum Team: Product Owner, Scrum Master, Development Team It's forbidden to add another role or title, and none of these three act as, or is similar to a project manager. The project management efforts are not centralized in Scrum, but distributed among all three roles.
2	D	Items in the Product Backlog are ordered by the value they bring to the project. It is due to the Product Owner to realize the best way of calculating the "value".
3	B	We can change the memberships as needed, while taking into account the short term reduction in productivity.
4	A	The Scrum Team defines "Done" at the beginning of the project and would not consider a job completed, unless it matches the definition of "Done".
5	A, D, G	There are only three roles in a Scrum Team: Product Owner, Scrum Master, and Development Team. Addition of other roles or titles is forbidden.
6	A	Sprint is a time-boxed event, during which we try to deliver the Sprint Backlog. However, when the time is over, Sprint will be finished, no matter how many items we've actually delivered.
7	C	Sprint Review is a time-box of 4 hours for a one month Sprint. It's usually shorter when the Sprints are set shorter.
8	C	The Daily Scrum is usually a time-box of 15 minutes, regardless of the duration of the Sprint.
9	C	The Development Team should be cross-functional, capable of delivering a potentially releasable increment of the final product of the project without external help.
10	A	A Development Team is not only responsible for specialist activities, but also on management activities.
11	D	Sprint Backlog should not change during a Sprint on the one hand, and no one is allowed to set the priority of Product Backlog items except for the Product Owner.
12	B	Single members might handle most or all of the work of a particular Sprint Backlog item, but responsibility remains for the whole team.

MANAGEMENT PLAZA
THE MANAGEMENT CERTIFICATION COMPANY

13	D	The main responsibility of the Product Owner is maximizing the value of the project by creating, clearing, and ordering the Product Backlog.
14	A	The goal of the Development Team in all Sprints (including the first one) is to deliver Increments of potentially releasable functionalities of the final product of the project. We don't plan the whole project at the beginning, just enough for starting the immediate work. This planning is done when we are preparing and maintaining the Product Backlog and Sprint Backlogs.
15	C	When there are extreme changes in the Product Backlog, or some other thing happens and the Product Owner realizes that it makes no sense to finish the Sprint as defined in the Sprint Backlog, he/she has the authority to cancel the Sprint. Another Sprint will be started immediately with a new Sprint Planning.
16	D	The Product Owner helps with prioritizing and the Development Team helps with estimating the volume of work.
17	B	The Sprint Backlog is frozen after the Sprint Planning.
18	A	The Product Owner has the last say on the order of the Product Backlog items. Others, such as a CEO, the Development Team, and Scrum Master might give suggestions, but they cannot decide on the order.
19	A, B, C, D	Every event in Scrum, besides the Sprint which is a container for the other events, is an opportunity to inspect and adapt.
20	B	It's the responsibility of the Scrum Master to create a supporting understanding of Scrum in the whole organization.

MANAGEMENT PLAZA
THE MANAGEMENT CERTIFICATION COMPANY

8.4. Answers for Exam #2

Q	A	Comment
1	A	It is only the responsibility and authority of the Product Owner to add or remove items to the Product Backlog. The Product Owner will decide when to deliver the item by ordering the Product Backlog.
2	E	Items in the Product Backlog are ordered by the value they bring to the project. It is up to the Product Owner to realize the best way of calculating the "value".
3	D	The time-box set for Sprints should not be longer than one month, and should be selected considering different factors such as the risk and delivery time.
4	A	Scrum Master does not manage the Scrum Team or even the Development Team, but manages the Scrum process.
5	B	Scrum is a framework best suited for projects that are subject to extreme uncertainties and changes.
6	E	There are five time-boxed events in Scrum: Sprint, Sprint Planning, Sprint Review, Sprint Retrospective, and Daily Scrum. The Backlog is maintained all the way through the project.
7	C	Sprint Retrospective is a time-box of 3 hours for a one month Sprint. It's usually shorter when the Sprints are set shorter.
8	B	The Daily Scrum is usually a time-box of 15 minutes, regardless of the number of members in the Development Team.
9	A	The Development Team should be cross-functional, capable of completing the Sprint Backlog items based on the definition of "Done". Not every kind of delivery is acceptable in Scrum, it should be "potentially releasable Increments of the final product of the project", to help stakeholders give feedback.
10	C	The whole Product Backlog is the responsibility of the Product Owner, but estimates are only done by the Development Team.
11	C	Only the Development Team is *required* to attend the meeting.
12	A	This consistency is needed to reduce complexity and overhead.
13	C	The Development Team should be small enough to remain nimble and large enough to be able to complete significant work.

MANAGEMENT PLAZA
THE MANAGEMENT CERTIFICATION COMPANY

14	A	Only the Product Owner has the authority to cancel a Sprint. This happens when the Product Owner realizes that it makes no sense to finish the Sprint, as defined in Sprint Backlog.
15	D	The only required participants of the Daily Scrum are the Development Team members.
16	A	Scrum Master does not manage the Development Team; it's the responsibility of the Development Team to manage its own efforts. However, the Scrum Master helps them by facilitating their decisions and removing impediments.
17	B	We should always have Increments of potentially shippable product, even when multiple teams are working on a single project. In this case, a single definition of "Done" might not be suitable for all teams, but the integration of their definitions should result in an overall definition of "Done" that is potentially shippable.
18	C	Sprint Review is a meeting for the Scrum Team and Stakeholders to inspect the outcome of the Sprint and figure out what to do in the next Sprint.
19	B	Each Increment should be potentially releasable, but it may or may not be actually released.
20	A	A certain project should have only one Product Backlog and one Product Backlog should only have one Product Owner; otherwise, it would be difficult to deliver the product.