AGILE METHODOLOGIES: SCRUM

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AGILE METHODOLOGIES: AGILE MANIFESTO

Agile Manifesto

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.

AGILE METHODOLOGIES: AGILE MANIFESTO

بیانیه ی توسعه نرم افزار چابک

ما با توسعه نرم افزار و کمک به دیگران در انجام آن،
در حال کشف راه های بهتری برای توسعه نرم افزار هستیم.
از این طریق باید دست یابیم به ارزش:

افراد و تعاملات	بالاتر از	فرآیندها و ابزارها
نرم افزار کارکننده	بالاتر از	مستندات جامع
مشارکت مشتری در انجام کار	بالاتر از	قرارداد کار
پاسخگویی به تغییرات	بالاتر از	پیروی یک طرح

با وجود اینکه موارد سمت چپ نیز ارزشمند هستند ولی
ما برای موارد سمت راست ارزش بیشتری قائل هستیم

AGILE METHODOLOGIES: PRINCIPLES

- بالاترین اولویت ما جلب رضایت مشتری با تحویل زود و مداوم نرم افزاری ارزشمند می‌باشد
- Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.
- استقبال از تغییر نیازمندی‌ها، حتی در اواخر فرآیند توسعه. فرآیندهای چابک، تغییر را در جهت مزیتِ رقابتی مشتری مهار میکنند
- Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.
- تحویل زود به زود نرم‌افزار قابل استفاده دو،سه هفته یک بار تا دو ، سه ماه یک بار با ترجیح بر فاصله‌های زمانی کوتاه‌تر
- Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.

AGILE METHODOLOGIES: PRINCIPLES

- ذی نفعان کسب و کار و توسعه دهنده ها می بایست به صورت روزانه در طول پروژه با هم کار کنند
- Business people and developers must work together daily throughout the project.
- پروژه ها را بر دوش افراد با انگیزه بنا کنید. فضای لازم را به آنها بدهید و از نیازهای آن ها پشتیبانی کنید و به آنها اعتماد کنید تا کارها را انجام دهند
- Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.
- کارآمدترین و موثرترین روش انتقال اطلاعات به تیم توسعه و تبادل آن در میان اعضای تیم، گفتگوی چهره به چهره است
- The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.

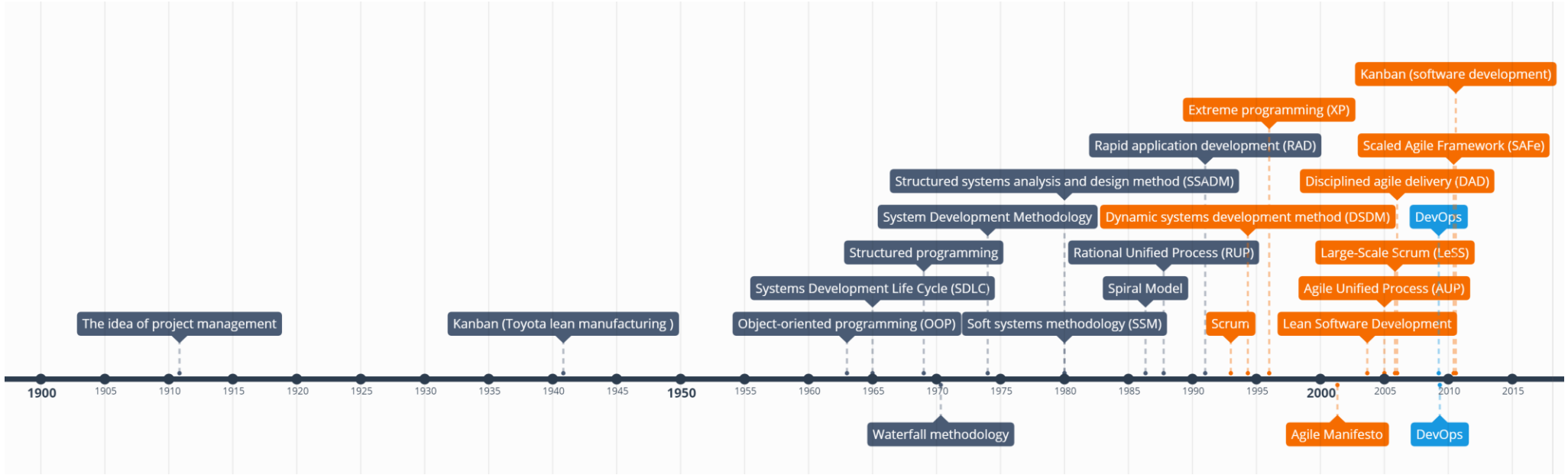
AGILE METHODOLOGIES: PRINCIPLES

- نرم افزار قابل استفاده اصلی ترین معیار سنجش پیشرفت است
- Working software is the primary measure of progress.
- فرآیند های چابک توسعه پایدار را ترویج می دهند حامیان مالی، توسعه دهندگان و کاربران باید بتوانند سرعت پیشرفت ثابتی را برای مدت نامحدودی حفظ کنند
- Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
- توجه مداوم به برتری فنی و طراحی خوب باعث افزایش چابکی می شود
- Continuous attention to technical excellence and good design enhances agility.
- سادگی -- هنر به حداکثر رساندن مقدار کار انجام نشده -- ضروری است
- Simplicity--the art of maximizing the amount of work not done--is essential.

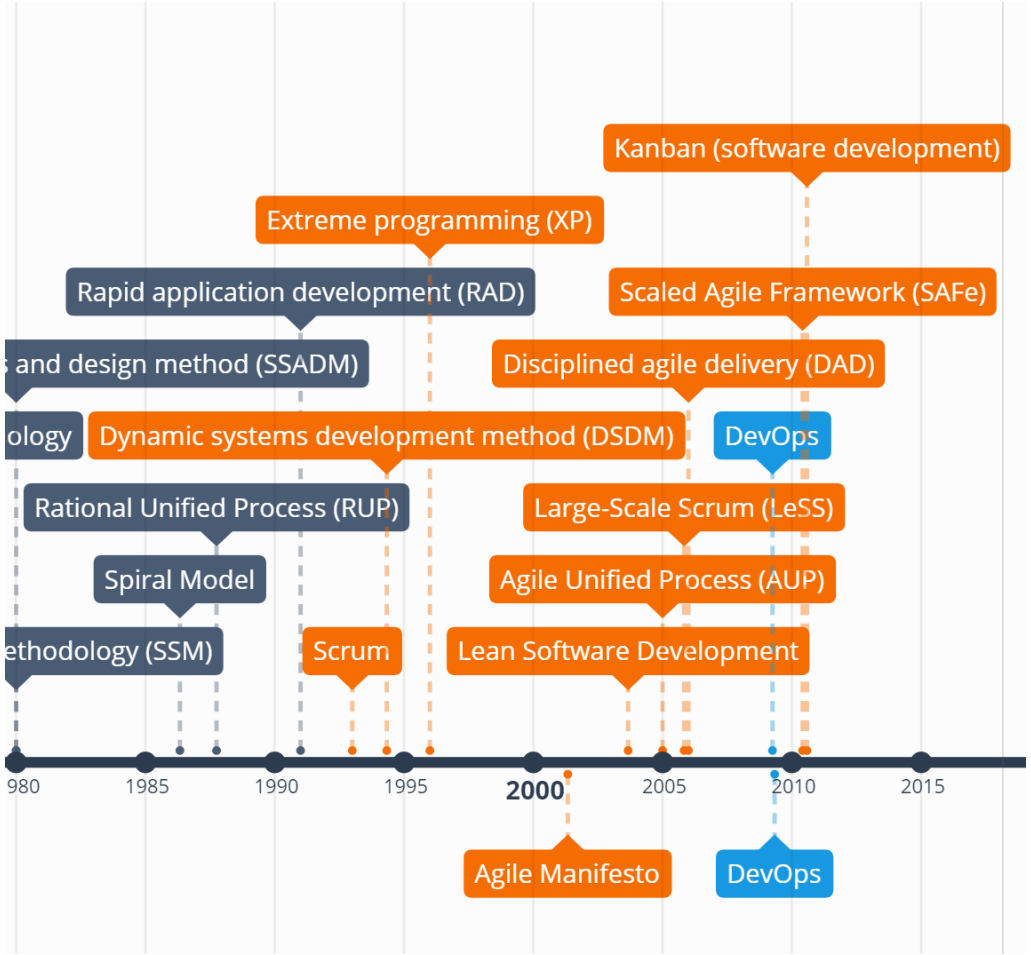
AGILE METHODOLOGIES: PRINCIPLES

- بهترین معماری‌ها، نیاز مندی‌ها و طراحی‌ها از تیم‌های خود سازمانده پدید آور می شود
- The best architectures, requirements, and designs emerge from self-organizing teams.
- در فواصل منظم، تیم بر چگونگی موثرتر شدن تامل و تفکر می‌نماید و سپس تیم رفتار خود را بر اساس بازتاب این تفکر تنظیم و همسو می نماید
- At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.

SOFTWARE DEVELOPMENT PROCESS HISTORY



AGILE METODOLOGIES HISTORY



SCRUM HISTORY?

- First mentioned as a development method in 1986, referring to a fast and flexible product development process practiced in Japanese manufacturing companies.
- A variant of Scrum used for software development, jointly developed by Sutherland and Schwaber, was introduced in 1995.
- The name emphasizes the importance of teamwork in the methodology and is derived from the game of rugby.
- Originally intended as a general framework for systems development, but is currently used as a comprehensive software development methodology.

SCRUM: PROCESS FRAMEWORK

1. A people centric framework based on a set of **values**, **principles**, and **practices** that provide the foundation to which an organization can add its unique implementations for realizing the Scrum practices.

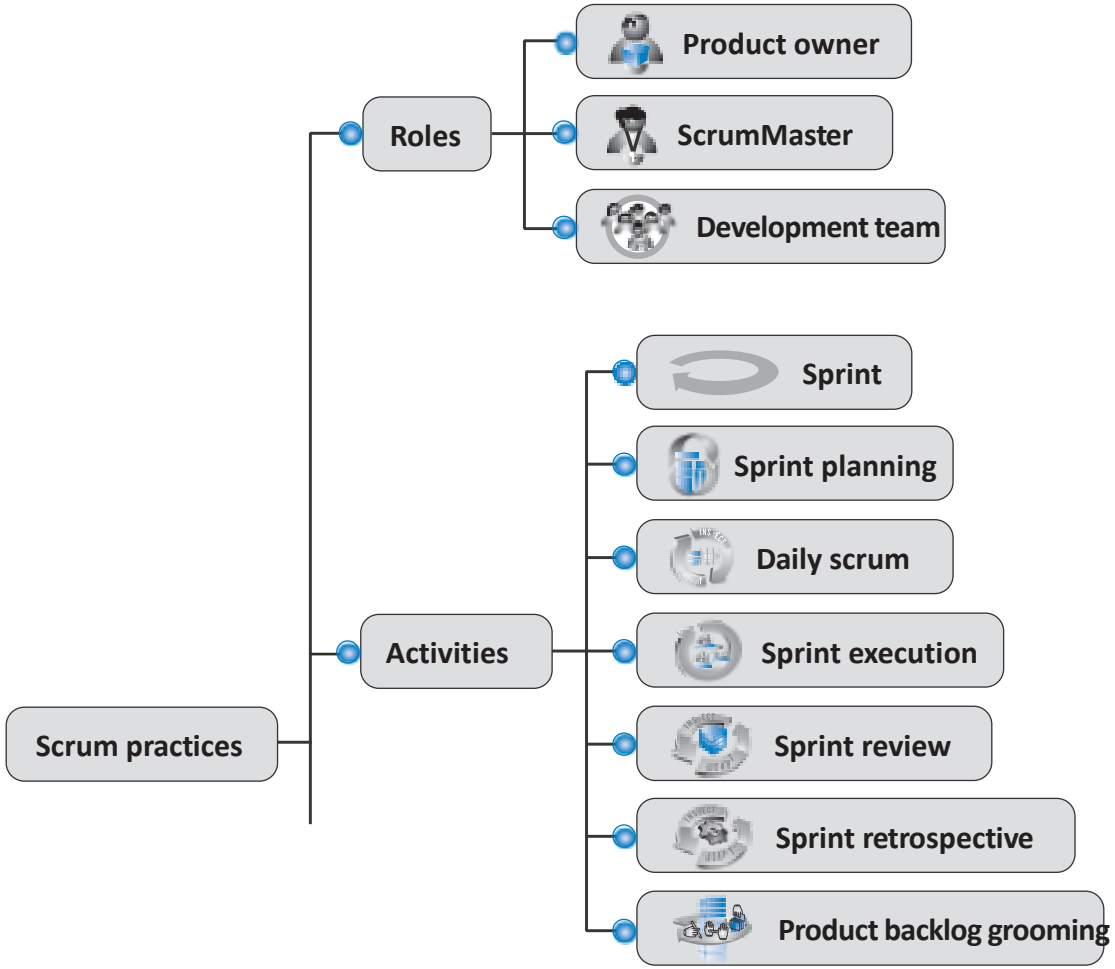
2. **ارزش‌های** اسکرام: **تعهد، تمرکز، باز بودن، احترام و شجاعت**

3. Scrum **Values** : Commitment, Focus, Openness, Respect, and Courage

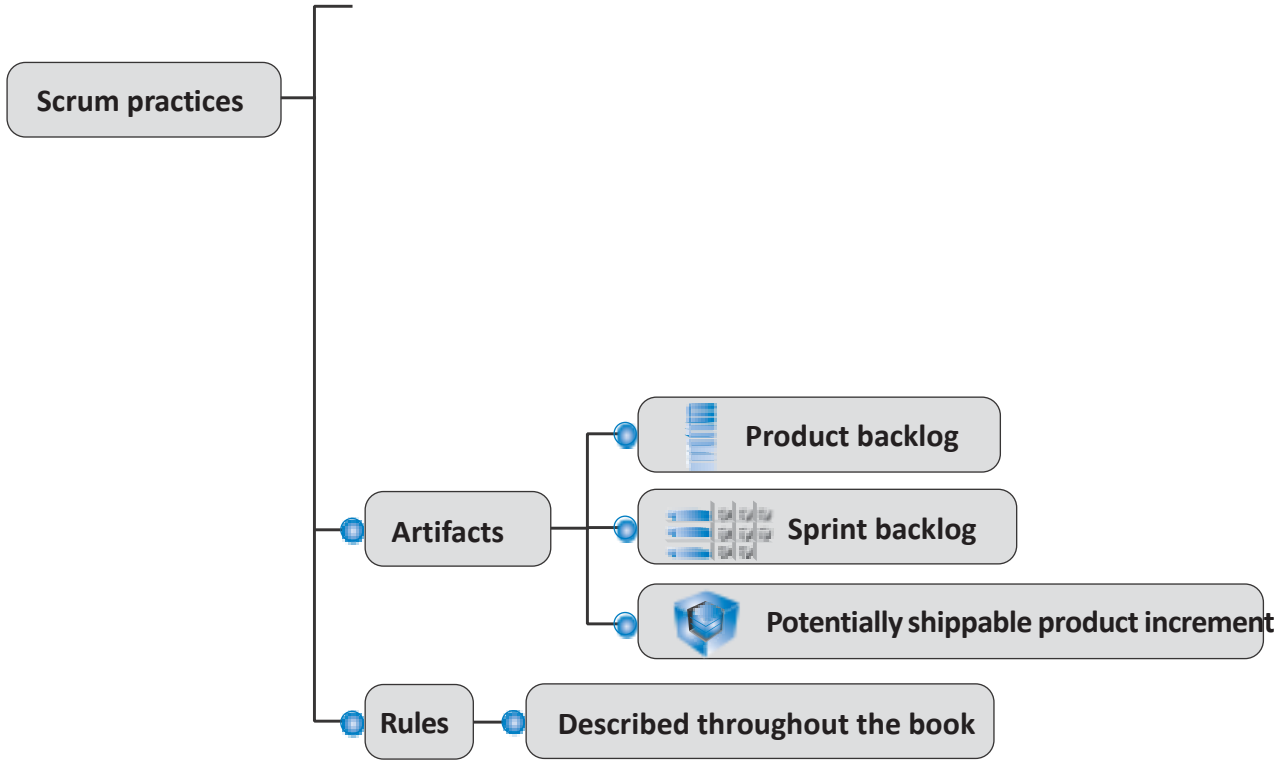
4. Scrum **Principles** : Manifestations of the Agile

5. Scrum **Practices** : Embodied in specific **roles**, **activities**, **artifacts**, and their associated **rules**.

SCRUM PRACTICES



SCRUM PRACTICES



SCRUM PRACTICES: SCRUM TEAM ROLES

1. Product Owner: Responsible for what will be developed and in what order.

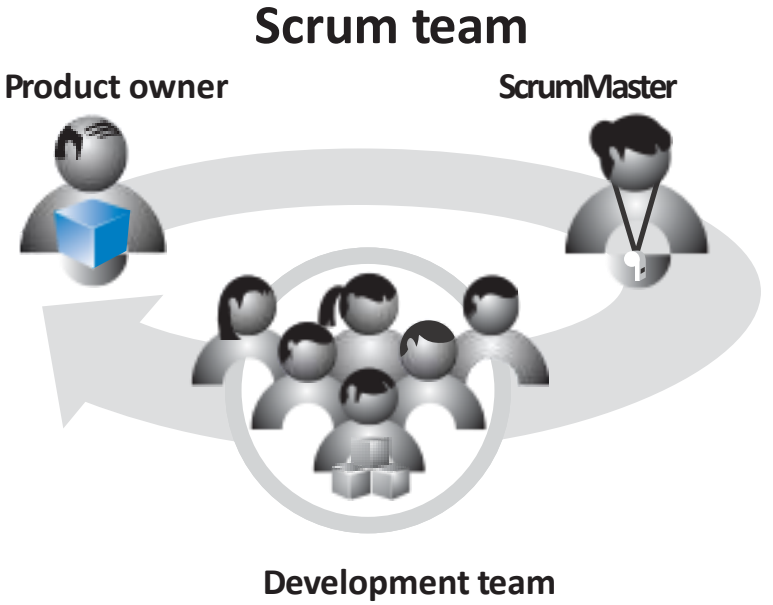
مالک محصول وظیفه به حداکثر رساندن ارزش محصولی را دارد که از کار تیم اسکرام نتیجه می‌شود.

1. Scrum Master: Responsible for guiding the team in creating and following its own process based on the broader Scrum framework.

اسکرام مستر مسئول اثربخشی تیم اسکرام است. اسکرام‌مسترها این کار را با توانمند کردن تیم اسکرام در جهت بهبود شیوه‌هایش در قالب چارچوب اسکرام، انجام میدهند.

1. Development Team (Developers): Responsible for determining how to deliver what the product owner has asked for.

توسعه‌دهندگان افرادی در تیم اسکرام هستند که متعهد به ایجاد همه جوانب یک Increment (فرآورده) قابل استفاده در هر اسپرینت هستند.



SCRUM PROCESS: ACTIVITIES AND ARTIFACTS

Product owner has a vision of what he wants to create.

- Through an activity called **grooming**, the vision is broken down into a set of features that are collected into a prioritized list called the **product backlog**

SCRUM PROCESS: ACTIVITIES AND ARTIFACTS

Sprints are performed iteratively; each sprint consists of:

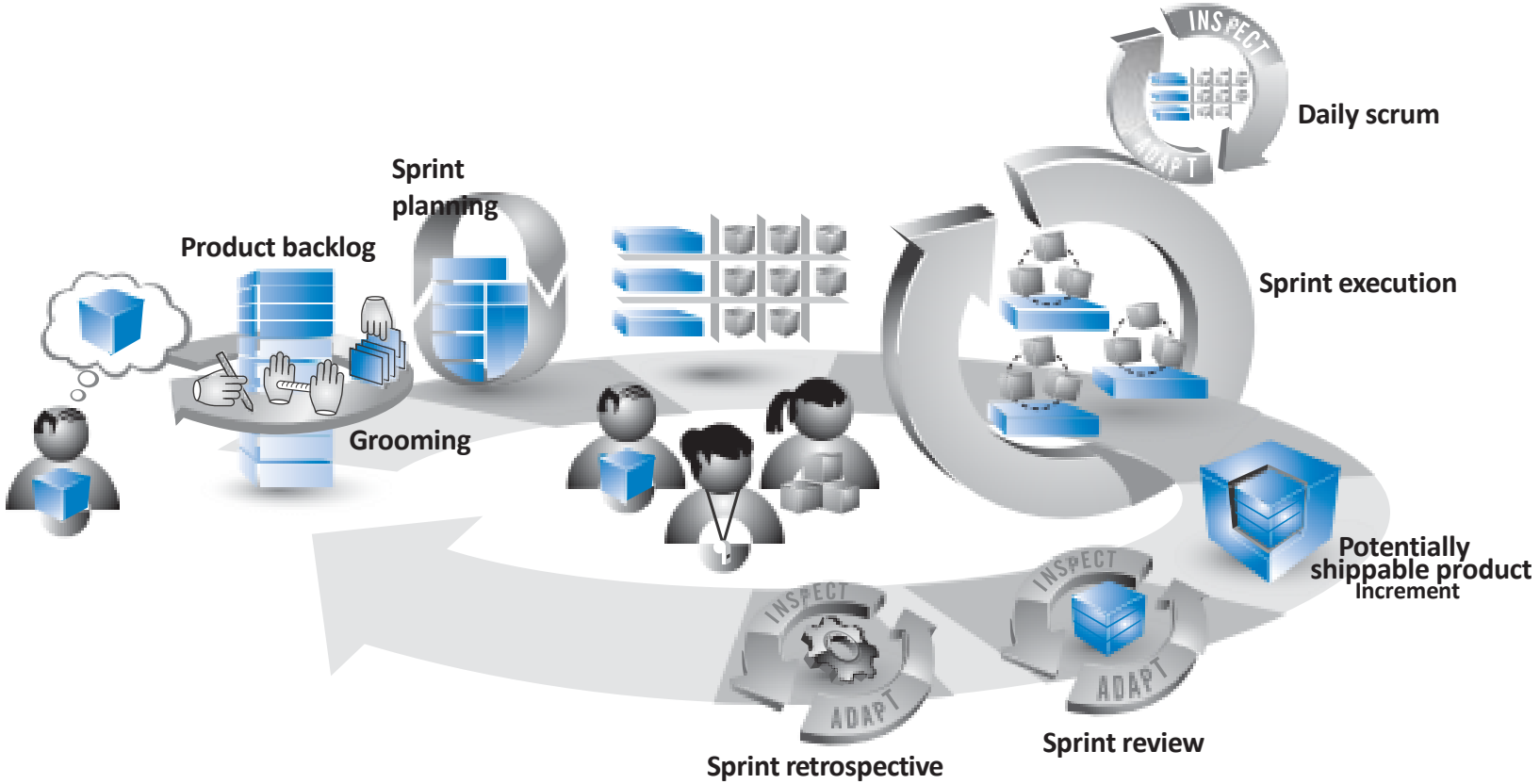
- Sprint planning: At the beginning of each sprint:
  1. The development team selects a subset of the **product backlog** items (features) it believes it can commit to completing.
  2. A **sprint backlog** is created; it describes, through a set of detailed tasks, how the team plans to design/build/integrate/test the selected features.

SCRUM PROCESS: ACTIVITIES AND ARTIFACTS

Sprints are performed iteratively; each sprint consists of:

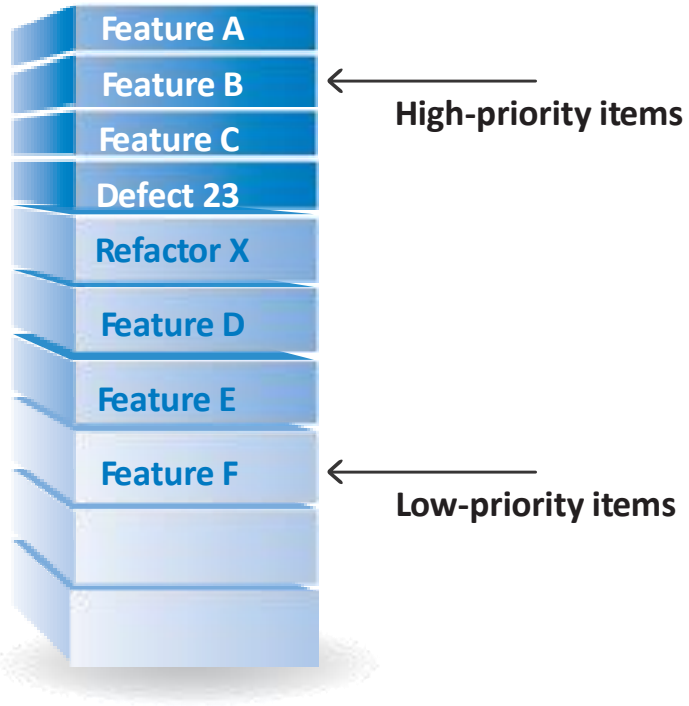
- Sprint execution: The development team performs the tasks necessary to realize the selected features.
  1. Each day, the Scrum team (ten members or less) conduct a synchronization, inspection, an adaptive planning activity known as the daily scrum.
  2. At the end of execution, the team has produced a potentially shippable product increment that represents some of the product owner's vision.
- Sprint review: Stakeholders and Scrum team inspect and adapt the product being built.
- Sprint retrospective: Scrum team inspects and adapts the Scrum process being used to create the product.

SCRUM PROCESS: ACTIVITIES AND ARTIFACTS



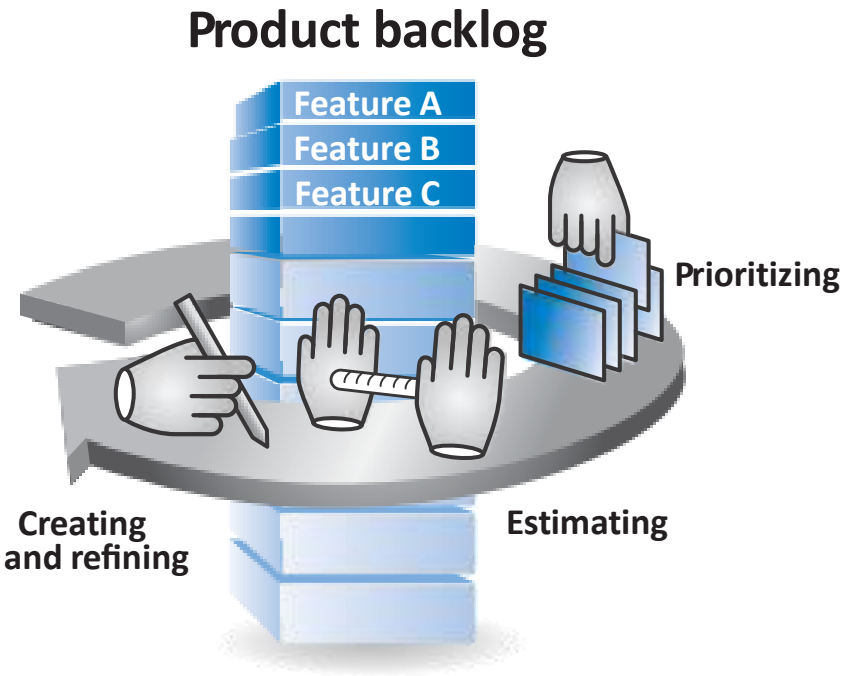
PRODUCT BACKLOG

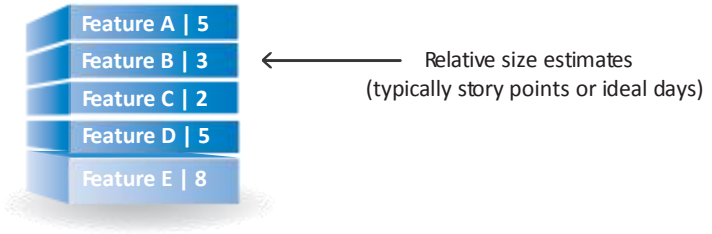
- The product owner, with input from the rest of the Scrum team and stakeholders, is responsible for determining and managing the sequence of work in the form of the product backlog.
  - Initially, product backlog items are features required to meet the product owner's vision.
  - During development, the backlog also contains new features, changes to existing features, defects needing repair, and technical improvements.
- The product owner collaborates with internal and external stakeholders to gather and define the product backlog items.
  - High value items appear at the top of the product backlog and the lower value items appear toward the bottom.



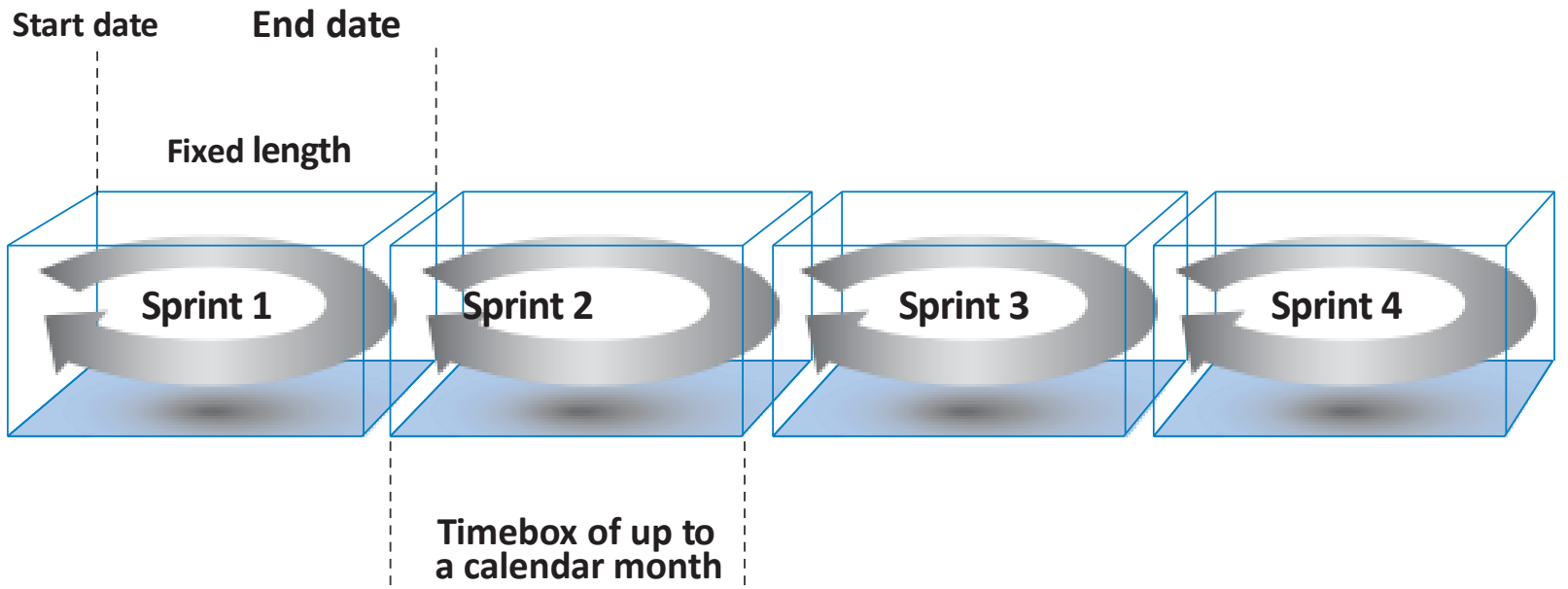
PRODUCT BACKLOG: GROOMING

1. Overall, the activity of creating and refining product backlog items, estimating them, and prioritizing them is known as grooming.
2. Product backlog items are placed in the correct sequence using factors such as value, cost, knowledge, and risk.
3. Prioritization requires estimation of the size of each product backlog item.
   - Size equates to cost.
   - Scrum does not dictate which size measure to use.
   - Relative size measures are usually used; such as story points or ideal days.
     - Instead of the absolute value, the relative size of an item compared to other items is considered.





SPRINTS

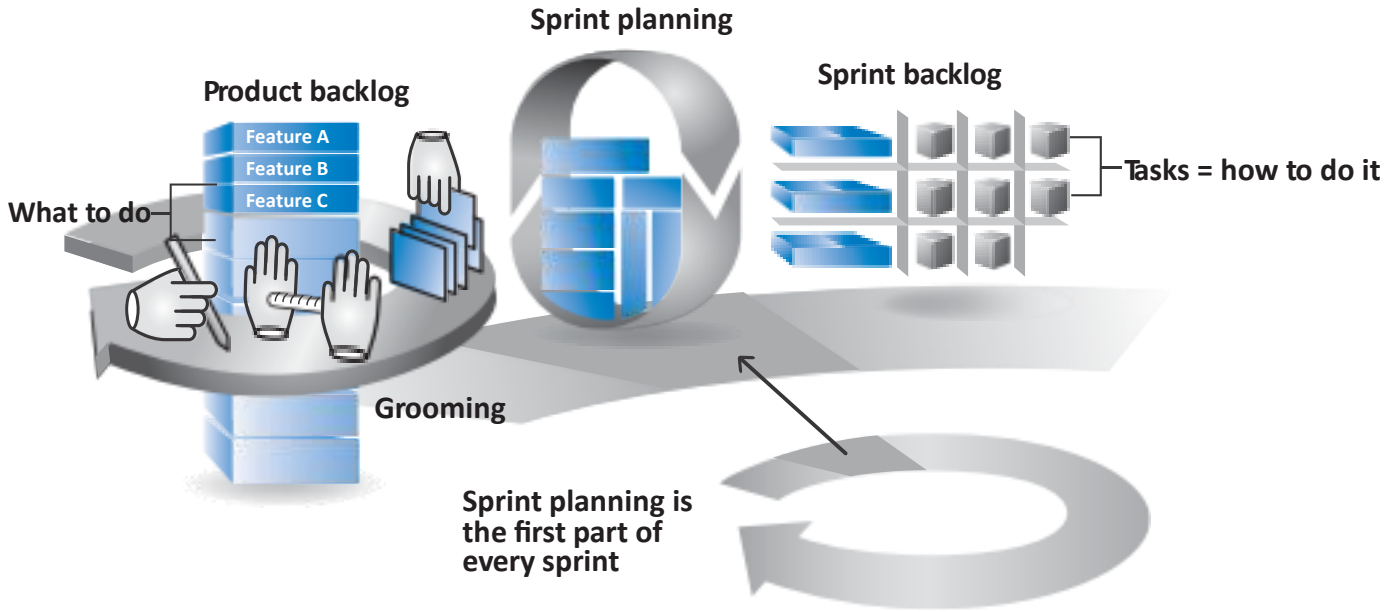


- In Scrum, work is performed in iterations or cycles of up to a calendar month called sprints.
- Sprints are the heartbeat of Scrum, where ideas are turned into value.
- The work completed in each sprint should create something of tangible value to the customer or user.
- Sprints are timeboxed so they always have a fixed start and end date, and generally they should all be of the same duration.

SPRINTS

- During the Sprint:
  - No changes are made that would endanger the Sprint Goal;
  - The Product Backlog is refined as needed; and,
  - Scope may be clarified and renegotiated with the Product Owner as more is learned.
- When a Sprint's horizon is too long the Sprint Goal may become invalid, complexity may rise, and risk may increase.
- Shorter Sprints can be employed to generate more learning cycles and limit risk of cost and effort to a smaller time frame. Each Sprint may be considered a short project.
- A Sprint could be cancelled if the Sprint Goal becomes obsolete. Only the Product Owner has the authority to cancel the Sprint.

SPRINT PLANNING



1. A product backlog may represent many weeks or months of work, which is much more than can be completed in a single, short sprint.
2. To determine the most important subset of product backlog items to build in the next sprint, the product owner, development team, and ScrumMaster perform sprint planning
3. During sprint planning, the product owner and development team agree on a sprint goal that defines what the upcoming sprint is supposed to achieve.
   - Using this goal, the development team determines the high priority product backlog items for the upcoming sprint.

SPRINT PLANNING: SPRINT BACKLOG

- The development team breaks down each targeted feature into a set of tasks.
  - The collection of these tasks, along with their associated product backlog items, forms a second backlog called the sprint backlog.

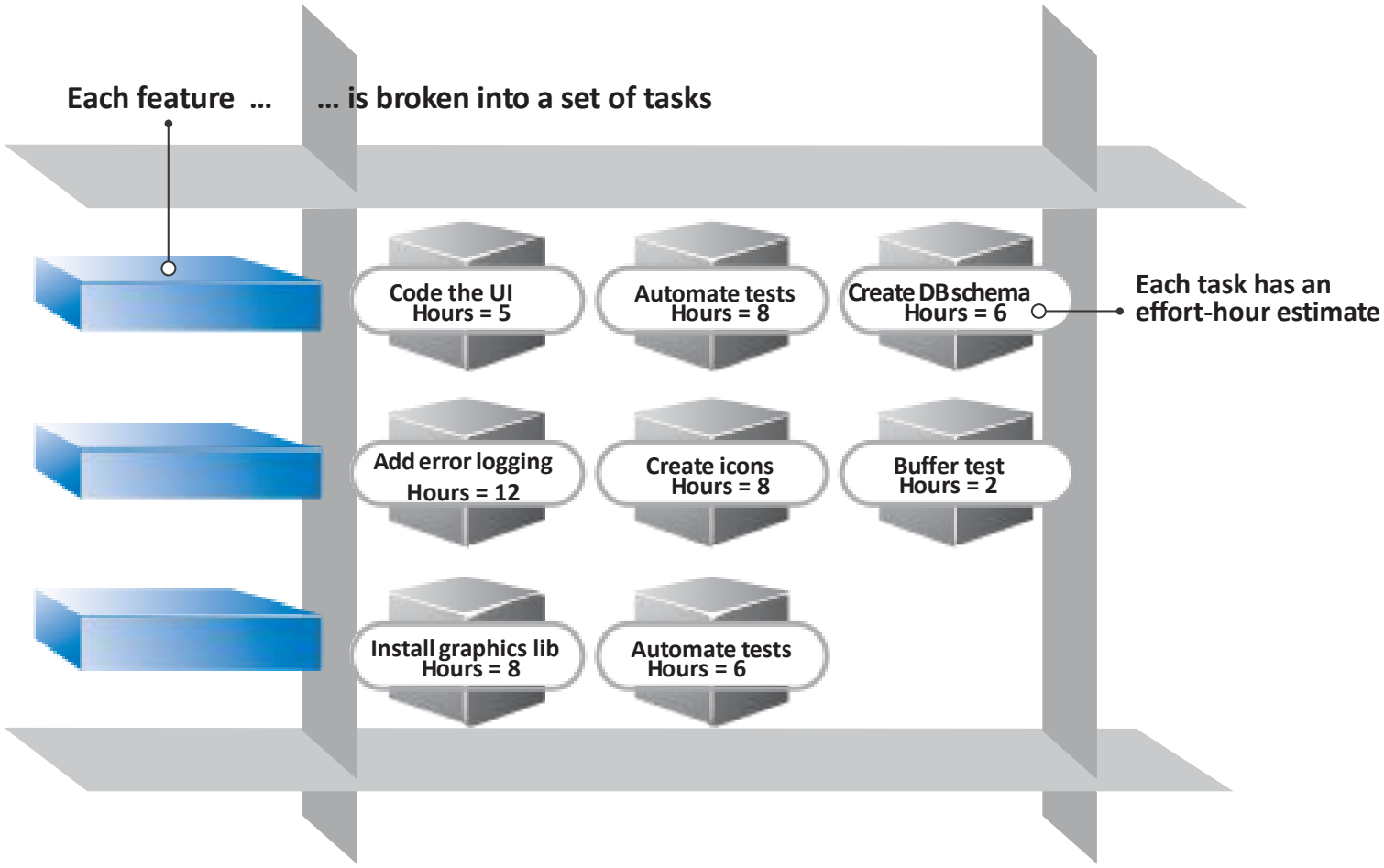
- The development team then provides an estimate (typically in hours) of the effort required to complete each task.

SPRINT PLANNING: SPRINT BACKLOG

There are several approaches that can be used for sprint planning. The preferred approach is as follows:

1. Select a product backlog item;
2. break the item down into tasks, and determine if the selected item will reasonably fit within the sprint;
3. If it does fit and there is more capacity to complete work, repeat the cycle until the team is out of capacity to do any more work.

SPRINT PLANNING



SPRINT EXECUTION

- The development team, guided by the Scrum Master's coaching, performs all the task level work necessary to get the features done.
  - "Done" means there is a high degree of confidence that all of the work necessary for producing good quality features has been completed.
- Exactly what tasks the team performs depends on the nature of the work.
  - For example, are we building software and what type of software, or are we building hardware, or is this marketing work?
- Nobody tells the development team in what order or how to do the task level work in the sprint backlog.
  - Team members define their own task level work and then self organize in any manner they feel is best for achieving the sprint goal.

SPRINT EXECUTION: DAILY SCRUM

- Each day of the sprint, ideally at the same time, the development team members hold a timeboxed (15 minutes or less) daily scrum.
- The Scrum Master facilitates the meeting and each team member answers three questions for the benefit of the other team members:
  1. What did I accomplish since the last daily scrum?
  2. What do I plan to work on by the next daily scrum?
  3. What are the obstacles that are preventing me from making progress?
- By answering these questions, everyone understands:
  1. The big picture of what is occurring;
  2. How they are progressing toward the sprint goal;
  3. Any modifications they want to make to their plans for the upcoming day's work; and
  4. What issues need to be addressed.

SPRINT EXECUTION: RULES OF DAILY SCRUM

- The daily scrum is an inspection, synchronization, and adaptive daily planning activity that helps a self organizing team do its job better.
- The daily scrum is not a problem solving activity.
  - Rather, many teams decide to talk about problems after the daily scrum and do so with a small group of interested people.
- The daily scrum is not a traditional status meeting.
- At the daily scrum, only the pigs should talk; the chickens , if any, should attend as observers.

SPRINT EXECUTION: POTENTIALLY SHIPPABLE PRODUCT INCREMENT

- In Scrum, we refer to the sprint results as a potentially shippable product increment .
- Whatever the Scrum team agreed to do should be really done according to its agreed upon definition of done .
- "Potentially shippable" does not mean that what got built must actually be shipped.
  - Shipping is a business decision, frequently influenced by things such as:
  - "Do we have enough features to justify a deployment?" or
  - "Can our customers absorb another change given that the last release was made just two weeks ago?"
- Potentially shippable is better thought of as a state of confidence that there is no materially important work left undone.

SPRINT REVIEW

- The goal is to inspect and adapt the product that is being built.
- Participants include the Scrum team, stakeholders, sponsors, customers, and interested members of other teams.
- Conversation is focused on reviewing the just completed features in the context of the overall development effort.
- Everyone in attendance gets clear visibility into what is occurring and has an opportunity to help guide the forthcoming development.
- Bidirectional information flow:
  - The people who are not on the Scrum team get to sync up on the development effort and help guide its direction.
  - Scrum team members gain a deeper appreciation for the business and marketing side of their product.

SPRINT RETROSPECTIVE

- An opportunity to inspect and adapt the Scrum process .
- The development team, Scrum Master, and product owner meet to discuss what is and is not working with their Scrum process and its associated practices.
- The focus is on continuous process improvement.
  - The Scrum team identifies and commits to a practical number of process improvement actions, to be undertaken by the team in the next sprint.

SCRUM: STRENGTHS

- **It's adaptable and flexible.** Scrum is suitable for a wide variety of environments and situations that don't initially have clearly identifiable requirements and require a flexible approach.

- **It encourages creative approaches.** With Scrum teams working together and analyzing ideas from all its members, creativity is encouraged and new ideas are likely to appear.

- **It involves low costs.** Adopting the Scrum approach can be cost-effective for an organization, as it usually requires less documentation and control.

SCRUM: STRENGTHS

- **It usually leads to better quality work.** Having everyone on the team take full responsibility and ownership of their work can create a productive environment that leads to high-quality end results.

- **It improves customer satisfaction.** Having everyone on the team working to the best of their abilities and constantly adjusting based on internal and external feedback can result in products and solutions that are popular with customers.

- **It typically results in more satisfied employees.** With everyone on the team taking full responsibility for their work, the Scrum framework makes it more likely that the employees involved in a project are motivated and satisfied.

SCRUM: WEAKNESSES

- **It requires extensive training.** Although using the Scrum framework can potentially deliver quick and high-quality results, it requires a well-trained and skillful team to properly implement it. Before committing to Scrum, everyone within the team needs to understand the benefits and particularities of this approach for the project to be a successful one.

- **It can be difficult to scale.** Using the Scrum approach for large projects can be challenging, as implementing it on a bigger scale requires extensive training and precise coordination. Although ways to adapt Scrum to bigger projects have been developed, they're usually difficult to understand and implement.

SCRUM: WEAKNESSES

- **It may require major transformations within the organization.** Adopting the Scrum framework sometimes means that the company needs to undergo some organizational transformations for this decision to be a successful one. Some parts of the process may require different departments to collaborate and work as a team, with the company needing to manage and organize these collaborations in a way that allows that to happen.
- **It can be difficult to integrate with a classic project management approach.** Although it's usually a good solution for projects that need constant adjustments, the Scrum approach may not be suitable for projects that require predictability and a well-defined plan. However, these kinds of projects can be approached by using a hybrid solution that encapsulates some of the advantages of classic, long-term planning and those of the Scrum framework.

SCRUM: WEAKNESSES

It is not related to the project's deadline. Although adopting the Scrum methodology involves many smaller deadlines for everyone involved, it doesn't offer any support for the project meeting its overall deadline. Although this approach increases the odds of everyone involved working to the best of their abilities and meeting expectations, the project manager and stakeholders also need to make sure that the project is on track to be completed on time.

It requires the use of small teams. The Scum methodology usually works best with teams of at least three people but no more than 10. Although this can promote collaboration and teamwork, some organizations may find it difficult to rearrange their workforce into teams.

It requires experienced personnel. Adopting the Scrum methodology involves extended periods of intense work and everyone involved needs to have experience and skills to quickly and successfully perform their own tasks. Everyone on the team needs to be able to execute and provide educated feedback on the results and overall process.

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