

## **AGILE AND SCRUM: INCREASING THE PRODUCTIVITY OF SOFTWARE DEVELOPMENT TEAMS**

In today's world, where technology is developing at an incredible speed, companies that can develop software quickly and efficiently have a competitive advantage. Customers want to receive new features and software enhancements as quickly as possible. Improving the productivity of software development teams can help companies deliver what customers want faster. One way to meet this challenge is to implement agile methodologies.

Agile is an approach to project management that focuses on flexibility and adaptability. It is based on four core values: people and collaboration over processes and tools, a working product over comprehensive documentation, collaborating with customers over negotiating with them, and responding to change over following a plan [1].

Agile methodologies are based on iterative cycles called sprints, which typically last between 1 and 4 weeks. At the end of each sprint, the team demonstrates the working product to stakeholders. This allows the team to receive feedback and make necessary changes.

These are widely used in software development, but can also be used in other industries such as marketing, manufacturing and even education.

Agile actually has a lot of important benefits. Such methodologies enable teams to quickly adapt to change through increased flexibility and adaptability. This helps them focus on product quality and ensure defects are identified and corrected in a timely manner. There is also a focus on promoting open and transparent collaboration between teams and stakeholders. As a result, developers deliver working products to customers faster and with fewer errors.

Scrum is an agile framework used for project management in which a team consists of three roles. The product owner defines the project's goals and determines what will be included in each sprint, the development team is responsible for completing the work needed to achieve the sprint goals and the scrum master helps the team work together effectively and adhere to the scrum principles.

The scrum process includes some specific activities. In sprint planning, the product owner and development team work together to determine what will be included in the sprint. The developers meet every day to discuss their progress and make necessary adjustments. At the end of each sprint, the team demonstrates the results of their work to the product owner and other stakeholders. And after each sprint, there is a review to discuss what went well, what could be improved, and what needs to be changed for the next sprint.

The product backlog is a list of all product requirements that must be implemented. It is the basis for planning and development. Product backlog contains user stories, which are small, self-contained tasks that provide value to users. They are the basic unit of work in scrum and usually belong to features or epics that represent a significant piece of functionality. The product backlog is constantly updated and changing as the development team learns more about the product and its needs.

The Sprint backlog contains a list of tasks that the development team plans to complete within one sprint. It is created during the sprint planning meeting and is also dynamic and can change as the development team learns more about the tasks.

Product backlog and sprint backlog are important components of scrum. They help the development team plan and execute the work with a clear understanding of the product requirements. It also helps ensure transparency and adaptability. Sprint backlog improves focus on specific tasks that must be completed within a single sprint to ensure efficiency and productivity.

There are many other agile software development methodologies similar to scrum, and there is no single answer to the question of which methodology is best. The choice depends on several factors, such as the size and complexity of the project, user and business expectations, the skills and experience of the team.

Scrum can be a better choice for a large and complex project. It provides more structure and control, and it can help the team avoid mistakes and delays [2]. Ultimately, the best way to determine the best methodology for a project is to do research and consult with experienced professionals.

In conclusion, scrum is not a perfect methodology. It has its drawbacks, such as difficulty for beginners and the need for constant learning and improvement. However, scrum is a powerful tool that can help software development teams build more valuable products faster and more efficiently.

### **References**

1. Agile Software Development – Software Engineering. Available: <https://www.geeksforgeeks.org/software-engineering-agile-software-development/>.
2. 8 Best Software Development Methodologies. Available: <https://www.uptech.team/blog/software-development-methodologies>