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IMPROVED GAMIFICATION OF AGILE / SCRUM AND OTHER MANAGEMENT METHODOLOGIES: HOW TO INCREASE TEAM ENGAGEMENT AND PRODUCTIVITY

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Abstract. The article explores the application of gamification to increase the engagement and productivity of teams working with Agile, Scrum, Kanban, and Lean methodologies. It reviews the core principles of Scrum and Agile, the definition and elements of gamification. The advantages and disadvantages of integrating game mechanics into work processes are analyzed, with examples provided for application in Scrum and HR. The importance of careful gamification implementation is substantiated, considering methodological principles, team context, and the need to maintain a healthy work-life balance to achieve positive results.

Keywords: Agile, Scrum, Gamification, Management Methodologies

Introduction

Scrum is a popular way to organise work on projects, focusing on iterative development and flexibility [35]. However, even the most effective Scrum teams can face challenges with motivation and engagement. Gamification is a powerful tool that can help overcome these problems by turning work into an exciting game [36], and it can also be a powerful tool for aligning strategic goals with the daily work of agile teams [8]. In this article, we will explore how gamification elements can be used in Scrum and other management methodologies to increase team productivity and satisfaction. [8, 35, 36]

Agile, unlike Scrum, is a philosophy based on continuous incremental improvement through small and frequent releases, while Scrum is a specific framework for getting work done [3]. The Agile philosophy is based on four core values outlined in the Agile Manifesto: prioritising individuals and interactions over processes and tools, working software over comprehensive documentation, customer collaboration over contract negotiation, and responding to change over following a plan [2]. These



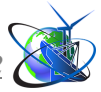
values serve as a guide for implementing gamification in Agile environments, emphasising the importance of people, delivering value, collaboration, and adapting to feedback [2]. Gamified elements should encourage interaction and collaboration, for example, through team tasks, rewards for helping colleagues, or leaderboards that track team progress [24]. They should also celebrate the delivery of working software, for example, with points for completed user stories, badges for successful sprint reviews, or progress indicators that visualize sprint goals [24]. Promoting customer collaboration can be achieved through bonuses for positive customer feedback, tasks based on solving customer problems, or leaderboards that track customer satisfaction [24]. Finally, gamification should incentivize responsiveness to change, for example, with points for effectively handling change requests, tasks focused on adapting to unexpected problems, or leaderboards that track the speed of response to change [24]. [2, 3, 24]

What is Gamification?

Gamification is the application of game mechanics and design elements in non-game contexts [14]. It reorganizes and transforms experiences that are often routine or complex [36]. Gamification is widely used in education, where its benefits include reducing student anxiety, increasing interest and motivation, improving learning outcomes, and supporting student autonomy [37]. [14, 36, 37]

Some typical elements of gamification include:

- Points: Awarding points for completing tasks or achieving goals.
- Badges: Providing virtual badges for achievements or demonstrating specific skills.
- Leaderboards: Displaying the ranking of participants based on their achievements.
- Performance graphs: Visualizing the progress and achievements of the team.
- Meaningful stories: Creating a narrative that gives meaning and context to the work.
- Avatars: Personalizing participant profiles with virtual avatars.
- Teammates: Promoting collaboration and interaction among team members.



Scrum and its Core Principles

Scrum is an iterative and incremental approach to project management based on the principles of flexibility and adaptability [3]. Scrum can be compared to a "scrum" in rugby, where the team comes together to achieve a common goal [6]. It is an empirical process where decisions are based on observation, experience, and experimentation [3]. [3, 6]

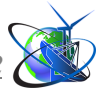
The core principles of Scrum include:

- Self-organization: Scrum teams independently organise their work and make decisions [3].
- Collaboration: Scrum encourages close collaboration between team members and stakeholders [3].
- Focus on value: Scrum teams focus on delivering value to the customer [3].
- Iteration: Work in Scrum is broken down into short iterations called sprints [3].
- Continuous improvement: Scrum teams constantly analyze their work and look for ways to improve it [3].
- "Done/Not Done": Scrum focuses on completing tasks within a sprint, avoiding the "big win" mentality often associated with gamification [20].

Gamification of Scrum

Gamification can be successfully integrated into Scrum if it does not violate the core principles of the methodology [20]. It is important to remember that for the successful scaling of agile methods such as Scrum, optimal team development and trust are important [20]. "Scrum of Scrums" is one way to scale Scrum across multiple teams, where gamification can be used to facilitate communication and coordination [20]. It is important that gamification does not turn into a system of punishments and rewards, but rather promotes the development of teamwork, motivation, and engagement. [20]

Gamification in Scrum should be aimed at personal growth, not turning into a meritocracy [20]. It should also promote a healthy balance between work and personal life, without creating excessive pressure or unrealistic expectations [20]. When implementing gamification, it is important to consider the needs and preferences of



employees and adapt it to the specific team and its context [20]. [20]

Gamification of Other Management Methodologies

Gamification can be applied not only in Scrum but also in other project management methodologies such as Kanban [4] and Lean [7]. For example, in Kanban, gamification can be used to visualize the workflow, track progress, and stimulate task completion [4]. In Lean, gamification can be used to train employees in Lean principles such as 5S, standard work, and the 8 wastes [7]. [4, 7]

Elements of Scientific Novelty

The scientific novelty lies in the research and development of new approaches to gamification in project management that take into account the specifics of different methodologies and contexts. This may include:

- 1) Developing new game mechanics and design elements that are more effective and adapted to specific methodologies.
- 2) Studying the impact of gamification on various aspects of teamwork, such as motivation, engagement, productivity, communication, and collaboration.
- 3) Developing recommendations for implementing gamification in different contexts, considering the needs and preferences of employees, as well as the specifics of the project and organization.

Improved Methodology Diagram

The diagram illustrates integrating gamification after selecting a methodology (Scrum, Kanban, Lean) and before project execution, with a feedback loop for improvement based on results analysis.

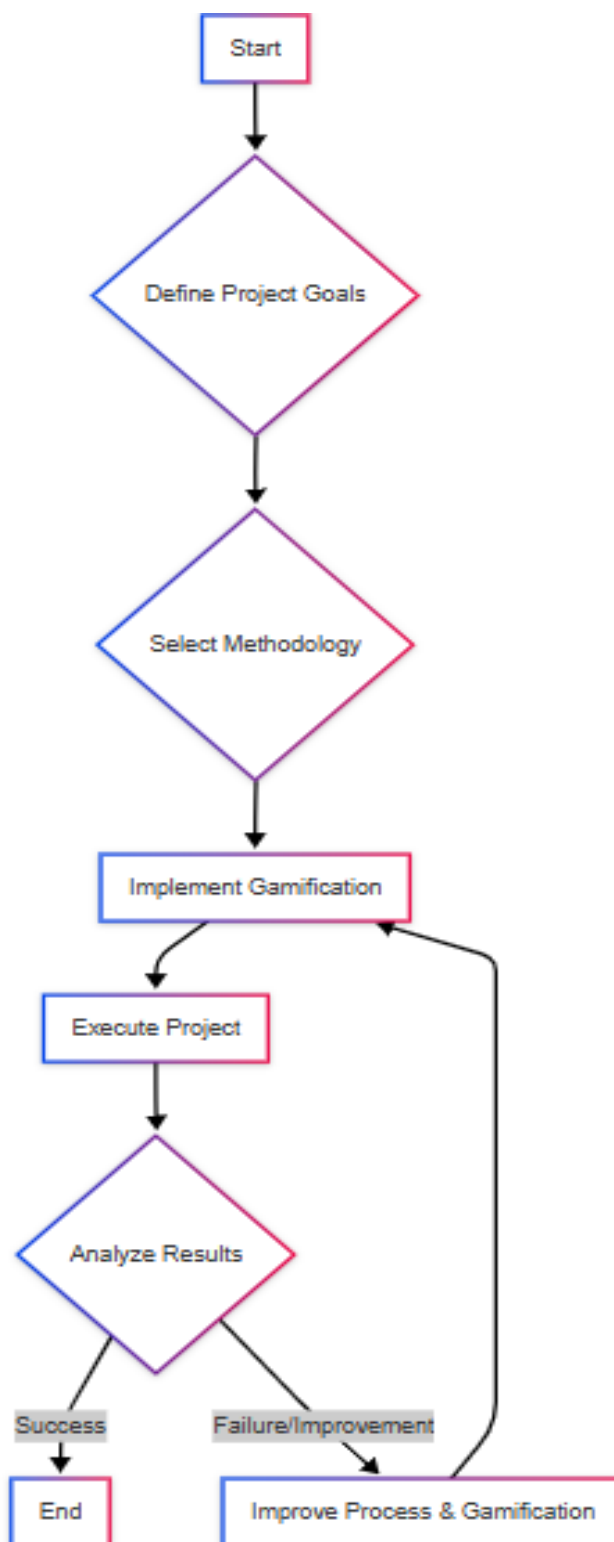


Figure 1. Improved Methodology Diagram *[Formed by author]*
(Figure 1. omitted in text format, but described conceptually)



Block Diagram of Gamified Scrum:

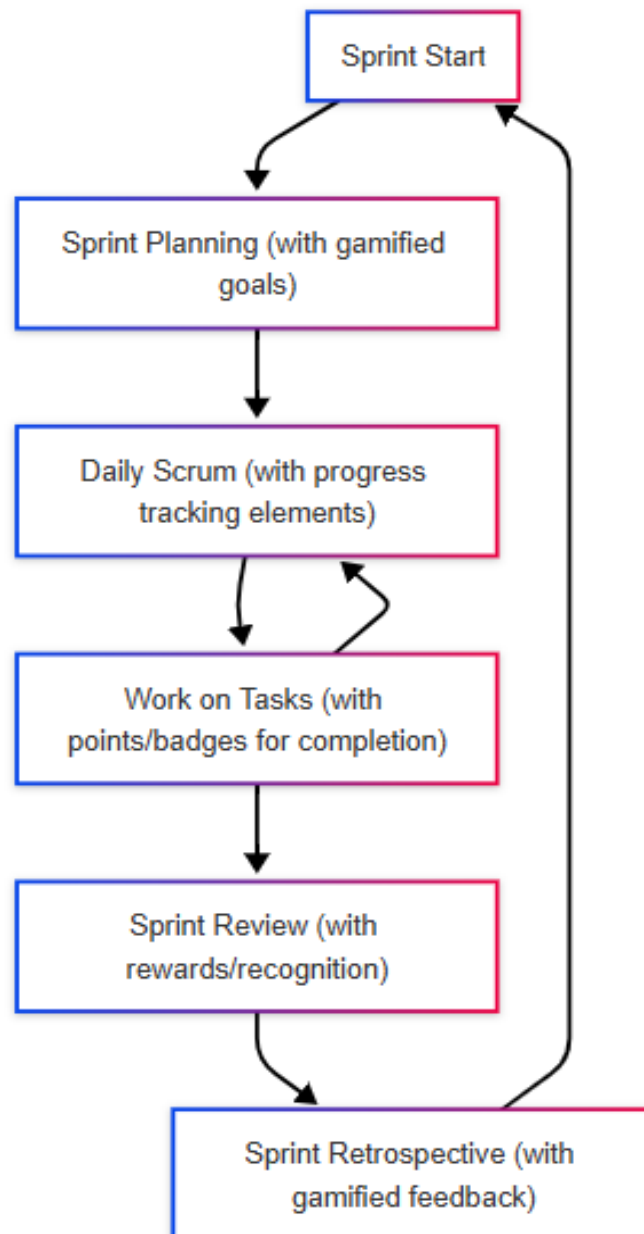


Figure 2. Diagram of Gamified Scrum *[Formed by author]*

(Figure 2. omitted in text format, but described conceptually)

The diagram shows gamification elements integrated into Sprint Planning (goals), Daily Scrum (progress tracking), Work on Tasks (points/badges), Sprint Review (rewards), and Sprint Retrospective (feedback).



Gamification Elements Chart:

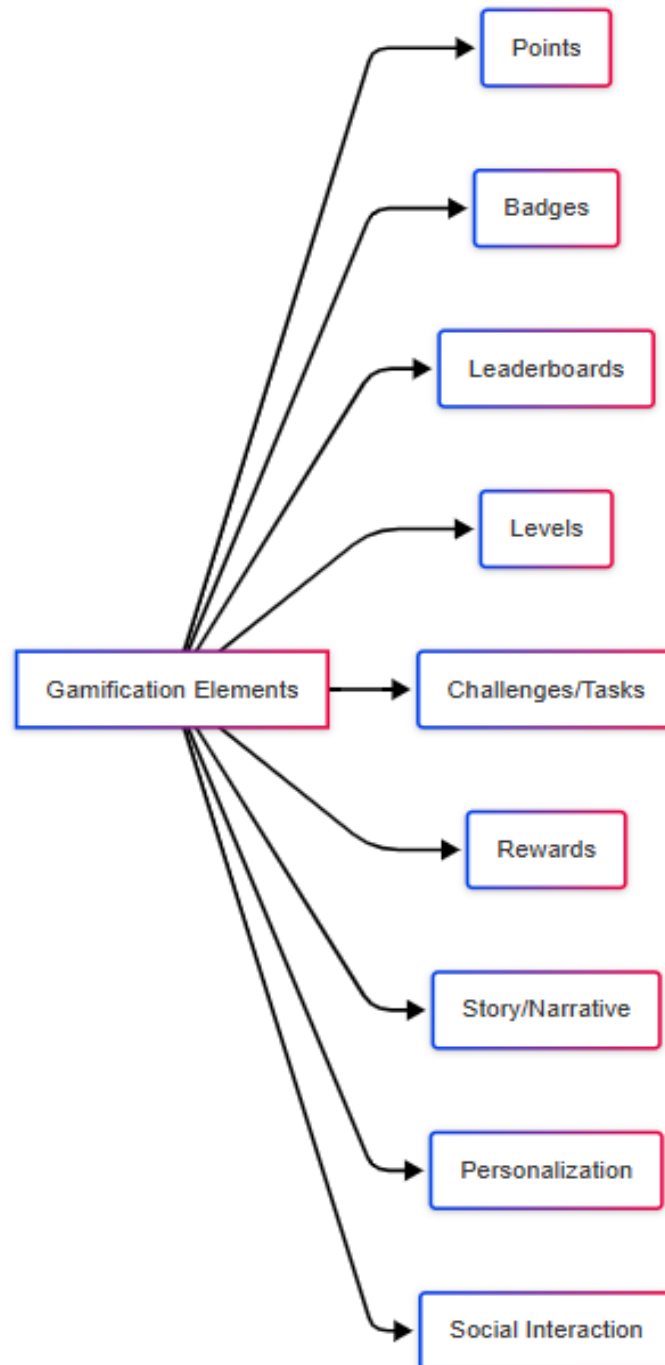
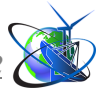


Figure 3. Gamification Elements Chart *[Formed by author]*

(Figure 3. omitted in text format, but described conceptually)

The chart lists common gamification elements: Points, Badges, Leaderboards, Levels, Challenges/Tasks, Rewards, Story/Narrative, Personalization and Social Interaction.



Gamification Elements in Scrum

Here are some examples of how gamification elements can be used in Scrum:

- ✓ Rewards for achieving sprint goals: Providing virtual rewards or bonuses to the team for successfully completing a sprint.
- ✓ Competitions between teams: Organizing competitions between Scrum teams to stimulate productivity and innovation.
- ✓ Using visual elements: Applying leaderboards, badges, and other visual elements to display team progress and achievements [20].
- ✓ Implementing role-playing elements: Giving team members different roles and responsibilities to make the work more interesting and engaging.
- ✓ Tracking workload and task estimation: Tracking the amount of work assigned to employees and estimating tasks together with the team can promote transparency and fairness in task distribution and evaluation [20].
- ✓ Realistic execution time: Gamification should emphasize realistic goal setting and avoid creating unrealistic deadlines that can lead to stress and burnout [20].
- ✓ Gamification in HR processes: Gamification can be used in HR processes such as onboarding and training new employees [17, 23]. For example, the "Activ8" program from Xerox [1, 21, 30] or the "Language Quality Game" from Microsoft [13, 19, 29] demonstrate the potential benefits of gamification in HR. [1, 13, 17, 19, 21, 23, 29, 30]
- ✓ Amazon example: Amazon uses a game where employees take care of virtual pets after completing tasks [15, 20, 22]. Similar approaches can be applied in other contexts to motivate employees [15, 22]. [15, 20, 22]

**Table 1. Advantages and Disadvantages of Gamification in Scrum**

Advantages	Disadvantages
Increased team motivation and engagement.	Risk of excessive focus on competition and ignoring collaboration.
Improved communication and collaboration.	Possibility of conflicts and unhealthy competition.
Increased productivity and efficiency.	Need for careful planning and implementation of gamification to avoid negative consequences.
Creation of a positive and stimulating work atmosphere.	"Red light" for games: Focusing on punishing failures can create a negative and demotivating environment [20].
Improved psycho-emotional state of employees: Gamification can provide a sense of achievement, encourage social interaction, and offer a break from routine tasks, contributing to improved well-being [20].	Emotional costs: Pressure to "win" in a gamified environment can negatively affect employee well-being and potentially lead to burnout [20].

Conclusion

Gamification can be an effective tool for increasing the engagement and productivity of Scrum teams and other management methodologies. It can turn work into an exciting game, stimulating teamwork, motivation, and innovation, as well as helping to achieve strategic goals [15]. However, it is important to carefully consider and implement gamification, taking into account the needs of the team and its context, so that it does not violate the basic principles of the methodology and does not lead to negative consequences. Gamification should be aimed at personal growth and promote a healthy balance between work and personal life. It is important to avoid excessive focus on competition and the "red light" for games in order to create a positive and stimulating work atmosphere. [15]



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Анотація. Стаття досліджує застосування гейміфікації для підвищення залученості та продуктивності команд, що працюють за методологіями Agile, Scrum, Kanban та Lean. Розглядаються основні принципи Scrum та Agile, визначення та елементи гейміфікації. Аналізуються переваги та недоліки інтеграції ігрових механік у робочі процеси, наводяться приклади застосування в Scrum та HR. Обґрунтовується важливість обережного впровадження гейміфікації з урахуванням принципів методології, контексту команди та необхідності підтримки здорового балансу між роботою та особистим життям для досягнення позитивних результатів.

Ключові слова: Agile, Scrum, Гейміфікація, Методології управління

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