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AI Assistance in Agile Software Management: Real Impact or Hype

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ABSTRACT:

Application of AI in agile software development has grown at a rapid pace, but there is little empirical evidence regarding the impact of AI on the real Scrum teams in practical project environments. A lot of research that has been done is based on controlled experiments, tool-level testing, or theoretical discussions. Meanwhile, there are a comparatively lower number of studies that give a detailed, sprint-level analysis of how AI is applied in real Scrum team setups. This has led to a lack of knowledge regarding the impact of AI on productivity, workload, satisfaction, and team experience in actual Scrum processes. The thesis will fill this gap by exploring the effect of AI assistance in a project that has a Scrum-based approach.

This research has aimed at investigating the application and usage of AI assistance in Scrum with respect to productivity, perceived workload, team satisfaction, and general team experience. The main ideas that are considered are the AI-based productivity, perception of workload, team satisfaction, human control, and stakeholder value.

A case study research methodology has been used. The research has been anchored on a Scrum project, which has been executed within three sprints. Several sources have been utilized to collect data that will offer a holistic picture of AI usage. Some of these sources are project data that has been exported on the Scrum management tool, sprint sheets that are kept during the project, sprint surveys that are filled in by the team members after every sprint and a further survey that was done with the owners and stakeholders of the web sites. AI has been applied selectively in sprint activities where it was deemed useful by the team.

The results show that AI assistance has helped improve productivity through lowering the effort in certain tasks, especially those that are development-related and documentation-intensive. Perceived workload has increased over time despite continuous AI usage, suggesting that AI has shifted work from manual execution to review, coordination, and decision-making rather than eliminating workload. Team satisfaction has not been decreasing within any sprint, which is why the perceived usefulness of AI and team autonomy have had greater influence than the workload volume.

In conclusion, this thesis demonstrates that AI has a real but nuanced impact on Scrum. AI has functioned effectively as an assistive tool when integrated carefully into Scrum practices and governed by human judgment. This research gives useful information to Scrum teams and companies looking to adopt AI and adds empirical data about the impact of AI on actual Scrum teams.

KEYWORDS: Artificial intelligence, Scrum, software development, productivity, workload, team satisfaction, AI assistance

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1 Introduction

The concept of artificial intelligence (AI) is becoming more and more common in software development and project management. Over the recent years, AI tools, in particular, the generative language models, have shifted to being an experimental tool to a support tool in the day-to-day Scrum process, such as writing code, documentation, analysis, and planning. It has been found that AI tools have the potential to greatly enhance efficiency in software development, particularly when implemented on clearly defined tasks (Peng et al., 2023, p. 1).

Meanwhile, Scrum is now the leading software development project management framework (Nguyen-Duc et al., 2024; Spichkova, 2025). Scrum focuses on brief developmental cycles, referred to as sprints, feedback loops, and a workforce of cross functioning. Since Scrum teams have set deadlines related to sprints, productivity, workload, and team satisfaction are the key success factors. Research on AI and agile methods indicates that there is an increasing amount of interest in adopting AI-based instruments in Scrum-based work, especially to facilitate sprint planning, estimation, and team coordination (Campoverde Morales, 2024, p. 1).

Even though expectations are high, studies also indicate that AI is not widely used in the creation of projects and products. According to a study conducted on a global scale, it is stated that by early 2023, only 13% of companies had already adopted at least one AI application, which means that the majority of organizations remain at the initial stages of AI adoption (Cooper, 2024, p. 2).

Nevertheless, companies that have adopted AI report that their performance has increased significantly with some activities in product development being reduced by 50% or more (Cooper, 2024, p. 2).

This high expectations versus low real-world adoption disparity underlines the necessity to investigate the use of AI in the real-life Scrum projects.

1.1 Background

Artificial intelligence is one of the important research areas in software engineering and agile development. Recent research has explored the use of generative AI systems, including large language models, in such activities as coding, estimation, documentation, and coordination (Nguyen-Duc et al., 2025; Ulfsnes et al., 2024). Research has also explored how AI tools may support efficiency and decision-making within Scrum environment (Ahmad et al., 2023; Arora et al., 2024).

The concept of Scrum is commonly referred to as an organized agile approach, which plans work in iterative sprints and focuses on collaborative work, transparency, and responsive planning (Spichkova, 2025; Couder and Ochoa, 2024). Due to the fact that Scrum is based on time-limited iterations and specific roles, the implementation of AI tools can affect the way of task execution, estimation and the interaction of the team. It has been proven that Scrum is the most widely used agile framework because of its flexibility and emphasis on constant improvement (Campoverde Morales, 2024, p. 2).

Meanwhile, researchers have also determined obstacles to the use of AI, such as reliability issues, verification work, human supervision (Bahi et al., 2024; Pavlič et al., 2024). Organizational-level studies also emphasize that AI integration requires structured governance and risk management (Cooper, 2024; Kumar & Singh, 2022).

Despite the extensive research on AI in Scrum, only a few studies have conducted research that analyzes sprint-level productivity, workload, satisfaction, and stakeholder perception in a Scrum projects (Nguyen-Duc et al., 2025). The research is a reaction to the demands to conduct more empirical research on AI in practical Scrum environment.

1.2 Aim and Research Questions

This thesis intends to explore the actual effectiveness of AI support in a Scrum-based project. The research concentrates on the application of AI tools in scrum environment and the impact of the tools on productivity, workload, and team satisfaction.

This objective is closely connected to the gaps in the current research that require additional empirical research on the use of AI in precisely defined frameworks like Scrum (Campoverde Morales, 2024, p. 1). It is also justified by the literature that examines the application of AI in sprint planning, estimation, and perspectives, but points to the necessity of a practical validation (Spichkova et al., 2025, p. 3).

According to this objective, the following research questions were formulated:

- RQ1: How does the application of AI assistants, influence the productivity of a Scrum team?
- RQ2: What is the impact of AI assistants on workload and Scrum team satisfaction?

These research questions describe the way the existing literature frames the value of AI in Scrum, combining performance outcomes with actual scrum team.

2 Literature Review

A literature review was made to get familiar with the way the past researchers talked about the application of AI tools in project work and Scrum. Reviewed articles include academic journal articles, conference papers, and publications related to the industry.

The literature review was not only meant to summarize the current knowledge, but it was also aimed at finding gaps that were present in the existing research. The review was based on the following areas:

- Use of AI in Scrum and software development work,
- AI-based enhancements to productivity and efficiency,
- effects of AI tools on team workload and team satisfaction,
- AI-assisted work problems and threats.

Studies indicate that in addition to coding, generative AI tools may be used to assist with requirements analysis, design documentation, or generating test cases, which are also applicable to Scrum teams with several active sprints (Rajbhoj et al., 2024, p. 38). These results indicate that AI can have an impact not only on the productivity of developers but also on the processes of Scrum in general.

Another possible area of support with the help of AI and agile project management is mentioned in research, including sprint planning, effort estimation, and retrospective analysis. One of the studies investigates the application of AI-assisted tools in terms of sprint planning, and retrospectives, illustrating how AI can benefit the teams, summarizing information and recommending improvement (Spichkova et al., 2025, p. 3). Other research states AI uses in agile project management, which are useful in communication, risk identification, and decision-making (Campoverde Morales, 2024, p. 1).

Nonetheless, adoption is not enthusiastic. Studies indicate that only 98% of managers are not ready to surrender the decision-making process to AI, which means that AI is primarily perceived as a support tool and not a substitute of human judgement

(Cooper, 2024, p. 4). This supports the relevance of learning AI as an assistive technology in Scrum teams but not as an autonomous system.

In general, a gap in the literature can be identified. Though numerous articles show AI technical potentials or its impact on productivity in Agile environment, not many studies focus on the actual usage of AI by existing Scrum teams in actual project, during actual delivery (Peng et al., 2023, p. 7).

Through the review, realized that most literature talks about AI on a high or theoretical level (Nguyen-Duc et al., 2025; Arora et al., 2024). The majority of the current studies are devoted to the technical capacity of AI tools, Agile environments in general, or large organizations (Peng et al., 2023). Yet, there is still a relative lack of research on the impact of AI on real Scrum teams on real projects with real delivery pressure.

Specifically, little focus has been put on how small Scrum teams currently apply AI to their daily sprint work and how team members view its influence on their workload and job satisfaction. The given research gap justified the necessity of the practical case study, which should be grounded in the real sprint data and the feedback provided by the team directly.

3 Methodology

This study has a structured and practical research methodology. The study employs a real case study of Scrum, and survey data as a methodology. The research investigates actual Scrum team AI usage to determine their effects on team performance, workload, and team satisfaction.

The design of the methodology was based on the actual working conditions, and not experiments which were controlled or simulated. The whole information was gathered on the basis of a real project and actual participants.

3.1 Case Study

The main part of this study is a case study that is founded on a real project that has been conducted in the own company of the author. The project was done according to the Scrum framework in three sprints. This was an e-commerce site development project. In this project, the owner of the website was actual Product Owner, who defined the requirements and feedback but did not participate in the daily operations of the Scrum team, sprint ceremonies, or data collection.

The Scrum team consisted of:

- A Scrum Master
- Three developers
- A designer
- A SEO specialist

Asana was used to plan, track, and complete sprint tasks in order to manage the project. Everything was planned as per the practices of Scrum, such as sprint planning and sprint completion within a definite period, with each sprint lasting one week.

The team included a Scrum Master and a Development Team, and since the project involved the development of an e-commerce website, specialized roles such as the

Designer and SEO Specialist were also incorporated into the Scrum team structure. Every sprint would start with a Sprint Planning where the priorities of the Product Backlog items were picked up and placed into Sprint Backlog. Each Sprint cycle lasted one week with the daily standup meetings to check how well progress was made and to address any standings. A Sprint Review was conducted at the end of every sprint to showcase the work that had been completed during that specific sprint and a Sprint Retrospective occurred to perform an analysis on the team performance and the areas that needed constant improvement. All of the important Scrum artifacts such as Product Backlog, Sprint Backlog, or Increment were properly managed in the process of project lifecycle.

Since the researcher was also acting as the Scrum Master in this project, this study involves a dual-role situation where the researcher was part of the observed environment. This may introduce potential bias, power imbalance, and role conflict. To address this, data collection was based on structured and documented sources such as sprint sheets, task tracking records, and post-sprint surveys rather than subjective observations. Survey responses were collected after sprint completion to reduce immediate influence, and participants were informed that their responses would be used only for research purposes. Furthermore, the analysis focuses on aggregated results rather than individual performance to minimize bias. While this dual role cannot be completely eliminated, these measures were taken to reduce its impact and maintain the integrity of the research process.

There was a selective use of AI tools such as ChatGPT, Claude, GitHub Copilot, Google Gemini, Lovable, Figma AI, Surfer SEO, Notion AI, Grammarly, Midjourney, Asana, and Asana AI in the project. The team did not set AI as the solution to everything. Rather, AI was applied in cases where it was deemed useful or applicable to a given task. Examples are assistance in writing, writing analysis, or coding.

In case of AI time saving, The team members measured time saved by comparing the current time taken to complete their tasks with the assistance of AI with how they

used to take the same tasks in the past without using AI tools. This comparison was possible since the company is an e-commerce development firm that has been executing highly similar and repetitive projects over a number of years. The patterns of nature of the work, such as product set up, feature implementation, storefront customization, SEO set up and performance optimization, have recurring patterns across projects. The team is quite experienced and has been performing similar e-commerce projects over the last several years, which enabled them to make well-informed and realistic estimates of the time savings, depending on the execution of the similar non-AI projects in the past. Because the team is very experienced and worked on a lot of similar e-commerce projects before, they can understand how much time these tasks used to take without the AI in the past. This practice is a reflection of the way Scrum teams compare the performances with their experience and outcomes in their past projects to determine improvements.

The case study data was gathered based on the Asana board export and sprint-level internal data sheets that were filled once the sprint was complete. These data sources gave a general picture of the sprint progress, completion of tasks, and AI usage context.

3.2 Surveys

Structured feedbacks were gathered through surveys conducted with members of the Scrum team (six members: three developers, one designer, one SEO specialist, and one Scrum Master) and the external stakeholders (a total of eighteen participants).

To begin with, sprint-end surveys were provided to the Scrum team after every sprint. These surveys were intended to get a sense of the perception of team members at the end of every sprint. The questions in the surveys were about:

- Perceived workload at the end of the sprint
- Overall job satisfaction
- Frequency and use purposes of AI

- Perceived advantages and issues of AI tools

The surveys were done by the same team members at the end of each sprint. After each sprint, all six team members participated in the sprint survey. Since the total number of sprints was three, this resulted in eighteen feedback responses in total. This made it possible to see changes and trends over the three sprints and how experiences with AI changed over time.

Second, a second survey was performed on the owners of websites and online stores, from which 18 responses were received. This survey is an external product owners view. It served as supplementary data to comprehend the attitude to AI usage through a business and results-oriented perspective. This survey was analyzed on a separate basis and was only applied to facilitate discussion but was not to be directly compared to the data of the Scrum team.

3.3 Data Analysis

The data collected was analyzed to determine patterns and trends in the three sprints. The analysis was based on comprehending the general change and not the individual values of each sprint.

The data in the case study was used to analyze:

- how the completion of tasks evolved in between sprints
- frequency of AI application when working on sprints
- time savings estimated by use of AI

The survey information was processed to determine:

- perceived workload, changes
- modifications in satisfaction rates
- common patterns in qualitative feedback

The data sources were first analyzed independently in order to be clear. The findings were then synthesized during the interpretation process to give a comprehensive picture of the use of AI in the Scrum project.

3.4 Statistical Methods

The data collected was analyzed using simple statistical methods. This was done to ensure that the analysis is simple to follow instead of using complicated statistical models.

The analysis included:

- Number of tasks that are done each sprint
- Determining average projected time savings of using AI
- Figuring out average workload and satisfaction scores/ sprint
- Trend analysis of the three sprints

The data were processed using Python and produced charts and tables. All statistical calculations were made on the basis of the collected project data and survey feedback only.

3.5 Methodology Summary

This research was done through a mixed-method case study. It was a combination of quantitative project data, including the time spent on completing a task and the performance of a sprint, and qualitative feedback gathered via surveys, consisting of team members and external stakeholders. In addition, a structured literature review was carried out to understand previous findings and to identify clear research gaps related to the use of AI in Scrum projects.

The research was conducted within a real, ongoing commercial project, not in a controlled or experimental environment. This enabled the research to capture the reality of working conditions. The methodology offers a balanced and realistic insight into the practical implementation of AI in Scrum team, by integrating quantifiable project outcomes with group feedbacks and perspectives on existing literature.

The literature review assisted in finding a definite gap in research. Although most current literature tends to address AI at a general or conceptual level, there are less studies concerned about what the actual effect of AI is in the context of actual Scrum teams in real sprint work. This gap was a reason to use the case study approach with the assistance of survey data.

The case study provided an opportunity to observe actual work based on sprints with the help of actual project data. Application of AI was selective, and time saving was measured against the past non-AI working practice. This is a way to reflect normal decision-making in Scrum teams and does not draw artificial task comparisons.

The Scrum team and website owners surveys made it clear how perceived workload, satisfaction, and expectations regarding the use of AI were. The ability to discuss both the measurable results and human experience was possible due to the combination of objective project data and subjective feedback.

Altogether, this methodology offers a realistic and balanced basis of the analysis of the role of AI in helping Scrum team work. The following chapters provide the analysis and results in accordance with the data gathered with the help of methods mentioned in this chapter.

4 Results

The chapter is used to review the empirical findings of the research that are informed by the data gathered in the process of implementing a Scrum-based project comprising of three sprints. The outcomes are based on the various sources of data, such as sprint-level tracking sheets, project management tool task data export, team sprint surveys, and external survey, which was done with owners of websites and e-commerce business.

A significant factor of the reported results relates to the estimation of the AI-related time savings. All the values of time saved in this chapter are estimated by the team members who made their own estimation which was done according to their professional judgment and experience. These estimates are comparisons of the current AI-supported work and how such tasks were usually performed in the past without AI support. Consequently, the time savings provided are neither precise measurements nor estimates but informed estimates.

It is notable that these estimations may be different based on the experience of the team, level of skills and also the exposure to the tasks and the AI tools applied. In order to minimize unrealistic or inflated estimates, a very competent and experienced Scrum team was used in carrying out this study. Team members had prior experience with similar project tasks and were therefore able to provide more realistic and grounded estimates of time saved when using AI.

The Results chapter is divided into several parts each dealing with a specific data collected. The first section concentrates on sprint-level findings based on sprint sheets, such as the number of tasks completed, maximum AI time savings, the frequency of AI usage, the risks or errors that have been identified when using AI, and the allocation of AI time savings by role. These sprint sheet findings give a quantitative profile of the way AI was applied in the execution of sprints and its correlation with productivity and time savings. The second section of the Results chapter deals with results of team sur-

vey on workload and satisfaction. The third section provides the results of the survey of the site owner that can be viewed as the corroborating evidence that offers an external understanding of the perceived AI value. Although the survey of the website owner is not a part of the main analysis of the Scrum team, it provides an additional contextual information on the perception of AI perception as a business and stakeholder.

This structure enables the results to be displayed in a clear and structured manner, beginning with sprint-level operational data and continuing towards team experience and perception by the stakeholders.

4.1 Sprint Sheet Results

The section will provide specific results that were obtained based on the sprint sheets. Sprint sheets were used to consolidate sprint-level operational information regarding AI usage, estimated time savings, risk or errors observed during AI use and division of AI benefits by department.

The sprint sheet results focus on how AI was applied during sprint execution and how its usage varied across sprints and roles.

4.1.1 Total Estimated AI Time Saved per Sprint

Figure 1 shows the total time estimated saved in AI on a per-sprint basis in minutes reported in the sprint sheets.

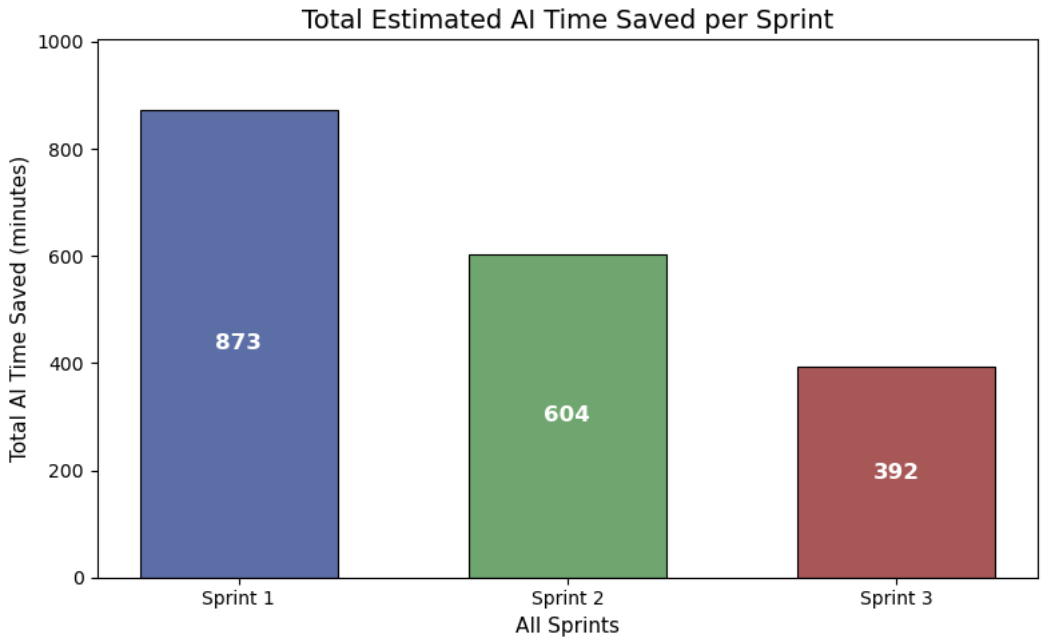

Figure 1. Total estimated AI time saved per sprint.

The highest estimated AI time savings were 873 minutes in Sprint 1. Sprint 2 and Sprint 3 experienced a decrease in the estimated AI time savings of 604 minutes and 392 minutes, respectively. The figure indicates a downward trend on the estimated AI time savings in successive sprints.

Sprint 1 table (file: Sprint#1_ Core Storefront & Product Display.xlsx)

	Date of Completion	Task Name	Time Saved (min, midpoint)	USE OF AI (yes/no)
0	03-11-2025	Optimize Cart and Checkout URLs	NaN	No
1	03-11-2025	Add Structured Data for Products & Cart	45.5	Yes
2	04-11-2025	Setup Checkout Page	15.0	Yes
3	04-11-2025	Configure Payment Integration	NaN	No
4	04-11-2025	Order Confirmation Page	105.5	Yes
5	04-11-2025	Validate Order Data Storage	15.0	Yes
6	06-11-2025	Design Cart and Checkout Pages	45.5	Yes
7	06-11-2025	Create Confirmation Page Design	45.5	Yes
8	06-11-2025	Setup Cart Functionality	75.5	Yes
9	07-11-2025	Build Cart Page Layout	105.5	Yes
10	07-11-2025	Implement Quantity and Remove Options	105.5	Yes
11	07-11-2025	Analyze Checkout Speed & Performance	45.5	Yes
12	07-11-2025	Daily Scrum Meetings	NaN	No

✅ Sprint 1 table created successfully.

Table 1. Sprint 1 Task-Level AI Usage and Estimated Time

Sprint 2 table (file: Sprint#2_ Cart & Checkout Functionality.xlsx)

	Date of Completion	Task Name	Time Saved (min, midpoint)	USE OF AI (yes/no)
0	10-11-2025	Setup Checkout Page	15.0	Yes
1	10-11-2025	Validate Order Data Storage	15.0	Yes
2	11-11-2025	Order Confirmation Page	105.5	Yes
3	11-11-2025	Add Structured Data for Products & Cart	45.5	Yes
4	12-11-2025	Implement Quantity and Remove Options	105.5	Yes
5	12-11-2025	Configure Payment Integration	NaN	No
6	13-11-2025	Optimize Cart and Checkout URLs	NaN	No
7	13-11-2025	Analyze Checkout Speed & Performance	45.5	Yes
8	14-11-2025	Design Cart and Checkout Pages	45.5	Yes
9	14-11-2025	Create Confirmation Page Design	45.5	Yes
10	14-11-2025	Setup Cart Functionality	75.5	Yes
11	14-11-2025	Build Cart Page Layout	105.5	Yes
12	14-11-2025	Daily Scrum Meetings	NaN	No

✅ Sprint 2 table created successfully.

Table 2. Sprint 2 Task-Level AI Usage and Estimated Time Saved

Sprint 3 table (file: Sprint#3_ Account, Orders & Optimization.xlsx)

	Date of Completion	Task Name	Time Saved (min, midpoint)	USE OF AI (yes/no)
0	17-11-2025	Conduct Final SEO Audit	NaN	No
1	18-11-2025	Improve Site Speed & Core Web Vitals	75.5	Yes
2	18-11-2025	Add Structured Data for Products & Breadcrumbs	45.5	Yes
3	20-11-2025	Optimize Site Performance	135.5	Yes
4	20-11-2025	Implement the Final Polished UI	NaN	No
5	20-11-2025	Fix Bugs & Polish UI	15.0	Yes
6	20-11-2025	Refine Mobile & Responsive Layouts	NaN	No
7	20-11-2025	Final Visual Review	NaN	No
8	21-11-2025	Implement User Registration & Login	75.5	Yes
9	21-11-2025	Display Order History for Logged-In Users	45.5	Yes
10	21-11-2025	Daily Scrum Meetings	NaN	No

✅ Sprint 3 table created successfully.

Table 3. Sprint 3 Task-Level AI Usage and Estimated Time Saved

The tables 1-3 provide the specific task-level data, which was gathered at the end of every sprint, such as task name, completion date, status of AI usage, and the amount of time saved, expressed in minutes. The tables indicate that the implementation of AI was not universal but rather selective in the activities of sprints. The work with structured development, optimization of performance, the implementation of layouts, and organizing structured data was more often supported by AI. Conversely, coordination

activities like Daily Scrum meetings and some design refinement activities were done without the use of the AI.

The value of the saved time depends on the complexity of tasks and technical structure. The higher time savings have been estimated in bigger implementation tasks like cart layout development, quantity option configuration, and performance optimization tasks than in smaller configuration or validation tasks. Across all three sprints, AI-supported tasks consistently reflect measurable time reduction at the task level, although the distribution of savings differs per sprint. All in all, the tables give a picture that the use of AI was task-specific and it was implemented strategically depending of task complexity.

4.1.2 Use of AI Across All Sprints

Figure 2 illustrates the proportion of sprint activities in which AI was used across all three sprints.

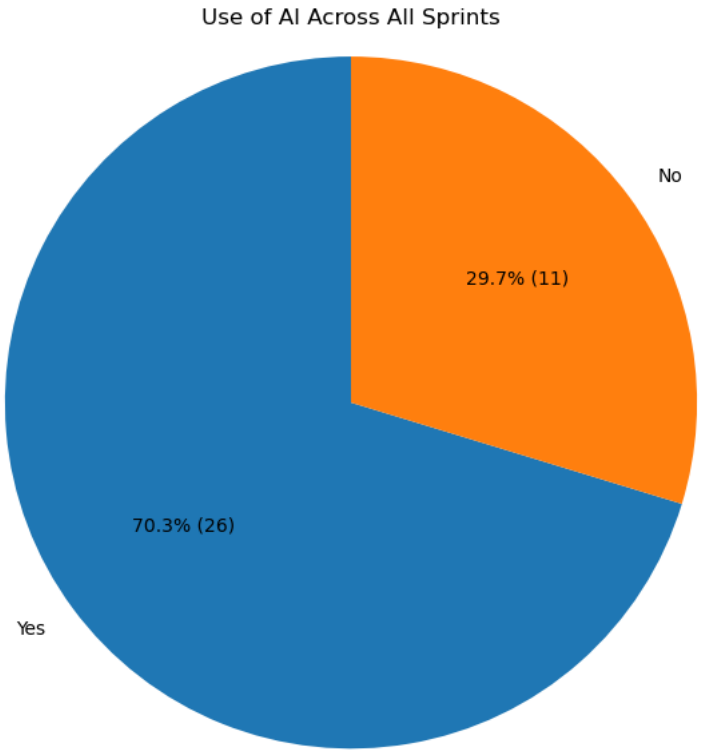

Figure 2. Use of AI across all sprints.

AI was used in 72.7% of recorded sprint activities (26 instances), while AI was not used in 27.3% of cases (11 instances). The list of all activities is inlcuded in Table 1, Table 2 and Table 3. This indicates that AI was applied in most sprint activities, but not universally.

4.1.3 Risks or Errors Noted During AI Usage

Figure 3 presents whether team members reported any risks or errors when using AI across all sprints.

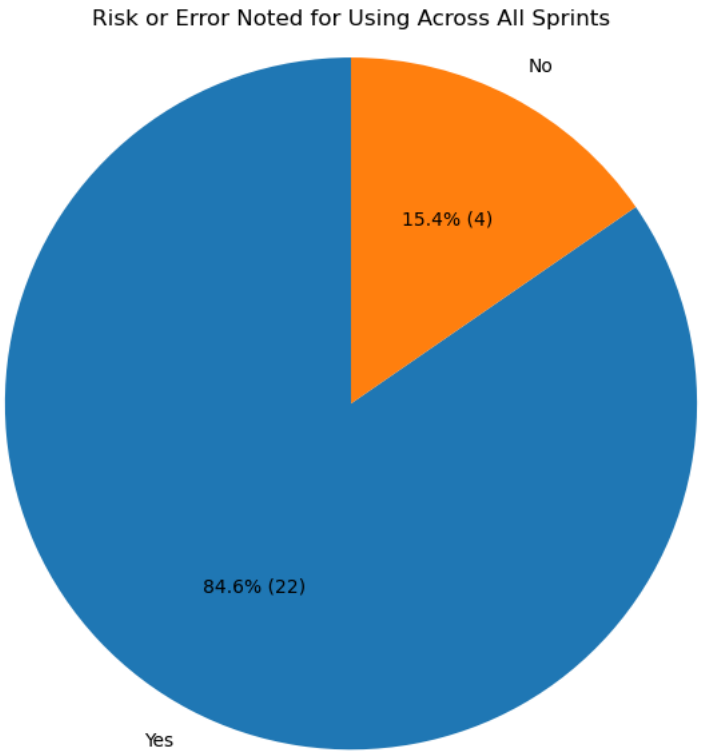

Figure 3. Risks or errors noted during AI usage.

In 84.6% of AI usage cases (22 instances), at least one risk, limitation, or error was reported. In development tasks, developers reported risks such as incorrect code suggestions, incomplete code snippets for checkout functionality, and logic errors that required manual debugging. In performance optimization tasks, AI sometimes generated recommendations that did not fully match the existing system configuration. In design-

related activities, AI-generated layout suggestions required manual adjustment to fit the final UI requirements. For SEO-related tasks, the AI occasionally suggested structured data or optimization steps that required verification before implementation. In planning and coordination activities, such as documentation or reporting support, AI-generated outputs sometimes required clarification or correction to align with project context. In 15.4% of cases (4 instances), no risk or error was reported. This result shows that most AI-assisted activities involved some form of reported issue.

4.1.4 Summary of Sprint Sheet Results

The results of the sprint sheet demonstrate that there is variation in the number of tasks completed within the sprints with the highest number of completed tasks in the Sprint 2. Saved AI time was the greatest during Sprint 1 and reduced in the later sprints. Most sprint activities such as coding support, structured data implementation, layout development, performance optimization, and documentation-related tasks were performed with the help of AI, but it was not used on a regular basis.

The majority of activities aided by AI were reported to have risks or limitations and reported AI time savings were distributed unevenly across the departments, with development tasks consuming most of the reported savings.

4.2 Sprint Survey Results

Sprint surveys were held at the conclusion of every sprint to obtain the perception of the Scrum team members regarding the workload and satisfaction in the context of the sprint execution. The surveys were filled out by the same members of the team at the end of every sprint, and it is possible to compare the perceived workload and satisfaction levels during the three sprints.

This section aims at explaining how the perceptions of workload and satisfaction changed over time and how the perceptions were varied among the roles of the Scrum team.

4.2.1 Average Workload per Sprint

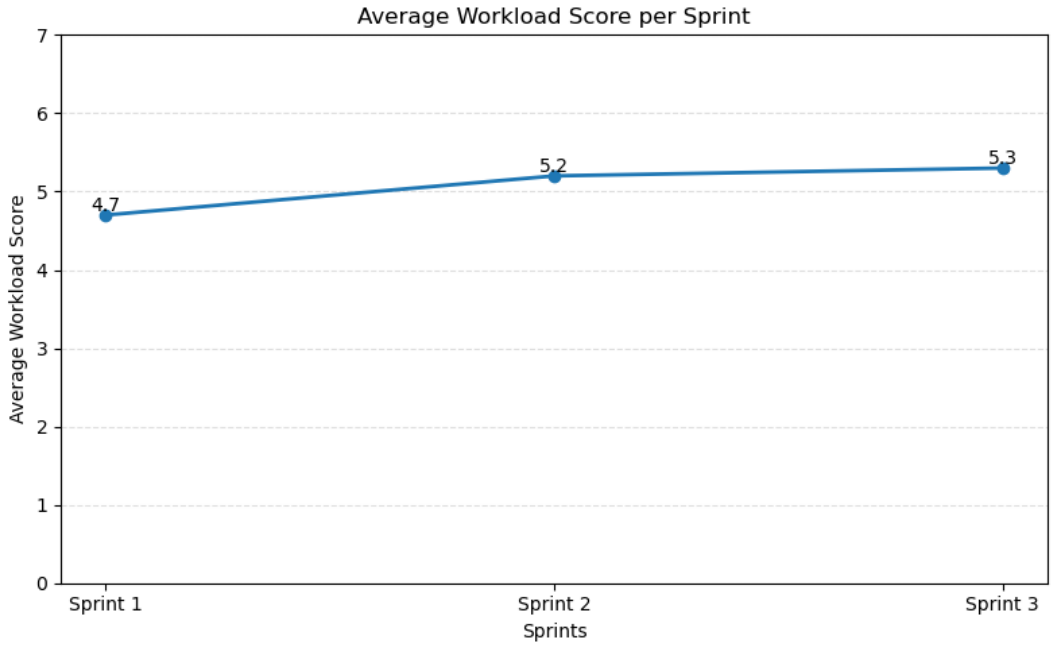

Figure 4. Average workload score per sprint.

Figure 4 presents the average workload score reported by team members at the end of each sprint. The 7-point scale was used to measure workload where the higher the scale the higher the perceived workload.

In Sprint 1, the average workload score reported by the team was 4.7. In Sprint 2, the average workload score increased to 5.2. In Sprint 3, the workload score increased slightly further to 5.3. The findings indicate that there was a slow rise in perceived workload among the three sprints.

4.2.2 Comparison Between Workload and Satisfaction per Sprint

This sub section compares the perceived workload and satisfaction score by the team members after each sprint. Comparison is embarked on average values carried out on the responses in the sprint surveys.

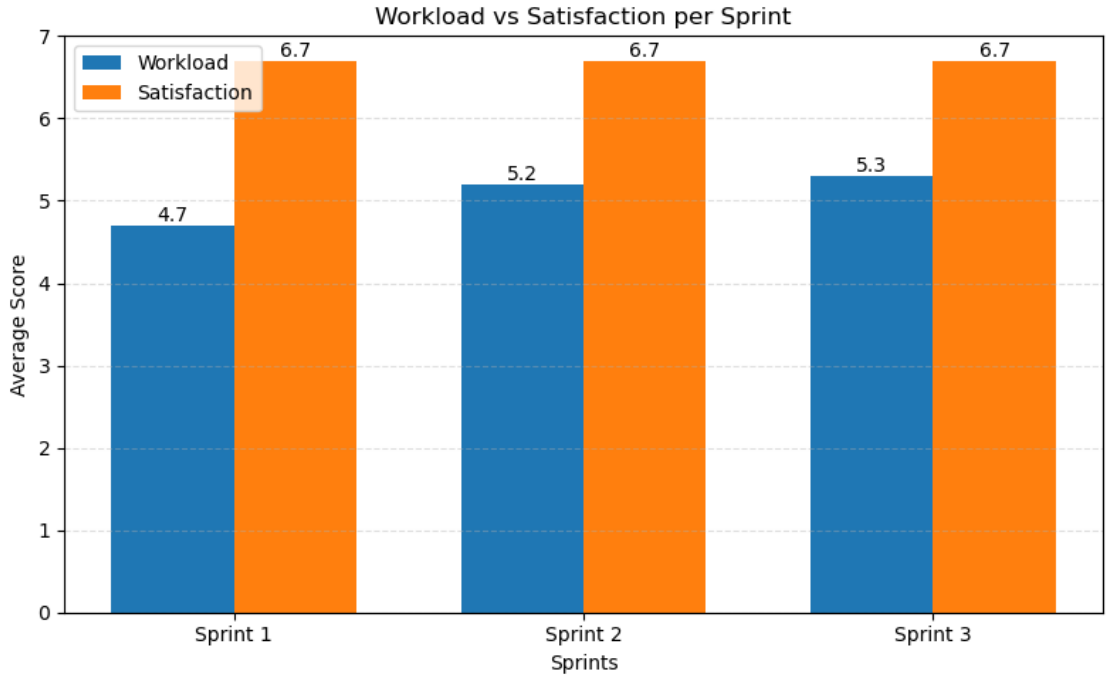

Figure 5. Comparison between workload and satisfaction per sprint.

In Figure 5, the average workload and average satisfaction scores of each of the sprints are given on the same scale, thus they can be directly compared with each other.

The mean workload score in Sprint 1 was 4.7 and the mean score on satisfaction was 6.7. In the Sprint 2, the workload score got to an average of 5.2, but the satisfaction score stood at 6.7. In the Sprint 3 workload was raised to 5.3 and there was no change in the satisfaction level at 6.7.

The result of the comparison is that despite having perceived workload that continued to rise throughout the three sprints, the level of satisfaction was constant.

4.2.3 Average Satisfaction by Role per Sprint

The average scores of satisfaction by role on each sprint are drawn in Figure 8.

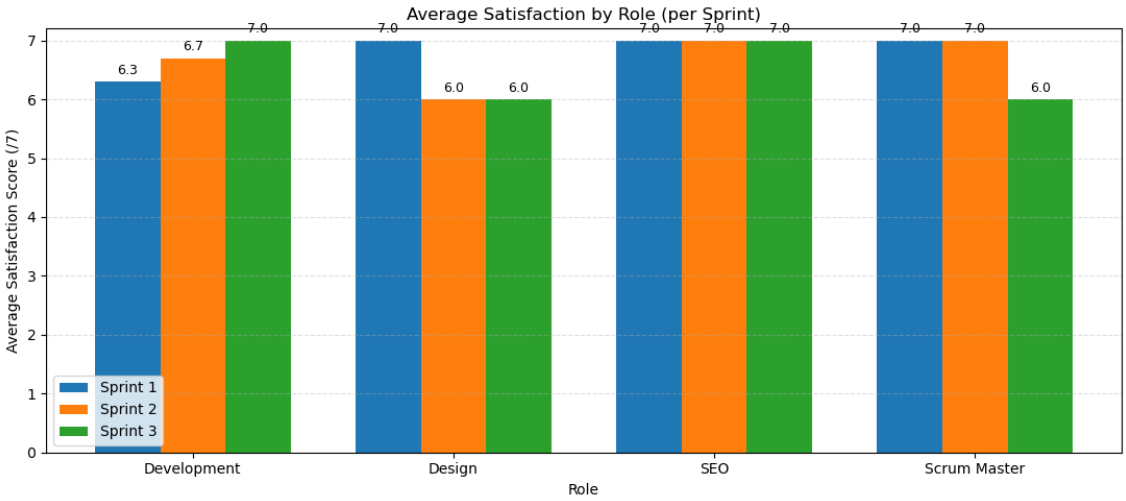

Figure 6. Average satisfaction score by role per sprint.

In the case of the Development, the satisfaction went up to 6.3 in Sprint 1 and 6.7 in Sprint 2 and 7.0 in Sprint 3.In the case of the Design position, the satisfaction levels were 7.0 in Sprint 1 and the level declined to 6.0 in Sprint 2 and Sprint 3.In the case of the SEO position, the level of satisfaction was at par with 7.0 in all three sprints.
In the case of the Project Manager position, the satisfaction was reported 7.0 in Sprint 1 and Sprint 2 and reduced to 6.0 in Sprint 3.

Although Scrum formally defines roles such as Product Owner, Scrum Master, and Developers, additional specialists may participate in Scrum teams depending on project requirements. In this project, an SEO specialist was included as part of the team due to the company's internal development practices for e-commerce projects, where search engine optimization tasks are integrated into the development workflow. Because the SEO specialist actively contributed to sprint tasks and participated in sprint activities, their responses were also included in the team satisfaction survey alongside the other team members.

4.2.4 Average Workload by Role per Sprint

Figure 7 shows a mean score of workload per role per sprint.

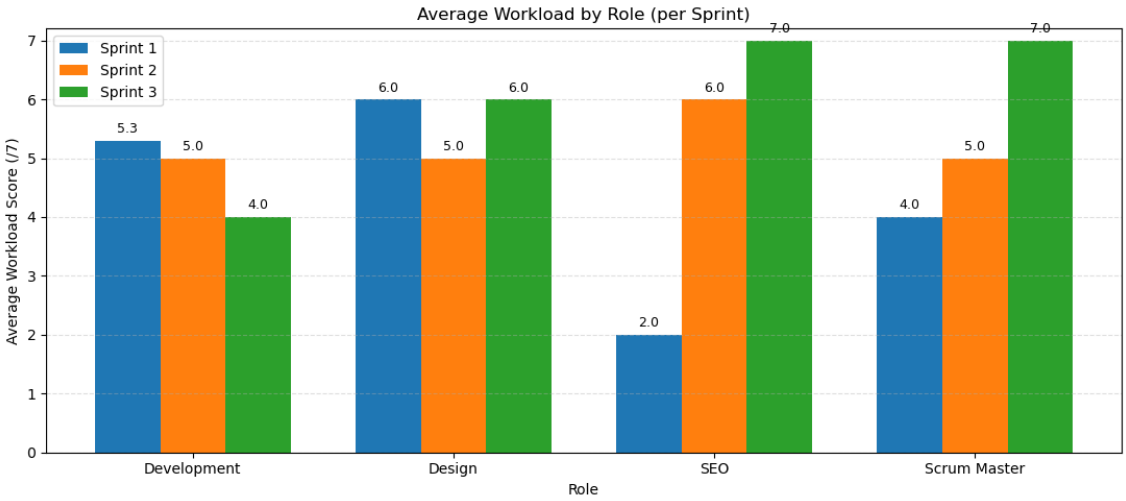

Figure 7. Average workload score by role per sprint.

In the case of the Development role, the workload reduced to 5.3 in Sprint 1 to 5.0 in Sprint 2 and to 4.0 in Sprint 3. In the case of the Design position, workload recorded 6.0 in Sprint 1, reduced to 5.0 in Sprint 2, and then went up to 6.0 in Sprint 3. In the case of the SEO position, the workload went up to 2.0 in Sprint 1 and 6.0 in Sprint 2 and 7.0 in Sprint 3. In the case of the Project Manager position, the workload in the Sprint 1 was 4.0 but in Sprint 2, it was 5.0 and Sprint 3, it was 7.0.

The findings indicate explicit variations in the allocation of work among jobs as well as among sprints.

4.2.5 Summary of Sprint Survey Results

The results of the sprint surveys indicate that perceived workload went up in all the three sprints, with the average satisfaction level staying equal (average) at the sprint level. Role level analysis showed that there was variation in workload and satisfaction between various team roles.

These findings offer understanding of team experience when executing sprints, and go hand in hand with the sprint sheet findings offered above.

4.3 Sprint Overview and Summary Metrics

This part contains a summary of the major project-level measures based on various data sources. The summary statistics are created through the compilation of the project management tool export data, sprint sheets data, and sprint survey data. This section aims at giving a high-level overview of the performance of sprints, AI use, approximate time saved by AI, workload, and satisfaction of the three sprints.

The exported data from project management tool offers objective information related to the tasks, including the number of tasks done in each sprint. Sprint sheets add information on AI use, estimated time savings, risk or errors identified using AI and the distribution of AI benefits within the departments. Sprint survey results give data that are used to estimate average workload and satisfaction results reported by team members at the end of every sprint.

Table 4 contains an overview of the main sprint-level metrics in the three sprints. The table consists of the overall amount of completed tasks during a sprint, the number of minutes of the total estimated AI time saved and the average workload and satisfaction scores.

Table 4. Sprint summary metrics.

Sprints	**Sprint Duration**	**AI time saved (minutes)**	**Avg workload (1–7)**	**Avg satisfaction (1–7)**
Sprint 1	One week	873	4.7	6.7
Sprint 2	One week	604	5.2	6.7
Sprint 3	One week	392	5.3	6.7

Sprint 1 lasted one week and resulted in an estimated AI time saving of 873 minutes. During the second one-week sprint, the estimated AI time saved decreased to 604 minutes. In Sprint 3, which also had a duration of one week, the estimated AI time saving further decreased to 392 minutes. This indicates that the time savings provided by AI tools varied across the three weekly sprints.

The average workload scores showed a gradual increase across the three sprints, rising from 4.7 in Sprint 1 to 5.3 in Sprint 3, suggesting a slightly higher perceived workload over time. However, the average satisfaction score remained constant at 6.7 across all three sprints.

4.4 Website Owners and Stakeholders Survey Results

One more survey was carried out among the owners of the websites and e-commerce businesses to have an external stakeholder view on the perceived value of AI. This survey is considered as supporting data and represented independently of the Scrum team results. This section is intended to explain the opinions of external stakeholders regarding AI concerning competitive advantage, helpfulness, and reduced work or time.

The findings in this section are descriptive and are not directly compared with Scrum team survey findings. Rather, they offer contextual understanding of the attitude toward AI in terms of business and outcome oriented.

4.4.1 Perceived Competitive Advantage from AI

Figure 8 presents responses regarding whether AI is perceived to provide a competitive advantage.

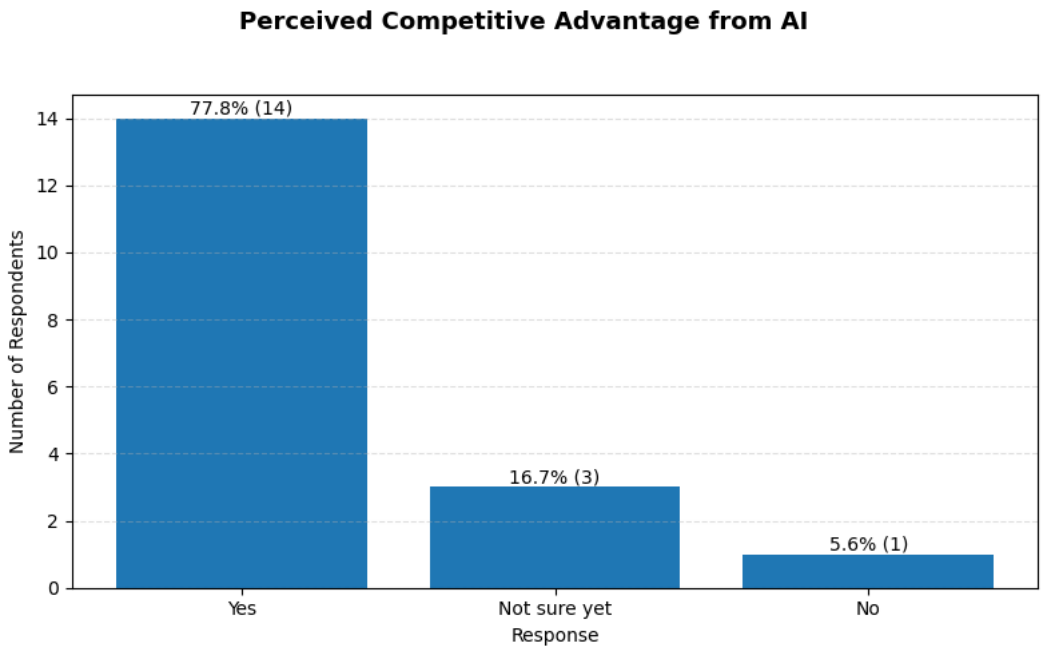

Figure 8. Perceived competitive advantage from AI

A total of 77.8% of respondents (14 participants) reported that AI provides a competitive advantage. A smaller group, representing 16.7% of respondents (3 participants), indicated that they were not sure whether AI provides a competitive advantage. Only 5.6% of respondents (1 participant) indicated that AI does not provide a competitive advantage.

The results show that the majority of website owners and stakeholders perceive AI as a source of competitive advantage.

4.4.2 Perceived Helpfulness of AI in Business Operations

Figure 9 shows the percentage rating of the overall helpfulness of AI in the business operations of respondents on a 7-point scale with higher scores representing a higher perception of helpfulness.

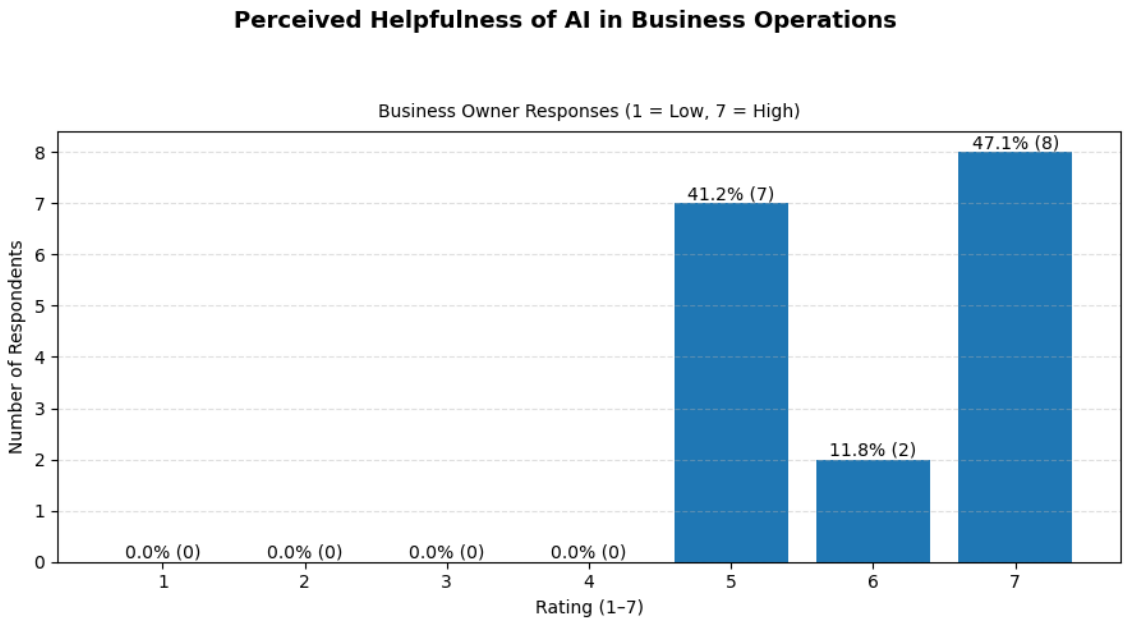

Figure 9. Perceived helpfulness of AI in business operations

No respondents selected ratings between 1 and 4. A total of 41.2% of respondents (7 participants) rated AI helpfulness as 5. A smaller group, 11.8% of respondents (2 participants), rated helpfulness as 6. The largest group, 47.1% of respondents (8 participants), rated AI helpfulness at the highest level of 7.

These findings show that AI was perceived as very useful by the owners of websites and stakeholders.

4.4.3 Perceived Workload and Time Reduction from AI

Figure 10 reports the answers addressing the perceived workload and time saved due to the use of AI.

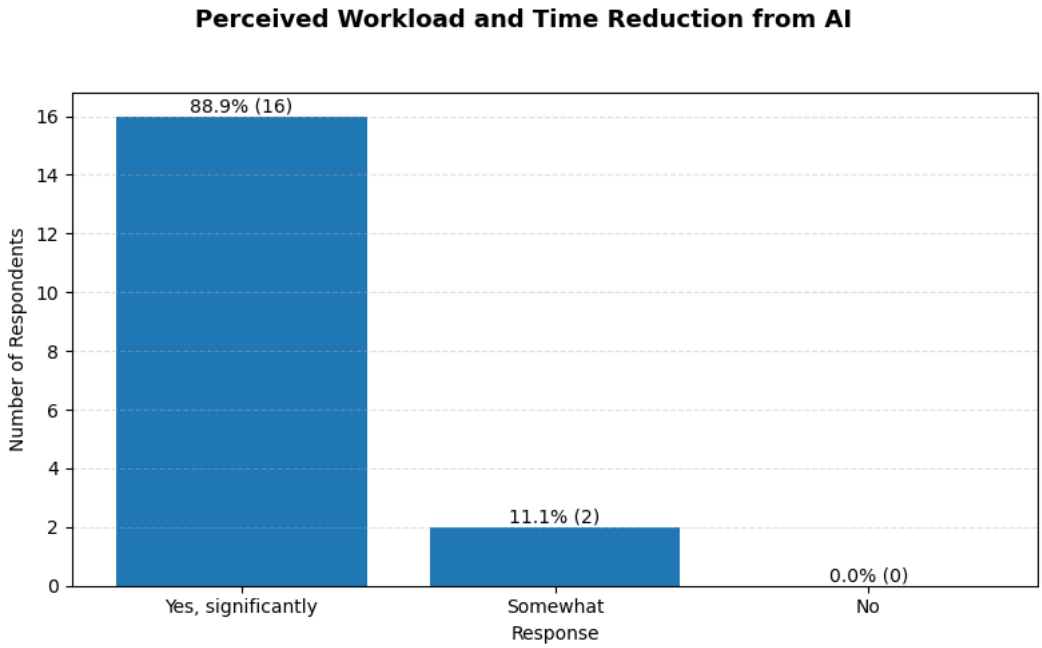

Figure 10. Perceived workload and time reduction from AI.

A total of 88.9% of respondents (16 participants) reported that AI significantly reduced workload and time. An additional 11.1% of respondents (2 participants) reported that AI somewhat reduced workload and time. No respondents indicated that AI did not reduce workload or time.

These findings indicate that every respondent felt that AI use had decreased their workload or time to some extent.

4.5 Summary of Results and Key Findings

The results are founded on the joint project information, sprint sheets, responses to the survey (sprint surveys), and supporting information provided by the site owner and stakeholder survey. Task completion was relatively constant across the three sprints with an average number of completed tasks per sprint of between 10 and 12. The greatest amount of completed tasks was recorded with Sprint 2 and the least was recorded with Sprint 3. Most of the sprint activities recorded involved AI and about three-

quarters featured AI assistance. But the use of AI was still selective with a significant number of tasks being done without the aid of AI.
All three sprints were reported to have AI time savings. The overall amount of time that was saved with the help of AI was the greatest in Sprint 1 and lowest in Sprint 2 and Sprint 3. The time savings were distributed unequally with the development-related tasks reporting the highest number of savings, and design and SEO tasks reported smaller amounts of time saved. At least one risk, limitation or error was reported in the majority of AI-assisted activities, suggesting that the use of AI was often associated with the necessity to verify or put in more effort.

The results of the survey on Sprint revealed that the perceived workload grew steadily in the three sprints. Conversely, average satisfaction did not fluctuate during the project. Role level analysis highlighted that workload and satisfaction differed among team members, and there was a difference in sprint experience among the roles. Workload and satisfaction comparison revealed that the aggregated level of satisfaction did not change with increases in workload and at the same level.

Findings of the survey conducted from the site owner and the stakeholders gave a supportive extrinsic view. The majority of the respondents viewed AI as useful and as their competitive advantage, and all of the respondents said that there was at least some level of workload or time saved with the use of AI. The combination of the findings in this chapter creates one of the most detailed empirical pictures of AI application and the results that can be observed.

5 Discussion

This chapter aims to derive meaning and context of the empirical findings in Chapter 3 in relation to the available literature on AI assistance in Scrum and agile project management. Although the Results chapter was devoted to pure description of observed outcomes, the chapter of Discussion deals with the reasons of why these outcomes were observed, why they were similar or different to the previous ones, and what they suggest to the work based on Scrum.

Previous studies on AI in software development show that results from controlled experiments are often different from results in real projects. Collaboration, coordination, sprint deadlines and shared responsibility affect work in real Scrum teams. It has been observed that productivity effects observed in individual work do not necessarily transfer in a similar manner in group projects (Peng et al., 2023, p. 7). This difference is important for understanding the findings of this study.

The discussion is founded on an actual Scrum project that was conducted through three sprints. The results to be interpreted consider Scrum practices, including the following: sprint planning, sprint goals, team roles, and selective tool usage. According to current studies, AI in agile teams is typically applied as a support tool, rather than as a substitute of human work. Because of this, the impacts of AI must be considered in the context of frameworks like Scrum (Campoverde Morales, 2024, p. 1; Spichkova et al., 2025, p. 3).

The Discussion chapter relates various kinds of findings rather than examining them individually. The discussion of the productivity results, workload, satisfaction and AI-related risks is based on the fact that all these aspects affect one another during the sprint work. The studies on AI-based agile practices imply that productivity, cognitive load, and user satisfaction should be investigated collectively to comprehend the general effect of AI on the team (Zhang et al., 2024, p. 4).

5.1 Impact of AI Assistants on Scrum Team Productivity

This section addresses the first research question concerning how AI assistants influence the productivity of a Scrum team. Productivity is represented by two primary indicators in the Results chapter: (1) sprint output (number of tasks done during a sprint) and (2) time saved when AI was applied as estimated.

5.1.1 Patterns of AI Usage in Scrum-Based Sprints

This discussion is founded on the sprint sheet outcomes provided in Result chapter and is centered around the ways in which AI was utilized when conducting the work on sprints, the differences in the ways AI was utilized in different tasks and roles, and how these results are consistent with findings published in the literature.

It was demonstrated in the Results chapter that AI was applicable in the majority of sprint activities, although not every task. In all the three sprints, the AI was used in nearly three-quarters of the documented instances, and the rest of the tasks were accomplished without the help of AI. This demonstrates that the use of AI was not a requirement, but rather an opportunity that was based on the task requirements. Such trend aligns with the studies that define AI in agile and Scrum settings as the auxiliary tool that supports teams without displacing the roles of humans (Campoverde Morales, 2024, p. 1).

Sprint output remained in a narrow range. The team work in Sprint 1, Sprint 2, and Sprint 3 had 11, 12, and 10 tasks respectively and each sprint took 1 week each. This, according to the Scrum terminology, means a relatively constant rate of delivery in the three sprint cycles. It also reveals that the use of AI did not necessarily result in an increase in sprint output in the case where output is accrued in terms of the number of tasks completed only.

This is significant since most studies that examine AI productivity compare performance based on brief and isolated tasks as opposed to complete sprint delivery. One of the most famous controlled studies by Sida Peng and collaborators discovered that programmers working with GitHub Copilot took a given programming task 55.8% less time than their counterparts who did not use the tool (Peng et al., 2023, p. 1). In that paper, a controlled experiment was conducted in which the developers were requested to create an HTTP server in JavaScript within the shortest time possible (Peng et al., 2023, p. 1). Time to task completion in the same study visualizes the differences in the time to completion of the task between the control group and the treated group (Peng et al., 2023, p. 17).

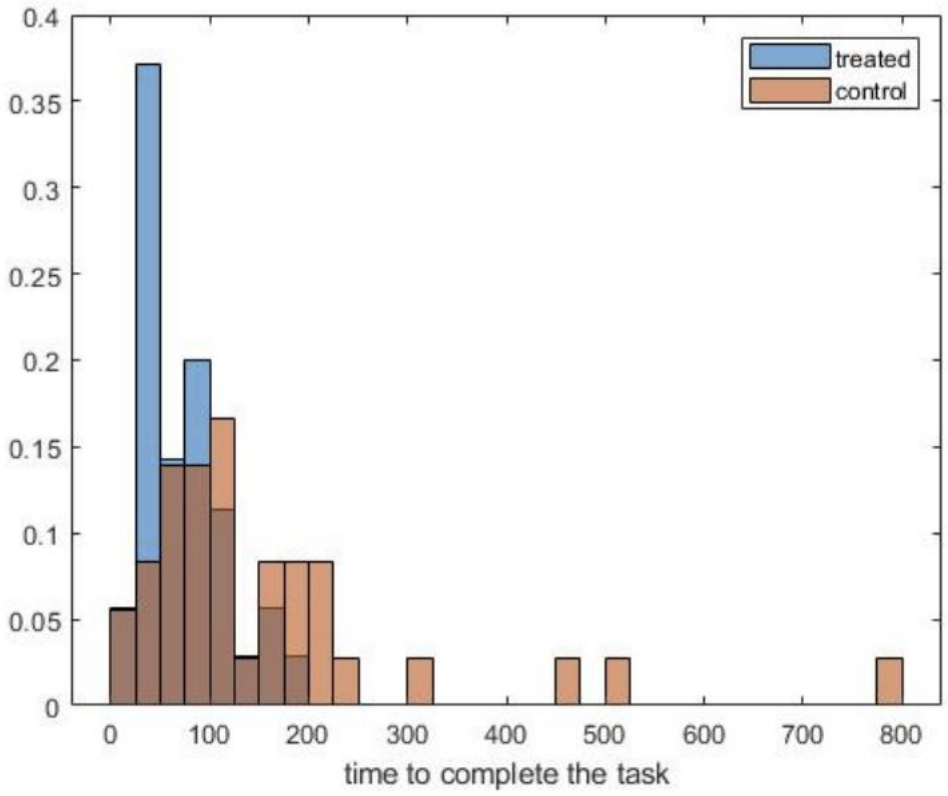

Figure 11. Developer task completion time with and without AI assistance (adapted from Peng et al., 2023)

Distribution of time to task completion between treated (blue) and control (orange) groups. This numbers demonstrates that AI can decrease the time spent on accom-

plishing single tasks dramatically. But the consistent sprint output of this study brings up a significant distinction between individual task productivity and sprint level productivity, in which there are coordination, review, and integration work that impact results.

5.1.2 Estimated AI Time Savings and Productivity Trends

The other obvious tendency that was found in the Results chapter was the variation of time saved with the AI in different sprints. Whereas AI was applied in all three sprints, the overall estimated time saved was reduced between Sprint 1 and Sprint 3. Sprint output was not changing, but according to Results chapter, the estimated AI time-saving in Sprint 1 was greatest and then in Sprint 2 and Sprint 3. This is an indication that AI offered significant efficiency benefits within the initial stages of the project, which decreased with time.

Research on AI adoption explains that early use of new tools often results in higher perceived efficiency gains, followed by reduced marginal gains as teams adapt their workflows (Peng et al., 2023, p. 7). This trend is consistent with the results of the research on AI adoption, which indicates that initial productivity improvements are frequently present at the beginning of the adoption of a specific tool, and the marginal productivity decline as a team realigns its workflow. In the Copilot research by Peng et al. (2023), the authors mention that the productivity increase depends on the novelty of the task and familiarity of the user, and that the effect can be different in various contexts and types of tasks (Peng et al., 2023, p. 7).

The same weakness is cited in agile estimation studies. Pavlic et al. (2024) assessed the applicability of large language models in agile effort estimation as an alternative to human estimation. Their findings demonstrated that estimates with the support of AI attained only 16% accuracy, which the authors define as not enough to be used directly in the industry setting (Pavlic et al., 2024, p. 1). This stands in favor of the view that AI can help in the initial phases of work, including the organization or creation of the work,

but not entirely substitute the human judgment.

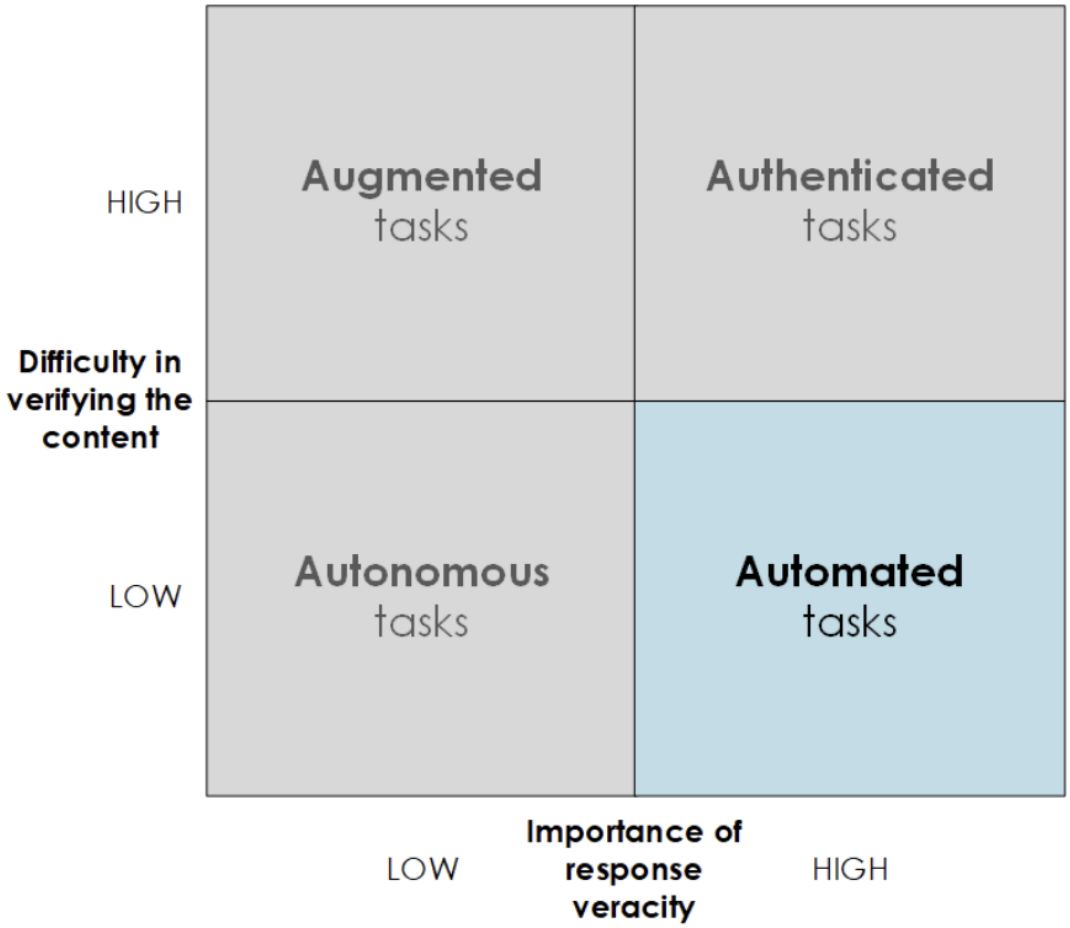

Figure 12. Agile tasks supported by large language models in effort estimation (adapted from Pavlič et al., 2024)

This figure allows to understand why the time savings of AIs were not evenly distributed among all sprint activities in this project.

5.1.3 Task-Specific Productivity Gains and Verification Effort

Results of the sprint sheet indicated that the majority of the estimates of AI time savings were made in relation to the development-related tasks. The design and SEO tasks had less significant shares of the overall estimated saved time. It means that the AI support was the most efficient in the fields of code, text, and formal logic.

Such a tendency is aligned with the previous studies on the application of AI in Scrum activities. As defined by Couder and Ochoa (2024), the large language models are capable of helping to facilitate the daily Scrum activities by summarizing the inputs of developers and creating organized reports. Their analysis shows that AI has the ability to decrease the amount of manual labor on the coordination and reporting, which indirectly contributes to the productivity through the freeing of time in work on the development.

The next valuable productivity-related discovery that can be made based on the Results chapter is that the use of AI was often accompanied by the reported risks or errors. The main problems that team members reported in the majority of AI-assisted activities are wrong production or the necessity to conduct further examination.

This has been found in line with the findings of other researchers who indicate that AI-based output in an agile setting must be human-vetted (Pavlic et al., 2024). Even though the AI can increase the speed of certain activities, the time that is saved in the process of generation can be somewhat compensated in terms of time spent on verification and correction. This is a realistic productivity trend in Scrum projects in which standards of quality and Definition of Done still need to be achieved.

5.1.4 Summary of Productivity Findings

According to the results of the present research, AI-based service helped to improve productivity by an estimated time-saving in the process of sprints, especially in those activities related to development. The completion of sprint-level tasks was also constant over sprints and estimated AI time savings declined with time. The application of AI was selective as opposed to universal, and productivity-related advantages were frequently paired with the necessity of verification because of the reported risks or errors. Such findings suggest that AI did not cause a direct boost in sprints, but supported productivity as an assistive tool in Scrum sprint work.

The selective usage of AI also implies Scrum concepts regarding team autonomy and self-organization. Scrum teams should establish the manner in which they are going to accomplish sprint goals and not through a set of procedures. The team in this project made decisions as to when AI was appropriate and when conventional methods were more appropriate. The studies of AI-assisted Scrum tools underline the idea that AI must complement Scrum role works without diminishing team ownership and responsibility (Kalliumvakou et al., 2023, p. 2).

Overall, the trends in AI application in this Scrum-driven project demonstrate that AI was applied selectively and focused on tasks related to the development process, adjusted within the sprints, and regularly checked by the team members. These trends are also very similar to the usage of AI as described in the existing literature and present a realistic perspective of AI being used in actual Scrum sprint work as opposed to a controlled or idealized environment.

5.2 Impact of AI Assistants on Workload and Team Satisfaction

This section addresses the second research question concerning the impact of AI assistants on workload and Scrum team satisfaction. The findings relate to workload and discuss the effects of AI support on perceived workload and satisfaction in the Scrum team. Workload is addressed in terms of the results of the sprint survey, which reflects views of the team members at the end of each sprint instead of considering objective measures of delivery only.

5.2.1 Perceived Sprint Workload and the Shift from Execution to Review

Results chapter revealed that the perceived workload was rising progressively between Sprint 1 and Sprint 3 despite the use of AI during the project. This shows that the general workload at the sprint level was not necessarily decreased with AI assistance.

The finding is in line with current studies on AI application in agile settings. Agile Software Development and AI, the authors clarify that agile workload is informed by the continuous decision-making, coordination and sprint pressure that are the prerogative of human actors even in the face of AI introduction (Nguyen-Duc et al., 2024). The paper clearly indicates that AI makes certain tasks easier but is not eliminating the larger cognitive and coordination requirements of agile work.

According to Ahmad et al. (2023), agile workload is informed by the ability of continuous decision-making, coordination, and sprint pressure, which are also human duties despite the introduction of AI tools. Their paper highlights that AI will ease work on certain tasks, but not eliminate the overall thought and coordination requirements of agile work. This can be used as the reason why the workload escalated in subsequent sprints of this study even after the continued use of AI. Higher complexities of sprints, greater demands of delivery and accrued technical decisions are likely to have increased perceived workload.

The outcome of the sprint sheet and Sprint survey revealed that AI minimized effort in activities like drafting, documentation, and coding support. Simultaneously, the majority of the AI-assisted activities were reported risks or errors that needed to be verified and corrected.

The mentioned movement of the workload is precisely outlined by Kumar and Singh, according to which AI enhances efficiency of execution at the cost of human control, validation, and decision control over agile project management (Kumar & Singh, 2022, p. 6). They stress that the outputs of GAI should be checked to control quality and risk, particularly when working in fast-tracked Scrum.

5.2.2 Workload Influenced by Sprint Complexity and Task Characteristics

The other workload-related discovery is that AI advantages were unevenly distributed among all the sprint tasks. Development tasks benefited more from AI, while tasks re-

quiring deeper domain understanding or cross-role coordination showed less workload reduction.

According to Zhang et al., generative AI can best be applied to well-structured, repetitive tasks but least at complex and heavy-context jobs (Zhang et al., 2024, p. 8). They observe that the cognitive load and effort in coordination goes up with the task complexity despite the use of AI tools.

5.2.3 Team Satisfaction and Its Resilience to Workload Growth

In the Results chapter, it was found that the average satisfaction did not decrease in all three sprints despite an increase in perceived workload. This shows that an increase of workload did not have a negative impact on team satisfaction when undertaking the project. This implies that an increase in workload did not necessarily result in a reduction in satisfaction.

This observation is consistent with the literature on the experience of agile teams that states that the satisfaction is not solely dependent on the volume of workload. According to Spichkova et al., in agile teams, the perceived control over work and transparency has little or nothing to do with satisfaction but are dependent on the degree of effort (Spichkova et al., 2025, p. 9). An increase in the level of workload can be positively felt when the teams feel that they own the decisions made during sprints.

Spichkova et al. identify that satisfaction in teams that are agile is not only based on the amount of work but also perceived autonomy and usefulness of tools (Spichkova et al., 2025, p. 9). Work teams can still be satisfied even in more demanding conditions when AI is understood to be supportive, but not intrusive.

In the current case, the Scrum team retained the power to control the decisions concerning the planning of the sprints, the allocation of tasks, and the use of AI. This was

probably a factor of constant satisfaction even in instances where the sprint demands were ramped.

5.2.4 AI Usefulness and the Role of Human Oversight in Satisfaction

Results of Sprint surveys indicate that AI was mostly viewed as useful particularly in development and documentation-oriented tasks. The members of the teams claimed that AI minimized the hassles in initiating work and assisting them to advance quicker during the initial phases of work.

This observation is supported by research on AI acceptance in agile environments. According to Campoverde Morales, the perceived usefulness is one of the primary criteria of how teams consider AI tools, particularly when AI is used to support the current workflow without causing significant changes to the process (Campoverde Morales, 2024, p. 2). As people come to experience AI as a supportive experience instead of an disruptive one, it may have a positive impact on team satisfaction.

The Results chapter revealed that AI-assisted activities were associated with reported risks or errors and had to be reviewed by humans. Nevertheless, there was no drop in the level of satisfaction. This implies that there was no sense of lack of control as AI was being used by team members.

A study on the interaction of human and AI cooperation states that trust and satisfaction increase when humans maintain their decision-making authority. According to Pavlic et al., AI systems used in agile environments should be used to support decision-making, but not fully automate it, which may decrease trust and confidence (Pavlic et al., 2024, p. 6). The authors point out that the maintenance of human responsibility in regard to validation promotes positive user experience. This coincides with the results of this study as the AI outputs were checked and approved or disapproved by team members instead of being automatically utilized.

5.2.5 Summary of Workload and Satisfaction Findings

Combined Results of workload and satisfaction analysis indicate that the level of satisfaction did not decrease with the increase in workload. This implies that team experience was not due to work only.

The studies of agile team relations also highlight that sustainable satisfaction requires autonomy, meaningful work, and tool support, not just low workload (Zhang et al., 2024, p. 11). Even with an increased workload, it is still possible to experience the higher workload as controllable and satisfying when teams feel empowered to make decisions on the use of such tools as AI. The team in this research was able to control the use of AI in when and how. This freedom was probably one of the factors contributing to good team experience.

According to the research results of this work, AI support alleviated the workload on certain repetitive and documentation-intensive activities but did not alleviate the working load in the entire sprint. Rather, AI changed the workload that was performed manually into review, coordination, and decision-making. Even with the use of AI, the perceived workload rose through sprints because of the complexity of the tasks and the pressure of the sprint. These findings demonstrate that AI can facilitate workload management in Scrum only when teams properly undertake this workload shift as opposed to anticipating the workload reduction.

Judging by the results of this report, AI support did not have a negative impact on the team satisfaction, despite the continuous growth of workload per sprint. The level of satisfaction was maintained as AI was seen as useful, the power to make decisions was held by humans, and team autonomy was preserved. These findings demonstrate that AI can facilitate positive experience in a team working with Scrum when it is used as an addition instead of an automated substitute.

5.3 Cross-Cutting Findings: AI Risks, Human Oversight, and Stakeholder Perspectives

This section addresses cross-cutting themes that emerged from the study which inform both research questions: the risks associated with AI use, the necessity of human oversight, and the external stakeholder perspective on business value. These themes provide additional context for understanding the productivity, workload, and satisfaction outcomes discussed in the previous sections.

5.3.1 AI Risks and the Necessity of Human Oversight

This part explains risks, mistakes and why human control is required when applying AI in Scrum-based sprint work. These are the key points that must be discussed when it comes to knowing the boundaries of AI assistance and the impact of AI on quality, accountability, and decision-making in agile teams.

The Results chapter revealed that the team members had at least one risk, limitation, or error in most activities assisted by AI. Very few cases of AI use were indicated to have no problems. This is to show that though AI was helpful, it was not always able to give an output that could be accepted without checking it.

This observation is consistent with current studies regarding AI in agile and software development environments. According to Peng et al., AI-generated code typically includes logical or context-related errors, which the developers have to correct prior to integration (Peng et al., 2023, p. 12). The authors state that AI tools have the capacity to accelerate development but cannot be considered entirely reliable sources of accurate output. This is one of the reasons why AI use in this paper did not save the workload associated with quality control and verification.

Some of the risks mentioned in this research were wrong outputs, incomplete solutions, and manual correction. These risks were found most often in development related activities where the rightness and integration plays a pivotal role.

Likewise, similar risks are discussed in the study by Pavlic et al. on AI-assisted agile effort estimation. They discovered that AI estimates were not accurate and not helpful in planning sprints unless they were proved right (Pavlic et al., 2024, p. 6). The authors make it clear that the results of AI should be viewed as recommendations and not as decisions. This confirms the results of this research, in which AI was considered an assistive method and ultimate decisions have been made by human team members.

The results of this paper demonstrate that AI support came with significant improvements in productivity and efficiency, but at the same time it also came with risks which need to be countered through proactive human intervention. The majority of AI-assisted tasks implied verification, correction, or modification by the team members. These outcomes are consistent with the current studies, all of which point to the idea that AI in Scrum should be implemented in a human-in-the-loop setting. The use of AI in the support of sprints was effective in cases when teams preserved ownership of quality, decisions, and responsibility.

5.3.2 Stakeholder Perspective and Business Alignment

This section presents the results of the survey of the web owner and stakeholders as published in Result Chapter and how these external perceptions correspond to business level outcomes that are published in current literature. In contrast to in-house Scrum team surveys, such a viewpoint addresses perceived value, competitiveness, and benefits of AI at the outcome level, but not day-to-day sprint experience.

The Results chapter demonstrated that the majority of the owners and stakeholders of web sites regarded AI as extremely useful. A significant majority indicated that AI has given them a competitive edge, and everyone said they experienced a reduction in

workload or time. These findings reveal that AI has high external trust as a support tool in business.

This observation is compatible with studies that look at AI adoption in a management and business context. According to Cooper, product owners and business leaders are slowly becoming convinced that AI is an option that can make delivery faster, less operations-heavy, and more effective in decision-making, even in cases where internal teams gain mixed or slower advantages (Cooper, 2024, p. 3). The author underlines that business stakeholders tend to put an emphasis on results and not the complexity of the process.

Regardless of the variation in view, the stakeholder survey findings are generally consistent with the Scrum findings experienced in this research. There were reported time and workload savings perceived by stakeholders which is equal to the estimated AI time savings that are reported on sprint sheets. The savings did decline with the sprints, but they did not impact on the perception of efficiency at the outcome level.

The studies of agile value delivery state that the success of Scrum is commonly evaluated by the satisfaction of the stakeholders instead of by the sole internal work (Spichkova et al., 2025, p. 11). In this perspective, the positive stakeholder reactions of this research indicate that AI integration assisted in delivering values despite the existence of internal workload pressures.

The external stakeholder feedback added to the evaluation of AI utilization makes this research robust. Although Scrum teams offer an understanding of the effect of operations, stakeholders offer a larger picture of business value and alignment with business objectives.

According to Campoverde Morales, the perspective on AI adoption based on the team alone may not capture the business effects of AI, so the author suggests that the

stakeholder perspectives should be included in evaluation of AI-supported agile practices (Campoverde Morales, 2024, p. 4). This justifies the methodology employed in this research in which the survey of the owner of the website was viewed as a supportive requirement, but not an alternative to a team-level analysis.

The external stakeholder approach used in the paper demonstrates that the perceived business benefits of AI-use include competitive advantage and reduction of workload. The outcomes and strategic level of AI were the most assessed ones by stakeholders, whereas the internal Scrum teams were both benefited and burdened with verification and coordination. A combination of these two points of view presents a balanced picture of AI implementation in Scrum in which the emphasis should be placed on both the delivery level of experience and business level outcomes.

5.4 Summary of Discussion

This Discussion chapter explored the findings of the study with respect to the available literature on AI support in Scrum-based projects. Productivity, workload, satisfaction, risks of AI, and the attitude of external stakeholders were addressed in the discussion, and it was sought to explain the causes of the observed results and how they compare or contrast with findings in previous studies.

The productivity discussion revealed productivity was aided by AI by approximately saving time in particular tasks, especially ones involving development and those involving documentation intensive tasks. But the output at the sprint level did not vary over the sprints. The given finding aligns with the findings of the available literature, which demonstrates that AI productivity gains are more pronounced in isolated or well-specified tasks than in full sprint delivery, where coordination, review, and integration effort also contribute significantly (Peng et al., 2023, p. 7; Pavlic et al., 2024, p. 6).

The workload discussion has emphasized the fact that AI made some repetitive tasks less energy-consuming but had no effect on the total sprint workload. Rather, AI re-

placed manual work with review, coordination, and decision-making. When the workload increased with the complexity of the sprints, the perceived workload was also higher despite the use of AI. It is consistent with the studies which highlight the cognitive and coordination pressures of agile work that are not fully overcome by tools even though this is a human factor (Kumar and Singh, 2022, p. 6; Zhang et al., 2024, p. 8).

The satisfaction discussion revealed that the team satisfaction was consistent throughout the sprints, although the workload was on the rise. This indicates that the level of satisfaction within Scrum teams is also dependent on the workload volume as well as autonomy, perceived usefulness of tools, and human control over decisions (Spichkova et al., 2025, p. 9). AI was seen as a facilitator not an intruder, which contributed to a positive team experience.

Human oversight was also highlighted during the discussion. Works done by AI were often associated with dangers or mistakes and thus they needed to be reviewed and validated. This observation helps confirm the studies that emphasize the importance of human-in-the-loop models to ensure the quality, accountability, and trust in AI-assisted Scrum work (Campoverde Morales, 2024, p. 3).

Lastly, the external stakeholder discussion revealed that the owners of websites and business stakeholders had high value of AI which comprised of competitive advantage and less workload. Such perceptions were result-oriented instead of effort in internal processes, which is why the difference between stakeholder optimism and more complex experiences of the Scrum team exists (Cooper, 2024, p. 4).

On the whole, this discussion shows that AI can offer valuable assistance in a Scrum-based project when it is employed as a supportive tool inside the Scrum principles. The results show the advantages and limitations of AI in actual sprint work, as well as give a strong basis to the conclusions made in the following chapter.

6 Conclusion

This thesis explored the actual effect of artificial intelligence support within a Scrum-based project context. The core aim was to go beyond assumptions and hype around AI and to comprehend the real impact of AI on productivity, workload, satisfaction, and team experience in actual use in a real sprint work.

In order to meet this goal, the research employed a case study approach on a real-life project that was implemented in three sprints. Several sources of data were gathered, such as data on the project exported out of the Scrum management tool, sprint sheets that were kept during the project, a survey of sprints carried out by the team members themselves, and a side survey held with the owners of websites and stakeholders. The application of AI was selective, and the estimated time savings were estimated according to the experience of the Scrum team with the knowledge and skills.

The research used both quantitative and qualitative approaches to give a realistic and practical perspective on AI usage in Scrum. The thesis helps to obtain a complete picture of the way AI is functioning as an element of the contemporary Scrum-based work and not as an independent solution to the productivity issue by analyzing the performance at the sprint level, the perception of the team and the perception of external stakeholders.

6.1 Summary of Key Findings

This study has demonstrated that the use of AI support had a quantifiable yet subtle effect on project work based on Scrum. In the majority of the sprints, AI was involved, still not in all assignments. This proves that the use of AI was not mandatory or automatic but rather selective and based on the type of task, the context of a sprint, and team judgment.

As per productivity, the output of sprints in terms of the count of tasks completed was relatively constant throughout the three sprints. The estimated time savings were achieved through AI-supported activities, but they did not lead to an apparent rise of output on the sprint level. The estimated time savings were maximum in the initial sprint and declined in subsequent sprints, implying that initial benefits of AI adoption could decline as teams conform to their workflows.

The outcome of the workload results indicated a progressive development in perceived workload in the three sprints even when AI was used continuously. AI also decreased the effort on some repetitive and documentation-intensive tasks but added a new burden of effort on review, validation, and coordination. Therefore, AI changed the type of work performed rather than eliminating workload entirely.

Even when workload was increased, team satisfaction did not go down. This shows that the increased work did not have any negative impact on team experience when the AI was considered helpful and team autonomy and human control persisted. Role-level analysis demonstrated a range of differences in workload and satisfaction, indicating some differences in the way AI facilitated various roles.

Lastly, the opinion of external stakeholders reflected high business value in the use of AI. Stakeholders and owners of websites claimed that they had fewer workloads and saved time and considered AI as a competitive advantage source. This was an external view that was based on results more than internal sprint-level work.

6.2 AI Assistance and Productivity in Scrum

According to the results of this study, AI assistance facilitated productivity by time savings in particular activities of the sprint in the form of estimates, in comparison with more sprint output. It was found that AI was most useful in development-related and documentation-intensive work, as it assisted the team members to begin their work sooner, create drafts, and spend less time on repetitive tasks.

According to the results of this study, AI assistance facilitated productivity by time savings in particular activities of the sprint in the form of estimates, in comparison with more sprint output. It was found that AI was most useful in development-related and documentation-intensive work, as it assisted the team members to begin their work sooner, create drafts, and spend less time on repetitive tasks.

Nonetheless, the sprint-level productivity, which was taken as the number of tasks completed within a sprint, was constant throughout the three sprints. It means that although AI contributed to the decrease in effort on the level of tasks, the overall delivery of sprints was affected by other factors, including coordination, review, integration, and quality control.

The reduction in the estimated AI time savings in subsequent sprints is an indication that AI could have the greatest productivity impact in early adoption and less significant productivity impact as teams modify their work processes. AI facilitated productivity as an aid device and not as a catalyst of incessant growth of productivity.

6.3 Workload and Satisfaction Effects of AI Assistance in Scrum

The results reveal that AI support affected workload and satisfaction differently. Workload was perceived to increase progressively during the three sprints despite the use of AI. This means that AI had no overall effect on reducing sprint workload. Rather, it transferred workload to manual execution to review, coordination and decision making.

AI minimized the work on routine tasks but forced team members to invest time in verifying the results and risk handling. Perceived workload also rose with sprint complexity, and was not modified by AI usage.

Though this workload increased, the level of team satisfaction did not change during all the sprints. This indicates that perceived usefulness of AI, team autonomy, and control

over decisions were found to have more influence on satisfaction in comparison to workload volume alone. The team members neither felt that AI was disruptive and threatening but this made the team experience positive.

In general, AI helped to manage the workload and maintain a consistent level of satisfaction when applied selectively and controlled by the human factor, but it did not help to get rid of workload pressure in sprints.

6.4 Research Contributions

This research contributes to the academic literature as well as practice in Scrum in a number of significant ways.

From an academic perspective, the research adds practical data about the use of AI in Scrum teams. Numerous current researches are based on controlled experiments or single tasks. The thesis is a contribution to the literature as it analyzes using AI in full sprints, coordination, review, and team experience. It also fills a gap in research as it deals with the impact of AI on a real Scrum team instead of a hypothetical or experimental environment.

From a practical perspective, the study offers a real-life information to Scrum teams in the process of adopting AI. It shows where AI can provide value, where it introduces new effort, and how it interacts with Scrum principles such as autonomy, accountability, and sustainable pace. The results contribute to a better understanding of what AI is able to offer to the team during sprints.

6.5 Practical Implications

The results of the present research have a number of practical implications on Scrum teams and organizations. To begin with, AI is not to replace Scrum roles or decision-making. Quality, accountability and trust still require human management.

Second, Scrum teams would still be in control of AI usage, timing, and mode. The philosophy of selective and flexible use of AI suits Scrum values better than obligatory use. Third, Scrum Masters ought to proactively handle the workload changes brought by AI. Although AI can decrease execution effort, it can increase review and coordination effort, and this component should be regarded in the process of planning the sprint. Lastly, the Product Owners must guarantee that the outputs produced by AI are accepted and according to the Definition of Done requirements. Quality should not be circumvented by AI outputs.

6.6 Final Conclusion

This thesis shows that the effect of AI support on Scrum-based projects has a quantifiable effect, albeit in a more nuanced and not so dramatic way that has often been focused on by hype. The productivity backed by AI is achieved through decreasing effort in certain tasks, restructuring of work load by redistributing effort to review and coordination and stable team satisfaction when used in a responsible manner.

The findings demonstrate that AI is neither a replacement for Scrum teams nor a guaranteed productivity multiplier. Instead, AI is best understood as an assistive tool that adds value when integrated carefully into Scrum practices and governed by human judgment.

It was through the focus on real sprint activity and real-life team experiences that this study makes an empirically based and practical contribution to the understanding of AI in Scrum. It confirms that the substantive effect of AI will not be only achieved through automation but by how teams will choose to use it.

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