Software Process Improvement:
An examination of Theory vs Practice

[handwritten margin notes: "G", "- No assessment if issues were general/specific", "- 4 Papers, 3 of them on GQM", "- No concrete improvement steps", "- No concrete measurements"]

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ABSTRACT

There are many different methodologies for improving and assuring quality and efficiency within project development cycles. Some of which have been established for decades, while others have been adapted recently. This paper will examine different Software Process Improvement ideologies, and relate them to both real life industry implementations and controlled environment workshops.

I. INTRODUCTION

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This research paper outlines the experiences; planning, conducting and reflecting workshops participated in by team Fogelström. Furthermore Software Process Improvement styles/methods (SPI) will be defined, discussed and related to the teams performance within the two workshops. Additionally there will be a brief examination of SPI strategies within the industry of software development and organizational management. Finally the SPI practices used by Fogelström within the second workshop will be outlined and evaluated, revealing quantitative data regarding the improvement of the teams efficiency and effectiveness.

II. PROCESS APPLIED IN THE SCRUM WORKSHOP

In the first workshop, the team was not sure what to expect, and therefore the original plan and the in real-time execution differed quite substantially. This includes the: Processes, Schedule, Team Communication Protocols, Roles and Rules previously planned out for the development in the workshop. Furthermore the team planned to use the following practices: Incremental Delivery Practice, User Story Practice and Scrum.

Originally the team planned a schedule for the procedure of sprints, meetings, collaboration with other teams and breaks. This was done to organize the working and evaluation time the team had, to ensure an efficient and measurable progress toward the, at the time, loosely defined goal. That being said, at the start of the workshop, the team was informed that a global schedule needed to be set in place, and therefore this was the first to be altered. "Scrum masters", and "communication officers" of all teams were suggested to collaborate together to define an overarching schedule for all teams. The final schedule was set, but unfortunately, due to logistical constraints it was difficult to follow. This was addressed later on in the second workshop, via more agile and flexible communication channels to the POs and instructors.

Team Fogelström also planned to assign each group member a role in the team. These roles included: Scrum Master, Communication Officer, Gatherer and Builder. Fogelström prepared two different role structures, as it was not clear if resources were granted freely or had to be manually found and mined. In both eventualities, the Scrum Master and the Communication Officer were suggested to be the same group member, as this would allow for a faster and less diluted flow of communication to the PO and other teams. This means that they would be in charge of both communicating with other teams, to for example orchestrate a combined effort (roads), and were in charge of executing the POs vision of the project. Furthermore, as Scrum Master, they needed to keep an eye on the progress and schedule, and orchestrate the team's efforts to allow them to act efficiently and effectively. Builders were responsible for executing the Scrum Masters (and therefore POs) vision, building the structure as outlined, while gatherers on the other hand fulfilled requests from the builders, fulfilling orders regarding resources (for example; stone, wood and sand). *[handwritten margin note: "Not very agile.."]*

This team structure persisted throughout the planning and execution of the project, and was an effective and streamlined 'hierarchy', allowing each individual team member to focus on separate tasks. That being said, the expected amount of gatherers-to-builders ratio was offset, resulting in the first sprint progress to be dissatisfactory, as the team was sitting on most of the required resources, but had not progressed sufficiently on the construction. Furthermore, the planned communication between builders and gatherers was altered, making one team member of each department the master-gatherer and the other the apprentice. This was done to streamline the communication, and allow a better insight in the required and already acquired resources/tasks. Therefore each team member had a department and rank in their department, allowing for a more transparent communication flow, alongside of a better understanding of required and acquired/completed tasks. *[handwritten margin note: "?"]*

Furthermore the team initially planned to abide by self governing rules, to ensure that a code of ethics toward each

other and other teams was kept. These rules were transformed into guidelines within the first workshop, [*how?*] as it became apparent that the need for strict discipline and (minor) punishments for infractions, were unnecessary and counterproductive to the common goal.

Finally the planned and used practices, (Incremental Delivery, User Story, and Scrum) did not change significantly and were executed mostly as planned. Most notably, having planned to use an Incremental Delivery process, the team was able and ready to commit to new requests and requirements put forth by the POs and Instructors. For example, halfway through a sprint, a PO reviewed the development, and requested a specific material (wood) to be more present in the structure. This did not upset Fogelströms schedule significantly, as it could be implemented immediately, [*Details needed!*] due to the step-by-step nature of the previously planned Incremental Delivery process structure.

The mapping of user stories, and the use of Scrum were planned and executed effectively. The Scrum Master retained an overview of the expected outcome and schedule, and therefore allowed the team to fulfil the POs and Instructors requirements and requests. This was [*how?*] heavily aided by the Incremental Delivery process structure, allowing the team to work flexibly, decentralized and timely to complete the development. The most notable improvement to the plan was though the decision to reduce the amount of gatherers after the initial resource collection was completed, allowing for more efficient and effective construction protocols.

III. EXPERIENCES IN THE SCRUM WORKSHOP

Team Fogelström had never participated in a similar workshop before, and therefore may have overestimated their structure and plan. There are multiple processes which were executed as planned and others which proved to challenge Fogelströms efficiency within the workshop. Due to the inexperienced team, and lack of information regarding the format of the workshop, the following processes were correctly and incorrectly planned and/or executed.

Firstly, one of the most successfully planned scenarios was the roll division. Having each team member assigned a duty and roll in line with their competences and experience, allowed team Fogelström to begin the development immediately. Each roll was followed correctly, and executed a specific job. Due to time constraints, due to bad resource handling, these rolls were ignored at the last few minutes of the final sprint, as the team had an abundance of resources, but were not finished building their POs requested structure. Furthermore, the communication between builders and gatherers was at times hectic, resulting in missing or abandoned resources, further decreasing the amount of available time for the development of the project. This could have been avoided by clearly defining the expected amount of required resources from the start of a sub-project (wall, floor, roof…). Furthermore, to allow for better communication between the builders and gatherers, an implementation of a group trello or excel spreadsheet would have been helpful to quantifiably measure and track the progress of subsections of the project. This would have allowed for more insight, for both builders and gathers, into the currently required amount of resources, and the subsection these resources are reserved for.

Secondly the decision to use Incremental Delivery turned out to be a blessing for Fogelström, as this practice allowed the team to adapt to new challenges on the fly. This means that the team could incorporate a new POs request in a timely manner, without compromising the current tasks on hand. This was well visible as the PO decided they would require more wood components implemented into their structure, and team Fogelström instantly could shift their resource management to produce/grow wood. This was done seamlessly without losing control of other requirements, such as constructing windows, doors and internal furniture, while maintaining a steady supply of standard resources, such as stone, sand and lime.

These issues suggest that the level of maturity of these processes and practices was low, and should have been revised and fleshed out before the next workshop. Fogelström estimates most of their planning for the first workshop to be within Level 1; Initial or Level 2; Managed of maturity as outlined by Shahid (2016) [4]. [*How do you know?*]

IV. SOFTWARE PROCESS IMPROVEMENT TECHNIQUES

Software Process Improvement (SPI) is an overarching domain for different methods, such as "goal, question, metric" (GQM) and "Capability Maturity Model Integration" (CMMI), oriented toward the process of measuring and improving development cycles. SPIs are furthermore used to gain insight into complex development processes, and aim to guide developers to identify specific areas for improvement. There are multiple different approaches and methodologies for this process, created by different organizations and collaborative groups. Each methodology is oriented more towards different aspects of the development process, and can yield different suggestions on improvement.

"Goal, Question, Metric" is a software metrics approach to singling out issues by quantifiably measuring specific goals with questions. This is done with a series of nested questions, detailed in a fashion to anchorage definable and measurable reflection results. Promoted by Victor Basili [1], as well as NASA Goddard Space Flight Center, it has been in use in software development for decades. Due to this age, it has influenced other SPI methods, and furthermore has been reviewed for improvement.

The main attraction of this methodology is its simplicity and versatility, as it can be applied to technical processes as well as employee based issues. This is due to its structure of defining the desired improvement with goals and questioning the specific measurement direction, which allows GQM to be used for other areas then software development. On the other hand, GQM does not provide an explicit technique to incorporate

larger organizations' higher level goals into its software measurement methodology. This means that high level business practices can not simultaneously be analysed in the context of the software development process. This issue was addressed by Basili et al (2007 & 2010) [2] [3], laying foundation for the later updated and improved "GQM+Strategies" SPI technique.

Fogelström made use of the GQM model throughout the second sprint. Unfortunately the metrics layed out were not all recorded and documented, resulting in undefined results for the teams initially set GQMs. Nevertheless the general consensus was that using this technique allowed the team to focus on evaluating specific processes within the project development, which yielded a collective consensus that the team had improved, compared to the previous workshop development.

A second popular SPI model is "Capability Maturity Model Integration" (CMMI), which is both a constellation to analysing the maturity of a process or system, and an official certification for industry standards. It was conceived by Carnegie Mellon University and is administered by the official CMMI Institute. This standard aims to gage the maturity level of processes, which means it can assist in the identification of premature execution of plans, therefore attempting to spear the development team from having to alter and refine initially set plans retroactively.

There are multiple advantages for a CMMI constellation in the development of a project, most notably the decrease in cost and effort due to the reduced chance of having to revise one's initial plans. This furthermore reduces the amount of defects expected to be encountered mid development, resulting in increased productivity. On the other hand, CMMI requires an extra layer of documentation, possibly prolonging the planning phase of a project's development. Furthermore implementation of CMMI requires additional knowledge and a CMMI compatible team attitude and culture to be effective, which can be time consuming and costly to implement at a later time, if not implemented from the start of development.

Team Fogelström should have used CMMI to gage the effectiveness and maturity of their goals and plans. This would have allowed the team to identify incomplete areas of the preplanning for the workshops. One area which would have significantly improved would have been the roles designated to each team member. In Fogelströms scenario, the eventuality of resource shortages could have been avoided by integrating a few alternative role structures, further maturing their preparation. This was revised for the second workshop, and two alternative, but undocumented role patterns were designed, allowing the team to addapt to the shift in resource availability found in the second workshop environment.

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V. SPI IN INDUSTRY

This course included two guest lectures which granted insight into the real time usage of SPI techniques. The first guest lecture was focused on organizational agility, and its effects on innovation in automotive startups. This presentation

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was conducted by Dulce Goncalves, a industrial PhD student from Halmstad University. The second guest lecture was conducted by Robert Engberg, regarding the implementing, maintenance and improvement of software development processes within medical device software. Both lectures addressed the importance of agile development, alongside a host of precautions regarding the need for proper process planning and documentation.

The first lecture, hosted by Dr. Goncalves was oriented directly towards agile software development, and covered the advantages, disadvantages, reasons and principles for organizations to follow an agile development cycle. Goncalves outlines that with an agile enterprise environment, the structure of a company/organization is flexible and adaptive to the current issues at hand. This also means that cost and time can be saved by rearranging responsibilities to best take advantage of the companies available resources. The lecturer touches on the benefits of scrum and scrum of scrum meetings, and the effectiveness of such a structure, being mainly the involvement of large parts of the organization's workforce. Furthermore outlining the effect on end consumers due to the "Clan Collaboration" an agile team can instantiate. Finally Goncalves emphasizes the adaptivity of this style of structure, suggesting the uses within both software development and non-software development fields, for example human resources departments/organizations.

Dr. Goncalves furthermore outlines benefits and drawbacks for using an agile team composition. The main advantages of an agile structure include but are not limited to; high continuous innovation pace, openness & transparency, scalability, more reliable deliverability and increased product quality. Furthermore the lecturer outlines a few pitfalls and drawbacks for different levels of an organization. For example how management could become too enrolled in micromanaging, due to the closeness to the product, compared to non-agile organizational structures. Another example outlines the lack of commitment and knowledge the team members share for each other.

This was visible throughout Fogelströms first and second workshop, especially the increased involvement of the scrum master in micro tasks, losing the oversight of the entire project. This was partially due to the time constraints and lack of an accurate schedule, forcing the scrum master to actively take part in detailed development. Furthermore, Fogelström experienced a lack of knowledge of what other team members were responsible and working on at times. This was due to roles and work division. Fortunately, this did not hinder productivity within Fogelström, and usually resulted in positive unexpected surprises, for example; "hey, im done, whats next?".

The second guest lecture by Robert Engberg covered the complex and tedious development of near-fail-safe software used in medical equipment. Not only did this mean that quality had to be ensured to avoid injury, but also the software and software development cycle needed to abide to official

guidelines, to regulate medical products. This was interesting as the implications of bad quality control would be detrimental to the customer/user and a death sentence to the company. Robert Engberg outlines the minimum amount of fault-tolerance needed to receive approval from different industry regulations and standards.

Due to the nature of the workshops team Fogelström participated in, the emphasis on fault tolerance was not very high. It should be noted that a PO did reject Fogelströms product until further modifications were conducted. For example the lack of wood used within the first workshop resulted in the reassessing of Fogelströms priorities, to accommodate for this new PO request. If this was a medical procedure, the HIPAA regulations would have shut down Fogelströms project for inefficient and faulty development practices. This is because the team did not fully outline work standards, and at best had plans in maturity levels of 2-3 (CMMI).

Robert Engberg / Dulce Goncalves
VI. SPI PROPOSAL FOR FUTURE SCRUM DEVELOPMENT EFFORTS

Fogelström reflected on the nature of the issues experienced in the first workshop, and concluded that it would be beneficial to address; (G1) the amount of available time within sprints by improving the schedule, (G2) decreasing the time on resource handling within the development, and (G3) increasing the availability and readiness of collaboration with other groups, POs and the Instructor. This was decided due to most of the group gaining sufficient experience in the first workshop to undermine most if not all of the simple in-team communication and game mechanical issues. These improvement goals were formatted into GQM Goals, to ensure a precise and quantifiable result, as outlined by Basili et al (1994) [1].

The first goal concerns the difference between the planned schedule and the executed schedule in the first workshop. Each group constructed an individual schedule, which was then synchronized with each other group. This was done to provide a universal schedule, allowing for scheduled breaks, sprint reviews and PO meetings. Unfortunately, in the first workshop, the retrospectives took longer than anticipated, forcing the groups to notice that the previously agreed upon schedule was infeasible. Furthermore it should be noted that the amount of meetings with the teams PO should not be decreased, as the quality of the final product would suffer, due to a lack of PO input.

This schedule measurement should answer two important questions: (G1Q1)"How much time did the team lose due to inefficiencies during the sprint retrospective?" and (G1Q2)"How many opportunities did the team have to meet with the product owner?". To answer G1Q1, Fogelström came up with two GQM metrics to quantify the efficiency of the current schedule: (G1Q1M1) "Difference between the time it took for retrospectives and time it should have taken according to the schedule measured in minutes." and (G1Q1M2) "Total time for all the retrospectives measured in minutes.".

These metrics should allow the team to evaluate the and improve future workshop sprint schedules. This is because the metrics will reveal both the ineffective amount of time used, and the total amount of time each sprint used, compared to the previously planned schedule, therefore outlining discrepancies.

The second part of G1 refers to the misalignment in schedule experienced in the first workshop, and addresses a way to measure and improve these differences in the future: (G1Q2M1) "The difference between the team availability measured in hours and the PO availability measured in hours." and (G1Q2M2) "Number of hours where both the team's schedule and the PO's schedule aligns, measured in hours.". The first metric (G1Q2M1) should outline the possible availability of both PO and Team members, hopefully allowing both parties to find a synchronized meeting time. This measurement should be orchestrated by the Scrum master, due to the already persisting communication between them and both the team and POs. The second metric (G1Q2M2) should outline the exact amount of hours both schedules will overlap, allowing for both parties to dedicate their time to the project. This is important since without overlapping time schedules, the PO and Scrum Team will never be able to discuss the development of the project.

For the second GQM goal (G2) team Fogelström focused on addressing the resource issue encountered in the first workshop. In this case, the goal specifically looks at the resource shortage the team experienced in the first workshop (for example wood), in hopes of minimizing the time spent collecting these resources. The two GQM questions Fogelström was most interested in where: (G2Q1) "How long did the team have to spend waiting for each resource block (in this case: each wood block) before gathering?" and (G2Q2) "How much wood was accumulated?". In this case, Wood was selected as the relevant resource to measure, as the first workshop was an almost void of it. The method for gathering wood was to collect saplings, plant them and harvest sticks from them at a later time, resulting in a rather time consuming process. Furthermore Fogelström required wood for their project, as per mid development PO requisition. Therefore it was important to know the amount of time it took to harvest sticks worth a single cube of wood, to allow for a more streamlined resource gathering process. This process should be quantified by the first metric (G2Q1M1) "Time elapsed between gathering in minutes.", and should demonstrate the amount of time a gatherer took between planning and harvesting a sapling.

The second metric for G2Q1 is oriented toward measuring the efficiency of the team, in regards to the collection of wood: (G2Q1M2) "Total amount of wood blocks accumulated during one collection of wood blocks from the bushes, divided by the time it took for the same collection, acquired from metric 1, in percentage.". This metric should allow the team to adjust their personnel to accommodate a more efficient wood gathering

process, for example adjusting the roles to have one builder also be responsible for planting and gathering every second sapling harvest.

For G2Q2 Fogelström devised two metrics regarding the amount of wood the team collected: (G2Q2M1) "Blocks of total wood collected measured by integers." and (G2Q2M2) "Sum of minutes spent waiting between all of the individual wood resource gathering sessions (planting → harvesting).". The first metric, (G2Q2M1) will give the team an exact number of total wood collected, which can be useful in conjunction with G2Q1s metrics, to determine the approximate time the team spent solely on gathering wood. The second metric highlights the amount of down time a team member would have, if they were only responsible for growing and harvesting wood, and outlines the importance of multitasking and planning ahead for harvests.

The final GQM goal set for future workshops was (G3) "Decrease the unproductive time needed for team collaboration to begin, from a developers point of view.". This goal outlines how all scrum teams could not simply join the first workshop and start, as they needed to sort out their user stories, find a united schedule and inform both PO and their teams where and what they were developing. This process used up an extensive amount of productive time in the first workshop, and could be preplanned to maximize the amount of free time available within the workshops time schedule.

Fogelström asked two specific questions in hopes to highlight areas of improvement: (G3Q1) "How much time did the meetings with the collaborating teams before the workshop take?" and (G3Q2) "How many teams were present during the team collaboration?". G3Q1 addresses the possible schedule conflict these meetings at the start of the workshop could cause, furthermore allowing a good quantifiable estimate to prevent this. G3Q2 looks at the attendance and participation of teams in these meetings, and is important for measuring the effectiveness of such meetings. If the meetings are not attended by the majority of the teams, and therefore group collaborative decisions are not universal, the value of these meetings is degraded. This would suggest that new methods for communication should be tested and implemented, to allow for maximum attendance and cooperation.

To measure the amount of time invested in collaboration meetings (G3Q1) team Fogelström came up with the following metrics: (G3Q1M1) "The total meeting time spent, measured in minutes." and (G3Q1M2) "Number of meeting opportunities measured in integers.". The first metric (G3Q1M1) is meant to highlight the amount of time spent for collaboration to be effective, and measures the amount of time in minutes spent in collaboration meetings. This is important for estimating the amount of time needed for such meetings, allowing scheduling to become more accurate. Furthermore continuing this practice in future workshops will allow the teams to be aware of time shortages, for example a meeting being too short to fully discuss all collaboration topics, and therefore brings a quantifiable reason for adjusting the meeting lengths. The

second metric (G3Q1M2) measures the amount of meeting opportunities available for all teams in a workshop. This is important as it quantifies the amount of meetings that each team would like to hold, for example having 10 one minute meetings versus having one 10minute meeting could be addressed this way. It would be expected of all scrum masters to capture the number of collaboration meetings their team would like to have, and cross compare their result with other teams. This would allow for the adequate amount of collaboration meetings to be hosted, based on the rounded average of scrum masters votes.

Finally Fogelström addresses the attendance of each meeting (G3Q2), outlining the importance of holding meetings which the majority of the teams can and will attend and the communication implications for teams not attending. This is measured with the following metrics: (G3Q2M1) "Time taken for the participating teams to relay important information to the non-participating teams, measured in minutes." and (G3Q2M2) "Percentage of non-participants against total number of teams.". The first metric (G3Q2M1) looks at the delay of successful communication to teams who are missing the meeting. This is relevant as important decisions, which need approval from all teams, will be delayed by the indirect line of communication. Therefore this metric shows the amount of time in minutes wasted waiting for confirmation from non attending teams, and further outlines the importance of attendance to collaboration meetings. The second metric (G3Q2M2) outlines the number of participating teams compared to the number of non participating teams, giving a percentage of attendance to the researchers. This is important to provide a simplified and direct number of attendees for reflections. Furthermore one could collectively decide that if (for example) less than 75% of the team's scrum masters attend the meeting, measures need to be initiated to improve the attendance for future meetings. Finally it displays a clear and simple statistic, which can be used to further evaluate the effectiveness of meetings, especially when dealing with a larger number of teams (imagine 20-30 teams).

VII. IMPLEMENTATION OF AN SPI INITIATIVE

The second workshop was conducted a few weeks after the first, allowing for able time to plan and prepare both the teams and the schedules for collaboration meetings. Although GQM metrics were set, and Fogelström intended to collect an extensive amount of quantitative data, due to time constraints disrupting the product development process, Fogelström collectively decided to only collect a fraction of the initially intended GQM measurements. Furthermore only slight tweaks were made to role distribution, work orientation and practices (such as; Scrum, user stories and incremental delivery). This was due to most an overlying consent that the teams previous structure and development process was satisfactory, and only needed slight adjustments due to the experience gained from the previous workshop.

As team Fogelström felt comfortable with the previously used incremental delivery practice, this was not changed, and

+concrete improvement steps

remained identical throughout the second workshop. Similarly the use of Scrum and User Stories remained part of the teams core practices. A slight adjustment was incorporated in the division of roles, allowing each team member to gather close by and readily available resources (wood) without further approval or communication. This was spontaneously decided due to the abundance of relevant resources on the second workshops biom. Furthermore the decision to allocate all members on resource gathering for the first five minutes, and until the scrum master has located and designated the teams building sight was made. This allowed for less downtime, as builders were not relying on early resource deliveries.

These simple adjustments to the teams work habit altered the productivity significantly, alongside with more significant improvements, such as the completely improved PO communication methods. Unlike in the first workshop, POs were given a designated Zoom breakout room, allowing each team to locate and orchestrate a meeting with the PO individually. This decreased unproductive idle times for teams, further keeping the schedule on track. (related to GQM G1Q2M1 & G1Q2M2)

Additionally the schedule was set by team scrum masters ahead of the workshop, further cutting down on group meeting and discussion time. Although not measured, the difference was significant compared to the first workshop. (related to GQM G1Q1M1)

Fogelström only recorded a few of their previously planned GQM measurements, and therefore can only report on general consensus of most of the metrics. Furthermore some of the issues that these metrics were designed to address were irrelevant due to the change in environment for the second workshop. This includes G2Q1M1, G2Q1M2, G2Q2M1 and G2Q1M2 which were related to the previously experienced shortage of resources. This is especially true for any metric directly related to wood collection and processing, as the second workshop environment was a rich forest. Attempts were made at measuring G2Q2M1 (number of wood blocks collected), but due to the nature of working in a forest, this was quickly abandoned, as the correct implementation of this metric would have cost Fogelström the full attention of a team member. Last known count was recorded at around 350 wood blocks. Furthermore, G1Q2M2 was irrelevant, as there was no need to measure the time necessary to grow wood cubes, due to the abundance of trees in the direct vicinity.

The team coordination was executed significantly more proficiently. Not only due to the pre-prepared workshop schedule, but also due to the more organized collaboration meeting (G3Q1M1 & G3Q1M2). All scrum masters were present for all collaboration meetings (G3Q2M2), meaning that no downtime was needed to relay information to missing team representatives (G3Q2M1). This drastically reduced the time and effort for meetings to initiate and complete.

VIII. SUMMARY AND LESSONS LEARNED

This research report outlined different experiences and approaches conducted in MineTest workshops, using SPI methods/models/techniques. Due to the nature of only two workshops, the level of improvement was drastic when comparing the first to the second workshop. Aside from a more realistic planning, many of the observed improvements could be associated with the increased familiarity with both the workshop environment (MineTest) and the expected procedure (Zoom + workshop format). It would be interesting to have the time to conduct another workshop, incorporating further SPI techniques, and observe the relative improvement from the previous workshops.

The main findings of this report suggest that scheduling, Incremental Delivery Practices and the use of Scrum were the most influential contributing factors to the efficiency of the workshop. Unfortunately Fogelström could not collect sufficient GQM data to further contest or support these claims, and therefore future workshops are necessary.

In a team retrospective, after the workshop, Fogelström concluded that further development of the sprint schedule would be of the greatest benefit to the collaboration and execution of the projects. It was suggested that an asynchronous schedule could be used, to increase the length of productive sprint development phases (building), while decreasing the idle down time (waiting for POs to conclude other group meetings). This could only work if the scrum masters of each team were to prematurely adjust their schedules to avoid overlapping PO meetings. Furthermore this would mean that the "un-interactive mode" (can't build, can't open doors) time would be cut down, allowing for teams to split up the tasks more efficiently, possibly resulting with a more polished product. On the other hand this could distract and alienate team members from their POs and collaboration meetings, which would result in the complete opposite outcome.

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