Agile Project Plan

1 Conversion of Project Schedule to Agile Based Project Schedule

See project file `agile-plan.mpp`.

2 Challenges and Opportunities of New Project Schedule

2.1 Benefits and Drawbacks of Agile vs. Waterfall Project Schedule

2.1.1 Agile Project Schedule:

Pros:

1. **Adaptability to Change:** Agile allows for flexibility in adapting to changing requirements, resulting in a product that better aligns with stakeholder needs. This would enhance the creativity and innovation of the product, as well as improve the problem-solving and decision-making skills of the team over the course of development.
2. **Faster Time-to-Market:** Agile's iterative cycles lead to shorter development times, enabling quicker releases and a faster time-to-market. Because of this, feedback from stakeholders can be incorporated quickly and more often, increasing customer satisfaction and team motivation.

Cons:

1. **Limited Predictability:** Agile projects have less predictability in terms of timelines and deliverables, which can be challenging for stakeholders seeking a structured timeline. This would require more flexibility and adaptability from the group members, as well as willingness to experiment and learn from failures
2. **Resource Management:** Balancing workloads and efficiently allocating resources can be more complex in Agile projects with team members working on multiple tasks simultaneously.
3. **Task Management**: Agile projects must be broken down into smaller and more manageable tasks that can be completed within short sprints. This would require more planning and coordination among team members, as well as frequent communication with the stakeholders who may have busy schedules.

2.1.2 Waterfall or Hybrid Project Schedule:

Pros:

1. **Clear Project Roadmap:** Waterfall provides a structured and clear roadmap with defined phases. This can be beneficial for projects requiring a detailed plan and fixed scope. Such is the case with our e-procurement system, barring feedback from stakeholders.
2. **Easier Project Management:** Waterfall's linear structure simplifies project management and progress tracking, making it particularly suitable for straightforward projects with well-understood requirements.

3. **Better Communication**: Waterfall helps with communication and coordination among team members and stakeholders, especially in terms of expectations.

Cons:

1. **Limited Flexibility:** Waterfall's sequential nature can be rigid, making it challenging to adapt to changes once the project is underway. This is because it assumes that the project's environment and parameters are stable and predictable. Hybrid models may face challenges in balancing flexibility and structure. This can impede the incorporation of stakeholder feedback outlined in the original project plan.
2. **Late Discovery of Issues:** Testing typically occurs late in Waterfall, leading to the late discovery of issues, potential delays, and increased costs. This also delays the delivery of the value until the end of the project.
3. **Stakeholder Engagement:** Waterfall involves less frequent interaction with stakeholders until later project phases. This can result in misunderstandings and misalignments with stakeholder expectations.

2.2 Justification for Medisail's Agile-Hybrid Project Schedule

Medisail believes that a hybrid Agile-leaning approach will combine the most impactful aspects of both Waterfall and Agile to best suit the development of this project.

The most important argument for a hybrid project schedule as opposed to a fully Agile approach is based on the fact that Medisail's requirements for each phase of the project are well-defined and planned extensively. Agile schedules are most successful in situations where requirements change, and teams must adapt to these changes for the project to be successful. Because Medisail is a small company and the e-procurement system is expected to be Medisail's primary source of revenue after the launch of the third release phase, extensive attention was given to the project's requirements analysis, requirements planning, and risk analyses, and these requirements are reflected in the project's low-level work breakdown structure and project plan. The primary stakeholder in the success of the project is Medisail itself, so significant changes in requirements are unlikely after project planning is completed. Additionally, significant changes in requirements have a high likelihood of derailing the project's overall objective and success, and with that, the future success of Medisail as a company, which further encourages a solid requirements analysis process.

Aside from the heavy emphasis on requirements analysis and its impact on the project schedule, the approach to the project leans Agile. To mitigate the drawbacks associated with Waterfall mentioned in the previous section, Medisail will employ Agile ceremonies and principles to avoid inflexibility, late discovery of issues, and low stakeholder engagement over the course of the product's development.

The project plan allows for what Medisail has coined "iterative development" at the end of each development phase and in between phases. Iterative development is intended to mitigate issues related to inflexibility and stakeholder engagement. In the context of this project, iterative

development is an Agile-like process that involves collecting and analyzing feedback from end users of the different release phases and the development team. While the primary stakeholder is Medisail, the e-procurement product serves small, rural healthcare clinics and feedback on each release is vital to the success of the product from a revenue perspective. Based on the analysis of this feedback, small changes in requirements may be authorized and implemented in the development of the next release phase. For example, pilot users may think the structure of the shopping cart interface is unintuitive, so Medisail may implement this feedback in the next release phase by having the Junior Developer dedicate several days to improving the shopping cart user interface and having one of the QA Testers to incorporate testing of the new interface into previously scheduled testing tasks. While these changes will have a minimal impact on the project plan and schedule because they are accounted for during the end and beginning of each release phase, the value provided to customers because of their implementation will mitigate customer satisfaction risks and provide customers a better overall experience with the product.

3 Progress Reporting

3.1 Hybridized Meetings

While Waterfall has its many pros and cons, it is Medisail's belief that the cons outweigh the pros. Chiefly among those cons, is the rigidity of a Waterfall schedule, which constricts Medisail's ability to address challenges that will inevitably appear during project development. While considering this major negative aspect that Waterfall presents, Medisail wishes to employ the more versatile project planning methodology of Agile. One of the major differences between Agile and Medisail's original project planning is how project progress will be reported.

In Medisail's original waterfall approach, we employed a tree-like hierarchal structure to report project progress amongst different levels of project managers and teams. The lowest in the hierarchy are the daily "stand-up" meetings, which allow any member of any team to express their comments or concerns to the senior developer, team leaders, and peers. The next type of progress reporting up the hierarchy is the "weekly status report" meeting, which is hosted by the IT manager and attended by the senior staff members across the project. In this meeting, senior staff would address relevant issues discussed in the daily "stand-up" meetings, as well as a general status report on project progress. The highest level of project meetings in the Waterfall approach are the "weekly issues review", in which the IT manager and the Project Manager discuss information about scheduling, technical issues, and relevant information from the weekly stand up meeting, as well as the weekly status reports.

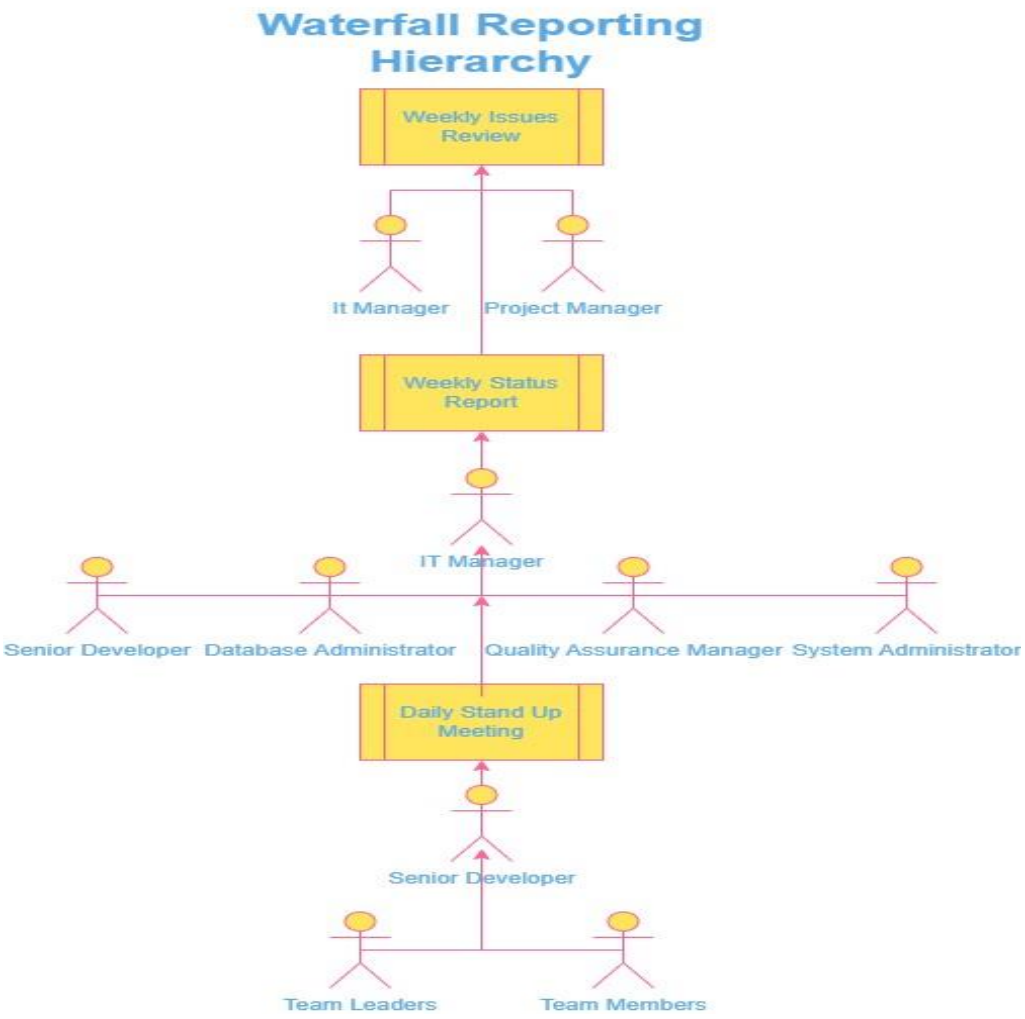

Figure 1 Waterfall Reporting Hierarchy

In Medisail's effort to find a more flexible project planning methodology, it is our belief that a hybrid mixture of Agile and Waterfall will offer a more feasible path to success. The overarching hope for a hybrid mixture is to remove the cons of a pure Waterfall methodology while adding the flexibility of Agile. Medisail recognizes that this will affect the original proposed Waterfall approach to reporting progress and meetings.

The first major change will be to original daily "stand-up meeting", which will flow more like other Agile meeting ceremonies. Therefore, these meetings will be referred to now as daily "Scrum meetings", and the purpose of these ceremonies is to promote flexibility and communication among members of the team and to discuss and address issues before they arise. Most prominently, a stand-up meeting occurs daily between developers. While a "Scrum Master" does not lead this meeting, the daily stand-up provides an opportunity for developers to share their progress and planning, and to assist one another with impediments that are encountered. This promotes collaboration and communication between developers. Unlike traditional Agile stand-up meetings, other team members are welcome to attend these meetings, although this is not required. This is

intended to promote more widespread collaboration between the teams when component integration occurs.

The second major change to our original reporting plan is the new “Sprint planning” meetings, which will complement the new iterative approach of the Agile hybrid approach. These meetings will take place before each major incremental sprint. These meetings will only take an hour and will be hosted by the Project Manager and the IT Manager. In attendance, will be each “Scrum” team that will be implementing the sprint, the product owner, and other stakeholders. While the product owner and the individual stakeholders are not required to be in attendance, they are invited to help build collaboration between the development team and the customer. The purpose of these meetings is two-fold. Firstly, by inviting this collaboration between the development team and stakeholders, it is Medisail’s belief that it can guarantee built in verification and validation with every new sprint. To guarantee this, Medisail plans to collect user stories before each sprint, detailing exactly what the stakeholders expect for a given component. Secondly, this meeting’s primary goal is to discuss the technology and the components to build confidence before any team begins work. If there is new technology being introduced in a sprint, the scrum teams can discuss the technology, and even plan “spike” sessions. In these spike sessions, programmers can explore and research new technology in an environment other than the project environment.

The third change to the original reporting plan is that the “weekly status report” will have a change in its attendance. In the new hybrid format, this meeting will include an invite to the “Stakeholders” and the product owner alongside the original attendees of the “Senior Developer”, “Database Administrator”, “Quality Assurance Manager”, and the “System Administrator”. This attendance is not mandatory but allows Medisail to again guarantee built in verification and validation on the feature a sprint is working on. Not only that, but this allows a stakeholder to give their honest opinion on the product that is being built for them. If there needs to be an adjustment in a core functionality or component, the development team is able to respond to this before release, making this overall approach more flexible than the original waterfall. Not only that, but another benefit of this meeting and the additional attendance is the chance to update user stories collected in the “Sprint planning” meetings that are held before each sprint. The ability to allow stakeholders to update their user stories further promotes flexibility pre-release, and once again guarantees built in verification and validation.

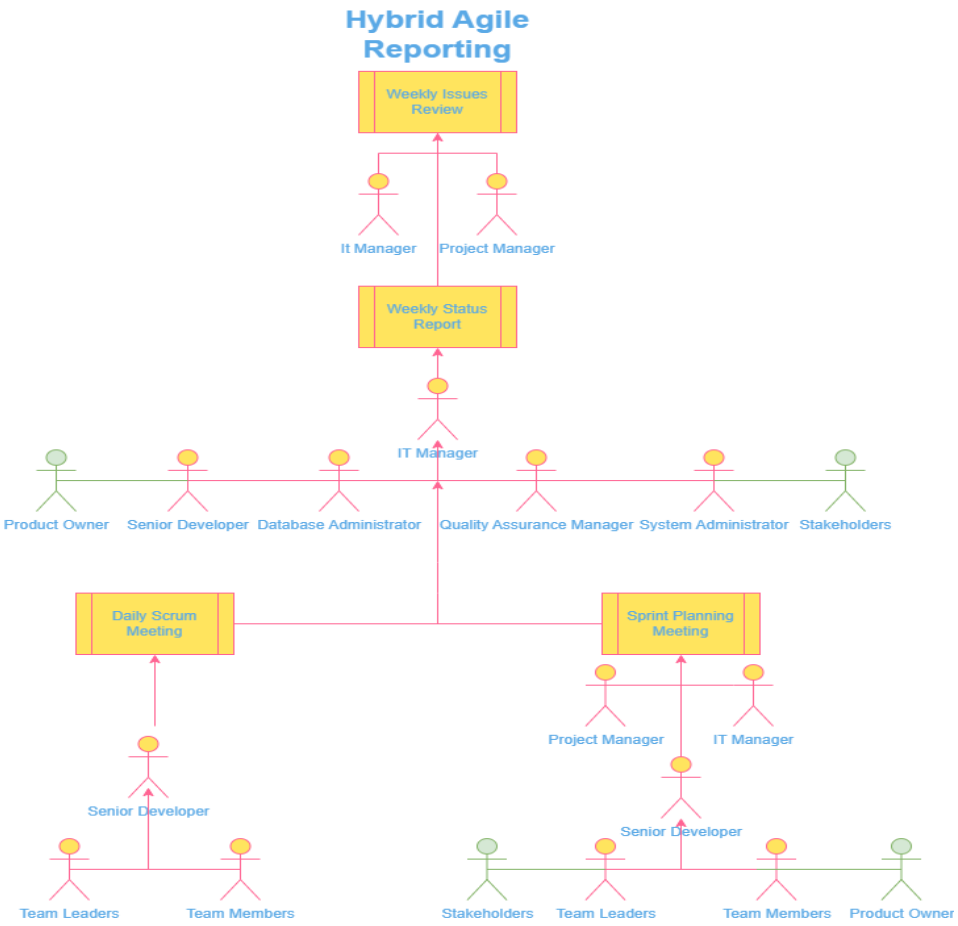

Figure 2 Agile-Hybrid Reporting Hierarchy

3.2 Hybridized Reporting Strategies

Since Medisail plans to move toward a hybrid approach to the project schedule, Agile reporting strategies will be incorporated into each increment and sprint. While the reporting hierarchy will be maintained with the new hybrid approach to the project schedule, additional Agile reporting strategies will allow increased communication and collaboration among all members and stakeholders.

3.2.1 Sprint Cycles

Project reporting during each sprint will be conducted according to each phase of the sprint cycle, when team members iteratively report their progress until the sprint is complete. During the planning phase, team members progress by assigning effort to each story in the increment as a group. The implementation and testing phases will not include reporting as team members will work individually or in small groups to develop and test their individual stories. The demo phase serves as the reporting mechanism for the implementation and testing phases, where developers share their achievements during the sprint with stakeholders and the rest of the team. The

retrospective phase is an opportunity for team members to discuss and provide feedback on the sprint. The sprint cycle is shown below.

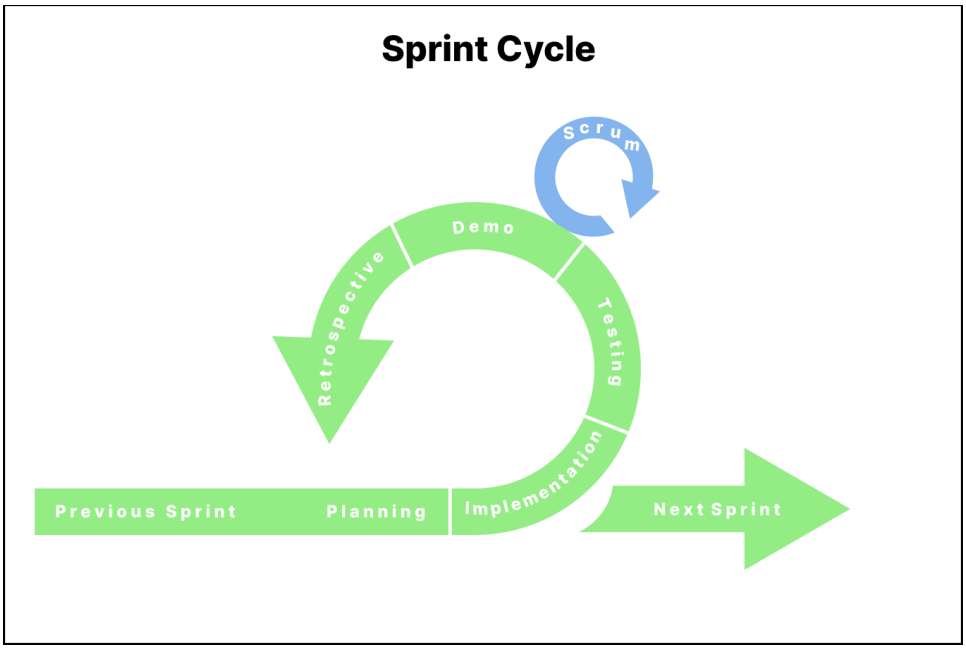

Figure 3 Agile-Hybrid Sprint Cycle

Each phase of the sprint cycle feeds into the next, allowing continuity of effort over an increment. Thus, the planning of any given cycle is influenced by previous sprints. Each morning of the sprint, a Scrum meeting will occur to allow developers to touch base on the previous day's activities and to discuss impediments. By implementing the sprint cycle, the team can take advantage of the benefits of Agile sprint planning, including cross-functional collaboration between team members and using the lessons learned from previous sprints to inform decisions in subsequent sprints.

3.2.2 Burndown Charts

Burndown charts are a very useful metric used in sprint retrospectives and planning. These charts show how many effort hours were completed over a sprint each day compared to an ideal burndown rate of the effort hours. An example burndown chart for a Medisail sprint is shown below.

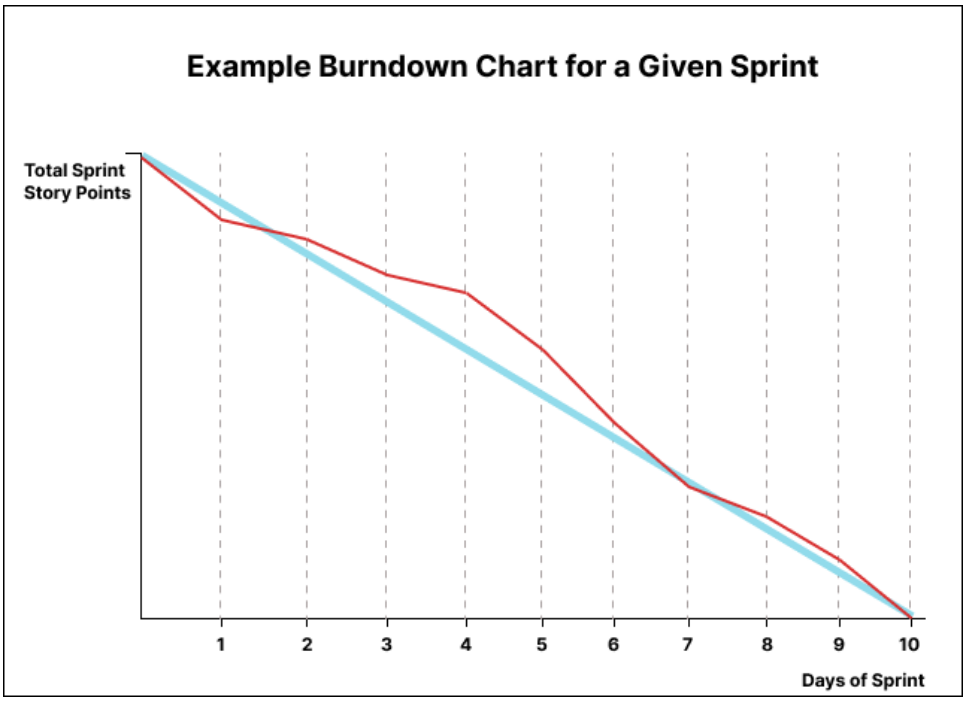

Figure 4 Example sprint burndown

Per the new project plan that incorporates Agile, each sprint is projected to last approximately 10 days. Story points will vary based on the effort hours that the team estimates during the planning phase of a given sprint so there is not a specific number of effort hours shown in the diagram, but all burndown charts will show an ideal rate at which effort hours are completed against the actual rate of completion each day. During a sprint, a burndown chart allows team members to visualize their progress day-by-day. At the end of a sprint, the team can use the burndown chart to visualize the rate of effort each day and compare that to previous sprints, possibly making inferences about workload and team cohesion. Additionally, if effort hours remain at the conclusion of the sprint, those can be incorporated into the planning of the next sprint.

3.2.3 Other Progress Reporting Metrics to Consider

A variety of other progress reporting tools commonly used in Agile environments may be used, including iteration velocity and net promotor score.

Iteration velocity is the sum of all effort hours completed in a given iteration. Essentially, it is a compilation of the data gained from the burndown charts of each sprint in an iteration. Velocity is an especially important consideration when planning future iterations or projects. For the purposes of Medisail's e-procurement project, an iteration is the same as an increment. If the team remains relatively stable, velocity is an accurate predictor of the effort hours that a new increment or project may require. The project manager may use the velocity calculation from the first increment to adjust planning in subsequent increments and predict effort in future projects, and the team can use this to inform the planning of effort hours in future increments.

The net promoter score is a metric that measures customer loyalty. With this system, customers rate a product or service from 1-10. If a rating is 9 or 10, that customer is said to be a promoter of the product. A rating of 7 or 8 means the customer is neutral or passive. A rating of 6 or below

means the customer is a detractor of the product, indicating that they are more likely to discourage other people from using the product. This metric is particularly rigorous, but it ensures that customers who rate the product highly will continue using it and promote the product to their peers. While not specific to the development of the e-procurement product, the net promoter score could be incorporated into customer feedback surveys to gauge customer satisfaction after each release phase and to inform iterative changes at the beginning of the next phase.