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**Final MRP**

For this final mini-research paper topic, I've chosen option 5 in talking about how large-scale agility is connected to my professional project experiences. As mentioned earlier in my previous research papers, my main company project is proving in the gap box test equipment so that the production team can use it to run production on the missile components for the ESSM missile. This project is very fun, but it is also very rigid because all of the requirements are already predefined in the government contract so there is not a lot of room for flexibility. That doesn't mean that there aren't ways to innovate and improve however, it's just that improvements are mostly limited to things like troubleshooting issues and developing our strategy for fulfilling the requirements. For example, we cannot do anything like change the hardware or the software without going through a lot of paperwork and getting a lot of approvals. However, what we can do is change our approach to troubleshooting the gap box like deciding whether it's best to take the equipment apart to look at it or test it at another test station to see if it's showing the same errors. Therefore, you can say that agility in the company project is not impossible, it's just that the options are more limited. Think of it like getting protein from a vegan diet, it's not impossible, just more limited.

One of the large-scale agility principles that I applied to my company project regarding the gap box is solving super wicked problems. Super wicked problems are basically like wicked problems that have no clear end-point and only better or worse, except that super wicked problems also don't really have a central authority and time is running out. One of the super wicked problems that we encountered in my company project was regarding the voltage measurements for the gap box. In an Excel spreadsheet, we have a column of expected voltage values for the different parts of the gap box and we have a column of actual voltage values that we are supposed to fill out based on what we measure. The super-wicked problem is that no matter how much we work on it, we can never get our voltage measurements to be exactly the same as the expected voltage values. It would always be off by about 0.1 or 0.01 volts. In some instances, there is no such thing as an expected voltage for that measurement because the measurements are supposed to be "tristate" meaning that since they don't have a definite state, the voltage measurement is random. This counts as a super wicked problem because the measurements are always "better or worse" depending on how close they are to the expected voltage and there is no clear end-point since you can always argue you might get a better measurement if you do it again. Additionally, time is running out because our company project is on a limited budget and time. If you seek to try to get the actual voltage measurement to be exactly the same as the expected measurement, you are basically causing the problem just by trying too much. Another wicked problem in our gap box project was making the peer review presentation perfect so that there would be no criticism. Since there's no way we can see into the future and know what the reviewers will criticize in advance, there is no clear endpoint. The best that we can do is look over the peer review presentation endlessly and see if there is anything that is wrong or seems off, but that doesn't exactly work, because they will eventually find a way to criticize us and make us change it. It's pretty standard protocol that as a reviewer you have to find something to criticize us about in the peer review, so I guess it's inevitable that no matter what we do we are going to have to make changes to it afterwards.

Type C Scrum is another large-scale agility principle applied to the gap box project. Basically, Type C Scrum is a different type of Scrum that allows teams to have more flexibility in their sprint lengths. For example, a team may do sprint increments of two weeks but in some cases, they can shorten or lengthen the time. Type C Scrum was very effective in our company project because circumstances changed which made it more practical for us to change the Sprint increments. For example, there were some stages of the gap box project that took shorter than other stages, in that case, we had to shrink down the increment time and meet at an earlier time. Usually, the increment time is 2 weeks, but sometimes we had to do the Sprint review in just one week. For example, if the current sprint is just to write and prepare for the peer review presentation, then it would not take as much time as two weeks, we can get it done in just one week. This would necessitate only a one-week sprint, if we make it longer it would be just wasting time and money. However, differing circumstances are not the only reason why we do Type C Scrum. As mentioned before in my earlier research papers, the agile practices we do in our company project is more for to show-off than actual practicality. However, now that we are already past the project deadline, management is urging us to pick up the pace here so therefore we are abandoning the agile methodologies in order to help us pick up speed. The last Sprint meeting that we had was around two months ago so theoretically this Sprint increment has been going on for two months. We may not even be holding a Sprint review to officially conclude this Sprint once this project is finished so I guess this Sprint increment will drag on until the end of time.

Despite the limitations of implementing agility in my company project, there were still many areas in which large-scale agility was applicable to our project. To be honest though, I feel that Type C Scrum doesn't exactly count because we are doing agile mostly to show off our company culture to our customers and the public. Even the higher management seems to know this, they never take steps to try to enforce us to implement agile methodologies and instead, they just leave it up to my product owner to do it as he pleases. However, despite these practical limitations, it is still my job to try to utilize the agile methodologies in the company project to the best of our ability. This is part of the reason why I took this course in the first place, so that I can educate myself on agile methodologies to apply it to my company project and to future projects when I switch out of Raytheon.

Citations

*Lectures from the course.*