# INTRODUCTION!

Do you know what you want to be when you grow up? We think that being a Technical Program Manager (T.P.M.) would be a great job where we could use our skills and experience from VEX Robotics.

Behind the screen of your phone, there are entire processes that help you get those apps that you use. Our team has investigated this career and agreed that we would all want to look into being an T.P.M. App Developer. They use the Engineering Design Process (E.D.P.) day to day, but in a different form they call SCRUM. You can think of them as engineers and scientists that experiment with different formats, designs and content.

THE E.D.P. AND SCRUM

The E.D.P. has 9 steps while Scrum has 4. To compare we decided to combine steps 1&2, 3&4, 5&6, and 7,8,&9 in the E.D.P. We compared each group of steps from the E.D.P. to just one of Scrums 4 steps. We used Venn Diagrams to show how the E.D.P and Scrum are alike and different.
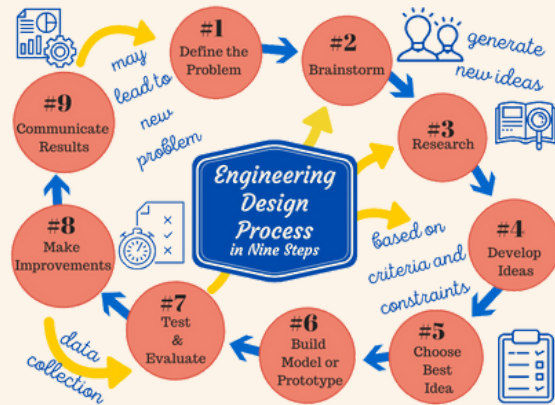
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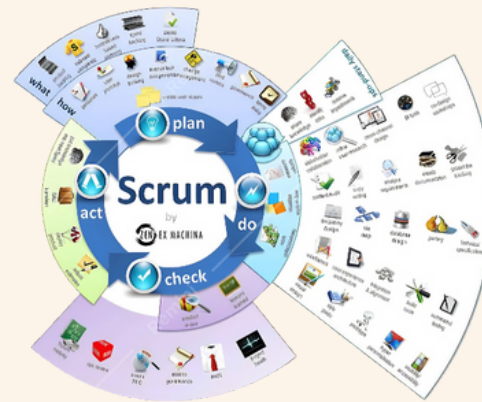
THE JOB OF A T.P.M.

VEX students all around the world use the E.D.P. as a guideline when building and modifying their robot. Technical Project Managers use their own version of the E.D.P. called Scrum. As a T.P.M they form temporary engineering teams to execute large cross-engineering programs. Some programs that they run are data migrations encrypting data in transit within data centers, and creating their disaster recovery plan in case they lose a data center.

COMPARING

-Investigate and dive deep into the problem

-Use our research to find a solution to that problem.

-Use what we know to brainstorm what we want our robot to do

-analyze all the rules, regulations, and field elements

-They both have to interpret the problem/task

-both involve planning

-both have to brainstorm and come up with ideas

-Have to share ideas

-create user stories, tasks, and estimates

-examine work that needs to be done

-pick which is the most realistic and important to achieve

COMPARING

-research our ideas that we thought of to see if current solutions exist

-use what we know and learned to develop multiple ideas/models

-both involve thorough research

-both creating model which is used as a guideline

-Execute the work that needs to be done
1. Research
2. Prototyping
3. Implementing
4. Testing
-check in with daily standups
-complete visual designs

-refine user research

COMPARING

E.D.P Steps 5&6

-We all come up with ideas to present to the group.

-We use a decision matrix to find which robot to create/build

-We also combine ideas to maximize our points

-sometimes create prototype as example and guideline

final product is based on the team's decision making and reaserch.

SCRUM Step 3

-Review work and lessons learned with the team

-Double check work/check for errors

-Work on last minute concerns/issues

-review and share lessons learned

-examine overall project health

COMPARING

-we test by driving and running our code, if we see errors we evaluate where the problem lies

-we make improvements on our design and strategies based on our evaluations

-results are documented in our notebook

-Take knowledge and use in next steps

-Test and adjust/evaluate

-Release code out into production data centers

-adjust estimates

-deploy product

-put knowledge into next sprint

CONCLUSION

   We know that VEX IQ will help benefit any future careers that we go into. The EDP is an amazing example of how today's companies/businesses work. We now know that the EDP would be extremely helpful in any career we choose. It lists out the steps to building a successful robot. SCRUM is the same, just in a different form. They both are extremely helpful, whether in VEX IQ or in the job of a T.P.M. Many other jobs use some form of an Engineering Design Process. The EDP can prepare us for other jobs and opportunities we might have. In the future, we are sure to benefit from the experience we had in VEX IQ. We might see a robot at a competition, and think, "How could we ever build this? It looks so hard." But then we realized, if we followed the process, we can do anything. When our team followed the EDP, and built a very successful robot, winning us the Excellence Award and qualifying us for States. Being in the VEX IQ program has shown us that we can thrive in any future career with the skills learned from the foundation of VEX and the Engineering Design Process.

REFERENCES

Interview with Catherine Stocker: A graduate from University of Pennsylvania. Technical Program Manager at Qualtrics

https://thinkthyme.com/blog/scrum-management-explained