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STREAMLINING? YOU'RE GONNA NEED A BETTER PROCESS!

Is Your Process Cluttered? Supercharge It!

Testing Todd

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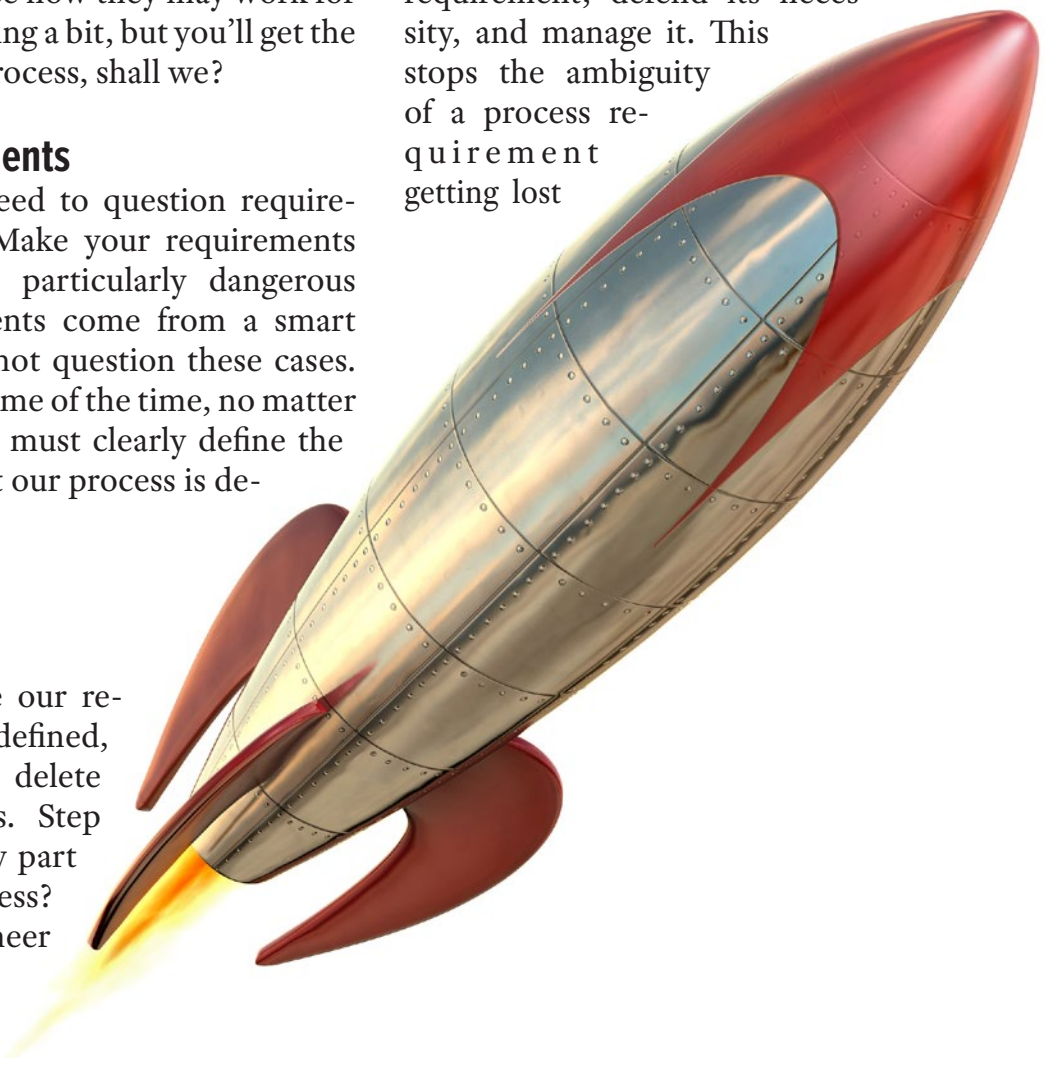
I recently came across a social media post regarding process development through the eyes of Elon Musk. Although there are many philosophies about process development, I found Elon's insight particularly interesting. He was talking about rocketry and evolution of the reusable rocket at SpaceX. I thought I would pass along his ideas and see how they may work for you. I'll be paraphrasing a bit, but you'll get the idea. Let's design a process, shall we?

Question Requirements

In step one, we need to question requirements. Elon says, "Make your requirements less dumb." This is particularly dangerous when the requirements come from a smart person. We tend to not question these cases. Everyone is wrong some of the time, no matter who you are. So, we must clearly define the requirements of what our process is designed to deliver.

Try to Delete the Part or Process

Now that we have our requirements (steps) defined, we need to try and delete the part or process. Step two: Is it a necessary part or step in the process? We tend to overengineer a process. In Elon's view, if you are not adding a process part or step back in at least 10% of the time, you are clearly not deleting enough. Also, a big mistake made in process development is that the process is assigned to a group or department. The process must be assigned to a person. They will take ownership of the requirement, defend its necessity, and manage it. This stops the ambiguity of a process requirement getting lost



and possibly constraining the overall goal. If not assigned to a person, the original person that may have come up with the requirement may have moved on and no one knows why the requirement is even in the process. This can have effects on process velocity.

Simplify or Optimize

Step three is a very important step and makes total sense. It is quite common for even a smart engineer to spend a lot of time optimizing a thing that shouldn't exist. We are all taught in high school and college to "answer the question." It's convergent logic. We cannot tell the professor that your question is dumb; we will get a bad grade. We must answer the question. So, we are trained to be in a mental straitjacket. Therefore, we then spend the time optimizing a step or part that should not exist. We need to step back and, before we simplify or optimize a process part or step, question whether that step is even necessary. If not, delete it. (See step 2.)

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Accelerate Cycle Time

In step four we want to go faster. We can always go faster. However, don't do this before you have done the previous three steps. If something has gone wrong in steps one through three, you don't want to dig your grave faster. You want to stop digging. One of the main things that slows cycle time is too many in-process testing steps. What happens is that we put quality checks in process and then forget to delete them. Albeit they are necessary during development to identify weakness or non-conformance, but if the final first pass yield is acceptable at end of line, there is no further reason for the in-process testing step and it can be deleted. By following this idea, the velocity of the process or line can be increased. It is too common that these steps are added during debug of the process and then forgotten. This leads to these unnecessary testing or check steps choking the line or process.

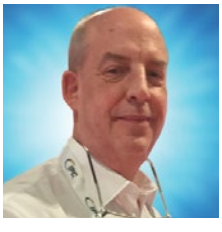
Automate

In step five, we automate. If all other steps have resulted in positive results, we need to pursue automation. This increases stability and repeatability. However, we need to think of the previous steps. We do not want to invest capital in automation when, after review, the automation is not needed, and the automation step should be deleted entirely.

Closing Thoughts

After reading Elon's ideas on process development, and developing many processes over the years, I can see I have fallen into the trap more than once. What happens is that we find ourselves doing the five steps in reverse order. After spending all the time and energy in process development, we have overengineered the process and have cost and steps that should never have been there in the first place. Doh!

Whether you embrace some of the above thinking, I found it very interesting and a good spin on process engineering. Thanks Elon. **PCB007**



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