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Quality info

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Stay At Home

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Stay Safe

Making the Failure Mode and Effects Analysis Process Leaner

Change management tools can help you streamline your FMEA process

What happens when you mention failure mode and effects analysis (FMEA) to a team? The eyes roll up, there are some groans, people get fidgety. Why? Because creating an FMEA is not the most exciting thing to do. In my experience, using some simple change management tools can not only make this easier to do but also save time. It does require a bit of up-front work and some creativity.

In healthcare, FMEAs are often used as a part of the investigation of a sentinel event. These are any unanticipated events in a healthcare setting that result in death or serious physical or psychological injury to a patient or patients, not related to the natural course of the patient's illness. It is important that these investigations are done efficiently and effectively. To do this, change management tools are used.

Here is an example of how we adopted that idea and used change management tools to lean out our FMEA process.

Understand scope

Before undertaking any FMEA, the facilitator must spend time with the process owner to understand the scope and objective of the FMEA. Is it process-oriented or design-focused? It is good to get this clarified because it affects the first column of the FMEA. It also offers the opportunity to customize the anchored weighting words in the scoring matrix.

I will use an example of a healthcare digital scorecard deployment. In this example, a Severity rating of 10 meant that there was a major data breech. A 10 in Occurrence meant it happened daily, and a 10 in Detection meant that it was undetectable until it occurred. Depending on the project, you may have to customize your descriptions for Severity, Occurrence, and Detection. Using these customized labels will enable the team to assume more ownership of the tool and speed up the process.

Identify key failure areas

The next thing that takes place is a meeting with a subject matter expert to identify key failure areas in the deployment. Doing this gives the facilitator an idea of how many main topics there are to address. In the software deployment project, the areas of concern were security, ease of use, scale up, access, communication, and training. This helps the facilitator prepare the items needed for the next tool, which has proven to be an effective way to get team engagement in healthcare. It's called a gallery walk and is used to flesh out the failure modes during the first team meeting.

Gallery walk

A gallery walk gets people engaged quickly and gets buy-in. The facilitator puts poster-sized paper on the walls of the room. At the top of each sheet is a critical topic that the failure modes will be focused on. Remember we got these from meeting with the subject matter expert.

Each participant is given sticky notes and a pen. You split the team so that every paper has three to four people at it. Then you instruct the team to put ideas on the sticky note that are related to the topic on the poster. You give them three to five minutes to do so. Then everyone moves to the next poster on their right. They have three to four minutes to add things to what is up there.

You keep moving until each team is back to the poster it started with. Each time they move, the time is reduced. It could be by 30 seconds or a minute, depending on how many topics you have as well as how many people are participating. The purpose is to generate ideas quickly. Like in brainstorming, no judgement is made about the ideas. It is strictly a way to get things identified and keep people moving. It is hard to get bored in short time sprints like these.

For the FMEA, the team was split up so that each topic had four people at it. They used sticky notes to identify failure modes. They had three minutes to do this. Then they moved to the next area and did the same thing until all the subgroups had gone through all the topics. This created a list of failure modes in a short time frame.

Afterward the team identified customer impact as a large group. This took about 15 minutes. So in about 30 minutes, we had a good start on the FMEA with about 100 failure modes and impacts identified. This completed the first session in less than an hour.

Root cause identification and controls

Before the next team meeting took place, there was work that required the subject matter experts. We split into subject-matter-expert subgroups to do the root cause identification and the controls for each failure mode. This was completed offline so that we could compile the information and then get back together for the scoring. The advantage here was that the experts gave us some good ideas for root causes and what controls were in place. We compiled the information, and we had another group meeting to finish up with the scoring.

Fist to five

This is where we used another change management tool to get the scoring done quickly and build consensus. The tool is called a “fist to five.” When attempting to get to consensus, we had participants raise their fingers and signal their agreement from 0 to 5. If three or more fingers were raised, then we moved on with agreement. If two or fewer fingers were raised, then we discussed what the divergent views were so that we could work toward some score that we could agree on.

Because we had a big team (20+ people), we split up into tables of four to score the FMEA. Each table did the Severity, Occurrence, and Detection after reviewing the

anchored weighing scores for each category. The teams scored the matrix horizontally because it was easier to weigh the frequency and controls while thinking of the criticality of the failure mode. Then we convened as a large group, and the teams took turns reporting how they scored an area.

For example, the first team told how it scored Security. The other three teams were asked if their scores were similar or different. We defined “similar” as a score that was within one point of the reporting team’s score. “Difference” was defined as more than a one-point separation. If similar, we did a fist to five to see the consensus. If different, we discussed what was different and what a consensus score would be. Doing this for the 100 items took the team about 90 minutes.

The facilitators transcribed the information, reviewed the information for accuracy, and then sent the FMEA to the project leader for review. Once the OK was given, an electronic file was sent to each team member, and a file was posted on the project’s SharePoint site. Total team time as a group was less than 2.5 hours. Much less than the 8 hours that the team had experienced on a prior project.

Now the project team wants all FMEAs to be completed the same way. It is not seen as a burden but rather as a tool that helps them as they move forward with software development. More important, it shows how using some simple change management tools empowers teams to move swiftly through the FMEA process and make more effective use of people’s time.

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