Trouble given to the next process and challenge for no failure occurrence

Q. How did you take on challenge for no failure occurrence?

We only process automotive components and the next process is assembling by users. That means failure occurrence here in our company troubles users. What is the best is no failure both in products provided for users and in processing in the company. We pay a lot of attention to a layout of lines and where to place components in order to improve quality. Automobiles have people on them for driving. If there's a failure, a life-threatening accident might be caused. So, we perceive even a single piece of hair and fine fiber of clothes as foreign substances and prevent them from being mixed into products. If we cannot check products from images in an inspection process, we check all using our eyes.

Q. Why did you first try to run user tests?

We've improved the production site hearing opinions of operators. But it's getting difficult to improve it because the production lines have gotten complex due to renovation and expansion during the past dozen years. Then, we thought of improving it in different ways. One day, we accidentally find a user test of UX improvement. Because it seemed easy, we decided to try it.

Q. What user tests did you run?

It's not a full-fledged user test. We just install some web cameras at the site and have subjects that are operators and a leader wear microphones for a smart phone.
We instructed the subjects to inspect "A". We set up a line in advance so that an alarm could occur and observed how they responded in a separate

room. We previously asked the operators to freely speak out how they felt. And we listened to the operators muttering with watching footage from the cameras. The point to be checked was to focus on expression and behavior of the operators. It's easy to understand where they got lost from their expression in the eyes and their hand movement.

Q. What was the test result?

When an alarm occurred, an operator got much irritated - "Where is **? ", "I don't know because I cannot see **.", "Manual?, I have no idea where it is.", and so on - .
It seemed that the operator did not notice the procedures of how to handle alarms which were pasted near the equipment. We really got discouraged. We thought it's very hard to make operators sufficiently aware of anything. Especially, the problem was to decide a degree of priority of alarms. An alarm was shown on an ANDON, but a layout change of lines made it difficult to see the ANDON depending on a location and that delayed the procedure.

Q. What was your solution?

We cannot install expensive ANDONS at several places in order to remodel the existing lines because it costs a lot. So, we provided multiple tablets with Pro-face Remote HMI that is inexpensive and flexible software mounted so that we could see HMI screens at different places.
We thought of where to put the tablets in order that the supervisor and the leader could see alarms at the time of their occurring on the watched line. That allowed us to flexibly respond to layout changes.

Q. What changed after the measures above were taken?

Because the line's length was 50m, it was difficult to see display of the ANDON from a remote location. But it's easy to see it at nearby areas now. And the old ANDON displayed only one alarm message at one time, so when multiple alarms occurred, it took a lot of time to check all messages because

they ran one by one in order. One day, an operator didn't notice multiple alarms occurring at the site and he dealt with the alarm displayed on the ANDON first of all when checking it. He overlooked a critical alarm that might affect the next process a lot.

But, using Pro-face Remote HMI allows you to get all of multiple alarm messages displayed on a tablet nearby and decide a degree of priority of errors. Recovering from the most critical alarm first of all can shorten a downtime.

Q. What are other advantages?

For the old ANDON, it costs several thousand dollars(US) to add new characters to display messages because it needs to be outsourced. We can now edit with screen-creation software called GP-Pro EX by ourselves. Because we quickly respond to opinions from the site, the production engineering unit and the production unit have promoted trust in each other. We have been receiving more opinions from the site and we think that's great.