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Virgin Orbit's Goryca describes 'fast and furious' implementation of MES software

By Brett Brune, Editor in Chief, Smart Manufacturing Magazine

LONG BEACH, Calif—It is possible to implement MES (manufacturing execution system) software that does away with paper documentation in less than six months, Andrzej Goryca, senior enterprise systems manager at Virgin Orbit, said today at the AeroDef Manufacturing conference here.

Virgin Orbit, a two-year-old firm preparing to launch small satellites midair using a rocket attached to a modified 747 aircraft it owns, works to "make space more accessible to people by bringing the price down for launches of satellites," he said.

In on the ground floor at Virgin Orbit, Goryca and his team first rolled out an ERP / MRP foundation from Oracle. At the same time, the team initiated an MES selection process, selected iBASEt's Solumina MES platform by December of 2016 and began implementing it by late January 2017. "And by Cinco de Mayo, we were in production," he said to a packed room at the conference. "So that's fast and furious" and highly recommended.

On average, it takes a smaller company like Virgin Orbit at least a year to implement an MES, he noted.

To speed implementation, "first, we chose an uber-functional solution," Goryca said. "We chose a solution that has a lot of stuff out of the box" so employees at the Long Beach-based company could immediately start playing with it.

His team started off with a pre-defined scope to ensure a successful MES implementation.

"Some people think that in agile implementation, you … just go wing it: get some requirements and figure things out and put it in and then keep going—that it has less structure" than implementations of yore, Goryca said. "Actually, it is the opposite: In order to be agile, you have to have a really good process behind it because you have to be very fast."

In addition to defining and agreeing on the initial scope ahead of implementation, it is also important to make sure "the right team members are on the core team," he said: "We have people who are going to be the end users. We have people who are going to manage the end

users. We have people who are satellite supporting functions," such as quality reps, supply chain reps and engineering reps.

Getting a new MES "out there in a working state quickly" is key, "so you can learn from it and do another go-about," Goryca said. "Rather than just doing a 'science project' or getting into 'analysis paralysis, … we focused on structuring the project right and doing the right things up front and then rolling it out super-fast."

A man in the audience asked how difficult it is to update MES software as necessary tweaks are discovered.

"What's hard in the software industry is how to make it flexible and functional at the same time," Goryca replied. "Solumina has decent flexibility. It's not the most flexible solution on the market. I think it is the most functional in our industry. It has some flexibility that allows us to do things on our own. We're very nerdy in that regard: We just want to get in there and do it ourselves. We were able to make a lot of changes ourselves. The product itself is configurable in that you can switch some settings. It has pretty powerful options there."

Picking team members who are passionate about digitization and who have needed expertise is helpful, he said. "Don't be afraid of picking people who are very opinionated; you want them."

Getting buy-in from both the top and the bottom is important, he added. Walk key stakeholders through the process and "keep them informed" along the way about steps being taken at particular times, progress toward the project's deadline and challenges that arise.

Be proactive whenever possible, Goryca suggested. "Tell them what you are going to do—and then go do it." When that's not possible and wild innovation springs out of nowhere, "go ask for forgiveness."

One of Virgin Orbit's core visions is "one user, one system."

"Systems today tend to creep in," he said, twisting his shoulders and snaking his arms in front of him to illustrate discomfort. "We have all these accounts for a single person. Just think of all the systems you use today. You can't even name them!"

Virgin Orbit strives for the vision of "every customer of ours just using one system for their work," Goryca said. "It sounds very utopian, but if you keep that vision in front of you, you'll avoid making it the opposite."

It is also a good idea to "always have a Plan A, and B, and C," he said.

While his team at Virgin Orbit started out thinking the MES would go live with the whole factory, it ended up needing to limit immediate use to composites. Similarly, his team decided to avoid starting electronic tracing of any product halfway through its build. Instead, it began using the MES to trace the next rocket to be made.

Another person in the audience here asked, "Why MES in the first place?"

ERPs are not built to work efficiently on the shop floor, Goryca said. And paper is expensive "and very expensive if you lose it. And you can't have the digital thread with paper. You can't have the digital thread if you have gaps."

For companies with objectives like Virgin Orbit's—"to achieve a whole launch backwards: launch data, test data, assembly data, planning data, design data and requirements data, and to collect all of that data in one digital thread" that makes errors and deficiencies in manufacturing easily traceable—"you've got to have an MES," he said.