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Endurica evolution moves forward

35-year Goodyear veteran Tom Ebbott joining team in VP role

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KNOXVILLE, Tenn.—Will Mars never doubted the potential of the durability simulation software at the core of Endurica L.L.C. And since the company's founding nearly 15 years ago, Mars and the rest of the Endurica team have proven that potential to customers across the rubber industry.

Today, Mars and his team continue to work to improve the software's capabilities by increasing its efficiencies and capabilities as they also work to grow Endurica's customer base. And in the years ahead, they will continue to do both with some key insights from another industry veteran.

Mars, president and founder of the Findlay, Ohio-based company, said during the International Elastomer Conference Oct. 12 that Endurica has hired Thomas Ebbott as vice president.

Ebbott brings more than 35 years of industry experience to the Endurica team, having most recently served as R&D fellow at Goodyear. Prior to that, he was global manager of simulation technology for Goodyear, a position he stepped into after serving as manager of computational mechanics at Goodyear's Technical Center in Colmar-Berg, Luxembourg.

Ebbott began his career with Goodyear in 1987 right after earning his Ph.D. at the University of Wisconsin, where he focused on viscoelasticity and fracture mechanics in polymers. His career with the tire maker included a number of leadership roles, including working as team leader for the design and development of aircraft tires and retreads.

"I am really excited (about) becoming a member Dec. 1 of Team Endurica," Ebbott said during the IEC, "and I am really looking forward to working with Will and the team to really grow the business as well as have an impact for all the custom-



Rubber News photos By Erin Pustay Beaven

Industry veterans Tom Ebbott (left) and Will Mars will lead Endurica L.L.C. as it looks to grow in existing markets. Ebbott's expertise will help with the company's focus on the automotive industry.

ers in terms of growing their business and making it more efficient and more reliable."

There's good reason for the timing of the new appointment. Simply, Mars said, Endurica is growing. And it's doing so at clip of about 20 percent per year, according to Mars.

The years ahead are likely to bring more of the same for Endurica, especially with so much of the industry being redefined by new technologies and shaped by sustainability.

"We are living in extremely disruptive times, and everybody's business models are being torn completely down and you are having to rebuild everything," Mars said. "And when we rebuild, there is such an opportunity for simulation. When you rebuild, there is a lot more risk than when you go incrementally. And simulation is how people are going to manage that risk, I think."

And as companies industrywide navigate those challenges, Endurica is positioning to help them rethink their approach to product design and materials selection.

Simulation, after all, is going to be key in both areas, Mars said. And for durability simulation, particularly, companies will be turning to Endurica.

"These days, that simulation workflow is penetrated very deeply into everybody's business. We (at Endurica) don't simulate everything, we specifically simulate durability, and we are the only ones in the world who do that. But there are a lot of people who need to simulate durability," Mars said. "... There is a vacuum, and we are the thing that fills it."

This also is where Ebbott fits in. An industry veteran with more than three decades of simulation and product testing analysis under his belt, Ebbott brings a wealth of knowledge to his new role.

"You have to know how to take these simulation workflows and work them so they can be producing value for people's businesses," Mars said. "Tom has been doing that for years now, specifically with things like durability. So he knows exactly how these tools create value."

But more than his understanding of the value of durability simulation, Ebbott brings a keen ability to communicate how

durability simulation can bring value to a company, while matching Endurica's capabilities with a company's needs. That is especially important, Mars said, considering there are still quite a few durability simulation and analysis skeptics.

"Part of our job is to communicate and market, hey, you can do this and it does create value," Mars said. "(Durability simulation) is not just a crazy Ph.D. research thing. It is going to equal lots of dollars for your bottom line."

Potential for growth

In his new role with Endurica, Ebbott will focus on helping it grow within existing markets. And among those markets with the greatest potential for growth is automotive.

It is, after all, in the midst of some unprecedented disruption.

Ebbott pointed to the new mobility space as an example. The way we move from point A to point B is changing, he said, and consumer expectations are changing with it. Trends ranging from electrification and autonomy to connected cars and fleets are redefining the auto industry.

"You start to think first about electric vehicles. They have higher torque, higher loads and they have all these new ways of designing tires and other elastomer components for the lifetime," Ebbott said, noting that is where Endurica and its durability software can make a difference.

Down the road, there could be even greater opportunities for Endurica with connected mobility.

"You have an opportunity for judging reliability, judging where you're at in a real-time situation," Ebbott said. "That may be a stretch, but we have talked about what that would look like to have Endurica on board ensuring the reliability of your elastomeric components.

And it's not just the technology driving the disruption throughout the auto industry. There's a sustainability push as well. For rubber products makers and their customers, that means finding new, more sustainable materials.

It also means finding more sustainable materials sources.

"Sustainability," Ebbott said, "is something that we are all concerned with, something that we all should be involved with all the way from new, raw materials to using materials in a new way or finding new sustainable sources. One of the primary concerns or challenges is ensuring the durability of these new materials."

Endurica, he said, can help with that.

Collaborators, customers and co-workers

Mars' and Ebbott's careers have intersected in expected and unexpected ways.

They've worked together on simulation, given that Goodyear is a customer of Endurica's. But they've also crossed paths professionally through organizations, conferences and networking.

Both members of the Tire Society, they found themselves challenging and inspiring each other with ideas and insights. They also worked closely together to bring the Tire Society's quarterly Tire Science and Technology Journal and its peer-review process to an online format.

But long before that friendship blossomed, Mars found inspiration from Ebbott's work. While focusing his Ph.D. studies, Mars ultimately decided to dive into durability. And it was work that Ebbott had published while at the University of Wisconsin in the late 1980s that inspired Mars to do so.

"He was publishing stuff that I read when I was starting to think about my Ph.D.," Mars said. "I kind of grew up reading his stuff and thinking, 'Hmm. What do I do with that?'"

Now, as vice president of the company Mars founded nearly 15 years ago, Ebbott will play a key role in helping to shape Endurica's growth. This means helping to challenge Endurica's path forward while showcasing exactly how durability simulation can enhance product development and provide financial benefit to customers.

That's especially necessary now as Endurica continues to improve its software's capabilities.

"We have been investing a lot in how do we make our code faster. We announce these things and I don't know that any-



Tom Ebbott shares his vision for helping grow Endurica during the International Elastomer Conference in Knoxville, Tenn.

one follows it because it is so technical that it is like only three eggheads in the world understand," Mars joked.

Jokes aside, Endurica's software is getting better. It's faster than ever before and its capabilities continue to increase.

"Last year, we parallelized our code, which means that what used to run on a single process, now—if the job is really big—it can say, 'oh, you have 100 processors? We'll let's divvy it up and the job runs 100 times faster,'" Mars said.

"Jobs that you could never think of doing before because they were so compute-intensive, now you can do them because it's not only the physics of the software, it is the management of the calculation, of how do you divvy this task up so that lots of processors can get it done. Part of what we have had to do is make things scalable."

With software that can compute so quickly, customers can get answers to their durability questions in a matter of days or weeks. And when they can take that information and combine it with other simulation-based insights, they are able to make more informed decisions about how to move forward with business plans.

"I can push the gas pedal on this and put it on the big compute server and get an answer next week," Mars said. "Now it can inform decisions that are million-dollar questions: Do I invest in a mold or invest in a plant? These kinds of things can be informed by modeling where they couldn't before."