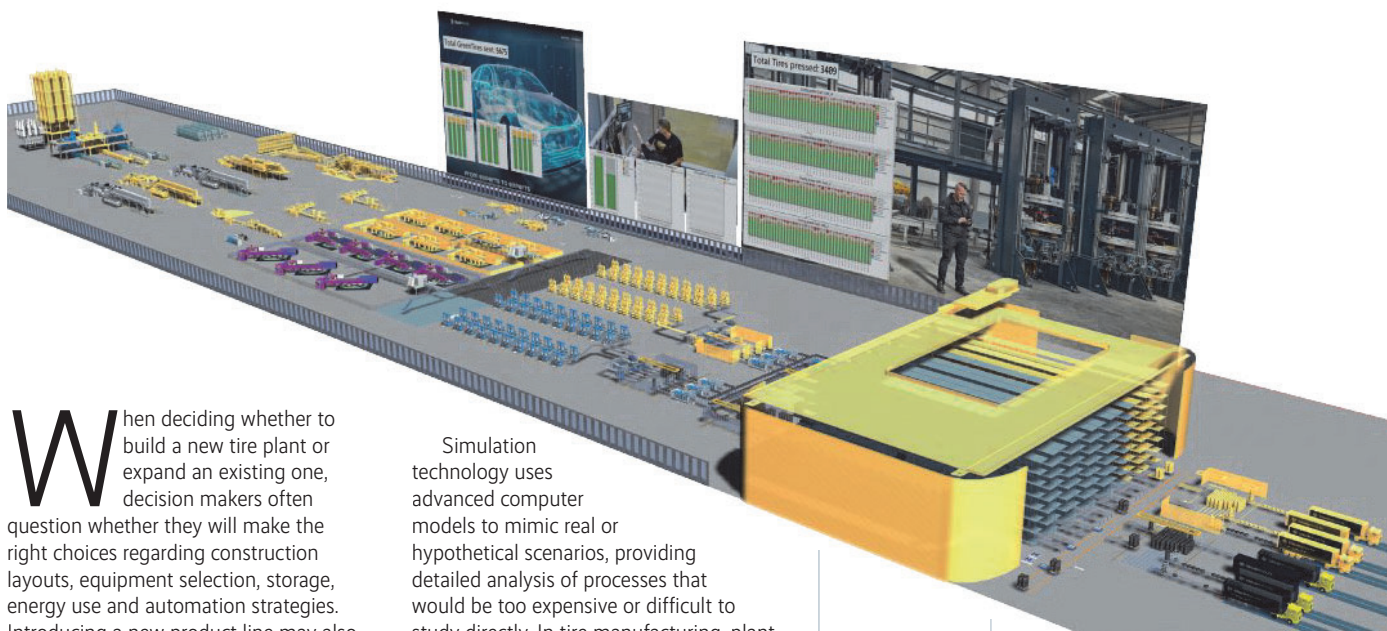


SIMULATION TECHNOLOGY FOR TIRE MANUFACTURING

Advanced digital twin technologies can play an essential role in decisions to build new tire production facilities or expand existing sites



When deciding whether to build a new tire plant or expand an existing one, decision makers often question whether they will make the right choices regarding construction layouts, equipment selection, storage, energy use and automation strategies. Introducing a new product line may also raise questions about its impact on current operations and how it will affect existing production. But what if there were a way to test these scenarios in advance?

Black Donuts is developing a digital twin – a virtual model of a tire factory – that simulates ‘what if’ scenarios. This advanced tool is engineered to optimize the design and operation of tire plants, enabling manufacturers to navigate complex processes with greater precision. The result? Enhanced efficiency, reduced costs and more sustainable operations that drive the industry forward.

Simulation technology uses advanced computer models to mimic real or hypothetical scenarios, providing detailed analysis of processes that would be too expensive or difficult to study directly. In tire manufacturing, plant simulation uses discrete event simulations to model key steps in the process, skipping the time between events. This method offers valuable insights that can greatly improve real-world systems.

Whether a newcomer is planning an end-to-end fully automated greenfield tire plant or an established manufacturer is looking to fine-tune an existing facility, Black Donuts’ simulation technology is a game-changer.

Consider, for example, the performance of a curing press standing post or roll-in bladder structure. With digital twin

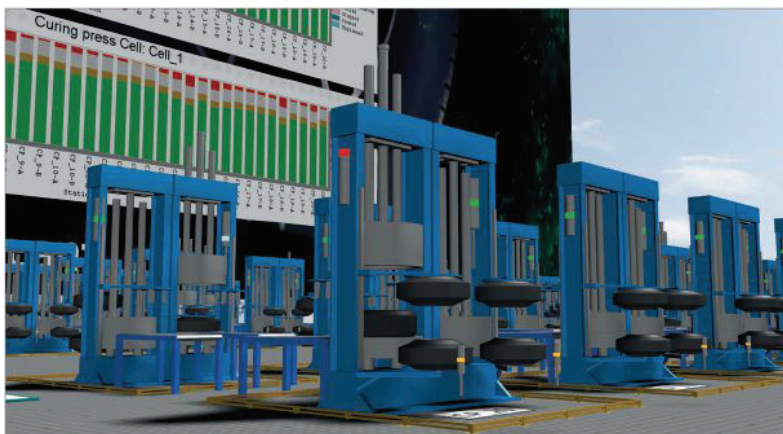
Above: A simulation of a complete tire plant

Below: Simulating curing using Black Donuts’ technology

technology, it’s possible to compare and analyze these machines in real time, identifying inefficiencies, predicting wear and optimizing performance – all without interrupting production. Decisions become not just informed but precise, minimizing risks and maximizing efficiency.

A digital twin doesn’t just provide insights, it gives users control. It’s possible to simulate labor performance, energy consumption, automated logistics and more, allowing a comprehensive understanding of operations. This enables companies to make smart decisions and guide their manufacturing processes effectively. By exploring ‘what if’ scenarios, it is possible to foresee challenges and avoid potential problems.

Black Donuts has designed more than 50 tire plants and partnered with 20 of the top 25 tire brands, offering unmatched expertise. Its deep industry knowledge and purpose-built simulation capabilities enable manufacturers to conduct a thorough risk analysis and avoid costly mistakes. ●



Black Donuts

To find out more, scan the QR code or visit: www.blackdonuts.com