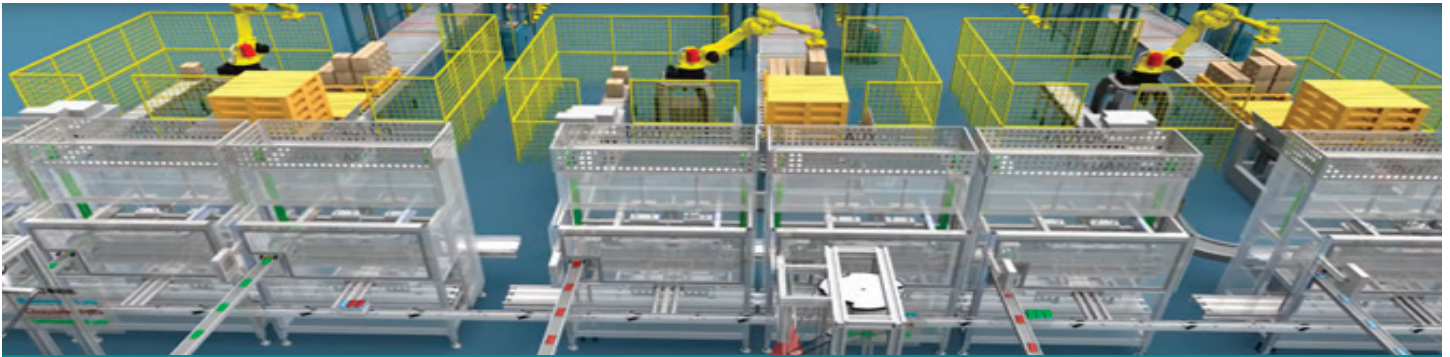


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From Experience

Image source: Emulate 3D by Rockwell Automation

Bringing Processes to Life with Modeling and Simulations/Emulation

Remember Sim City? First released in the late 1980s, this enduring video game introduced many of us to the world of modeling and simulation/emulation. Today's modeling and simulation/emulation technologies, though, have advanced far beyond the world of the Sims: They are used worldwide in a variety of industries to bring facilities and operational processes to life virtually before capital investments have been finalized. Virtually bringing together an entire manufacturing facility using modeling and simulation/emulation, all the possibilities of a new facility or a new expansion...different modifications, upgrades, additions...can be explored within a controlled and cost-efficient environment. As a result of these explorations, facilities can determine which capital investments will yield the best returns.

Modeling and simulation/emulation are particularly beneficial for manufacturing, packaging, distribution, and warehousing. We can use such technologies to imagine how each of these segments of the production process interact with, and are affected by, one another. Through modeling and simulation/emulation, we can optimize capacities for packaging and warehousing, or adjust controls systems such as Program Logic Controllers (PLCs) and Human Machine Interfaces (HMIs) to improve throughput and accumulation without causing downtime. We can even instruct new personnel on such systems in a safe and effective manner.

Continued on next page. >

EXPERIENCE IN BRIEF

The term simulation/emulation is used quite a bit in this article. So, what's the difference? A simulation program is a computer-based model designed to predict behavior. On the other hand, with an emulation, the real hardware or software is duplicated so that changes can be applied and studied.



In addition, modeling and simulation/emulation provides companies with the ability to work more effectively and efficiently, with fewer risks and less wasted time and resources. Using these tools, we can identify the effects from:

- Inefficiencies and bottlenecks in manufacturing processes.
- Changes to conveyor speeds.
- Equipment, e.g., forklifts and hand trucks, within flow of materials.
- Downtime (from breakdowns or routine maintenance)...

...all without the need to implement changes in the real environment.

Is modeling and simulation/emulation right for your environment? The answer is likely 'yes.' Many production facilities can benefit in some way from the application of modeling and simulation/emulation programs, particularly when looking to make changes within the existing environment.

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