

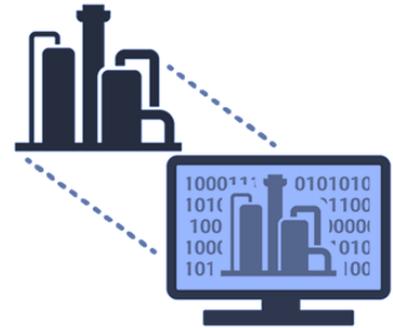
Simulation

Simulation Could Improve Your Production & Performance

Iowa manufacturers are embracing the virtual world simulation to boost their bottom-lines. Simulation programs allow manufacturers to create and experiment with virtual representations of parts, facility layouts or processes. The programs are used to test, troubleshoot and validate parts, products, systems and new ideas without physically moving heavy equipment and machinery around or incurring many of the expenses associated with prototyping and failure testing. Do you have an area of production, assembly, inventory or logistics that need improving? Simulation may be worth considering!

Simulation can assist in many common aspects of manufacturing including:

- ✓ Designing and balancing of assembly lines
- ✓ Throughput and capacity planning
- ✓ Process improvement and bottleneck analysis
- ✓ Inventory management
- ✓ Facility layout and resource allocation
- ✓ Clarity of work instructions and revision management
- ✓ Programming robotics and automation equipment
- ✓ Improving build quality and validating alternative raw materials
- ✓ Parts or tooling design and testing



Webinars, Videos or Podcasts to Check Out

- Technically Iowa Podcast, [Simulation & Manufacturing with Altair](#)
- [3D Manufacturing Simulation 101 | How Does 3D Manufacturing Simulation Work?](#)

CIRAS Webinars on Demand:

- [Simulation – Plant Layout Tools](#)
- **CIRAS Industry Technology Video**
 - [Simulation](#)

Public sector resources for your business:

- [CIRAS](#) offers assessments and assistance with cost benefit analysis, process improvements and integration planning, among other services. [Click here to see how CIRAS helped MalvenWorks using simulation services.](#)

Simulation Software Vendors:

- [Altair](#)
- [Simul8](#)
- [Simio](#)
- [Siemens](#)
- [AnyLogic](#)

Disclaimer: This is not meant to be a comprehensive list of service providers

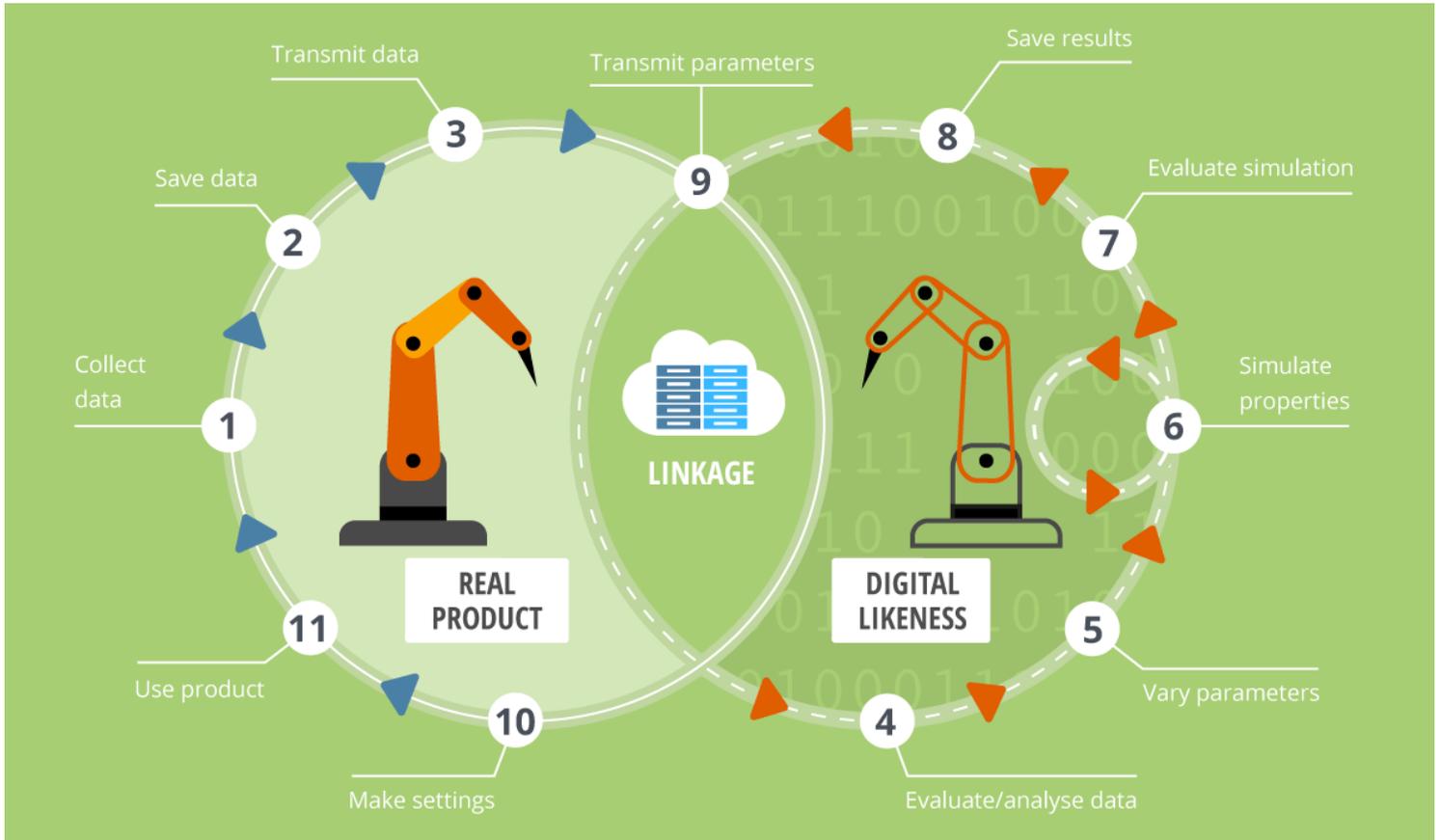
Articles

- ✓ [Simulation in Manufacturing: Review and Challenges](#), an article in *ScienceDirect*
- ✓ [Process Simulation and its Benefits](#), an online article on CRB Group's website. The site includes [multiple simulation articles](#) on its "Insights" tab.
- ✓ [Five Considerations before starting your next simulation project](#), an article from Flex.

What do you need: A Simulation Model or Digital Twin?

A simulation model depicts a process or activity based on operational data and tests or simulations are based on previously collected data. A digital twin is a model that depicts a real object and then uses real time data to simulate the impact of any proposed changes. Which is appropriate for you comes down to the data you need to build the model and for decision-making (existing or real-time), the data you are able to collect (networked or not networked), and the resources you have available (technology know-how and funding)

Cycle of Improvement:



- *The University of Northern Iowa EDA University Center - Institute for Decision Making*
- *Hawkeye Community College Corporate & Business Solutions*
- *Iowa Manufacturing 4.0 Consortium*