

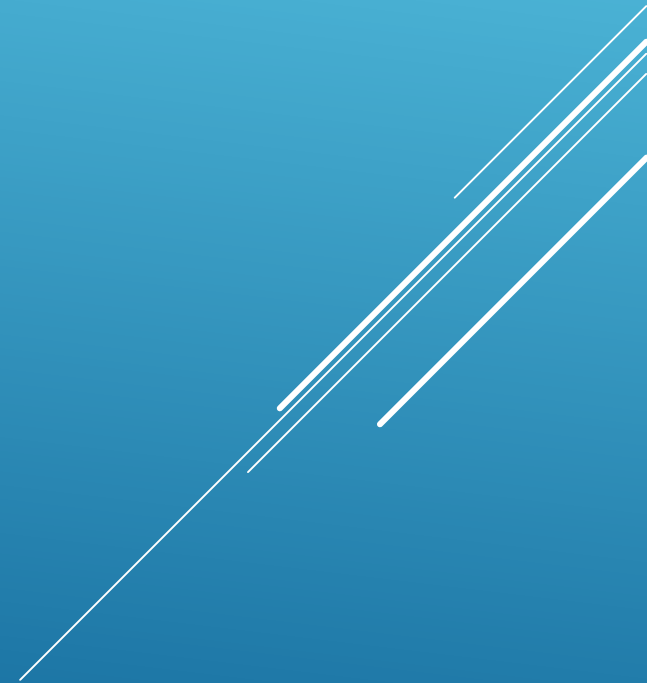
STANDARDIZATION/ MODULARIZATION OF PROCESSES

ASPEN AUTOMATION

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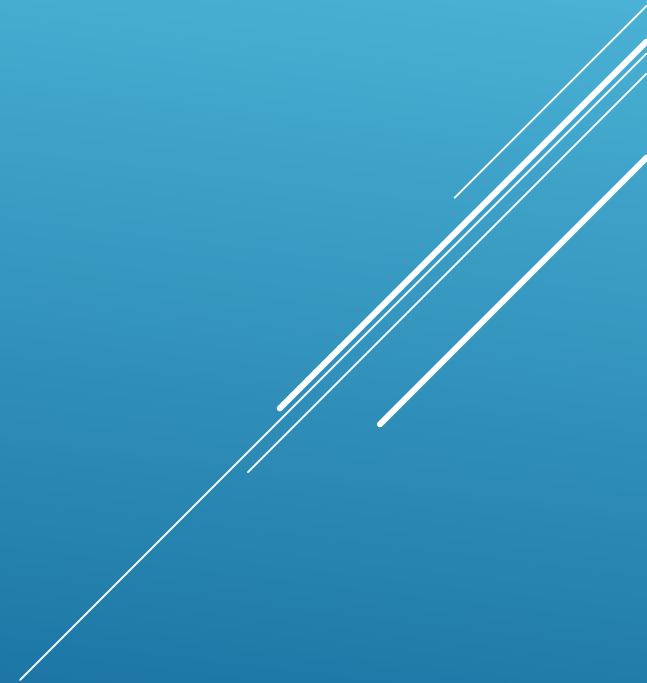
- ▶ Increase production/throughput
- ▶ Increase process quality and control
- ▶ Simplify process or systems functionally
- ▶ Simplify troubleshooting or maintenance
- ▶ Allow for process flexibility for multiple products with a cell
- ▶ Ability to scale a process

WHY COMPANIES DESIRE MODULARIZATIONS



- ▶ Reduce equipment requirements
- ▶ Reduce floor space requirements
- ▶ Simplify BOM (Maintenance) crib requirements
- ▶ Simplify trouble shooting

PROCESS ADVANTAGES OF MODULARIZATION



- ▶ Evaluate a customer's process
- ▶ Understand their goals
- ▶ Determine process capability
- ▶ Breakout the process into its simplest functional tasks
- ▶ Develop new process flow & system design

HOW DO WE MODULARIZED PROCESS



- ▶ Can look like/feel like an automated manufacturing cell
- ▶ Various types of conventional machines that are put together in an assembly line or manufacturing cell type arrangement
- ▶ Interchangeable equipment/modules within a process to account for the various products and process
- ▶ Batch process systems
 - ▶ Unit System
 - ▶ Equipment

WHAT DOES A MODULARIZED
PROCESS LOOK LIKE

- ▶ Design equipment to handle various raw material for batching and process within a manufacturing facility
- ▶ Ability to standardize a material type to a process set-up
 - ▶ Dry Ingredient
 - ▶ Unloading
 - ▶ Slurry
 - ▶ Batching
 - ▶ Liquid Ingredients
- ▶ Control/Automation of the process

MODULARIZED COMPONENTS

- ▶ Fertilizer Industry – Production & Process
- ▶ Ag. Supplement Process
- ▶ Automotive Manufacturing

APPLICATION/EXPERIENCE TODAY

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