

Factory Design Suite Manufacture Products GREAT!

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Class summary

Manufacturing efficiency is critical to providing the margins necessary to succeed as a business.

Factory Design Suite provides planning and simulation tools that can drive well-built factory lines.

Using Process Analysis 360 and Material Flow Analysis in AutoCAD for Factory Design, we'll show how a step-by-step method to build optimized factory layouts, demonstrating how the two tools complement one another

Key learning objectives

At the end of this class, you will be able to:

- Set up a process analysis
- Set up a material flow analysis
- Link the information between process analysis and material flow analysis
- Optimize your factory with material flow analysis

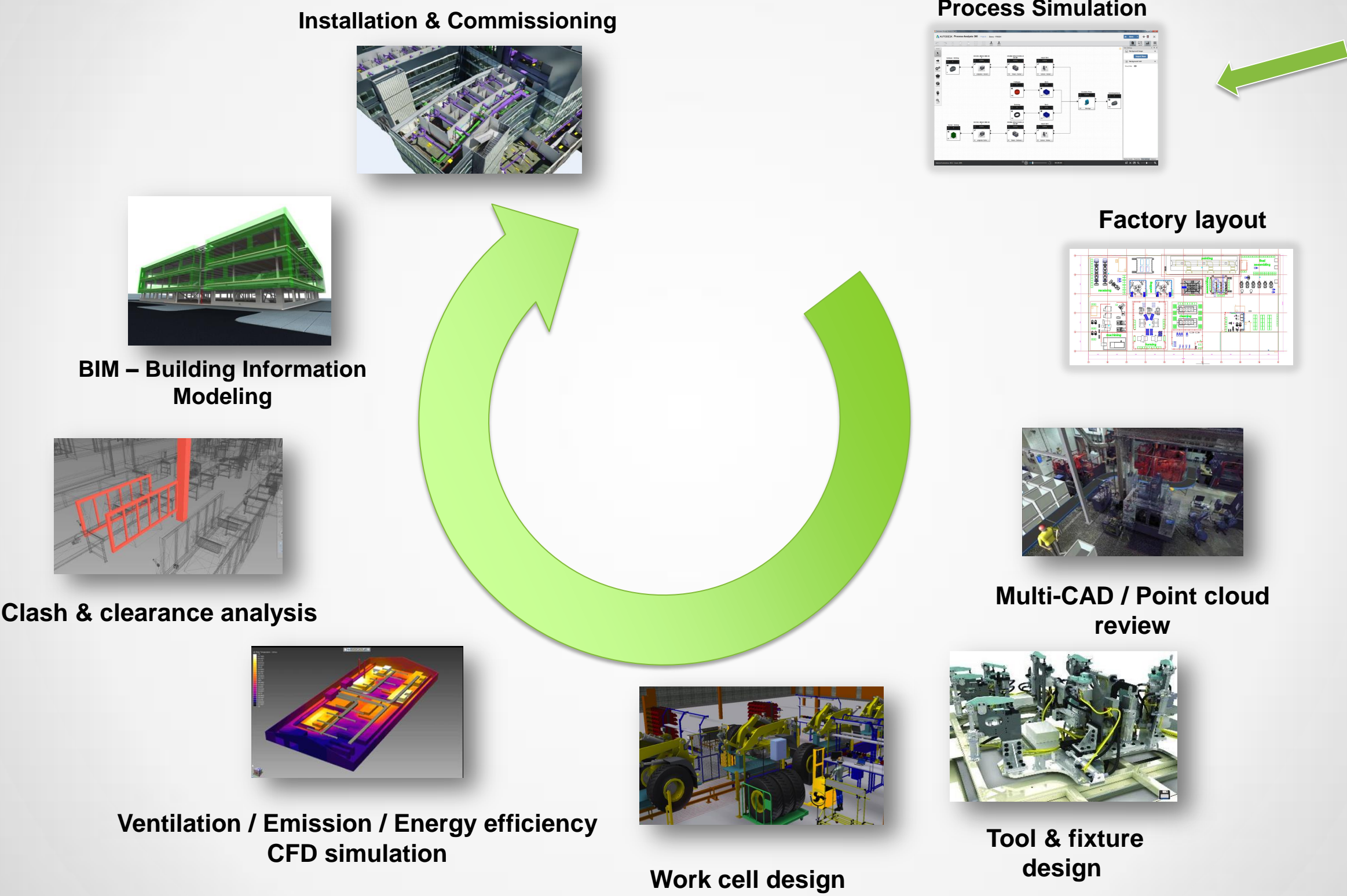
How to Use FDS to Link MFG activities together

Linking Production Planning, Facility Design, Equipment Layout

Defining Workcell, Workholding, and Conveyance to Support Production Rate

Streamlining Installation and De-commissioning

Autodesk digital factory solutions

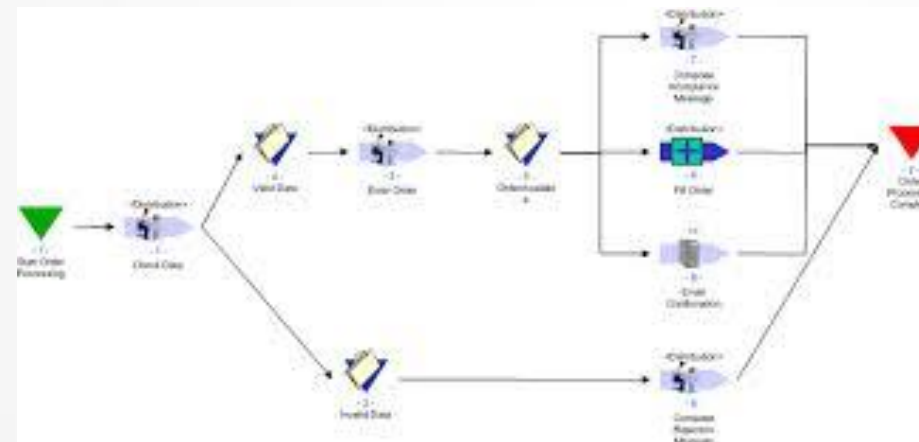
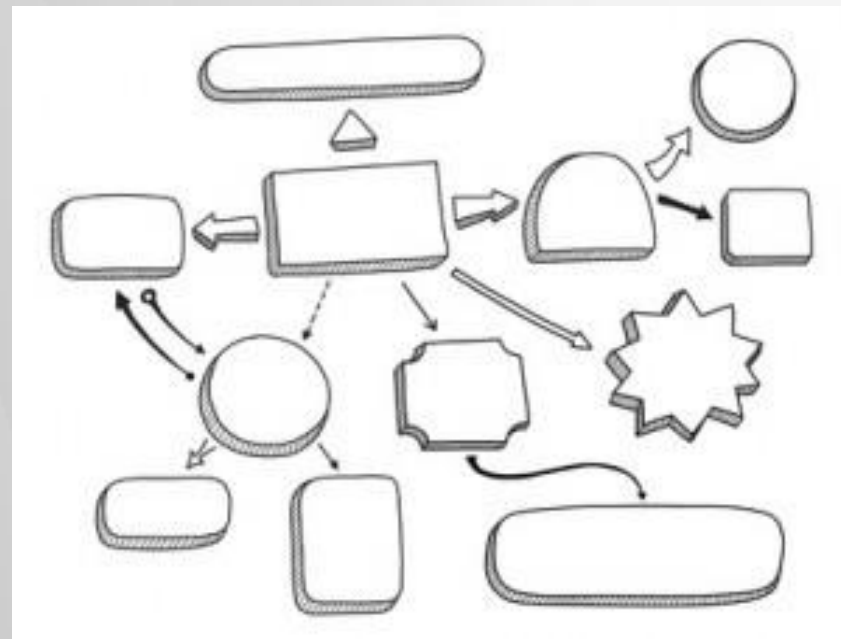


Starting a New Manufacturing Line

Building to Plan

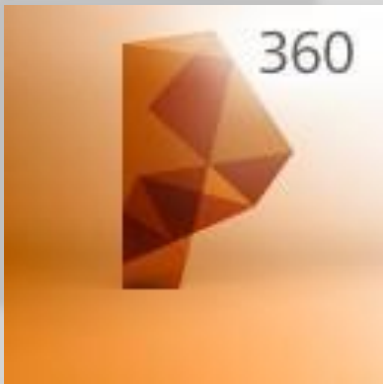
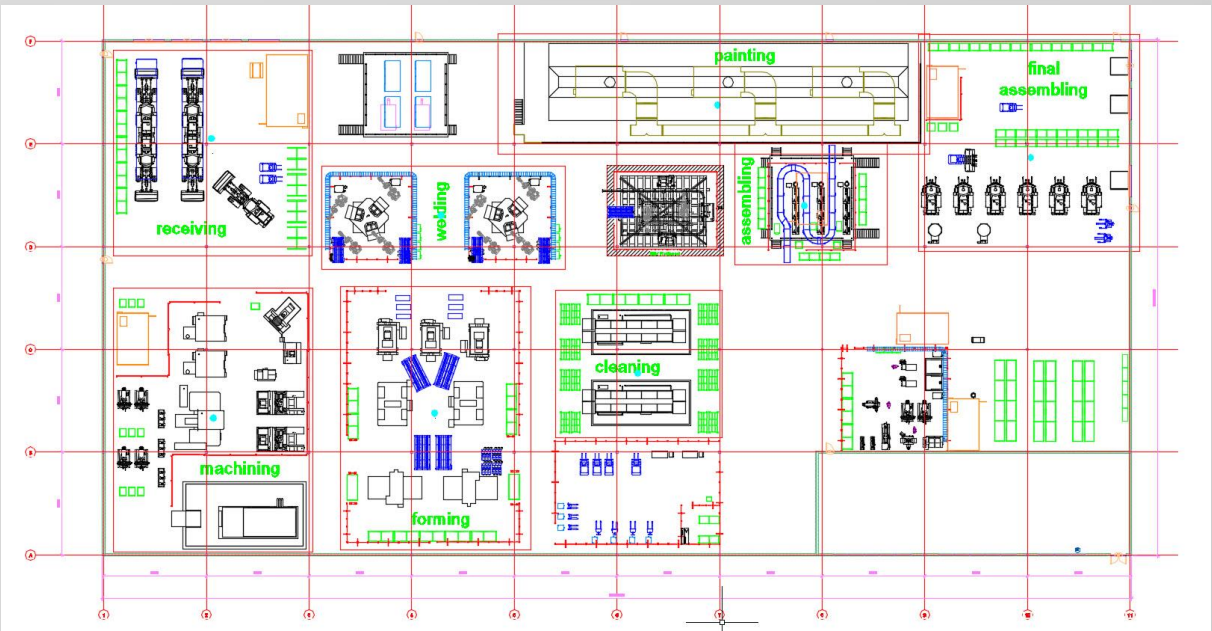
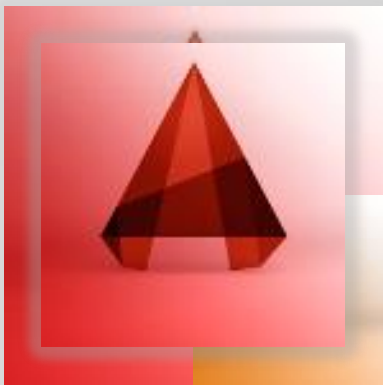
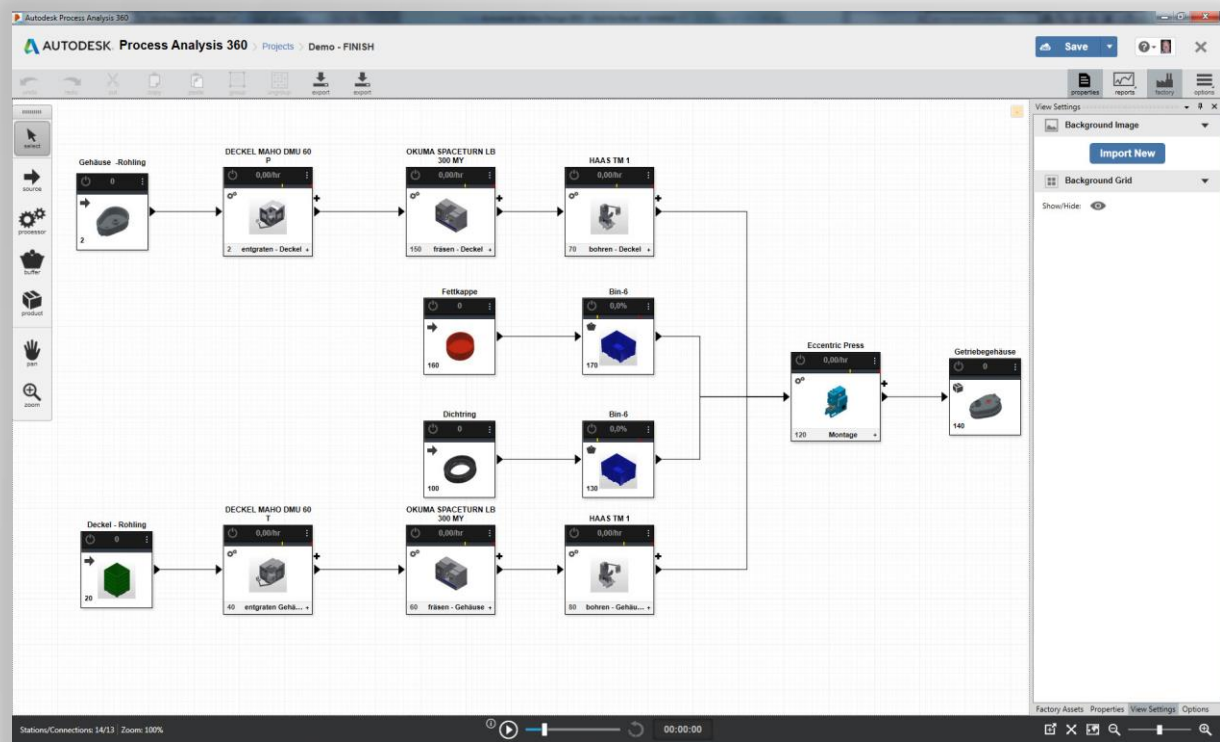
Current Process

- Excel, Visio, PPT or similar tools
- Limited graphics capability
- Difficult to link plan and documentation

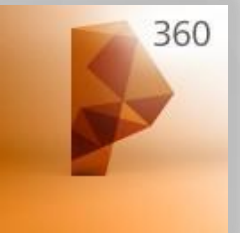


N37											
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3		2	0	400	600 cover	10	0	60			
4		3	0	400	800 shaft with friction bearing	10	0	60			
5		4	0	400	1000 Malteser wheel	10	0	60			
6		5	0	0	0 cam shaft	10	0	60			
7		6	0	0	200 carrier	10	0	60			
8		7	0	0	400 sleeve	10	0	60			
9		8	0	0	600 washer	10	0	60			
10		9	0	0	800 snap ring	10	0	60			
11		10	0	400	1200 screws	100	0	600			
12	ID	Type	X	Y	Name	Capacity	Capacity Upper	Capacity Bottom			
13		20	2	700	200 Buffer	5					
14	ID	Type	X	Y	Name	MTBF	MTBF Variability	MTTR	MTTR Variability	Utilizatio	
15		50	1	1000	600 assembling	4400		60			
16		60	1	400	200 preinstallation	4400		60			
17	ID	Type	X	Y	Name	Target Quantity					
18		200	3	1300	600 Gearbox	10					
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28		112	5 C9		7	60	1	1	1		
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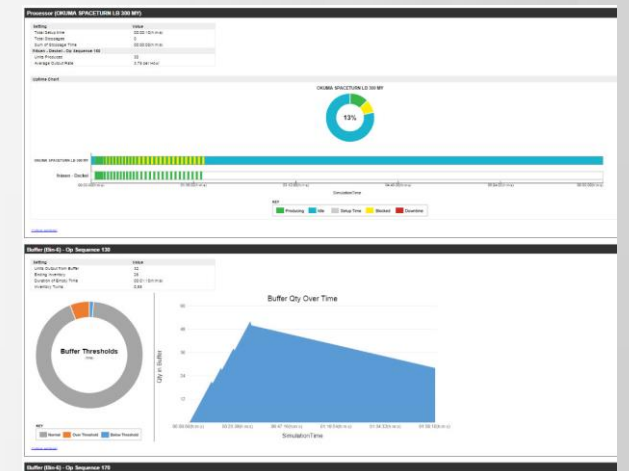
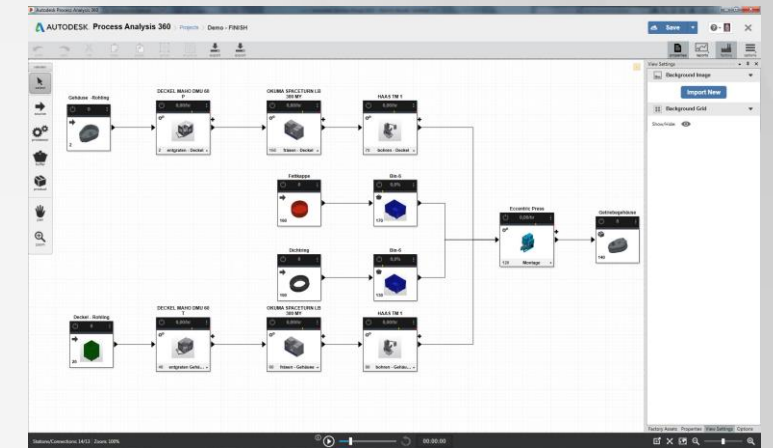
Autodesk Tools for Process and Layout



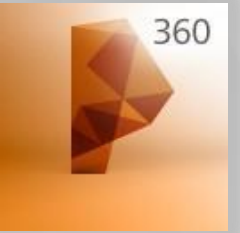
Why Use Process Analysis 360?



- Provide line configuration needed for planned production rate
 - Equipment and Process Time
 - Conveyance and Setup
- Evaluate production improvements
 - Which steps are necessary?
 - Which sequence?
 - Balance time on station
- Ensure efficient equipment and manpower utilization
 - Identify bottlenecks in setup, process or transport
 - Easy to read graphical display and reports

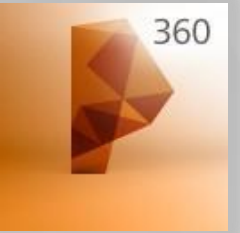


Process Analysis – Key Capability



- PA360 integrated with Factory Design Suite
 - Stand-Alone PA360 Free
 - Needs A360 credentials
 - FDS Subscription unlocks integration workflows
- PA360 provides schematic representation
 - No physical constraints
 - Supports exploration of work distribution and process timing
 - Provides goal or target process sequence
- Exchange Data from Scheduling/ To Documentation
 - Import from MRP spreadsheet
 - Export plan to CSV or DWG for check and documentation
 - Export reports as CSV for deeper dive analysis

Process Analysis

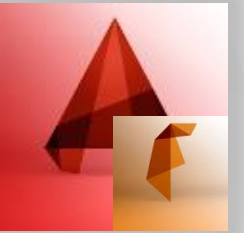


LIVE

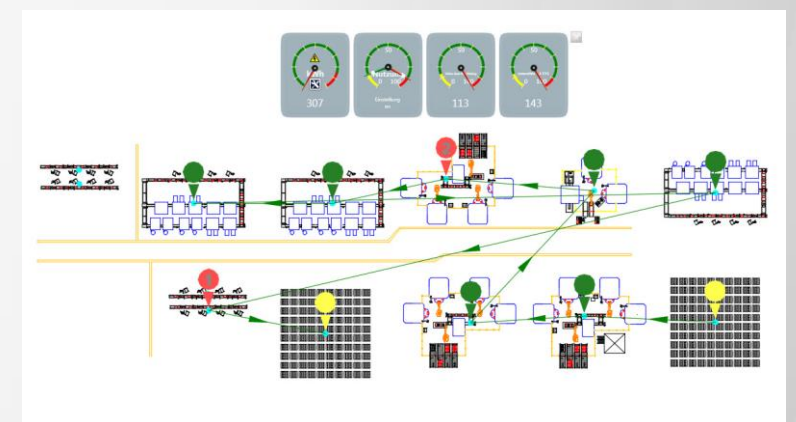
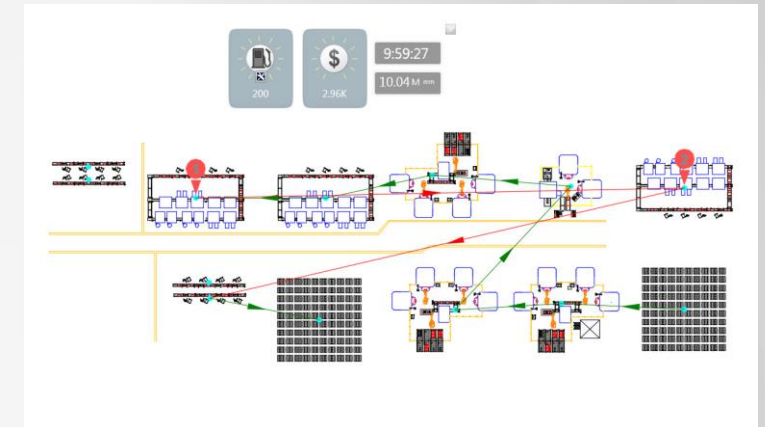
Process Analysis - Review

- Easy to move between Excel and PA360
- Factory Asset Warehouse automates data exchange
- Fast graphical review
- Use existing DWG underlay as placement guide
- Export from PA360 to ACAD for quickstart on documentation

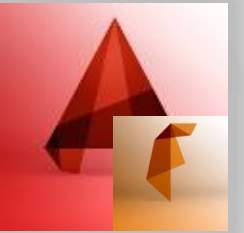
AutoCAD – Material Flow Analysis



- FDS adds layout-specific utilities to AutoCAD Architecture and AutoCAD Mechanical (supports user preference)
- Material Flow Analysis examines transportation timings in the physical confines of the actual factory
- Specific transportation path and conveyance options can be made
- Data from PA360 shared into the DWG environment



AutoCAD – material flow



LIVE

AutoCAD Factory Layout- Review

- Quick start based on PA360 configuration
- Asset Library enables data re-use
- Easy-to-read graphical representation of transportation and processing impact
- One click workflow to 3D

... any questions?

