

Integrating Sustainability Into Process Analysis 360

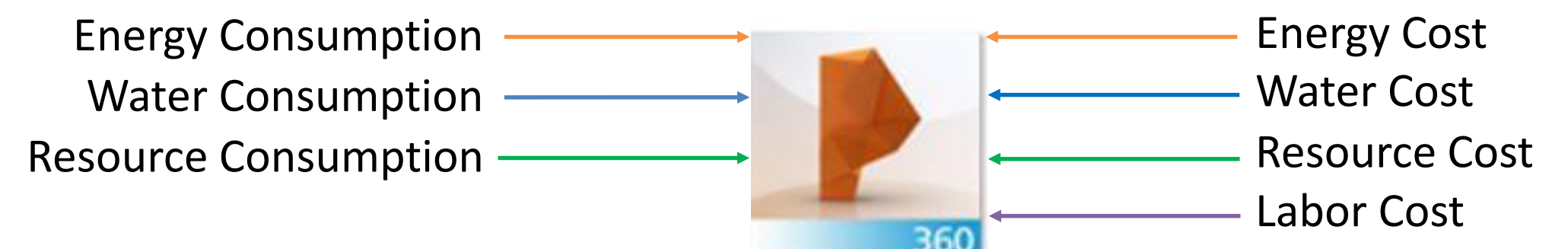
Funding Source: Autodesk

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Key Performance Indicators

	Objective	Resource Consumption	Manufacturing Space
Enterprise Level	Overall Factory Expenses or Environmental Impact	kWh / Month L / Month \$/ Month	
Facility Level	Process Chain or Resource Optimization	kWh / Assembly L / Assembly \$/ Assembly	
Line Level	Throughput Time Improvement or Line Utilization	kWh / Part L / Part \$/ Part	
Machine Level	Cycle Time Improvement	kWh / Machine L / Machine \$/ Machine	

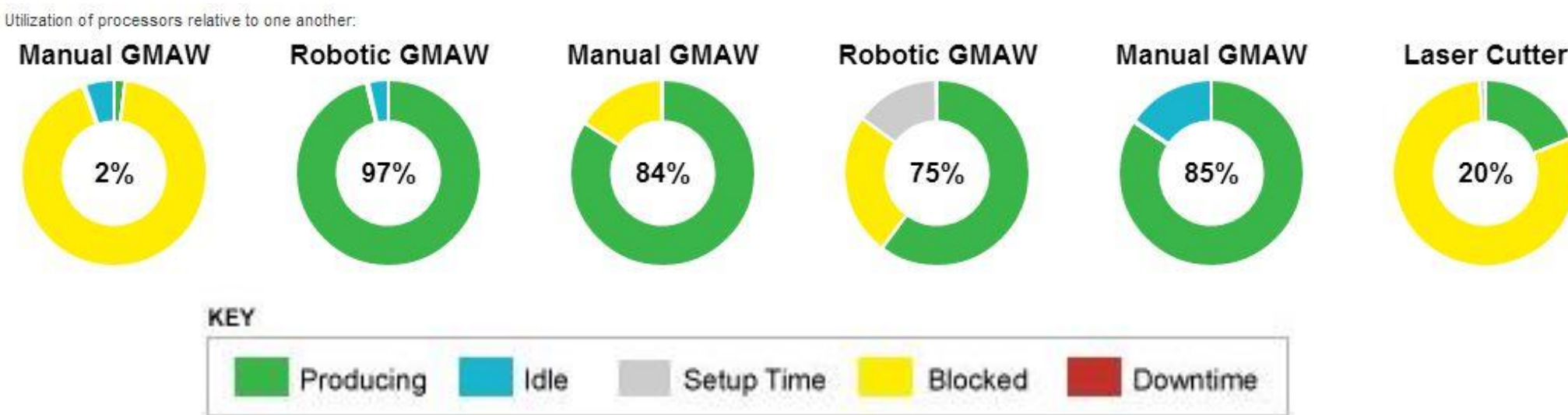
- Incorporate sustainability into existing software for five manufacturing processes



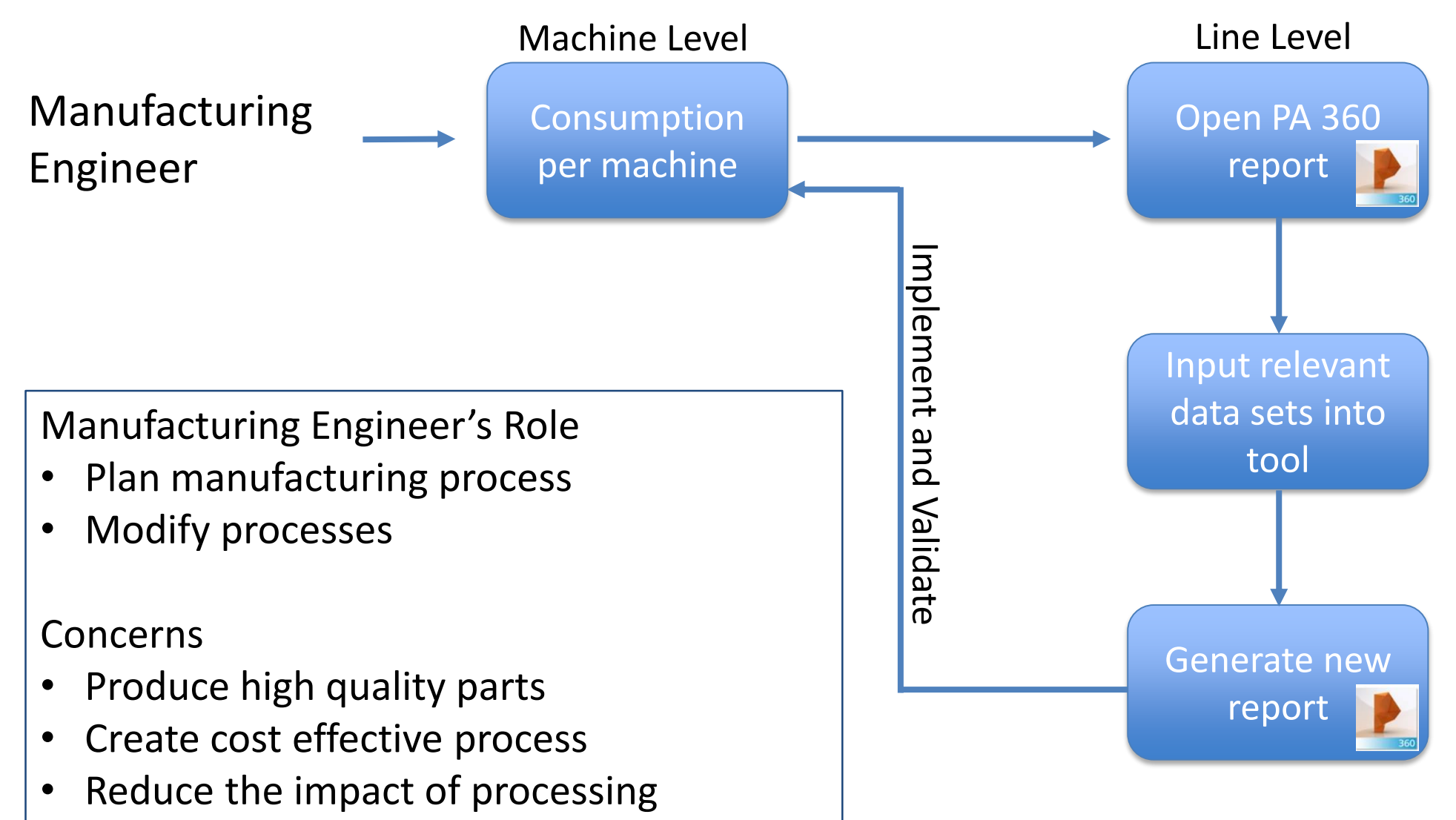
Functionality of Process Analysis 360

Planning manufacturing operations

- Outputs time
 - Setup, processing, idle, blocked
- Average production time per operation
- Utilization



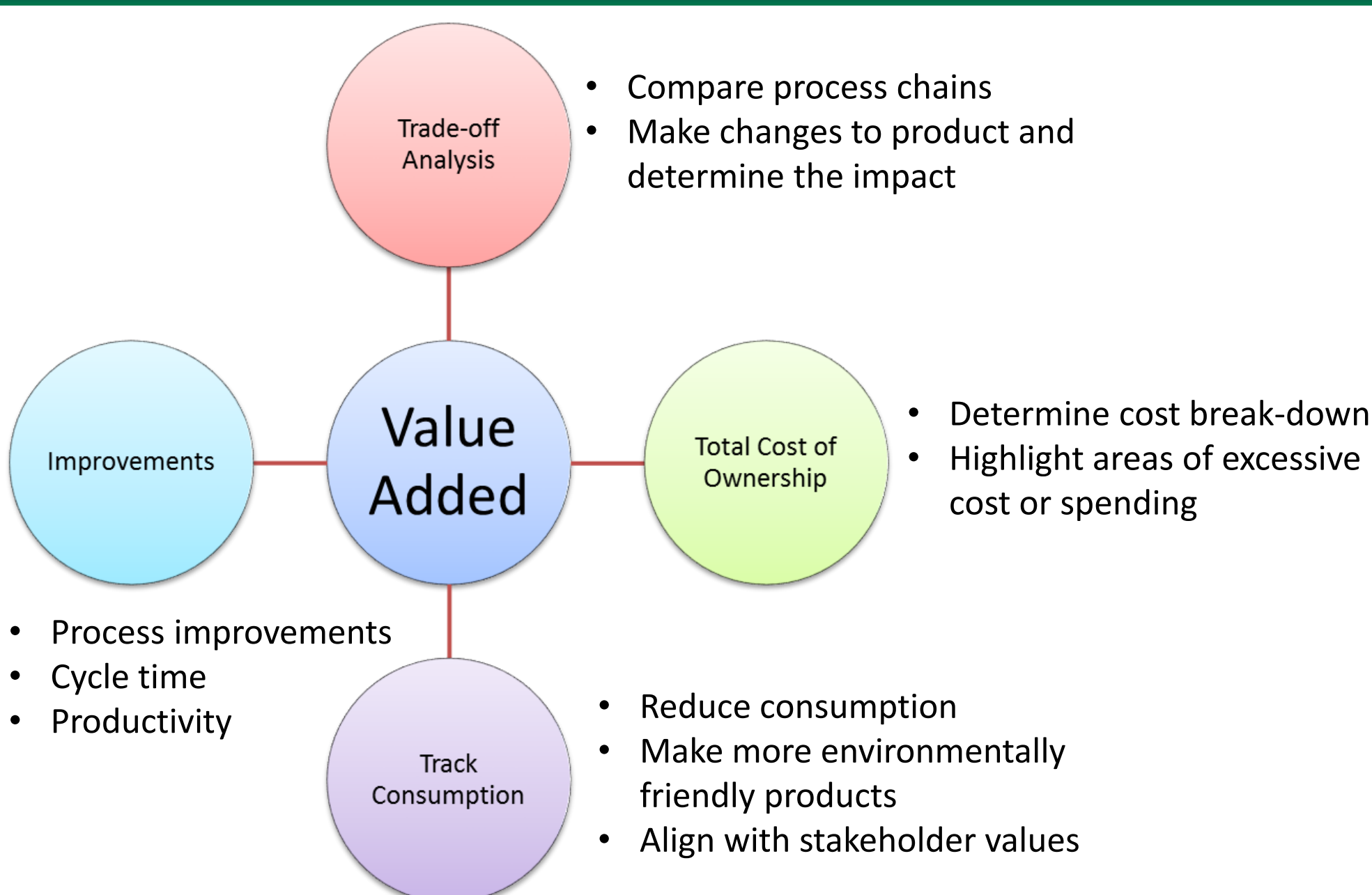
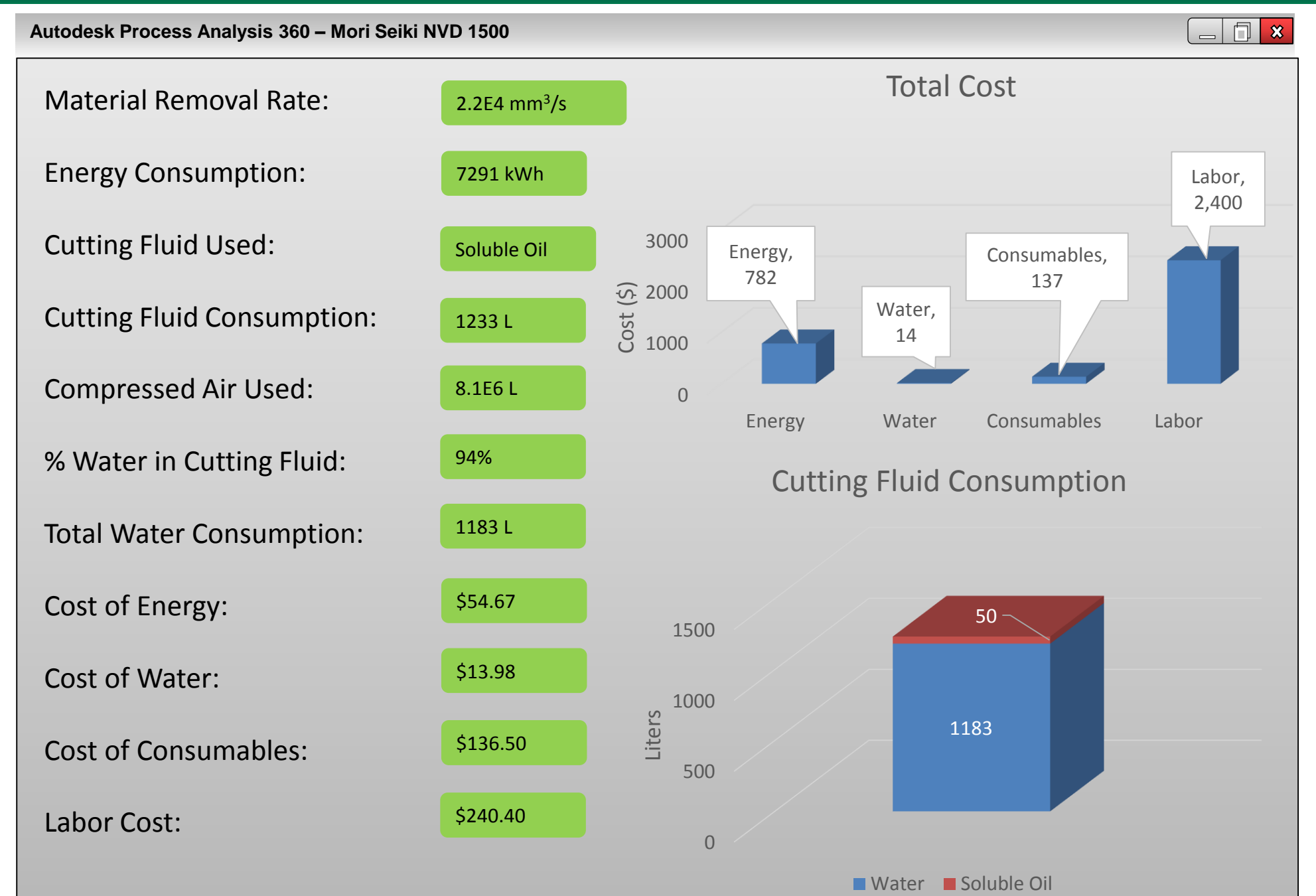
User Work Flow



Data Sets

	Milling	GMAW	Cutting
Time	PA 360	PA 360	PA 360
Electricity Cost	EIA Website	EIA Website	EIA Website
Labor Cost	BLS Website	BLS Website	BLS Website
Output Voltage / Current	NA	Handbook	Online Source
Cutting Speed	Handbook	NA	Online Source
Cutting Fluid Used	Manual	NA	NA
Gas Concentration	NA	Handbook	Supplier
Gas Flow Rate	Machine	Facility 1	Supplier
Gas Cost	NA	Supplier	Supplier
Weid Wire Cost	NA	Supplier	NA
Rated Power	Machine or Machine Manual	Online Source	Online Source
Efficiency	Technical Paper	Facility 1	Technical Paper

Results – Sample User Interface



- Integrate models into current software
 - Process Analysis 360
- Data from CAD and CAM software feeds into models
- Include more manufacturing processes
- Obtain customer feedback
- Incorporate real time data