

CreateASoft, Inc.

The Process Improvement Company

Analyzing complex value streams with Simulation

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Outline

- Introduction
- Value stream maps – Benefits and overview
- Simplifying the complex VSM.
- VSM Analysis.
- Application and examples.
- Q&A



About CreateASoft, Inc.

- In business since 1992
- Core technology: Simcad Process Simulator software
- Provides Simulation and Process Improvement services to the manufacturing and service industries in the areas of
 - Automation, manufacturing, and process improvement.
 - Lean transition and implementation.

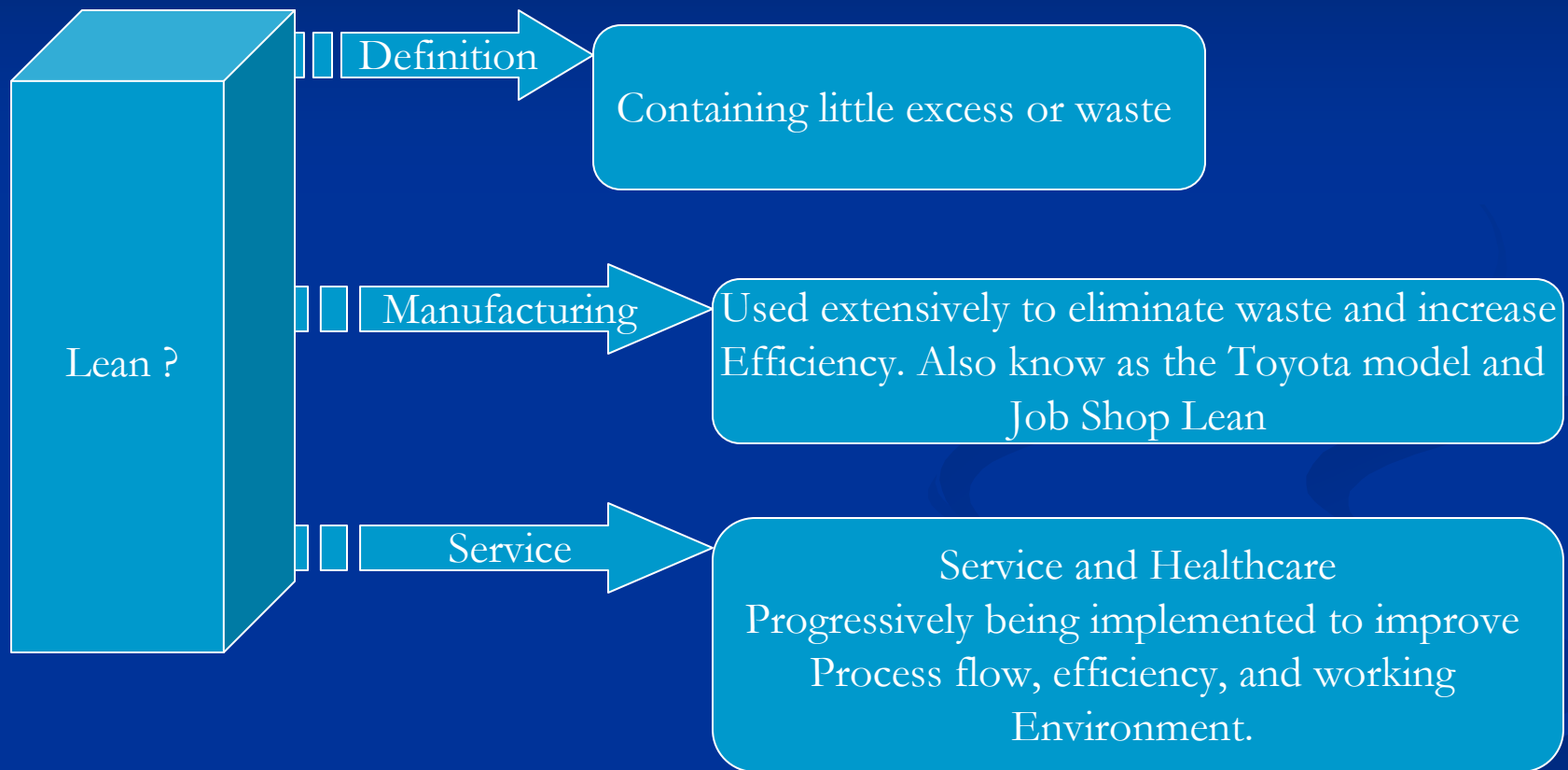


Simcad Process Simulator

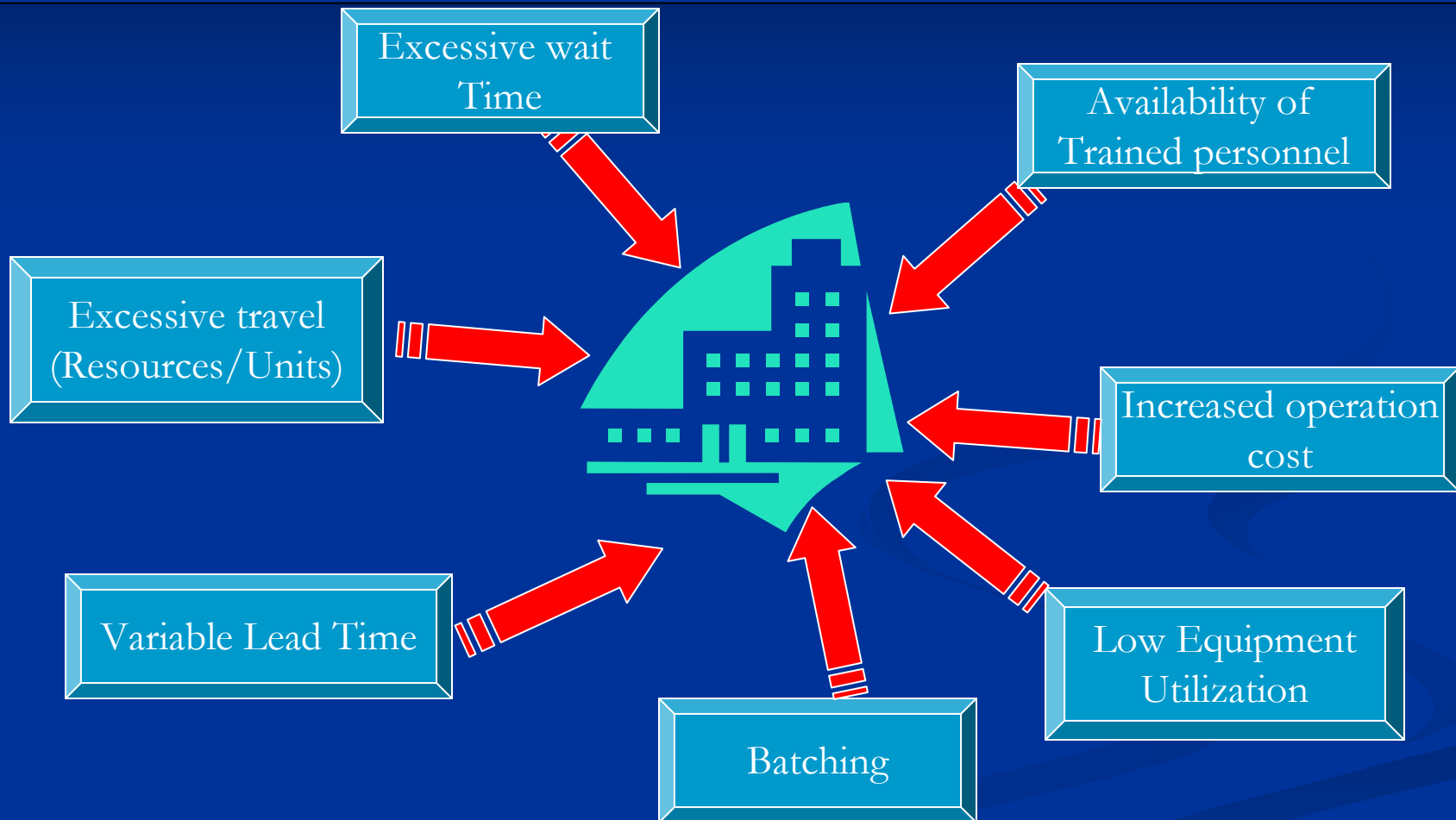
- Discrete-Event based process simulator with extended continuous simulation capabilities.
- Design and developed in the US by CreateASoft, Inc.
- Currently used by many companies,
 - Jostens, Baxter, USAF, Bechtel SAIC, The US Department of Energy, Rumble Automation, LaSalle Bank, Florida hospital, Gambro BCT, and many others..



What is Lean?



Common issues



Key to Lean success



Successful lean implementation

The Value Stream Map

- Process flow
- Displays flow characteristics
 - Process constraints and performance.
 - Timeline – Helps identify total waste time.
- Help in identifying the critical path.
- Good documentation tool.



Issues with VSM

- Has a tendency to grow too large
 - Many value streams span multiple “walls”
- Contains “static data”
 - How does the value stream change when the process flow or product mix changes.
 - Impact on the rest of the value stream (Up stream and down stream).
- Good for static environment, but can be challenging otherwise.

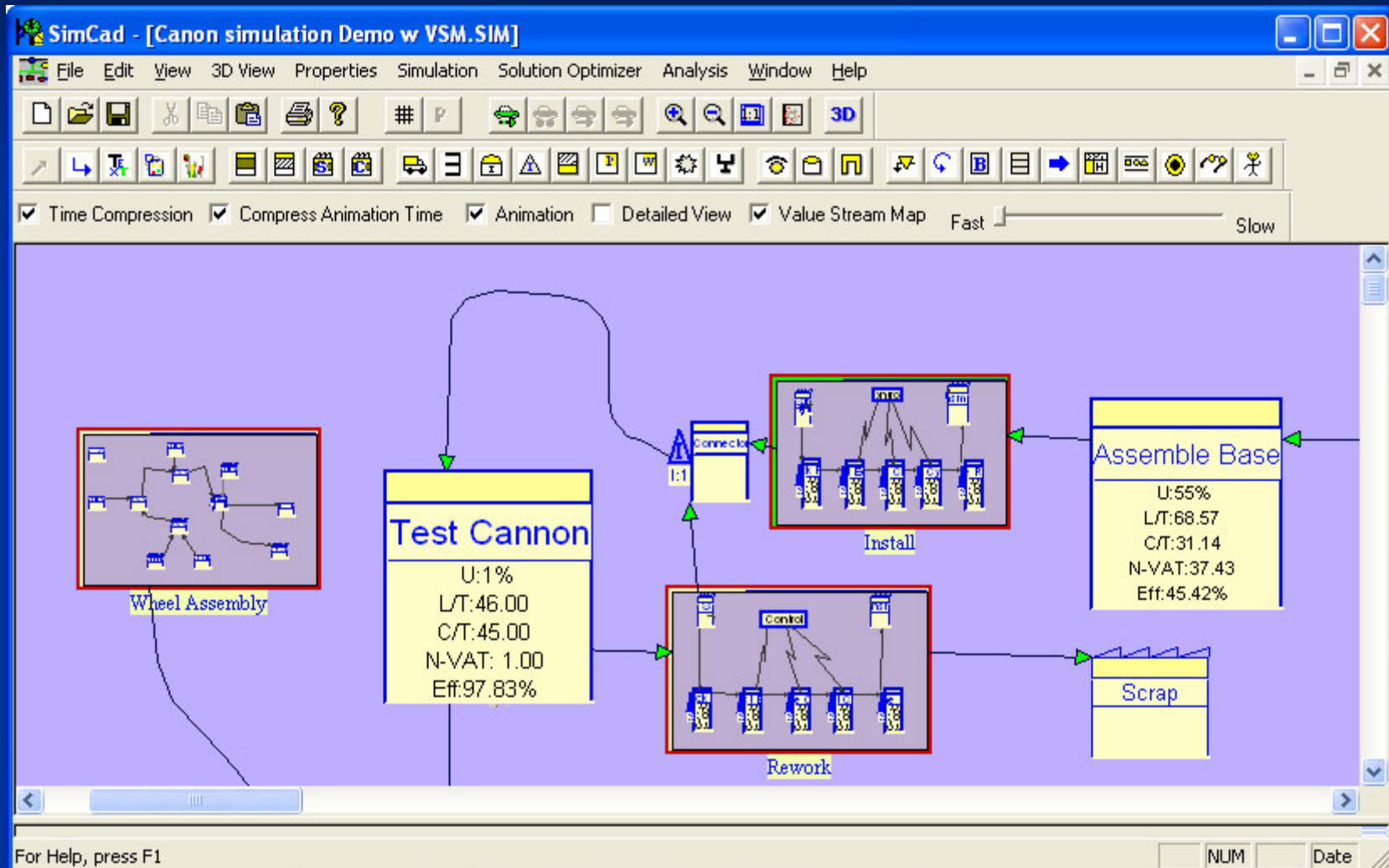


Simplifying the VSM

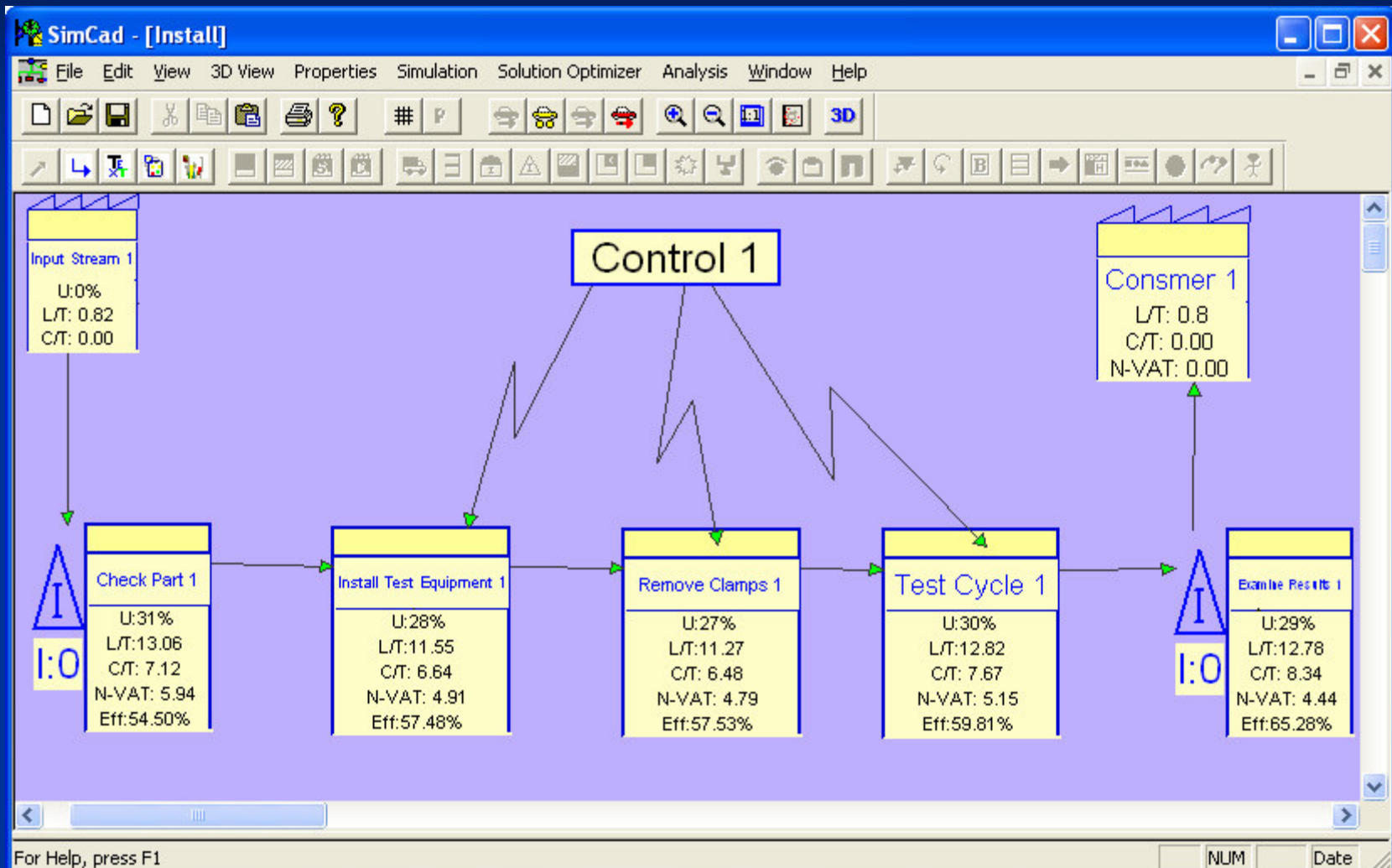
- VSM can be simplified through the use of layers.
 - Patented technology developed by CreateASoft*.
 - Allows the value stream to be viewed at varying levels of detail.
 - One Stream can act as the supplier or consumer to one or more streams.
 - Each Layer can be represented as a single process or a collection of processes.
- Enhances the visibility and representation of the VSM.
- Forces the interaction requirement between multiple VSMs.



Example of a VSM Layers



A VSM Layer



The Role of Dynamic VSM

- Issues facing the Job shop:
 - Routing will vary per Job.
 - Job Mix varies constantly.
 - Resource allocation issues.
 - Lead time control – When can we deliver ?
- Dynamic VSM updates the contents of the VSM based on the input constraints, without user interaction.

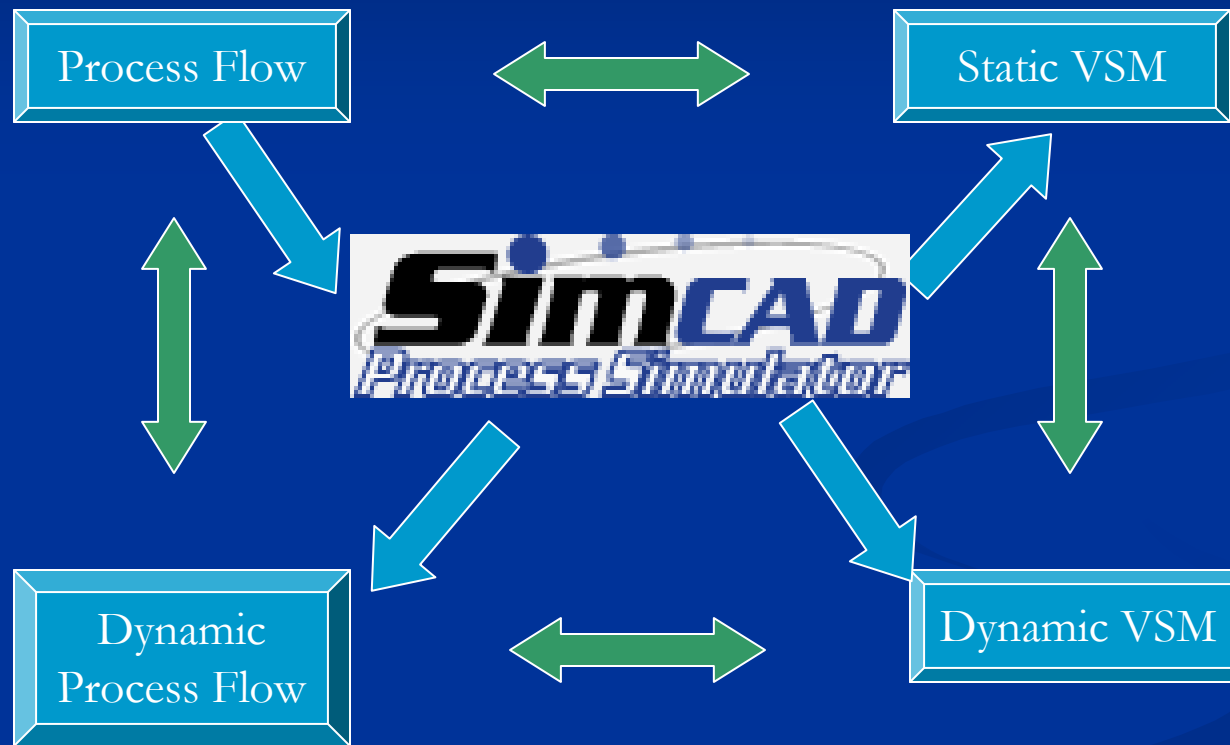


Impact on the Big Picture

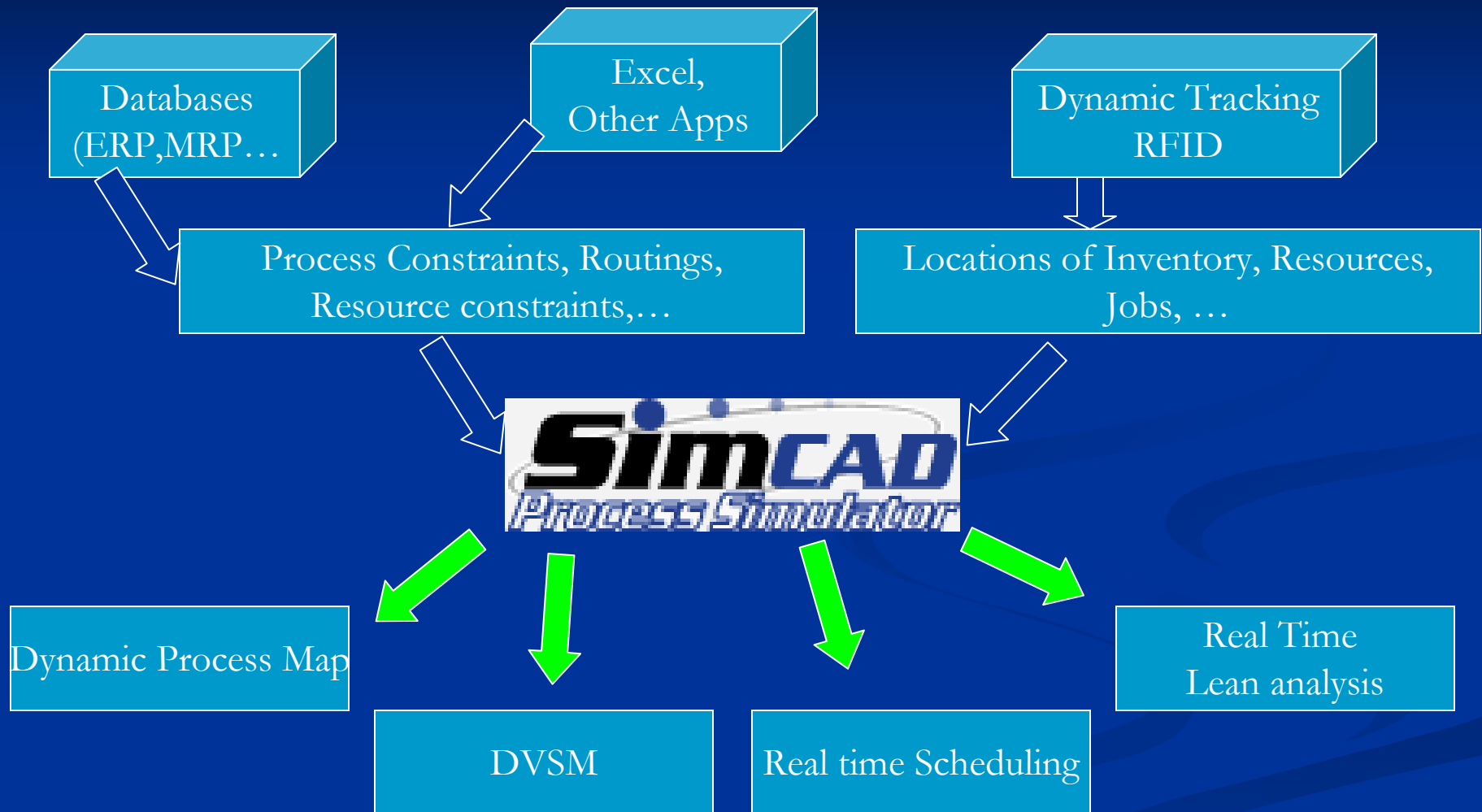
- By allowing the VSM to be dynamic, flow constraints and routing changes have a direct impact on results.
- Lead times, VAT, waste time are automatically identified.
- “Critical path” is computed.
- Interactions between multiple streams is simulated, with problems dynamically identified.
- Faster Results, better control over the operation.



Dynamic Behavior



Connectivity



D-VSM and Complex streams

- Complex and layered Value stream are harder to control and track.
 - How does one change impact the big picture?
- The effect of a 6 Sigma implementation that improves one stream can create problems in others down stream.
- Computational errors are avoided.
- The task can be delegated to others
- Improves information flow.
- Takes into consideration the “time” factor.



Example of a complex VSM

- Each subassembly, and department is identified in its own VSM.
- Smaller VSMs can be analyzed separately or as part of the big picture.
- Impact of change analyzed.
- Determining the Critical path based on current constraints.
- Impact of the equipment location on efficiency and lead time.
- Example (A Sample Job Shop)



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Q & A

