

CreateASoft, Inc.

The Process Improvement Company

Achieving and maintaining Lean in the Job Shop

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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.

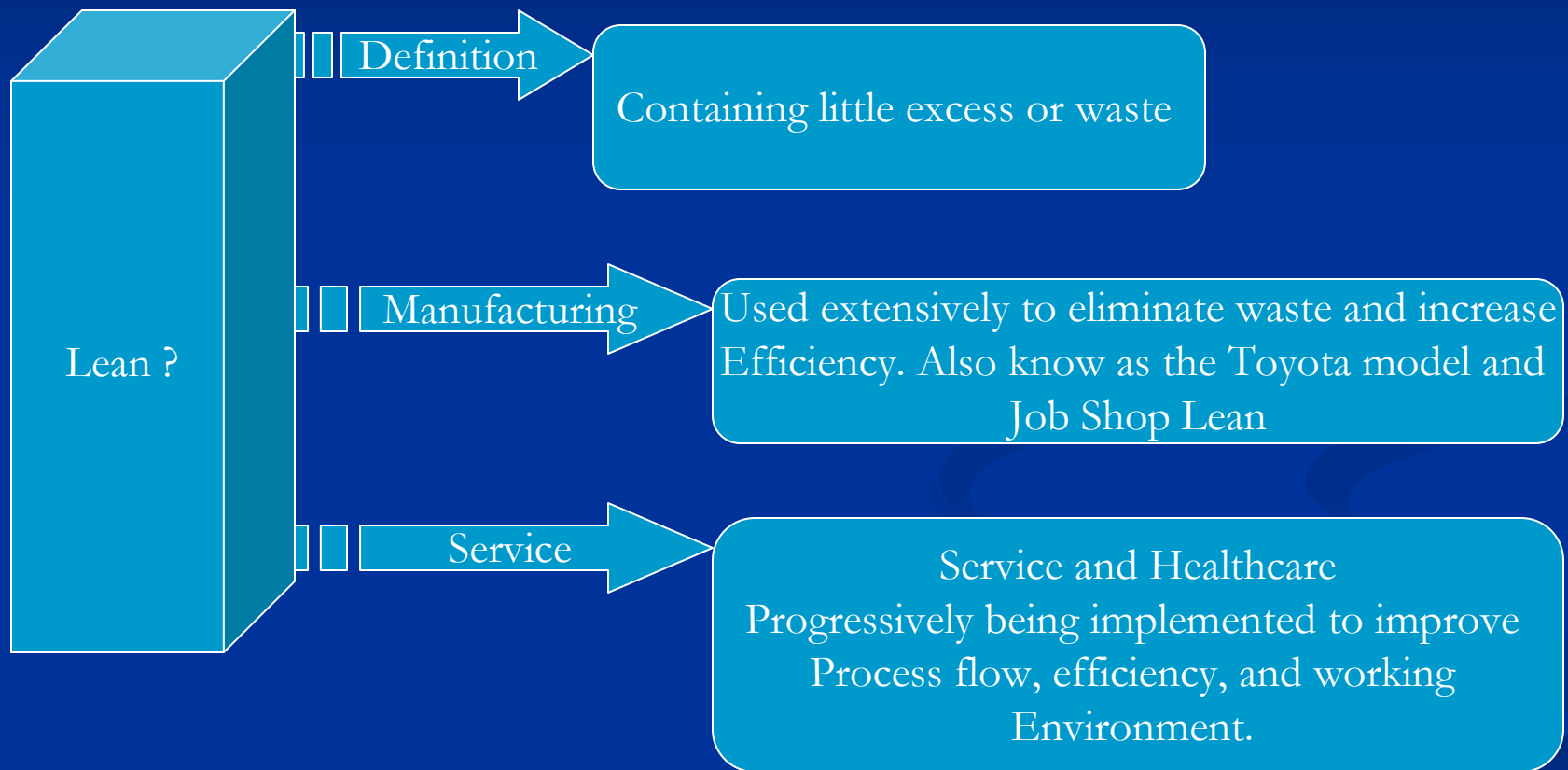


Simcad Process Simulator

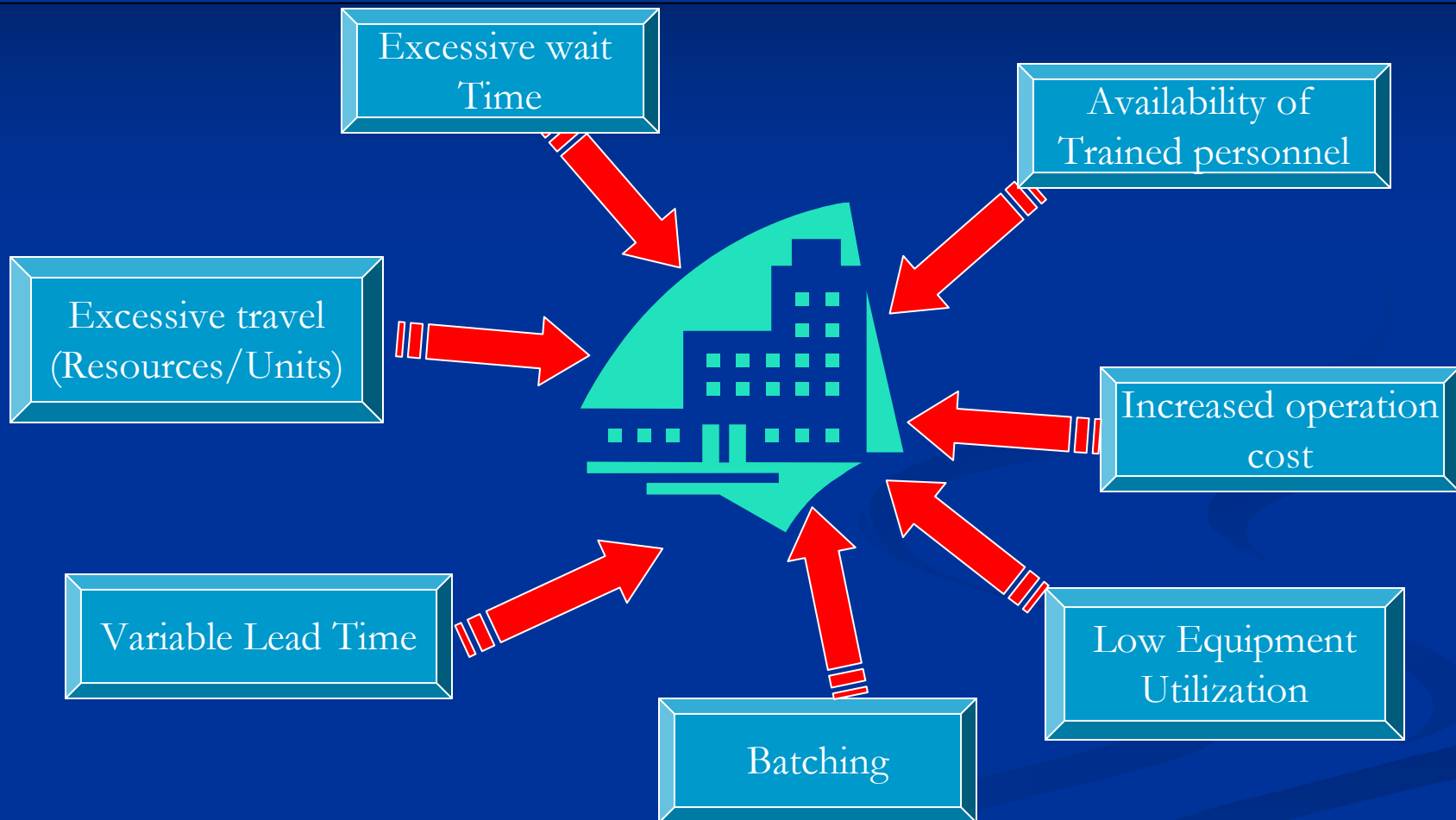
- Discrete-Event based process simulator with extended continuous simulation capabilities.
- Design and developed in the US by CreateASoft, Inc.
- Currently includes Dynamic VNM/VSM.
- Will integrate with PFAST.
- Currently used by many companies,
 - Jostens, Baxter, USAF, Bechtel SAIC, The US Department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



What is Lean?



Common issues



Why Lean?

- Benefits of lean
 - Improve efficiency.
 - Decrease and control lead time.
 - Remove waste.
 - Increase “on-time” delivery
 - Reduce WIP
 - ...
- Happier customers, better work environment, less stress, Reduce production cost.



Key to Lean success



Successful lean implementation

Lean Approach

- Lean initiative is a constant improvement cycle.
- Build a value stream, process flow.
 - Goal is to analyze the operation
 - Identify waste
 - Prioritize improvement project (Kaizen)
- Analyze improvement impact
 - Complete the Kaizen (s)
 - Prioritize the next Kaizen (s).



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. (the Toyota model)



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.

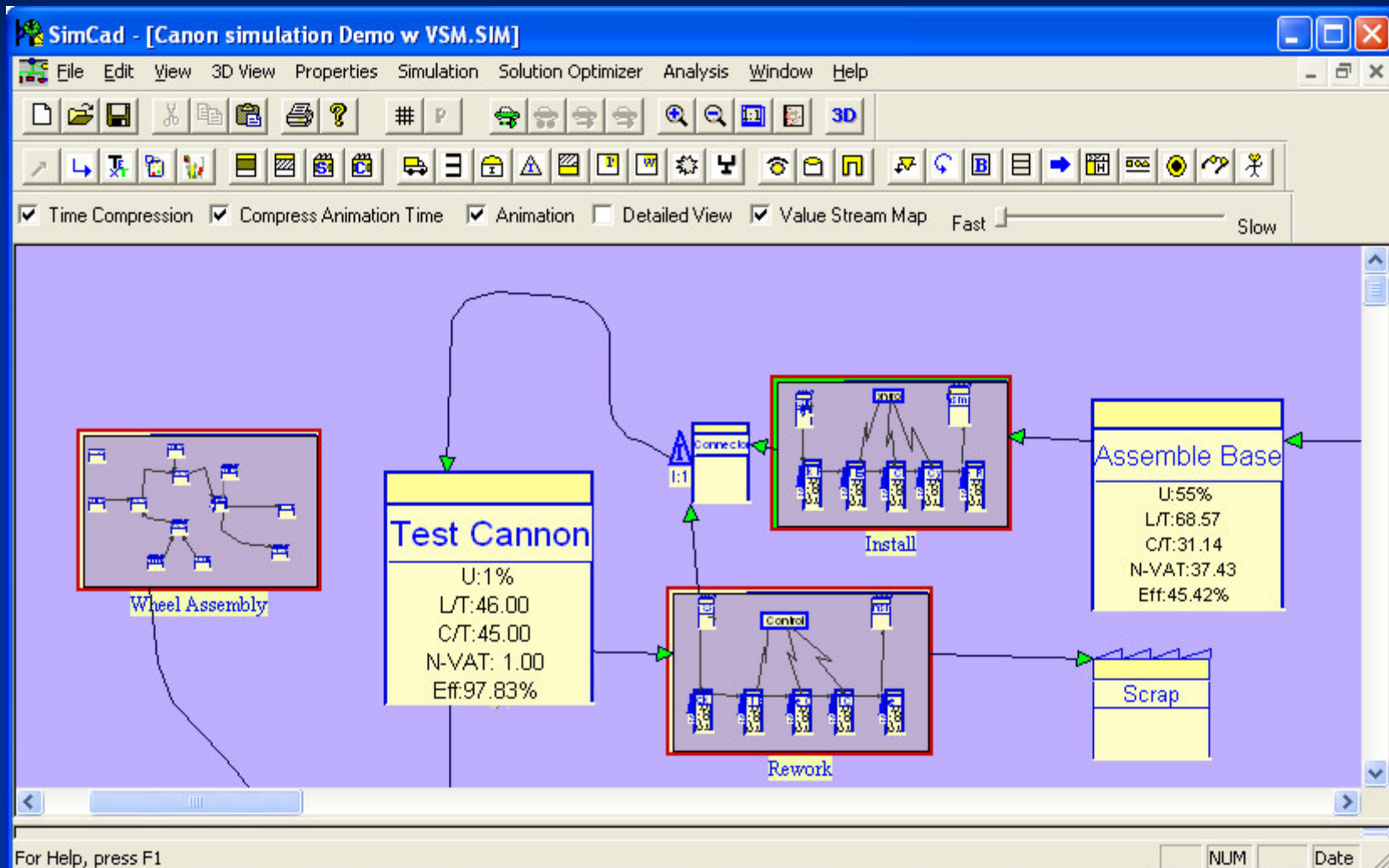


The Value Network Map

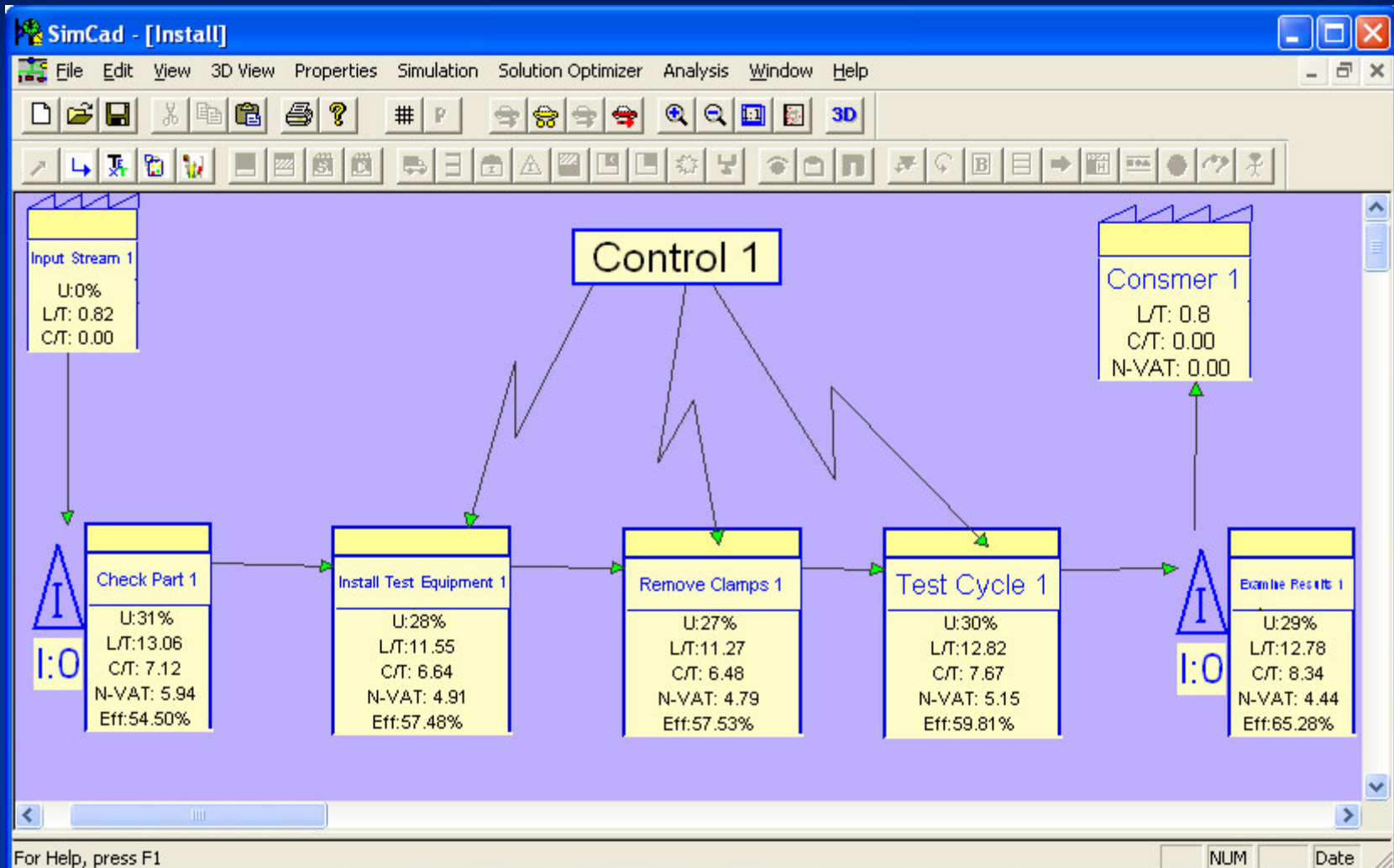
- High mix/Low volume the value stream changes based on the current production schedule.
- The value network map displays information per product family for each process
 - Provides greater visibility into the value stream.
 - Helps identify “Waste” areas.
 - Prioritize Kaizen events.
- Ability to single out a product or a combination of products for more in depth analysis.



Example of a VSM Layers



A VSM Layer



The Role of Dynamic VSM/VNM

- 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/VNM updates the contents of the VSM/VNM based on the input constraints, without user interaction.
- Example.



Impact on the Big Picture

- By allowing the VSM/VNM 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.



The Job Shop schedule

- The presence of monuments increases the complexity of the schedule.
- Scheduling must be dynamic
 - Priorities, job status, impact of other equipment.
- Must maintain the “waste” reduction achieved in the Kaizen events.
- Optimize the “Monument” efficiency and reduce change over time.



Tools/Examples

- Dynamic Simulator (s)
 - Constantly forecast the future of the value stream.
 - Update schedule based on current state.
- Dynamic creation and tracking of the Value network map.
- Use of RFID or Barcodes
 - Tie in with the simulator to provide ultimate results.
 - Can provide “Virtual Camera” into the operation.



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Q & A

