FACT SHEET

# Lean Manufacturing Engineering & Flow Assembly Line Design

Rapid Manufacturing Process Design - Electronic Visual Work & Quality Instructions - Demand-based Operations Design

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## VALUE STREAM TECHNOLOGY™

‘ Lean drives process & manufacturing design ’

In today's fast changing market customers want their product to be state-of-the -art, customized to their needs, using latest features and functions, and they want it today, not tomorrow.

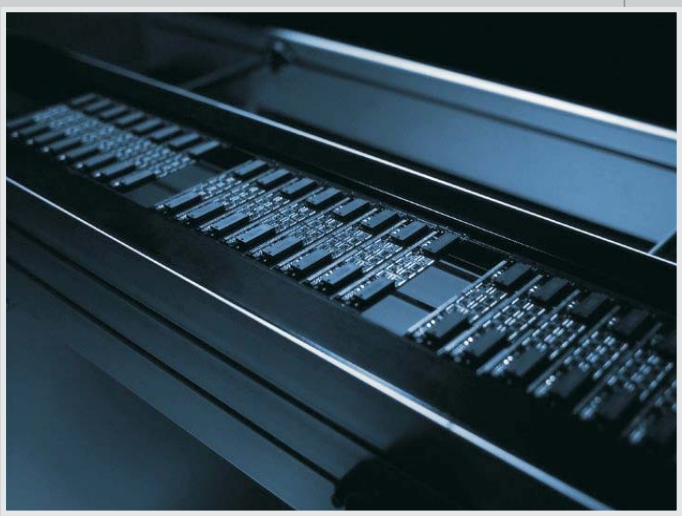
Product life cycles are reduced constantly to meet what the market demands. Speed-to-Market drives manufacturers to be lean and fast. Today this is not only important for the High Technology industry with already extremely short product life cycles, it also drives Automotive companies, Consumer Product and Industrial Machinery Manufacturers.

Companies need to bring their new products to market fast, and this begins with constant evolution of products, a fast development cycle, and turning design and function into manufacturing information and processes.

Being faster in product development, being faster in engineering, turning design into accelerated and leaner manufacturing processes ensures being on the market first, with higher quality, lower costs, and higher profit margins. Always one step ahead.

Lean Manufacturing begins with a Lean Manufacturing Engineering and streamlined Flow Assembly Line Design, creating the foundation for smooth, fast and high quality operations.

The product suites Lean Manufacturing Engineering™ and Flow Assembly Line Design™ provide the strategic toolset to design processes and operations efficiently. It provides rapid design and development of processes, Visual Work & Quality Instructions™, and balanced workload, guaranteeing extremely short product introduction and change management cycles. And it certainly integrates all required Lean and Flow Technology formulas for balanced operations and processes.



## Functions & Features

- Integration to CAD and ERP/ SAP® Bill-of-Material and Engineering Change Management
- Fast & simple creation of manufacturing processes, work sequence, and work balance
- Rapid drag & drop process assignment materials, tools, equipment, qualifications assignment & reassignment of events
- Interactive Workload Balancing™, completeness & verification functions
- Integrated Poke Yoke and Failure Mode & Effect Analysis
- Rapid drag & drop supported management of visual instructions with change control
- Electronic distribution of visual instructions to manufacturing operations
- Demand-based, dynamic Flow Assembly Line and resource calculations
- Interactive cycle time, capacity, process & component mapping
- Real-time ERP/ SAP Integration

The application suites Lean Manufacturing Engineering and Flow Assembly Line Design are fully integrated into Supply Synchronization and Supply Cycle Management, Flexible Workforce Management, Visual Factory Manufacturing Operations and Total Quality Management and Total Performance Management. Value Stream Technology can be implemented stand-alone with Legacy systems, and fully real-time integrated into SAP.

The application suites support Speed-to-Market by turning new product design fast into streamlined manufacturing operations.

## ' Accelerated Lean Engineering & Planning '

When Design Engineers have developed new products, assemblies, functions or features, Manufacturing Engineers leverage **Process & Sequence of Event Design™** to turn design information into streamlined manufacturing information, sequenced work tasks for efficient workflow and balance.

Process structures are created on the fly, and material, tool, equipment as well as qualification assignments are created with **simple drag & drop** within seconds, enabling engineers to prepare for sub-sequent processes such as synchronization of material & supply, and to interactively **balance workload** based on processes, matching assembly line tact times.

Today assembly teams on the shop floor are required to adopt to changes and new products extremely fast. There is no time for paperwork, long introductions or extensive training, and definitely there is no time for 'trial and error' in assembly operations, costly rework or even customer complaints. Only **Visual Work and Quality Instructions** on the shop floor supported by interactive applications allow fast processing, but they need to include **interactive change introduction** and all required **up-to-date assembly and quality information, ready for electronic distribution**.

**Lean Manufacturing Engineering** today does not only mean accelerated development of work & quality instructions, its process & cycle timing, failure prevention and Failure Mode & Effect Analysis, as well as quality checklists and metrics, but also it requires the **development of visual instructions on the fly**, with simple time-saving drag & drop functionality, but also fully controlled for change management.

Integrated in Process & SOE Design the application suite includes **advanced design of electronic Visual Work & Quality Instructions™**. Visual instructions incorporating drawings, photos, and photo combinations based on comprehensive libraries, and even streaming video, all developed and controlled within a couple of minutes, and electronically distributed directly to assembly and quality workstations.

**'Flow Assembly Line Design™'** and **'Process Synchronization'** handle all required dynamic line design activities for line planners. Various **demand-based calculations** smoothen assembly and supply operations, providing **optimized tact times, average product cycle times, line and in-process balancing and In-Process Kanban calculations, as well as required resources** and much more.

Interactively workstation and line capacity is being calculated, cycle times are mapped, color-coded alerts show restrictions, and assemblies are assigned via drag & drop, simple and fast, supported by **Process & Component Mapping™**.

Flow Assembly Line Design manages all types of workstations, and designs and plans all lines and line groups for optimized workload and increased through-put.