



## Implement a Demand-Driven Organization in Complex Product Lines

Lean Flow Technology is a mathematically-based business methodology designed to allow manufacturers to build a highest quality products, in the shortest possible time at the lower cost, increase flexibility to respond faster and more efficiently to the market volatility, focusing on Customers response time, flexibility and effective asset management.

The Lean Flow Technology education program provides an adapted solution to each company to dominate their market shares and increase profitability while freeing up working capital.

- This training program provides a solid foundation for understanding and deploying the Lean Flow Technology principles and concepts to conduct a Lean Flow Technology transformation, from a batch schedule-based production to a mixed-model flow and demand-driven organization based on the direction of the actual Customers demand. In addition, it explains clearly all the benefits of the Mixed-Model approach in its ability to build, any days, and a range of volumes of any products, increase productivity and decrease drastically inventory.

### Attendees

- Top management and Steering Committee.
- Industrial, production and technical directors, supply chain managers.
- Production and manufacturing engineering managers, manufacturing engineers. Continuous improvement managers.

### Learning Objectives

- Design & manage a mixed-model organization-based on Customer demands.
- Reduce total product cycle times & flow process lead times by producing a mix of products on only one production line.
- Optimize labor & machines resources utilization.
- Replenish material in just in time to reduce inventory costs (Raw material, Work in process & Finished goods).
- Manage safety & quality In-process.
- Increase capacity.
- Improve Customers satisfaction.

$$\text{Takt} = \frac{eH.S}{\sum nD_c}$$
$$\#Op = \frac{At_w}{\text{Takt}}$$

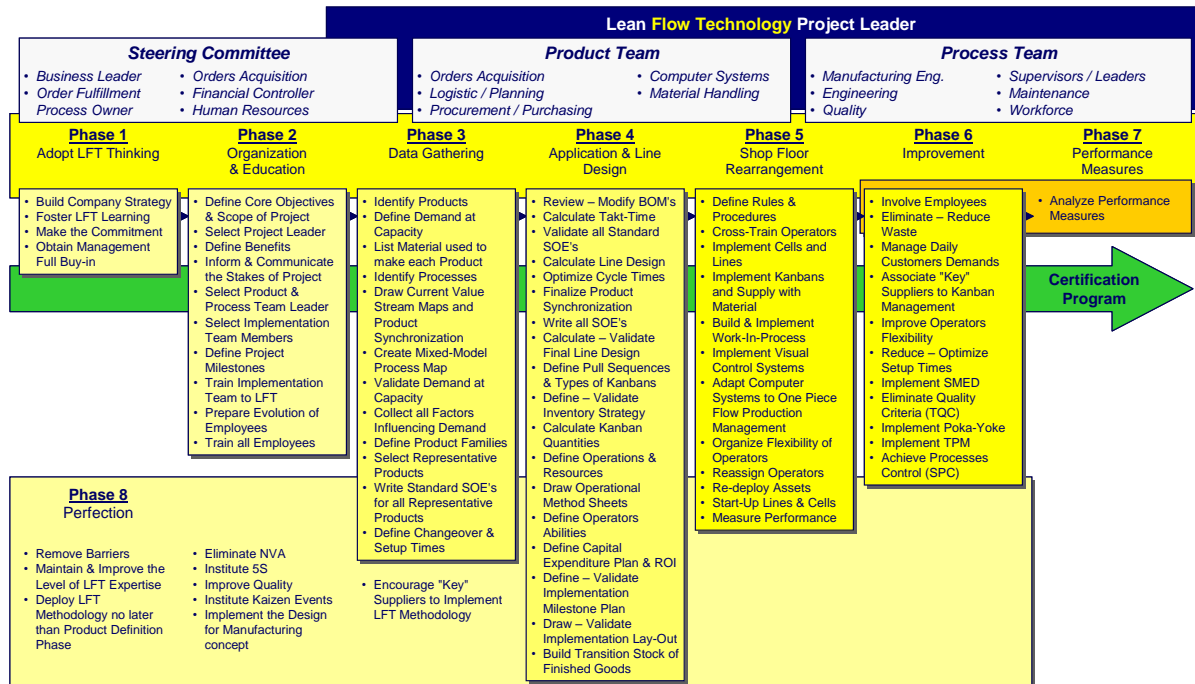




*Design a Customers Demand-Driven Organization*  
**Lean Flow Technology** [Base]  
*Mixed-Model Lean Manufacturing*

### Transition to Lean Flow Technology Roadmap

- In relation to the Transition to Lean Flow Technology Roadmap, this program covers key phases to transform an existing traditional operation to one that fully implements a Mixed-Model flow and demand-driven organization.



### Training Methods

- With the primary objective to provide a comprehensive understanding of Lean Flow Technology, this training program includes step-by-step exercises. Fundamental points such as material and information flow (from suppliers to Customers), lines design, kanban materials management and work stations organization, are developed, discussed and demonstrated.
- All training modules are explained by applying methodology, to a practical studied case.
- Handbook including all training modules, exercises and tools used is delivered to each participant.

**Public Training : 4-day Workshop – 2240 € + VAT per person**

*For On-Site Training, please contact us at : [contact@leanflowconsulting.com](mailto:contact@leanflowconsulting.com)*

### Optional Implementation Services

An optional service is offered in addition with this workshop to assist the participants in the completion of an on-site event.





*Design a Customers Demand-Driven Organization*

# Lean Flow Technology [Base]

## *Mixed-Model Lean Manufacturing*

### Program Content

#### Module 1 : LFT101US – Lean Manufacturing Principles

- Why produce in response to daily Customer demands ?
- Traditional production organizations Vs. Lean thinking,
- Lean & Mixed-Model Lean Manufacturing,
- Lean Flow Technology benefits.

#### Module 2 : LFT102US – Data & Quality Management

- Products & processes synchronization,
- Mixed-Model process map,
- Products families & wall-to-wall products synchronization,
- Forecasts analysis & daily demand at capacity,
- Takt-Time calculation,
- Sequences of events & Total Quality Check.

#### Module 3 : LFT103US – Mixed-Model Line Design & Layout

- Mixed-Model lines & cells design,
- Takt-Time calculation with mix variation,
- Average time weighted calculation,
- Resources calculation (Labor, machines),
- Operational definition & flexible resources,
- Cycle time & lead time reduction,
- Visual work instructions.

#### Module 4 : LFT104US – Material Flexibility & Kanban

- Inventory turns & Kanban materials management,
- Pull sequence chains & Kanban sizing,
- RIP stock locations,
- Back flush & flatten bill of material,
- Make to order products & options management.

#### Module 5 : LFT105US – Unattached Feeder Cells

- Pulled flow management in shared resources configuration,
- Shared processes calculation & unattached cells design,
- Batch size optimization to recover setup times,
- Dual-card Kanban.

#### Module 6 : LFT106US – Balance & One-Piece Flow

- Line balancing techniques,
- In-Process Kanban calculation,
- Single piece flow production & flexibility.

#### Module 7 : LFT107US – Flexible Employees

- Line design & flexible employees,
- Up-stream, down-stream flexibility & multi-skills,
- Employees involvement & continuous improvement,
- Training, certification & multi-skills matrix,
- Employees' flexibility rules.

**FAMILY PRODUCT SYNCHRONIZATION A TYPICAL CASE OF ...**

**SEQUENCE OF EVENTS – SOE QUALITY CRITERIA / SAFETY**

Task	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
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• Associated directly with a Task – When there are multiple ways to Perform a Task, and Only One Way is Correct, The Quality Criteria Defines the One Way Correct.

**MIXED-MODEL LINE DESIGN MIXED-MODEL MANUFACTURING**

Mixed-Model Manufacturing.

- Product Demand Linked with Process Requirements to Produce:
- Highest Mix Possible.
- Synchronized Flow.
- Group Work to Time Targets.

To Install Plant and Equipment.

- Data Created Help Run Process each Day.

**RESPONSE OPTIMIZATION Tpc/t REDUCTION**

- Continuous Process Improvement.
- Along Tpc/t Path First :
  1. Eliminate Non-Value Added Work.
  2. Eliminate Quality Criteria.
  3. Move Internal Setup to External.
  4. Reduce Setup and Move Times.
  5. Reduce Value Added Work Times.

**KANBAN TWO-BIN SYSTEM**

**BALANCE AND FLOW U-SHAPED CELLS**

• First Step of Improvement : **U-SHAPED CELLS.**

- Several Operations by Employee.
- Space Floor Saving.
- Create Balance.
- Cells designed for Flexibility.

**IMPROVES :**

- Machine Utilization.
- Labor Productivity.
- Operational Cycle Time.

**FLEXIBLE EMPLOYEES TO WORK OR TO MOVE ?**

UPSTREAM SIGNAL      DOWNSTREAM DEMAND

OP130      OP140

**I MOVE UPSTREAM – And find Work.**





## Lean Flow Consulting

### *Consulting & Assistance*

Lean Flow Consulting assists steering committee and top-management to define improvement strategies shared with all key people involved in your process of transformation.

Lean Flow Consulting supports and leads members and dedicated teams throughout, and for each step of your Continuous Improvement, Lean Manufacturing, Lean Office and Lean Enterprise initiatives :

- Definition of assessment and improvement plan,
- Identification of training courses requirements,
- Specifics training sessions for implementation teams,
- Assistance to simplify, redesign and optimize material flows,
- Support to implement visual management tools,
- Follow-up until the appropriation of methodology by the Customer.

Lean Flow Consulting also assists manufacturing companies for punctual or specific events such as :

- Value stream management in the offices (Lean Office),
- Supply chains optimization,
- Mixed-Model Value Stream Mapping,
- Implementation of material replenishment with Kanban,
- Statistical Process Control (SPC),
- 7-Steps Problems solving methodology.

### *Skills & Knowledge*

Master Demand Flow® Technology.

Black-Belt 6 Sigma.

Lean Manufacturing & Lean Office.

15 years of flow manufacturing experience in worldwide companies :

- HVAC/R Products & Equipment,
- Aerospace, Electronic,
- Automotive, ...

Employees & project team members training :

- Demand Flow® Technology,
- 6 Sigma & Statistical Process Control,
- Continuous Improvement,
- Value Stream Mapping,
- Lean Manufacturing, Lean Flow Technology & Lean Office,

Demand Flow® Technology Training Centers implementation,

Mixed-Model lines, cells & fabrication feeders design & implementations,

Production facilities rearrangement in France & Europe,

6 Sigma Black-Belt projects leader.

### **Other Education Programs :**

**Lean Flow Mapping,**

**Lean Flow** in the **Office,**

**Statistical Process Control (SPC),**

**7-Steps to Improve Processes,**

**FMEA, 5S, eVSM, ...**

### **Information – Registration :**

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