

Promise the Best and Deliver what is Promised to our Customers



### Lean Flow Technology

Lean Flow Technology is a mathematically-based business methodology designed to allow manufacturers to respond faster and more efficiently to the needs of their Customers. With the intention of building the highest quality products in the shortest possible time at the lower cost, Lean Flow Technology deploys the following principles :

- 1** Building to daily Customer demand rather than building to forecast,  
*To reduce finished goods inventory, reduce cost and increase Customer Satisfaction.*
- 2** Continuous flow manufacturing rather than batch production,  
*To reduce work in process inventory, rework, scrap and increase quality. Quality problems are immediately addressed.*
- 3** Mixed-Model production rather than process layout,  
*To build a mix of products on one line to respond to Customer demand and increase resources utilization.*
- 4** In-Process quality rather than inspecting quality at the end of production,  
*To build quality into the product during the production process resulting in less waste and higher Customer Satisfaction.*
- 5** Just-In-Time material replenishment rather than receipts of MRP forecasted demands,  
*To reduce the amount of component and material inventory and reduce costs.*
- 6** Uses rate-based production rather than work orders,  
*To simplify shop floor activities and reduce costs.*
- 7** Labor flexibility rather than labor specialization,  
*To increase productivity and reduce costs.*
- 8** Back flush material and labor costs upon completion rather than at each operation,  
*To simplify shop floor activities and reduce costs.*

### Systematic Approach

**Lean Flow Consulting** assists and supports manufacturing companies and services industry to strengthen their growths and gain new markets by :

- Diagnosis of current organizational structure,
- Definition of global improvement strategy,
- Deployment and implementation of structured methodology,
- Gradual change of the organization,
- Development of internal skills and abilities.



## Inventory Reduction Quality Improvement Productivity Improvement Lead-Time Reduction



### Transition-to-Lean Flow Technology Roadmap

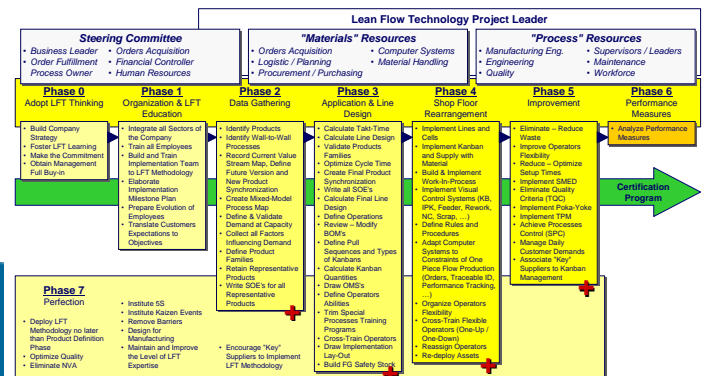
The Transition-to-Lean Flow Technology Roadmap provides a guide for transitioning an existing traditional operation to one "World Class Lean Enterprise". The Roadmap defines a systematic implementation process, specific actions in order of precedence that are milestones in the journey from mass to Lean Flow Production. The methodology is organized into proven 8 phases process.

The Lean Flow Technology Roadmap is not a cookbook. It is adapted to the cultural and organizational specificities of every company.

The Roadmap is based upon experience gained to date by Lean experts in implementing Lean Manufacturing techniques into production operations at worldwide major facilities.

### Roadmap Phases

- Phase 0 – Adopt Lean Flow Technology Thinking
- Phase 1 – Organization & Lean Flow Technology Education
- Phase 2 – Data Gathering
- Phase 3 – Application & Line Design
- Phase 4 – Shop Floor Rearrangement
- Phase 5 – Improvement
- Phase 6 – Performance Measures
- Phase 7 – Perfection



### Implementation & Certification Program

Along the way of Lean Flow Technology, periodic evaluation and benchmarking of the organization's degree of Leanness against a standard or others further along will help to keep the implementation in course. The LFT Implementation & Certification Program is a tool that is increasingly being used by organization to both evaluate where they are at today and to provide a vision of where they want to be at some point in the future.

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### Lean Flow Technology Program

The Lean Flow Technology Program provides a solid foundation for understanding and deploying Lean Flow Technology to conduct your company into a World Class Lean Enterprise.

In relationship with the "Transition-to-Lean Flow Technology Roadmap", participants will learn how to lead a Lean Flow Technology transformation from a traditional to a mixed-model flow and demand-driven organization.

Key aspects related to Mixed-Model line design, lead-times optimization, material management with kanban replenishment and daily demand management are developed, discussed and demonstrated.

Following concepts and techniques are covered :

- Value stream mapping,
- Mixed-Model products synchronization,
- Customers demand analysis,
- Daily demand at capacity,
- Takt-time calculation,
- Sequences of events,
- Quality management,
- Visual method sheets,
- Kanban sizing,
- Response optimization,
- Operational definition,
- Labor & Machine resources calculation,
- Flow balancing & In-process Kanban calculation,
- Work-stations definition & implementation,
- Employees flexibility,
- Mixed-Model sequencing.

**TAKT TIME OVERVIEW – CALCULATION**

Translate Customer Demand to a Unit of Time – in Minutes.

Works by Process

- Shift Management Policies.
- Mixed-Model factors.
- Kanban Influences in Process.
- Scrap Causing Influences in Upstream Processes.

**TAKT Time = 60min**

**"Rhythm"**

$$TAKT = \frac{H[S]}{I \cdot D}$$

H : Effective Work Time per Shift.  
S : Number of Shift(s).  
D : Demand (Daily) at Capacity.

**– TWO-BIN SYSTEM  
KANBAN SIZING**

Dk : Daily Rate.  
Q : Quantity per Product (from BOM).  
R : Replenishment Interval Time.  
H : Available Time to Replenish per Shift.  
S : Number of Shift(s).  
P : Package Quantity (if Applicable).

### New : Lean Flow Mapping Program (VSM)

The Lean Flow Mapping education program provides solid foundations to start your "Lean Journey". The objective of this education program is to explain the constraints of the traditional batch production organizations and to understand the benefits of a Lean methodology to design and implement an efficient pull system production to :

- Reduce production lead-time,
- Decrease drastically inventory,
- Increase flexibility and Customers response time.

### Measurable Results

Results are immediately measurable :

- Production to Customer demands – Not to stock,
- Optimized materials & information flows,
- Improved total product cycle times,
- Reduced Customers response times,
- Reduced cost of inventory,
- Reduced non-quality costs,
- Improved employees skills,



... Increased Customers Satisfaction & Retention.

### Real Examples & Real Results

Aerospace Products & Equipment	Before	After	Results
Lead Time (Days) :	> 30	<b>16</b>	<b>47%</b>
Work In Process Inventory (# of parts) :	> 200	<b>115</b>	<b>43%</b>
On-Time Deliveries :	< 20%	<b>100%</b>	<b>400%</b>
Productivity (# of parts / Employee) :	9	<b>20</b>	<b>122%</b>

HVAC Products & Accessories	Before	After	Results
Lead Time (Days) :	> 5	<b>1</b>	<b>80%</b>
Work In Process Inventory (# of parts) :	> 60	<b>18</b>	<b>70%</b>
On-Time Deliveries :	< 35%	<b>97%</b>	<b>177%</b>
Defect Rate :	4%	<b>0.3%</b>	<b>92%</b>

### 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 and Lean Flow Technology 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 of improvement such as :

- Value stream management in the offices (Lean Flow in the Office),
- Supply chains optimization,
- Implementation of material replenishment with Kanban,
- Statistical Process Control,
- 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.

### References

- Employees & project team members training,
- Lean Flow Technology project teams assistance,
- Mixed-Model lines, cells & fabrication feeders design,
- Production facilities rearrangement in France & Europe,
- Technology transfer projects leader,
- Statistical Process Control Implementation.