



## S U M M A R Y

- A software to help managing Lean Management organisation
- Main principles of Lean Management organisation
- Find the How and Why for each business indicator
- Methodological Tools for lean manufacturing



## KRONTIME SOLUTION LEAN MANAGEMENT

- How to make good use of the sluggish economic recovery announced by the experts in Europe for 2010?
- How to stay competitive in a global market and improve the efficiency of your enterprise in a very moving market?
- How to satisfy your customers who are continually asking for the best price, quality and delivery but demand more and more customised products?

### A SOFTWARE TO HELP MANAGING LEAN MANAGEMENT ORGANISATION

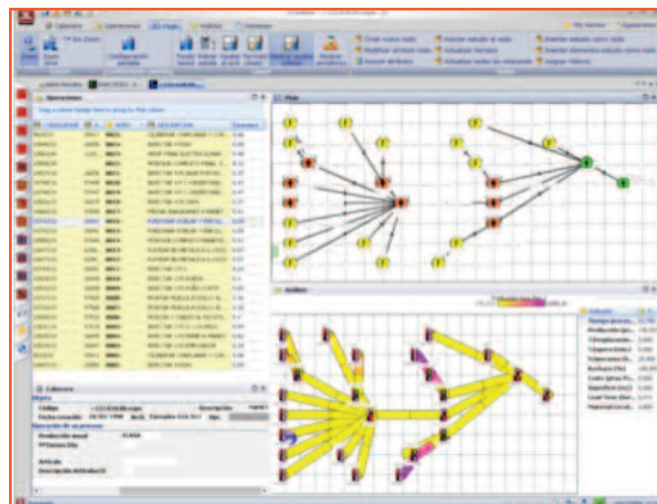
The software solution "Lean Management" launched by the editor KRONTIME gives a complete range of new tools to analyse processes, find improvement areas in organisation, decide priority actions, measure their impact, and allow a continuous improvement action (Kaizen). For a lot of users like BAXI, DENSO, DERBI, FAGOR, GESTAMP, JBC, ROCA, SEAT, these solutions represent a key-component of their business initiatives "Lean".

All these problematic criteria which give smaller batch production oblige companies to completely rethink their work organisation. For example, engineering departments are focusing today on the implementation of innovative processes and new methods on more flexible and smaller workcells. At the same time, continuous improvement methods are becoming more and more important.

In this environment, business initiatives to implement "Lean Management" are

gaining interest.

"Lean Management" organisation which eliminates the non-value adding activities, assures the synchronization of production flows and the participation



*The manufacturing engineer builds the production or assembly line graphically using the icons library. He will be able to see the efficiency of the work cells, balance of production lines, find tyhe critical paths, identify bottle-necks...*

of all the people involved in a continuous improvement programme. This business initiative "Lean Management" is particularly suitable to all repetitive processes in different economic sectors: industry, services, distribution, health... It facilitates the management of processes and resources in a lean way in a production plant (Lean production or Lean manufacturing), in an enterprise or an economic organisation (supply-chain management) with the objective of reducing waste and scraps.

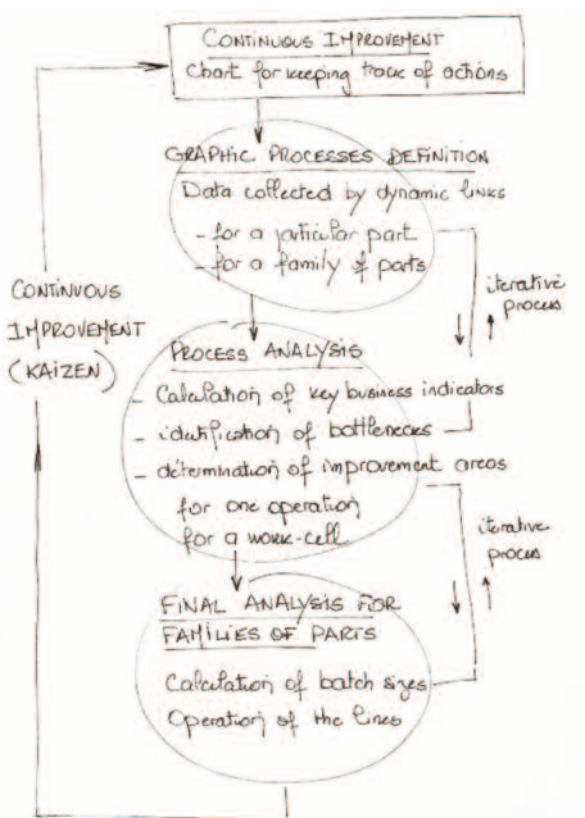
## MAIN PRINCIPLES OF LEAN MANAGEMENT ORGANISATION

The "Lean Management" organisation is built on several main principles:

- First, the calculation of Value Adding that, in the eyes of customers, is worth paying for.
- The identification of the different processes which create Value Adding: in a process, some operations can be found which generate Value Adding, some operations with Non-Value Adding but are necessary and some waste and scraps (waiting time for processing, useless treatment, parts sitting in storage, handling of parts, deficient quality...).
- The organisation of a continuous flow between the added value activities.
- A demand pull flow facilitates the production in small batches with a lot of variants. With a reduction of the lead time, companies can now choose to build on order.
- Giving workshop operators more responsibility, authority and accountability for affecting the daily processes: with the help of methodological tools, the operators reduce scraps and waste in their work area or department. They find and eliminate the different causes of problems just when they arise on the shop floor.
- Putting in practice the continuous improvement organisation.

Among the different advantages, let's mention reduction of the cycle times, cutting down of inventory, diminution of lead time, improvement of productivity and quality optimisation.

## FIND THE HOW AND WHY FOR EACH BUSINESS INDICATOR



To facilitate the implementation of a lean organisation in a company, to secure sustainability and a continuous evolution, industrialists should rest on a simple and pragmatic approach to support Process & Manufacturing Engineering teams, at a lower cost of ownership and fast learning curves.

But be careful! Business indicators are necessary, they are not adequate enough. It is crucial to know the "route cause" of each problem to understand all the information about the process. In a word, to find the "How" and the "Why" for each business indicator.

With powerful and fast analysis capabilities, the KRONTIME solution "Lean Management" inter-relates and integrates the different manufacturing engineering information (standardised work instructions, quality management, logistics, ergonomic studies...) to build a very rich data base around the production tasks.

In connection with the different "Lean" initiatives in a company, the manufacturing engineers are now able to rapidly design processes and operations, calculate the Non-Value Adding, simulate production flows, discover bottlenecks (choke point), value the costs driven by alterations...

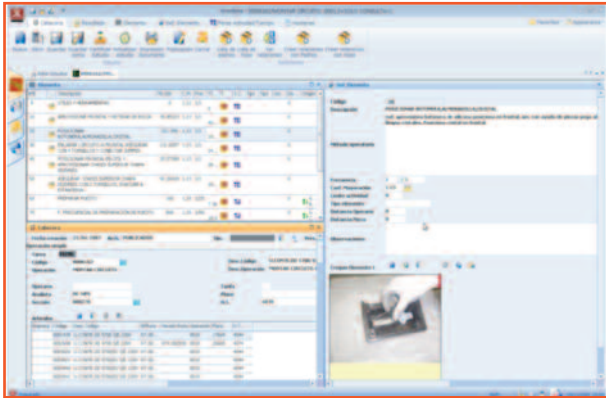
### First step: how to design your process graphically

The manufacturing engineer builds the production or assembly line graphically, using the icons library. He supplies the project with different data stored in the unique data base and in the ERP systems: sequence and time of operations, time measurement MTM, instruction sheet, waiting times, time for feeding components, ergonomic risk, health and safety equipment... He chooses the right balance with other operations on the line: push system, FIFO (First-in, First-Out), Kan-Ban system...

### Then, process and operations analysis are made by manufacturing engineers.

With calculations done by the software, engineers are able to see the efficiency of the work cells, balance of production lines, find the critical paths, sequence and time of operations, identify bottlenecks shown in colours, and the work areas for improvement. Using an iterative process, they discover the best organisation with minimum inventory, work-in-process, and short lead times and maximum productivity...

On the same screen, a table gives them a selection of Lean indicators (each industrialist can define his own criteria). For example, the lead time, productivity, Value Adding, surface occupied, materials circulation, scraps...). All this information gives them the opportunity to find and quantify the Value Adding operations and the Non-Value Adding operations (waiting time, machine setups, feeding time) for a part or a family of parts.



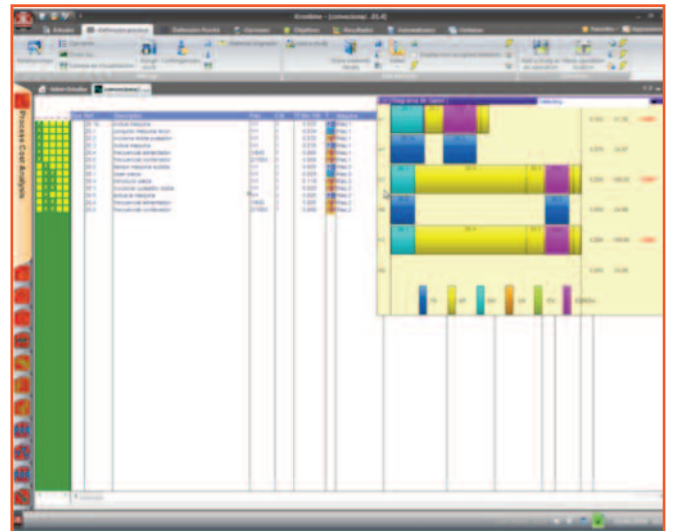
*When the manufacturing engineer find a too important non value adding, he can go back to the analysis of operation and explore the different sequences.*

When they find non-satisfactory results (for example, a too important non-Value Adding), they can go back to the analysis of operations and explore the different sequences, study again a work place, look at the different indicators (fatigue coefficient, ergonomic risk shown on a picture or a video), bring modifications before playing the different scenario again.

Final analysis gives the opportunity to compare process per product family. With a master schedule with a mix of production, it gives the ideal size of batch and shows how the production line will react. For example, what are the results if we need to double the number of parts of the C family? For every minute, the software gives a view of interactions between the global flow and the different operations.

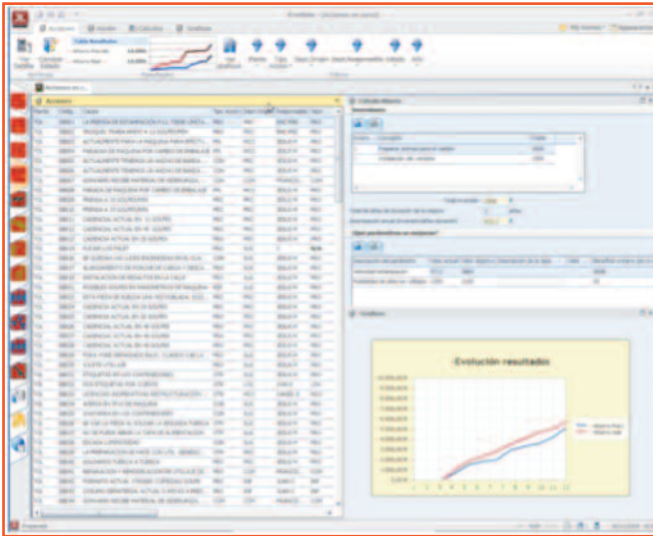
### A continuous improvement process

Most of the time, where Lean tools have been implemented, there is a tendency towards complacency. To keep a perennial organisation with a continuous improvement process is a very important step of Lean Production organisation.



*A table gives a selection of lean indicators. For example, the lead time, productivity, value adding, materials circulation, scraps...*

KRONTIME is offering a software tool to follow the different workshops of continuous improvement process in each production department. On this "Kaizen" chart, the manufacturing engineers discover the different tasks to do, the planned improvements, the goals, the benefits, the time of delivery, the investments, the return on investments, the benefits on the lead time in Euros or in men/years...



*Krontime is offering a software tool to follow the different workshops of continuous improvements process in each production department, in each plant.*

Traceability: all the manufacturing engineers in the same enterprise can have access to the same data. With a unique data base and the dynamic links, it is very easy to go back to the different evaluations and studies to find key-data of production, start an identical work-shop on a different site, and understand the history of a project

## METHODOLOGICAL TOOLS FOR LEAN MANUFACTURING

→ The system of information **KANBAN** uses visual signals (labels, cards, flashing lights) and very low cost devices to reduce the levels of inventory and work-in-process. As the next work-cell or office is using the component or the document, a Kanban card comes back to the flow chart and indicates which part or document is now required. Production is limited on the parts or documents needed and in the right order of utilisation.

→ **SMED** (single minute exchange of die) is to reduce the time of change of dies or other components over the processes, to reduce changeover times (exchange of tools, rapid setups) and allows a reduction of the batch sizes.

This Lean Manufacturing method is based on data collection (capacity, maintenance documents...) and performance information (studies of changeover, video analysis, mean time for changeover, machine availability...) to identify improvement tracks: for example a better work organisation and a progressive modification of the equipment (parallel work tasks, task synchronisation, elimination of some setups, replacement of screws by clips...)

→ The method **5S's** or process workplace organisation or how to organize a very efficient job with a functional environment. This method makes reference to five Japanese words beginning with the letter S and which can be translated by Sort, Set in order, Shine, Standardise and Sustain. This effort maximizes the cleanliness, organisation and safety of the workplaces and improves throughput, working conditions and workplace safety.

→ The **KAISEN** or Continuous Improvement philosophy is based on a daily research of improvements at every level of the company. Kaizen demands a very strong motivation from all employees. Multi-functional teams analyse work tasks and propose improvements to reduce waste, simplify production flows and assure a better throughput. The 5S, SMED, TPM (Total Productive Maintenance) are the main tools of continuous improvement process.