

Think lean: How to improve productivity by reducing waste and inventory



Keep it lean ... Dr Blakemore addresses guests at the official launch of Challenge Engineering

Dr John Blakemore, principal of Blakemore Consulting International and recently voted one of the top 10 Engineers in Australia for Engineering Innovation by The Institution of Engineers Australia, delivered the following presentation at the launch of Challenge Engineering in Sydney late last year. Challenge Engineering is an innovative engineering company specializing in CNC machining.

From individual machines and processes to supply chains, all industries are beginning to apply the principles of lean manufacturing to both internal and external systems.

This means both machinery and labour must be more flexible.

In general, the application of these principles in large plant supplying product to the global market producing on long runs such as those operating in the US or Japan, is a formidable task but the problems are even more difficult in Australia where plants operate on shorter runs with greater product variety.

The reason for the greater complexity of product and process in Australia is a direct result of its small population and geographical isolation.

Innovation is needed at all levels of society as climate change is real and will affect all of us. It requires an international approach.

The following guidelines are designed to assist manufacturers in applying Lean Systems Thinking.

This is of particular relevance to plants producing a wide variety of products on short runs – a challenge of great importance to Australian manufacturers.

Manufacturing techniques in most Australian plant making to stock, have historically worked on forecast data with a 6-8 week manufacturing plan. Such plans will always be in error.

In essence such forecasts are trying to satisfy the basic rule of making only what you can sell, but the errors in a mass production plant with machines and equipment with poor flexibility

can lead to overproduction, high inventory, and high obsolescence.

These problems can be addressed with the application of lean system thinking.

Lean systems thinking was developed for manufacturing by Toyota from the very first time they decided to build cars.

Mr Toyota sent Dr Ohno around the world to study mass production techniques first developed by Ford.

When Dr Ohno returned he proposed that Toyota manufacture cars like the US runs its supermarkets. This idea was supported by Toyota and the Lean System was born. They rejected mass production in favour of lean system manufacturing.

'Manufacturing systems, both machines and labour, should be as flexible as possible'

Paradoxically Dr Ohno only had to look as far as the Tokyo sushi bars to see the principle at work.

The Toyota System follows a series of logical shop floor controlled rules with Kanban loops.

The basic idea is to make manufacturing systems, both machines and labour, as flexible as possible and run with synchronized processes and maximum value added with minimum inventory. This means that the setup times must approach zero lost time.

In addition, the waste should be minimized and the processes should operate at a capability level where the defect rate is measured in parts per billion, not per cent.

This has led to 6 sigma processes.

The basic aim of Lean Manufacturing is to introduce a pull system with a short lead-time. This lead-time is made up of two main components, value added and non-value added time. Value added time is run time on a machine for example, non-value added time is storage time, setup time, idle time, breakdowns, inspection time etc.

An ideal goal is to achieve 100 per cent value added time. This is practically impossible.

For many plants the value is probably 5 per cent

Maximising profit with short production runs

(limited measurements) – so the opportunity is very significant.

A Lean Manufacturing System will not work if the manufacturing processes and the machinery do not perform to their capability.

The capability referred to here is that expressed by the statistical capability index Cp or Cpk. This index measures the ratio of the difference in the upper and lower specification limits set for the attribute or variable being measured, and six standard deviations of the mean measurement.

Globalization has increased the fierceness of competition. As companies grow they demand a greater return on capital and as a result the rules governing the accountability to shareholders are becoming more stringent.

The value of the company is largely determined by its cash flow potential measured as a return on its capital investment.

Its ability to generate cash will also determine the likelihood of further capital investment to aid further growth.

Japanese rules of lean manufacturing can be applied to all processes and systems in all walks of life.

For business this includes five major control functions:

- People and systems
- Quality and Innovation
- Marketing and Sales
- Operations
- Finance and Control

Australian companies can win by being more skillful and flexible and tapping the full creativity of its people and applying the rules of Lean Manufacturing to all processes and systems. We all must lead and learn.

Business can be likened to an ocean racing yacht. With constant surveillance of external forces (wind, waves, water) and internal factors (crew, hull, sails) and strategic positioning (position with respect to goals) and competitive position (position in relation to competitors) we can continually improve our position by developing and improving products and processes (diligent tiller and sheet trimming).

In business the assets are the people, plant and equipment.

The wind, waves and water are equivalent to the demand and all the forces affecting it.

Control involves people, plant, systems and processes. Strategic objectives can be achieved

by identifying the Key Performance measures and the core processes that will lead to the defined and desirable goals.

Our measurements must be meaningful. All enterprises must embrace innovation to succeed in the global marketplace and "think outside the square" so that they can "create" the future.

However the first step is to formulate a vision and define a Strategic Advantage for Winning (SAW). This must be used as a defining criterion for determining the direction and leadership of the business.

Lean Manufacturing is a journey. The job will not be complete until the lead time is 100 per cent value added time and we deliver to our customers the right quality at the right price. 100 per cent on time.

The opportunity is there for all.

How to apply lean principles

Following his most recent visits to Toyota, Honda, Honda Logistics, Panasonic, Canon, and Kawai in Japan, Dr John Blakemore has developed a series of Lean Thinking workshops which enable small companies to understand the latest Japanese manufacturing techniques and apply them to their businesses.

Dr Blakemore has devised 25 rules for companies to help improve profitability and performance.

There are 10 two hour workshops in the series and are being run in conjunction with Challenge Engineering. To assist with delivering more value, participants are asked to provide confidential details about their business beforehand.

Dr Blakemore says in all cases where the lean methodology has been used, the rewards have been substantial within six months. In fact, the latest results using these techniques have resulted in Enware being nominated to apply for the Endeavour Award for achievement in manufacturing excellence. Dr Blakemore has been working with Enware for only a few months.

For information: www.blakemore.com.au

Flexilift doubles Hyundai distributorship



Australian first ... dual Hyundai distributorship

In an Australian first, Hyundai Heavy industries via Flexilift has the first ever dual Hyundai Forklift

and Earthmoving Equipment Distributor under one roof.

Liftwest (WA) is the new Hyundai Forklift Distributor for Western Australia and Earthwest is acting as the distributor of the Hyundai Construction and Mining Equipment for Western Australia.

Earthwest was established in 2001 and awarded the state distributorship for Hyundai earthmoving equipment by Hyundai Construction Equipment Australia (HCEA).

In the short time since this appointment Hyundai earthmoving equipment via Earthwest in WA is already in the top four selling

manufacturers of earthmoving equipment in that state. They are looking to repeat that success with the Hyundai Forklift Range.

Last year Richard Veza bought Earthwest, taking on the role of managing director. Mr Veza has many years experience in running dealerships, having been a partner in one of Perth's most successful Toyota Dealerships. With an extensive background in finance, he has also held the position of dealer principal for other large dealerships.

Brenton Nelson has been appointed to manage all facets of Liftwest, including sales, service, and spare parts.

Mr Nelson, Liftwest's former business manager, is looking forward to driving the Hyundai Forklift range into the market.

"This is very exciting, not only for us, but the Western Australia forklift public," he said.

Mr Veza says: "We see a lot of synergies with our current operations and expertise which will enable us to offer not only a fantastic quality product, but back up this range with second to none customer service."

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