Application of lean and visual manufacturing to drive sustainable business advantage

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Sustainable Business

- Surviving Business pressures

  - Reducing margins
    - Increasing costs (eg labour, materials, energy, currency)
    - Prices increasingly being set by buyers (eg supermarkets)
  - Increasing requirements on goods
    - Quality, Environmental
    - Flexibility, Greater product variations, Supplier specifity
  - Competition
    - Other suppliers of related goods
    - Alternative products
    - Resources

- Dealing with these needs a thought out plan .....

A bad system will beat a good person every time. W. Edwards Deming

Sustainable Business

- Short term strategies may yield temporary relief
  - e.g. new marketing campaigns, new packaging, new products, acquiring new processes or certifications
- But in the long term they solve little as they do not fundamently improve or change the way one works or thinks.
- In some cases they can even be detrimental
  - Increasing long term costs
  - Being driven by outside influences in unintended directions
- Are typically isolationist and do not involve “All of organisation” in their scope

“The world we have created is a product of our thinking; it cannot be changed without changing our thinking.” Albert Einstein

Sustainable Business

To be properly sustainable as a business you need an organisation committed to continually evolving its solution to business with a firm long term goal in mind.

Lean Manufacturing provides one such model

“If you don't know where you are going,
you will probably end up somewhere else.” Lawrence J. Peter

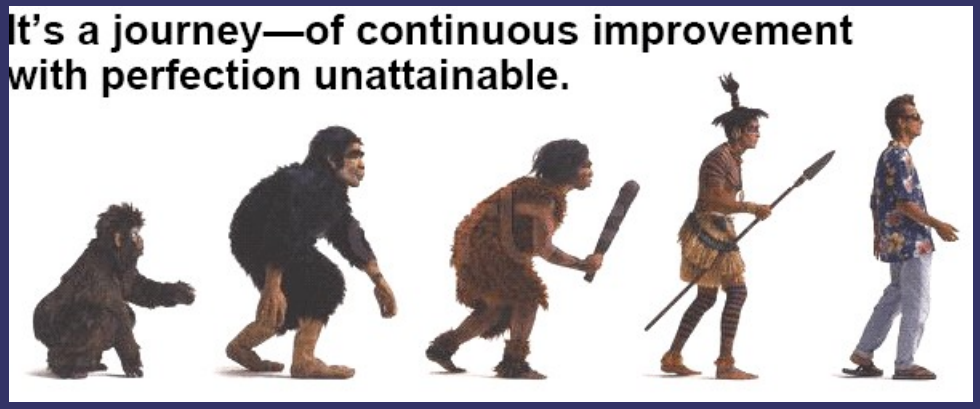
Lean in a Nutshell

- A focus on
  - Getting the right thing
  - To the right place
  - At the right time
  - In the right quantity
  - Using the correct process
- Whilst
  - Minimising waste
  - Being flexible
  - Able to change

“Amateurs work until they get it right.
Professionals work until they can't get it wrong.” Anon

Lean Manufacturing

- Is a generic process management philosophy and application is not limited to manufacturing
- Based heavily on the Toyota Production System
- Optimises processes by removal of waste and implementing flow (instead of batch and queue)



Waste

Waste needs special mention as it covers more than just rubbish!

- Overproduction
- Waiting (time on hand)
- Unnecessary transport or conveyance
- Overprocessing or incorrect processing
- Excess inventory
- Unneccesary movement (ergonomics, searching, walking, stacking)
- Defects
- Unused employee creativity!

"Waste is worse than loss. The time is coming when every person who lays claim to ability will keep the question of waste before him constantly. The scope of thrift is limitless." Thomas A. Edison

Visual

- Visual is a system to avoid motion in the workplace
- Visual is rather a bias to lean, rather than a system by itself
- Focus on filling information deficits by visual cues
- Typically consists of many small solutions, which together make up a larger solution.
- Provides a "glue" to keep systems similar across an organisation
- Avoids the need to over-report – If you cannot fit it on a A3 page you have missed the point

"If you need a new process and don't install it, you pay for it without getting it." Ken Stork

Why Visual

- Easy to understand by everyone
- Reduces motion
- Can stand alone as a solution to issues
- Improves standardisation
- Improves training
- Shares common goals with Lean
- Information is not filtered

"The essential question is not, "How busy are you?" but "What are you busy at?"" Oprah Winfrey

Visual/Lean Together

- Full lean can be a daunting collection of language, tools, techniques and mechanisms.
- Early successes are needed to provide credibility and start cultural shift.
- Difficulty may exist on where to start, what best to do
- Lack of knowledge and experience may exist at all levels in the organisation
- Including Visual at the onset helps promote change in a positive and sustainable fashion.

"It is better to stir up a question without deciding it, than to decide it without stirring it up." Joseph Joubert

The Debortoli Experience

- Extremely positive
- Debortoli sees Lean/Visual as pivotal to the continued sustained success of its operations.
  (That this occurred within weeks of implementing a pilot lean project is truly remarkable)
- Return on investment on starting lean was immediate and massive. After six weeks of pilot trial the ROI was 14 days!
- Demonstratable cultural shift has occurred
- Lean/Visual solutions continue to popup, often without any guidance
- Debortoli could not reverse lean even if they wanted to – the staff have taken to it.

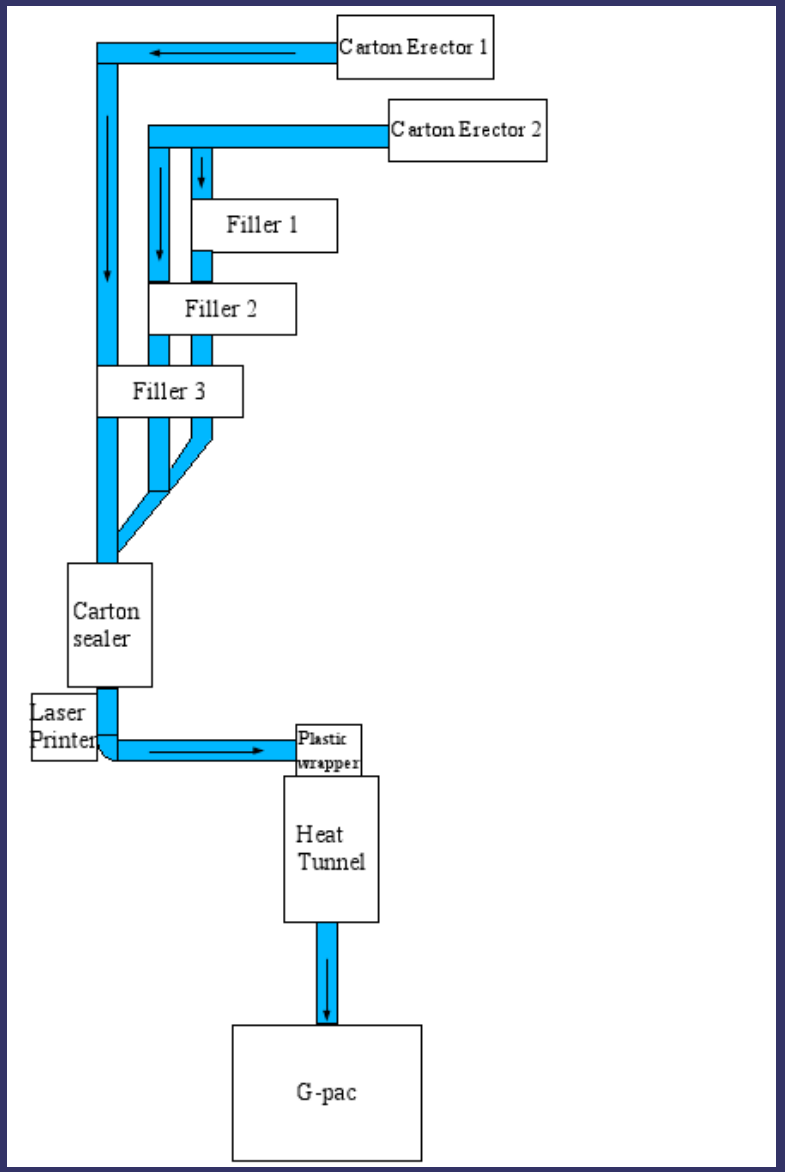
"It is not the employer who pays the wages. He only handles the money. It is the product that pays the wages." Henry Ford, 1922

Pre-Introduction

- Full training of all managers
- Management as a group decided that attempting lean was for Debortoli
- A pilot was established
- Introductory training of staff

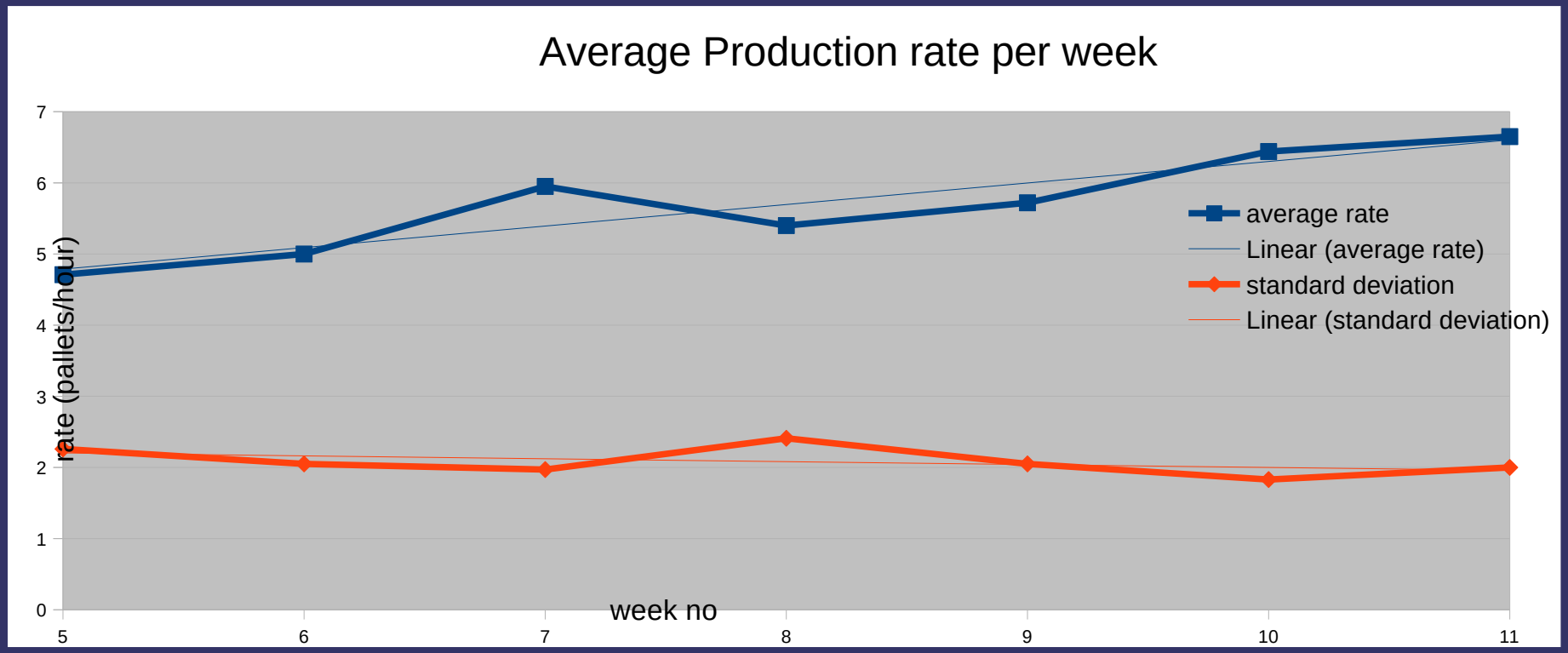
4L Pilot Cask Line

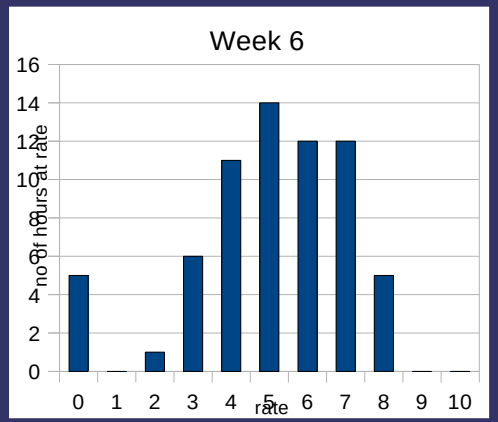
- Long established Line
- Existing OEE of 60-65%
- 4-5 staff run it
- Is a core business line
- Chosen for trial because scope/size made a nice tractable challenge

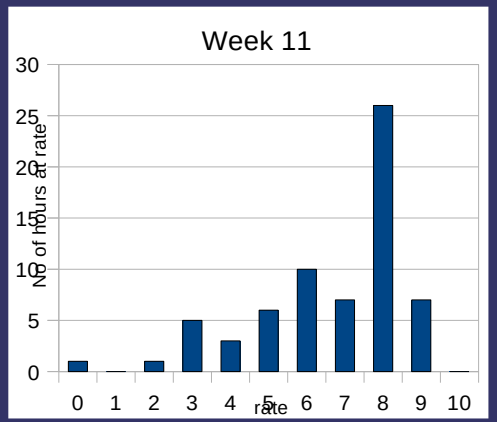


"One half of knowing what you want is knowing what you must give up before you get it." Sidney Howard

4L Results – first 6 weeks



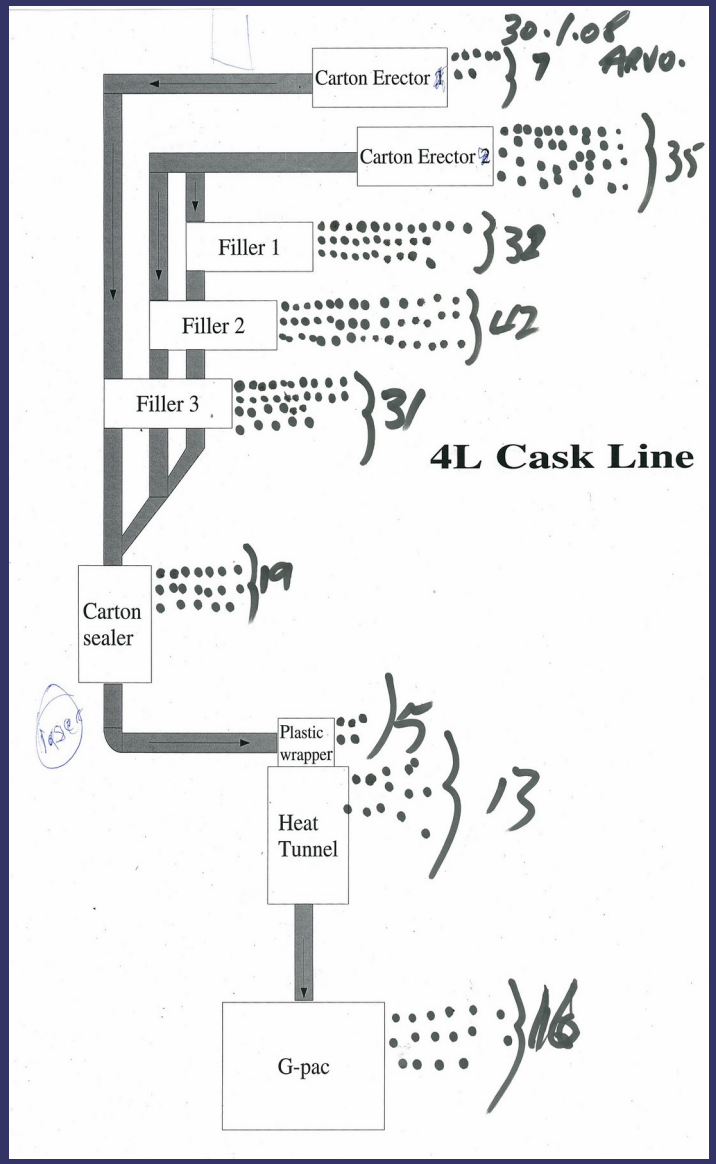


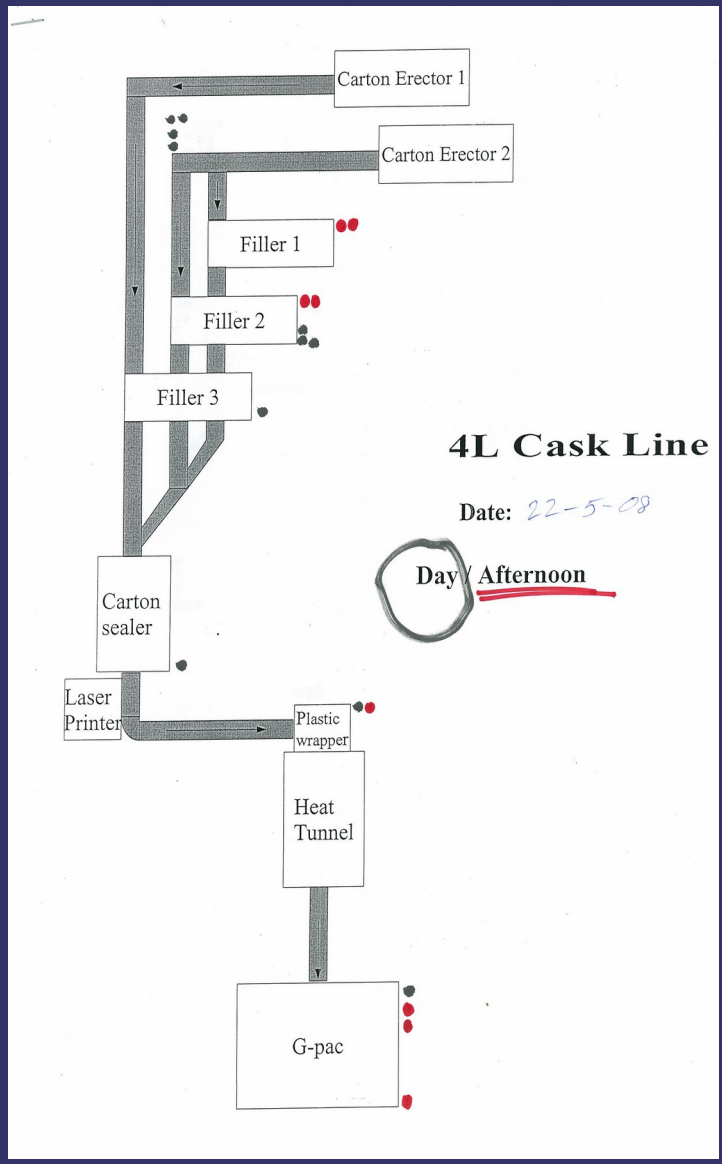


"Great ideas need landing gear as well as wings." C.D. Jackson

"Semper Ad Majora"
Always Striving For Better

4L Results – first 6 weeks





"It is only the last turn of the bolt that tightens it – the rest is just movement" Shigeo Shingo

4L Results – first 6 weeks

- Significant increase in performance
- Improved Quality
- Staff productivity improved
  - Less effort for staff
  - With more output
- Improved Safety
- Improved Communication
- Improved involvement
- More informed staff
- Better performance measures
- A village culture is developing
- Staff now approach management with issues, always with diagnostics and regularly with solutions.
- Management is increasingly being seen as a facilitator for improvement.
- Job Satisfaction and pride is on the up

"There is nothing so useless as doing efficiently that which should not be done at all." Peter F. Drucker

4L Pilot – What the staff did

- Staff did
  - Found ways to highlight their issues
  - Became pro-active in finding answers
  - Became ambassadors for lean
  - Communicated effectively to all levels in the organisation
  - Advertised their operational status
- What they achieved for themselves
  - A “do it right first time or not at all” mandate
  - Less physical work for themselves
  - Simpler and less specialised work processes
  - Time away from production to focus on solutions
  - Exceeded their own production estimates
  - Increased predictability and reliability of changeovers

“It is an immutable law in business that words are words, explanations are explanations, promises are promises but only performance is reality. ” Harold Geneen

4L Physical Changes to line

- Carton erector reliability/startup issues resoved
- Improved Line control fitted – to prevent problems travelling upstream
- New design filler heads purchased
- New storage cupboards
- Wine Supply system changed to reduce hydraulic shock
- Bundle wrapper reliability improved
- Heat bar life from 1 day to 1 week
- Plus many more reliability improvments

"Nature does constant value stream mapping - it's called evolution." Carrie Latet

4L Line – The immediate future

- New carton sealer in progress of purchase
- Improved bag conveyance system is being manufactured
- Life based maintenance is being introduced
- Improved visual feedback systems
- Changeover goal of 10 minutes has been set. Wine changover trials have already shown that 15 minute potential..
- 5S in progress

"It is more than probable that the average man could, with no injury to his health, increase his efficiency fifty percent." Walter Scott

4L Line – How simple it was

What we learnt during this pilot was:

WE ALREADY KNEW WHAT THE ISSUES WERE!

WE ALREADY HAD THE ANSWERS !

WE COULD HAVE SOLVED THESE ISSUES
AND REAPED THE BENEFITS MANY YEARS AGO!

TRUST OUR STAFF!

Nike so aptly says informed us of our failing.

“JUST DO IT!”

“We are too busy mopping the floor to turn off the faucet.” Anon

References

- DBW Training Notes, Management Resource Plus, Productivity Australia Pty Ltd
- http://en.wikipedia.org/wiki/Lean_manufacturing
- The Toyota Way, Jeffry K. Liker 2004
- http://www.quotegarden.com/lean-manufacturing.html
- Other various Internet sources

"A relentless barrage of "why's" is the best way to prepare your mind to pierce the clouded veil of thinking caused by the status quo. Use it often." Shigeo Shingo