

Lean Business..... **Fat Profits**

Your guide to harnessing Lean principles
to reduce waste, increase productivity
and generate seriously FAT profits

The purpose of Lean is to increase capacity by designing the operational processes so that they optimally respond to customer demand, and then to utilise the additional capacity to add greater customer value and/or increase output. Cost reduction is a natural consequence of Lean, but not its purpose.

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1. Introduction

The purpose of this book is to provide business owners and managers with practical knowledge and examples as to how they can implement Lean within their own organisation. This is a 'how to' guide to demonstrate how a Lean Business can ultimately result.....in **fat profits**.

On a daily basis, a typical Australian business has to contend with customers, suppliers, governments, competitors, unions, employees, regulatory and environmental groups. Add to this the uncertainty in global markets, interest rates, legislative changes and environmental changes, and it is easy to understand why business people often find it difficult to know what to address first in order to make *real* progress.

The Lean Philosophy has been around for many years, but unfortunately it is not always understood, predominantly because Lean is often associated with 'manufacturing', and also because of the misconception that Lean is an 'operational' issue that can be solved by the 'operations people'. Lean is often associated with Toyota in Japan, and while they are pioneers of modern Lean thinking in the automotive industry, they have also broadened their outlook as reported by The New York Times:

The Food Bank for New York City is the country's largest anti-hunger charity, feeding about 1.5 million people every year. It leans heavily, as other charities do, on the generosity of businesses, including Toyota. As opposed to a monetary donation, Toyota had a different idea, and instead of a cheque, they offered "efficiency".

Using Lean techniques at a soup kitchen in Harlem, Toyota's engineers cut down the wait time for dinner from 90 minutes, to just 18 minutes, thereby allowing more people to be fed. At a food pantry on Staten Island, they reduced the time people spent filling their bags from 11 to 6 minutes, while at a warehouse in Bushwick, Brooklyn, Toyota cut the time it took to pack one box from 3 minutes, to just 11 seconds.

Toyota has “...revolutionized the way we serve our community,” said Margarett Purvis, the Chief Executive and President of the Food Bank. (New York Times, 27 July 2013)

Lean is about business. A Lean business strives to understand what the customer really values, and then maximises customer value while continually improving internal processes and operations to minimise waste, where waste is defined as any activity that does not add customer value.

While businesses are beginning to realise that Lean applies to both manufacturing and service or professional organisations, many still believe that Lean is a set of tools and techniques that are used to improve overall business efficiency. Going Lean does not mean the introduction of complicated systems and procedures, or the use of sophisticated tools and techniques. *Lean focusses on simplicity.*

Although formal Lean tools used to analyse value streams, improve operational layouts, production planning and 5S are all part of Lean, using the ‘tool head’ approach will usually only result in short-term benefits (figure 1). Lean is not short-term, rather it is about creating a sustainable long-term Lean business..... and fat profits.

The purpose of Lean is to increase capacity by designing the operational processes so that they optimally respond to customer demand, and then to utilise the additional capacity to add greater customer value and/or increase output. Cost reduction is a natural consequence of Lean, but not its purpose.

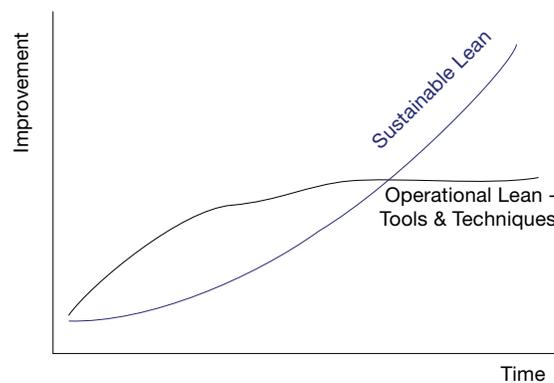


Figure 1. Sustainable Lean vs Operational Lean

Fundamental to a sustainable Lean Business, is the understanding of the *overall system*, which starts with an understanding of the customers and the market in which the business operates. Failure to adopt a systems approach can lead to the implementation of practices or 'solutions' that may have short-term operational benefits, but may lead to long-term customer dissatisfaction that is difficult to reverse.

In Pfeffer's 2007 book *What Were They Thinking?*, he details cases where top management from major corporations implemented short-term 'solutions' that proved to be ineffective and even disastrous in the medium-term.

Studies by The Pew Trusts found 94% of people surveyed (virtually every single person), found it 'very frustrating' to call a company and hear a recording rather than a real human being. Installing automated telephone answering systems may create short-term cost savings, but at what price?

The *systems approach* should initially focus on the organisation and its market as a whole, before implementing operational changes to individual parts of the business. This means that the company should have an understanding of:

- *Their customers and the market in which they compete (Voice of the Customer).* Far too often companies, whether manufacturing or service orientated, work on the assumption that *they know* exactly what their customer needs, or they give their customers what happens to be convenient to them. True customer satisfaction is achieved only when suppliers meet or exceed the customer's expectation against a range of customer-specified value criteria.
- *The capabilities, skills and resources necessary to win in this market.*
- *The required organisational structure and management systems & processes.* Only after having listened to the Voice of the Customer to understand the true value of the product or service from the customer's point of view, can the organisation continue down the path of Lean and create the structure and internal systems and processes that contribute, or add value to that product or service, i.e. the *value stream*.

True Lean transformation is dependent on all the functions of an organisation working in harmony. Figure 2 depicts the common organisational functions and how they link to the overall Lean Business.

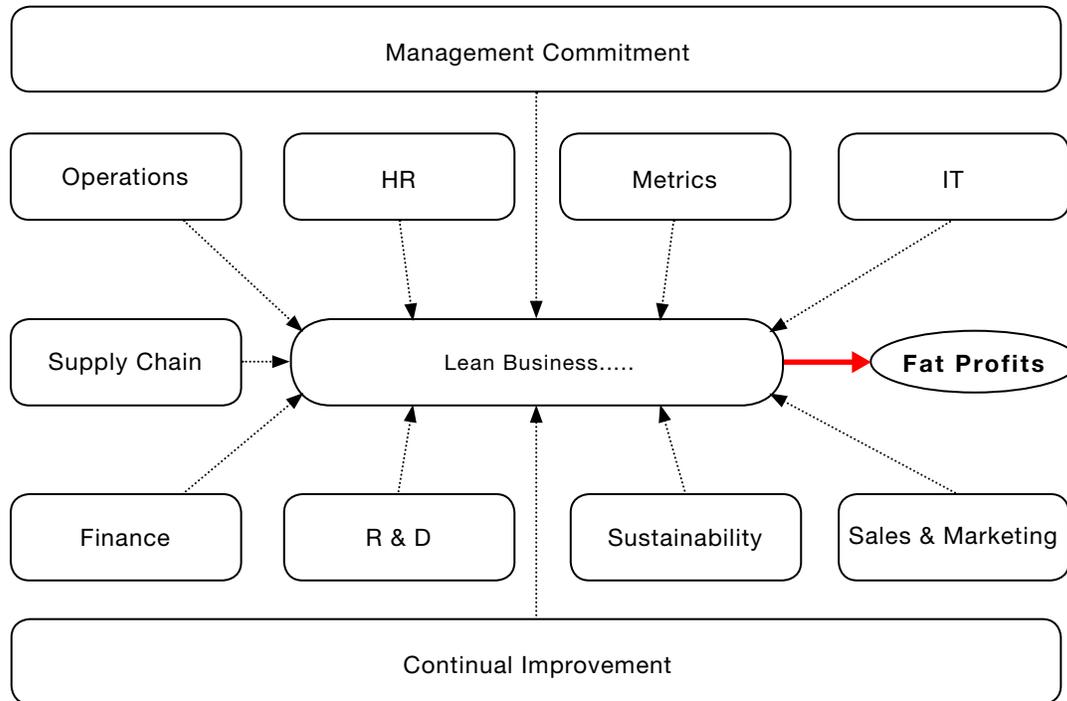


Figure 2. Typical Lean Business Functions

In the chapters that follow, the implementation of Lean will be discussed with particular reference to the small and medium enterprises (SME's) that dominate Australia's economic landscape.

2. Important Lean Characteristics

During the past two decades, much has been written about Lean, and the table below summarises the important Lean characteristics that will be touched upon in the remainder of this book.

Customer	The customer, both internal and external, is the starting and ending point in any Lean organisation. Everything <i>revolves around the customer</i> . Understand what the customer <i>really wants</i> , and not simply deliver what can be supplied.
Simplicity	Lean organisations <i>use simple systems and procedures</i> and are wary of complexity. Lean is not simple, but simplicity prevails.
Waste	Lean organisations <i>recognise waste and seek to reduce or eliminate it</i> at the source. Any activity that, from the customer’s perspective does not add value is considered waste.
Visibility	Lean organisations strive to <i>make all operations and metrics visible</i> and transparent for all to see.
Flow	<i>Flow is a key concept</i> in Lean. Keep all operations moving at the rate of customer demand.
Pull	<i>Synchronise operations</i> at the customer demand rate
Regularity	<i>Avoid surprises</i> by simplifying operations.
Prevention	A critical aspect of Lean is <i>error prevention</i> , not inspection and rectification.
Time	Lean is about <i>reducing the overall time</i> to manufacture goods or provide a service, i.e. from ‘order to cash’.
Participation	Lean encourages <i>participation</i> by all employees.
Knowledge	Knowledge is King. <i>Empower employees</i> by providing them with the necessary skills and knowledge.
Trust & Partnership	Lean organisations seek a <i>co-operative working relationship</i> both internally and externally. Suppliers, employees and customers are considered ‘partners’ in the business.
IT	Lean and IT are not diverse as appropriate IT is used to <i>streamline operations (flow)</i> and eliminate or reduce waste.
Improvement	At the heart of all Lean organisations is the quest for <i>continual improvement</i> .

Table 1. Important Lean Characteristics

3. It all starts with the Voice of the Customer

The implementation of Lean in any business is a continuous 5-stage process that begins with the identification of the **value desired by the customers**. Unfortunately, this old marketing concept is frequently forgotten during Lean implementation as suppliers and service providers regularly introduce new products and services that are constrained by their own internal demands and their existing facilities and paradigms, rather than by actual customer requirements.

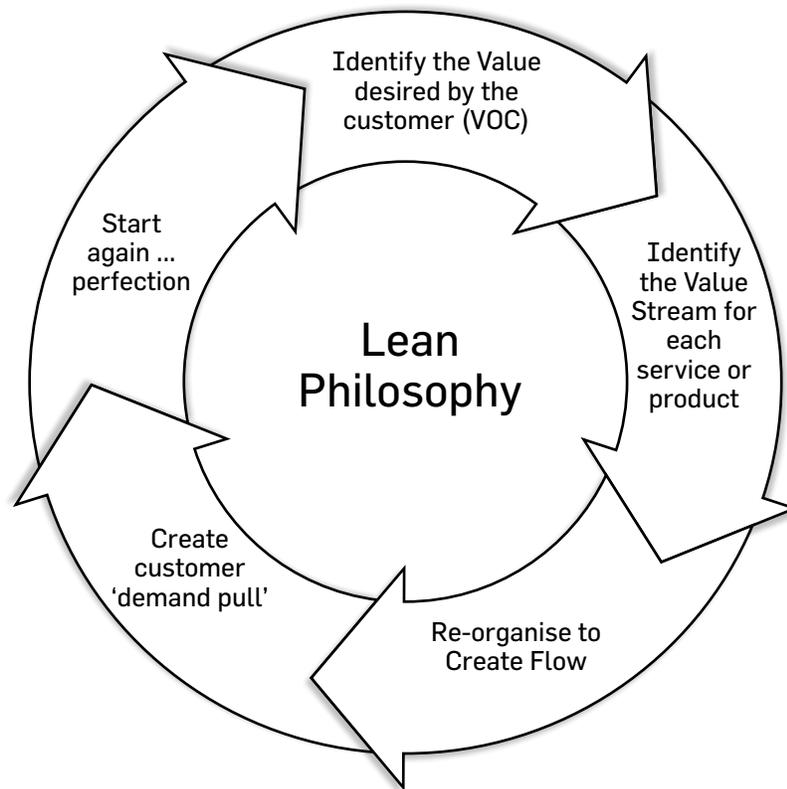


Figure 3. Lean Improvement Cycle

“...I know exactly what our customers want. We have been in this business for many years and they only want three things... price, quality and delivery – in that order!” Operations Manager, Sydney based manufacturing company.

Far too often companies, whether manufacturing or service orientated, work on the assumption that they know exactly what their customers need, or they give their customers what happens to be convenient to them.

While many companies often know who the key decision makers are in the customer organisation, few actually understand the individual value criteria that influence their buying decision making. True customer satisfaction is achieved only when suppliers meet or exceed the customer's expectation against a **range of customer-specified value criteria**.

While customers do want price, quality and delivery (PQD), there are a host of other factors that can influence buying decisions, e.g.

- Packaging & labeling
- Invoicing
- Design flexibility
- Communication (including methods, speed, style, documentation etc)
- Quotations
- After sales service and technical support
- Environmental issues
- Lead time reliability
- Product/packaging disposal
- Payment terms.

By conducting a detailed customer needs analysis with the relevant decision makers, i.e. those people that come into contact with the product or service and are able to influence buying behaviour, many companies are surprised to find that the **actual** customer needs are quite different to their **perception** of these needs as depicted in Figure 4.

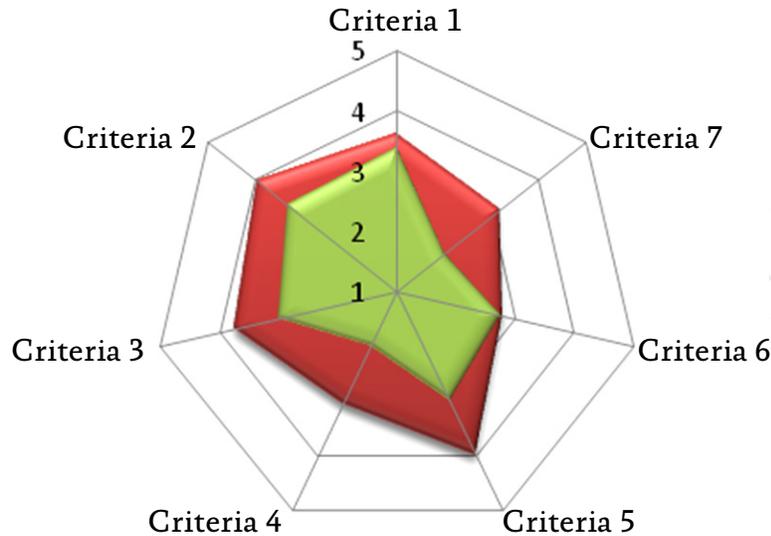


Figure 4. Actual (red) vs Perceived (green) Customer Value

As an example, a sheetmetal fabricator based in Western Sydney has dramatically increased his market share by quickly responding to customer requests. Requests for quotation (RFQ's), are answered within 24 hours and in many instances within the same working day. This has enabled the organisation to win new business not on the basis of price alone, but rather their customer's desire for fast and accurate communication.

In another case, a local Sydney retailer of cameras, TV's and other electronic goods has identified that due to the rapid development in consumer electronic goods, customers are often left confused as they attempt to navigate through the multitude of available product options and features. Taking this one step further, the retailer has found that many customers place a high value on being given correct product advice by the salespeople, so he, in collaboration with his suppliers, has embarked on an intensive hands-on product training program with his staff. The net result is that this retailer has increased his market share by offering superior product knowledge, without having to resort to excessive price discounting.

As a final example, a local warehouse supervisor purchases consumable items only from a particular supplier, where his choice of vendor is not based on price, delivery or quality, but rather on how the supplier packages the items for ease of handling and storage within his warehouse.

Only after having listened to the voice of the customer to understand the *true value of the product or service from the customer's point of view*, can the supplier continue down the path of Lean and identify those internal processes that contribute, or add value to that product or service, i.e. stage 2 in figure 3 - identifying the value stream for each product or service group.

This is the sequence of all current processes, both value adding and non-value adding from raw material to product launch or from initial customer contact to service completion. In doing so, the non-value adding processes will automatically be identified which allows the supplier to progress to stages 3 and 4 in the Lean implementation, and use the various Lean tools and techniques to reduce and ultimately eliminate the non-value adding processes.

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4. The War on Waste

The *Lean Philosophy* is fundamentally a continuous process of identifying, from the customer's perspective, the **value added and non-value added business processes**, and then, by using suitable tools and techniques, reducing or eliminating the *non-value adding activities*, commonly called *waste*.

“Waste is all Non-Value Added Effort, i.e. any activity that the Customer is not prepared to pay for.....but often has to!”

Using the 5-stage Lean cycle (figure 3), the 7 traditional wastes within an organisation can be identified, i.e.:

- *Transportation of goods both internally and externally*
- *Inventory*
- *Movement of people in 'getting the job done'*
- *Waiting for a process or service*
- *Over production ('just-in-case' production)*
- *Over processing, or inappropriate processing using excessive (wrong) resources*
- *Defects and other quality related issues.*

Within the Service or Office environment, the above wastes can be more clearly broken down into:

- *Sorting & Searching (wasting time looking for documents, files etc)*
- *Inappropriate Measurements (measures drive behaviour). What reports are being generated and are they all used? What is their purpose?*
- *Under-load & Over-load (e.g. month-end, year-end). Can one smooth out the demand cycle to create an even flow of work?*
- *Inappropriate Priorities (important, un-important vs urgent and not urgent)*
- *Inappropriate Frequencies & Presence. Unnecessary attendance at meetings, compiling reports, etc.*
- *Interference via emails, co-workers, Facebook, Twitter etc.*

- *Duplication of information on multiple (non-integrated) systems.*
- *Over-design and sub-optimisation (what does the customer want?)*
- *Mistakes, Errors, Misunderstanding or Lack of Knowledge.*
- *Delay or Waiting for a response from another department or individual.*
- *Start up and Sign Off*

As depicted in figure 5, the Lean approach enables you to identify these wastes in your processes and then reduce or eliminate them, while simultaneously increasing the value-added component. This results in reduced costs, reduced lead times, increased capacity, fewer quality issues, and an overall improved customer experience.

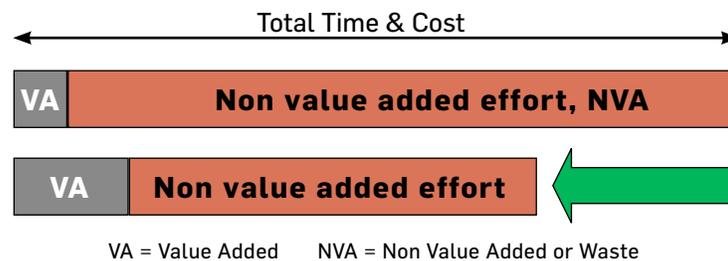


Figure 5. Reduce the NVA while simultaneously increasing the VA component

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5. Lean Strategy

As stated in the Introduction, the purpose of Lean is to increase the overall capacity of the business by designing the operational processes and systems so that they optimally respond to customer demand, and then to utilise the additional capacity to add greater customer value and/or increase output.

This is somewhat easy to achieve when looking at more tangible areas of a business such as manufacturing, sales or IT, but what about the business strategy? All too often, businesses fail to achieve their full potential due to the poor implementation of a good strategy....strategies that *added value* to the business, but inadequate execution resulted in *wasted* effort. In the 1960's and 70's, Lean strategies began to evolve in the Japanese Automotive Industry, specifically at Toyota. Known as Hoshin Kanri or Process Deployment ([Lean Strategy](#)), the idea was simple – *ensure that the strategic initiatives of a company drive progress and action at every level within the company, and eliminate the waste that comes from inconsistent communication and direction.*

Simply put, Lean Strategy is about having everyone understanding and working towards the same goals – possibly pulling different ropes, but all pulling in the same direction at the same time. All too often, senior management devise strategies to achieve future goals that are insightful and innovative, but do not provide the necessary direction to middle management (tactics) or operations (actions) to enable the strategy to become a reality.

Like everything Lean, Process Deployment or Lean Strategy, is a simple principle that strives to create clear and coherent communication between all levels within an organisation, thereby ensuring everyone remains focussed on the company's goals. This process is effective regardless of the size of the business and can even be employed within business units.

A basic tenet of Lean Strategy is 'catch-ball'. Like in the children's game of catch and throw, an environment is created where goals, strategies, and action items are passed back and forth, up and down between departments and levels of management creating a participative and inclusive approach to decision making.

Step 1 – Develop A Strategic Plan

a. Mission & Vision

In large organisations, this is the task of the Board and senior management. In smaller organisations it might be the business owner/s assisted by their management team.

A business' Mission defines the present state and purpose of an organisation. An organisation's Mission declares its core purpose and focus by answering the question "Why do we exist?"

A Mission would normally remain unchanged over time and provides a baseline for effective business planning that will help:

- Separate what important from what is not
- Identify, at a high level, which markets will be served and how
- Communicate a sense of intended direction to all stakeholders, both internal and external.

A Vision differs from a Mission and answers the question "Where do we want to be and when?" A Vision clarifies the direction and desired future position of the business.

Mission Statement Examples

- **Microsoft:** "Create a family of devices and services for individuals and businesses that empower people around the globe at home, at work and on the go, for the activities they value most."
- **Coca-Cola:** "Our Roadmap starts with our mission, which is enduring. It declares our purpose as a company and serves as the standard against which we weigh our actions and decisions.
To refresh the world..
To inspire moments of optimism and happiness..
To create value and make a difference."
- **Starbucks:** "Our mission: to inspire and nurture the human spirit one person, one cup and one neighbourhood at a time."

Vision Statement examples:

- **Microsoft:** “A personal computer in every home running Microsoft software.”
- **Coca-Cola:**
 - Profit: Maximizing return to share owners while being mindful of our overall responsibilities.
 - People: Being a great place to work where people are inspired to be the best they can be.
 - Portfolio: Bringing to the world a portfolio of beverage brands that anticipate and satisfy people, desires and needs.
 - Partners: Nurturing a winning network of partners and building mutual loyalty.
 - Planet: Being a responsible global citizen that makes a difference.”
- **Avon:** “To be the company that best understands and satisfies the product, service and self-fulfilment needs of women — globally.”

b. Define the Goals

Senior management needs to consider the long-range goals for the business. Goals are a statement of intent that define the key direction necessary to take the business to the next level, i.e. a step closer to the Vision.

In defining the goals it is important to avoid the temptation of having too many which dilutes the importance of each, and rather focus on *no more than five initiatives*.

c. Define the Strategies

Strategies are the approaches taken to achieve the goals and are usually established by senior management. In setting these strategies, management should consider what is required for the company to create, capture and retain long-term value.

Strategy is about *doing the right things* to achieve the goals, i.e. defining *where you want to play* and *how you want to win*.

Step 2 – Develop Tactics

At a departmental level, managers need to develop the tactics (*doing things right*) to achieve the company goals. These must fit within the strategies defined in the strategic plan by senior management. Catch-ball is a critical element during the development of these tactics to ensure there is strong alignment between the tactics and the strategy and that there is clear understanding of the required outcomes and how these will be achieved.

Flexibility is essential at this stage as tactics are more readily impacted by environmental changes (competition, government policy, technology etc). Milestones and Key Performance Indicators (KPI's) need to be developed to provide a means of tracking progress, to help drive desired behaviour and to simply 'keep things on track'.

Step 3 – Actions

The specific actions that need to be undertaken to achieve the desired results through implementing the tactics is the task of operational managers. Catch-ball is again a key to success in ensuring the alignment of actions and tactics (and hence strategy and goals). The Japanese refer to this as *gemba* – 'the real place', the place where things happen. This is when managers need to stay close to the action (on the shop floor or the place where things happen), and practice the management style made famous in Tom Peters and Robert Waterman's 1980's classic '*In Search of Excellence*' - Hewlett Packard's practice of MBWA (management by walking about).

The Final Step – Monitor, Manage, Review and Revise

Lean Strategy is not a 'set and forget' planning process. To be effective it must add value to the business by providing a clear direction and ensuring the right actions are being undertaken and waste is eliminated.

While goals and strategies cascade from senior management to the shop floor, information must also flow in the opposite direction. How the departments are performing against KPI's, feedback on overall achievement and progress needs to be continually reviewed and passed 'up the line' so adjustments can be made as and when necessary. Through this open, two-way communication, organisations can remain focussed on their goals and strategic initiatives and in turn deliver what customers really want – value.

Lean Strategy should be the catalyst to introduce a Lean culture within any organisation and a means to provide continuous improvement across all departments. But as with everything Lean, it must be kept SIMPLE. If it is simple it is easily UNDERSTOOD. If it is understood it can be REMEMBERED and if it can be remembered it can influence ACTION.

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6. Lean Operations – Identify the Value Stream

In order to **improve any operational process and provide greater customer value**, the process first needs to be understood, and the easiest way to understand a process is by drawing or mapping it. Creating a visual picture of the process allows one to determine where customer value is being added, and then to identify the non-value added activities.

Mapping aims to create an end-to-end “picture” of the business or process to understand the current state and help design the future state.....A picture is worth a thousand words. The map is purely a mechanism to facilitate dialogue and understanding of the process, and is used to gain a critical insight into the process, so that one can ask relevant questions that will drive future improvements.

Mapping.....

- Forms the basis of an implementation plan.
- It shows the link between information and material flow.
- It enhances layout diagrams and identifies non-value added steps, lead time, distance, inventory, etc.
- Mapping visually describes your facility or operational process.
- Highlights process steps and identifies areas of waste.
- Supports team-based improvement.
- Is for idea generation.
- Establishes priorities for improvement and avoid sub-optimisation.

While there are many types of maps and charts, the simplest to use are Process Flow Charts and Spaghetti Diagrams. The former describes the flow and interaction between tasks or operations (figure 6), while the latter shows the scaled movement of goods or documents through a department, factory or office (Figure 7).”

These charts or maps allow one to ask **Critical Questions** about the individual tasks within the processes and so identify areas of waste, e.g.

- *Why are goods/documents being stored here?*
- *Why are the goods/documents etc being stored for such a long time?*
- *Why is this task necessary and why is it being done by this person/department?*
- *Can we re-arrange the physical layout of the department/office/factory/shop etc, to reduce the amount of movement and facilitate flow?*
- *Can we eliminate, simplify or combine this task with another?*
- *Is this task actually adding customer value?*
- *Why does this task take so long?*
- *Can we group these people/departments/tasks together?*
- *Are we giving the customer what he really wants or only what is available?*
- *Is this report necessary, who uses it, and for what purpose?*
- *Are we using metrics that will allow us to improve the process or customer value?*
- *Why do these tasks result in scrap components or process errors?*
- *How can we eliminate or reduce the scrap rate or processing errors?*
- *Can we eliminate duplicated information by improved IT systems?*
- *Can we use technology to improve the process?*
- *Can we locate operations/tasks next to each other to reduce time/movement?*
- *How can we improve the customer's experience by reducing the time from order to delivery?*

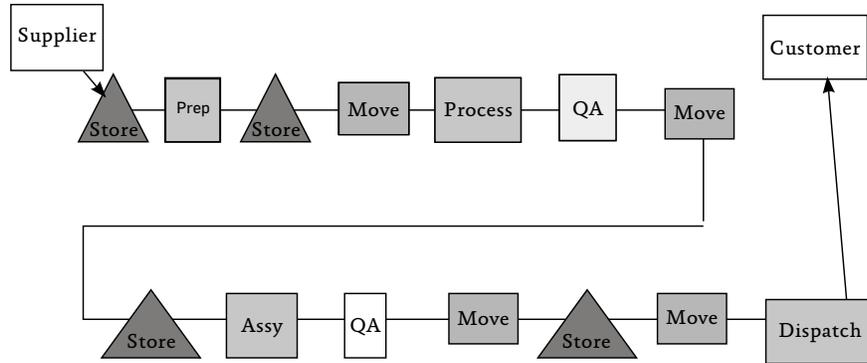


Figure 6. Process Flow Chart

As can be seen in Figure 6, a Process Chart maps the interrelationship between the various tasks or operations, in this instance a sheetmetal plant manufacturing and assembling steel cabinets. By including operation times, a clear picture of the process can be built that then allows detailed analysis and subsequent improvement.

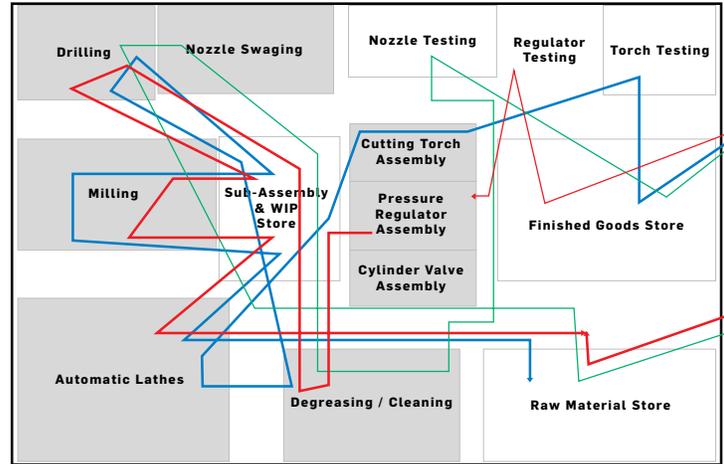


Figure 7(a). Spaghetti Diagram for a production area – “before” situation

The scaled Spaghetti Diagram in figure 7(a), shows the movement of 3 major product lines through a global manufacturer of gas welding and cutting equipment. The excessive movement through the plant had significant implications in terms of lead time, product quality, throughput, work in progress inventory, accountability, production planning and staff.

By asking some of the critical questions and then changing the layout to create 3 dedicated product lines as shown in figure 7(b), the overall lead time was reduced from three weeks to three days, work in progress inventory by 90% and scrap by 70%.

Indirect benefits included greater worker accountability and a simpler production planning schedule, while arguably the greatest benefit was the increase in customer satisfaction.

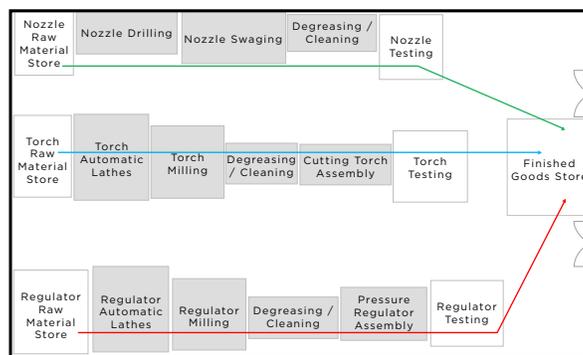


Figure 7(b). Spaghetti Diagram for a production area – “after” situation

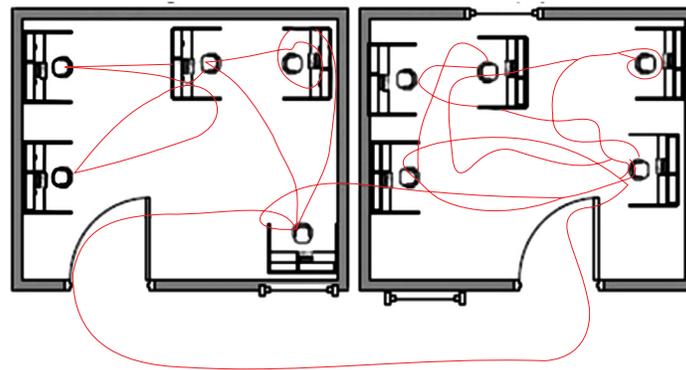


Figure 7 (c). Spaghetti Diagram for an accounts department

The use of Spaghetti Diagrams is not restricted to manufacturing plants. As shown in Figure 7(c), administrative or service organisations can use these diagrams in conjunction with the critical questions to improve flow and thereby benefit the customer, whether internal or external.

Remember the General Rule with mapping and charting:

“The greater the number of process steps, the more waste a process usually has.”

7. Scheduling and Customer Generated “Pull”

All operational systems, whether manufacturing, service or supply-chain related, are governed by a ‘pacemaker’, where this is the operation that governs overall output. Having identified the Value Stream and improving the ‘flow’, it will usually be possible to identify the ‘pacemaker’ in the system.

Consider the generic process shown in figure 8, where the output of the entire process or system is constrained by the output of Task D, i.e. the bottleneck. During a normal 8-hour day, even though Task C is capable of producing 96 units per day, the overall daily output will be constrained or throttled by the bottleneck, to only 56 units. Improving the output of the system would necessitate first improving the output of the bottleneck (Task D), and any improvement to a non-bottleneck task is simply a mirage that will yield no overall system benefit.

It should be noted however, that if the output of Task D was improved to say 10/hr, then Task B would become the new bottleneck and would constrain the system output to 64 units per day.

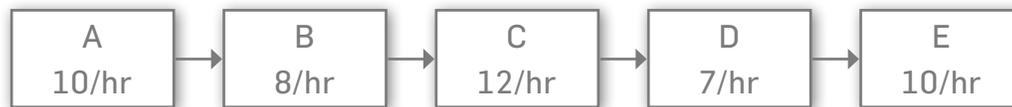


Figure 8. Bottlenecks

In recent years, Lean has often been confused with ‘Kanban’ or ‘pull’ systems. While ‘pull’ systems are an integral part of Lean, they are not the essence of Lean. As shown in the Lean Improvement Cycle (figure 3), once ‘flow’ has been improved within the Value Stream, creating customer ‘pull’ is the next logical step. Pull (kanban) systems link customer demand with the actual production of the product or service by only producing the product or supplying the service when the customer wants it.

In a traditional scheduling environment, a centralised control system will ‘push’ work through the system starting from the first process, see figure 9. Typically, a ‘push’ system is characterised by:

- Centralised Control
- Forecast driven

- Complex Information Flow
- Schedule driven material delivery
- Schedule set by production planner

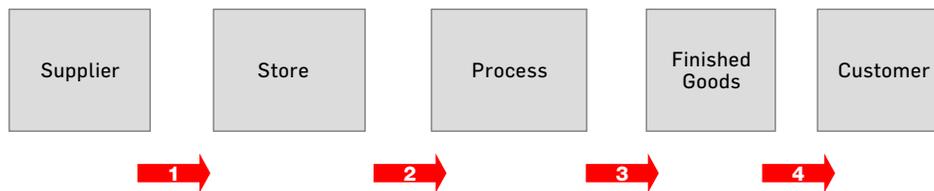


Figure 9. Traditional 'Push' System

In contrast, 'pull' systems only supply a service or product when the customer demands it. If there is no customer demand, then nothing is produced. As shown in figure 10, a 'pull' system operates in the reverse order to a 'push' system, working backwards from the customer towards the supplier.

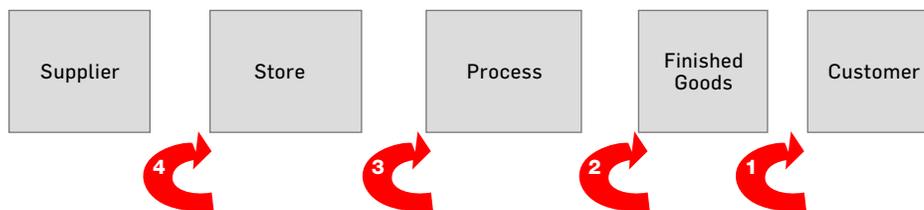


Figure 10. Customer driven 'Pull' System

Consider the example of painting your own home. Many years ago when you decided to paint your home, you went off to the local hardware store to select paint that was typically only available in a limited range of colours, usually 12-16 variations. Having selected the colour, the next step was to go to the shelf in the store and determine (hope!), that the store not only had sufficient paint in the selected colour, but also that the tins were from the same manufacturing batch.

From the hardware store's perspective, this classic 'push' system meant the store had to:

- Forecast (guess!) sales of the different paint colours
- Hold significant quantities of the different colours in inventory (holding costs)
- Include delivery lead times from the manufacturer in their planning system
- Hope that they could sell all the colours and that they would not be left with excess (obsolete) inventory.

From the customer's perspective, this 'push' system:

- Reduced the variety of colours available as the manufacturer was not prepared to produce a huge variety of colours due to the impact this would have on their inventory
- Carried risk, e.g. if you ran out of paint mid-way through the job, there was a risk that the store no longer had stock of the specific colour, or that their remaining stock was from a different manufacturing batch
- Could result in significant lead times (delays!), before the store was able to replenish the stock of a particular colour.

Now however, the entire process is quite different and operates as a 'pull' system. The hardware store only has white paint in stock and will pre-mix the specific colour you require from a vast selection of many hundreds of colours. The store only prepares what the customer wants as each paint colour is 'pulled' by the customer. This 'pull' system has obvious benefits for both the hardware store and the customer i.e.

- Reduced stock holding by the store as they only keep white paint in inventory
- Reduced risk of obsolescence
- Simpler ordering and inventory control as the store only has to order white paint
- Colours are 'pulled' as required, nothing is produced unless there is a customer demand

- Enormous variety of colours available for the customer, all of which are prepared (pulled) as required with zero lead time
- Improved quality as the customer can immediately validate the goods
- Lower risk as it is unlikely that the store will not be able to mix a specific colour.

Although there are many types of 'pull' systems, the principle of all 'pull' systems is that a product or service is only provided when the customer demands it, whether the customer is external or internal, i.e. within the organisation. Pull systems rely on a 'signal' or 'trigger' from the customer, where this signal can be verbal (as in the case of buying paint), or by means of a card, flashing light, container or any other indicator that notifies the provider that the customer has a requirement that needs to be met.

The impact of a 'pull' system on inventory holding, quality, production planning and control, and most importantly, customer service, is enormous.

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8. Lean Sales and Marketing

To identify how to apply Lean to Marketing & Sales, the 'product' produced by this area of the business must first be clearly defined, i.e.:

- **Marketing** is the process of generating interest and making the acquisition and retention of a client easier.
- The role of **Sales** is to facilitate the prospects decision-making process.

While the purists will argue marketing and sales are specific and individual functions in a business, Lean integrates these in a way that delivers both greater value to the customer and reduces waste in the organisation. Lean sales and marketing is seen as a single process that helps define, find, win and keep clients by creating value for them.

But what is value?

In the words of Greek philosopher Theophrastus (372 – 287BC), “Time is the most valuable thing a man can spend.” So you can add value by simply not wasting time – yours or your prospects.

From a Lean Sales and Marketing perspective, value can be best defined as “anything for which a prospect will pay to receive”, where ‘payment’ is not necessarily defined as a financial transaction.

Prospects will make ‘payment’ throughout the sales process by giving their time, attention, information, introductions and most importantly, questions. Prospects will ‘pay’ to achieve a solution to a problem that stands in the way of them achieving their business goals and objectives, and such ‘payment’ may come long before one has physically engaged with the prospect.

How can this be? In today’s online world, research suggests that prospects can be as far as 70% into their buying cycle before they physically engage with potential suppliers. This means one needs to be aware of how prospective customers become aware of problems and find solutions.

A Lean business strives to provide knowledge to their client that helps them move to the next step in their buying cycle. Lean organisations have found that lots of information is wasted communication because it is the wrong information at the wrong time, or even outdated information. The right information is that

which helps the customer take the next step/s, and information that promotes those actions creates value. Anything else is by definition, waste or non-value adding.

To achieve this, a Lean business looks to align its sales and marketing activities with the buying cycle of the prospect. Lean sales and marketing means developing ways to ensure the right information is provided to the right individual at the right time to allow a purchasing decision to be made.

In retail and commodity sales, this generally involves defining the 'typical' process for your target market. In larger, more complex sales this will involve a more detailed analysis of the specific individuals involved in the buying process and 'hurdles' that must be overcome on the way to the final decision.

The objective is always to match your sales and marketing process to the buying process of the prospect. Any activity that does not progress the prospect engagement towards a decision is waste.

As an example, a local Sydney company had five websites, only one of which was maintained. Analysis of visits to the websites, showed significant activity on the out-of-date sites suggesting prospects and clients were wasting time by not getting the right information in the right form in the right time, all of which equates to a waste of time and a lost opportunity. Further analysis revealed that the sales staff were using the 'dead' websites to source company and product information for inclusion in proposals!

Research shows that as much as 60% of a business's sales time is not related specifically to adding value. Typically the top 10 areas of waste in an organisation's sales and marketing are:

- a. Spending time on opportunities with little or no chance of success.
- b. Creating leads that aren't or can't be followed up.
- c. Failure to connect with those that can influence or make a decision.
- d. Staff generating reports that add little or no value to the business.
- e. Client meetings with no clear sales objective.

- f. Inappropriate communication, e.g.
 - Too technical.
 - Detailing features and not benefits.
 - Not providing a solution to a need.
- g. Preparing proposals that do not meet the personal and business needs of the decision makers.
- h. Using template based proposals that do not address the specific needs of the prospect.
- i. Sales staff being involved in non-sales related activities.
- j. Unnecessary discounting.

Minimising or eliminating these areas of waste within the sales and marketing function will dramatically increase the efficiency and effectiveness of sales acquisitions. Importantly, by addressing the first and most common item of waste, focussing on 'real' opportunities, will often help eliminate many of the remaining nine.

Recent research conducted by Ernst & Young in Australia found that on average it took businesses 5 times longer to lose a sale than to win one. That is real waste.

Focussing sales resources on the 'right' opportunities means reducing the wasted time spent on those with little or no chance of success. To achieve this, the following questions should be asked of each sales opportunity:

- Is there a realistic opportunity?
- Can we compete?
- Can we win?
- Is it worth winning?

If the answer to any of these is not 'YES' one needs to do more research to determine the viability of the opportunity, or otherwise walk away.

An opportunity assessment is an ideal tool to assist in making such a decision. By identifying the key issues in the sales cycle that correlate to success, one is

able to rank opportunities in a way that allows the allocation of resources to the most realistic opportunities.

As shown in the example below, a scorecard can then determine which opportunities deserve the most attention, should be dropped or warrant further investigation. The issues that are considered will vary from one business/product/service to another and could include current relationships and/or that of the incumbent supplier, the prospects buying philosophy (e.g. is it price based), the level of internal support, budget allocated etc. To each of the identified issues, a weighting may be attached to allow an overall score to be generated for the opportunity.

By scoring each question and then totalling, one can determine whether the opportunity is real or just a dud. While all leads are opportunities, the business may not win all of these, but the scorecard allows one to filter out the good leads from the bad ones, or at best those that can be ‘saved for later’.

Issue	Score
Prospect willing to consider change from incumbent	3
Seen as strategic to our business direction	4
Good profitability	4
Our solution delivers clients business objectives	4
Internal support	1
	<hr/> 16

Table 2. Example of a Sales Opportunity Assessment scorecard
 0=Very Weak, 1=Weak, 2=Average, 3=Good, 4=Strong, 5=Very Strong

From the output of the scorecard, one can establish a set of guidelines to direct sales staff on how to qualify each opportunity. For example:

- **Drop It (Score 0 to 9)**

A score of less than 9 means “forget it”. While it’s hard to say “no” to a sales opportunity, your time is better spent on those opportunities with a greater chance of being won. Time spent on low-score opportunities is a waste, rather focus on the productive few than the unproductive many. A sales pipeline is just that - not everything can go through it so don’t try to force poor leads into opportunities. Let go early!

You must give your time to the few that will return rewards, not the many that will waste your time.

- **Chase It (Score 24 to 30)**

If you scored more than 24 the opportunity is well qualified and deserves your time.

But even if you scored above 24 and had a low score on a few questions, you need to discover more information in those areas.

With your opportunity qualified 'in' or 'out', put together a sales plan to target the business. If it is real, commit the necessary resources to win the deal. Make sure you understand what the prospect sees as value and work to deliver this.

By working on less opportunities and adding more value, you will win more business.

- **Gather More Information (Score 10 to 23)**

An average score means that more probing questions should be asked before a "chase it or drop it" decision is made. Early in the sales cycle, there may not be sufficient information on which to make a definitive decision, so sales staff may need to obtain further information on the opportunity.

While the above is a simple example, it shows a methodology that can be applied to sales of all sizes and complexities. Utilising this simple approach prevents sales staff progressing too far on opportunities that are unlikely to deliver a return and therefore waste resources.

As an example, several years ago the Asian division of US Telecommunication Company had a significant sales pipeline, but wondered why this was resulting in sales that were well below budget. Analyses showed that deals were not closing in the anticipated timeframes or they were simply disappearing from the pipeline altogether, i.e. the opportunities were poorly qualified.

By applying the above technique, the first outcome was that the pipeline almost dried up completely as sales staff reassessed the reality of their prospect base. However, once the process was implemented, the outcome was a list of opportunities that was much less in dollar terms, but much greater in value. Sales staff were able to concentrate on those opportunities that had a real chance of success and as a consequence more sales were closed, better long term customer relationships were developed and repeat business increased.

Lean sales and marketing results in:

- Greater customer satisfaction with better service provision at a lower cost.
- Improved staff morale.
- Collaborative and synergistic sales and marketing efforts.
- Improved profitability.
- Greater opportunity for innovation.

In summary, Lean sales and marketing provides a competitive advantage that can't easily be copied.

Want to know if Inform can help you introduce Lean sales and marketing to your business? We are happy to meet with you over coffee, no strings attached, and discuss how Inform can help you. [Click here](#) to arrange a time to chat.

9. Lean People

In any business the expense associated with employing people can be significant. While many of these costs are easy to identify, e.g. salaries/wages and superannuation, others are perhaps less obvious, e.g. staff training costs, workers' compensation, administering the payroll, health and safety, time spent recruiting new staff and managing performance. In fact, for many businesses, people-related expenses are their single biggest expense.

The **human resources (HR)** function in any business therefore has a critical role to play in assisting the business to achieve its objectives, i.e. by ensuring that it maximises the value of its considerable investment in people. Figure 11 shows a typical employment life cycle.

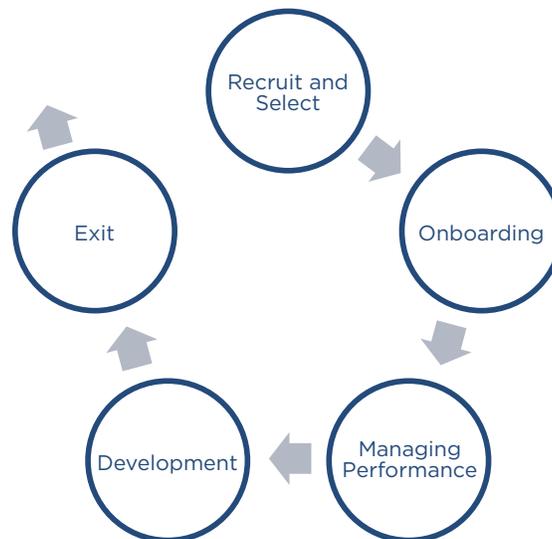


Figure 11. Employment Life Cycle

- Ineffective recruitment and selection can lead to a considerable waste of resources as unsuitable candidates may be employed, trained and ultimately exited from the business without ever having contributed to the organisation. Reduce wasted recruitment and ensure that the business is better positioned to attract strong and effective candidates by writing suitable job adverts, ensuring the business projects a professional image and accessing wider networks to source candidates.

Where the role is critical, businesses should consider facilitating skills and psychometric assessments and utilising behavioural interviewing techniques. Taking this Lean approach will improve the likelihood that a selected candidate will 'hit the ground running'.

- Business should also ensure the induction and orientation of new employees is done as efficiently as possible. Induction programs should be structured to ensure that new employees immediately understand the nature of the business, its current strategies and priorities, and precisely how their role fits into the future success of the business.

Research by the Wynhurst Group found that approximately 22% of staff turnover occurs during the first year of employment. This being the case, it is important that organisations focus on the actions and issues needed to retain new employees during this period of heightened risk.

- Ultimately it is the people within a business that determine its success and add the bottom-line value to the business. Even if you have a unique product or service, you need people to make/deliver/market and sell it, so it is critical to effectively manage the performance of your team.

A successful Lean organisation requires a number of Key Performance Indicators (KPI's) to manage the business (see chapters 9 and 13). As the old saying goes "...if you can't measure it, you can't manage it". Managing employee performance and setting clear expectations is essential as people need to know exactly what you require them to do and also how you want them to achieve it, i.e. there need to be effective and efficient mechanisms in place to measure and drive both individual and collective performance.

Employees that do not have clear expectations will invariably proceed along a path that is not necessarily aligned with the objectives of the business.

As an example, consider the case where the leadership team of a business has set two key expectations for members of the sales team: (1) to drive revenue growth by achieving challenging sales targets and (2) to work cooperatively as part of the sales team in order to identify, pursue and convert revenue opportunities. However, if remuneration decisions are solely-determined based on a salesperson's ability to meet or exceed their revenue targets, there is a serious misalignment and every possibility that

individual members of the sales team may, on occasion, compete rather than cooperate with other members of the team, potentially at the expense of the overall performance of the business.

It is therefore important to ensure employee performance measurements are aligned with the business objectives.

- A key objective of any recruitment and selection process is of course to attract candidates who bring with them a set of skills, experiences and attributes that will add value to the business. The reality however is often easier said than done, and any astute business owner will know that they need to invest in training to continually develop employees.

It is worth noting also that there has been a significant shift in the market in recent years, with study after study showing that one of the top factors in recruiting and retaining good staff is providing them with regular access to challenging work and opportunities to continue to learn and grow. Indeed, most research indicates that this is a far more important motivator for most people than remuneration.

All Lean organisations place a high level of importance on the personal and professional development of all employees. Line managers need to ensure that development opportunities that are made available add value to the objectives of the business, and ensure that talent within the business is identified, nurtured and retained.

As a final point, it's also worth noting the increasing role of technology in staff development and waste reduction. **Recently, a Sydney-based business developed an e-Learning solution to meet their training needs in place of what would otherwise have been multiple face-to-face workshops in numerous locations. Not only did this reduce the time (waste) taken to train the employees, but also saved the company in excess of \$60000 by reducing travelling and seminar expenses.**

- There are considerable costs associated when good people exit the business, with most studies putting the cost of employee turnover in the vicinity of 1-2 times their annual salary. As an example, another Sydney-based business with 30 employees had a voluntary employee turnover of more than 50% during a 12 month period. Using conservative estimates¹ of salaries and expenses, this equates to a cost (waste) of more than half a million dollars!

Not only will effective employee engagement strategies result in direct savings through reduced turnover, but employees experiencing higher levels of satisfaction and engagement have consistently been proven to be more productive.

Consulting firm PwC for example, found that businesses with “effective people management” had 35% higher revenue per employee. Research from Aon Hewitt found that businesses that “genuinely acknowledged and recognised” their employees achieved double the growth in revenue (22%) than other organisations (11%). Finally, research organisation Gallup found that firms with higher employee engagement are 50% more likely to have low staff turnover and 38% more likely to have higher productivity.

Effective management of human resources is a key aspect in helping companies achieve their lean objectives. By ensuring people within the business are managed in a way that eliminates wasted resources, a Lean organisation will strive to maximise what for many businesses, is their most sizeable investment.

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¹ PwC estimate the cost of turnover at between 25% - 150% depending on industry and staff seniority. These costs based on estimate of 60% on \$1.65m staff budget

10. Lean Money

Although Lean has been mainly associated with the manufacturing industry, there is a misconception that it cannot be applied to an administrative function such as **Finance**. The Finance function of any business has both internal and external customers and can therefore analyse the services it provides and so eliminate waste and add customer value. Within Finance, there are basic functions that include accounting, controlling and reporting.

Depending on its size, the financial person or department in an organisation may interact with many 'customers', including the shareholders, management, directors, purchasing, production, sales, bankers, auditors, tax experts, ATO and other government bodies. Common areas of waste and missed opportunities relating to finance include:

- Inefficient collection processes
- The same data that is manually entered several times in different systems
- Generating reports for people who do not understand and/or need them, and are therefore not used to steer the business
- Complex report generation that requires data from multiple systems and/or excessive data manipulation
- Inappropriate budgeting processes (eg too complex, inaccurate or none) that deliver outcomes not aligned to the company strategy
- Accounting systems and procedures that require excessive time to produce management reports which may then result in poor decision making using 'out-of-date' information
- Cost allocation that does not add value to the decision making process.

Collection: The process of collecting the money owed by customers

In a larger organisation it is not uncommon to have the collection of unpaid invoices taken away from the Finance function and allocated to the Sales department. This is usually done under the pretext that customers are very sensitive to reminders and that a collection process too aggressive could be deemed offensive and encourage a change of supplier.

Unfortunately, salespeople usually complete their sale process when the goods are sent or at best when the invoice is issued, and then regard the deal as 'closed'. When payment is not received according to the company's terms of sale, nobody then chases the unpaid invoice/s and that has a negative impact on the company's cash flow. In smaller organisations there is often no clear follow-up procedure and debts can quickly accumulate.

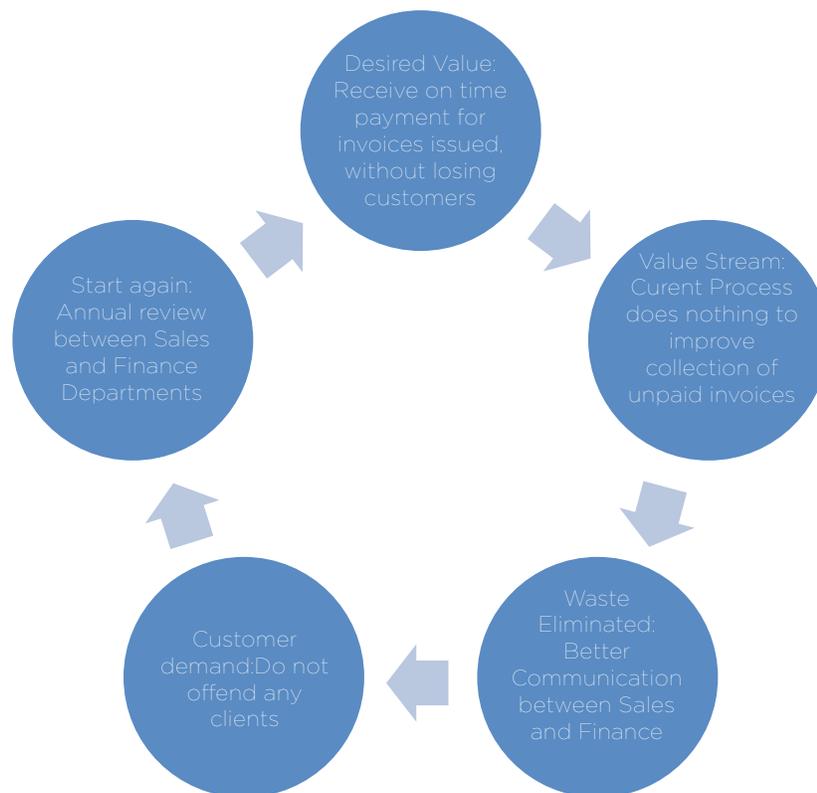


Figure 12. Lean collection process

As depicted in figure 12, the 'collection deadlock' can be broken by having the Sales and the Finance Departments (in larger organisations) agree on who should follow up with which customers. If necessary, the Sales Department can keep the collection responsibility for a selected small number of customers, while the Finance Department handles collections for all other customers. In smaller businesses, a clear process for follow up should be defined and implemented which may involve automatically issuing statements if payment has not been received by the due date.

It should be noted that most customers have no problem receiving regular statements of unpaid invoices as they understand any company needs to be paid after delivering products or services. Some customers will even be thankful to be reminded, as it may help them identify problems and bottleneck in their own processes. Furthermore, the issuance of reminders for unpaid invoices is (very) rarely a key criterion for selecting a supplier. Typically, this will result in an improved cashflow and better communication between the Sales and Finance.

The Budget process

The budget process is often coordinated by an internal Finance Department or external accountant which designs templates and documents for the other departments to complete. The Finance department consolidates the information and produces the budget for the following year, typically a Profit & Loss Statement.

Often however, the budget is not aligned with the Company Strategy as individuals or departments pursue their 'own agendas'. By clearly communicating the company objectives to each individual or department, the efficiency of the budgeting process can be improved and aligned with the company goals.

The Reporting Process

Companies are often called upon to issue many reports for both internal and external customers. When a new report is requested, it may be generated by an internal Finance Department which both prepares and distributes the report on a regular basis. Over time however, it frequently happens that the individual who initially requested the report changes position or leaves the company, or the operational process and parameters change, yet the report continues to be generated by the Finance Department. Wasted 'reporting' can also be caused by:

- A new Manager, being less financially literate, not understanding the report/s
- New data sources are used that render the original report obsolete
- A change in equipment or processes
- A new person generates the report, and unknowingly has a different way of preparing the information.

As an example, a Sydney based FMCG company with an annual turnover of approximately \$20m, generated over 40 specialist reports on a monthly basis. A simple analysis involved not issuing any reports for a particular month and then waiting for a 'customer' response. Interestingly, only a few individuals requested their reports and this directly led to the elimination of almost 30 reports!

Reports are critical to running a business...if you can't measure it, you can't manage it! However, before requesting any report, decide what information is needed and how it should be displayed, then develop the report and present it in a regular 'dashboard' that is easy to read and clearly shows trends and deviations.

Accounting in 'plain language'

Traditional accounting and measurement systems can be a hindrance to Lean as they were designed to lower the cost per unit, which is usually achieved by larger batch sizes. Traditional accounting typically measures overhead absorption, purchase price variance, labour efficiency, etc., where these measurements favour large batches that create mountains of inventory.

A recent study showed that the 2008 bankruptcy of General Motors and Chrysler was partly caused by mass production thinking, i.e. in order to have a lower cost per unit, the plants continued to produce large batches of cars, far in excess of actual customer orders.

Traditional Accounting often produces reports that non-financial people have difficulty in understanding. In contrast, **Lean Accounting seeks to produce a simple Profit & Loss statement in 'plain English' that everyone can understand.** For example:

a. Traditional financial statement:

Sales		1,000,000
Standard cost	550,000	
Purchase price variance	- 25,000	
Material usage variance	- 15,000	
Labour cost variance	70,000	
Overhead absorption variance	25,000	
Total Cost of Goods Sold		605,000
Gross Margin		395,000

b. Financial activity in 'plain English'

Sales			1,000,000
Purchases of material	380,000		
Increase/Decrease in inventory	10,000		
Total Cost of Material		390,000	
Production wages	170,000		
Repairs and maintenance	3,000		
Depreciation of equipment	2,000		
Waste management	15,000		
Total Cost of Production		190,000	
Depreciation of building	5,000		
Repairs and maintenance of building	20,000		
Total Building cost		25,000	
Total Cost of Goods Sold			605,000
Gross Margin			395,000

In conclusion, the financial process of any business can become Lean by eliminating existing waste and inefficiency. By changing traditional financial thinking, businesses can adapt their processes and reporting to support a lean transformation.

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11. Lean IT

Although it may be considered a non-value adding (NVA) activity, information technology is an important business function that is a servant to the organisation, and as such, it must be classified as a necessary NVA.

While the foundation of **business information technology** has traditionally rested on the IT infrastructure (hardware and network), the rapid development of mobile communications is changing the dynamics of this critical business function. Applications to service both internal and external customers can now be deployed more rapidly and cost effectively than ever before.

For any business, the customers of IT are the internal staff of the organisation and one needs to understand how they expect an efficiently managed IT infrastructure to help them carry out their roles. In this instance, customer value includes:

- Availability or uptime.
- Resiliency, where this refers to the sustainability of IT during a crisis or unexpected event, e.g. fire, natural disaster, theft.
- Cost Containment. IT is normally a significant cost for any business so it is important to contain or reduce costs without sacrificing service levels and/or increasing risks.
- Accessibility. In today's world of smart devices, businesses' require their staff to access the IT systems when they are away from the office.
- Capacity to handle growth.
- Data Accuracy and Protection.

The Application of IT

To add true value, the application of IT must make the customer's experience better and reduce the waste involved in doing business. The rapid development of technology means that by the time you read this book, much of the current technology will have been superseded! How a company applies IT to help deliver better service or improve manufacturing is the key to Lean IT, and not the underlying technology.

Appropriate use of technology in any business, from a one-man operation to a multi-national corporation can have a dramatic impact on the value it delivers to its customers and the operational waste it is able to reduce. Not so long ago video conferencing was expensive and largely the domain of large organisations. Today, with applications like Skype, businesses of any size can bring together remote employees for 'face-to-face' staff meetings or conduct visual presentations to clients without the need to be in the same office, or even the same country. The reduction in travel time alone reduces waste.

Mobile communication has probably had the greatest impact on how we do business. The advent of smartphones and tablets, together with the multitude of mobile applications or Apps that meet specific business needs, allows organisations to operate in a manner not considered possible just a few short years ago. For example:

- Processing of credit card payments on smartphones
- Using Google Maps and StreetView to determine the orientation and access points for planning home installations and deliveries, eg swimming pools, solar panel systems, furniture deliveries/removal etc.
- Linking smartphones/tablets to servers to track deliveries, ascertain inventory levels, etc.
- NRMA's application of in-house and remote technology to improve their roadside assistance service
- Being able to monitor the security of a building from a smartphone
- Improved data capturing through the use of bar-code scanners.

Lean and Enterprise Resource Planning (ERP) systems

The benefits of Lean and ERP systems are often thought to be similar and include reduced cost and inventory, and increased productivity. However in a traditional sense, ERP and Lean are somewhat contradictory with the former predominantly being a centralised top-down approach which contrasts directly with the Lean Philosophy. However, with the increased capacity and visibility of modern ERP systems which allow for greater co-ordination between the shop-floor and the wider supply chain, there is a growing synergy between ERP and Lean as a means towards continual business improvement.

From a Lean perspective, the ‘customer’ of any ERP system will typically be various internal departments within the organisation, eg production, sales, planning, finance, purchasing etc. These departments or individuals rely on the ERP system to provide accurate data, e.g.:

- Bills of Material
- Inventory holding
- Lead Times
- Product Routings
- Profit & Loss and other financial data
- Customer information (CRM)

By using relevant data, ERP systems are efficient tools that convert sales orders and forecasts into time-phased purchasing and manufacturing orders. Furthermore, as shown in figure 13, ERP systems can provide important business data and reports that will support Lean to guide future business improvement.

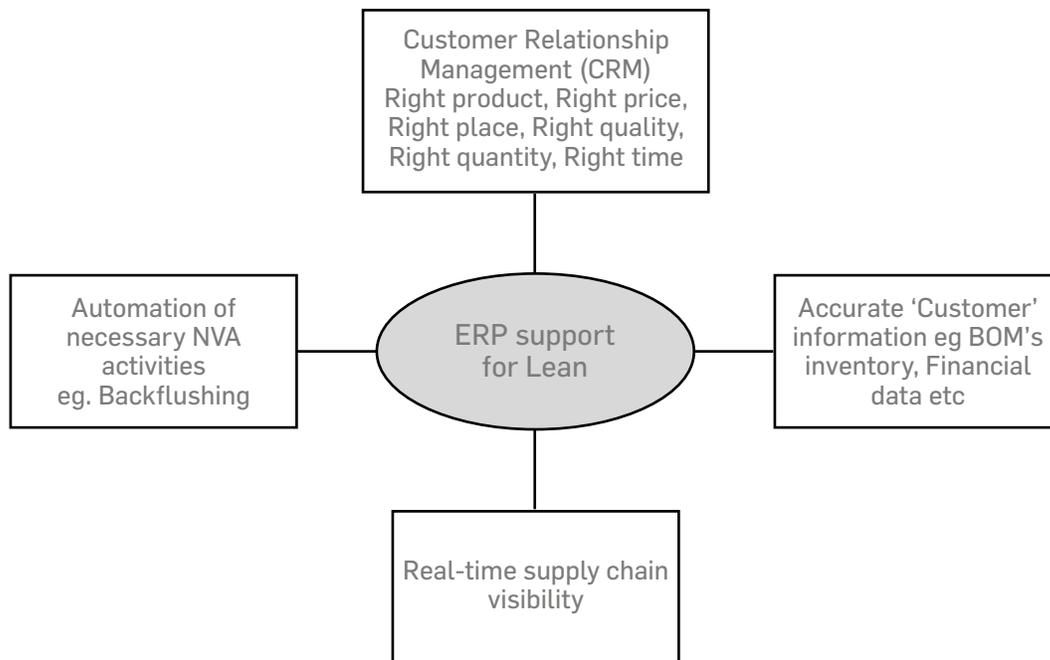


Figure 13. ERP support for Lean (Powell and Strandhagen, Lean Management Journal, Nov 2011)

Before implementing any ERP system, it is important that the business has control over its existing manual processes. While these manual processes may not be efficient, the implementation of an ERP system in an organisation that has poor or badly designed manual processes will only automate these processes and create 'automated chaos'. Simply put, it is important to first use appropriate Lean tools to improve the existing manual processes before implementing an ERP system.

When selecting and implementing an ERP system, it is important that the system fits the organisation, and not the all too common scenario where the organisation has to adapt to the system. Other points to consider include:

- System growth to support the business
- System support and training
- Report writing and data extraction
- Future developments
- Off-the-shelf vs Custom-built software. Although the latter may offer short term cost benefits, custom-built software can be extremely risky. The lack of adequate system support and documentation, training, and future developments, often makes this a questionable decision that can be very expensive in the long term.

The rapid development of ERP systems continues to support Lean and the two concepts are now considered complementary to the overall business strategy.

12. Lean and R&D

When we think of R&D we often think of boffins in white coats, expensive scientists and engineers working in laboratories, cut off from the tough realities of today's competitive market place. This is something that only big companies can afford. The reality is quite different.

Many firms, particularly SMEs, are doing R&D without realising it. Many cost saving, efficiency and new product development projects can be classed as R&D and even be eligible for the Federal Government's R&D Tax Incentive. This is a targeted, generous and easy to access entitlement program that helps businesses offset some of the costs of doing R&D. By providing greater focus of the management of R&D, business can tap into a strategy that has proven to be an effective means of business growth during difficult economic times.

In recent years, much research by Dr Robert Cooper of McMaster University in Canada has been directed to uncovering the secrets of R&D success: What do the winners do differently? How do R&D projects succeed - the critical success factors.

The bottom line is that R&D needs to be managed actively and purposefully. It can't be a part time activity. It needs to be a core part of your business just like sales and marketing. Bob Cooper has identified the success factors for driving successful R&D They include:

- **Seek differentiated, superior products**

The top success factor for R&D is developing a differentiated product with unique customer benefits and superior value. Such superior products have five times the success rate, more than four times the market share and four times the profitability of products that lack this ingredient. Most new products miss the mark here: The majority of products tend to be tired "me too" products with little to distinguish them from competitors. A second, common scenario, which also yields poor results, is the engineer building a monument to himself - the technical solution in search of a market.

- **Up-front homework pays off**

Too many new-product R&D projects move from the idea stage right into development and launch with little or no up-front homework. The results of this “ready, fire, aim” approach are usually disastrous. Solid pre-development homework drives up success rates significantly and is strongly correlated to financial performance.

More time and effort must be devoted to the activities that precede the design and development of the product. Up-front homework means undertaking thorough market and competitive analyses, research on the customers’ needs and wants, concept testing, and technical and operations feasibility assessments. All of these activities in turn lead to the preparation of a full business case prior to beginning serious development work.

- **Build in the Voice of the Customer**

Successful businesses that drive winning new-product projects have a slave like dedication to the voice of the customer. According to research, new-product projects that feature high-quality marketing actions are blessed with more than double the success rates and 70% higher market shares than those projects with poor marketing actions. Sadly, a strong market orientation and customer focus is noticeably absent from many businesses’ new product projects.

The voice of the customer must be an integral part of your new product process. This begins with idea generation - focus groups, customer panels and working with lead users. Use market research and customers as input into the product’s design, not just as a confirmation of it. Make the customer a part of the development process via constant rapid-prototype-and-test iterations. Finally, ensure that the launch is well planned, adequately resourced and based on solid market information.

- **Plan the market launch early in the game**

A strong market launch underlies the success of any product. For example, new-product winners devote more than twice as many person-days and dollars to the launch as do those that fail. In some businesses, it’s almost as though the launch is an afterthought - something to worry about after the product is fully developed.

Marketing planning is an integral part of the new-product process. It should begin early. The best companies require a launch plan on the table even before development proceeds. And set aside the launch resources early - the launch must be properly resourced.

- **Disciplined management process for R&D**

How does one go about building these success factors into R&D and the new-product game plan? Leading companies have overhauled their R&D processes in the form of a Stage-Gate R&D process. This is an operational road map for moving an R&D project from idea to launch — a blueprint for managing the R&D process to improve effectiveness and efficiency.

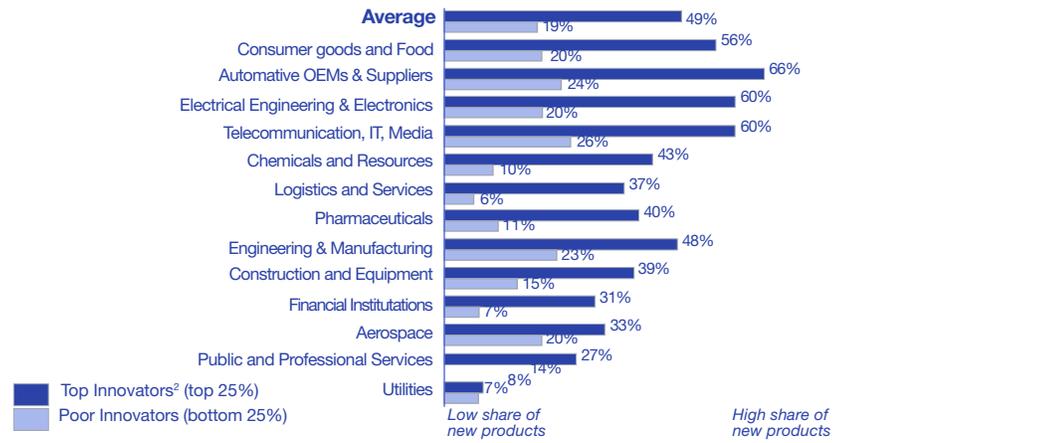
Stage-Gate approaches break the R&D process into a predetermined set of stages, with each one consisting of a set of prescribed, cross-functional and parallel activities and review points. The Stage Gate process has been found to dramatically increase the success rate of R&D projects and works for all types of companies big or small. It takes the guess work out of R&D and ensures it becomes a core business activity and not just something that is done in an ad hoc fashion.

- **The Results speak for themselves**

On average, more innovative companies that invest in R&D have 2.5 times higher sales of new products than less innovative companies².

² Arthur D Little. Innovation Excellence 2005. How companies use innovation to improve profitability and growth. http://www.adlittle.com/downloads/tx_adreports/ADL_Global_Innovation_Excellence_Survey_2005.pdf

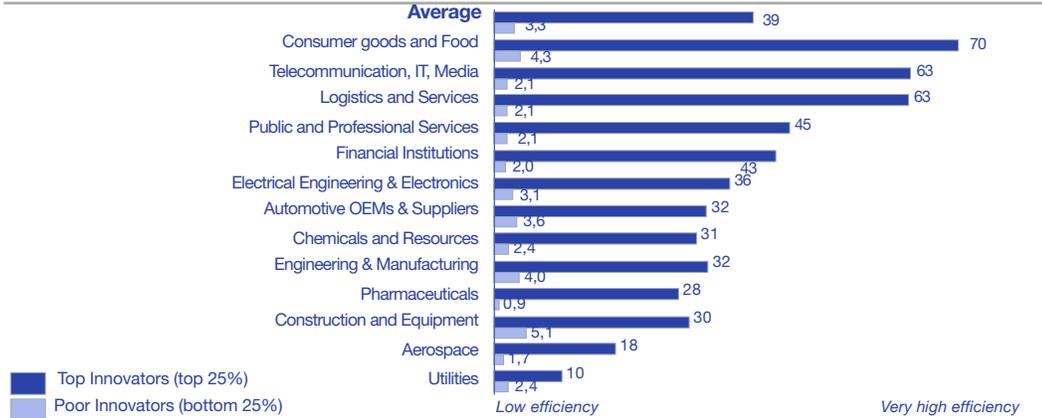
Share of total sales generated by new products in %



1) Products less than 5 years old
 2) Top innovators are defined as the 25% best performing companies in each industry in terms of innovation efficiency
 Source: Arthur D. Little Innovation Excellence Study 2005

More innovative companies get 10 times more returns from their innovation investment

Innovation efficiency factor¹⁾



1) Share of total sales generated by new products / Share of total sales spent on R&D (higher value means higher efficiency)
 Source: Arthur D. Little Innovation Excellence Study 2005

In tough times, R&D and innovation is often overlooked as companies try to reduce costs and become more efficient. However research shows that a focus on R&D can deliver significant new growth opportunities.

13. Lean and Green

How can a company increase the value of the products and services that they offer their clients, while simultaneously creating a sustainable and environmentally friendly enterprise? Have we not been led to believe that going green increases costs? Are the two seeming diverse concepts of **Lean and Green** actually compatible? Can a green enterprise actually reduce costs and add customer value to its goods and services? The answer is quite simply...yes.

The Lean Philosophy is fundamentally a continuous process of identifying, from the customer's perspective, the value added and non-value businesses processes, and then, by using suitable tools and techniques, reducing or eliminating the non-value adding activities, commonly called waste. As discussed in Chapter 4, there are seven traditional wastes within the organisation, i.e.

- *Transportation of goods both internally and externally*
- *Inventory*
- *Movement of people in 'getting the job done'*
- *Waiting for a process or service*
- *Over production ('just-in-case' production)*
- *Over processing, or inappropriate processing using excessive (wrong) resources*
- *Defects and other quality related issues.*

Contemporary Lean thinking now includes environment as the eighth waste!

Environmental waste is the unnecessary use of resources and/or the release of substances into the atmosphere, waterways, or land that could harm human health or the environment. In the same way that reducing the 7 traditional lean wastes can add value to the customer, reducing environmental waste can be shown to add value to the customer by reducing both the depletion of natural resources, and the impact of pollution and other health hazards on the environment at large. These environmental impacts are often called externalities and have traditionally not been factored into customer value and the cost base of products and services.

Going Green uses a similar approach to Lean, i.e. identify the value desired by the customer together with what is good and positive for the environment. By defining a set of environmental wastes, companies are able to identify and reduce these wastes within their processes to simultaneously reduce costs (not increase costs as is the common perception), increase value and create a more competitive business. Just as there are 7 Lean wastes, there are also 7 environmental wastes with a clearly visible overlap, i.e.

- Materials – can products be designed to reduce the consumption of virgin materials and increase the use of recycled materials? Reducing the consumption of virgin materials not only reduces costs, but has a positive environmental impact.
- Water – can water consumption be reduced, recycled, or harvested?
- Energy – rising energy costs are a fact of life and a reduction in energy consumption is important to any business. Minimising power consumption and incorporating renewable energy sources where possible, has both an economic and environmental benefit.
- Garbage – garbage waste comes from paying for something that is thrown away. To make matters worse, in addition to this initial cost and its environmental impact, one usually has to pay an additional charge to finally dispose of the garbage!
- Transportation – the impact of excess and unnecessary travel on both operational costs and the environment are obvious.
- Emissions – not only carbon, but other pollutants as well.
- Biodiversity – this comes in two forms; firstly the direct destruction of the environment from the building of infrastructure and secondly, from harvesting resources at a rate faster than their rate of regeneration.

Waste Type	Environmental Impacts
Overproduction	<ul style="list-style-type: none"> • More raw materials and energy consumed in making the unnecessary products • Extra products may spoil or become obsolete requiring disposal • Extra hazardous materials used result in extra emissions, waste disposal, worker exposure, etc.
Inventory	<ul style="list-style-type: none"> • More packaging to store work-in-process (WIP) • Waste from deterioration or damage to stored WIP • More materials needed to replace damaged WIP • More energy used to heat, cool, and light inventory space
Transportation and Motion	<ul style="list-style-type: none"> • More energy use for transport • Emissions from transport • More space required for WIP movement, increasing lighting, heating, and cooling demand and energy consumption • More packaging required to protect components during movement • Damage and spills during transport • Transportation of hazardous materials requires special shipping and packaging to prevent risk during accidents
Defects	<ul style="list-style-type: none"> • Raw materials and energy consumed in making defective products • Defective components require recycling or disposal • More space required for rework and repair, increasing energy use for heating, cooling, and lighting
Over processing	<ul style="list-style-type: none"> • More parts and raw materials consumed per unit of production • Unnecessary processing increases wastes, energy use and emissions
Waiting	<ul style="list-style-type: none"> • Potential material spoilage or component damage causing waste • Wasted energy from heating, cooling, and lighting during production downtime

Table 3: Environmental Impacts of Lean Wastes (Source - USA EPA³)

³ <http://www.epa.gov/lean/environment/toolkits/environment/ch2.htm>

Lean improvements directly contribute to a reduction in energy consumption, emissions and environmental waste. As the USA EPA³ have demonstrated, there is a direct relationship between Lean and Green as the Lean and Environmental wastes both aim to reduce costs and increase customer value (see table 3).

Furthermore, it has been proven time and again that going green increases customer and employee loyalty, and aids in attracting new customers and retaining existing staff.

There is a direct relationship between Lean and Green as the Lean and environmental wastes both aim to reduce costs and increase customer value.

As opposed to being reactive, businesses should become more proactive and companies need to develop their Lean and Sustainability philosophies as an integral part of their overall business strategy. Lean and Green are not at loggerheads, and those companies that have embraced both concepts have set themselves on a path of creating a sustainable competitive advantage.

14. Lean Metrics

A business metric is a type of measurement that is used to gauge some component of a company's performance. Traditionally these components (often known as key performance indicators or KPIs), have been used to determine financial performance. Metrics such as EBITDA or return on investment (ROI) are seen in most company reports, however meaningful metrics will vary from industry to industry and within an individual company according to the type of product or service produced.

Managing, monitoring and analysing KPIs takes time and effort, so it is necessary to ensure that the most appropriate measures are chosen to address the specific needs of the business.

When developing metrics, companies must consider two main characteristics for the KPI namely, the need for frequent measurement and what may have to be done to repair any negative outcomes that become apparent during the monitoring of that KPI.

The University of California approach to determining quality metrics is as follows:

- Is the metric objectively measurable?
- Does the metric include a clear statement of the end results expected?
- Does the metric support customer requirements, including compliance issues where appropriate?
- Does the metric focus on effectiveness and/or efficiency of the system being measured?
- Does the metric allow for meaningful trend or statistical analysis?
- Have appropriate industry or other external standards been applied?
- Does the metric include milestones and/or indicators to express qualitative criteria?
- Are the metrics challenging but at the same time attainable?
- Are assumptions and definitions specified for what constitutes satisfactory performance?

- Have those who are responsible for the performance being measured been fully involved in the development of this metric?
- Has the metric been mutually agreed upon by you and your customers?

One can take this further now with the application of the Lean Business Philosophy to Metrics. Lean practitioners make better use of resources (including labour), reduce manufacturing, office and warehouse space, and reduce development and energy costs. Furthermore, inventory and service errors or defective products and lead times are frequently reduced. Lean principles can also be applied to product design and development, coordinating suppliers, dealing with customers and many other areas outside of the traditional financial control KPIs. This being the case, Lean KPIs must measure the performance in these areas and so drive continual improvement.

By analysing the Value Stream for each product or process, and by considering non-traditional metrics, the company can develop KPIs that measure the elimination of waste.

Just as a company's goals and objectives evolve over time, the set of performance metrics management uses to track progress toward specific Lean goals should also change over time.

If KPIs are well designed and continually examined for relevance, they can be the precise tools management needs to turn strategic planning into action, and guide company-wide decision making so that stated goals are achievable and continually in focus throughout the organisation.

The right combination of metrics can show not only where the company is succeeding, but also highlight specific areas of weakness. As data accumulates, graphs can be used to display trends and identify areas where management can take steps to improve performance and reduce waste.

Some of the non-traditional and metrics that should be considered in a Lean organisation include:

- Customer satisfaction. This is the most important KPI of all but difficult to measure - when in doubt, ask them!
- Customer on-time delivery. The relationship between the actual product or service delivery, and the customer required delivery.

- Supplier on-time delivery. If the supplier is late, your delivery performance may be impacted.
- Lead time. The total time from order placement to order delivery.
- Equipment setup times. Wasted time necessitates additional inventory and labour.
- Office/factory/warehouse etc space requirements.
- Waste management. This may include the disposal of packaging, chemicals etc.
- Inventory. Consider all stages of inventory i.e. raw material, finished goods, perishable items, and work in progress.
- Quality cost. Errors, defectives, rework, inspection times, testing, warranty claims etc. Interestingly, the cost of a replacement item is always significantly more than the original cost of the defective item.
- Number of sick days and lost time injuries.

Justin LaChance, Senior Vice President, Financial Planning & Analysis at GE Capital believes that the following should be considered in order to get the greatest benefit from performance metrics:

- At their most fundamental level, performance metrics measure the performance of your team. The most direct way to achieve results is to tie compensation to the most relevant metrics. However, in GE's experience, pride, more often than not, drives performance. When team members examine measurements of improvement and must justify to their peers whether goals have been met, satisfaction in achieving those goals on a personal and group level is a strong incentive that drives superior performance.
- If the metrics developed are not relevant to performance, or if they are measuring something that is too insignificant to affect performance, then management jeopardizes effectiveness by focusing on those measurements instead of others. "If I am publishing metrics that are not relevant or impactful, *I am wasting my time and the time of others,*" says LaChance.

In any Lean organisation, the credibility of the metrics that are developed, how they tie into broad company goals, and whether they are communicated to and adopted by all stakeholders involved in the activity measured, are critical factors to the success of performance measurement.

15. Lean and Continual Improvement

One of the most important elements for business success is **Continual Improvement**. Organisations must constantly improve or else face the fact that they are actually going backwards relative to the competition. Blackberry and Nokia are but two examples of companies that no longer dominate their respective markets. Continual Improvement must be across all elements of the business and not just the traditional areas of Operations and Quality Management.

Arguably the most important duty of Senior Management in every organisation, is to drive the Continual Improvement process. Continual Improvement should be a permanent objective of every organisation.

Continual Improvement requires the ability to understand the processes that impact an organisation's objectives, to measure those processes efficiently and objectively, and to make positive changes using a factual basis for decision making. In a Lean organisation, the important processes are all those that impact customer value, and where:

- Processes and information are as simple as possible.
- Process indicators or KPIs have been developed and implemented for each process.
- Improvement of processes is an ongoing, normal business activity.
- Those involved in a given process, including employees, contractors and suppliers, are engaged in any improvement activities undertaken.

Continual Improvement should not be only applied to Quality System Processes but company-wide processes, including finance, HR, administration, sales and marketing, IT, R&D, and operations. While an analysis of the Value Chain will provide departmental objectives, for Continual Improvement initiatives to succeed, the following principles must be in place:

- Senior management must be committed and actively support the ideals of a Continual Improvement programme.
- The organisation must be clear on the overall goals of the improvement programme.
- Continual improvement initiatives should be an integral part of the organisation's Strategy and Business Plan.
- To ensure effectiveness, the benefits of improvements should be continually evaluated against the cost and resources used in their development and implementation.
- Specific, measurable improvement objectives and targets should be set.
- A simple and practical methodical approach should be used.
- Improvements should be based on factual data.
- A belief that the status quo can (and should) be challenged must exist.
- All staff should be encouraged to be involved in continual improvement and receive training on relevant strategies, tools, and techniques.
- Improvements to processes should be understood by those expected to implement the new or modified processes.

Once these principles are established, the Continual Improvement Cycle can commence. Figure 14 shows the PDCA cycle that was developed by Dr Edwards Deming in the 1950's to rebuild Japan's manufacturing base after WWII. This PDCA cycle is applicable to any department or process within an organisation.

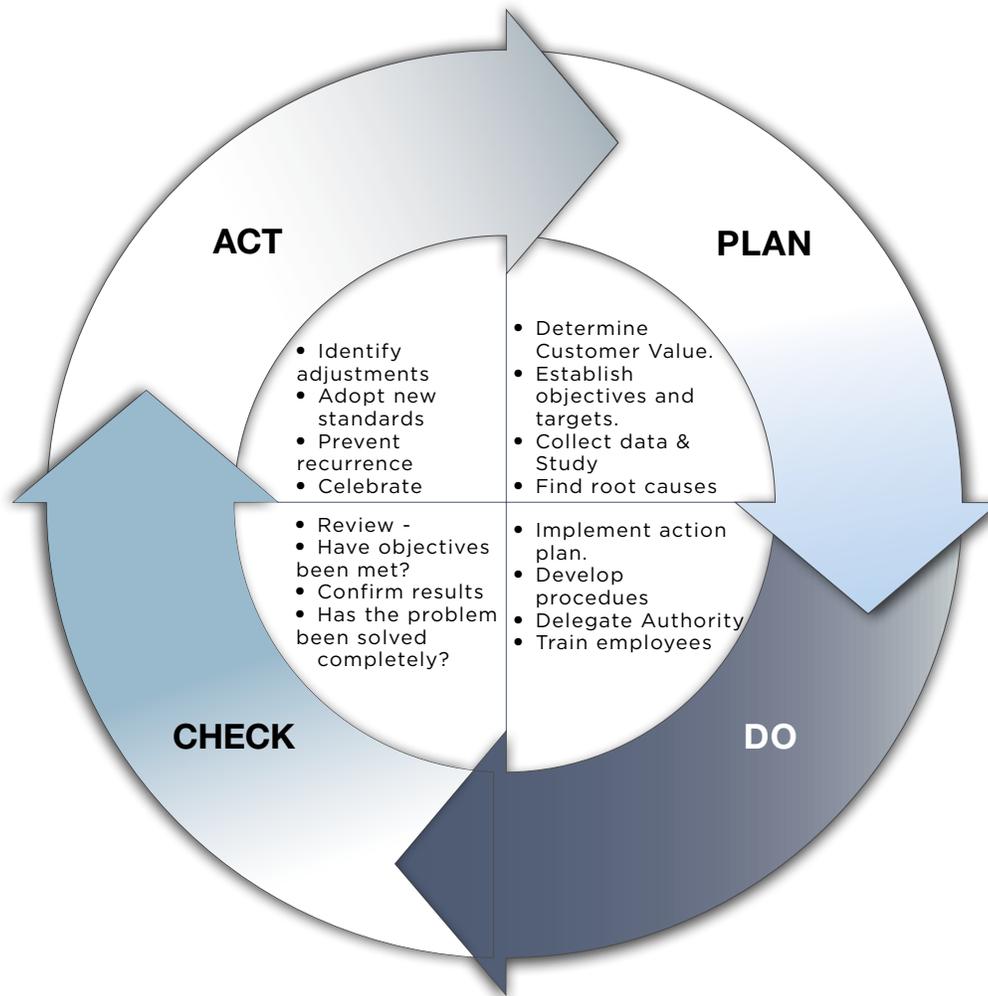


Figure 14. Deming's PDCA Improvement Cycle

- **PLAN** – Establish the goals and objectives necessary to deliver results in accordance with the expectations of the business. Plan the likely effects and consider the possible outcomes. Use techniques such as Customer/Supplier Mapping, Pareto Analysis, Brainstorming or Cause and Effect Diagrams to predict the likely outcomes. Employ techniques such as Benchmarking and Value Stream Mapping to analyse possible improvements. Collect and analyse data.

- **DO** - Implement the action plan. Ensure that personnel have been adequately trained and the appropriate KPIs are in place. It may be necessary to carry out small scale experiments to trial the actions and evaluate outcomes.
- **CHECK** - Compare performance using control charts or KPIs so as to ensure that the results obtained are within expectations or aligned to the plan. Confirm results meet expectations and that the problem/s have been solved completely.
- **ACT** - Implement Corrective Actions where there is a significant deviation from the planned outcome.

It is essential that Lean and Continual Improvement co-exist if an organisation is to maximise the possible benefits. Large performance gains can be made in all areas of the business provided that management retains the necessary commitment. The business culture must move toward a “can do”, “need to improve” attitude and to achieve this state, management must be prepared to involve employees in the planning and decision making processes. Management must provide feedback to teams and individuals to increase personal commitment and ownership.

Certain difficulties will be faced as Continual Improvement techniques are implemented within the organisation. Typical issues likely to arise are:

- Senior management fails to provide the necessary leadership, commitment and enthusiasm for the programme.
- People regard continual improvement as a “passing phase” and not a permanent approach.
- People tend to resist change by protecting existing boundaries and practices.
- Process mapping becomes a goal, rather than a tool to assist in problem solving.
- Teams over-analyse problems rather than focusing on results-oriented solutions.
- Too much time is spent criticising the current process.
- The organisation underestimates the degree of radical improvements that are possible.

The foundation of any successful Lean business is truly embracing continual improvement, for without it, it is unlikely that the business will achieve its long-term strategic objectives.

16. Conclusion

Although Lean is often associated with big manufacturing concerns like Toyota, the reality is that Lean is not restricted to the manufacturing industry. Furthermore, Lean is not exclusive to 'big business' and can be applied to any business. The objective of this book is to demonstrate that Lean is applicable in ALL organisations and ALL departments.

Lean is about business. A Lean business strives to understand what the customer really values, and then maximises customer value without the addition of unnecessary effort, time or cost. Any activity that does not add customer value is considered 'waste', and becomes a candidate for reduction, or better still, elimination.

While businesses are beginning to realise that Lean applies to both manufacturing and service or professional organisations, many still believe that Lean is a set of tools and techniques that are used to improve overall business efficiency. Going Lean does not mean the introduction of complicated systems and procedures, or the use of sophisticated tools and techniques. Lean is simplicity.

- Find out what your customers value, where this could be the external customer or the next department or person within the organisation. Get close to your customers and understand their needs!
- Analyse your existing processes in terms of how they achieve (or not!) customer value. Simple process charts are a great way to start analysing these processes to identify those activities that add no customer value. Ask the **Critical Questions** (see chapter 5).
- Change the process to reduce or eliminate the areas of waste and so increase capacity. Use the increase in capacity to add greater customer value or new products and services.
- Strive for the dream, i.e. the perfect process that has zero waste and delivers exactly what the customer wants when he wants it.

As you embark on your Lean journey, we hope that this book gives some insight into the issues that are involved and that Lean principles can be applied to any area in any business. As we strive to survive in the face of greater competition and the ever increasing demands from customers and regulators, a Lean business provides the answers. Lean Business.....Fat Profits.

17. About the Authors

Inform Consulting Group specialises in improving business performance and creating competitive advantage. With a diverse range of partner expertise, all with a practical business management background, Inform provides businesses with access to high caliber managers when and where you need it.

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With over 25 years experience as Senior Manager, Business Advisor, University Lecturer and Joint-MD of a manufacturing business, Mike is Informs Lean 'guru'. Mike is a strategic thinker with proven capabilities in change management, team and leadership development. Proven ability to instigate, follow through and deliver people and organisation development strategies that contribute directly to business growth and operational effectiveness.

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Wayne has over 30 years experience in senior management, sales and marketing management, and business development. Working across Australia, Asia and Europe Wayne has managed and developed businesses in a diverse range of industries including fluids handling, printing, pollution control, engineering, data & telecommunications and language schools. Wayne is Informs 'go to' person for business strategy, business development and sales & marketing.

Eric de Diesbach

Eric has over 20 years of experience in small, medium and large companies at Management and Director Levels.

He started his career with Roche, the Swiss based Pharmaceutical Corporation, listed in both Switzerland and the US. During 13 years, Eric held seven different positions on three continents, in Divisional HQ and subsidiaries. Appointed Finance Director in several countries, Eric implemented systems, improved processes, re-organised Departments and merged companies.

Eric relocated to Sydney in 2003. He now brings his vision, expertise and core problem solving skills to Inform clients.

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With over 20 years experience in HR and organisational development functions in large corporate, public and not-for-profit organisations, Greg takes the lead in people related issues for Inform clients.

Greg has particular interest and expertise in workplace culture and leadership, HR strategy and practice, staff training and the development and delivery of customised eLearning solutions.

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Alan has over 30 years experience in General Management, Manufacturing and Quality Systems in Australia, Asia and Europe with a background in metallurgy, production, operations management, and business development. Industry experience includes security products, automotive manufacturing, air conditioning, metal fabrication, forging and casting, electronics manufacturing.

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