

Lean: Concepts and Realities

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An experience-based paper, providing an overview of the increasingly popular Lean improvement philosophy. This paper covers the basic principles, moving on to shed the light of experience on many associated myths and realities. Andrew has 22 years experience of implementing Lean and JIT programmes, bringing a practical, results-led perspective to bear. The paper also considers how process simulation can complement and enable lean within industries with dynamic demand. Its objective is to provide a useful point of reference for managers at the threshold of launching a new lean programme, particularly those from service or public sectors.

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Introduction

This article looks at the main concepts that underpin the recently popular 'Lean' improvement philosophy, beginning with a review of the origins of lean and then considering how such principles can be effectively translated from a manufacturing context to non-manufacturing sectors such as financial, administration, health and policing services.

By providing a pragmatic and experience-based overview, this article intends to eliminate any element of mystique surrounding Lean. From an implementation perspective it also intends to provide a useful commentary on some of the key factors to consider when planning a lean initiative, discussing several of the more detailed critical success factors that should be incorporated into the thinking behind lean programme planning.

Origins of Lean

Although there are many quoted origins for many of the founding concepts behind lean production, most people recognise the Toyota Production System (TPS) as initially bringing together all of the essential ingredients required to implement a complete lean manufacturing process.

Those 'essential ingredients' include:

- **balancing flow** through the process
- pulling throughput to **precisely match customer demand**
- **reducing inventory and waste** throughout the production process
- producing **increased variety** and complexity to that previously possible

Previous automotive production models such as those developed originally by Henry Ford in 1914 for the Model T line, were mass-production based process systems. The term '*lean*' was originally coined following an MIT automotive study and the book that followed that study. That book was the landmark 'The Machine that Changed the World' by Womak and Jones in 1988.

Prior to this, Richard Schonberger, in his excellent text 'Japanese Manufacturing Techniques', captured much of the same thinking without the "lean" label. At that time the more popular term for pull-based waste-less processes was "Just In Time" or JIT. Schonberger's text was actually published 6 years before the 'Machine that Changed the World', but inspection will show there to be little difference between the base concepts in both texts.

A Business Philosophy, Not A Technique

Lean is concerned with delivering more value for the business and it's customers by increasing the velocity of throughput and minimising wasteful practices by balancing process flow.

Lean is not merely a business improvement tool. It is a philosophy which needs to be driven from the top team down if it is to generate required levels of understanding and belief. Securing such widespread commitment is difficult, takes valuable time and as a result many organisations end up launching their lean programme without due diligence as 'just another quick fix initiative' to address the same fundamental business performance problems. They rarely succeed.

The business culture must back up statements of commitment lean with the right day-to-day behaviours and decisions or improvements are unlikely to be sustained. Lean must align seamlessly with organisational structures, culture and management performance reporting systems for it to deliver long term results.

Good existing processes, systems and behaviours should not automatically be discarded when implementing lean. Current strengths and capabilities must be used as foundation stones, rather than discarded. The concepts of lean are consistent with many other widely known improvement approaches and introducing lean should be seen as knitting together, and then extending, recognised strengths

A lean programme should be seen as all encompassing, effectively becoming '*the mortar between the bricks*' of other initiatives. It should be seen as enabling the business to deliver customer needs and strategic business objectives, rather than run by a specialist team of people. Alternatively if a strongly defined performance management programme already exists then achieving successful lean deployment may involve only the addition of a 'brick' or two (e.g. incorporating an appropriate lean tool, such as Value Stream Mapping). Lessons learned from past programmes must be used to avoid similar pitfalls and develop robust plans.

The ideas behind lean are now neither new nor unique, but they can often require a major mindset shift from top to bottom in the business. Certain key behaviours that are vital must be fully grasped for any lean initiative to succeed. One such behaviour involves the compression of end-to-end process lead time. Often the endless quest for waste elimination is touted as the sole objective of lean. The elimination of waste obviously does deliver attractive and important cost benefits, however these are a pre-requisite for creating a lean process. The process goal is therefore to eliminate waste in order to expose underlying process performance and behaviour. This secures better process understanding, in turn driving more effective process design and process performance improvement.

Common Lean Tools

Common tools for capturing and analysing such processes are:

- *Process Mapping*
- *Value Stream Mapping*
- *Pareto analysis*
- *5S (Workplace Organisation)*
- *Fishbone analysis*
- *Poke Yoke (error proofing)*

These commonly understood techniques can be used to contribute to end-to-end process compression and improve (*customer required!*) throughput. It is not the number of tools used that is crucial to success however; it is the selective and appropriate deployment of such tools that is important. Each technique can be deployed at varying levels of complexity and at various stages of the analysis-to-solution implementation pathway.

There are many commonly known lean building blocks, recognisable across many excellence-based business management programmes. These include 5s, and there are many others that are deployed as part or an integral part of a lean programme such as Customer Pull and Kanban, Systems, Kaizen, Group Technology, Continuous Improvement, Visual Management Systems and Concurrent or Simultaneous Engineering.

One common lean tool commonly deployed in lean is a derivative of standard process mapping, known as Value Stream Mapping. This enables process flowcharts to be visibly linked to clear customer value measures. It provides an opportunity to visualise a horizontal process view through organisational and functional structures in order to establish a better understanding of the true value of each activity.

Such visibility is helpful in understanding the state of the various internal customer-supplier relationships within the business. A valid criticism of such maps is that they are static and overly simplified. They often do not adequately represent dynamic complexities that are present in reality. Leading firms such as GSK have deployed process *simulation* models in their Lean-Sigma programmes to enable them to analyse dynamic process complexities, including and product mix variations, with greater certainty.

Lean programmes have been successfully implemented in many different and innovative ways. Those that are most successful tend not to follow textbook-like mantras, but result from creatively tailored approaches which have engaged full and active involvement from the workforce from the outset. Whether in a factory, a bank, hospital or police force, it is essential to involve the real experts when evaluating and improving processes.

Problems vs. Solutions

Those new to the concept of lean do not take long to appreciate that there is a confusing myriad of training courses available to support these many lean concepts and techniques. The majority of such tools are targeted at process definition, data collection and analysis. Equal amounts of time must be spent considering how best to identify effective *solutions* and this is often more challenging and less well structured. Lean programme leaders must ensure sufficient time is spent on the solutions creation phase to avoid implementation risk and drive bottom line performance improvement.

Experienced operations personnel should be actively involved to use their knowledge to help identify root causes of waste and inefficiency. Less experienced improvement team members (e.g. a specialist central 'lean team') will often not get to root cause level or establish operational buy in to proposed changes. On the other hand different skills are often required to develop creative solutions to problems, when identified.

Improvement programmes tend to spend much time identifying and analysing many of the *problems* that exist, rather than generating creative solutions to establish new and improved ways of working. Tools such as Value Stream Mapping and Process Simulation are useful to help guide creative thinking around process redesign and improvement options. The opportunity to use process simulation as a "What if" tool to explore different process designs and different resource deployment patterns in a risk-free environment, is very attractive as a wider range of change options can be considered, and then fully tested, before investing in costly or risky implementation. All too often organisations spend a long time analysing the situation, but then an inadequate amount of time on solutions thinking to ensure that selected solutions will work and are the best option available.

The Importance of Value Add

The concept of value-adding is very important within lean. A value-adding activity is one that the *customer*, internal or external, considers to be truly worthwhile. Value-adding activities are therefore those that either transform materials into products or sub products, or produce valuable information or services that a customer will pay for. All other activities should be considered likely to be non-value adding.

Activities that are non-value adding often remain hidden within a business because either: work is being done with high visible utilisation but is ineffective; work is being done within functional stovepipes, with little balance or connection between individual functions of the end-to-end process.

This is often the case in large organisations, such as in the public sector, where one department is often unaware of the needs of their downstream internal customer. Once again such concepts are not new, being the cornerstone to those successful TQM programmes that did return tangible benefit across industry in the '80s.

Wasteful practices occur in many functionally driven environments as a result of legacy habits that have become 'part of the way things are done around here' and which are very difficult for employees to see through, to a new perspective.

The Seven Wastes

Lean defines seven different types of waste that are tackled to minimise or eliminate them. They are as follows:

Overproduction: is simply the non value-adding use of available capacity as opposed to that capacity being used to satisfy the needs of a customer. It is symptomatic of the 'busy fool' syndrome, with true process performance being distorted as a result.

Waiting Time, Delays & Transportation: are clearly unwanted non-value adding activities which should be minimised and avoided wherever possible.

Extra-Processing: whether additional unnecessary stages within the process, such as an intermediate packing activities that could be improved through facility re-layout, or over-processing product beyond design specification. Similarly such waste should be minimised.

Over Stocking: often either through poorly synchronised purchasing practice or over production. This drives inventory up and inevitably results in process performance ambiguity and a loss in agility.

Excessive Motion: within the process should be avoided. The point of output from one process stage should ideally be the point of use for the next stage.

Defects and Rework: whether this is a lean programme, JIT, TQM, 6-Sigma or TPM programme, all share similar objectives of minimising or eliminating all defects. The 'zero-defect' philosophy of TQM is therefore very much embodied within any lean-thinking organisation.

It is not enough to simply conduct a review of potential wasteful areas from an individual functional perspective. A proper end-to-end analysis should be conducted, with internal customer-supplier links well understood and considered when defining waste in order to ensure that the whole is indeed greater than the sum of the parts. Ideally waste and non-value adding activity should be defined by careful customer consultation, rather than by the process team working for the customer themselves.

Cultural Challenges of Lean

There are many cultural challenges that the implementation of lean brings to an organisation, such as concept of 'stopping production to improve total productivity'. Traditional manufacturing organisations and many of today's service organisations hold the view that all machine or employee utilisation is good (once again, 'busy-fool' syndrome). Lean thinking helps us to realise that this is not actually the case and that if customer needs are not well defined and communicated much activity can result in overproduction and waste. When such waste is identified the process should theoretically be

synchronously halted and available resources dedicated to the permanent elimination of the root cause. Repetitive causes still result in massive cumulative inefficiency within many organisations and this behaviour is targeted at their reduction. In the real world, such decisions require brave leadership as short term productivity and efficiency will often be affected and lead to inevitable production and customer service pressures until the positive impact of improvements flow through.

Any company starting on the pathway to lean must first establish clearly understood methods for *process control* to support effective process management before emphasising a focus on more exciting *process change* aspirations. Many organisations pursue lean or lean sigma initiatives with very high performance improvement expectations without first establishing such process and performance control.

Once such control has been established, a lean business must relentlessly strive for improvement and perfection, which means those very standards that have just been established have to be relentlessly challenged. It is this dynamic that defines a lean organisation. Day to day behaviours and decision making must demonstrate lean thinking over an adequate time period for there to be a real progression in workplace understanding and culture. This places the emphasis on effective, co-ordinated and consistent leadership. Lean is not an overnight sensation and if leadership is weak or ever-changing, the programme has a high likelihood of failure. Many businesses unfortunately lack strong, effective and stable leadership teams.

Another challenge businesses face is in trying to produce more of what the customer wants within ever shortening timescales. Organisations have historically preferred to run longer batches to maximise production; however this leads to poorer customer response and over production. Global markets now demand increasingly agile supply, in service or manufacturing industries.

Over-production and over-stocking often presents a challenge from the accountancy function within many companies, as such stocks carry an asset value in the company accounts. This positive valuation of wasteful practice can be a real obstacle to aligning behaviours and KPIs. The accounting practices were originally challenged by the JIT movement in the early '80s, but still prevail today despite the suggestion of many alternative approaches.

The Lean Service Business

Service organisations are now pursuing lean thinking and actively deploying lean principles. Lanner Group has worked with a number of organisations across the Public Sector, including Central Government, Healthcare, Criminal Justice and Police Forces (covering processes as diverse as incident response, custody, forensic science and traffic management areas). Recently the First Lean Service Summit was held in Amsterdam, with participants from many service sectors in attendance.

Service organisations adopting lean have to be wary, as there are many training providers and consultants out there keen to sell the idea of 'quick-fix lean'. This creates the misconception that lean can be adopted by sending a few employees to attend a short lean training course. Worse still, many companies may spend large amounts on expensive specialist consultants who then create great mystique around the topic in order to create longer term dependence on them. Rather than creating such an expensive crutch, it is important for organisations to do sufficient initial research and then make a decision *as a management team* on how the principles of lean can be best adopted within their existing management framework.

A characteristic regularly seen across administration services and public sector organisations is *the need for these businesses to understand end-to-end process performance and not focus only on individual unit efficiencies*. These businesses must better understand the drivers of end-to-end process throughput and effectiveness, and then manage them. All too often staff incentives are placed on hitting unit performance targets as opposed to end-to-end process objectives, with functional departments then behaving parochially as a result. This can force organisational and cultural misalignment between departmental and corporate aspirations. Such problems can only be addressed top down.

There are many good success stories of lean principles being successfully applied in service organisations. In the UK Policing arena, Lanner Group worked with every force in England and Wales to recently roll out a national forensic process analysis and improvement programme over a 3 year period. This programme used process simulation as a key lean enabling tool to analyse and improve end-to-end process performance and deliver bottom line benefits. The keystone to success was the improved end-to-end process management understanding and resulting introduction of more balanced end-to-end process measures used (unifying efforts on detections management). This work demonstrates very well how lean principles can be deployed within police forensic science processes to dramatically improve the speed and volume of identifications and detections. This in turn increased criminal conviction rates and reduced crime and cost levels.

Processes within administrative and office environments are less visible because of the lack of physical equipment layout that is present in the industrial sector. Things are also less obvious when it is information, telephone calls, patients, cash or court cases that are flowing through the process - as opposed to manufactured products which are more tangible. Within such environments a set of interdependent process steps that affect overall process outputs can usually still be defined as 'the process' and lean process management principles applied. Developments in workflow and Business Process Management (BPM) solutions have provided a degree of improved visibility and understanding of end-to-end process connectivity, using process mapping, process simulation and process optimisation tools.

Defining such value streams from a customer perspective in service industries, particularly from an *internal* customer perspective, is therefore often less clear than within a factory. The corollary is that it is therefore often even more valuable to do so. Years of working in such environments has emphasised that, once processes are captured, they usually exhibit excessive complexity and incorporate too many hand-offs. Process stage hand-offs, often functional, should be eliminated to achieve greater simplification and improve customer service levels. This is an area where tools such as process mapping, Value Stream Mapping and Process Simulation are very valuable. These approaches create visible stage-by-stage process and performance understanding in a way that was previously invisible to individual 'process stage owners'.

In service industries, including the public sector, an IT automation route is often seen as a 'magic wand' solution to process management, which has been proven to be a dangerous assumption. As the saying goes, 'it is human to err, but only a computer will really screw things up'. It is the responsibility of management to ensure that new IT process automation plans are driven by improved process control and management standards. Managers should not be further alienated by new systems implementation, which all too often the case and this creates losers on both sides: managers who feel less

connected with their business processes and systems which are misunderstood and therefore poorly implemented and used.

In recent decades organisations have spend small (and large!) fortunes on new IT systems to automate and improve their processes, only to subsequently find that they have not driven out the anticipated bottom line benefits. Automation is not always a panacea to all process management challenges. It is always vital to ensure that people, systems and technology change factors are synchronously considered to maximise the effectiveness of any IT deployment. Lanner Group are a recognised visionary in this field, working with many leading organisations and BPM players such as IBM, IDS Sheer and Oracle globally to optimise systems design using process modelling, simulation and optimisation methods to ensure that 'dog wags the tail', and not the reverse.

Lean and Six-Sigma

Lean and Six Sigma have both been popular brands of performance improvement initiative in the last decade. Both of those programmes can co-exist independently. Organisations wishing to knit both programmes together have done so using the 'Lean Sigma' term. It may be useful to clarify that this is absolutely fine as these approaches can be deployed to achieve complementary objectives, as follows:

Six-Sigma, originally developed by Motorola in the '80s, is effectively a quality management approach which is aimed at *defect and process control*. It's name indicates it's strong statistical origin, relating to a very low level of acceptable defects per million opportunities and therefore a high quality standard. Whereas Lean focuses more heavily on the *velocity* of the end-to-end process and the cost of *non-value added activities* involved in that process. Both will claim to be strongly driven by customer value through the process.

They differ but are complementary. The methods that are deployed within Six Sigma can be used comfortably within a Lean improvement initiative. Usually Six Sigma will deploy a 'DMAIC' (Define, Measure, Analyse, Improve, and Control) driven loop and this is analogous to the other 'Plan-Do-Evaluate', 'MAP-Do' cycles defined within parallel improvement approaches.

A Six Sigma programme will depend on the collection, cleansing and analysis of significant amounts of statistical data. This can involve a lot of work and organisations with limited capable resources can struggle with this. Six Sigma will often require training many employees in new, sometimes quite complex, statistical analysis methods, with successful delegates being presented with different coloured 'belts' to signify capability in the style of martial artists. The appropriateness of this approach to the culture of the business must be considered and a clear cost justification produced before implementation.

Both approaches can therefore be implemented separately to achieve parallel objectives, or as mutually complementary components within an integrated programme. They both help companies respond to increasingly demanding customer needs through a model of operational excellence that creates delivery agility.

By definition, any Lean-Sigma programme is eclectic in style. Perhaps such programmes should really be termed 'Lean-Sigma-TPM-TQM-JIT programmes', because complementary building blocks from all such philosophies can be found deeply embedded within such programmes. Obviously it doesn't really matter which banner is flown, as long as essential levels of understanding and commitment are secured from the outset.

Training is not all important – it's the understanding that counts!

Organisations regularly sheep-dip employees through training in the next improvement initiative, naively expecting that this tick-box behaviour will provide sufficient comprehension for real world application. Initial confidence results only after the supporting reinforcement of learned principles through practical deployment. Mature understanding then comes through the achievement of results (successful or unsuccessful). This takes time and resolve from many along the way and all too often investments in such training are made without the provision of a supporting culture. The hopes of returning delegates are all too often dashed by incompatible day to day business priorities which are misaligned with the learning process. The bottom line is that creating real understanding takes much longer than most managers plan for. Real understanding across an improvement team drives the confidence necessary to generate increasing team pro-activity and programme ownership.

It takes many years for an individual's capability to rise to the level of 'expert' or 'change programme champion'. Indeed many who carry such a badge have simply undergone tools and techniques training before being thrown into such a key change leadership positions. Potential internal change champions must be carefully selected against a balanced set of change agent attributes. At this point they should be provided with the necessary skills development (both hard tools and softer change agent skills) before being assessed against the requirements of their intended role. Having nurtured and developed numerous such individuals, it is clear that the few companies spend time building sufficient resource quality at this stage. The level of quality secured at this early stage will show in the quality of results in subsequent stages of the programme.

Typically Quoted Benefits

There are numerous publicised and quoted benefits within both manufacturing and within service environments. Manufacturing improvements typically quote:

- *Cycle Time Reductions of up to 90%*
- *Typical Productivity increase of over 60%*
- *Work in Progress (WIP) inventory reductions of over 80%*
- *Cost reductions of over 80%*
- *Waste reductions of over 80%*
- *Space reductions of up to 70%*
- *75% reduction in travel times*
- *Improved customer service*
- *Increased employee morale*

Many of those benefits translate well into an office and service environment and within office environments specific benefits such as:

- *More accurate invoicing*
- *Reduced Order processing errors*
- *Improved regulatory compliance – a key issue in many public sectors including government but also in non public sector environments such as financial services with FSA regulations being a driver in that area*
- *Improved customer response levels*
- *Reduction in paperwork*
- *Improved staff productivity*
- *Improved payment response*
- *Reduced complaints calls*
- *Reduced staff turnover*

are typically realised by the effective deployment of lean management principles and tools.

Lean and Process Simulation

Clearly the benefits received will depend on the level of potential available. An organisation that has already very effectively deployed other improvement techniques may not have the same gains available. There are also many lean programmes which have been poorly implemented and where the cost of the programme has outstripped the resultant profit impact. As always it's not *what* you do it's *the way* that you do it!

Process simulation regularly plays an important enabling role in lean programme delivery. Basic lean tools, including Value Stream Mapping are fine for analysing simple, linear processes with relatively consistent demand patterns. Static approaches are less appropriate for analysing processes which incorporate: volatile demand dynamics, product mix complexity or the shared use of specialist resources (machines or labour). Where such time dependencies are important, a Process Simulation model can more accurately describe and visually explain the dynamics of the process, its performance and resource requirements and show what the main drivers for end-to-end process performance are.

Fundamentally lean aims to ensure that resources are matched to demand and Process Simulation is a tool that if frequently used to do precisely this, whether is for a call centre, a factory or a police custody suite. The objective of most process simulation tools is to enable decisions on how best to match available resources with customer demand.

Process simulation can be very effective in establishing 'current state' understanding and in considering various 'future state' options. Future state process visualisation using Value Stream Mapping is very limited and this can be more powerfully and visually enabled using process simulation. Usually the key question in testing future state process designs is 'how well will the new process design work?' This is where process simulation can add real value as it allows all stakeholders to evaluate the impact of making a wide variety of 'what if?' change scenarios quickly and without the cost and risk of implementation or pilot implementation.

Another area where simulation can contribute strongly within a lean initiative is when organisations are trying to unlock new process design thinking from legacy resources. Such employees can more readily engage with a very visual process simulation model and this helps unblock improvement ideas. The very creation of a process simulation model forces teams to ask the right process and performance questions. Often these are questions that are being asked for the first time. Once built, a process simulation model can then be used to help stress-test the viability of solutions suggested by Kaizan style improvement teams in a risk free environment. This encourages more radical re-design thinking and helps management identify implementation priorities.

As an integral part of a lean activity, companies spend a lot of time designing new process layouts, producing CAD drawings and producing process maps en-route. The cost of such activities can easily run into six figures, yet none of these outputs will actually determine whether the new process will work or not! This is the job of process simulation which can test the capability of the new design and provide essential implementation confidence to management that they have selected the right solution.

Classic Obstacles to Success

The implementation challenges facing an organisation pursuing lean today are the same challenges that have faced countless other organisations that have pursued excellence initiatives over the last couple of decades. The first most obvious area of potential threat is that of the 'Lip Service Management' launch. This all-too-regular phenomenon is espoused by the management team that wants all the well published lean programme benefits, but without providing real behavioural support. Management must give time to securing adequate personal understanding and then demonstrate sufficient commitment if they are to lead the culture change required to support the programme in the long term.

Another danger is when lean is not supported by a highly visible and integrated performance evaluation framework from day one. This drives hard business measures and results, which bolsters confidence and belief from all quarters. It is all too easy during the first six to nine months of the programme to generate a lot of early enthusiasm and activity energy during this 'honeymoon period', only for the initiative to run out of steam rapidly as anticipated performance gains do not materialise. The lean programme should be seen as an integral part of the business-as-usual performance management framework.

A tailored implementation plan should be initially created. This should be in local corporate language to ensure cultural acceptance before launch. Companies that customise their programme in this way carry less risk than those who simply train everybody in Lean tools and then suddenly exploding a 'by the book' programme overnight. This tailored planning is important and should involve a cross section of individuals from the organisation concerned. A real challenge is in identifying the right lean standard bearers. Where quality resources are scarce, the programme rate should be modified accordingly rather than try to slot poorer resources in to cover lead positions.

It is common for the business to set up a separate improvement team as the 'Lean experts'. Any such group should not be positioned as an alien or elite group who do not relate to business-as-usual needs within core operations. Specialist skills and expertise is obviously often needed and should be positioned as a supporting enabler, rather than as a specialist sideshow.

It's vital to communicate with the right frequency and quality during a programme of this nature. Communication is perhaps the single most important aspect of the programme as it is inevitably a long-term journey. Honest communication about failure as well as success is critical during the lifecycle of such a programme. It is clearly not 'fun' all of the time and will involve a lot of hard work, be tiring for many and be a challenge to the beliefs and behaviours of many employees and senior managers. The driving objectives must therefore be clearly established from the start, then reviewed and restated.

Despite these very real challenges the rewards of successfully implementing Lean are very tangible and worthwhile. For these reasons an increasing number of organisations are now taking the initiative to implement Lean thinking into their organisations. These private and public businesses recognise that Value-Streamlining their businesses can deliver sizeable benefits in terms of profit, customer service and satisfaction.

Conclusions

This document is intended to provide a pragmatic view of Lean which is aimed at reducing or eliminating much of the mysticism surrounding the subject. It is not intended to be a stepwise guide, as this is felt inappropriate given the confusing number of such texts that exist. It intends to indicate some of the key practical factors to watch for when considering implementation aspects at each stage of the journey to lean.

Lean starts and ends with the Process. Both Value Stream Mapping and Process Simulation were identified as useful enabling tools to be intelligently and appropriately deployed within Lean. The relationship between Process Simulation and Lean has been explored and clarified to show how Process Simulation can support Lean to add incremental value.

Success depends on the ubiquitously essential balance of *process, people and technology that is necessary to sustainably deliver the highest levels of process performance*. New lean exponents, particularly in service sectors, must beware rapidly launching a lean programme which is certain to create much early noise and activity, but is less certain to deliver sustainable long term benefits and behaviours. These lessons have been learned the hard way by the manufacturing sector and new exponents in the service should take note to avoid the same costly mistakes.

Lean is a worthwhile destination ... for those who take the time to carefully map their route and stick to their objective despite many distractions along the way. Many more will generate lots of good early success stories, which do not deliver real business benefit and long term belief. Lean is therefore a management philosophy aligns well with clear, inclusive and effective management principles. It is not a 'silver bullet' substitute for such management and those looking for one in the end will be disappointed.

About Lanner

Lanner is transforming the way service owners in large, complex organizations improve delivery and process performance. Lanner is organised to add value at each stage of a customer's journey offering expertise to provide guided discovery and analysis of the problem; applications which empower process users and increase an organisation's ability to improve and save money; and automated simulation components embedded in leading software suites. Lanner's proven simulation and planning technology is supplied to simulation professionals through its Witness® brand and as embedded components to software developers under its L-Sim™ brand. Based in the UK with subsidiaries and partners in Europe, The Americas and the Far East, Lanner applications are used by more than 3,500 companies globally and its services group has delivered projects to over 1,000 customers. www.lanner.com

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