

Quality and Systems Management

Reveries on Operations
Management

by Andrew Pearson



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making good businesses even better

QUALITY AND SYSTEMS MANAGEMENT

Reveries on operations management!

I walked out of the Tudor breakfast room with its rather formal high oak panelled walls, stepped past the open log fire in the spacious and airy reception room and went on into the warm comfort of the bar. I selected a chair with deep pale green cushions and ordered up fresh coffee. Within a few minutes a maid brought a silver pot of steaming black coffee and poured some into a white porcelain cup. As I watched the proceedings unravel in front of me, my mind went back to my conversations with Alastair over breakfast on the role of operations management.

We had discussed the issue of value creation from an operations perspective. I remembered how we had ranged far and wide over definitions of value and quality, and how we had settled on the idea that the value that a customer seeks is summed up in a simple model. This was that value represents some sort of experience or benefit the customer associates with a particular product or service which is preferred to all other competing offers, and comes at the best possible price!

We also agreed that translating such a strategic issue into an operational was supplemented by Goldratt's¹ take on operational goals. Given an aim to improve and raise quality levels, Goldratt tells us of three operational aims, namely; to increase sales throughput, reduce operating expenses and cut inventories!

Thus in seeking to achieve strategic goals and operational goals in parallel a company could increase turnover, raise profitability and attain competitive advantage!

As I sat back and took the first few hot sips of tasty black coffee, I peered through the quartered windows a few feet away, and looked out on to the snow capped lawns beyond, I felt that we had hit upon three separate and distinctly important operational practices.

The first one concerned the relationship between strategic and operations goals, the second had to do with operational systems that would ensure and sustain value creation and the third, well this involved implementation and change so as to ensure commitments to suitable and fitting performance improvement systems...

...and then as I sank deeper into the velvet that enveloped me I saw all before me. All that is that has anything to do with quality and the

¹ Eliyahu Goldratt In his book "The Race"

management of value creation in a business.

As I continued with my reveries, I remembered how an old Polish gentleman had once told me in the departure lounge at Gdansk airport, in Northern Poland during '95, how operations management encompassed the entire business, and how I had never forgotten the truth of this ancient sage's pronouncement.

I also thought of the purpose of a business, namely; to create a customer and how central value creation is to sustaining and generating fresh and continued growth. And as the snow continued to wend its way to earth I thought of the TQM imperative and the behaviours that this demands, as well as its attendant tools such as lean, quality assurance and zero defects and the quest for perfection through continuous improvement...

...And so it is, *dear readers*, that I leapt forward, swept the coffee pot aside, grabbed my laptop and began to turn my reveries into written realities!

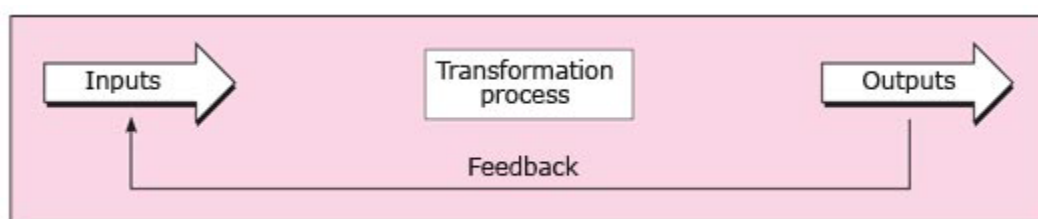
I wrote of the three concepts of operations management that Alastair and I had coined and began to write on the first of them; *the relationship between strategic and operations objectives*. This seemed to transform conveniently into three separate elements. So I listed these. The first was the role of operations management, the second the nature of strategic objectives and the degree to which operations objectives actually contribute to the attainment of a company's strategic goals.

Thus it was that I returned to the first of these principles; the role played by effective operations management and began to inscribe my thoughts into the screen in front of me...

...Effective operations management

1. The strategic role of operations management

Effective operations management is the systematic direction and control of five functions (management, input procurement, conversion or productive activity, distribution of goods in, through and from the business and outputs of products and services that deliver customer service and delight) shown in the graphic below (Figure 1).



"Gosh!" I thought. "Who wrote that?" Then I thought of the obvious: Slack and co!

Given this simple definition of the process of transformation, effective operations management may be assessed by the way managers pursue and achieve two fundamental goals. The first being to manage and improve the way their organisation utilises its resources such that greater productivity is achieved (cost reduction) and the second concerns a quest for improved customer service (value generation).

For example at Ryanair, effective resource utilisation encompassing staff, technology, raw materials and finance enables it to reduce operations costs to benefit a no-frills service offer that ensures delivers optimum levels of value for a growing number of customers seeking low cost flights to and in and around Europe!

But more on this later.

For now let us begin to examine the relationship of operations management with business strategy. I want to do this in two parts. The first (presented in section 2 below) is to decide what we mean by strategic objectives and second following this (in section 3) to show just how operations objectives can deliver strategic objectives.

2. Strategic objectives

What is meant by the phrase 'strategic objective'? Some writers at this point lapse into Greek and deliberate on the origins of the word 'strategy' as if this spells out the nitty-gritty. But not here! Lets first define what is meant by strategy and see whether or not we can apply it to Ryanair; the low-cost no-frills airline.

I think the first point to note is that strategy has everything to do with achieving a **financial goal** (sometimes expressed in market share) within a specific time scale.

The second concerns the nature of a company's chosen *game plan* or **business model**. There are three reinforcing elements to bear in mind so far as this is concerned. The first involves defining a specific group of customers, the second a superior offer to match the requirements of these customers and the third comprises a means of delivering this efficiently with a distinctive operating system.

This third element is critical because it is this and the company's

strategic assets and **distinctive capabilities** that ensure the business model's sustainability.

Now let us return to our example, Ryanair and match these elements of strategy to what happens in practice.

The first point to note is that the Ryanair's fundamental goal is to establish itself as Europe's *leading* low-fares scheduled passenger airline. How will it do this, you ask? Well, I will tell you.

Let me start by saying that in identifying its customers as fare-conscious, leisure and business travellers and offering low fares that satisfy such customers, Ryanair has targeted a specific customer group and secondly, as it has turned out, created a superior offer that matches the needs of such travellers.

Positioning such as this requires a reinforcing unique operating system rooted in a company's *strategic assets* and *capabilities* to complete its business model. In Ryanair's case a low-cost service delivery combined with efforts to achieve greater benefits from economies in flying times, maintenance, marketing and so forth have enabled it to reduce costs in its services and operating systems.

Can you see how these rather dynamic aspects of strategy give us a means to evaluate a company's direction and performance?

3. Operations objectives and strategic objectives

Now we come to the fit between operations and strategic objectives. The first point to appreciate is exactly what operations objectives are for if we appreciate what these are we can then determine the extent to which these contribute to the achievement of strategic objectives.

Essentially operations objectives are decisions which shape the capabilities of an operation and their long-term contribution to strategic objectives. This is achieved through an ongoing focus on superior customer service and a rigorous redesigning of systems and processes to enhance resource utilisation. These twin objectives of customer service and resource utilisation were mentioned earlier in 1.1.

But we need to extend our understanding of both objectives. We may define customer service in terms of the quality, cost, timeliness, flexibility and dependability of our products and services. Resource utilisation refers to the need to attend to the efficiency with which a company manages its resources.

If we return to the example of Ryanair we note the extent to which Ryanair's strategic positioning, as a short-haul, no-frills, low-cost service for business travellers, tourists and students in Europe, rests on a reliable interlocking system of activities it performs to support its low-cost convenience positioning. These include fast gate turnarounds, frequent departures with few aircraft, automated ticketing, self seat selection, meals at cost price, and low maintenance and fuel costs.

In contrast, a full-service airline performs activities to support a high-cost, full-service programme. It will provide customers with services to reach any number of destinations with a larger range of aircraft, as well as providing comfort, offering in-flight meals, arranging connecting flights, and checking and transferring baggage.

The extent to which these activities optimise resources utilization may be gauged by levels of output performance in quality, timeliness, cost and so. Thus, in an airline such as Ryanair efficient resource utilisation may be measured in terms of, seat occupancy, customer service, aircraft turnaround, maintenance and repair and so forth.

We would have to say that Ryanair's operations objectives are extremely successful in meeting strategic objectives through its clear focus on ensuring superior customer satisfaction and rigorous drive to achieve greater productivity in its activity system.

As the thought of a flight in a Ryanair jet to Budapest in May infused my mind's eye, I came to the end of my thoughts. I leaned back in my chair and looked up. My back was aching but my mind was wide awake and attentive. The snow tumbled gracefully to the ground, almost methodically, as if choosing where to set down onto the soft white pane that sheltered and enclosed the world beneath it.

Notwithstanding the mesmeric effect of the scene outside, Cedric, the French waiter, hovered over my shoulder and interrupted my reveries seeking to exchange my cold caffeine for a pot of fresh coffee. I acquiesced most grateful for his kind attention.

Thus it was, *my dears*, that fortified with fresh coffee to hand I continued apace with my etchings and moved on to the second theme of my dialogue with Alastair, namely...

...Quality systems

Quality should be a key concern in any business. Top quality goods and services can only give a company a considerable competitive edge. While this may be appreciated quality may be viewed in much wider terms.

Good quality reduces the costs of rework, waste, complaints and returns and most importantly, generates satisfied customers. If you remember it is these very issues that impact on operating expense. Manage these and you are on the way to increasing sales throughput. Thus we should bear in mind that quality is the most important single factor affecting an organisation's performance relative to its competitors.

1. Two quality systems that may be used to ensure the quality of products and services

Alastair and I had reviewed a number of quality systems. For example we talked of Lean, Just In Time (JIT), Zero Defects, Six Sigma, ISO 9000 and Total Quality Management (TQM). I wracked my brains to recall all of what we talked about. Most of it is here, although I have omitted JIT and Zero Defects, I will briefly describe Lean and Six Sigma and how each may facilitate higher levels of quality before looking at how such systems can be used to monitor quality.

Lean

Lean solutions contrive to raise **customer value** by **minimising waste**. Waste may be defined as any activity which fails to add value. I won't go into detail here but it must be remembered that waste occurs in areas such as; over production, waiting time, transport, process, inventory, motion and defectives. Clearly an awareness of such forms of waste prompts steps to reduce it in pursuit of cost savings.

The main steps that should be implemented to create **the ideal lean manufacturing system** are threefold: design a simple manufacturing system, recognize that there is always room for improvement and continuously improve the lean manufacturing system design. Let us explore these three principles one at time.

First when it comes to design a fundamental principle of lean is demand-driven flow. In this type of production, or service, setting, inventory is only pulled through each workstation when it is needed to meet a customer's order. The benefits include: reduced cycle time, less inventory, increased productivity and better utilization of capacity.

The core of lean is founded on the concept of continuous product and process improvement and the elimination of non-value added activities, for it is either one or both of these areas that problems emerge and impair complete customer satisfaction. Improving the flow of material through a lean system at the customer's required rate reduces waste in material movement and inventory, waiting time and so forth.

The third principle concerns the practice of continuous improvement.

Continuous improvement brings incremental enhancements in products, services and processes over time, and consequently reductions in waste by way of improved workplace functionality, customer service, and product performance.

Six Sigma

Six Sigma is a quality system that enjoys extensive application in industry, although its use is not without controversy. It seeks to improve the quality of process outputs by identifying and removing the causes of defects and minimizing variability in manufacturing and business processes. As such it, therefore, tackles the very issues at the heart of excellence in customer service; product and process performance

A distinguishing feature of Six Sigma is its use of a set of quality management techniques, statistical method, and special infrastructure of people ("Black Belts", "Green Belts", etc.) who are experts in these methods. Each Six Sigma project carried out within an organization follows a defined sequence of steps, which I won't go into here, with quantified targets. These targets can be financial (cost reduction or profit increase) or whatever is critical to the customer of that process (cycle time, safety, delivery, etc.).

But as I have already mentioned, Six Sigma is not without its detractors. Noted quality expert, Joseph Juran, described Six Sigma as; "a basic version of quality improvement", stating that "it offers nothing new. It includes what we (*he*) used to call facilitators. They have adopted more flamboyant terms, like belts with different colours. I think that concept has merit to set apart and create specialists who can be very helpful. But, that's not a new idea."

At this point my focus changed from what can be done to *ensure* quality to what can be done to *monitor* quality. And again I remained true to my conversations with Alastair and recorded our thoughts on TQM and ISO9000.

2. TQM and ISO 9000 to monitor quality to a satisfactory level

Total Quality Management and ISO 9000 have a mutual focus on quality assurance achieved through customer satisfaction and process improvement. Whereas ISO 9000 is a tool used to regulate quality, TQM can be applied as the overarching philosophy within which ISO 90000 should be implemented.

TQM

What characterizes TQM is its focus on finding the root causes of quality problems and correcting them at source, as opposed to inspecting the product once made. In stressing quality as being customer driven, TQM concerns itself with technical aspects of quality, as well as the involvement of people in quality (as we will see later), such as customer service, product design, staff, and suppliers.

Let us look at three areas in which TQM can monitor and regulate quality.

The first area is concerned with ensuring that product or service design meets customer expectations. A useful tool in this regard is *Quality Function Deployment (QFD)*. QFD identifies important customer requirements, which are numerically scored on the basis of their importance, and then translated into specific product characteristics. Comparisons with competing products, with similar characteristics, may also be analysed brought into the frame.

A second area is that of process design. According to TQM a quality product comes from a quality process! Thus quality should be built into every process. *Quality at source* is the belief that it is far better to uncover the source of quality problems and correct them than to discard defective items after production or to have them returned. All this costs company money – or should we say; costs the customer money as these costs were passed on to the customer.

The last area of quality control extends to a company's suppliers. Companies operating internal inspection programmes to check the quality on inbound materials contribute to poor quality, as well as wasted time and cost. TQM practice ensures that suppliers are involved in product design to final production and distribution such that inbound materials inspection is rendered redundant.

Today's concept of quality, embodied in TQM, focuses on building quality into product and process design as opposed to simply inspecting for poor quality after production.

ISO 9000

ISO 9000 is an international standard providing an assessment model for a Quality Management System. Organisations can be registered as conforming to the standard by undergoing regular assessments by accredited third party auditors.

Its aims are to assure consistency in the quality of products and services combined with continual improvement in customer satisfaction and error rates.

It is an excellent starting point for new or established organisations to develop or improve their internal performance and efficiency as well as satisfying customer requirements.

The new version of the standard issued in 2000 requires a process approach to defining how the requirements will be met consistently and continually improved. This means that a business can (and should) structure system and procedures in a way that addresses how the organisation really works.

This systemic orientation is important because many people wrongly emphasize motivational and attitudinal factors. The assumption is that quality can only be created if workers are motivated, have the right attitude and operate in a quality culture. This is fine but it does not go far enough.

Unless the right culture is supported by the right policies, procedures, records, technologies, resources, and structures, it will not be possible to achieve the standards of quality expected by customers who demand an international standard of excellence.

Simply stated, *if an organisation seeks a quality culture it must introduce quality systems such as ISO 9000*. The reverse is also important it is almost impractical to introduce ISO 9000 in the absence of a quality culture.

3. Quality Culture

A quality culture is an organisational value system that results in an environment that is conducive to the continual improvement of quality. An organisation that develops and maintains a quality culture will differ significantly from an organisation without one. Its attitude towards customers, problem-solving approach, supplier relationships and performance improvement approach will be geared towards creating superior customer value and increased resource utilisation as means of achieving a sustainable competitive advantage.

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In encompassing the entire organisation Total Quality Management may be described as a set of attitudes and belief systems that are manifested in a number of tell-tell features. The first, and overriding, feature of TQM

is the company's focus on its customers. Quality is defined as meeting or exceeding customer expectations. The goal is to first identify and then meet customer needs.

TQM attempts to embed quality in every aspect of the organization. It is concerned with technical aspects of quality as well as the involvement of people in quality, such as customers, company employees, and suppliers, product design and process management.

Another concept of the TQM culture is its focus on continuous improvement; a philosophy of never-ending improvement! This requires the empowerment and participation of staff that are expected to seek out, identify, and correct quality problems. Clearly this requires a management and leadership style committed to quality and the creation of a quality culture like TQM.

Many companies that attempt a variety of quality improvement efforts find that they are unable to achieve any or most of the outcomes they expect. Why is this, you ask. It's quite simple really. The most important factor in the success or failure of TQM efforts is the genuineness of a company's commitment to TQM. Often companies look at TQM as another business change that must be implemented due to market pressure without really changing the culture of their organization.

Remember TQM is a philosophy that has to be embraced with true commitment, as opposed to mere lip service. Viewing TQM as a short-term financial fix is a recipe for failure.

Perhaps the most common causes for TQM failure include:

- Lack of a genuine quality culture
- Lack of top management support and commitment
- Over- and under-reliance on statistical process control (SPC) methods

Companies that have attained the benefits of TQM have created a quality culture. These companies have developed processes for identifying customer-defined quality.

In addition, they have a systematic method for listening to their customers, collecting and analyzing data pertaining to customer problems, and making changes based on customer feedback. You can see that in these companies there is a systematic process for prioritizing the customer needs that encompass the entire organization.

Let me end with a story that Alastair told me showing the influence of

culture on quality mores. He was actually citing something he read by a writer by the name of Zhao.² He mentioned that Chinese companies are failing to improve and ensure the quality of products and means of their production.

The reason is due to a variety of different cultural and management models. China's inherent culture embraces a spirit of compromise at a organization, group and individual levels.

For example a manager may seek the middle ground with his subordinates in the event of poorly completed work. It is also common for individuals at staff levels to cover up a quality problem that a colleague has caused!

For cultural reasons much of Chinese manufacturing concentrates on volume production of lower-end products, unlike British production methods that employs better management models and high technology set in a quality culture...

...By now I was nearing mid morning, and still going well. Cedric came up to me as I lifted my head from my papers. He looked a trifle concerned. "Can I get you any-sing?" He asked in a wonderful French way.

His question made me think back to those times in L'viv, Ukraine when I used to pop over to the Grand Hotel with Natalya, my PA for 'eleveneses.' I generally found the strong coffee, cognac and a heap of *Ferrero Rocher* chocolates a great break from the business I managed there; it just seemed the thing to do at the time. And that's what I asked Cedric to do for me. I must say he was on this occasion more than a little generous with the cognac! But then he had an enlightened mind and a free spirit...

Just as I had hoped, the *Remy Martin* cognac flamed the back of my throat and slipped down smoothly before slamming into my dear old 'tum', and smouldered there as I took sips of hot coffee and munched through the first of those *Ferrero* chocolates....

Enough! Onwards... to implementation, the third and final factor!

Performance improvement technologies

Ah! What is this beef about implementation? It's quite simple *my dears!* Without implementation nothing happens! Any plans for improvement will turn from dust into dust and accumulate in some tired heap in some cranny of a filing cabinet. It is for this reason that performance

² Zhao, M. (2005). *The China's Gap: Of Culture, Rules, and Quality Control*

improvement project management, and change management go hand in hand.

Problems and opportunities for quality improvement

But what prompts improvement? An odd question you might ask. But had you thought about it? And more to the point can you answer it?

There are always shortfalls in product, service and process quality - always areas where we can improve things. But how could we find these shortfalls. Should we wait for them to appear or should we take the proactive route and find them prior to operations and offer our customers advantages based on our findings. The latter of the two scenarios is the course to take - this is the pathway of the pioneer.

What comes to mind is an audit - a quality audit comprising an appraisal of internal and external environments to gain the necessary understanding.

Thus an audit of key stakeholders would provide valuable information about customer requirements and stakeholder perceptions of product quality. Market sensing³ and surveys would establish customers' new needs and priorities.

Benchmarking may also be undertaken to compare and assess process performance relative to competitors, and organisations in our own or quite different industries. A further means of analysis is 'gap analysis.' Such procedures may be used to identify gaps in process and product performance such that stretch goals would be set to close the gap between current and some desired point of performance.

But what would we do to introduce a new technology; a new system or process into a business? How would we get it into the business such that we could switch on an improvement programme that gave our customers enormous benefits? Well let us imagine for a moment the introduction of lean manufacturing into a company.

Lean as an Organisational Performance Improvement Programme.

So where should we start? Should we start by introducing a specific lean tool and if so which one? The best thing to do is to start by getting your people on board".

Any organisation improvement programme and we include Lean here that fails breaks down because of poor management and lack of people skills

³ Notice the omission of the word RESEARCH! Oh horror of words! The friend of many an MBA student!

than for any other reason. The introduction of lean manufacturing into a business can take some getting used to, particularly for managers who have always gone about their roles in a certain way! And I bet we could all think of a few of these!

Some Managers feel threatened, intimidated and even embarrassed by their lack of knowledge about lean manufacturing which can cause them to hinder rather than promote change. In a vast number of cases the implementation of lean manufacturing does not fail for want of efforts from the shop floor but rather for the want of effective leadership on the part of management.

So how do we set about implementing lean manufacturing?

First of all a company's senior management team should be totally committed and wholeheartedly behind lean manufacturing and be prepared to unequivocally support any follow through projects its implementation generates.

Once this has been established, senior management should communicate its vision of the future state; in fact where it wants the business to be after improvements have been made to the company at large. This should then be followed by a management brainstorming session to help appoint a natural leader for a project team to generate a set of lean objectives and a plan to achieve them.

Project management

A good project leader will possess leadership qualities that will enable him/her to operate at cross functional levels and possess the interpersonal skills required of a good change manager. We should be looking for a good communicator, someone who is both persuasive and charismatic and someone who has only the best interests of the company at heart - empire builders and ego trippers need not apply!

Mistakes are often made at this point. Some people presuppose that introducing lean is a production or manufacturing project and for this reason do not involve any other departments, some appoint a wholly inappropriate project leader who has the company/process knowledge but not the people skills to bind others into a cross functional team.

Once a suitable project leader has been appointed, it is then important to bring together a team of people from across the value stream. The best way to do this is to brief the workforce, detailing what is involved, why lean is to be introduced and how it will affect them and then request volunteers from the company's departments. The exact number of people does not really matter but depending on the size of the business, around five to seven people, drawn from different department is a good number. Thus we now have our lean implementation team.

The team must be coached by a main board director or senior executive, someone able to provide support to the team members as and when required.

What next?

Once the implementation team has been put together, and ready to rumble, consideration should be given to equipping it with knowledge in lean manufacturing techniques. It would be useful to employ the services of a professional lean expert, someone who has experienced the trials and tribulations of implementing lean for real. A good starting point is to begin with a fairly straightforward lean tool like 5S.

5S is concerned with the elimination of the '7 wastes' and the introduction world class work place. It is a companywide programme, and can be implemented very quickly with very little expense.

We could select an area where 5S can be introduced as a pilot project. Thus to begin with we might look at ways to spot waste and how to eliminate it. The important thing is to choose the pilot area carefully, and to make sure it is managed by someone who is enthusiastic, open to new ideas and willing to take a leading part in the introduction.

It's handy to get some quick easy 'wins' too, so it's important to identify some 5S projects which can be accomplished pretty quickly and can create a tangible and visual impact. This can be done by setting some bite sized objectives for an area which can be achieved in less than one month. This first month is a critical stage because it will set the tenor for the rest of the lean programme implementation.

Enthusiastic even charismatic, but certainly results driven, the project leader should by now be coming into his/her own during by this time. There is almost always some scepticism and negativity from some team members. This is only natural and is to be expected because implementing something like lean can be quite radical change.

Thus it is that the project leader will need to be a good confidante, communicator and arbitrator during this period. The best way to achieve 'buy in' is to involve people small bite sized projects where success is almost assured and changes can be seen and noticed almost instantly. This in fact forms the basis of continuous improvement, where permanent change is effected through small incremental improvements rather than any one major step change.

Once the pilot project has been running successfully for a period, say three months, the 5S programme could be rolled out to the other areas in company. This is why putting together a organisation wide implementation team is important. And here is another point. By

beginning with a pilot phase and getting this right before moving into full implementation the team can create a 'ripple' effect throughout the whole business. It's a bit like tossing a stone into a lake with the ripples spreading out from the centre.

Now the company is on its way to 5S success.

The result of this sort of approach ought to be that the project team would have created the conditions for successful lean implementation, given people an opportunity get accustomed to change whilst making some useful improvements along the way.

An example of a lean implementation programme might look like this:-

Implementation could for example establish three separate milestones each comprising a discrete phase of activity; planning, pilot work and implementation set out against a strategic staircase, such as the example set out below.

			STRATEGIC GOAL
			<ul style="list-style-type: none"> Lean with sales, profit & customer service increases
		MILESTONE 3. Full Implemented	
		KEYACTIVITIES	
MILESTONE 1. Planning	KEYACTIVITIES	<ul style="list-style-type: none"> Roll out pilot to other factory areas 	
KEYACTIVITIES	<ul style="list-style-type: none"> Outside consultants appointed to train team in lean 	<ul style="list-style-type: none"> Evaluate results, encourage feedback 	
<ul style="list-style-type: none"> Senior management agrees and sets lean vision 	<ul style="list-style-type: none"> Select 5S as a pilot project and run for 2-3 months to learn from mistakes 	<ul style="list-style-type: none"> Develop plans to introduce further lean tools 	
<ul style="list-style-type: none"> Management conveys vision and objectives to entire workforce Management creates companywide lean implementation team 			

Figure 2 Lean Implementation

The staircase summarises the key milestones and activities involved in the implementation programme. Nonetheless we have written up in some detail the significant activities and set each against each milestone.

Planning

- Senior management to agree and communicate their lean vision
- Management brainstorm to identify project leader and set objectives
- Communicate plan and vision to the workforce
- Ask for volunteers to form the Lean Implementation team (5-7 works best, all from different departments)
- Appoint members of the lean manufacturing implementation team

Pilot

- Train the implementation team in the various lean tools - make a point of trying to visit other non competing businesses which have implemented lean
- Select a pilot project – starting with 5S
- Run the pilot for 2-3 months - learn from mistakes

Full Implementation

- Roll out pilot to other factory areas
- Evaluate results, encourage feedback
- Once satisfied that the programme is effectively embedded into the company, consider introducing the next lean tool that will give offer the biggest return for the business.

The next project might be the introduction of kanban or the introduction of cellular manufacturing or the adoption of improvement tools such as SMED or TPM.

Whatever is decided, remember, it is important to ensure the support and co-operation of people to achieve the results required from the next phase of implementation.

So, there it was...

...some of the fundamentals of quality and systems management. The key, I concluded was to combine an offering of superior value to a targeted customer group with efficient and distinctive operations practices to create a fit between what the customer needs and what the company does really well in the face of competition.

I put my pen down and leant back in my chair and gazed up at the

chandeliers above me glistening with constant light. And as I looked I could not but help but conjure a metaphor! Those beautiful hangings, which were fit for a castle, looked as if they were made of some rich Corinthian metal rather like the shining reputations of companies that had found the match between strategy and quality oriented operating systems! Gosh...

"Andrew... Andrew....Wake up. Are you OK? Come on We've got work to do!"

"Wots zat! Ugh! What! Who's..."

It was Alastair shaking me by the shoulder.

"Time to go!" He was saying, "Come on." Dimly I took stock of my surroundings. While walls! Bright sunlight! A French waiter! VIP lounge; Heathrow...

"Yes! Yes!... Sorry!... Right!...Lead on!"