The Institute of Management Services is the primary body in the UK concerned with the promotion, practice and development of the range of methodologies and techniques for the improvement of productivity and quality, known collectively as ‘Management Services’. This embraces the disciplines of industrial engineering, work study, organisation and methods, systems analysis, and a wide range of management information and control techniques as illustrated in our Body of Knowledge.

The Institute acts as the qualifying body for the Management Services profession in the UK, focusing developments in practice and knowledge and acting as a forum for information exchange. This in turn enables our members who work under a variety of job titles across the whole of the UK economy, to make a more effective contribution to the well-being of their own organisation and to the nation’s economy as a whole.

In addition to creating and upholding professional standards for the practice of management services through the adoption of a code of ethics and the provision of a system of qualifying examinations, the Institute of Management Services collaborates with national and international professional bodies in similar fields.

The Institute is a member of, or represented on, a number of other bodies including the World Confederation of Productivity Science, the European Federation of Productivity Services, and the European Institute of Industrial Engineers.

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Cover Story
Professor Mike Dillon and William Davies explore ways to reduce energy consumption and costs. Their case study of the seafood industry demonstrates how these methods can be put into action to improve business performance and profitability.
It is perhaps important that we are always aware of past mistakes and 2009 was a year in which the world was put into financial turmoil. I believe that the global economic crisis of recent years was directly caused by the lack of responsible leadership at a senior level in certain financial institutions. Many of the leaders of these institutions lacked the strong values that would have made them responsible leaders and ensured they took decisions that not only generated wealth and growth for their own organisation but also ensured the well-being of the wider community.

In a few instances the irresponsible actions of a few resulted in the demise of global organisations and brought many other large companies to the brink of oblivion. In 2009 unemployment in the UK exceeded 2.4 million people – the highest it had been since 1997. It is the goal of any company to increase its profitability and to deliver sustainable performance. In the period before the recent financial crisis many financial institutions certainly delivered increased profitability but the need to ensure it was sustainable was ignored. Often the long term was ignored in favour of short term targets and goals. The priority was on today and not the long term sustainability of the company.

**Fairness and honesty**

Thankfully, many companies are now taking the view that delivering results is not enough and have realised that how those results are delivered can have a long term impact on both the company and society in general. It is vitally important that companies foster a broad and long term view. The senior managers in companies must realise that if the future well-being of the company is to be ensured, then the company must operate on the principles of fairness and honesty. In future, companies must operate on the principles of fairness and honesty. It is essential that, in future, companies cultivate leaders and managers who hold strong values and understand their responsibility to both the company and society at large. This new breed of leader must be capable of balancing risk, innovation and growth with moral and social responsibility.

All companies need to be aware of the benefits of ensuring that productivity improvement is a key aspect of any company’s strategy for growth and financial viability. It would assist many leaders of industry if they were aware of the nuts and bolts of productivity improvement and the benefits to be derived from being aware of the Institute’s ‘Body of Knowledge’.

It is gratifying to hear from the Institute’s education providers that, increasingly, senior managers are attending our Certificate Course in order to acquire a broader knowledge of the many aspects of productivity improvement. As part of the Institute’s future strategy, it will be our objective to spread the message as widely as possible to both large and small companies that productivity improvement has many facets that can assist all companies to enhance their profitability. We need to get the message across that productivity is not just about bonus schemes but is about the many diverse ways of improving the profitability of a company by using all the tools and techniques contained in the Institute’s ‘Body of Knowledge’.

Spreading the message

At the Institute’s Council meeting, held on 5 February 2010, it was gratifying to learn that our membership numbers continue to increase. The Council also approved a package of measures arising from the Strategic Review Committee report. It is intended that these measures will enable the Institute to put in place a programme that will hopefully increase the understanding of company leaders about the role of productivity in bringing about change and improving the companies’ financial viability. Our members can assist by spreading the message that our Institute members have the knowledge and skills to assist in the implementation of productivity improvement.

David Blanchflower
Chairman
Regional News

Scottish Region

Highlighting the challenges
The IMS Deputy Chairman Dr Andrew Muir and the Scottish Region Chairman Bob Smith attended the Chartered Quality Institute’s (CQI) Loxham Lecture hosted by the Adam Smith College, Kirkcaldy, on 12 November 2009 (World Quality Day*).

The lecture, one of a series held throughout the country in memory of John Loxham, the first president of the CQI, was delivered by Joe Doogan, Manufacturing Director of Babcock, Rosyth.

Entitled ‘The Way Forward’, the lecture highlighted the challenges of building the new Queen Elizabeth Class aircraft carriers. Joe outlined the infrastructure that has been put in place at Rosyth to commence the assembly of the carriers. It was interesting to note that Rosyth will be the only yard in the UK with a dry dock large enough to accommodate the carriers for future refits, which should guarantee work for the next 40 to 50 years, the expected life of the carriers.

*World Quality Day was introduced by the United Nations in 1990 to increase worldwide awareness of the important contribution that quality makes towards a nation’s and an organisation’s growth and prosperity.

Joe Doogan, Manufacturing Director, Babcock, Rosyth

API Games Night
Dr Andrew Muir, Deputy Chairman, attended the API Games Night which was held at the New Club, Kirkcaldy on 13 November.

The annual event, which has been organised by Bob Smith, the Scottish Region Chairman, for the last 20 years, provides an opportunity for members of the six professional institutes that make up the association to meet in an informal and relaxed atmosphere.

As usual, the event was well attended and, in addition to having a thoroughly enjoyable evening, a significant amount of money was raised for Children in Need.

API Burns’ Supper
Deputy Chairman Dr Andrew Muir and the Scottish Region Chairman Bob Smith, along with a number of members of the IMS, attended the Association of Professional Institutes’ (API) Burns Supper held at the Dean Park Hotel, Kirkcaldy, on 13 January 2010.

The event was well attended and another occasion for members of the various professions that make up the Association to get together; this time to celebrate the life and times of Robert Burns.

The tasks for the evening were well apportioned across the professions: Piper – Darmid Lindsay, ICE; Chairman – David McNeil, CIPD; Selkirk Grace – Bob Smith, IMS; Address to the Haggis – Jim Dunsmore, CMI; The Immortal Memory – Kevin Thompson, CIPD; Vote of Thanks — Derek Millar, CIM. All in all, a terrific team performance which, once again, contributed significantly to a very successful evening.

“For a’ that, and a’ that, It’s comin yet for a’ that, That man to man, the world, o’er

Dr Andrew Muir
Deputy Chairman

The Scottish Region Chairman Bob Smith (standing) with some of the principal guests at the API Burns Supper at the Dean Park Hotel

Shall brithers be for a’ that.”

Dr Andrew Muir
Deputy Chairman

The Deputy Chairman Dr Andrew Muir and the CQI East of Scotland Chairman Alan Solway looking relaxed at the API Games Night

Nations in 1990 to increase worldwide awareness of the important contribution that quality makes towards a nation’s and an organisation’s growth and prosperity.

Dr Andrew Muir
Deputy Chairman
On 10 February, members from The North West Region experienced an exceptional ‘Factory Tour’ of Rollins Bulldog Tools Ltd, which is based in Wigan.

Bulldog is the only company within the UK which uses the traditional solid forging method of hand tool manufacture.

The company is currently celebrating 230 years of hand tool manufacture. It produces an extensive range of high quality tools which are forged in the traditional way, mainly for the agricultural, utility and gardening markets.

The North West Region group was guided by the Marketing Manager, Fred Foot, who gave a detailed coverage of the factory processes. He gave us some insight into recent developments, including the introduction of high quality manganese steel for the integral blade and solid socket tools which provides the maximum strength and durability for the product. It also gives a massive cost saving, by replacing the acid-salt hardening process with a much simpler and more effective quenching method for hardening the forged tools.

Mr Foot also explained some recent marketing strategies, including a range of products designed for Alan Titchmarsh. Bulldog are also now famous for making ‘The World’s Largest Spade’, which is a credit to the workmanship of the factory. The spade has exact proportions and stands over 11 foot 8 inches high. Its first public display will be at the Chelsea Flower Show this year.

After donning high visibility jackets and safety spectacles, the party were escorted around the factory. The first area visited was the blanking department where ‘T’ sections are blanked from the heated steel bar at around 1400ºC using a 500 ton press – the sections would later be forged into spade heads.

The next work station observed was the fork prong rolling section. The two man team consisted of a ‘furnace man’, whose primary role involved heating each individual prong, and the ‘prong roller’, who progressively rolled out each prong via a rolling mill. The work carried out was highly skilled and took a year or more to develop.

The solid socket manufacturing processes involved rolling out the heated socket section, cutting to shape, holes were punched out for rivet and stamp of the identification product markings, then a two stage forming of the solid socket into shape ready to accept the shaft during final assembly.

Subsequent fork head operations included initial square off and pre-set of the prongs, dish stamping to shape, cutting the reheated prongs to length, the quench hardening process and, lastly, a final set of
the prongs using the traditional anvil and hammer.

The spade head solid socket was produced in a similar manner to that of the fork head solid socket. During the visit, the manufacture of the spade head blade was not planned for production but the machinery available included a rotary furnace, blade rolling mills, blanking tools, a press machine with spade forming mould and the relatively new quench hardening bath.

In other departments, various operations were observed, including shot-blasting, assembly of steel tubes to solid socket heads and auto circular welding of the assembly for the all metal tool product.

The open socket area consisted of cold working operations. The shovel outline was blanked from an auto fed coiled steel strip, then stamped and dish pressed and finally the socket formed in swage tools.

The powder coating plant used auto spray equipment and the product coating was cured by passing through a heated oven during track rotation - the cleanliness of the track and hanging jigs complemented the adhesion of the coating. It was also noted that an offline, spare spray-booth was available which would help to reduce changeover times, mainly because essential booth cleaning could be completed off-line during production time.

Fred explained how important it was to source ‘true straight grain’ ash timber for handle and shaft production. The high quality shaft, plus superior solid forged head, prevents stress fatigue and provides longer lasting usage. This was vigorously sample tested by ‘better than’ British Standard requirements. On a test bed, loads of well over 200lbs would be applied downwards on the hilt of the product and acceptable deflection levels would be achieved without causing long term damage.

In the wood department the shafts were mostly chucked to accept, metal, plastic or polypropylene ‘D’ handles, and then tapered for tool head assembly. In addition, a ‘split steaming’ YD handle method of production was used. The shaft would be sawn then steam saturated to allow the wood to be shaped and set in a mould, the grip would be later assembled by drill and rivet operations. Another variation is the ‘T’ handle which is secured to the shaft by the mortice and tenon method.

Fred showed the group a polypropylene shaft which had tremendous strength, rigidity and durable qualities. The product’s main function was for the utility market. The non-conductive handle could prevent an electrical shock if the user was digging near power cables – a Health and Safety requirement. This type of product could have a registration mark included for traceability purposes. The Quality Assurance department could recall production information from the original product, which is far more detailed than if derived from the batch.

Our guide also let us examine a ‘grave digger’s’ spade which had been used constantly for over ten years and was still going strong. He pointed out that the tool had been customised by the owner and this could be seen and felt, as the imprint of the user’s hand was identifiable on the grip of the handle.

The tour ended in the company's product display room and some question and answer time was made available, along with a splendid lunch and refreshments.

Harry Hogg, our Secretary, who had previously been employed by Bulldog Tools from 1970 until 1995, both on the shop-floor and as Work Study Officer, gave a few words about the history of the company and offered thanks to Fred Foot for the enlightening and memorable visit.

Kevan Kelley our Chairman spoke for the group thanking Fred for the impressive hospitality and informative tour.
North West Region The TSR2 Saga

Although it happened 40 years ago, the sudden dramatic cancellation of the TSR2 bomber aircraft still resonates strongly here in the North West region where it would have been manufactured. We were therefore fortunate to obtain the services of Brian Mann to deliver a lecture on the TSR2 saga. Brian, a systems designer, was closely involved in the project and had an excellent recall of the events of that time.

He outlined the background of the origins of the project; the state of the Cold War, the government’s proposal to replace manned fighter aircraft with AA missile defences, and the future of the V bomber force in the face of increased Soviet defences, which caused changes in tactics from high level to low level strike modes. The 1958 operational requirement called for a Canberra replacement, a reconnaissance bomber with very advanced capacity, such as a Mach 2 performance, a fully automatic navigation system and terrain following radar. It would be capable of carrying nuclear weapons and fast enough to evade hostile defence systems.

The history of British defence procurement since World War II does not make enlightening reading and the TSR2 chapter followed the same pattern. There were delays over decisions, ministerial interventions and inter-service rivalry. The admirals wanted nuclear submarines instead. Four years later, metal had still not been cut for production aircraft and in 1962 the ministry froze the design and ordered, initially, nine airframes. By this time the R&D costs had risen to £200 million.

Brian described the procurement process and suggested reasons for the delays and procrastination. The aircraft industry had been forced, in a series of shot gun marriages, into two large groups, which resulted in top heavy and complex management structures, an ideal situation for delayed decision making. In addition, there were pressures from government to change the specifications and reduce costs.

There were further delays and snags with the new Bristol engine, the Olympus, several of which had blown up on test. However, by September 1964, the prototype was given its first test flight, which was successful. After further work to develop the engine power, the second test flight took place in December.

In 1965 the newly elected Wilson government suddenly cancelled the TSR2 contract and announced that it would order 50 American F111s as Canberra replacements – an order that was later cancelled. As a stop gap, the RAF got 42 Subsonic Buccaneers and, at last, the admirals got their submarines.

The TSR2 cancellation was a big shock for the RAF and the aviation industry. It represented a huge waste of research work, design effort and tax payers’ money. The reason given for the decision was lack of funds but many people do not accept that and the scrapping of the project, when so near to success, remains an enigma which will only be revealed when the cabinet papers for that period are published.

Before concluding the meeting, Ian Cooper warmly thanked Brian for an excellent talk which was illustrated by many striking photographs.

Keith Gowing

AGM
The North West Region AGM, which was to be held in January 2010, was rescheduled and took place on 6 March.

Interest in productivity improvement across all sectors

A review of 2009 has shown up some interesting facts for Scott-Grant – a leading provider of productivity training for the IMS Certificate and other Lean courses.

The review found that all the business sectors were represented among its client list – manufacturing, service, retail, distribution, public and financial sectors – which contained many of the biggest national and international names.

People from all these sectors are represented among those who, during 2009, attended Scott-Grant training courses on the IMS modules and the Certificate course, studied to be MOST® or PADS analysts, attended rating clinics and purchased Performance Rating DVDs, including ‘HOW DO YOU RATE?’.

The stronger performing industry sectors of retail and distribution represented over 30% of Scott-Grant’s clients and, interestingly, it is the retail sector who have provided the top students in 2009 for the IMS Certificate course. This Certificate course is the recognised industry standard qualification for productivity professionals in the UK and abroad. Simon Wadsworth from Waitrose Limited is named as Scott-Grant’s Student of the Year 2009. He works as an Analyst in Productivity Systems, based in Waitrose’s head office in Bracknell.

Tying for second place are delegates from the retail divisions of Asda and Tesco: Industrial Engineer Kathryn Firth at Asda Limited and Andrew Harber, who is a Productivity Process Analyst with Tesco Stores Limited.

Training and Technical Director Mike Seaman also felt that special recognition had to be given to Jon Northwood, Logistics Project Manager (Hovis) at Premier Foods, for his outstanding achievement, turning in an almost perfect Time Study Practical exam (99.5%).

All four winners will be celebrating with Scott-Grant in March.

For more information about Scott-Grant’s training courses, call 00 44 (0)161 234 2121, email productivity@scott-grant.co.uk or visit their website www.scott-grant.co.uk.
Obituary

Edward A King FCIS 1925-2009

It is with sadness that we learnt of the death of the Institute’s first Director and General Secretary, Ted King. Ted suffered a heart attack and died on 4 August 2009, at his home in Bishops Stortford, Hertfordshire. His funeral took place at Harlow Crematorium on Friday 14 August.

Born in 1925, in Hounslow, Middlesex, Ted was educated at Chiswick Grammar School and the City of London College. Commissioned into the Royal Fusiliers during World War II, he served in India, Burma, Malaya and Singapore, completing his service as a Staff Officer at South East Asia Command HQ.

After the war, Ted trained in business administration and qualified as a Company Secretary, later being elected a Fellow of that Institute. He subsequently held a number of appointments with the City of London Territorial Association, dealing with the administration of territorial forces. This gave Ted the opportunity to gain a wide administrative background, particularly in the field of office organisation, property, finance and staff. As Chair of the local staff association, he gained valuable experience in industrial relations from both sides.

In 1964, Ted was recruited by the then Institute of Work Study to be the first ‘Director and General Secretary’ of the rapidly growing Institute. It was not very long after his appointment before a move was made from the costly and inefficient West End office (described on more than one occasion by Council members as an ‘up-market slum’) to more modern and larger offices in Enfield, North London.

Here Ted set to work to create not only a more efficient organisation, but to build the team which was to take the Institute so successfully through the next two decades – including three changes of name. From a membership base of 6000, the Institute grew to more than 23,000, at the same time developing into an internationally recognised professional body devoted to the causes of productivity and efficiency.

Foresight

During his 25 years in office with the Institute, Ted addressed countless Region, Branch and Specialist Group meetings, both in the UK and abroad. He presented papers to international conferences, as well as the many Institute conferences and seminars in this country. He developed excellent working relationships with other professional organisations, especially the American Institute of Industrial Engineers, all of which enhanced the institute’s standing in the professional field.

On the domestic front, his presence at meetings of the Institute’s Council of Management frequently had the necessary effect of bringing the discussions down to realistic levels, particularly when some of the more imaginative and vociferous members were indulging in their ritual flights of fancy. His droll but very effective ‘Yes, but what do we do on Monday morning?’ was usually enough to bring even the most verbose member back to the reality of expressing, in down-to-earth language, exactly what head office was expected to do about the matter in question.

Much changed in his 25 years as Director: a great deal of it due to his foresight in building a management team. He had to adapt to the quirks and eccentricities of eight successive chairmen and, equally demanding, his period of office saw four Presidents, including HRH the Duke of Edinburgh.

That the Institute was able to influence and adapt to the changing times throughout the 1970s and 1980s owed as much to Ted’s practical appreciation of the needs of each phase, as it did to the Council of Management with whom he worked so tirelessly.

He was greatly missed by many after his retirement from the Institute. He is sadly missed now. Ted leaves his wife Beryl and sons Graham and Trevor and their respective families to whom we send sincere condolences.  

David Charlton  
Colleague and Friend
So you think you know about productivity?

Well, try this quick quiz...

1. A key advantage of Just-In-Time materials management is that it:
   a. Minimises the need for quality control
   b. Lowers stock-holding costs
   c. Facilitates competitive tendering
   d. Improves material utilisation

2. The two keywords most associated with 'Lean' are:
   a. Power and Flow
   b. Flow and Efficiency
   c. Flow and Waste
   d. Waste and Throughput

3. CWD and MTM are examples of:
   a. Pre-configured workstream analysis techniques
   b. Post-analysis decision-making conventions
   c. Clerical and managerial activity checklists
   d. Pre-determined time systems

4. A standard minute or standard hour is a measure of:
   a. Productivity
   b. Work content
   c. Elapsed time
   d. System delay

5. In time study, rating is the process of:
   a. Estimating the quality of output
   b. Assessing a worker's pace of working
   c. Assessing a worker's attitude to management
   d. Estimating the percentage of delay time in a work cycle

6. Overall equipment effectiveness (OEE) is calculated from:
   a. Availability x Hourly Cost x Quality
   b. Attainment x Cost x Quality
   c. Achievement x Quality x Effectiveness
   d. Availability x Performance x Quality

7. In DMAIC, the 'I' stands for:
   a. Increase
   b. Improve
   c. Implement
   d. Intense
8. Kaizen means:
   a) Material truth
   b) Process efficiency
   c) System effectiveness
   d) Continuous Improvement

9. A ‘dashboard’ normally shows:
   a) Indicators relating to throughput volumes
   b) Indicators relating to key performance indicators
   c) Pointers to the causes of defects
   d) The speed of key machines in a process

10. Rating is intended to:
    a) Normalise observed times to standard performance
    b) Slow down fast workers
    c) Speed up slow workers
    d) Determine frequencies

11. The number of readings required for statistically sound Activity Sampling is controlled through which of the following formulae?
    a) \[ L_2 = \sqrt{4p + 100 \times N} \]
    b) \[ N = \frac{100xL_2}{4N} \]
    c) \[ N = \frac{4p100-p}{L_2} \]
    d) None of these

12. Productivity is defined as:
    a) Best value for money
    b) Output/Input
    c) Improvement rate
    d) The gap between revenue and costs

13. SMED or quick changeovers stands for:
    a) Someone Might Effectively Demonstrate
    b) Single Minute Exchange of Data
    c) Superior Machinery Exchange of Dies
    d) Single Minute Exchange of Dies

14. Ishikawa is famous for:
    a) Quality standards measurement
    b) Cause and effect analysis
    c) ‘Five Whys’ root cause analysis
    d) Total productive maintenance

15. Six sigma is aimed at:
    a) Improving throughput times
    b) Minimising variation
    c) Reducing the cash to cash cycle
    d) Helping design for manufacture

16. What is considered to be the eighth Lean waste?
    a) Environmental waste
    b) Untapped human potential
    c) Corporate social responsibility
    d) Government policy

Competition
In order to win an Institute Tie, please send the correct quiz answers to Clare Swaffer, Management Services, 27 Castle Street, Canterbury, Kent CT1 2PX, or email, editorial@msjournal.org.uk. Entries must be received by 1 May.
The author describes this book as ‘a diagnostic questionnaire and practical guidance to help any organisation understand the way its leadership can be improved and applied to benefit the business as a whole’.

In reviewing this work I was constantly being referred to another book by the author which I reviewed in the Autumn 2009 issue of Management Services. The paperback was ‘The Search for Leadership: An Organisational Perspective’ by William Tate (ISBN: 978-0-9557681-7-0). I think it would be very difficult to use the Systemic Leadership Toolkit without having read and understood this book first.

In essence the Systemic Leadership Toolkit is more like a consultants’ manual for assessing how the employees feel about the leadership style and culture in their company. The nine questionnaires cover Leadership and Management Development, Organisation Development, Learning, Competence, Culture, Decline, Systems, and the Shadow. This is an exceptionally broad analysis and I am not clear what one would do with all this diagnostic data. It would certainly tell you how the employees feel but I would expect it to be very varied and difficult to draw solid conclusions from.

There are also 11 Case Studies which, on the face of it look interesting. In fact these are actually an extract of the Case Studies which are contained in the authors’ previous book (as mentioned above). This reinforces the point that it would be difficult to use the toolkit without having read the other book.

I would urge anyone who may be interested in this toolkit to refer back to the book review on ‘The Search for Leadership: An Organisational Perspective’ on page 24 of the Autumn 2009 Journal, which can be accessed via the IMS website on www.ims-productivity.com.

**Title:** Systemic Leadership Toolkit  
**Author:** William Tate  
**Publisher:** Triarchy Press Ltd  
**Date of Publication:** October 2009  
**ISBN:** 978-0-9562631-2-4  
**Number of Pages:** 144 pages  
**Format:** Paperback  
**Price:** £55  
**Reviewer:** Dr John Lucey
Business Process Reengineering

A retrospective look. Part two.

**Empowerment**

Al-Mashari and Zairi (1999) indicated that ‘Empowerment’ and ‘People Involvement’ were equally ‘critical’ to Business Process Reengineering’s (BPR) chances of success, yet in the research referred to initially there was evidence in both LGOs of management’s (some senior) reluctance to let go of their control and release the creative talents of their people, in order, as Al-Mashari and Zairi suggested, to ‘Create an Effective Culture for Organisational Change’.

The driving forces (Lewin, 1947) remain on the increase, and within the two collaborating LGOs there was evidence of people seeking to buck the traces of the old ways – called locally, ‘City Way’* and ‘County Way’* – in order to bring about some of the more ‘radical’ changes required, but it was difficult for the lower ranks to feel ‘empowered’, when the ‘resisting forces’ were seen as senior management.

(*Idsentities concealed for reasons of confidentiality.)

Part of the ‘cultural inertia’ referred to was evident in the lack of strategic linking to project choice, yet, strategically, choice of project is of fundamental importance. ‘Will this project take us further towards our strategic objectives?’ ‘Yes’? Or ‘no’? In the case of the larger (23,000 FTE) of the two LGOs, with one exception, there was no real evidence that the projects in the selection studied were strongly linked to strategic objectives, yet, and importantly, selecting processes for reengineering that are in line with the organisation’s strategic goals is far more likely to deliver the service improvements and waste reduction that is required.

This importance cannot be over emphasised; a major branding company was recently commissioned (albeit hypothetically) to ‘make Gordon Brown, and new Labour, attractive once again’ (Liddle, 2008). One of the employees said: “What we would do for Labour, if they came to us, is force them to reconnect with their principles. They have to try to remember what they are for.”

The owner of the company, Wally Olins, then chipped in with agreement: “They’ve become distracted by other things, by the process of governing, and lost the point of why they are there. They have become exhausted; the...
Ideas have dried up. That sort of thing happens with a lot of companies."

Ideas are the life blood of innovation and change. Remembering what (you) are ‘for’, or ‘there’ for, is to ‘reconnect’ with your purpose, your reason for being. Effective reengineering (or process redesign or systems thinking), begins with ‘reconnecting’ with ‘purpose’. The fundamental question is, ‘Why does this process exist, and for whom?’ or as Champy (1996: xiii) asks: ‘Why are we doing what we are doing?’

Evidence from this research indicates that managers within these LGOs have, in some cases, become ‘distracted … by the process of governing’; or, in their cases, the maintenance of their position (eg, salary, staff numbers, budgets, ‘turf’, status) within that ‘process of local government’, which Argyris (2002: 213) called ‘Model I – defensive reasoning’. This cannot be acceptable.

Strong strategic leadership is required to ‘reconnect’ these organisations to their reason for existence, to ‘un-distract’ them. In this context, this strength of leadership had not been apparent in either organisation. There was no evidence of any ‘reengineering leader’ who is ‘a senior executive who is strongly committed to reengineering and who possesses the title and authority necessary to institute fundamental change’ (Hammer and Stanton, 1995: 86).

Efficacy
This highlights the other outcome of the study mentioned initially, the lack of ‘effective leadership at senior level(s)’. Without effective leadership, there can be no successful change initiative. Reengineering (or process redesign, or systems thinking interventions) are, for those involved, high-risk strategies – it is oft-cited (though challenged by this research) that fewer than 30% of reengineering efforts succeed.

Accurate or not, the perception is of high risk, and high-risk strategies require powerful leadership: ‘When they arrived at the Red Sea, Moses said: “Here’s the plan. We’re going to march into the sea, the Lord will part the waters, and we’ll walk through on dry land.” His followers looked at the Red Sea and said to him: “You first.” He went, they followed. Being out front when the risk presents itself is part of leadership. (This story also demonstrates the value of having your boss on your side, as Moses certainly did.’) (Hammer and Champy, 2001: 109).

Further (ibid: 110): ‘Only someone who is serious about reengineering, perhaps to the point of fanaticism, can send the right signals. Winston Churchill defined a fanatic as someone who can’t change his mind and won’t change the subject. By that definition, fanaticism is needed...’ In that context, Hammer and Champy are talking about the nature of leadership that is required for a successful reengineering intervention, because ‘constant repetition of the reengineering message
is essential if people are to understand it and take it seriously.’

Albeit specifically not about reengineering per se, what De Cieri et al (1991: 63/64) said of Total Quality Management (TQM) applies equally to BPR: ‘... for any level in the organisation, if the immediate superior does not understand TQM or does not appear to apply the principles of TQM in his/her work, then adoption will be difficult for any individual employee.’

You can ‘understand’ something you don’t have to ‘lead’, but you can’t ‘lead’ something you don’t ‘understand’, and as Hammer and Champy said: ‘Most reengineering failures stem from breakdowns in leadership’ (ibid: 111).

Argyris (1973) defines ‘intervention’ as ‘to enter an ongoing system of relationship, to come between or among persons, groups, or objects for the purpose of helping them’ (p 15). When he was introducing his text on ‘Intervention Theory and Method’, Argyris argued that we (ie, ‘man’) had been very skilful at designing organisations and attempting change strategies that might have produced change, but at the cost of ‘reinforcing the organizational entropy’ – colloquially, a measure of the disorder present in a system. He says that the primary reason this has not resulted in disaster was, at that time, because those processes of entropy had been ‘slow’, and change attempts ‘comparatively few’.

That this was more than 25 years ago might be relevant, but he was nonetheless quite prescient when he asserted that: ‘The problem is tragic and urgent because these processes have reached the point of taking an increasing toll on the organizations and their participants at the very time of rising human aspirations’ (p 7).

Fifteen years on and this ‘urgency’ was still evident, and specifically in the UK public sector: ‘In response to a relentless pace of change, many in the public sector are looking to business improvement/ transformation philosophies and approaches developed in the private sector to see if they can be applied within the public sector. Such an approach is business process reengineering (BPR)’ (McAdam and Mitchell, 1998).

This is the same ‘urgency’ as implied by Hammer and Champy’s ‘case for action’ (2001: 154), Kotter’s ‘create a sense of urgency’ (Kotter, 1995, 1996; Kotter and Rathgeber, 2006), and Seddon’s ‘creating urgency for change’ (Seddon, 2003: 112).

Command and control

Five years on again, this ‘relentless pace of change’ was also reflected in the following passage from Zeppou and Sotirakou (2003): ‘Managers in the public sector are under constant pressure to improve the performance within their organisations. They are expected to satisfy the various stakeholders, to increase efficiency, effectiveness and quality, to achieve organisational goals and results and to establish a culture of continuous improvement, change and distinct service orientation.

‘To fulfil these difficult and complex roles, public managers turn to specific approaches practiced in the private sector, such as total quality management (TQM), business process reengineering (BPR), strategic management, benchmarking, etc.’

‘... selecting processes for reengineering that are in line with the organisation’s strategic goals is far more likely to deliver the service improvements and waste reduction that is required’

Changes in behaviour and thinking – at (senior) management level – were the whole point of Champy’s (1996) book, when he asserted that the biggest problem for reengineering comes at the level of ‘senior management’. His view was very clear: ‘One of the biggest challenges today occurs not in the middle of the organization, not deep in the organization, but at the level of the senior managers. ... Having gained their positions because they knew how to operate within the old paradigms, these managers can have sharp disagreements with those who argue that radical change is imperative or that it must be accomplished quickly’ (ibid: xxii).

According to Seddon (2008b: 52), the old paradigm is ‘command-and-control thinking,’ and even though he has previously (2003: 159) called BPR a ‘fad’, there is an uncanny similarity between the first two words in Hammer and Champy’s (2001: 35) definition of business reengineering – ‘Fundamental rethinking...’ – and one of Seddon’s section headings – ‘Fundamental thinking problems’ (his emboldening) – as he discusses the need for this paradigm shift: ‘When you start to take a systems view of organizations, you learn that command-and-control thinking is shot through with fundamental problems’ (2008b: 52).
This was again borne out by the recent research, when change was resisted by more senior managers, especially where ‘vested interests came into play’ (Chamberlin, 2008: 317), supporting Argyris’ (2002) ‘Model I Theory-in-Use’ position of (eg):
- Defensive Reasoning;
- Organisational Defensive Routines;
- Maximise winning and minimise losing;
- Advocate your position in order to be in control and win, etc.

**Frustration**
An example from just one of the interviews from the larger of the two LGOs, when discussing how it is still ‘very much a silo mentality’, shows how the ‘land of the empire’ survives through this type of ‘defensive reasoning’ (verbatim retained to indicate the caution being expressed whilst revealing the issue): ‘Because of their empire? This is the land of the empire. It’s – I have – I – I know and I’m not naming names, but I know a – a pers… – manager at my level who manages a team who, who had team members who are depressed, frustrated. They have nothing to do all day.

‘They have like menial – these are really skilled people, really exp… – I’d love to have these people working for me, and, they – he gives them nothing to… – and now he’s looking for more people because he sees more people as power. And that’s, um, that’s a fact. And he, you know, these people are an incredibly good resource yet,… and they’re underutilised.’

This person’s particular project was organisation-wide, with potential for huge benefits; yet the context within which it was being progressed and the culture of the organisation were proving significant inhibitors to that progress and frustration to the interviewee – who was positive about individuals, but not about the organisation as a whole – as the following sequential extracts continue to reveal (again, verbatim largely retained):

‘The majority of people, I’d say, have been working here for at least 15, 15 years that I’ve come across, and the further up you go, of course, that becomes more true. And they have this thing called ‘[County] Way’ (quote/ unquote) and I spoke to – and that was a very, very senior person who said this to me – and he said, you know, “Someone, we had someone else, like you come in from the private sector, who tried to rock the boat too vigorously and he’s no longer here.

He’…” And I said, “Why was that?” And he said, “Well, he got frustrated.”

‘Very good like that, they can frustrate you out. That’s the way they’ll do it. … Just by making things go through the bureaucratic will. Um, so culture, for me is, you get all these people in a lot of the departments who are quite downtrodden and, you know, there are some really brilliant resources here that are just, “Well, that’s the way we do things”, because upstairs, it’s – they have their agenda there and it gets, “No, we can’t do this. We can’t do that. We’re just doing this”.’ … here people – we’ve got such a good resource but they’re not always allowed to, um, perform the roles that they could perform. … It’s so empire-driven here, and it’s highly political and that’s the culture here. And the workers know it and then – so they – a project like this comes along and they go, “Yeah, yeah. It – It’ll never happen”.’

An interesting term; ‘frustrate you out’. How ‘senior’, one might ask, does one have to go in order to become a ‘very, very, very senior person’?

The intervention that is required is to change management thinking – and, mostly, that means senior management’s thinking – which in Seddon’s terms means ‘removing the dysfunctional aspects of command-and-control thinking and replacing them with the requirements for managing the work as a system’ (2008: 72), or as Aquayo (1991) says: ‘When the system is the major cause of problems, as happens most often, only action on the system can make real improvements. Only management is in a position to work on the system. That is its responsibility. Quality is made in the boardroom. People working in the system can only produce at the level inherent in the system. They may do worse, but they cannot exceed the capability of the system while working in it’ (pp 102/103).

Imai (1997: 14/15) supports this with a ‘get-out-into-the-factory’ approach: ‘The regular management layers – top management, middle management, engineering staff, and supervisors – exist to provide the necessary support to the worksite. For that matter, gemba should be the site of all improvements and the source for all information. Therefore, management must maintain close contact

“You can ‘understand’ something you don’t have to ‘lead’, but you can’t ‘lead’ something you don’t ‘understand’”
with the realities of gemba in order to solve whatever problems arise there. To put it differently, whatever assistance management provides should start from the specific needs of the worksite. ... Management exists to help gemba do a better job by reducing constraints as much as possible. In reality, I wonder how many managers correctly understand their role.'

**Doing and seeing**

In Imai’s (or Japanese) terms, ‘gemba’ is the ‘place of transaction’; the work-place, factory floor, service counter, classroom, and being there is what Seddon means when he says: ‘This cannot be learned from management reports; it needs to be learned by being in the places of transaction. When you spend your time in those places you find out how well the service works for customers. You will also start to appreciate the waste: re-work, doing too much work, duplicating work and so on. ... it is the defining mark of a good leader’ (2003: 104/105).

Managers who ‘do it’, who ‘go to gemba’, and study how their ‘work works’, as a ‘system’, will invariably then ‘get it’, or as Seddon later (2008: 73) says, they’ll ‘see it’: ‘...seeing’ is, for managers, as it was for Ohno, something that is more likely to occur if they are in the work, rather than sitting studying abstractions in the management factory*. When they get out to study the work, managers discover many other features of their organizations that are hindering performance.’

(*NB, In this case, what Seddon means by the ‘management factory’ is not the ‘factory’, or gemba, as we understand it, but a term he first used in ‘Freedom from Command and Control’ (2003: 17), where he was referring to the American approach to mass production using batches to maintain economies of scale.)

All this, Seddon (2008: 73) says, ‘starts with changing thinking.’ But this ‘changing thinking’ is unlikely to be brought about without the prerequisite changes in behaviour to impact upon that thinking. The solution is in management’s own hands – or in fact, in their feet, at least initially – and senior management’s, primarily. It’s a simple process: engage brain, operate feet. It then requires the use of some really simple, well-known and long-established (but little-used in command-and-control regimes) management – well, leadership, actually – techniques; ie, GOYA, MBWA, SLT, ‘Be There’, and ‘GeYoHaDi’.

GOYA (though not the Spanish Rococo/Romantic Era Painter and Printmaker, 1746-1828) means getting out of your chair, and going into the places of transaction, or gemba – going ‘to all the places where the organisation transacts with customers and study demand in their terms’ (Seddon, 2008: 80; Seddon’s italics).

MBWA – ‘Managing By Wandering Around’ (Peters and Austin, 1987: 8 & 378) – is part of a genuine regime of interest in what happens at the front-line, the workplace. But in this new regime, it does not mean simply asking people what they do, instead it requires managers to ‘follow pieces of work’ so that they ‘build up an understanding of what is happening’ (ibid), or ‘get knowledge’! By engaging their brains and wandering around, managers can then
be encouraged to ‘learn to see [their] organization as a system’ (Seddon, 2003: 111): ‘When people learn to see an organization as a system and they talk about what they ‘see’ with others who do the work, people follow. People follow because what is talked about makes compellingly good sense.’

By ‘see’, Seddon means to ‘get knowledge’, which harks back to Argyris’ (1973: 271) requirement to ‘generate valid information’: ‘If the interventionist is to have the best possible opportunity to help the client system generate valid information, make free and informed choices, and develop internal commitment, he should strive to begin at the highest level in the organization necessary to accomplish these tasks.

‘Given the proposition that pyramidal systems centralize information at the top, power and choice tend to be at the top. If the system is not pyramidal in structure, the point of entry may be lower. The criterion will still be. The interventionist will start at the point at which he can help the clients obtain valid information, make choices, and develop internal commitment.’

If the ‘pyramid’ (or paradigm) is to be ‘inverted’, therefore, the ‘point of entry’ for ‘Check’ will be at the workface, the customer front-line. So, go to gemba, and wander there: ‘Starting at ‘check’ means getting knowledge of the ‘what and why’ of current performance as a system; nothing is assumed other than we almost certainly don’t know what that performance is’ (Seddon, 2008: 78/79).

**Being there**

SLT means ‘Situational Leadership Theory’ (Blanchard, 1989), which while too large for discussion here, is a leadership concept that is quintessentially a ‘pull’ system (Seddon, 2003: 131; 2008: 67-75). ‘Pull’, because by design it only provides what the developing learner requires (in terms of ‘competence’ and ‘confidence’), and it provides it at the time, and at the place, when and where they need it – in other words, at the ‘place of transaction’, or gemba.

This is an extremely important point, as in a predominantly ‘service’ environment, there is no facility for inventory – services cannot be ‘stored’, they are consumed at the moment of transaction. Equally important, there is mostly no advance notice of this demand; eg, at a service counter – until the customer presents their requirement(s), the nature of their demand cannot be known. If ‘Failure Demand’ (Seddon, 2003: 26), therefore, is to be avoided, staff had to be both ‘confident and competent’ (Seddon, 2002: 103) in their ability to respond at what Carlzon (1989: 24) called the ‘Moments of Truth’.

SLT, therefore, is entirely synonymous with Seddon’s (2008: 41) requirement for ‘staff at the point of contact to ‘pull’ expertise from others in the organization to help them out.’ Those ‘others’ may or may not be the leader/ manager, but either way, it is the leader’s or manager’s responsibility to make sure that it happens, and in order to do that, they have to...

‘Be There’, or being there, is a simple ‘Fish!’ (1998) derived concept, but equally valuable in emphasising the need for GOYA and MBWA. For example, in my own organisation, one senior manager has ‘drop-in sessions’, during which specified periods,
members of staff can ‘drop in’ for a chat. What really needs to happen, though, is for that senior manager to ‘drop in’ on others, so that they can begin to ‘see’, in Seddon’s terms, problems with our ‘systems’. It’s no good having an ‘open door policy’, if you never go out of it.

An example from the blog of a Vanguard Newsletter (April 2009) reader, Peter Palladas, following the Mid-Staffs hospital scandal succinctly makes the point: ‘Being there is what matters, not reliance on status reports, spreadsheets and data forecasts. [It] worked for Taiichi Ohno, and he was only making motor cars not preventing the slaughter of patients’ – (author’s emphasis). Source: http://viewfromthewolds.blogspot.com/2009/03/mid-staffs-scandal-being-there.html.

‘GeYoHaDi’ is a Sid Joynson term (Joynson and Forrester, 1995) meaning ‘Get Your Hands Dirty’. Not specifically ‘dirty’, but to engage with the people who do the work, where and when they are doing it. Occasionally getting your hands actually ‘dirty’, though, can bring immense benefits to understanding – yours and the workers’.

Perhaps, in other words; only when managers ‘do it’, will they ‘get it’! It’s a ‘thinking thing’!

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“It’s no good having an ‘open door policy’, if you never go out of it”
With the advent of life membership we are attracting new members. There are still people who are engaged in management services who are not members and we would like them to join the Institute.

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Can we improve the profitability of seafood companies by applying Six Sigma to packaging operations?

A Case Study Poster by Sathish Periaswamy.

The National Productivity Centre of the UK, based at Grimsby Institute of Further & Higher Education, runs an MSc programme in Productivity & Innovation Development. The first cohort of students – recruited in Summer 2008 – has just graduated. The programme is based around a number of practical projects and assignments, used to illustrate theory and to develop productivity improvement skills in the students. For one of these projects, the students have to summarise their project on a large poster which is then presented at an international conference. Management Services is presenting a number of these posters (though the content has been re-presented to make it more readable on A4 pages) as examples of both successful productivity projects and how to distil the essence of a project into a brief format with high impact.

The second poster in the series is based on a project which used the Six Sigma approach to investigate the causal factors of breakdowns in a labelling machine.

**Introduction**
A major problem in seafood companies is the increased reliance on automated or semi-automated plant for packing areas. Continuing new product development means that these lines are regularly faced with new types of packaging or packing steps. This particular project was an investigation, using the Six Sigma approach, of the causal factors of breakdowns of a particular labelling machine. In packaging and labelling (which can suffer from variable paper/card/board quality), operating standards are typically between 5 to 15% reject/rework; for this machine the level was about 7% – not bad but not good enough! A team comprised of students (with an engineering background) on the MSc in Productivity & Innovation, together with staff from the Grimsby Institute, was assembled to work on problem identification and root cause analysis. I was given the lead role in the project as I was using this project as the basis of my MSc dissertation.

**Process**
Phase 1 was observation of the process under a variety of conditions. To ensure we had robust data, we collected over 2000 observations of the labelling process using two different input packets with an average mean time of 52.6 seconds for 30 labels produced.

This observation phase was followed by discussions amongst the team and with operational staff. These discussions allowed a set of potential causes (of the high reject rate) to be determined. These potential causes were prioritised and subject to root cause analysis.

A series of treatments (possible solutions) was identified and a ‘design of experiments’ approach was used to study the

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**Cause**

**Effect**

**MATERIALS**

**MANPOWER**

**MACHINERY**

**LABELLING**

- Random Placements
- Food Packets
- Labels
- Unequal Spacing

- Beds
- Guide
- Food Packets
- Motor Speed
- Belt Rotation
- Tension Rod
- Improper Placement

- Method

- MACHINERY

- LABELLING

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John Heap
Director, National Productivity Centre
effects of changing a range of parameters, the possible benefits of these solutions and to derive confidence in the final solution.

Result
Modifications were made to the labelling machine and these have resulted in a reduction of 2% reject rate (now at the lower end of typical operating conditions) and Six Sigma has been seen as a useful approach to effectively manage the change process.

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<th>Reject rate before Six sigma project</th>
<th>Reject Rate after Six Sigma project</th>
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The very best professional help

We are always keen to help members and any enquirers of the Institute in their quest for knowledge or assistance when it comes to productivity issues. We’d like to draw readers’ attention to the following solutions for help with Performance Rating, which is still an internationally used technique.

New rating films for professional analysts
We have explored the possibility of creating new rating films but found the costs quite prohibitive. We were advised by Scott-Grant Ltd, one of our accredited training providers, that they had recently produced a new and comprehensive series of 12 rating films on DVD and we have fortunately managed to secure access to them. The rating films show examples of real jobs being undertaken in the workplace and the industries include

- manufacturing
- electronics
- engineering
- distribution
- timber
- needle trade
- retail
- manual work
- warehousing
- high volume distribution

All the films are intended to develop the application skills of analysts. They are an invaluable means of professional development for re-calibrating and maintaining the rating accuracy of every professional analyst, to ensure that the high standards of the Institute are maintained.

Performance Rating explained
Scott-Grant have also produced “How do you rate?” – a practical, 35 minute DVD to explain clearly how to use Performance Rating when measuring work. We would encourage every industry to use this film if they want to improve productivity in their workplace. Although the subject matter is very serious, “How do you rate?” delivers its message in a relaxed and entertaining way. Above all it is designed to be informative, practical and memorable.

Within 20 minutes viewers will have the opportunity to assess performance in carrying out a simple task, using the criteria explained in the film.

Please contact Lynette at the Institute head office
Tel 00 44 (0)1543 266909 for more details.
Switch off for savings

These tips may well be applicable to domestic residences, as well as offices.
1. Using lighting systems efficiently in an industry is very necessary. Usually in factories, lighting is always required everywhere. But when they are not in use, they have to be switched off. Industries can use automatic sensors to switch on/off all the lights. Energy saving bulbs, with Energy Saving recommended certification marks, can also be used which saves a lot of energy.

2. Maintaining heating and cooling systems in an industry is very important, but continual adjustment of the controls is not possible. Hence the use of an automatic thermostatic control, which uses time as an input and maintains a constant temperature throughout. This contributes towards energy savings.

3. Switching off computers when not in use is a very important means of saving energy. Today's technology uses computers in each and every factory, and computers consume a lot of energy, so they should be switched off when not in use to reduce energy losses.

4. Most companies use a lot of energy in their offices. A statistical report of the Sierra Club says that various businesses waste $1 billion worth of electricity every year. Therefore, if all companies start adopting eco-friendly habits to save energy, then a lot of money could be saved on electricity and harmful effects would be reduced. Nearly 30% of costs could be saved by implementing cost-effective energy efficiency measures.

5. Most offices use inefficient lighting systems, but nowadays low energy lighting systems, like fluorescent lamps, are readily available and could be used. Using low energy lighting systems could help to cut total bills by 40 to 90%, which is a big saving.

6. Choose energy star rated computers and office equipment. All electrical equipment being used in offices needs to be energy efficient. Equipment like PCs and printers consume more energy compared to Energy Star equipment which would help to save a lot of money.

7. Manage and control heating. Workers in any office must know that the maximum recommended heating level ranges from 20-23°C. The cost for each extra degree above that temperature can rise by 8%, so every company must ensure that the heating set-point is programmed to the correct setting. Radiators should be turned down before any window is opened, as radiators are usually installed next to a window, resulting in heat loss when the window is opened.

There are some steps that can be followed to save energy during office hours without trying too hard. These are:
- Switch off computers and unplug them from the power. When several intervals are taken during the working hours, computers can be put to sleep mode which can cut energy use by 70%, something screen savers can’t do. Switch off the monitor if you are going to be away from your computer for a few minutes.
- Use both sides of the paper when printing documents. Try to use chlorine-free paper with a higher percentage of post-consumer recycled content.
- Put some plants in corridors and near your desk.
- Try to use as much natural light as possible, for example, working near windows which will save turning on lights so often. Ensure windows are kept clean to allow as much light through as possible.

Conclusion
There is clearly a great opportunity to reduce energy usage in the office environment. I am sure that we have all seen computers and other office equipment remaining switched on over lunch breaks, etc. There may be a culture of ‘it is the company that is paying, so why should I bother’. More awareness/training of the cost of energy and the opportunity to reduce it needs to be given to all staff.

Acknowledgement
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A recent article in this journal, *(A successful leader or a psychopathic individual?)* by Andrews and Furniss, in the Winter 2009 issue, suggested that some organisational leaders are psychopaths. The editor commented that the article was not typical of the content of this journal and asked for comments on this. The journal commonly focuses on productivity, change management and lean management issues, rather than on the personality differences of individual managers. However, my research shows that there is a clear link between lower productivity and the presence of corporate psychopaths in an organisation.

Corporate psychopaths, being parasitic, divisive and disruptive, are the enemies of efficiency and productivity in any organisation and should be of intense interest to Management Services and every other management journal.

News articles in major business magazines like the *Economist* (*Economist* 2004), *Management Services* (Andrews and Furniss, 2009) and regional newspapers, like the *West Australian*, have discussed the idea of psychopaths at work leading to inferior business performance (Rutherford, 2004). Academics have speculated that corporate psychopaths would be associated with a whole host of workplace problems (Boddy, 2005) but there was previously no substantial, empirical research to demonstrate whether this was the case or not.

However, recent research I undertook, among 346 white collar and professional employees across a wide range of organisations in Australia, shows that corporate psychopaths do indeed affect workplace productivity in a negative direction because they add an additional burden of organisational constraints to any organisation they work in. The research used a survey questionnaire containing a psychopathy scale, the Psychopathy Measure – Management Research Version, to identify the presence of corporate psychopaths in organisations.

This enabled a comparison to be made of work environments where corporate psychopaths were and were not present. Organisational constraints are constraints on productivity and work performance and the presence of these constraints directly and negatively affects productivity. Research that looks at the association between organisational constraints and the presence of corporate psychopaths in an organisation should therefore be of interest to those concerned with organisational productivity.

**Disruptive**

Academic strategists and business researchers have long been of the opinion that one of the critical issues in the success of corporations is the building of an effective human organisation; one where employees work harmoniously, smoothly and efficiently together (Hansen and Wernerfelt 1989). The presence of
“As corporate psychopaths are reported to cause chaos and confusion in the workplace and to use resources for their own ends, it was expected that employees would experience greater constraints in their presence than would otherwise have been the case”

corporate psychopaths directly affects such organisational development because they tend to be disruptive to those around them, and especially to junior colleagues (Clarke, 2005). The presence of corporate psychopaths in a corporation, therefore, would theoretically be expected to be associated with lower levels of organisational effectiveness and increased organisational constraints. My recent research investigated this possible association and found that increased constraints were indeed clearly evident in the presence of corporate psychopaths in an organisation. Where an organisation has been infiltrated by corporate psychopaths, previous commentators have reported that often, a few people get very rich while everyone else suddenly finds themselves abandoned, out of a job, without their promised pension or even without a company left to work for (Ullman, 2006).

Recent events in 2008 and 2009 in the financial and banking sectors around the world, where several major banks and other financial institutions have become bankrupt or have been taken over by governments as a result of what looks like managerial greed, unfettered by any conscience, make this statement by Ullman look very relevant to the subject of corporate psychopaths. A morally bankrupt company eventually becomes a financially bankrupt company, and that is a company that is obviously not productive at any level.

In my recent research, organisational constraints were defined as situations or things which interfere with the performance of a task at work, such as difficulty in performing job functions because of poorly working equipment or frequent interruptions from other people (Spector and Jex, 1998). As corporate psychopaths are reported to cause chaos and confusion in the workplace and to use resources for their own ends, it was expected that employees would experience greater constraints in their presence than would otherwise have been the case. This was indeed found to be the case as discussed below.

Corporate psychopaths are also widely reported to be associated with parasitic behaviour in the workplace, claiming others’ work as their own, playing groups off against each other, and neglecting their own duties. All such behaviours are theoretically likely to reduce productivity in the workplace.

Organisational constraints
In my recent research, carried out among employees in Australia, the presence of corporate psychopaths affected all ten of the individual ratings of organisational constraints that were measured in the research, in a highly statistically significant manner. In terms of the overall correlation between the presence of corporate psychopaths and the construct of organisational constraints, there was a significant correlation coefficient in a positive direction. The Pearson’s Correlation Coefficient for this was .526 (p<.05), a high figure. In other words, as corporate psychopathy increases, so does the level of organisational constraints.

T-tests (a test of statistical significance between results) show that all of the ten individual elements involved in the measure of organisational constraints were different, in a negative direction and in a highly significant manner, when corporate psychopaths were present. For example, the annual frequency of experiencing work difficulties due to one’s supervisor was eight times higher under corporate psychopaths than it was under normal managers.

Where corporate psychopaths were present, constraints in the working environments were both more widespread, and more frequent, than they were in working environments where corporate psychopaths were not present. There was a significantly higher incidence and frequency of reported work difficulties due to poor equipment or supplies when Corporate Psychopaths were present in an organisation.

Notably, as shown in Table 1, of those employees who
worked in an environment where corporate psychopaths were present, the majority (85.3%) reported ever having work difficulties due to incorrect instructions. Only 50.8% of those who worked in an environment where corporate psychopaths were not present, ever reported work difficulties due to incorrect instructions.

However, Table 1 only tells half the story. It describes the percentage of employees who ever experienced the organisational constraints detailed. The other half of the story is the frequency with which each of these organisational constraints was experienced by employees. This frequency is discussed below. For example, the incidence and average frequency of reported work difficulties due to other employees was much greater when corporate psychopaths were present in an organisation. In particular, the average frequency of experiencing work difficulties due to other employees was more than four times higher under corporate psychopaths than it was when corporate psychopaths were not present.

As mentioned above, corporate psychopaths are reported to be prone to parasitic behaviour, claiming the success of others’ work for themselves and conning others into doing their work for them (Clarke 2007). This perhaps explains why the incidence and the average frequency of reported work difficulties due to other employees were at significantly higher levels in
this research when corporate psychopaths were present in organisations.

**Inadequate**

Those who worked in an environment where corporate psychopaths were present also reported more work difficulties due to inadequate training and due to lack of information about what to do or how to do it, than did those who did not work in such an environment. A commitment to staff training and development has been identified as being an element that contributes to staff morale (McHugh, 2002) and, in the current research, the presence of corporate psychopaths is significantly associated with work difficulties due to inadequate training. In the literature on the subject, corporate psychopaths are reported to engage in behaviour such as giving inadequate training to others (Clarke, 2007). This finding of my recent research, therefore, directly corresponds to what was hypothesised in the literature.

This perhaps explains why the research found, that of those who work in an environment where corporate psychopaths were present, the majority (65.8%) reported that they had work difficulties due to inadequate training. The findings of this Australian research are very much in line with previous theoretical and observed expectations in this regard.

As corporate psychopaths are reported to cause chaos and confusion in the workplace and to use resources for their own ends, it was expected that employees would experience greater constraints in their presence than would otherwise have been the case. This was found to be the case. As an example of this, the average yearly frequency of experiencing work difficulties due to one’s supervisor was eight times higher under corporate psychopaths than it was when corporate psychopaths were not present. In other words, corporate psychopaths are eight times more disruptive as supervisors than normal managers are.

Under corporate psychopaths, employees reported difficulties due to lack of equipment or supplies three times more frequently than they did when corporate psychopaths were not present. The frequency of experiencing work difficulties due to a lack of necessary information was also significantly higher under corporate psychopaths than it was when corporate psychopaths were not present.

The frequency of experiencing work difficulties due to inadequate help from others was significantly higher under corporate psychopaths than it was when corporate psychopaths were not present. Employees who worked in an organisation where corporate psychopaths were present experienced work difficulties due to incorrect instructions about five times more frequently, on average, than employees who did not work in such an environment.

The research also found that there was a significantly higher number of work difficulties due to organisational rules and procedures when corporate psychopaths were present in an organisation. Corporate psychopaths are reported to manipulate corporate systems and procedures, including rules and regulations, to their own advantage, to get what they want under the guise of corporate normality (Clarke, 2007). This perhaps explains why higher levels of work difficulties were reported under corporate psychopaths.

“Experiencing regular and frequent difficulties in the workplace due to one’s supervisor, as was found in this research, must logically be debilitating and morale destroying for the employees involved and not conducive to a productive work environment”
of work difficulties due to organisational rules and procedures and due to poor equipment or supplies are both at significantly higher levels in this research when corporate psychopaths are present in organisations.

Researchers working with neuroscientists in looking at the functioning of the brain have found that some neurons mimic or mirror the same neurons in other people’s brains and that this triggers empathetic actions and feelings (Goleman and Boyatzis, 2008). In this way followers can come to mirror the emotions and actions of their leaders at a subconscious level. Leaders with social intelligence can thus spread positive feelings among their followers and promote a cohesive and effective human organisation that can withstand stressful situations.

Neuroscientists have also found, on the other hand, that when a dysfunctional leader’s demands become too great to bear, employees experience heightened levels of cortisol and adrenaline and these high levels can paralyse the critical and creative abilities of those employees’ brains.

Stress then spreads through a group of employees via the mimicking action of mirror neurons and a whole team of people can become compromised in their workplace performance (Goleman and Boyatzis, 2008). This might explain how performance and productivity constraints become established in groups that contain corporate psychopaths as managers.

Conclusions

Corporate psychopaths are clearly a barrier to workplace productivity. They cause frequent work difficulties as supervisors, give inadequate training and instructions to those who work under them and they frequently fail to provide proper equipment and supplies to their workers. More employees are subject to this more frequently when corporate psychopaths are present than when they are not present in an organisation.

In other words, more employees suffer from organisational constraints being imposed on them and more frequently suffer from this, when corporate psychopaths are present in an organisation. This is a double whammy on productivity. Eliminating or controlling their behaviour would save companies resources, in terms of reducing lost time and unproductive activities.

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Reducing your footprint

CFA Business Development Executive Dave Harrison explains how the new Carbon Action Standard can improve business performance.

Warrrington based, Centre for Assessment Ltd (CFA) has launched The Carbon Action Standard. Originally developed by CFAs parent company, Economic Solutions, to help businesses reduce their Carbon Footprint, organisations successfully assessed against the Standard have also made significant savings on energy bills.

Further benefits include: improving competitive edge in tendering, enhanced image, reputation and stakeholder confidence, improving overall business performance, meeting supply chain requirements, aiding continuous improvement, contributing to CSR policies, and it is a more cost effective option than ISO 14001.

The Standard has been piloted with ten organisations around the North West, including a school, and engineering and MDF Moulding companies. Each participant saved 19% on average with under one year payback for the package of support. The companies involved are already seeing clear demonstrative financial benefits from using The Carbon Action Standard.

Leading MDF mouldings specialists W Howard, located at Astley near Wigan, is one of a handful of companies to be awarded full accreditation against the new standard.

"No one can fail to be aware of the impact of carbon emissions and global warming, it's one of the major issues of our time," commented W Howard's Operations Director Graham Williams. "Besides reducing our carbon emissions by approximately 200 tonnes, we are seeing a whole range of direct and indirect benefits, such as employee awareness for home life as well as work life, and estimated cost savings of £40,000 per annum. It will also make a major contribution towards our aim to achieve ISO 14001 this year."

Changing behaviour
In order to be accredited against the Carbon Action Standard, organisations need to demonstrate they have plans with targets to reduce carbon emissions from a baseline carbon footprint measure, involve employees, implement changes to make savings, monitor results, review and report progress, making appropriate amendments to the plan. This should be an ongoing cycle.

Whilst savings can be made through investment in technology, it is equally important to change behaviours as a result of training managers and staff. Delivering awareness sessions and involving employees in the decisions will go a long way to helping change behaviours. This could be part of a company's vision and values and will, of course, become part of the new organisational culture. There should also be an environmental element built into induction and recruitment programmes, which could have a knock on effect of attracting new employees who already have a focus on reducing emissions.

Typical examples of technological changes include: Solar Thermal, Solar Photovoltaic, Wind, Combined Heat and Power, Ground Source Heat Pumps, Rain Water Harvesting and Efficient Lighting Solutions. Dependent on your organisation's size, many of which can attract Carbon Trust interest free loans, which pay for the equipment.

Carrying out an initial survey of your organisation's offices and buildings will highlight potential areas of savings. These may include operational practice or processes which offer the opportunity for significant savings. It may seem petty asking people to turn off photocopiers, lights and computers at the socket, which only add up to a few KWH per day. However, when multiplied up over a year, this can result in hundreds or thousands of pounds saved.

Working on three principles of strategy, action and review, the Standard has 23 requirements making up a non prescriptive framework for businesses and managers to work to. The Standard is written in plain English and is easy to understand. Copies are available free of charge when attending awareness events.

A commitment certificate and toolkit is available for those working towards the Standard. Successfully assessed organisations receive a certificate and quality logo to use for marketing purposes. Assessment is every two years, offering a non intrusive and cost effective approach to environmental certification.

CFA have ambitious plans to expand their Carbon Action offer around the UK. Early in 2010, the Standard was launched in London in partnership with CQL Group, and in Yorkshire with YHAL Ltd. There are also plans to have the Standard approved to count towards Early Action Credits as part of the Government’s Carbon Reduction Commitment Energy Efficiency Scheme.

CFA are currently offering a free awareness session for those interested in finding out more. Visit www.centreforassessment.co.uk for more details or phone 01925 256650
Feeling the chill

Tips for reducing energy use in refrigeration systems.

The suggestions here may be of interest to domestic users, as well as commercial users. Refrigeration systems are among the pieces equipment in a food plant that use more electricity for their operations, as lowering the temperature of products in the chilling cycle and freezing products requires a lot of energy. These processes are used all through the lifecycle of food products—in processing, storing and distribution. Ideally the temperatures of chilling operations are around 1 to 5°C and for freezing, about -12 to -25°C. To achieve these temperatures, there is a huge amount of work done by pumps and compressors which contributes to the machines’ high energy utilisation. Better maintenance and proper usage increases the efficiency of refrigeration systems, making them last longer and use less energy. Installing new equipment can contribute to the savings by 40%. Using more efficient methods of monitoring and operating current systems can achieve a saving of about 20%. Finally, a good refrigeration system contributes towards saving money and using better systems improves a plant’s energy performance.

Tips for energy saving are:

1. Reducing heat load and temperature lift: Cooling products from a higher temperature always uses a lot of energy; so if the temperature of the food is reduced a bit before using energy in refrigeration, savings can be achieved. An example would be allowing a product to cool in ambient temperature before entering chilled storage. The pre-cooling of air, use of heat exchangers and economisers is helpful in this regard. A 1°C drop in temperature can reduce the load and produce savings of about 2 to 4%.

2. Using better insulating materials: An insulation system contributes a great deal in saving energy and so will increasing the thickness of insulation. The chart below shows the opportunities for financial savings offered by a higher level of insulation. (taking into account the higher investment costs)
Energy reduction starts with a ‘smart’ design which does not take cheap energy for granted. Existing systems can have an ‘energy audit’ to determine how they can become much more efficient. The energy cost within companies can often seem to be a sunk cost but in the future it will continue to be an increasing cost to business.

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Introduction

Over the last four decades it has been common for services to be treated like production lines in both the academic literature and, more widely, in management practice. The belief that achieving economies of scale will reduce unit costs is a core feature of management decision-making. As technological advance has produced ever more sophisticated IT and telephony, it has become increasingly easier for firms to standardise and off-shore services.

The development of the ‘lean’ literature has only helped to emphasise the same underlying management assumptions: by managing cost and workers’ activity, organisational performance is expected to improve. By revisiting the development of service management, in particular the moves to industrialise service, we articulate a ‘Core Paradigm’ to account for what might be described as conventional service management. We then explain how ‘lean’ emerged and became codified, and as ‘lean’ extended its reach to service organisations, how the two – ‘lean’ and conventional service management operationalised the same (false) assumptions. Building on the literature about the differences between manufacturing and service management, it is argued that service organisations must be understood and managed as systems.

The inspiration for ‘lean production’, Taiichi Ohno’s Toyota Production System (TPS), was developed through an understanding of counter-intuitive truths – a series of challenges to convention. It is then argued that similar counter-intuitive truths are to be found in services when they are studied as systems, resulting in dramatic performance improvements. A ‘systems’ service management archetype is developed as an alternative to conventional service management. Finally, the means for change are argued to be empirical, as change was for Ohno, where change is treated as emergent rather than predetermined or planned.

From manufacturing to operations management

In the 20th century there were many substantial leaps forward in the field of operations management. The ‘scientific management’ of FW Taylor (1911) and its subsequent application in Henry Ford’s mass-producing car factories had led to work being broken down into simple, standardised tasks, set to the pace of the production line. Workers had narrowly defined, compartmentalised tasks, sometimes of only 30 seconds’ duration but performed nearly a thousand times per day. Factory management ideas in manufacturing developed into operations management, on the assumption that manufacturing ideas were easily translatable and applicable in service organisations. Johnstone (2005) traces the development of operations management.

Industrialised, standardised service

In 1972, Levitt wrote a seminal Harvard Business Review (HBR) article entitled ‘Production-line approach to
service’. In it, he argued that the rigour of the production line should be applied to the design and management of services. He used the example of McDonald’s, the fast-food chain, to show how factory methods could profitably be employed to deliver a service. McDonald’s achieved market domination through mastery of a ‘system’ which is ‘engineered and executed according to a tight technological discipline that ensures fast, clean, reliable service in an atmosphere that gives the modestly paid employees a sense of pride and dignity’. Service organisations were thus encouraged to employ the manufacturing approaches of industrialisation through standardisation.

Industrialisation was aided by, for example, advances in telephony, which led companies to centralise telephone work in call centres, taking advantage of lower labour costs; first building call centres in low-wage areas of the UK and latterly outsourcing them to lower-cost economies. Similarly, the allure of ‘back-office’ economies – optimising use of resources by de-coupling the customer from the service itself – first promoted by Chase (1978), led organisations to adopt IT-dominated designs which sorted and routed work through processes dominated by service-levels and standard times.

These ideas continue to form the conceptual foundations for the way that services are designed and managed today.

The ‘Core Paradigm’ of current service management

The ‘Core Paradigm’ for conventional service management (Seddon, 2008) is derived from the philosophy underpinning ‘factory thinking’. The three questions that make up the Core Paradigm are the questions that preoccupy managerial decision-making in transactional service organisations:

- How much work is coming in?
- How many people have I got?
- How long do they take to do things?

Conventional managers think of their job as a resource-management problem. The Core Paradigm leads managers to do the following types of things in pursuit of improving service operations:

- Reduce average activity time (through procedures, job aids, call coaching and targets);
- Use IT to replace, support or control the service agent;
- Outsource activity to lower-cost organisations’ economies;
- Increase functional specialisation (to reduce training costs);
- Standardise work processes;
- Put similar work into back-office factories.

These activities are all undertaken in a vain attempt to manage costs. Workers’ activity is managed in line with anticipated ‘standard’ times and their work is inspected to achieve quality control. Scripts, procedures, targets, standards, inspection and compliance govern the way these organisations work. These features are now commonplace, representing a factory view of service work.

We represent this factory view of service work as an archetype (See Figure 1).

The archetype is a high-level representation. In practice, service organisations are much more complex but the complexities, nevertheless, follow this quintessential logic. Managers schedule resources according to the volumes of work coming into the system. Usually, the first step in the flow is to ‘sort’ the work by, for example, using Interactive Voice Response (IVR) technology in telephony (‘press 1 for x, 2 for y’) and with incoming mail the work is typically scanned and sorted into predetermined electronic work queues, often breaking one customer demand into a variety of sub-tasks, allocating each to its own queue. When work is done, it is managed by ‘standard times’, the assumed time it takes to complete each task and resources are devoted to inspection to control the output to the customer. Often a customer demand into such a system is fragmented into many sub-tasks and consequently the flow of work crosses functional, organisational and geographic boundaries. It is into this environment that ‘lean’ and then ‘lean service’ arrived.

The emergence and codification of ‘lean’

As service operations began to develop as a field of study in the 1970s, increasing attention had been shown to the remarkable successes of Japanese firms. Initially these

“...It was only in 1990 that a deeper explanation of the reasons for superior performance was brought to widespread Western attention”
ideas manifested themselves in Total Quality Management (TQM) initiatives. It was only in 1990 that a deeper explanation of the reasons for superior performance was brought to widespread Western attention. In ‘The Machine that Changed the World’ (Womack, Jones and Roos, 1990), the authors – inter alia – told the story of the Toyota Production System (TPS) and the ‘genius’ behind it, Taiichi Ohno. Through necessity, Ohno had developed a contrasting approach to the mass production methods of US car firms. Published in 1990, Womack, Jones and Roos’ book used the label ‘lean’ for what had occurred at Toyota; giving it a label had begun the codification of method.

In their subsequent book ‘Lean Thinking’ (Womack and Jones, 1996), they set out to answer the question posed by many who had read the first book: ‘How do we do it?’, and offered five ‘lean principles’ as the secret to Toyota’s success. This was the second step in the codification of method. The third step quickly followed: the articulation of lean tools. The TPS had developed new methods to manage unconventional ideas: balancing demand, managing flow, materials being ‘pulled’ through the system. The associated ‘tools’: standard work, takt time, 5S, value stream mapping, kanban, poke yoke, etc, were documented and promulgated by many, promising that managers could replicate Toyota’s remarkable success by applying these tools to their workplaces. The applicability of tools was assumed to be universal, applying to all types of manufacturing and service organisations.

One common feature of these tools was a predisposition towards standardisation of work processes. The conventional desire to standardise and industrialise service organisations was only reinforced by the promulgation of ‘lean’; it was therefore an easy (conventional) argument for managers to accept.

But is service the same as manufacturing?

From the 1970s onwards, a debate arose as to whether goods and services could be treated as the same. Works dedicated to service management started to appear in the early 1980s. Grönroos (1990) was one of the authors who criticised the treatment of services as manufacturing, saying that managers who did this ‘may be making a mistake’. He went on to identify four ‘basic characteristics’ of services that distinguish them from manufacturing:
1. Services are more or less intangible;
2. Services are activities or a series of activities rather than things;
3. Services are, at least to some extent, produced and consumed simultaneously;
4. The customer participates in the production process at least to some extent. (Grönroos, 1990, p29).

During the 1990s, as lean manufacturing gained in popularity, attempts were made to show examples of lean methods in service organisations. One paper, by Bowen and Youngdahl (1998), held up Taco Bell (the US fast-food restaurant chain) as an exemplar of lean service, in the same way that Levitt’s paper had used McDonald’s to exemplify production-line approaches to providing services 25 years earlier. Bowen and Youngdahl argued that services and manufacturing were now converging towards ‘mass customisation’.

‘Lean’ arrives in service organisations

A decade later, we find lean manufacturing tools being used in the UK’s public sector services. Radnor et al (2006), in a report for the Scottish Executive, proclaimed as successful the adoption of ‘lean tools’ in the Scottish public sector: ‘Analysis from the research with organisations in the Scottish public sector, together with evidence from the literature, indicates that lean is transferable to the public sector’ (Radnor et al 2006, p5).

Consistent with the commercial protagonists, Radnor et al conceptualise ‘lean’ as a set of tools: ‘A toolkit of methods for practical use at the operational level has been developed to support lean thinking. Tools include, for example, value stream mapping which is used to analyse the flow of resources, highlight areas where activities consume resources but do not add value from the customer’s perspective.’ (Radnor et al, 2006, p1).

Radnor et al argue for tools to be applied with adaptation in these public sector services. Similarly, Ahlstrom (2004), despite acknowledging an important methodological weakness (participants were presented with descriptions of ‘lean’ concepts and asked to translate them for service organisations; the participants were all from ‘communications’ positions, thus unlikely to be familiar with service operations), claimed that the principles of ‘lean’ manufacturing were applicable, with ‘contingencies’, in service operations.

Neither of these studies describes what adaptations might be necessary for adapting ‘lean’ to services, nor why they may be needed. Radnor places academic validation for the application of lean production principles to services on Bowen and Youngdahl’s work (Radnor et
However, Bowen and Youngdahl had described successful service organisations which could be described as possessing lean attributes. None was presented as having employed lean tools.

In recognition of the doubts that had started to be expressed about the lean tools movement, Womack rationalised what had occurred: ‘The focus turned to how organisations everywhere could transform themselves from mass producers into lean exemplars. Given the magnitude of the task and its many dimensions, it’s understandable that lean tools came to the foreground – 5S; setup reduction, the five whys, target costing, simultaneous and concurrent engineering, value-stream maps, kanban, and kaizen. Indeed, I think of the period from the early 1990s up to the present as the Tool Age of the lean movement.’ (Womack, 2006).

Womack went on to argue that what was missing was ‘lean management’ and acknowledged that he was unable to articulate its elements.

What Womack et al had missed was the systemic nature of the Toyota Production System: it was a system whose purpose was to make cars at the rate and variety of customer demand. The ‘tools’ associated with the TPS were developed to solve problems in achieving this purpose. In other organisations, management’s first task should be to know whether or not they are solving the same problems before applying ‘lean tools’ derived from Toyota.

Womack’s explicit acknowledgement that lean had become enrap in the use of tools came at what many see as a low point for the ‘lean’ movement. In January 2007, the movement hit a nadir with press headlines of ‘Is this banana active?’ relating to the implementation of a ‘lean’ efficiency drive in the UK’s Her Majesty’s Revenue and Customs (HMRC) department (The Times, 5/1/07). Workers had been reorganised into more detailed specialist functions (and hence had to do more repetitive work); the work processes had been standardised and were controlled through activity measurement.

Radnor and Bucci (2007) gave their support to the HMRC lean tools initiative. Given the furore surrounding HMRC at the time – a House of Commons Select Committee’s concern at the lack of improvement, regular bad press and a dispute between union and management – it is surprising that the authors did not explore the impact of the intervention on performance and morale in order to understand more about the relationships.

Figure 2: Deming’s famous Fig 1 diagram: Production viewed as a system (Deming 1982)

**Back to the beginning**

To unpick the development of lean service we need to go back to the ‘Japanese miracle’ and travel forward again through this history. The person most associated with the ‘miracle’ and one of the most important critics of conventional modern management was W Edwards Deming. His influence on Japanese manufacturing led to recognition by the Japanese Emperor in 1960, with the award of the Second Order Medal of the Sacred Treasure.

Deming’s message to managers in his home country was uncompromising. He stated that the ‘present style of management’ was ‘a modern invention—a prison created by the way in which people interact’ (W Edwards Deming, 1994).

His point was simple: we (mankind) invented management and therefore we should re-invent it. The better alternative, he argued, was that we should understand and manage our organisations as systems. His famous ‘figure 1’ from the book ‘Out of the Crisis’ (1982) was a picture capturing the flow of work through a manufacturing organisation. He viewed constancy of purpose to improve the system as the cornerstone of management’s efforts; his figure served also for discussions of method and measures: Management’s focus, argued Deming, ought to be with the flow of work through the system, as opposed to measuring and managing work in functional activities. Operating at this ‘system’ level achieves far more than focussing on the refinement of individual functions and/or processes.

Deming illustrated how targets and all other arbitrary measures sub-optimised systems. He pointed to the absurdity of failing to understand that workers’ performance was, in fact, governed by the system; as a result appraisal practices were at best irrelevant and at worst drove sub-optimisation. These and other ideas were direct affronts to prevailing beliefs: to accept them would be to accept that much that was considered normal was flawed and would have to go.

Deming’s figure depicts manufacturing. We can look at it and imagine the Toyota system: cars being produced for consumers at the rate and variety of demand, the flow of work through the system – all the way back to suppliers – operating at the heart-beat created by the customers ‘pulling’ cars. But what would an equivalent look like for services?

To echo Ohno, our first step has to be concerned with understanding. It was Ohno’s favourite word: ‘I believe it [understanding] has a specific meaning – to approach an objective positively and comprehend its nature. Careful inspection of any production area reveals waste and room for improvement. No one can understand manufacturing by just walking through the work area and looking at it. We have to see each area’s role and function in the overall picture.’ (Ohno, 1988, p57).
Seafood is a unique case study as it is one of the very few food industries with a large volume (65% FAO, 2007) of product being wild caught. The gathering of fish and shellfish has a very long history and is a very important protein source to humans, linked back to the birth of the human race (Crawford, 2004). The supply chain from net to plate can be over many levels and, in some cases, large distances. Catching, processing, refrigeration and transportation all account for energy usage in the supply of seafood products.

Within the fisheries sector, the numerous catching methods have different fuel efficiencies. As the price of marine diesel has increased greatly over the last few years, certain sectors have seen fuel bills become too high to remain profitable. Higher quayside prices for fish have offset the fuel increases in some sectors. Work by the industry body Seafish has been carried out within the UK fleet to assess the fuel efficiency and suggested improvements. Such improvements include the reduction of towing/steaming speed, gear modifications, trip and landing efficiency. Globally the fishing fleets have been calculated to use 50 billion litres of oil or 1.2% of global oil supply (Tyedmers et al, 2005).

Two benchmarks that are typically used for the catching sector are catch per litre of fuel used and fuel costs as a percentage of turnover. Within the EU fisheries fleet, the catch per litre of fuel used is frequently skewed by quota restrictions leading to discarding. Economic surveys of the Scottish fishing fleet show fuel costs being 20-30% of turnover in 2007; during 2008 the oil price
Energy efficiency and seafood industry in the case study for seafood.

High fuel prices have led to a reduction in the use of fuel hungry fishing methods. The Dutch beam trawler fleet has been changing fishing methods in great numbers. Scallop dredgers have also been changing to prawn trawling and static gear. In many cases, the scallop dredgers were multipurpose vessels and could change fishing method easily. The decision to change fishing method by skippers/owners is a recognition that, within the fishing sector, by benchmarking the fuel costs between fishing techniques, a more profitable method is used in times of high fuel prices. This can, of course, be altered by the quayside prices for seafood.

Many fishing vessels have been using gear modifications to offset high fuel costs and certain alterations have seen a reduction in fuel usage from 5-10% from the fleet benchmark levels. These methods have, however, in some cases, seen a reduction in catch volume. This is where catch per litre of fuel becomes an important benchmark, along with economic analysis. Seafood have reported fuel savings from replacing older engines with newer more fuel efficient ones. The high capital costs involved in engine replacement have only seen this carried out in the case of mechanical failure, with fuel efficiency a bonus.

Seafood supply chains are typically long and require refrigeration, leading to high energy inputs. Certain supply chains, such as fresh tuna, use air freight to ensure supplies reach the market in prime condition. Certain UK retailers have put plans in place to label all products that involve air freight with an aeroplane so consumers can identify them. Another product that is energy hungry for the refrigeration component is frozen-at-sea fillets. A Seafish study on energy impacts found its GHG emissions for refrigeration of Russian frozen-at-sea to be twice the level of average seafood products. Aquaculture is a growing industry and becoming more important in the supply of seafood. It is likely to be the fastest growing food production technique until at least 2025, as reported in Bioscience (Diana, 2009).

The main energy input for finfish aquaculture is feed. Salmon farming companies are only at the very early stages of studying energy usage and carbon footprints. Other aquaculture, such as rope grown mussels and paddy field carp, do not require feed inputs and so have a very small energy footprint (Barros et al, 2009). Value added seafood can involve a high level of processing to reach the end product. Traditionally this involved labour intensive methods, but this is now becoming more automated and mechanised. The increased mechanisation leads to higher energy usage but better productivity. As increased mechanisation occurs in the sector, fish processing companies should actively manage energy usage to minimise costs.

To summarise, the seafood industry energy benchmarking is important and generally considered a cost per kilo of product/catch. Energy is given greater consideration with rising costs and companies are starting to consider products’ carbon footprints. Products can also have different degrees of energy impact from transport and refrigeration.
Northern Foods

The main business of Northern Foods covers five markets: Pizza, Biscuits, Ready Meals, Sandwiches and Salads, and Puddings. In 2005/06 the company launched a ‘War on Waste’, designed to drive efficiencies, reduce energy use and eliminate or recycle waste wherever possible.

To drive this programme, Northern Foods has introduced a single method of scoping, tracking and monitoring energy use at its sites. Over 600 energy and utility monitoring meters are being deployed and ‘Energy Desktop’, a specialist software solution, will capture and report on usage data, complementing data on raw material usage and the creation of energy/waste teams at 14 of the sites. These actions will support the monitoring of carbon emissions, to help ensure that the company is on course to meet its targets under the Climate Change Levy Agreement. The activities the company are involved in relate to its impact in the key areas of energy, waste and water, as well as responsible sourcing.

The company has set itself tough year-on-year targets for each of these areas:

- 5% reduction in energy use;
- 3% reduction in water consumption;
- 5% total waste reduction;
- Zero waste to landfill, in UK operations, by the end of 2010;
- Zero packaging growth;
- In an employee survey two out of every three employees said that ‘I am proud to work for Northern Foods’.

Northern Foods have systems in a number of energy intense areas:

- Chilling units – defrost cycles are now triggered when required, as opposed to relying on an automatically timed defrost cycle;
- Hot water clarifiers, used in steam generation, have been replaced with heat exchangers, enabling more efficient heating and usage of water;
- Vacuum regeneration desiccant driers have been installed in the compressed air system, resulting in a significant energy saving.

In order to save on gas usage, Cavaghan & Gray, in Carlisle, are testing new steam meters and installing gas meters on their main boiler to allow actual efficiencies to be calculated. In a systematic approach to reducing energy, it was recognised that the use of monitoring and targeting could help support efficiency gains. Northern Foods has cautioned that the rising energy prices will soon push up the cost of everyday products, such as pizzas and biscuits. Northern Foods is facing increases of between 60-70% in the cost of gas and electricity used for baking.

Stefan Barden, Chief Executive, said: “Northern Foods would have to seek price rises of up to 5% on some of its bestselling products to recoup the cost. We have had a deflationary environment for a decade but inflation is here to stay. Fuel inflation is very high and is going to hit the industry hard over the next six to 12 months. Fuel will feed through into food.”

Inverter Drive Systems also performed post-installation energy monitoring. Average power reduction was found to be 65.2% per pump, giving estimated energy cost savings per year of £30,000, with a payback time of ten months. As well as the energy saving benefits, the system also provides accurate control of

“Training and educating employees not only reduces energy utilisation by better practices, but also reduces costs and increases productivity”
Life Cycle Assessment

Life Cycle Assessment (LCA) studies the environmental aspects and potential impacts throughout a product’s life from raw material acquisition through production, use, and disposal (Thane, 2009; Hendrickson et al, 2006).


The Royal Society of Chemistry (RSC, 2005) describes LCA as a tool that can be used to assess the environmental impacts of a product, process or service from design to disposal, across the entire life cycle. LCA is a process that is used to manage the environmental risks associated with a product, process, or activity. LCA is usually referred to as ‘Cradle to Grave’ analysis (Baumann and Tillman, 2004). This includes manufacturing, distribution, re-use, maintenance, recycling, and final disposal. There are some general categories of environmental impacts that need consideration, like resources used and ecological consequences.

LCA helps in viewing all inputs and outputs to the system and views each and every cycle during the product’s life. LCA requires the collection and evaluation of data on the inputs and outputs of material, energy and waste flows of the entire product’s life cycle, so that the environmental impacts can be determined. Hendrickson et al (2007) has a slightly different approach and argues that LCA consists of four complementary elements, which are scoping, inventory, impact and improvement;

1. Goal Definition and Scoping

We need to define and describe the product, process and activity. We should establish the matter in which the assessment is required to be made and identify the boundaries and environmental effects to be reviewed for the assessment.

2. Inventory Analysis

We should identify energy, water and materials usage and environmental releases.

3. Impact Assessment

We need to assess the human potential and effects of energy, water and material usage and the environmental releases identified in the inventory analysis.

4. Interpretation

Finally, we need to evaluate the results of the inventory analysis assessment for selecting the preferred product, process or service with a clear understanding of the uncertainty and the assumptions used to generate the results. RSC (2005) argues in order to perform LCA, it is necessary to:

- Identify the inventory, which includes relevant inputs and outputs;
- Evaluate the potential environmental aspects;
- Interpret the influences (impacts) of the input, output and environmental aspects to the objectives.

In summary, the aspects of a product in LCA are:
• Extraction of the relevant raw materials;
• Refinement and conversion to process materials;
• Manufacturing and packaging processes;
• Transportation and distribution at each stage;
• Operation or use during its lifetime;
• Final transportation, waste treatment and disposal.

LCA can help to identify ways to reduce environmental impacts and make cost savings. LCA can also be used for assessing risks to improve systems, for example risk management. It is also used to support decision making for companies, such as purchasing, product design, process selection and waste management strategies.

Figure 1 (on page 41) shows the possible life cycle stages that are considered in an LCA and the typical inputs/outputs measured.

The use of energy at different stages during production requires having a measurement and assessment of the overall impact on the environment. This is not dependent on a single event but a combination of all the processes. The LCA considers the relationship from the raw material extractions until disposal. In the transformation there is the manufacturing and packaging involved, after which it needs to be transported for distribution.

For example, examining the life cycle in the production of food, the agricultural inputs are the seeds, fertilisers and water. The produce is then harvested and transported to factories for processing. In the process of production and transportation, there are energy and emissions associated. The operating procedures need to be checked for and compared to other standards, to decide the impact on the environment.

Consumers use the product according to their requirements before the waste can be disposed into landfill or recycling processes. Each step involves usage of energy and hence contributes to the environmental footprint. Fossil fuel inputs release GHGs during the cultivation, transport, conversion and distribution processes of the food product. Nowadays, many companies use carbon labelling as a way of reducing carbon emissions and to show their concern for the environment. LCA is one way of making the public and the government aware of the amount of carbon the company is emitting.

Carbon emissions are one of the major causes of global climatic changes and so many initiatives have been taken by various governments to solve it. On a smaller scale, individual industries concentrate on the labelling of their products, which include carbon and eco labelling. This imparts education on the efficient production means of the product. For the consumers it creates a standard with which they can compare to see which product has lower impact on the environment. Production of any product involves impacts on the environment, such as wastage – the LCA process helps to identify the products that use more resources as compared to the others.

Carbon LCA methods in carbon labelling help in the reduction of carbon emissions. Tesco have started carbon labelling their manufactured products to create awareness.
among their customers about the carbon footprint of products and to provide a comparison with other products. This move was announced by Terry Leahy in January 2007. Tesco used the LCA and found that the packaging of non-biological liquid detergent was less than that of the powders or tablets and could be transported more easily, hence it had a lower carbon footprint. Also when considering use by customers, it found that most washing machines operated at 40°C but if operated at 30°C, there was a reduction in the amount of electricity used per wash.

The operations of manufacturing a bulb were also considered and it was found that most of the carbon emissions were created after the installation into a socket. Results also showed that, although there were higher costs in the production of an energy saving bulb, it used less energy and generated lower carbon emissions for the same output of light as that of a conventional bulb.

There are various carbon labels, like the Carbon Trust and CO2 star, that provide a means of comparison for the carbon content of different products. To allow international comparisons, there are the ISO 14040 and ISO 14044. These provide the necessary framework and guidelines for the LCA process. Many companies have adopted these, with assistance from Carbon Trust, to reduce carbon emissions. Carbon labels provide public awareness of the embodied energy in products and enable a comparison between brands. A carbon label can also be used to compare different products, such as the best protein source to eat with regards to carbon emissions.

The Carbon Trust also issues strict improvements that the company/product needs to achieve to continue the use of its carbon label. Walkers’ crisps recently became the first company to achieve reassessment for its carbon label. While the carbon label is relatively new in the food industry, European Energy labels have become widespread in the car and electrical goods markets. These are a visual and comparable label the consumer can use to choose a product that has good energy efficiency. They are colour coded to aid accessibility and are given an energy scale rating from A to G and often have extra information, such as the energy breakdown, water usage and noise levels (Ruderman et al, 1987).

Since ancient times, fisheries have been an important source of food, employment, economic and social benefits, as well as a foundation for great cultures. Nowadays, consumers are more knowledgeable about the food they eat than ever before. They are becoming more concerned about the fish they purchase and consume. They need assurance that those fish are from a managed resource and caught with a responsible fishing manner. That is why many companies, especially processing manufacturers and retailers, increase their demands for Eco-Label. Many companies apply LCA throughout the value chain of fish products. According to Thrane (2005), the life cycle of fish products in the value chain is:

1. Primary production
The sector can be divided into two categories: capture fisheries and aquaculture. The things that need to be considered in this stage
include the fishing methods and gears, stock assessment, bycatch, vessel hygiene, vessel’s crew competencies, energy efficiency and ethics for labour.

2. Landing
Is when the vessels return to the harbour/port. Some fish are sorted and sold directly at fish auctions, while other fish are often sold directly to the processing industry. This part of the value chain concerns the port’s facilities, such as good storage, transport, energy efficiency, etc.

3. Process
Fish processing includes: sorting, dressing, cutting, eviscerating, skinning, pre-cooking, breading, blanching, filleting, salting and packaging. The fish can be in the form of: fresh, canned, frozen, cured (salted or smoked), dried, fillets, fish roe, pre-cooked, fish oil, fish meal and fodder. The things that need to be considered in this stage are: the use of auxiliaries, chemicals, machines, water and energy efficiency. The companies also need to deal with the waste and wastewater. Fish waste can sometimes be used as fertiliser.

4. Wholesale and transport
Transport is an important parameter. Transport needs to be considered between the harbour and processing industry, as well as to the final consumer. The things that need to be concerned in this stage include the refrigeration equipment and energy efficiency (fuel consumption).

5. Retailers
The types of retailers are supermarkets, local dealers and fresh fish markets. Also caterers, such as restaurants, hotels and other food services. Retailers in this value chain act as the hub for final consumer to the fisheries. To ensure strong and responsible market branding, many large retailers are developing individual buying specifications that are sometimes even higher than the public standards. It can help the companies to choose sustainable long term suppliers and minimise the supply risk. In other cases, it may be driven because they want to meet the expected customer ethics. Sometimes, their actions precede the customers’ awareness, which is why they cannot charge premium prices. The things that need to be concerned in this stage include the cooling equipment, energy efficiency (fuel consumption), and waste and wastewater management.

6. Use (and disposal)
In this stage, fish are bought and consumed. The industries that may be related to this use stage are: suppliers of stoves, water and energy, suppliers of cars and public transport, as well as waste and wastewater treatment. According to Lassen (1996), the complexity and the shifting production conditions in the fisheries industry makes it difficult to plan the production and to balance the supply and demand. In terms of fisheries management, remote fishing activities are basically difficult to control. In addition, auctions provide an unclear traceability of the fish products. This makes a barrier to producers and consumers to place demands, and an obstacle for product oriented regulation, such as Eco-Label.

Conclusions
The complexity of the food industry makes any comparison a challenge. With most factories having a different mix of products and processes, comparisons had to try and remove this variable. This meant working by comparing site level against another site of similar output or looking at machine level and comparing the efficiencies. The use of training was an important message across the industry and an important step in the reduction of energy use. The importance of education has been highlighted in the new Carbon Trust’s standard.

At plant and machine level, any investment in new technology should be carefully considered against pay back period. The calculation of pay back period requires an estimate of future energy prices and as they increase, the pay back period decreases. In some cases, such as the replacement of engines in fishing boats, it is uneconomical when considering pay back period. The greater environmental/climate change concern and the introduction of carbon
taxes create a greater incentive for businesses to control energy. The reduction in emissions, by definition, means a reduction in non-renewable energy use. To ensure energy purchased by businesses is utilised efficiently, they should undertake steps to energy benchmark and become lean. Higher consumption levels not only cost more, but also impact the environment by not utilising it efficiently. Energy savings prove vital for greener growth and development, hence companies should look into the following:

1. Measure energy usage
   Energy is a very crucial element for any operation and it fuels growth and production in companies. A management focus on energy utilisation levels helps to manage fuel consumption and costs. In the organisation there are various places in which energy is used, and can be classified under the company, plant and machine level usages. These classifications help the analysis and thereby focus on energy reduction. The strategic focus on energy is made at board level and often communicated publicly with the CSR document.

2. Use of CHP and renewable energy sources
   The advancement of technology has brought in a lot of changes in the methods of energy use and the type of fuel used. There has been a shift from the use of conventional fossil fuels to renewable sources. Ideally a CHP system uses heat generated, which is wasted in conventional systems, for secondary usage, such as the waste heat from production being used to heat domestic water. This increases the operating efficiency to about 40% more than fossil fuel systems and reduces the wastage of un-burnt fuel.

   Renewable fuels have proved to be a breakthrough in energy utilisation and with better technology they are comparable in energy generation to coal or gas plants. Although there is a high initial cost with their installation, they pay back rapidly based on their usage. With continued research, it is becoming more affordable. The cost of wind energy has declined from 40 cents/kWh to less than 5 cents/kWh. The cost of energy from sun and photovoltaic cells has come down to 20 cents/kWh from a dollar/kWh. In Germany, in the past three years, over 300,000 solar power systems have been installed and micro-generation provides approximately 12% of all German electricity. The generation of electricity from various sources brings in more competitive means of production.

3. Education
   Constant energy savings can be achieved by imparting proper training and education to employees. A lot of wastage exists because people are not aware of the impact of inefficient energy management practices. A simple and a very
4. Aligning to energy companies and standards
Many organisations work towards the ultimate goal of reducing the energy use by adopting better practices in the business all around. They act as consultants and provide solutions to these issues by:
• Using better techniques and machines;
• Grading energy consumption;
• Checking environmental impacts;
• Reducing energy costs.

Carbon Trust, ENERGY STAR, Energy Institute, DEFRA, and Eco Trust are some organisations that provide better operating procedures for an efficient and effective way of utilising energy. Also the energy labels provided by these organisations form a trade mark and can be placed on products. This creates awareness among customers and forces companies to be more energy efficient. Guidelines provided by these companies are general and once approached they provide specific solutions to problems. For instance, Carbon Trust has their mission: ‘To accelerate the move to a low carbon economy by working with organisations to reduce carbon emissions and develop commercial low carbon technologies.’ In doing so, they provide insights into the technologies and come up with new technologies and innovations for individual businesses, helping them to grow.

5. Better use of equipment
In most companies there are a few machines that consume most of the energy, such as the boilers and refrigeration equipment. Better utilisation by best practices of this equipment not only provides cost reductions in the operation, but also reduces their impact on the environment. Boiler efficiency is a factor that measures its output and then gives details of the energy used by it. To achieve energy savings, the efficiency of boilers can be improved by:
• Better insulation;
• Use of fuel monitoring systems;
• Use of renewable fuel sources for reducing CO₂ emissions;
• Reducing flue gas temperatures;
• Proper maintenance.

A refrigeration system is one of the most essential parts in the manufacturing processes. It is used at various stages, either in the manufacturing or storage operations. Basic steps that impact the energy consumption of a refrigeration system and increase its energy efficiency include:
• Reporting and repairing any pipes that vibrate;
• Control settings that are easily viable for interpretation and adjustment purposes;
• Keeping the doors of the cold store closed as much as possible;
• The fans of evaporators must not have any obstruction;

• Minimise heat from other sources in the cold store, like lights and lifts;
• Switching off pumps and fans that are not in use;
• Regularly check compressor oil levels;
• Check for refrigerant levels and leaks.

6. Insulation
The plant room is also a major energy consumer because of the use of electricity in heating and lighting the work place. Hence it becomes necessary to use good and efficient insulators in the plant room. Designing of the plant layout also contributes to energy savings. Having good ventilation and lighting minimises the energy used for extra lighting.

7. Installing energy meters
Metering devices prove useful in providing energy benchmarks. They give information indicating which devices consume most energy, and help in monitoring them. Installing these meters is not the only task, the ability for them to be read by all people on the shop floor is also important. They are the ones who operate the machines and if they don’t know why and what they are measuring, the purpose of measuring energy is incomplete. These meters monitor information on fuel and energy consumption patterns and, hence, by monitoring it, a control can be established.

8. Maintenance and proper design
Machines often break down quickly if not serviced or maintained properly, which adversely affects energy consumption. A focus on maintenance is required for reduced energy usage. The idle time and down time of machines should always be
considered before the plant capacities are forecasted. Efficient design also contributes to energy savings. Often refrigeration pipes run close to the boiler, which increases the temperature of the liquid in the pipes, meaning the refrigeration system has to work harder to cool it and uses more energy.

9. Carbon emission reduction
The environmental impact of energy use mainly includes carbon emissions. The issues of global warming and global climatic change are also led by carbon emissions. Using energy releases carbon and so it is necessary to control the energy used. The amount of carbon released is directly proportional to the energy used, so reducing carbon emissions should lower energy use. Organisations, like Carbon Trust, work towards this achievement. The government has considered carbon emissions as a damaging exhaust and so has introduced the Climate Change Levy and Kyoto Protocol, in which organisations have to pay taxes for the amount of carbon released. This makes a direct impact on the organisations and so to consider energy use is important to try to reduce taxes.

10. Having benchmarks for comparison
The best way of comparing energy use is by setting up standards and benchmarks within the company and the sector. This allows a goal to be achieved and efforts can be made to work towards it. The consumption of electricity can be monitored based on the kWh/tonne of product produced or energy cost per tonne of product produced. These can be compared to previous years within the company or can be compared to industries in the same sector. These help in analysing the energy consumption pattern within the company and also provide the information for any problems in it. Corrective or preventive measures can then be adopted. Best practices from other companies can be adopted with the view of being competitive and reducing energy costs. For individual equipment, having their overall efficiency monitored provides the framework for comparison with other equipment. By having benchmarks, energy usage is compared and methods to improve it are examined.

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