February 2013

Contents

Overcoming Challenges in Process Improvement

1. Introduction

The objective of business process improvement is to continually improve process productivity. Process productivity is measured in terms of effectiveness, efficiency and quality. An effective process is a process that produces the right results consistently.

However, despite its demonstrated benefits, many companies have found it extremely difficult to sustain these process improvement programmes.

2. What is Process Improvement?

Process improvement is an aspect of organisational development, which involves the evaluation of all critical processes in a business. Focussing on customer satisfaction, it comprises a series of actions that are taken by a process owner to identify, analyse and improve existing business processes within the organisation. It aims to meet new goals and objectives, such as increasing profits and performance, reducing costs and accelerating schedules. Process improvement is also a method to introduce process changes to improve the quality of a product or service, to better match customer and consumer needs. Often, a specific methodology or strategy is adopted to encourage and ultimately create successful results.

3. How Does Process Improvement Benefit the Organisation?

A well-defined business process benefits an organisation in three dimensions: productivity, process and people. As the performance of a particular organisation is the sum of performance of its processes, a well-defined business process contributes to a well-managed organisation.

Productivity, process, and people are interdependent and synergistic. As employees learn more about the process and become more proficient in the process, productivity will increase, further increasing the morale of the work

force. Higher morale leads to motivated employees, which lead to higher productivity.

Organisations embark on process improvement initiatives to better serve their customers; improve their ability to anticipate, manage and respond to changes in the marketplace; maximise business opportunities; and reduce inefficiencies and errors.

4. Getting Started on Process Improvement

The importance of process improvement must be communicated from the top. The management need to foster an organisational environment in which a process improvement mentality can thrive and people use quality-related tools and techniques on a regular basis.

For the organisation to reach this state, managers must ensure that everyone receives the training that will enable them to carry out their process improvement efforts effectively. They must also be aware that instilling a process improvement mentality can be difficult as it requires some different ways of thinking than what the employees are accustomed to.

4.1. Tools and Techniques for Process Improvement

A variety of tools and techniques are available to help manage process improvement projects. Some of the commonly used tools and techniques are presented in the table below.

Tool/Technique	Description
Process mapping	One of the initial steps to understand or improve a process is process mapping. By gathering information we can construct a “dynamic” model - a picture of the activities that take place in a process. Process maps are useful communication tools that help improvement teams understand the process and identify opportunities for improvement.
Process flowcharting	Process flowcharting is another tool used in the construction of process map. This is a powerful technique for recording, in the form of a picture, exactly what is done in a process. The purpose of the flowchart is to learn why the current process operates the way it does and to conduct an objective analysis, to identify problems and weaknesses, unnecessary steps or duplication and the objectives of the improvement effort.
Force field analysis	Force field analysis is a technique for identifying forces which may help or hinder achieving a change or improvement. By assessing the forces that prevent making the change, plans can be developed to overcome them. It is also important to identify those forces that will help with the

	change. Once these forces have been identified and analysed, it is possible to determine if a proposed change is viable.
Cause and effect diagrams	Cause and effect diagram is a useful way of mapping the inputs that effect quality. Also known as the fishbone or Ishikawa diagram, it is a useful technique for opening up thinking in problem solving.
CEDAC	With CEDAC – Cause and Effect Diagram with the Addition of Cards, the effect side of the diagram is a quantified description of the problem, and the cause side of the diagram uses two different coloured cards for writing the facts and the ideas. The facts are gathered and written on the left of the spines, and the ideas for improvement on the right of the cause spines. The ideas are evaluated and selected for substance and practicality.
Brainstorming	Brainstorming can be used in conjunction with the Cause and Effect tool. It is a group technique used to generate a large number of ideas quickly and may be used in a variety of situations. Each member of the group, in turn, can put forward an idea concerning the problem being considered. Wild ideas are welcomed and no criticism or evaluation occurs during brainstorming, all ideas being recorded for subsequent analysis. The process continues until no further ideas are forthcoming and increases the chance for originality and innovation. It can be used for: ▪ Identifying problem areas ▪ Identifying areas for improvement ▪ Designing solutions to problems ▪ Developing action plans
Pareto analysis	Pareto analysis can be used to analyse the ideas from a brainstorming session. It is used to identify the vital few problems or causes of problems that have the greatest impact. A Pareto diagram or chart pictorially represents data in the form of a ranked bar chart that shows the frequency of occurrence of items in descending order. Usually, Pareto diagrams reveal that 80% of the effect is attributed to 20% of the causes; hence, it is sometimes known as the 80/20 rule.
Statistical process control (SPC)	Statistical Process Control (SPC) is a toolkit for managing processes. It is also a strategy for reducing the variability in products, deliveries, materials, equipment, attitudes and processes, which are the cause of most quality problems. SPC will reveal whether a process is “in control” – stable and exhibiting only random variation, or “out of control” and needing attention. It also automatically warns when performance deteriorates, and can assist with long-term defect reduction, identification of special or assignable causes, reduction or elimination of causes of variation and achievement of a level of performance as close to target as possible.
Control charts	One of the key tools of SPC is a Control Chart. It is used to monitor processes that are in control, using means and ranges. It represents data, e.g, sales, volume, customer complaints, in chronological order, showing how the values change with time. In a control chart each point is given individual significance and is joined to its neighbours. Above and below the mean, Upper and Lower Warning and Action lines (UWL, LWL, UAL, LAL) are drawn. These act as signals or decision rules, and give operators information about the process and its state of control. The charts are useful as a historical record of the process as it happens, and as an aid to detecting and predicting change.
Check sheets	A check sheet is an organised way of collecting and structuring data, its

	purpose is to collect the facts in the most efficient way. It ensures that the information that is collected is what was asked for and that everyone is doing it the same way. Data is collected and ordered by adding tally or check marks against predetermined categories of items or measurements. It simplifies the task of analysis.
5S	5S – seiri, seiton, seiso, seiketsu and shitsuke, describes how to organise a work space for efficiency and effectiveness by identifying and storing the items used, maintaining the area and items, and sustaining the new order. The decision-making process usually comes from a dialogue about standardisation, which builds understanding among employees of how they should do the work.
Kaizen	Kaizen refers to philosophy or practices that focus upon continuous improvement of processes in manufacturing, engineering, and business management, involving every employee. It aims to eliminate waste.

5. What are the Challenges and How to Overcome Them?

Process improvement has become an imperative for businesses seeking competitive advantage. Yet, only a few organisations make lasting and successful use of process improvement tools, which should help to raise productivity, boost quality and enhance competitiveness. Despite the demonstrated benefits of many improvement techniques, most attempts by companies to use them have ended in failure. In fact, companies have found it extremely difficult to sustain even initially successful process improvement programs. Even more puzzling, successful improvement programs have sometimes led to declining business performance, causing layoffs, low morale, and the collapse of commitment to continuous improvement.

The inability to manage an improvement programme as a dynamic process, one tightly coupled to other processes in the organisation and its customers, suppliers and competitors, is said to be the main determinant of programme failure. Failure to account for feedback from these tightly coupled activities leads to unanticipated, and often harmful, side effects that can cause the pre-mature collapse and abandonment of otherwise successful improvement programmes.

Internal Dynamics of Improvement Programmes

It is crucial for organisations to note that well-functioning programmes cannot be bought like a machine tool. A competence in improvement “must be grown organically”. To do so, the management must grapple with three central issues. First, managers need to address the

fundamental trade-off between current and future performance levels. Second, managers need to make sure that the source of commitment to ongoing improvement effort shifts from managerial actions to employee initiative. Finally, as a programme succeeds, and so-called "low-hanging fruit" is harvested, managers need to adapt their improvement tools and manage expectations for continued gains.

5.1. Fundamental Improvement Trade-off

Process improvement theorists assert that the employees doing a job are "the best-informed experts" and should be responsible for identifying improvement opportunities and implementing changes. Accordingly, most improvement initiatives rely on the employees who perform the day-to-day work to both guide the improvement programme and make the actual improvements. The rationale behind this strategy is two-fold. First, employees already understand their process, reducing data collection and diagnosis time. Second, employees have a strong interest in implementing changes when they develop the proposals themselves. Operationally, effort allocated to improvement raises productivity, boosting process throughput, thereby lowering production pressure and yielding still more time for improvement (loop R1 in Figure 1 below). It is said that an organisation that re-invests early improvement gains in further improvement effort creates a powerful positive feedback that generates ever-greater gains in quality and productivity.

However, reliance on operating employees to guide and implement improvement can limit the reinforcing process of the productivity chain. Management must remember that it takes time for improvement effort to bear fruit. Therefore, the first effect of an increase in improvement effort is a reduction in the time employees can devote to throughput. The short run effect of improvement effort is a decline in output, exactly the opposite of the goal. As throughput falls, pressure to work harder builds. Employees, faced with high pressure to meet throughput goals, will be forced to cut back the time devoted to improvement, boosting output but stalling productivity and quality growth. To overcome the quandary, process improvement advocates discourage numerical throughput quotas and encourage employees to allocate a portion of their normal workday to

improvement effort. Managers can also reduce throughput pressure by adding more resources, thereby allowing sufficient time for both throughput and improvement, or by lowering desired throughput (perhaps by increasing prices or reducing the number of new projects undertaken).

Managers must, however, be prepared for a period when throughput will drop or costs rise. While throughput drops immediately at the start of an improvement effort, productivity only rises after the substantial delay in organising and deploys improvement efforts. The delay between allocating time to improvement and obtaining results, combined with the immediate drop in throughput, implies that performance will follow a 'worse-before-better' pattern.

While some organisations overcame the short-run deterioration in performance caused by improvement programmes, many do not. Short-term performance goals tempt managers to harvest productivity gains by cutting costly resources or raising throughput targets. These actions intensify throughput pressure and shift effort away from improvement. Managers who fail to allocate enough resources find improvement efforts stall as workers devote their time to short-term throughput goals.

The tendency to harvest initial productivity gains by downsizing or increasing throughput objectives is strong. Anticipated productivity gains are often factored into equipment and labour planning. Goals based on unrealised productivity gains will be a source of throughput pressure and "effort squeeze" (loop B1 in Figure 1).

To sustain a programme, managers must support the reinforcing nature of improvement by limiting the effect of throughput pressure on effort allocation. An improvement programme is more likely to succeed if managers facilitate a shift of employee time from throughput to improvement and limit opportunities for employees to shift effort back towards throughput.

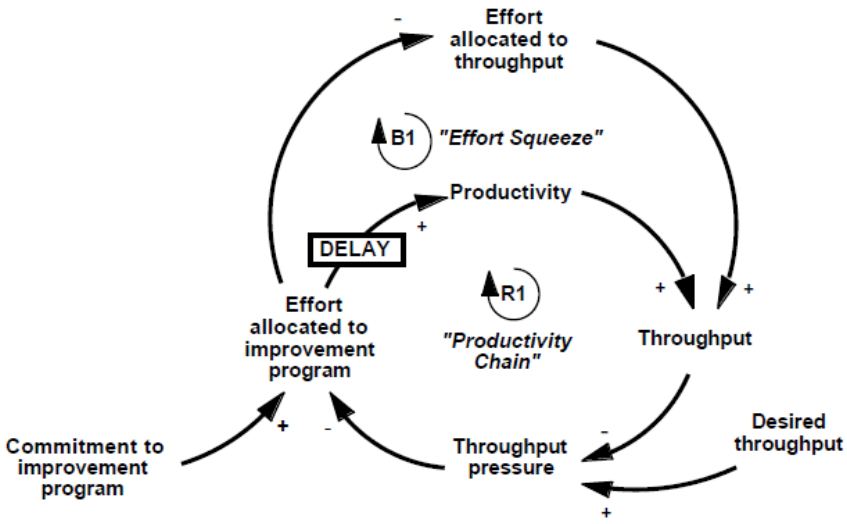

Figure 1: Improvement can be self-reinforcing.

Arrows indicate the direction of causality: Signs ("+" and "-") at arrowheads indicate the polarity of relationships: a "+" denotes that an increase in the independent variable causes the dependent variable to increase, ceteris paribus (and a decrease causes a decrease). Similarly, a "-" indicates that an increase in the independent variable causes the dependent variable to decrease. Time delays are indicated in the diagram by a delay box. Reinforcing loop polarity (denoted by R in the loop identifier) indicates a self-reinforcing (positive) feedback process. Balancing (B) loop polarity indicates a regulating (negative) feedback process.

Source: Keating, E., K., Oliva, R., Repenning, N. P., Rockart, S., & Sterman, J. D. (1999). Overcoming the improvement paradox. *European Management Journal. 17*(2): 120-134. Retrieved January 28, 2013, from http://web.mit.edu/jsterman/www/EMJPaper.pdf

5.2. Initiating and Sustaining Employee Commitment to Improvement

Freeing employees to improve processes is essential but insufficient. Successful improvement requires the enthusiastic commitment of employees since improvement activity is less structured and less easily monitored than throughput. There are two sources of commitment for improvement programs: managerial push and employee pull.

Managerial push refers to efforts to promote improvement effort or mandate participation. These actions range from inspirational speeches about the importance of improvement to mandatory participation in training and improvement teams to financial incentives and performance review criteria based on improvement.

Employee pull arises when workers come to understand the benefits of the improvement for themselves and commit themselves to the improvement effort, independent of management attitudes and support. Developing employee pull is essential to sustaining improvement efforts.

Programmes brought in by a high-level champion require a certain amount of management push to begin building commitment. Push techniques include: providing training, demonstrating support, championing the value of the programme, providing incentives, and clarifying the need to improve.

Often, managerial push creates temporary excitement, but must be replaced by other sources of motivation when that excitement begins to fade. Even the most enthusiastic manager cannot personally contact everyone in a large organisation, so as improvement activity spreads, the impact of individual leaders declines. Command-and-control structures are dependent on managerial supervision. They are unlikely to work in settings where employee participation and contributions are difficult to monitor and assess. Participants in failed efforts commonly report being unable or unwilling to continue after the programme champion was promoted or reassigned. Employees accustomed to command-and-control management may never fully comprehend the programme's underlying logic or embrace its goals. Participation becomes a matter of compliance to minimise conflict with superiors. When the push to participate is removed, compliance fades.

Successful initiatives are usually driven by another self-reinforcing feedback. Initial commitment to a programme, perhaps stimulated by management push, motivates improvement effort. With some delay, that effort leads to results. As employees see that the improvement process actually works, they start to believe it has some value, increasing commitment further in a self-reinforcing feedback.

No amount of management push can substitute for the self-reinforcing feedback created as results motivate more people to participate, thus generating more results. Management re-shuffling regularly strips away programme champions and replaces them with managers who may not share the interests or the skills of those who initiated existing programs. In these cases, it is the

commitment of a stable set of employees that maintains the improvement efforts over time.

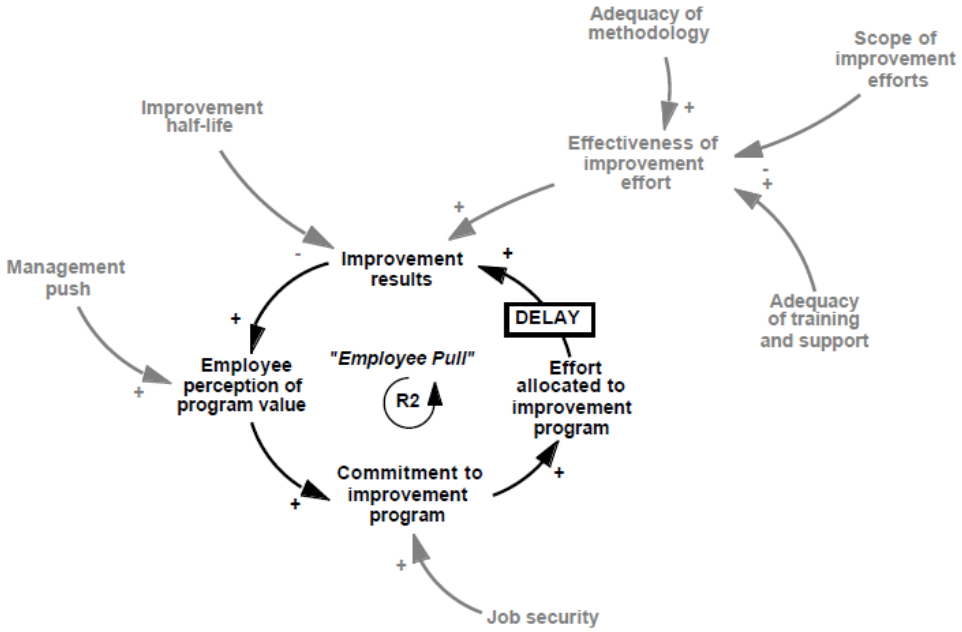

Figure 2: Self-reinforcing feedback drives employee commitment to improvement.

Source: Keating, E., K., Oliva, R., Repenning, N. P., Rockart, S., & Sterman, J. D. (1999). Overcoming the improvement paradox. *European Management Journal. 17*(2): 120-134. Retrieved January 28, 2013, from http://web.mit.edu/jsterman/www/EMJPaper.pdf

The employee pull feedback can function as a virtuous cycle (improvement boosts commitment, stimulating still more effort and improvement), or as a vicious cycle (poor results lead to less effort, ensuring still worse results).

As shown in Figure 2 above, a variety of factors can interfere with the employee pull feedback raising the odds of a vicious cycle. First, complex processes are more difficult to improve (a complex process has a long “improvement half-life” – the time required to cut defects in half), intensifying the worse-before-better trade-off and slowing the growth of commitment through employee pull. Second, the effectiveness of any improvement effort depends on the scope of the initiative and the adequacy of the chosen improvement methodology. Quality and re-engineering tools are more highly developed for manufacturing and operations than for complex processes like product

development, customer-vendor partnering, and senior management functions. Third, inadequate support infrastructure or training in improvement techniques limits the effectiveness of improvement effort. Finally, low job security can destroy commitment to improvement – employees may shun improvement activity if they believe productivity gains will lead to layoffs. Each of these factors must be managed appropriately to generate the self-reinforcing commitment required for continuous improvement.

5.3. Interactions with Other Initiatives

Few organisations rely on only a single improvement effort. More often a stream of programmes is implemented concurrently. Even when they address different issues, these programmes are linked through shared resources including human effort, funding, information, and senior management attention. These interconnections can create substantial synergies across programs as well as damaging competition.

Multiple programmes can lead to synergies. Successful programs help focus organisational awareness on the potential for improvement and the availability of improvement tools. Successful programs also generate commitment to improvement that can be transferred from one programme to another. The techniques learned to support one programme (e.g. process mapping) often carry over to other programmes, shortening the time required to build competence and achieve results in subsequent initiatives. In many cases, the substantive knowledge built in one programme helps to identify the specific organisational elements most in need of improvement and the skills needed for future improvement.

5.4. Interactions with Other Organisational Units

Improvement programmes interact with one another and with existing decision rules and organisational routines. Though subtle, these interactions can have dramatic effects. For example, dramatic improvements in yield, cycle time, and quality effectively can double production capacity, outstripping improvement in other areas.

5.5. The Iron Law of Layoffs

Successful improvement programmes can lead to rapid growth in capacity. Unless demand grows rapidly as well, the result is excess capacity and pressure for layoffs. Excess capacity is common since processes with low complexity and short improvement half-lives (e.g. scrap and cycle time reduction) tend to be capacity-augmenting, while demand-generating activities (e.g. new product development, customer needs assessment, and supply chain integration) have long improvement half-lives and involve long delays.

A simple calculation reveals how fast productivity can grow before creating excess labour and pressure for layoffs. The labour requirements of any organisation are given by sales divided by labour productivity. The fractional rate of change of labour requirements, l*, is thus equal to the fractional growth in sales, s, less the fractional rate of productivity growth, p:

$$l^* = s - p$$

Given the fractional attrition rate of the labour force (denoted ‘a’), the maximum rate of productivity growth consistent with a no-layoff policy is thus:

$$p \leq s + a$$

This is the “Iron Law of Layoffs”: productivity improvement greater than the rate of sales growth plus the labour attrition rate necessarily creates excess capacity. The more successfully an organisation improves its manufacturing operations, the more intense the pressure for layoffs.

The Iron Law of Layoffs provides several policy insights. Management is exhorted to “drive out fear” by guaranteeing job security to workers who participate in improvement programs, but the Iron Law of Layoffs means that such commitments are often not credible. In mature, slow growth industries, or times of recession when voluntary attrition is low, it can be difficult to sustain commitment to improvement. Yet slow demand growth and weak economic conditions motivate organisations to undertake ambitious improvement programmes. Many organisations launch improvement initiatives precisely when they are

least able to absorb productivity gains without downsizing.

There are several policies an organisation can use to resolve this dilemma. First, organisations can sometimes convince workers that while improvement may cost some jobs, failure to improve will cost all jobs. This strategy enables organisations to credibly demonstrate that participation in improvement programmes is in the employees' best interests despite the threat of job losses. Second, improvement efforts can be directed at the slow improving processes first, so that the rate of improvement in demand and capacity is more balanced.

The failure of promising programmes is a symptom of the organisational and economic challenges involved in making them work. Managers are often unprepared for the interactions of improvement programmes with processes outside the programmes' apparent focus. The improvement paradox arises because it is difficult to anticipate the wide-ranging effects of improvement, especially when the intended changes are so clearly beneficial and the unintended adverse effects are delayed or occur in other functions or organisations.

Organisations can strengthen the self-reinforcing processes that can lead to sustained improvement by actively managing the feedbacks that limit programme success. Managers must carefully plan the roll-out of a new programme to ensure demand for participation does not outstrip training and support infrastructure. Staffing, resources, and goals must be consistent with the improvement half-life of the process to prevent effort squeeze. If employees are free to allocate time to improvement, are adequately trained, and programme scope remains focused, initial results will build commitment. By activating the virtuous cycle of employee pull early in the process, rapid productivity gains will follow, sustaining the programme without command-and-control management.

However, managers should anticipate a slowdown in improvement results as the complexity of the problems addressed increases. Managers may need to adopt new process improvement techniques to reduce complexity. Management must also recognise the feedbacks arising from other improvement programmes, organisational units and the market. Decision rules and procedures throughout the organisation should be reviewed even if they do not appear to be affected by the improvement

programme. In short, managers must become adept in understanding their organisation as a dynamic system.

Case Study

Du Pont

Du Pont's efforts to improve maintenance and equipment availability provide a clear example of the worse-before-better pattern described above and shown in figure 3 below.

After a worldwide benchmarking study, Du Pont managers found that their plants had maintenance expenditures considerably higher than best practices, while machine reliability and equipment availability were considerably lower. Further diagnosis showed that most maintenance effort was reactive, with insufficient effort devoted to preventive maintenance (PM), training, spare part quality, and design improvements. Over time, cost cutting had slashed training and PM. Less preventive maintenance increased the breakdown rate, pulling still more resources out of PM and causing a still greater increase in breakdowns: the productivity chain (loop R1 in Figure 1) operated as a vicious cycle. The high breakdown rate meant the cost of maintenance was higher, and equipment availability lower, than before the cost cutting began.

Escaping from the reactive maintenance trap requires a large increase in PM. But the first impact of an increase in PM is a decline in equipment availability and an increase in maintenance costs. Only after some time will the benefits of PM start to show up in reduced breakdown rates. Many prior improvement programs had failed because management could not understand or tolerate the initial drop in availability and rise in costs.

Stimulated by a system dynamics model, Du Pont created a training programme designed to break out of the reactive maintenance trap. A key part of the programme was helping people understand the worse-before-better trade-off. The figure below shows the cost savings for a typical plant following introduction of the improvement programme. As expected, the initial impact of the intervention was a rise in costs. Once the mean time between failures (MTBF) of equipment began to rise, there were fewer breakdowns to repair, freeing up still more time for PM and boosting reliability. Equipment availability rose while maintenance costs fell: the productivity chain now operated as a virtuous cycle. Plants adopting the programme experienced sharp increases in the rate of improvement. Mean time between failures for pumps rose about 15% with each doubling of cumulative experience, and costs ultimately fell by an average of about 20%. Comparable plants pursuing traditional approaches saw learning rates of only about 5% and a 7% rise in maintenance costs.

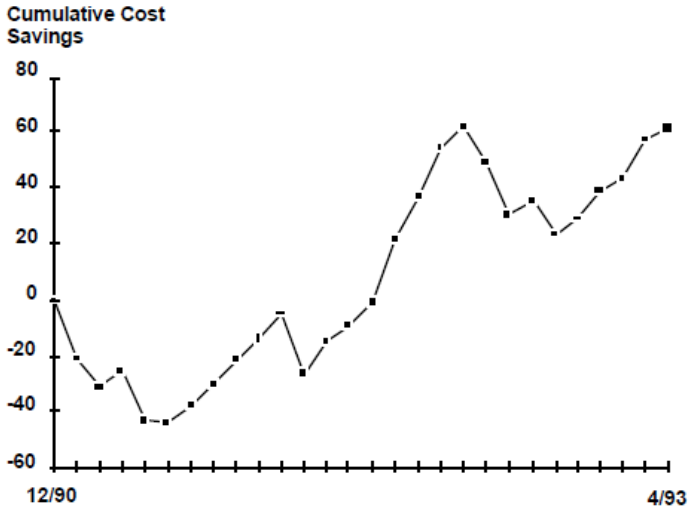

Figure 3: Cost Savings at a typical Du Pont plant after implementing a preventive maintenance programme. (Vertical scale disguised)

Source: Keating, E., K., Oliva, R., Repenning, N. P., Rockart, S., & Sterman, J. D. (1999). Overcoming the improvement paradox. *European Management Journal. 17*(2): 120-134. Retrieved January 28, 2013, from http://web.mit.edu/jsterman/www/EMJPaper.pdf

Articles can be retrieved from NLB's e-Resources – http://eresources.nlb.gov.sg

Books are available at the Lee Kong Chian Reference Library.

Recommended Readings

Harrington, H.J. (2012). *Streamlined process improvement: The breakthrough strategy to reduce costs, improve quality, increase customer satisfaction and boost profits*. New York: McGraw-Hill.
[RBUS 658.562 HAR]

Morrow, R. (2012). *Utilizing the 3Ms of process improvement: A step-by-step guide to better outcomes leading to performance excellence.* Boca Raton: CRC Press.
[RBUS 658.406 MOR]

Lehmann, C.F. (2012). *Strategy and business process management: Techniques for improving execution, adaptability and consistency*. Boca Raton: CRC Press.
[RBUS 658.401 LEH]

References

Business process improvement. (n.d.). Retrieved January 28, 2013, from http://www.framegroup.com.au/Portals/0/Documents/Capability%20Sheets/Level%202%20sheets/Frame%20Business%20Process%20Improvement.pdf

Chakravorty, S. (2012, June 14). Where process-improvement projects go wrong. *The Wall Street Journal*. Retrieved January 28, 2013, from http://online.wsj.com/article/SB10001424052748703298004574457471313938130.html

Dolan, T. (2003, August). Best practices in process improvement. Retrieved January 28, 2013, from http://www.texas-quality.org/SiteImages/125/Reference%20Library/Process%20Improvement%20Best%20Practices.pdf

Handbook for basic process improvement. (1996, May). Retrieved January 28, 2013, from http://www.balancedscorecard.org/portals/0/pdf/bpihndbk.pdf

Introduction to business process improvement. (n.d.). Retrieved January 28, 2013, from http://www.flexstudy.com/catalog/schpdf.cfm?coursenum=95089

Keating, E., K., Oliva, R., Repenning, N. P., Rockart, S., & Sterman, J. D. (1999). Overcoming the improvement paradox. *European Management Journal. 17*(2): 120-134. Retrieved January 28, 2013, from http://web.mit.edu/jsterman/www/EMJPaper.pdf

Process improvement. (n.d.). *Wikipedia*. Retrieved January 28, 2013, from http://en.wikipedia.org/wiki/Process_improvement

The benefits of process improvement. (n.d.). Retrieved January 28, 2013, from http://www.myaccountants.com.au/databasephp/webresourceuploads/200911161210540.Article%20-%20The%20benefits%20of%20process%20improvement.pdf

Tools and techniques for process improvement. (n.d.). Retrieved January 28, 2013, from http://www.businessballs.com/dtiresources/TQM_process_improvement_tools.pdf

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SINGAPORE PRODUCTIVITY ASSOCIATION

The Singapore Productivity Association (SPA) was set up in 1973 as an affiliated body of the then National Productivity Board, now SPRING Singapore. Its objective is to promote the active involvement of organisations and individuals in the Productivity Movement and to expedite the spread of productivity and its techniques.

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<tr><th colspan="2">CPP Course Syllabus</th></tr>
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• Factors Affecting Enterprise Productivity
• Productivity Movement in Singapore
• Productivity Promotion in Businesses
• Productivity Challenges</td></tr>
<tr><td>Module 2: Productivity Tools, Techniques &
Management Systems
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• Process management:
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▪ Lean Six Sigma
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• Integrated Management Systems</td><td>Module 2: Productivity Tools, Techniques &
Management Systems
(Duration: 3 days)
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• Productivity Measurement & Analysis
• Process management:
▪ Cost of Quality
▪ Lean Six Sigma
▪ Process Mapping & Analysis</td></tr>
<tr><td>Module 3: Innovation & Service Excellence
(Duration: 3 days)
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• Service Excellence
• Team Excellence</td><td>Module 3: Innovation & Service Excellence
(Duration: 3 days)
• Introduction to Service Excellence & Sales Productivity
• Store Management & the Roles of a Store Manager
• Minimising Operational Constraints & Focusing on Sales
• Setting Goals & Analysing Statistics
• Coaching & Motivating Sales Staff
• Service Behaviours that Encourage Business</td></tr>
<tr><td colspan="2">Module 4: Critical Success Factors
(Duration: 1 day)
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• Managing & Sustaining Change
• Overcoming Resistance to Change
• Training and Education
• Planning for Implementation and Control of Productivity Improvement Programme
• Briefing on project assignment & Role of Productivity Practitioner</td></tr>
</table>

As part of the CPP curriculum, participants are required to start a productivity improvement project upon completion of the in-class component. Project guidance will be provided by a professional consultant assigned for this purpose and is for a total of 2 man-days.

Funding & Payment

The course is supported by the Singapore Workforce Development Agency (WDA). Funding is available at 70% and 50% of the course fees respectively for SMEs and MNCs/LLEs/Statutory Boards. Please find the prices payable in the net fee table below:

For SMEs:	Net Fee	Nett Fee with GST
SPA Member (S$3,700)	S$1,110	S$1,187.70
Non-Member (S$3,950)	S$1,185	S$1,267.95
For MNCs/LLEs/Statutory Boards	Net Fee	Nett Fee with GST
SPA Member (S$3,700)	S$1850	S$1979.50
Non-Member (S$3,950)	S$1975	S$2113.25

CPP Generic 2013:

January 2013		
Date	**Module**	**Time**
Wednesday, 9 January 2013	Module 1	9-5 pm
Friday, 11 January 2013	Module 2	9-5 pm
Wednesday, 16 January 2013		9-5 pm
Friday, 18 January 2013		9-5 pm
Wednesday, 23 January 2013	Module 3	9-5 pm
Friday, 25 January 2013		9-5 pm
Wednesday, 30 January 2013		9-5 pm
Friday, 1 February 2013	Module 4	9-5 pm

February 2013		
Date	**Module**	**Time**
Wednesday, 13 February 2013	Module 1	9-5 pm
Friday, 15 February 2013	Module 2	9-5 pm
Wednesday, 20 February 2013		9-5 pm
Friday, 22 February 2013		9-5 pm
Wednesday, 27 February 2013	Module 3	9-5 pm
Friday, 1 March 2013		9-5 pm
Wednesday, 6 March 2013		9-5 pm
Friday, 8 March 2013	Module 4	9-5 pm

March - April 2013		
Date	**Module**	**Time**
Wednesday, 20 March 2013	Module 1	9-5 pm
Friday, 22 March 2013	Module 2	9-5 pm
Wednesday, 27 March 2013		9-5 pm
Friday, 3 April 2013		9-5 pm
Wednesday, 5 April 2013	Module 3	9-5 pm
Friday, 10 April 2013		9-5 pm
Wednesday, 12 April 2013		9-5 pm
Friday, 19 April 2013	Module 4	9-5 pm

CPP Retail 2013:

January 2013		
Date	**Module**	**Time**
Wednesday, 9 January 2013	Module 1	9-5 pm
Friday, 11 January 2013	Module 2	9-5 pm
Wednesday, 16 January 2013		9-5 pm
Friday, 18 January 2013		9-5 pm
Monday, 21 January 2013	Module 3	9-5 pm
Thursday, 24 January 2013		9-5 pm
Tuesday, 29 January 2013		9-5 pm
Friday, 1 February 2013	Module 4	9-5 pm

February 2013		
Date	**Module**	**Time**
Wednesday, 13 February 2013	Module 1	9-5 pm
Friday, 15 February 2013	Module 2	9-5 pm
Wednesday, 20 February 2013		9-5 pm
Friday, 22 February 2013		9-5 pm
Monday, 25 February 2013	Module 3	9-5 pm
Thursday, 28 February 2013		9-5 pm
Tuesday,5 March 2013		9-5 pm
Friday, 8 March 2013	Module 4	9-5 pm

March - April 2013		
Date	**Module**	**Time**
Wednesday, 20 March 2013	Module 1	9-5 pm
Friday, 22 March 2013	Module 2	9-5 pm
Wednesday, 27 March 2013		9-5 pm
Friday, 3 April 2013		9-5 pm
Monday, 8 April 2013	Module 3	9-5 pm
Thursday, 11 April 2013		9-5 pm
Tuesday, 16 April 2013		9-5 pm
Friday, 19 April 2013	Module 4	9-5 pm

CPP Food Services 2013:

January 2013		
Date	**Module**	**Time**
Wednesday, 9 January 2013	Module 1	9-5 pm
Friday, 11 January 2013	Module 2	9-5 pm
Wednesday, 16 January 2013		9-5 pm
Friday, 18 January 2013		9-5 pm
Monday, 21 January 2013	Module 3	9-5 pm
Tuesday, 22 January 2013		9-5 pm
Tuesday, 29 January 2013		9-5 pm

Friday, 1 February 2013	Module 4	9-5 pm

February 2013		
Date	**Module**	**Time**
Wednesday, 13 February 2013	Module 1	9-5 pm
Friday, 15 February 2013	Module 2	9-5 pm
Wednesday, 20 February 2013		9-5 pm
Friday, 22 February 2013		9-5 pm
Monday, 25 February 2013	Module 3	9-5 pm
Tuesday, 26 February 2013		9-5 pm
Tuesday,5 March 2013		9-5 pm
Friday, 8 March 2013	Module 4	9-5 pm

March - April 2013		
Date	**Module**	**Time**
Wednesday, 20 March 2013	Module 1	9-5 pm
Friday, 22 March 2013	Module 2	9-5 pm
Wednesday, 27 March 2013		9-5 pm
Friday, 3 April 2013		9-5 pm
Monday, 8 April 2013	Module 3	9-5 pm
Tuesday, 9 April 2013		9-5 pm
Tuesday, 16 April 2013		9-5 pm
Friday, 19 April 2013	Module 4	9-5 pm

Core Faculty Members

MR. LAM CHUN SEE
B. ENG IN INDUSTRIAL & SYSTEMS ENGINEERING (UNIVERSITY OF SINGAPORE)

Chun see manages his own consultancy practice, Hoshin Consulting and is also an associate consultant/trainer to the PSB Corporation and Singapore Productivity Association. Prior to running his own practice, he has had years of experience as an industrial engineer with Philips, and trainer and consultant with the then National Productivity Board, APG Consulting and Teian Consulting, He was conferred the Triple-A Award in 1989 for helping to transfer Japanese know-how, particularly in the area of 5S, into local programmes and packages. Throughout his years of consultancy experience, Chun See has assisted many businesses in analyzing their productivity and quality objectives and performance; primarily through the application of the PDCA technique and basic QC tools.

MR. LEE KOK SEONG
M.SC. IN CHEMICAL ENGINEERING (IMPERIAL COLLEGE, LONDON UNIVERSITY), B.SC. IN CHEMICAL ENGINEERING (NATIONAL TAIWAN UNIVERSITY)

Kok Seong has accumulated vast experience in the areas of productivity training and management consultancy throughout his 30 years of experience with the Standards, Productivity and Innovation Board (SPRING). He has provided consultancy assistance and training for numerous organisations both within and outside of Singapore in the areas of Productivity Management, Operation and Production Management, total Quality Management, Total Productive Maintenance, Shopfloor Management, Occupational Safety Management, Industrial Engineering Applications and Supervisory Management. He has also been greatly involved in the pinnacle Singapore Quality Award (SQA) initiative since its inception in 1993. his track records include the assessments and site visits of award recipients like Micron Semiconductor (formerly Texas Instruments), Motorola, Baxter Healthcare, Philips Tuner Factory and Teck Wah Industrial Corporation Ltd. Mr. Lee is currently a certified SQA Senior Assessor, as well as a resource person for Basic and Advanced Training Courses for Productivity Practitioners, a position he has taken on since 2007.

MR. LOW CHOO TUCK
M.SC. IN INDUSTRIAL ADMINSITRATION (UNIVERSITY OF ASTON, UK); B.SC. IN PHYSICS (NUS); DIP IN QUALITY CONTROL INSTRUCTORS (INTERNATIONAL QUALITY CENTRE, NETHERLANDS); CERTIFICATE IN PRODUCTIVITY DEVELOPMENT (JAPAN PRODUCTIVITY CENTRE); CERTIFICATE IN ADVANCED MANAGEMENT DEVELOPMENT (INSEASD)

Choo Tuck currently provides training and advisory services in productivity and quality management to businesses and government in the Asean region and Middle East. He was previously the Executive Director of the Restaurant Association of Singapore as well as the Singapore Productivity Association, and was also the Director for Strategic Planning in SPRING Singapore. During his many years of service with SPRING Singapore, he gained wide experience in productivity training, management consultancy and productivity promotion, and has helped more than a 100 businesses in improving productivity, quality control and business excellence, including organisations such as Cycle & Carriage, Motorola, PUB and DBS. On top of that, he has also served as an Asian Productivity Organisation (APO) expert on Productivity for several APO member countries, and was part of a team of experts engaged by the Singapore cooperation Enterprise to provide productivity expertise to the Government of Bahrain in 2007 and 2008.

MR. QUEK AIK TENG
B.ENG (HON.) IN MECHANICAL ENGINEERING (UNIVERSITY OF SHEFFIELD); DIP. IN BUSINESS EFFICIENCY (INDUSTRIAL ENGINEERING_ (PSB-ACADEMY); CERTIFIED MANAGEMENT

CONSULTANT (CMC); PRACTISING MANAGEMENT CONSULTANT (PMC); MEMBER, INSTITUTE OF MANAGEMENT CONSULTANTS (IMC) SINGAPORE

Aik Teng currently manages his own consultancy, AT Consulting Services. One of his most recent projects includes being the LEAD Project Manager for the Singapore Logistics Association. Prior to running his own consultancy, he has been with SPRING Singapore for 20 years, and was the Head of the Organisation Excellence Department from 2004-05. He was also SQA Lead Assessor and Team Leader up till 2008 and has been involved in the SQA initiative since its inception in 1993. tasked to start up the consultancy unit within the then Productivity & Standards Board (PSB) to provide training and consultancy services to organisations, his consulting team assisted close to 30 organisations during that period. He was also involved in a project coordinated by the Singapore Cooperation Enterprise (SCE) to assist the Bahrain Labour Fund in their Labour Reform strategy, which included helping the Bahrain government to initiate a Productivity Movement as well as develop the productivity of the local enterprises. In addition, he was appointed as Project Manager to assist the Government of Botswana to implement a national Productivity Movement, from 1994 to 2003. Botswana is currently held as a model of Productivity in the Pan-Africa region.

MR. WONG KAI HONG
MBA IN STRATEGIC MARKETING (HULL), BSC (NUS)

Kai Hong is a business consultant, management trainer and company director. He has spent almost 2 decades in the consumer products industry, having worked with retailers like Isetan, Metro, Royal Sporting House, The Athlete's Foot and Sunglass Hut; brands like Reebok and Doc Martens; and technology group Wearnes Technology. He has been involved with various functions including operations, business development, project management, human resource, training, marketing, logistics, budgeting and general management. He has developed businesses in Singapore and many Asian cities such as Seoul and Beijing.

For registration or more information, write to us at CPP@spa.org.sg.
Alternatively, you could also contact our secretariat:
Ms. Angela Poh
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