Enabling World Class Science

From Possibility…

How do you achieve successful process improvement in an organisation staffed with scientists, engineers and other highly qualified professionals?

One of our clients is a premier research and development institution for science and technology. The organisation serves as a resource to government and is a partner with industry and academia. Safe, secure, and efficient operations with scientific and technical excellence in their programmes are necessary to sustain public trust.

The organisation pursues research and development in areas such as energy and environment, bioscience, and fundamental science and applied technology.

The organisation was set a challenge by its key stakeholders to demonstrate improved performance through process improvement. It decided to intensify its existing improvement efforts by developing an in-house capability to carry out systematic process improvement. Ian Seath from Ad Esse has provided some of the support to the organisation to help them develop those capabilities and to help inspire a core group of senior managers and Process Improvement Analysts to improve business processes.

For reasons of client confidentiality we can't name the client, but this case study describes some of the approaches adopted and what has been achieved in less than two years. We hope the lessons learned will be of wider interest (and inspiration).

THE APPROACH

The organisation adopted four main strands to enable its process improvement efforts:

- development of a supporting infrastructure which includes a team of Process Improvement (PI) Analysts
- a coaching and training programme targeted at senior people, who have real improvement project opportunities
- an improvement project tracking and measurement system to provide visibility of progress and achievements
- adoption of a common, but flexible methodology, with a range of practical improvement tools and techniques

And, importantly, one of the organisation's Directors was asked to take on the role of Leader for Process Improvement. The support team and PI Analysts report in to his office.

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A key part of the infrastructure is a web-enabled portal which provides access to the PI resources for all staff. It enables project tracking and provides links to useful tools and techniques.

The small team of PI Analysts works closely with each of the Directorates in the business to help them identify suitable improvement opportunities where PI techniques can make a difference. The emphasis is on using PI to support the achievement of business objectives. These are all real, important projects; there is no time, or tolerance for, "inventing" PI projects just for the sake of it.

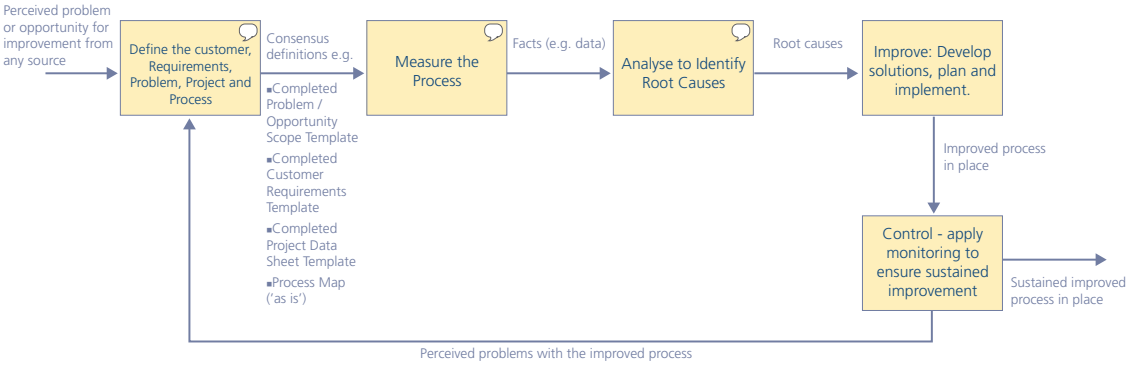
Every project has a Sponsor, Team Leader and dedicated (usually part-time) team of staff who are tasked with applying the PI methodology to deliver sustainable improvements. The PI Analysts provide facilitation support to these teams from start to finish.

To Actuality…

MAKING IT REAL

The organisation decided to adopt the DMAIC process improvement approach (see diagram below). This provides an end-to-end way of setting up and managing improvement projects to deliver sustainable results.

DMAIC Process Improvement Methodology



The PI analysts were keen not to be seen to be "**pushing a methodology**" and wanted a way to encourage managers and staff to participate in process improvement and not be put off by what might be seen as the latest management jargon.

Ad Esse were asked to develop a two-day "**Mapping and Measurements**" workshop which could be offered as part of an overall package of support for the Directorates. The package included:

- support to managers to define a project prior to attending the workshop
- an emphasis, during the workshop, on working on real, live process issues
- customisation of workshop materials and resources to demonstrate local relevance
- follow-up support from the PI Analysts to aid the adoption of the learning from the workshop

The first workshop was run in August 2005 and saw participants working on a range of projects from several Directorates, covering both "**business**" and "**science**" topics. The feedback was universally positive, with people really pleased to have been enabled to make progress on their current, live issues. Participants were particularly interested in the straightforward approaches introduced for defining process projects and for identifying key process performance measurements.

Several participants were also able to take advantage of follow-up coaching from Ian Seath, to help plan out the next steps on their projects.

Ian also provided coaching support to the PI Analysts and ran a one-day overview workshop for a group of senior IT Managers who wanted to understand the PI approach that many of their internal customers were adopting so enthusiastically.

A repeat of the Mapping and Measurements workshop was run in November 2005, but this time using case study materials as the basis of learning, rather than the participants' own projects. This enabled them to participate in a complete end-to-end DMAIC improvement project during the two-day workshop.

Some of the PI Analysts participated in a two-day "**Boot Camp**" in November 2005, where they built on their

existing process knowledge and developed their facilitation skills for working with their internal customers. This included the preparation and delivery of coaching sessions and practical work to answer some of the "**difficult questions**" that they might face.

Ad Esse facilitated a further Mapping and Measurements workshop for senior managers in December 2006, plus a mini Kaizen Blitz for one of the lab work-teams who wanted to move on from the known problems with their process. They wanted to "learn to see" improvement opportunities using Lean principles. The workshop helped them develop a 3 month improvement plan, with over 20 actions and a defined set of performance metrics to track performance.

THE BENEFITS

Many of the PI projects involve complex issues and are expected to take a while to solve completely (otherwise they would probably have been fixed years ago!), but nevertheless, many are already delivering tangible and intangible benefits. **Some examples are listed below:**

A team looked at the time taken to hire Summer students and realised they needed to reduce the typical cycle-time from its historic level of around seven weeks. This long time resulted in many students taking placements elsewhere.

The team identified the key bottlenecks in the process, associated with security clearances, and designed a solution that reduced the cycle-time to less than 4 weeks. Consequently, fewer students will drop out and go elsewhere. This results in the organisation having a better chance of hiring the best students.

A procurement team set out to improve the performance of the process for the benefit of their internal customers. They discovered, by measuring the current process, that there was a high level of errors and re-work which was causing significant delays. This meant frustration for customers who wanted goods and services delivered promptly.

The team's solution included an automated order processing system which is projected to save around £12k per year. The complete solution will also free up around 70 days of procurement team time which they can devote to working more closely with their customers and adding even more value.

Another team has used PI techniques to help increase its production capacity. They have experienced significant growth in demand for high-quality data and many parts of their production processes were experiencing bottlenecks.

The Production Team mapped their processes and analysed them to identify the value-adding steps. Very quickly, they were able to find steps that added no value for their customers and which could be eliminated. One simple step of colour-coding sample trays was consuming three hours per week, but was not needed by the process, or the customer. As it added no value, it was stopped.

These early wins have enabled the team to recognise the value of PI and they have now appointed a full-time process engineer to help them build on these successes. They held a mini Kaizen Blitz in December 2006 to accelerate progress further.

A team looked at the process for approving changes to operating practices. This was perceived to be slow and excessively bureaucratic and was actually preventing necessary changes from being adopted in an efficient way. The team mapped and measured the current process and discovered an average "**As Is**" cycle-time of 69 days to approve changes.

Following a re-design, the process can now consistently achieve approvals in 4 days and has actually achieved a best-ever turn-round of 2 hours! The re-design has also enabled £90,000 p.a. of time savings to be achieved through the elimination of meetings and re-work.

LEARNING POINTS

The organisation has been very focussed in its approach to Process Improvement, with a strong emphasis on providing practical support to line managers to address priority improvement objectives. The role of the PI office has been pivotal in providing skilled facilitators, a robust, but flexible methodology and an infrastructure to help manage and communicate project successes.

Much of their success is due to the commitment and energy of their team of Process Analysts. A team of skilled and motivated internal facilitators/consultants is a recurring success factor for sustainable performance improvement.

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They have also provided people in the organisation with a process mapping/analysis tool and encouraged performance measurement as well as process capture. This combination has provided real insight into improvement opportunities.

Key lessons learned include:

- Don't be a "**methodologist**". Some people need simple tools and techniques, others need more advanced tools. "**Sheep-dipping**" everyone in tools they don't need is counter-productive.
- Adapt the approach to "**what works**" and "**what's needed**" by the organisation and its culture. Some people get turned off by the language (jargon) of PI, so you need to tailor it to make it "**safe**" for people to have a go.
- Work on projects that matter to the business and pick winners. You need quick wins to demonstrate the value of the approach.
- DMAIC is great as a general PI approach, but it needs to be used flexibly. It's very rare to be able to go straight through D-M-A-I and C. Sometimes you have no data; sometimes gathering data causes you to redefine the project or the process. And, sometimes, it's easy to identify quick fixes as soon as you've mapped the process; so just do it!
- As people grow in confidence, you can introduce them to new tools and techniques that might help them move up a level. Introducing 6-Sigma statistical thinking when they don't even know how to measure the basics is just plain scary.
- We're extremely pleased to have been able to help this client make measurable performance improvements in a relatively short time. We have helped with the design and delivery of specific interventions and workshops, plus provided strategic and tactical guidance to the PI Office and senior line managers.

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FURTHER INFORMATION

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