Success Factors for Business Improvement

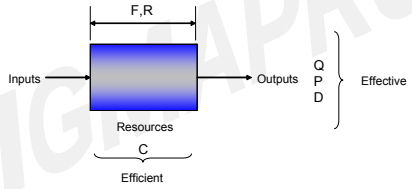
Learn From Practitioners What Makes Lean Six Sigma Work

Workshop Agenda - Birmingham

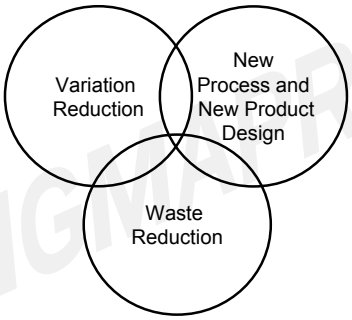
9:15	**Introduction to Lean Six Sigma** (Chris Rees, Director European Ops, SigmaPro)
10:00	**Success Factors in Improvement Programmes** (SigmaPro/Aston Business School Research Findings - Mike Titchen, MBB)
11:00	Tea & Coffee Break
11:10	**Using the Balanced scorecard to Identify Projects** (Marko Jovic, Master Black Belt)
11:50	**Active Group Work**
12:15	**Feedback Presentations**
12:30	**Summary**
12:45	Buffet Lunch

A Transformation Process

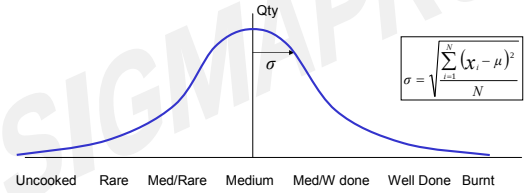
- Every organisation uses processes to transform inputs into outputs..



Improvement Options

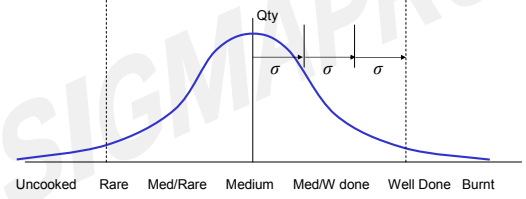


Cooking a Hamburger

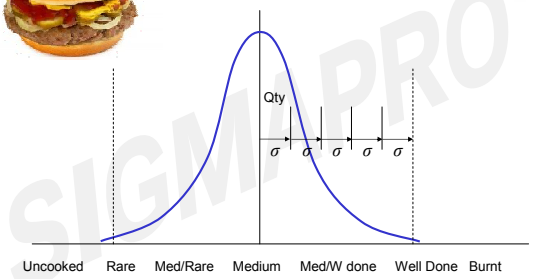


$$\sigma = \sqrt{\frac{\sum_{i=1}^{N}(x_i - \mu)^2}{N}}$$

3 Sigma Process



5 Sigma Process



Process Sigma

σ	Inside (%)	Outside (%)	dpmo
2.0	95.45	4.55	308,770
3.0	99.730	0.270	66,811
4.0	99.9937	0.0063	6,210
5.0	99.99999	0.000010	233
6.0	99.999999	0.0000010	3.4

- The higher the σ value, the better the process is performing in relation to the customer requirements, with fewer defects
- 3σ is a level of performance of 66,000 items every 1,000,000 outside tolerance.
- 6σ is a level of performance of 3.4 items every 1,000,000 outside tolerance.

The DMAIC Methodology

What is it?

- DMAIC is a problem solving approach, used to reduce variability or waste in processes by finding and eliminating the root cause of existing problems.

Warranty Reduction Project

- Company produces boilers for industrial and commercial applications. Employs around 1,000 people at its site in UK.
- Warranty Costs annualised > £12M. Biggest customer report: Inoperative Boiler.
- Likely main causes considered to be: PCB & Pump
- Training & Mentoring of teams, 20 people trained as BB's and GB's between January and June 2007
- Main finding that inoperative boilers were being misdiagnosed by call centre
- Training for call centre staff and new software to diagnose faults at customers introduced.
- Warranty costs reduced by over 50%

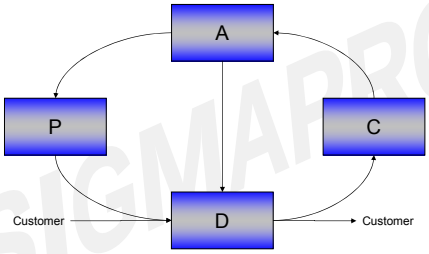
Data Supply Time Project

- The company provides insurance services to large corporate fleet clients.
- Employs round 500 staff in the UK, in Chelmsford, London, Bristol and Dublin.
- Length of time taken to supply regulator with necessary policy details too long.
- During 2006 the company failed monthly TTS checks by the MID which resulted in fines of £10,000/month
- Aim of the project to ensure that 97% of policyholder data to be processed within 7 days by January 2008.
- Team made up of 6 GB's, using DMAIC. Both Lean and Six Sigma approaches used:
  - Identify & eliminate waste
  - Reduce input variability Y=f(X)

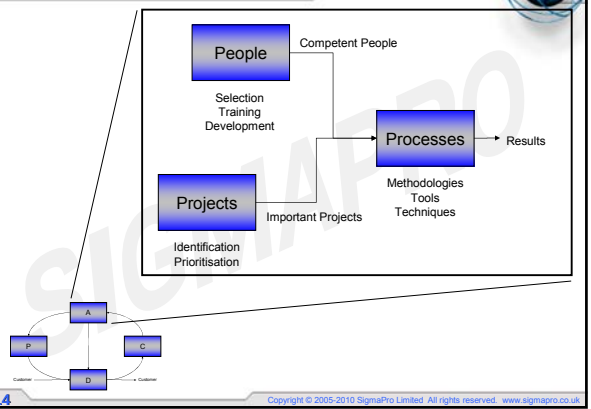
Results

- New printer acquired, 5S started in manual processing area
- External SLA's with brokers, incentivised to move to EDI, Discussions with poor performing brokers based on comparative data.
- Personnel talks with lower performing staff, training.
- IT Systems Changed
- Standard Operating Procedures introduced
- Project has been considered a success by management
- 97% performance achieved during 2008, no fines!

A Business Model

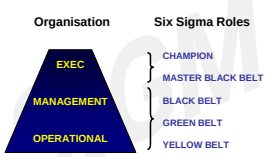


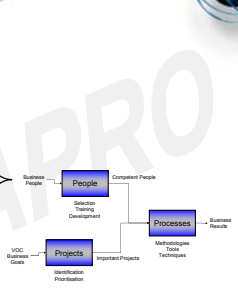
An Improvement Programme



People in Lean Six Sigma

- Defined roles
- Different levels within the organisation
- Clearly defined responsibilities
- Training





What Results Can I Achieve?

- GE commence Six Sigma programme in 1995
- GE already has a culture of '*Change and Improvement*' from the late 1980s with 'Work-out' philosophy
- GE apply Six Sigma to all aspects of their business – not just Manufacturing
- $1B savings within 5 yrs & $10B in 10 yrs

1999 Fortune name Jack Welch Manager of the Century

Lean Six Sigma

- "A rigorous and disciplined system that utilizes data to measure and make breakthrough improvement in an organisation's performance"

Three Key Questions

- "How do I make my business perform better?"
- "What system should I follow to ensure the improvement continues on its own once I've started?"
- "What should I do to tackle the specifics, what are the best approaches for my organisation?"

Active Group Work

- Any Questions/Comments on things so far?

- Feedback on how you voted on the success factors

Active Group Work

- What are the main lessons you have learnt from today's seminar?
- What would you advise an organisation which was considering either implementing or reinvigorating an improvement programme?

Success Factors for Improvement Initiatives

A blend of Academic Research & Group Discussion

Academic Research

- Between June and September 2006 a research project was carried out by Aston Business School and SigmaPro
- The research sought to examine the success factors of improvement programmes
- Over 300 people were sent surveys, also various web sites contained links to the survey
- Over 100 replies were received

A Rigorous Methodology

1. Literature Search
   - Points of 'Best Practice' defined
   - Tools availability defined
2. On-line questionnaire Constructed & Deployed
   - Control sections about the Respondent – Role, Sector, Perception of Success etc
   - 'Best Practice' Section - 'Agreement' & 'Deployment' perspective
   - Tool Section - Understanding and Use
   - Targeted at Respondents with experience in business process improvement
   - Survey online for 6 months
3. Results Analysed and Reviewed
   - Analysed using Six Sigma tools
   - Reviewed at a Validation Workshop

#	Success Factor Statement	Guru Source (success factor)
1	An environment that encourages the constant improvement of products and services must be developed	Deming (5), Crosby (14)
2	Defective products and services must be considered as unacceptable	Deming (2), Feigenbaum (6)
3	It is the responsibility of everybody in an organisation to ensure that quality is built in at the source and reliance on later inspection is reduced	Deming (3) Ishikawa (3) Feigenbaum (19)
4	Business improvement must not be judged on the basis of cost and price alone	Deming (4)
5	The process that delivers the product and/or service should be constantly improved	Ishikawa (6)
6	Constant on the job practical training is important	Deming (6)
7	Leadership and resource needs to be given by top management	Deming (7) Crosby (1)
8	Functional barriers should be broken down and multi functional teams encouraged	Deming (9)
9	Productivity quotas should be set in terms of quality rather than quantities	Deming (11)
10	Slogans and fashionable jargon should not be used	Deming (10)
11	Barriers that stop people taking pride in their work should be removed	Deming (12)
12	A vigorous programme of education and self improvement should be adopted that encourages learning	Deming (13) Ishikawa (1) Crosby (9)
13	All people in the organisation are responsible for quality improvement	Deming (14), Ishikawa (5)
14	The customer requirements must be fully understood to be able to provide good quality	Ishikawa (2)
15	The root causes of problems should be addressed, not the symptoms of them	Ishikawa (4)
16	Customer satisfaction is a critical measurement for business improvement	Ishikawa (8)
17	Most quality problems can be solved with simple tools	Ishikawa (10)
18	Operational data that is presented without variability is false data	Ishikawa (11)
19	Quality analysis, improvement and control should be thought of as an ongoing system	Feigenbaum (1)
20	Focus on quality, and profitability will improve as a result	Feigenbaum (5)
21	Quality is a total lifecycle consideration	Feigenbaum (9)
22	Quality improvement must be linked to financial business performance indicators	Feigenbaum (5)
23	Advanced statistical tools must be used in an improvement system	Feigenbaum (17)
24	Those who actively participate must be recognised and appreciated	Crosby (12), Deming (8), Ishikawa (9)
25	The best people must work on the biggest potential areas for improvement	Feigenbaum (7)
26	A clear and compelling vision for the improvement initiative must be created	Deming (1), Ishikawa (7), Crosby (10)
27	Clear definitions of roles and responsibilities must be created for every improvement initiative	Feigenbaum (4)
28	Resistance to change must be actively managed	Crosby (13)
29	The improvement initiative must be planned involving key stakeholders	Crosby (2)
30	Data must be used to support and verify the success of the improvement initiative	Crosby (3) Ishikawa (11)

Q: In theory do you think this statement is IMPORTANT? (Likert: 1=Low - 5=High)
Q: Do you think this statement has been IMPLEMENTED? (Likert: 1=Low – 5=High)

What do you think?

- Take a few minutes to consider the success factors
- Rate them using the 'Pen Dot' voting method

- You have 10 votes
- Each vote is recorded by a 'pen dot'
- Place your votes against the factors that you think are most important for ensuring a Six Sigma deployment is successful
- No more than three votes on any one factor
- Hand in the paper after voting

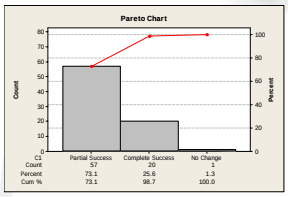
- We will add up the votes and present what you think at the end of this session

What the survey told us… some of the highlights

Academic Research results

Are Programmes Successful?

- 25.6% programmes described as 'Complete Success'
- 73.1% programmes described as 'Partial Success'
- 1.3% programmes created 'No Change'



- General Management are much more likely to describe their Deployments as a Complete Success (65%) than Change Agents (35%)

Top Ten Success Factors

- An environment that encourages the constant improvement of products and services must be developed
- The root causes of problems should be addressed; not the symptoms of them
- Data must be used to support and verify the success of the improvement initiative
- Functional barriers should be broken down and multi functional teams encouraged
- The customer requirements must be fully understood to be able to provide good quality
- The improvement initiative must be planned involving key stakeholders
- It is the responsibility of everybody in an organisation to ensure that quality is built in at the source and that reliance on later inspection is reduced
- All people in the organisation are responsible for quality improvement
- Those who actively participate must be recognised and appreciated
- Quality analysis, improvement and control should be thought of as an ongoing system

3 Success Factors to Discuss

- An environment that encourages the constant improvement of products and services must be developed
- The root causes of problems should be addressed; not the symptoms of them
- Data must be used to support and verify the success of the improvement initiative

Three Perspectives:

1) What does the statement really mean in practice?

2) How can Six Sigma address this?

3) Can we provide any practical examples?

Create the Right Environment

Three Perspectives:

1. **What does the statement really mean in practice?**
   - Create the Time & Space for improvement activity
   - Allocate Resources for improvement activity
   - Provide the Skills needed to improve the product/process
   - Create a culture which encourages risk taking and looks to process, rather than people causes
2. **How can Six Sigma Address this?**
   - BB & GB projects
   - BB's & GB's themselves
   - Six Sigma training for all personnel
3. **Can we provide any practical examples?**
   - Moving from GE to other cultures – a real shock
   - The delight that Management now has an ability to actually get issues resolved can be visibly seen at one client

Address the Root Cause, not Symptoms

Three Perspectives

1. **Want does the statement really mean in practice?**
   - Getting to the real source of the defects or variability
   - Not creating more issues as you solve this one
   - Not having to 'solve' the same problem over and again
2. **How can Six Sigma Address this?**
   - Use of teams
   - DMAIC methodology
   - Project Charter
   - Rigorous use of data and hypothesis testing tools
   - **Solid control plans**
3. **Can we provide any practical examples?**
   - One client with a severe warranty issue asked us to address a hardware problem whereas the true root cause lay in the Call Centre
   - The Breakdown Recovery company who installed Satellite Navigation systems in all cabs to discover that response time actually increased

Use Data to Support & Verify Success

Three Perspectives

1. **What does the statement really mean in practice?**
   - Ensuring that you are measuring the process not the measuring system
   - Making data based rather than conviction based decisions
   - Knowing for sure that you have made a difference
2. **How does Six Sigma Address this?**
   - Measurement System Analysis
   - Comprehensive set of data handing tools
   - Changing the culture to rely on data
   - Use of Hypothesis testing to test and validate root causes & solutions
3. **Can we provide any practical examples?**
   - The Insurance Company who had created a bigger issue with Fund Transfer by means of their 'so called' solution of delegating part of the process to regions
   - The politics created demanded the use of solid data before key stakeholders would accept the root cause or solution

The GE Approach

- Jack Welch lead GE through Six Sigma 1995 to 2006
- Turned Six Sigma into a global phenomena by applying it to all areas of the business
- Global savings $1B by 2001; $10B by 2006
- Approached change by considering….
  - Technical aspects of change……..the ***what*** of the change
  - Organisational aspects of change……the ***how*** of the change

Teamwork

- Consider each success factor in turn as a team
- Decide which of the factors refer to Technical aspects of change and which to Organisational aspects of change
- Label each with a ‘Q’ if it’s is predominantly a Technical Factor
- Label it with a ‘A’ if it’s is predominantly an Organisational Factor
- How many are Technical (Q) and how many Organisational (A)?
- Are the ones in the top 12 Technical (Q) or Organisational (A)?
- What might be the implications of any findings?
- Be prepared to share your teams thoughts

Some suggestions…

Tips for a successful deployment

Change Effectiveness Formula

$$Q \times A = E$$

Technical Quality | Cultural Acceptance | Effectiveness

Lesson Learned:

- ✓ Devote as much energy to the A as you do to the Q
- ✓ Get the Q right - It's tough to gain cultural acceptance of a poorly defined technical solution

Manage the Technical side (Q)

- Deployment Planning can be usefully addressed by means of the "Star Model." The elements of the Star Model are:
  - **Goals** (define and communicate a common vision and objective for the programme)
  - **Process** (develop an implementation plan, tools, milestones, and determine how to measure results)
  - **Organization** (implement an organizational structure to support people/skills as mapped to processes and goals)
  - **People** (training, motivation, career planning & communication)
  - **Rewards** (plans to recognize success and learn from failure)

Manage the Organisational side (A)

- Elements of successful change
  - Strong leadership
  - The need for the change was communicated
  - Clear and motivating goals and objectives
  - Resistance was managed
  - The culture was modified to encourage change
- Elements of unsuccessful change
  - Lack of clear goals
  - The need for the change was never understood
  - No or poor leadership
  - Those against the change were allowed to win
  - No incentives to change

Thanks!

SigmaPro Limited
Regus Business Centre
Central Boulevard
Blythe Valley Business Park
Solihull B90 8AG
United Kingdom

Tel: +44 (0)1676 532470
Fax: +44 (0)1676 534544

Web: www.sigmapro.co.uk

BALANCED SCORECARD METRICS

A useful source for meaningful Lean Sigma Projects

Speaker's corner

- Certified BB and MBB
- 10 years of experience in Continuous Improvement
- Practised in PC, Automotive and service industry
- Project work, Coaching, Training and Deployment

Some Continuous Improvement related questions

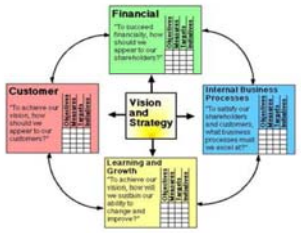
- What are some important factors for success of Lean Sigma projects?
- Is Lean Sigma approach just a cost saving exercise/programme or is there more to it?
- How should we choose the right projects?
- How do we find out about performance gaps?

Balanced Scorecard - What is it?

- Balanced Scorecard is a performance management tool
- Gained popularity with Kaplan and Norton's books 'The Balanced Scorecard' and 'The Strategy Focused Organisation'
- Balanced Scorecard contains four categories:
  - Financial
  - Customer
  - Process (internal)
  - People (learning)
- Implementing Balanced Scorecard includes following processes:
  - Translating organisational vision into operational aims
  - Communicating the vision and link it to individual performance
  - Feedback and learning

Balanced Scorecard links

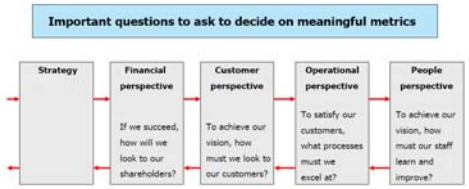
Adapted from *The Balanced Scorecard* by Kaplan & Norton



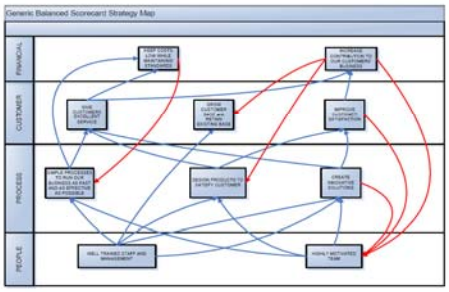
From Vision to Balanced Scorecard categories

- Vision – To sell the biggest number of our products in segment A
- Strategy – To design most reliable products and be first to market with exciting technology that is highly sought by our customers

Balanced Scorecard and link to strategy



Balanced Scorecard – Strategy Map



Example of metrics used in Balanced Scorecard

BS category	Metrics suggestions
Finance	Return On Investment Cash Flow Return on Capital Employed Financial Results (Quarterly/Yearly)
Process	Number of activities per function Duplicate activities across functions Process alignment (Is the right process in the right department?) Process bottlenecks Process automation
People	Is there the correct level of expertise for the job? Employee turnover Job satisfaction Absenteeism Training/Learning opportunities
Customer	Delivery performance to customer Quality performance for customer Customer satisfaction rate Customer percentage of market Customer retention rate

Balanced Scorecard – usage success factors

- Easy to use
- Full ownership
- Management commitment
- Smart target setting
- Slick review
- Business-wide
- Link to reward
- Complexity reduction

Balanced Scorecard – FTT metric

Balanced Scorecard – lessons learned

- Buy-in on all levels of organisation
- Co-operation between functional units (chimneys)
- More customer centric (quality not just quantity)
- Better visibility of performance
- Removes barrier to change (easier to implement Lean and other CI methodologies) and becomes a pointer for business improvement projects