Managing Risks in Six Sigma Implementation

LSS IQPC Conference, Singapore
17-20 May 2010
18 May 2010, 4.40pm, Sheraton Towers
Just to know you better

☐ Is this NEW to you and your Organization?
☐ DfSS or DMAIC?
Agenda

- What is Six Sigma?
- Types of Six Sigma
- Understanding the needs of stakeholders
- Leveraging on tools for effective risk management
- Project management for Six Sigma implementation
- Question and Answer (10min)
What is Six Sigma?

- A number
- Variation reduction
- Methodology
- Managing risks
- Philosophy
Types of Six Sigma

- Define-Measure-Analyse-Improve-Control
- Design for Six Sigma
  (Define-Identify-Design-Optimise-Verify)
- Lean Sigma
- etc
Understanding the needs of stakeholders

- Who are the stakeholders
- Why are they important
- What can we do to achieve the desired stakeholder’s enrollment
Who are the stakeholders?

You?

Customers?

Me?

CEOs?

Suppliers?

Functions?

Boss?
Differing Expectations from different Stakeholders

Managing their expectations differentiates a success from a failure
Managing expectations is key

- ... by bridging different expectations and reducing uncertainty, anxiety or “fear of the unknown”

- Understand what each stakeholder is looking forward to in the project and try to achieve that
  - Made more convincing by regular updates &
  - Engaging them in decision making
  - Change Management
Leveraging on tools for effective risk management

- What are the Risks?
- Where are they from?
- What are the tools available within the Six Sigma framework for managing risks?
Risks

- Resources (time, manpower, $$, etc)
- Job security
- A ‘flavour of the month’
- Pressure to deliver
- Living up to expectations
Risk Sites

- Define
  - People
  - Scope
  - Business case
  - Timeline
- Measure
  - Indicators
- Analyse
  - Cause/s identification
- Improve
  - Solutions
- Control
  - Ways of sustaining the gains
Minimizing Risks

- You don’t know what you don’t know
- Six Sigma involves maximizing knowledge
  - The ability to manage risk in what is unknown is an important factor
- DMAIC tools help manage the risk of the unknown – they are self-correcting or insurance tools
  - However, they do not directly appeal to the quest for knowledge and the promise of power, thus they tend to be mistakenly discarded when we try to ‘streamline’ the problem solving process
Get to the tools in ...
Define: Charter

- Charter Development
  - Vague problem statement
  - Poorly considered team selection
  - Careless estimation of financial or strategic impact
- When tools are not addressed properly, the entire focus, direction of the project are at risk
- Lack of attention to effective team selection will affect team facilitation and decisions
Define : Metrics

- Metrics Definition
  - What gets measured gets managed
  - Primary n secondary metric (as an insurance)

- Effective pilots and implementation among team members and stakeholders to review findings and proposed solutions can help promote the correct focus
Define: Stakeholder Analysis

- Risks related to change management and acquisition of resources
  - Employed to understand the climate
  - Provide guidance for ensuring resistance is minimised
- Exclusion of this tool will fail to address potentially detrimental organizational resistance
Define: Voice of the Customer

- Illusion that we know the customers!
  - Produced misguided and dangerous solutions
  - Requirements failure, released design failures and customer dissatisfaction especially evident in DfSS projects
Define: Team Facilitation

- Poor decisions made without meetings
  - Increase risks of not knowing root causes
  - Solutions not well conceived
  - No buy-in from people affected by the decisions
- Effective team facilitation is **instrumental** in creating an effective list of critical process inputs in Measure
Measure : MSA

- **BAD** data can kill the project!
  - Verification of operational definitions
  - Logical inquiries and analyses of the data collection process
  - Sample audits for accuracy to gage R&R
  - Basic investigation of the data collection systems
  - Value of the it brings to ensuring the integrity of decisions

- Other than team facilitation, this is an important aspect which is often underappreciated as it does not fix processes or products.
Measure : FMEA

- Relentless attention to detail helps train people to think critically about the processes
- A discovery tool by first revealing process opportunities
- Increases what is known about the process at the same time; ensures that what is unknown is kept minimal
- Discover, validate or prioritise potential root causes
- Critical thinking in FMEA ensures that all bases are covered
Analyse: Analyse Plan

- Basic guidance document that is typically produced at the beginning of the phase
- Provide direction by way of a documented trail of results and conclusions
- Drive decision making in the presence of data/evidence
Improve : Mistake Proofing

- Other than training, mistake proofing is essential
- Innovate or think out of the box for ideas that would not allow failure to occur
Improve : Pilot Runs

- Discover the unknown with runs
- Assist in the identification of potential risks in a solution
- Simulation is cheap!
Control : Control Plan

- Self checking and self correcting system
- Application of solutions (implemented correctly, maintained properly and optimised through additional learning)
- Tipping points identified and reviewed periodically
Control : Project Post Mortem

☐ Self correcting but never utilised
☐ Review and actions
☐ Feedback and fine-tune
☐ Lessons learnt
☐ Team review
Risk Management

- 2 key elements
  - Uncertainty
  - Impact in terms of potential loss (if it happens)
- It is continuous process with key steps of:
  - Identify risks
  - Assess each risk
  - Rank all risks according to their severity
  - Plan for risk mitigation and contingency on the basis of outcome
  - Monitor each risk
  - Control deviations (if any) from risk mitigation plan
Identify Risks

- Start of each project on the elements of:
  - Cost
  - Specifications
  - Time

- Program/Project Management Process in place
  - Tool to assure that project delivers outcome

- Communication! Communication! Communication!
  - Make status visible!
Assess Risks

- Determine the uncertainty, the impact and the first risk
  - Probability of occurrence
  - Impact (should it happen)
Effectively managing risks in:

- All phases by giving due consideration in:
  - Define where Charter helps in focus; stakeholder analysis in overcoming organizational resistance to change
  - Measure with clear operational definitions for alignment
  - Analyse with FMEA to mitigate associated risks
  - Improve in which new processes are mapped and explored with feasible studies
  - Control with sustaining the gains in mind
FMEA as a Thinking Tool for Analysing Risks in a Six Sigma Project

<table>
<thead>
<tr>
<th>Process Step</th>
<th>Key Process Input</th>
<th>Potential Failure Mode</th>
<th>Potential Failure Effects</th>
<th>SEV</th>
<th>Potential Causes</th>
<th>OCC</th>
<th>Current Controls</th>
<th>DET</th>
<th>RPN</th>
<th>Actions Recommended</th>
<th>Resp.</th>
<th>Actions Taken</th>
<th>SEV</th>
<th>OCC</th>
<th>DET</th>
<th>RPN</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the process step</td>
<td>What is the Key Process Input?</td>
<td>In what ways does the Key Input go wrong?</td>
<td>What is the impact on the Key Output Variables (Customer Requirements) or internal requirements?</td>
<td>How severe is the effect to the Key Input?</td>
<td>What causes the Key Input to go wrong?</td>
<td>How often does the cause or failure mode occur?</td>
<td>What are the existing controls and procedures (inspection and test) that prevent either the cause or the failure mode? Should include an SOP number.</td>
<td>How well can you detect cause or failure mode?</td>
<td>What are the actions for reducing the occurrence of the cause, or improving detection? Should have actions only on high RPN or easy fixes.</td>
<td>Who is responsible for the recommended action?</td>
<td>What are the completed actions taken with the recalculated RPN? Be sure to include completion month/year</td>
<td>How severe is the effect to the process or product?</td>
<td>How often does the cause or failure mode occur?</td>
<td>How well can you detect cause or failure mode?</td>
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Project management for Six Sigma implementation

- Ingredients for a good recipe
  - Trust
  - Tried and Tested method
  - Setting milestones
  - Getting commitment
  - The success story
  - Change Management

- What are the checkpoints? Control points?
- Use of a success story to garner interest
Areas of Focus in Managing Risks at Different Phases

Before Six Sigma, project risks are managed in organizations. The deliverables and tools form part of the risk management process.

<table>
<thead>
<tr>
<th>Business Case</th>
<th>Concept</th>
<th>Prototype</th>
<th>Trial Run</th>
<th>Market Release</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market</td>
<td>Requirements</td>
<td>Detailed requirements</td>
<td>Gaps closure</td>
<td>Data collection/review</td>
</tr>
<tr>
<td>Customers</td>
<td>Timelines</td>
<td>Capability</td>
<td>Risks management</td>
<td>User feedback &amp; Actions</td>
</tr>
<tr>
<td>Goals, etc</td>
<td>Targets, etc</td>
<td>Mistake Proofing</td>
<td>Indicators established</td>
<td>User acceptance</td>
</tr>
</tbody>
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Define  Identify  Design  Optimize  Verify  Monitor
Recipe for a Successful Six Sigma implementation

- Managing expectations
- Doing more with less
- Placing the priorities
- Atypical training program (consultant, program, etc, no guaranteed results. Running alongside helps)

Some food for thought questions

- Do we need to impress the whole world? What is best?
- What are the pressing issues? The quickwins?
- Motivation balancing with work needs?
Questions?

Acknowledgements & Thank You