Six Sigma:

You get what you measure

In a recent international benchmarking study it was found that the median value, across all industries and company sizes, of "hard" financial benefits per Six Sigma Black Belt project was US$ 187,500. Given that a Black Belt should be able to complete at least 4 projects per annum, this equates to US$ 750,000 per Black Belt per year in hard benefits to the bottom line of an organisation.

By Dr Wynand van Dyk

Living up to the benchmark?

The same study found that these benefits are not related to the maturity of the deployment. Since the financial returns of a deployment is a function of the number of Black Belts in the deployment and the number of successful projects completed, even deployments within the first 2 years should comfortably have a greater than 2 return on investment (ROI).

Given this benchmark potential, it is clear why more and more organisations are turning to Six Sigma as a continuous improvement methodology. But, unfortunately, the reality stands in stark contrast to this potential. In another recent Six Sigma start-up survey[2], 38% of the 1045 respondents reported a ROI of less than 1 for the first two years of the deployment. This poor performance can be understood when it is considered that 53% of the respondents reported that fewer than 11 projects were completed in the first two years! No wonder that only 21.1% of 787 respondents in the first benchmark study[1] rate their company's Six Sigma program as highly successful.

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The question therefore remains: "How can Six Sigma project execution be accelerated throughout the organisation?" The irony is that the secret of attaining benchmark performance lies in the age old adage: "You get what you measure".

Executive commitment and engagement

Tangible commitment and support from senior company executives remains the number one factor for a successful Six Sigma deployment, and in particular successful project execution. Such commitment and support sends a clear message throughout the organisation, acting as the sharp point of the arrow and allowing Black Belts the freedom to focus on completing projects (rather than having to manage through the minefield of company politics). However, executive commitment and engagement cannot be taken for granted. A portion of executive compensation should therefore be linked to reaching corporate Six Sigma goals and objectives, including the ROI and audited benefits of the program – "you get what you measure…"

Executive commitment and engagement can take many forms. Best practice includes:

- Conducting regular project and deployment reviews to validate progress
- Being certified as a Green Belt and completing at least 2 projects per annum
- Insisting on data-driven decision making in meetings
- Visibly prioritising Six Sigma above other initiatives, projects and programs
- Using a "common language" throughout the organisation, based on Six Sigma
- Linking, and communicating the links, between Six Sigma and the corporate strategy

Although executive commitment and engagement goes a long way in guaranteeing a successful Six Sigma deployment, it is only one piece of the puzzle. To accelerate project execution, it is also necessary to manage and track the overall deployment.

Deployment management and tracking

The Deployment Leader is accountable to manage and track the overall Six Sigma deployment. The objective is to maximise the ROI of the deployment, subject to the constraint of limited resources in terms of Green Belts, Black Belts and Master Black Belts.

Unfortunately, this is not a straight forward numbers game. Too many Six Sigma deployments start off by training Black Belts and Green Belts at a blinding rate (with the consultant most probably being paid per head trained) without any cognizance given to the fact that Green Belts are part time and should be coached by Black Belts. Taking things slowly in the beginning is maybe not a bad thing. The ideal span-of-control should be 4 Green Belts to 1 Black Belt – any more, and the Black Belt will spend too much time coaching Green Belts and not delivering on key projects. In addition, this 4:1 span-of-control should only be reached once the Black Belt has been certified.

Other key deployment metrics which should be measured and managed include:

- Cycle time per phase in the DMAIC process: This data should be analysed using standard Six Sigma tools, and specific initiatives designed to decrease cycle time per project phase. Typically, projects get stuck in the Define phase due to proposals not having the appropriate scope and size, and in the Measure phase due to poor measurement systems.
- The project pipeline: There is nothing worse than having a trained Six Sigma resource not working on a project. Having a documented 1 year inventory

About the author

Dr van Dyk was the original deployment leader for the Lonmin Platinum 6 sigma deployment, which twice in a row was recognised internationally by winning the "Best achievement in manufacturing" category at the Global Six Sigma Awards, held in Las Vegas, USA.

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of project proposals, with each Black Belt resource assigned to at least two proposals in the pipeline (to provide them with future certainty) is considered best practice. In order to achieve this level of forward planning, the entire project pipeline (ideas to proposals to projects), including the conversion success rate, should be tracked.

Proposal Prioritisation: Selecting the right projects remains one of the key challenges, especially in young deployments. A simple system of ranking proposals in a 9-box matrix based on estimated effort to complete versus benefits realised, is a handy tool to optimise project delivery. Apart from avoiding high-effort-low-benefit projects, project distribution should be carefully balanced between high-effort-high-benefit and quick win (typically lower benefit) projects.

Resource loading and performance management: As projects do get stuck for various reasons, it is imperative to optimally load a Black Belt in terms of projects. Best practice suggests that each Black Belt should work on 3 projects at any given time – one in Define/Measure, one in Analyse and one in Improve/Control. Furthermore, a portion of the Black Belt compensation should be tied to benefits of the program, the number of projects completed (Black Belt and Green Belt) and the average project cycle time achieved.

From the above it is clear that a deployment tracking system, which tracks individual projects as well as the overall key metrics and performance, is imperative to accelerate project delivery. In addition, the same system should be capable of prioritising proposals, capturing benefits and tracking the realisation of benefits against the forecast plan.

Benefits estimation, capturing and tracking

The process of benefits estimation, capturing and tracking should start in the proposal phase of a project. By having a realistic estimate of the benefits associated with a proposal, proposal prioritisation can be done, which in turn will assist with gaining the right balance of projects between quick wins and high-effort-high-return projects.

During the Analyse phase of a project, the financial benefits model should be linked to the primary and secondary metrics of the project, and should be based on the anticipated shift in the primary and secondary metrics (both in terms of variation and mean). During the Control phase of the project, the financial forecast of the benefits must be done for a 12 month period, based on the statistically proven shift in the primary and secondary metrics. Finally, during the realisation phase of a project, the actual benefits should be tracked against the forecast, and any variance reported and acted upon.

The keys to this process are the Process Owner, who must maintain ownership and accountability for the project benefits during the realisation phase, and the Finance Department, who must perform the governance role in evaluating proposal and project benefits and ensure that they translate to improved financial performance. Without the involvement of the Finance Department throughout this process, project cycle time will increase due to Black Belts encountering the unfamiliar territory of variance accounting. In addition, resources can be deployed onto projects with unrealistic benefits, leading to unnecessary waste.

Finally, to ensure that benefits are estimated on a consistent basis and are credible, it is vital that the declared benefits be audited on at least an annual basis. A consistent benefit estimation and tracking system must be provided by the Finance Department for use across all assets, including a protocol (agreed with the auditors) for benefits estimation and capturing.

Conclusion

Over the years, Six Sigma has been entrenched as a continuous improvement methodology capable of realising significant returns for an organisation. However, a significant number of deployments have failed to live up to this potential, primarily due to excessively long project cycle times. Fortunately, all hope is not lost. By measuring and managing key deployment indicators, linking a portion of the compensation of all stakeholders to these metrics, and having an agreed upon benefit estimation and capturing system, struggling deployments can be turned around in a short space of time. The age old adage is more true than ever: "You get what you measure…"

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[1] January/February 2005 Edition of iSixSigma Magazine
[2] November/December 2005 Edition of iSixSigma Magazine