

# The Two Key Criteria for Successful Six Sigma Project Selection

*Advantage Series White Paper*

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## Introduction

Encouraged by the results of Six Sigma deployment at Motorola, AlliedSignal (now Honeywell), General Electric, Kodak, and a growing list of companies, Six Sigma is a hot topic in management circles. Six Sigma produces measurable bottom-line results when driven by senior leadership and properly deployed throughout the entire enterprise. There are many aspects of a successful Six Sigma implementation including Executive and Champion training, project selection, Black Belt and Green Belt training, team building, change management, and the deployment strategy.

Six Sigma results are achieved one project at a time. Marginal projects waste valuable time and resources. Well-defined projects with critical linkage to organizational strategy provide strong financial returns and increased customer satisfaction. Selecting the right projects is a key success factor in your Six Sigma implementation. The objective of this white paper is to provide a framework to guide your organization in Black Belt project selection.

## Project Selection Guidelines

There are two basic categories of projects, those with an external focus on improvement opportunities and those that have an internal focus on improving process efficiency.

### 1. External

The real focus of Six Sigma is to provide near defect-free goods and services to the customer. To find potential good projects, ask the following questions with the Voice of the Customer, Voice of the Market, and the Voice of the Process in mind.

- How or where are we not meeting our customer expectations today? (in either our business or manufacturing processes)
- What will our customers need in the future?
- What do we need to do to make our customers successful?
- What are the competitive threats? What is the contingency plan to address a competitive threat?
- Are our suppliers capable of providing the quality we need?
- How is the market changing, are we ready to serve emerging market needs?
- Do we have a clear and defined process to capture the Voice of the Customer?

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## 2. Internal

Look for areas of trouble, frustration, or opportunities to improve. Talk to employees and management. Don't just think about manufacturing process problems. Are the business processes working smoothly? Do you know where defects are hurting the business (billing, order entry, scheduling, etc.)?

- What are the most critical processes in your business? Are they working?
- Where are the most defects produced?
- What process is driving you crazy?
- Where are bottlenecks in your processes?
- What is the cost of poor quality? (COPQ includes rework, scrap, inventory, etc.)
- What kind of issues or concerns have the employees raised?
- What are management concerns? Which key high level process needs fixing?

### Roles and Responsibilities

#### Executive Leadership Roles:

- Clearly articulate the strategic direction for the organization
- Define the organizations priorities, what has to happen for the corporation to be successful, now and in the future
- Relentlessly support the Six Sigma process
- Hold business leaders and Six Sigma Champions accountable to deliver results

#### Champion Roles

- Identify projects most likely to succeed and have a high business impact
- Develop a strong business case for each project linking the project deliverables to the organizational goals (high level goal alignment)
- Determine the critical success factors for each project
- Identify the key metrics to measure project progress
- Provide resources and work with process owners to facilitate team success

### What are the elements of a good Six Sigma project?

Good Six Sigma projects are linked to a clearly defined process and have the following four elements:

1. There is a gap between current and required/desired performance in a key business process. Closing the gap will have a measurable and large financial impact.
2. The cause of the problem or gap is not clearly understood.
3. There is not a predetermined solution or optimal improvement method readily apparent.
4. The performance of the process can be measured and quantified (at least once per day for initial projects).

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When deciding on a Six Sigma project, keep in mind the following:

- Don't make the project scope either too big or too small. Typical Black Belt projects take between 4-6 months to complete.
- The project should be focused on one key measure of process performance. Don't try to work on too many things at once.

### Examples of good Six Sigma projects

#### Acme Widget Inc. (manufacturing project)

Acme Widget Inc. is the manufacturer of a really cool new toy. There is tremendous market demand. To keep up with the customer demand, Acme installed two new molding machines. The engineers found that for one part of a subassembly, a critical part dimension was changing in a random way. This caused problems at final assembly, since the parts wouldn't fit properly.

The part variation was traced back to the two new machines. There also was variability between the two new machines. Operators said that they had trouble keeping the new machines running in spec and hated to run the new equipment. Scrap costs from the two new machines is running \$2,000 per day. The customers are upset because Acme can't ship enough of the cool new toys.

#### Analysis:

- There clearly is a defined manufacturing problem with a large financial impact.
- The root cause of the problem is not clearly understood, but early data suggests the two new machines are involved.
- There is not a readily available solution to the problem.
- The yield of the molding process can be measured and quantified.

#### Ace Insurance Company (transactional project)

Insurance agents are fielding large amounts of complaints from customers about multiple billings. Customers are confused since they receive duplicate billings or incorrect invoices. The agents carefully recorded and verified the information during the insurance application process. Once the account is transferred to the headquarters locations, the billing errors begin. The problem is costing the parent company a tremendous amount of wasted money in terms of printing, mailing, and unnecessary customer service calls. The agents are also incurring a cost since they must take time away from getting new accounts to fixing the problems with the existing accounts.

A small team of employees has taken a first look at the process of entering new account data in the computers at headquarters. They found several potential problem areas in the order entry process (agents send in paper applications and headquarters inputs into the main computer), but it is not clear what the root cause is.

#### Analysis:

- There clearly is a defined business process problem with a potential for a large financial impact.
- The root cause of the problem is not clearly understood, but early data suggests the data entry process at headquarters is involved.
- There is not a readily available solution to the problem.
- The number of duplicate and incorrect bills can be measured and quantified.

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Here is an example for a project that is not appropriate for a Six Sigma project.

A call center was experiencing difficulties accurately entering customer orders into the computer system. A small team of employees identified two commercially available order entry software packages that could possibly eliminate the order entry defects. After a successful demo at one location, management decided to implement one software package. A team was chartered to drive the project to completion. The software company will also provide on-site support to help with the installation and employee training.

Analysis:

- There is a clearly defined business process problem with a potential for a large financial impact.
- The root cause of the problem was found.
- There is a readily available solution to the problem and the vendor will support the implementation.
- There is currently no measurement for the number and type of problems experienced by the call center.
- During the implementation phase, if new problems arise or new problems are identified, these may be considered for Six Sigma projects if they meet the four critical criteria.

Acme Electronics (manufacturing project)

Acme Electronics is a manufacturer of electronic parts. Approximately 15% of the parts are being rejected at the final electrical test. Management is upset with the scrap levels and wants a Black Belt to fix the problem.

Analysis:

- There is a manufacturing problem with a large financial impact.
- The root cause of the problem is not clearly understood.
- There is not a readily available solution to the problem.
- The reject level at final electrical test can be measured and quantified.
- As defined, the scope is too large for a Black Belt to complete in the 4-6 month timeframe. The project scope needs to be narrowed.

There are two basic approaches that could be used to achieve the proper project scope:

1. Create a Pareto chart for scrap by product and defect type. Focus the Black Belt project on the product/defect combination that has the largest financial impact.
2. Determine the amount of scrap and rework for each major process step. Focus the project on the process step that creates the most scrap and/or rework.

Acme Electronics reviewed their major process steps to determine where the problems might be occurring. They found that 25% of the parts were being reworked in the soldering area. Reworked parts were five times more likely to fail the final electrical test. The Black Belt project was chartered to reduce rework at soldering.

### Reasons for Six Sigma Success Include:

- Focuses on customers and processes
- Achieves bottom-line results
- Driven by a well defined project selection criteria
- Utilizes clearly defined measures of success
- Achieves quantifiable financial returns
- Uses a disciplined, multifunctional project approach (DMAIC)
- Executes projects with manageable completion times (3-6 months per project)
- Employs a well-trained team of Champions, Black Belts, and Green Belts.

### Benefits of Six Sigma Projects Include:

- Increased customer satisfaction
- Improved profitability by eliminating defects (reduced cost of poor quality)
- Enhanced productivity
- Reduced cycle times (leading to better customer service)
- Improved product and service offerings

### Summary

Project selection is the key to achieving real bottom line results. Carefully select projects that are aligned with high level organizational goals and provide a strong business impact. Remember, Six Sigma results are achieved one project at a time. Keep the project pipeline filled with high impact, well defined projects and success will be assured. Be patient. Be persistent. Follow the DMAIC process. Support, recognize, and reward the project teams. Results will happen.

**Do you have potential six sigma projects but can't seem to get them prioritized? Or projects that just can't seem to get traction?**

Contact InnoCentrix to see how we can help.

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