Six Sigma

Six Sigma Glossary

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"As Is" Process Map

Depicts a process as it is. "As is" process maps are usually characterized by several input options, bottlenecks and multiple handoffs, inspections & rework loops.

It is the starting point to understanding how a process is running. It becomes a "Should Be" map once all non-value added activities have been removed from the "As Is" process, after careful analysis.

"Should be" Process Map

A depiction of a new and improved version of a process, used in DMAIC and iDMAIC projects, where all non-value added steps have been removed and based on:

- Everything being done right the first time
- Customer requirements built into the process
- Flexibility to meet multiple customer types or requirements
- Design with "process" vs. "functional" mindset
- Limited handoffs and inspections
- Ease to document, manage, train and control
- Several possible inputs
- Bottleneck eliminated
- Handoffs, inspection & rework loops no longer needed

Affinity Chart

An affinity diagram is a tool for organizing large quantities of information from many people. It is often used with Brainstorming and other creative thinking activities. The ideas are usually written on sticky notes, then categorized into groupings of similar ideas.

It sorts a large quantity of unorganized information into related categories. It encourages creative thinking, helps identify patterns in mountains of data and encourages people to work collaboratively.

It will be used to analyze customer data that is based on comments rather than numerical ratings, sort out complex problems or issues, and organize opinions on any topic.

Analyze Phase (DMAIC)

The goal of the Analyze phase is to identify root causes of the problem and confirm them with data. Solutions in the next phase, Improve, will be based on the accurate definition of these root causes. A map of the current process is also reviewed to determine which steps are necessary and which steps do not add any value.

When completed, this step will help determine the solution that best addresses root causes. The better understood the root causes, the more effective the solution.

Area SIXSIGMA Council

Leadership group (Area VP, AMD, AD, MBBs and often GM's) guiding the implementation of quality and SIXSIGMA within the organization; establishes, reviews, and supports the progress of SIXSIGMA DMAIC and iDMAIC projects. The Area Council is responsible for developing Key focus areas, reviewing and approving property projects, determining potential area projects and identifying, developing and sharing best practices.

Assumption Busting

A questioning process that helps identify and eliminate preconceptions or blind spots that hold people back from proposing or pursuing the best solution. This approach is needed because people tend to get locked into conventional patterns of thinking and fail to challenge their conventional patterns.

Attribute data

Any data not quantified on an infinitely divisible scale. Includes a count, proportion, or percentage of a characteristic (e. g region, location, room type ...) or category (e.g., gender: male / female ...). This is in contrast to "continuous" data that is not limited to categories (e.g. cost in dollars).

Balanced scorecard

Categorizes ongoing measures into a few significant areas such as finance, process, people and innovation. Scorecards change over time as the measurement system is refined and the most effective key measures are selected. Used as a presentation tool to update sponsors, senior management, and others on the progress of a business or process; also useful for process owners.

Baseline measures

Data that reflects the performance level that exists at the beginning of an improvement project, before any solutions are initiated. It is the "Before" snapshot to be compared later with the "After" view.

Best practice

A completed project (usually, but not always a Six Sigma project) that is particularly valuable for use in other properties based on meeting these three conditions:

Success
Transferability and
Speed of benefit realization

A small proportion of projects will be Best Practices and an even smaller proportion will be required Best Practices.

Black Belt (BB)

An associate fully assigned to SIXSIGMA and trained in the DMAIC methodology, analytical tools and team leadership skills. Black Belts are responsible for guiding DMAIC projects to completion. They lead DMAIC projects, assist with Quick Hits and provide coaching and expert support for iDMAIC transfer projects. Their role in Best Practice and Innovation transfer projects is to assist and coach the Import team on the DMAIC tools and methodology.

Both/And

A narrowing/selection process that seeks to identify solution ideas that are similar (AND) as well as ideas that are workable together (even when not similar) ideas (BOTH). This technique helps the team seek connections and combinations of ideas to develop better and more workable solutions.

Box Plot

A graphic display of groupings of data that compares the groupings to the others on one chart. An example of the tool would be looking at the variation in check-in time by different front desk associates.

CTQ (Critical to quality)

Refers to what customers consider important in any given process. Collecting Voice of the Customer data leads to the discovery of CTQs, which are translated into distinct requirements that can be measured.

Cause and Effect diagram (Fishbone/Ishikawa)

Brainstorming tool used for proposing root-causes (the "bones of the fish") for a specific effect (the head of the fish). This can be used in combination with the Affinity Diagram to determine the major categories. Also commonly used in combination with the "5 Whys" technique in order to help people understand the root cause.

Charter

Team document defining the context, specifics, and plans of an improvement project; includes business case, problem and goal statements, constraints and assumptions, roles, preliminary plan, and scope. The charter is to be reviewed with the sponsor to ensure alignment and revised or refined periodically throughout the DMAIC process based on data. Starwood has used the Project Definition Form on the E-SIXSIGMA Tool in order to capture the Charter information.

Check Sheet

Forms, tables, or worksheets that are set up ahead of time for people to use in data collection; it allows for collection of stratified data (e.g. number of complaints, billing adjustments, etc.) in a consistent way.

Check sheets help standardize data collection by providing space where people should record data. They are mainly used to collect new data when no historic data is available.

Common cause variation

Normal, everyday influences on a process. This form of variation is usually harder to eliminate and will require changes to the process. Problems from common causes are referred to as "chronic pain". An example of a Common Cause variation is the number of Employee Call-outs when there is a change in weather conditions, i.e. snow days in the Rocky Mountains, where properties commonly experience a greater number of call outs.

Complexity Matrix

A tool used to assist teams in determining the level of complexity of a project.

This tool is used by the property Six Sigma Council to estimate the resources required for transfer projects. Understanding the levels of organizational complexity (change management) and availability of reliable data will assist the Six Sigma Council in determining how much time & which resources will be required to implement a project.

Continuous data

Any quantity measured on a continuous scale that can be infinitely divided; primary types include time, dollars, size, weight, temperature, and speed; also referred to as "variable data"

Control Phase (DMAIC)

The goal of the Control phase in DMAIC is to evaluate the solutions and the plan, standardize the solutions, and outline steps for ongoing improvements including opportunities for using the solutions elsewhere. The output is:

Before and after analysis
A monitoring system
Completed documentation of results, learning and recommendations

To pass the Starwood Control tollgate, the team must complete the following documents and tools: selection of ongoing measures to monitor performance, process management

techniques and systems including process ownership defined, dashboard charts and/or process management charts and storyboard.

Control chart

Specialized graph that shows process performance over time; shows average upper and lower control limits; helps determine the influences of common (normal) causes or special (unusual) causes.

Correlation

A measure of the degree to which two variables (such as thunder and lighting or tardiness and/or low productivity) are related (the extent to which they move together). It is calculated to quantify the strength of the relationship between the two variables. Correlation does not necessarily imply a cause & effect relationship. As a simple example, daily high temperatures and ice cream sales would tend to be correlated: it's reasonable to conclude that hotter weather causes people to buy more Ice cream. It can be dangerous, however to assume that a correlation guarantees that one factor causes the other. Chlorine sales at pool supply stores, for example may increase as ice cream sales do (I.e., they are "positively correlated"); but we're pretty sure one doesn't cause the other. Another cause . hotter weather, perhaps? . happens to affect both.

Cost of poor quality (or COPQ)

Financial measures depicting the impact of problems (internal and external failures) in the process as it exists; includes labor and material costs for handoffs, rework, waste or scrap, inspection, and other non-value-adding activities.

Cpk or Cp (Process capability)

Process capability or the degree to which a process can meet customer requirements. It is measured against an upper and/or lower specification limit representing the "extremes" of customer requirements/demands on the process. Values > 1 indicate a capable process, values < 1 indicate a process that is not meeting customer requirements

Criteria Matrix

Decision-making tool used when potential choices must be weighted against whatever key factors (e.g., cost, ease to implement, impact on customer are most relevant).Encourages use of facts, data, and clear business objectives in the decision-making.

Customer

Any internal or external person/organization who receives the output (product or service) of the process; understanding the impact of the process on both internal and external customers is key to process management.

Customer requirements

Defines the needs and expectations of the customer; translated into measurable terms and used in the process to ensure compliance with the customers' needs. Determining what is CTQ (Critical To Quality) for customers helps determine customer requirements.

Cycle time

The time it takes to complete a process from start to finish. Includes actual work time and wait time.

DMADV (Define, Measure, Analyze, Design, and Verify)

Describes the application of SIXSIGMA tools for designing new products and processes. When to use DMADV:

> A product or process is not in existence at your property and one needs to be developed.
> The existing product of process exists and has been optimized, and still does not meet the level of customer specifications or SIXSIGMA level.

DMAIC

Acronym for a Process Improvement/Management System that stands for Define, Measure, Analyze, Improve, and Control; lends structure to Process Improvement, Design or Redesign applications.

DMAIC 1 Training

DMAIC training for Master Black Belts, Black Belts and Green Belts. This course begins the SIXSIGMA problem-solving methodology (DMAIC), focusing on first steps of Define, Measure and a portion of Analyze. This training will arm participants with tools and techniques for embarking on SIXSIGMA projects.

DMAIC 2 Training

DMAIC training for Master Black Belts, Black Belts and Green Belts. This course is the conclusion of DMAIC method, finishing Analyze, Improve, and Control. This training enables participants to solve problems, implement solutions, and deliver lasting results to their properties. It follows DMAIC 1.

DMAIC 3 Training

DMAIC training for Master Black Belts. This course deepens the participant's mastery of problem solving and statistical tools. It follows in sequence with DMAIC 1 and 2.

DMAIC project

Projects that follow the DMAIC methodology led by a Black Belt; will generally have a duration of 3-4 months and can cross functional boundaries. A DMAIC project focuses on improving an existing process using the 5 steps Define, Measure, Analyze, Improve, and Control. Benefits of DMAIC projects are recorded over a period of 18 months, from the Control Phase.

DPMO (Defects per Million Opportunities)

Calculation used in SIXSIGMA initiatives to show how much "better" or "worse" a process is by indicating the amount of defects in a process per one million opportunities. To calculate this measure, you first need to determine how many opportunities for defects exist on a single item. Example: when looking at an electric bill, the customer usually looks first at the total amount owed, the due date, amount of wattage used, and perhaps the name and address. That could be classified as four opportunities. There is a lot more information on the bill itself that may be important to the electric company, but not as a priority to the customer. The challenge of DPMO calculation often comes in agreeing on how many opportunities exist . it's often not a black and white decision. The best guideline is to count opportunities that directly affect the use of the final Output. If the end customer does not care about it, it is not an opportunity.

Dashboard (or Process Scorecards)

A graphical tool that provides a summary update on key indicators of process performance. It can include "alarms" to show if and when a key indicator is nearing a problem level. A dashboard is an evolutionary picture of a process; it changes over time based on what measures are appropriate for the current process.

Data Collection Plan

A structured approach to identifying the required data to be collected and the approach to collecting it; typically performed during the Measure phase of a DMAIC project. The Data Collection Plan includes: the measure, the measure type, data type, operational definition, and the sampling plan if new data is necessary.

Decision tree

Used during the SIXSIGMA Council process to determine project selection weighting. Focuses properties on the area (either Revenue, Cost Reduction or ASI, GSI) that needs the greatest attention to achieve overall property goals.

Defect

Any instance or occurrence where the product or service fails to meet customer requirements.

Defect opportunity

A potential defect on a unit of importance to the customer; example: specific fields on a form, which creates an opportunity for error that, would be important to the customer. There are generally multiple defect opportunities per unit.

Defective

Any unit with one or more defects.

Define Phase (DMAIC)

In this first phase of DMAIC, the project's purpose and scope are defined. Background information on the process and customer is collected. The output of this phase includes a clear statement of the improvement (i.e. business case and Project Definition Form), a high-level map of the process (SIPOC), and a list of what is important to the customer. The Define Phase is also closely linked to the next phase, Measure. Because the DMAIC cycle is iterative, the process, problem, flow, and requirements should be verified and updated for clarity throughout the other phases.

Deployment Process Map

A map or graphical view of the steps in a process shows the sequence as it moves across departments, functions, or individuals. This type of process map shows "hand-offs" and the groups involved. It is also known as a functional or cross-functional flowchart or map.

Descriptive Statistics

A statistical profile of the collected data; these measures include measures of averages, variation, and other numbers which help team members assess "how bad" a problem is and to pinpoint where to focus further analysis and solutions.

Design for SIXSIGMA (DFSS)

Describes the application of SIXSIGMA tools to product development and Process Design efforts with the goal of "designing in" SIXSIGMA performance capability. This is in contract to "SIXSIGMA Improvement".

Discounted Cash Flows (DCF)

A method of financial analysis that allows comparisons of dissimilar projects on the basis of their overall value in today's dollars. DCF converts future cash flows into equivalent current dollar equivalents.

Discrete data (Also known as Attribute Data)

Any data not quantified on an infinitely divisible scale. Includes a count, proportion, or percentage of a characteristic (e. g region, location, room type, ...) or category (e.g., gender: male / female, ...).This is in contrast to "continuous" data that is not limited to categories (e.g. cost in dollars).

Division SIXSIGMA Council

Leadership group (Presidents and direct reports, Division SIXSIGMA leader, AMDs, and often MBBs and GMs) guiding the implementation of quality and SIXSIGMA within the division; establishes, reviews, and supports the progress of SIXSIGMA DMAIC and iDMAIC projects. The Division Council is responsible for driving the SIXSIGMA initiative within that division and is accountable for project, process and business results.

Documentation

Documentation is a historical account of the activities and decisions made throughout a DMAIC project, Quick Hit, and iDMAIC project. Used to facilitate sharing of best practices across an organization and as part of the project close-out process.

E-SIXSIGMA Project Tool (eTool)

Online database capturing project (DMAIC, Quick Hit and iDMAIC) information including the proposed project goals, problem statement, projected cost and benefits, as well as tollgate documentation information from each phase of DMAIC and iDMAIC projects. It also captures the projects' actual benefits over a period of 12 to 18 months after the Control phase of DMAIC and iDMAIC projects.

Effectiveness

Measures related to how well the process output(s) meets the needs of the customer (e.g., on-time delivery, adherence to specifications, service experience, accuracy, value-added features, customer satisfaction level); links primarily to customer satisfaction.

Efficiency

Measure related to the quantity of resources used in producing the output of a process (e.g., cost of the process, total cycle time, resources consumed, cost of defects, scrap, and/or waste); links primarily to company profitability.

External failure

When defective units pass all the way through a process and are received by the customer.

FMEA

A useful technique for preventing future problems and reducing risks to a solution. Acronym for Failure Modes and Effects Analysis.

Used to identify and assess errors & defects which could result in a threat to quality, safety or reliability; it is useful in implementing improvements, redesign or design of processes. Also a tool for process owners to build prevention and contingency steps into the project plan.

Fishbone Diagram

See Cause & Effect Diagram.

Five Whys

Five Whys are often used to generate a cause and effect. It is the technique of asking "Why" five times in order to dig into each potential cause. "Why" is asked until the root cause is revealed. Additional questioning then becomes meaningless. 5 questions is just a reference point, at times it may take you 3, 10 or more to get to the root cause.

Force field analysis

A list of the factors that support and factors that "hurt" an idea; "restraining" factors are listed on one side of the page and "driving forces" listed on the other.

Used to reinforce the strengths (positive ideas) and overcome the weaknesses or obstacles.

Frequency Plot or Histogram

Shows the shape or distribution of the data by showing how often different values occur.

It summarizes data from a process and graphically represents the frequency distribution in bar form. It helps to answer the question: "Is the process capable of meeting my customer requirements".

It will be used to display large amounts of data that are often difficult to interpret.

Functional Map

See Deployment Process Map.

Future focused cause & effect

A traditional cause & effect diagram used for brainstorming future actions employed during the Improve phase of a DMAIC project.

Gantt Chart

A project planning and management tool that displays all the tasks or activities associated with a project or initiative as well as the relationships/dependencies between these tasks. Resources, completion status, timing and constraints are all shown in the chart.

Global SIXSIGMA Council

Leadership group (Starwood's Senior Operating Committee and Division Presidents) guiding the implementation of quality and SIXSIGMA within the organization; establishes, reviews, and supports the progress of SIXSIGMA DMAIC and iDMAIC projects. The Global SIXSIGMA Council is responsible for designing and driving SIXSIGMA throughout Starwood.

Goal statement

Description of the intended target or desired results of Process Improvement or Design/Redesign activities; usually outlined during the proposal phase of the PDF, revised in the Define phase of a DMAIC project and supported with actual numbers and details once data has been obtained. This information is recorded in the E-SIXSIGMA Project Tool.

Green Belt

Associates trained to the same level as Black Belts, but not on full-time assignment to SIXSIGMA. Green Belts assignments will vary. They may do DMAIC projects, lead smaller SIXSIGMA projects on a part-time basis, serve on larger projects as team members, and/or undertake implementation of Quick Hits or Innovation Transfer projects.

Handoff

Any time in a process when one person (or job title) or group passes the item moving through the process to another person; a handoff has the potential to add defects, time, and cost to a process.

Hawthorne Effect

An increase in worker productivity that results from the psychological stimulus of being temporarily singled out and made to feel important. A group working on a project may be

receiving a lot of attention and their performance may temporarily improve; when this attention decreases, the worker motivation may decline.

Histogram or Frequency Plot

See Frequency Plot.

Hypothesis statement

A complete description of the suspected causes of a process problem.

IRR

Internal Rate of Return. A way to compare potential projects by calculating the financial value of a project against the investment required. All else being equal, projects with a larger internal Rate of Return are more attractive investment opportunities.

Impact/Effort Matrix

A graphical representation of different projects plotted along two axes (Y = Impact, X = Effort). A project selection tool that allows comparison of dissimilar projects during the project selection portion of the SSC process.

Implementation Plan

A project management tool used in the "Improve" stages of DMAIC and iDMAIC, compiling tools such as Stakeholder Analysis, FMEA, Poka-yoke, SOP's and pilot results (if conducted) in a consolidated format.

Implementing a process improvement - or a new process design . requires diligent project management skills. Any project begins with a plan: What do we have to do? How long will it take? Who will do the work? What order will things get done and when? Executing the implementation needs to be proactive and focused. Using this project management document makes it possible to coordinate all of these aspects in a timely manner.

Improve Phase (DMAIC)

The goal of improve phase is to pilot and implement solutions that address root causes. This step helps to eliminate any errors/false starts when the team finally implements the solution. Additionally, a plan is created for how results will be evaluated in the next phase, Control. The key components of Starwood Improve tollgate are a strong implementation plan, evidence that the root causes are addressed through the preferred solution, training of stakeholders, and release of resources required for implementation.

Innovation Transfer

The successful transfer of a new idea, method or solution from one property to another may be a Quick Hit, Best Practice, or any other innovation.

Input

Any product, service, or piece of information that comes into the process from a supplier.

Input measures

Measures related to and describing the input into a process; can be predictors of process and output measures. Examples of input measures include guest volume, time of day, and number of reservations.

Ishikawa Diagram

See Cause & Effect.

Kano Analysis

A graph of how customer satisfaction is effected by a particular problem, change, or other variable. The graph is divided into three regions of customer reactions to the variable: "Dissatisfiers", "Satisfiers" and "Delighters".

This tool is intended to help DMAIC teams prioritize resources to focus on the most important customer requirements.

Leading SIXSIGMA Training (LSS)

An introduction course for top-management to SIXSIGMA at Starwood, the SIXSIGMA problem-solving methodology (DMAIC), and the project selection process. It is also an intensive Team Leadership workshop. Participants include all General Managers and Corporate Leadership from Director level and above.

Leading Teams Training (LT)

A Team Leadership workshop designed to give participants the necessary skills to be able to lead teams in a challenging environment. The participants, Master Black Belts Black Belts, and Green Belts will also be introduced to the SIXSIGMA problem-solving methodology (DMAIC) and the project selection process.

Learning Cycle

An individual and team based learning exercise that helps individuals identify their own and others' views on the team decision making process & the team's overall performance.

This tool helps teams share information, reach decisions, and build consensus. It shows that groups working together make higher quality decisions that individuals working alone. It creates a norm for working as a group in a systematic way and establishes the assertion that better process makes for better outcomes.

Learning Map

An experiential, accelerated and high-involvement learning activity to introduce SIXSIGMA concepts and the initiative at each Starwood property. It consists of a table-sized visual "SIXSIGMA: Innovation and Improvement" map and a set of cards that direct the participants through a discovery learning activity. The target audience for this learning activity is all associates at all Starwood properties.

Master Black Belt (MBB)

A SIXSIGMA business champion and coach for Black Belts. The MBB is trained in the DMAIC process, analytical tools, and facilitation skills. The MBB is responsible for project selection for the Property and Area, ensuring that the DMAIC process is being implemented, and that all projects are on-track towards completion.

Measure (General Definition)

A numerical evaluation of based on observable data. A few examples of measures could be number of new reservations per day, the number of check-ins per week, the number of employees scheduled per shift.

Measure Phase (DMAIC phase)

The goal of the Measure phase is to focus the improvement effort by gathering information on the current situation. During the Measure phase:

Baseline data is gathered on current process performance
Data is sought that pinpoints problem location or occurrence
A more focused problem statement is developed

These outputs will provide the basis for the next phase, Analyze.

Moment of Truth

Any event or point in a process when the internal/external customer comes in contact with a process. At each of these points the customer has an opportunity to form an opinion (positive, neutral, or negative) about the process or organization. Examples of "moments of truth" include speaking to reservations, having dinner delivered to a room, or phoning for a wake-up call.

Multiple Regression

What is it? Quantitative method relating multiple factors to the output of a process. The statistical study of the relationship of a combination of multiple variables (X1 X2 X3...Xn) to a single output Y. For example, timeliness of room service can be studied by quantifying staffing level, staff training, and room occupancy.

Multivoting

A narrowing or prioritization tool. Faced with a list of ideas, problems, causes, etc., each member of a group is given a set number of "votes". Those items or issues receiving the most votes get further attention/consideration.

NPV

Net Present Value. The equivalent value in today's dollars of a stream of future cash flows. NPV calculation seeks to quantify the concept that money received in the future is worth less than money received today.

Non-value-adding activities

Any steps in a process that do not add value to the customer or process. Examples include rework, handoffs, inspection, delays.

Operational definition

A clear, precise definition of the factor being measured or the term being used; ensures a clear understanding of terminology and the ability to collect data or operate a process consistently.

Optional Best Practices

A completed project (usually, but not always a Six Sigma DMAIC or Quick Hit project) that is particularly valuable for use in other properties based on meeting these three conditions:

Success
Transferability and
Speed of benefit realization

Specific criteria are used by Division or Global Council to nominate & select best practices. Properties have the choice whether or not to import an optional best practice.

Original Team (Original DMAIC/Quick Hit project team)

The team that originated and completed the original process improvement project (DMAIC or Quick Hit) in their property. The role of the Original Team is to ensure proper project documentation to ease transfer and to provide advice, clarification and assistance to teams importing their project.

Output

Any product, service, or piece of information coming out of, or resulting from, the activities in a process.

Output measures

Measures related to and describing the output of the process; total figures/overall measures.

Pareto Principle and Chart

A Pareto Chart is a data display tool based on Pareto Principle; or 80/20 rule. It is used to help a team focus on the specific causes or issues that will have the greatest impact if solved. It displays the relative importance of problems/issues in a simple, easy to interpret visual format.

Pilot

Trial implementation of a solution on a limited scale to ensure its effectiveness and test its impact.

Plan-Do-Check-Act (or PDCA)

Basic model or set of steps in continuous improvement; also referred to "Shewhart Cycle" or "Deming Cycle". This tool is an important element of the "Control" phase of a project. It is designed to ensure that everyone is using the process according to the tested methods.

PDCA is a Quality Control Chart, built with three columns titled "Plan/Do", "Check", and "Act". The "Plan/Do" or first column is dedicated to capture the essential steps of a process, in the form of a flowchart. The "Check" column describes what you will check in the process to monitor its quality. The "Act" column describes how the process operators should react depending of what they find in the measures.

Poka-Yoke

Poka-Yoke is a Japanese term for "mistake proofing. Mistake proofing typically looks at every step in the process in detail, and uses creative thinking to develop ways to keep

errors from occurring. Examples include, required fields on a computer screen, cars seat belt alarm, double entry passwords, and electric eye on elevator or garage door.

Precision

The accuracy of a measurement. When used in reference to sampling, this entails how much of change you need to be able to detect. As the need for precision increases, so does the sample size.

Preliminary plan

Used in the early phase of a project, when developing milestones for team activities related to process improvement; includes key tasks, target completion dates, responsibilities, potential problems, obstacles and contingencies, and communication strategies.

Problem/Opportunity statement

Process

A series of steps or actions that lead to a desired result or output. A set of common tasks that creates a product, service, process or plan that will satisfy a customer or group of customers.

Process Owner

Process owners are exactly as the name sounds - they are the responsible individuals for a specific process. For instance, in the legal department there is usually one person in charge - maybe the VP of Legal - that's the process owner. There may be a Director of Marketing at your property - that's the process owner for marketing, and for the Check-in process, the process owner is typically the Front Office Manager.

Process capability

Statistical measures that summarize how much variation there is in a process relative to customer specifications.

Process improvement

Improvement approach focused on incremental changes, involves solutions to eliminate or reduce defects, costs or cycle time; leaves basic design and assumptions of a process intact.

Process in Control

A statistical concept indicating that a process is operating within an expected range of variation and that variation is being influenced mainly by "common cause" factors; processes operating in this state are referred to as "in control".

Process management

Defined and documented process, monitored on an ongoing basis to ensure that measures are providing feedback on the flow/function of a process; key measures include financial, process, people, and innovation. Process Management along with Process Improvement and Process Redesign makes up the core structure of the SIXSIGMA Initiative.

Process map or flowchart

Graphic display of the flow or sequence of events that a product or service follows; it shows all activities, decision points, rework loops, and handoffs.

It allows the team to visualize the process and come to agreement on the steps of a process as well as examine which activities are duplicated.

Process measures

Measures related to individual steps in the process and/or the overall process; can be predictors of output measures. Often referred to as "X" variables in data., they Quantify either effectiveness or efficiency at key points in the process. Some process measures will be "subsets" of output measures (e.g. "Cycle time per step" as a Process measure adds up to "Total cycle time" as an output measure.)

Process redesign

Method of restructuring a process by eliminating handoffs, rework, inspection points, and other non-value-adding activities; typically means a "clean slate" design and accommodates major changes or improvements.

Teams use this option when a process does not exist or the process is truly broken

Project Definition Form (PDF)

A summary of pertinent information that describes a SIXSIGMA project. This will include items like: problem statement, goal statement, scope, business case, financial benefits & costs, project timing, resource requirements, measures, etc. The PDF will evolve and expand over the life of the project as it moves from one DMAIC phase to another.

Project Management

Use of tools, techniques, and/or software to track a project and prevent barriers to on-time success.

Project Nomination (iDMAIC)

A Black Belt, MBB, Sponsor, or General Manager associated with a project nominates the project for Innovation Transfer, using the e-Six Sigma project tool. The nominator evaluates the project and tabulates a "score" based on the following guidelines:

Financial benefits significant and applicable in similar properties?
A clearly defined process, which is shown to be effective, functional and cost effective
Includes documented Voice of the Customer data from a representative sample
Entire project is well documented & meets minimum documentation guidelines
Has been in Control phase for a minimum of 90 days showing improved results.
Must be piloted - arranged by divisional Six Sigma Council

Project Selection (iDMAIC)

During quarterly review meetings, each Division Council reviews all projects that have been nominated as Best Practices. Associates working on the projects are invited to provide expertise and insight from the property. The Council selects projects that meet the criteria for a Best Practice and have the highest potential value for the Division. Best Practices that are recommended for an entire brand must be approved by the Global or multiple divisions SIXSIGMA Council.

Project Sponsor

This member of the executive committee is a strong advocate of the project and can assist with barriers that may come up. He or she is accountable for the project's success and can therefore explain to Six Sigma Council members and everyone in the property the business rationale for the transfer project and assist with cross-functional collaboration efforts. He or she will remain up to date on key aspects of the project by regularly meeting with the team leader and members.

The project sponsor:

Is a member of the Executive committee
Is accountable for project success
Addresses cross-functional or other barriers
Reviews and tracks progress with team leader
Advocates for necessary resources

Project rationale

Broad statement defining area of concern or opportunity, including impact/benefit of potential improvements, or risk of not improving a process; links to business strategies, the customer, and/or company values. The Business Case is included in the project description tab of the E-SIXSIGMA Project Tool.

Property SIXSIGMA Council

The governing group responsible for project selection and status monitoring at each Starwood property. The members of the SSC are the General Manager, the Executive Committee and the Black Belt.

Proportion defective

Percentage (or fraction such as 1/8) of defective units; number of defective units divided by the total number of units.

Propose

The very first phase in the lifecycle of a SIXSIGMA project (DMAIC or Quick Hit). During this phase, the potential project idea or opportunity is proposed to the property SIXSIGMA Council. It is entered into the e-SIXSIGMA tool and may be edited or refined up until the point where it is submitted for approval as a project. At that time it automatically moves to the Define stage of DMAIC.

Quick Hit project

A small project that can be quickly implemented and that does not require a Black Belt to resolve and implement. Quick Hit project ideas come from many sources. The SIXSIGMA Council assigns them to a Team Leader for implementation. Quick Hit projects follow the general DMAIC methodology, but are not subject to as many tollgate reviews due to their shorter duration and smaller scope. Quick Hits generally have a project duration of 3 to 4 weeks and can be completed within the boundaries of a single function or department. They contain some Voice of Customer research and must involve a change in the process. Quick Hit financial benefits are recorded over a period of 12 months, after the Control phase.

RACI Matrix

A project management tools that identifies all required tasks or activities and what parties are involved in those tasks as well as their level or type of involvement.

A RACI is used to ensure clarity on roles and responsibilities in a team environment. It alleviates problems and fosters a culture of accountability. A RACI is used to ensure clarity on roles and responsibilities in a team environment. It alleviates problems and fosters a culture of accountability.

Letter	Stands For	Description
R	Responsible	The person who performs the activity; the "doer"
A	Accountable	The person with ultimate approval power; the "buck stops here"
C	Consulted	A stakeholder who is involved prior to task completion; "in the loop"
I	Informed	A stakeholder who is told of the outcome of the task or decision; the "keep in the picture"

ROI

Return on Investment. A measure of the financial returns from an investment opportunity, expressed as a percentage. All else being equal, projects with a larger ROI are more attractive investment opportunities.

Random sampling

Method that allows each item or person chosen to be measured, to be selected completely by chance.

Regression

The statistical study of relationships. An analytical tool that allows an assessment of a key outcome and extent to which one or more factors being studied can explain the variation in results see also Simple Linear Regression; Multiple Regression.

Repeatability/Reproducibility

These are important considerations when setting up measurements. Repeatability means that: The same person taking a measurement on the same unit gets the same result. Reproducibility means that: Other people (or other instruments or labs) get the same result you get when measuring the same item or characteristic.

Required Best Practices

A project designated by the division or global leadership team that delivers superior performance when implemented across a class of properties. "Required" means that all properties in a "class" must implement the best practice by a specified point in time. A "class" could be based on geography (e.g., Atlanta area, Italy, global), brand (e.g., Sheraton, Westin,) or type (e.g., resort property, airport property).

Response Plans

These plans are developed during the "Control" phase for DMAIC and iDMAIC projects to ensure that the gains achieved can be maintained. As conditions change, a Response Plan helps monitor results and respond to problems, manage processes day-to-day, and help practice continuous improvement.

Reverse SIXSIGMA

MBBs (and BBs) can use this method in times of financial contingency to help guide restructuring discussions This process enables a property or department to rapidly focus its restructuring resources on valuable work and eliminate lesser or non value added work. This standard helps the team identify:

What work adds no value in the current environment
What work adds value at high cost
What work must be done but with fewer resources and
What work we must do, but with lowered requirements

When deploying this framework rapidly, the lower risk approach is to focus first on the non-guest facing processes and outputs (internal customers).

Revision plan

A mechanism (process) for updating processes, procedures, and documentation.

Rework loop

Any instance in a process when the item or data moving through the process has to be corrected by returning it to a previous step in the process; adds time, costs, and potential for confusion and more defects. An example of a Rework Loop, would be an inspection process, taking place after production and independent of the production cycle, taking care of removing defects.

Risk Management

Risk management is about thinking ahead and preparing for things that may go wrong. This includes identifying potential problems and putting together preventive and contingent action plans, in order to reduce the potential damage.

Rolled throughput yield

The cumulative calculation of defects through multiple steps in a process; calculated as the product of the individual yield at each step (expressed as a percentage). For example, in an 8 step process with each step at 99%, the rolled throughput Yield is 99 x 99 x 99 x 99 x 99 x 99 x 99 x 99 or 95%.

Run chart (or time plot, trend chart)

Measurement display tool showing variation in a factor over time; indicates trends, patterns, and instances of special causes of variation.

SIPOC

A SIPOC is a high-level process map that includes Suppliers, Inputs, Process, Outputs, and Customers. It defines the Start and end Points of a process. Quality is judged based on the output of a process. The quality of the output is improved by analyzing input and process variables. SIPOC is a very effective communications tool. It ensures that the team members are all viewing the process in the same way. It also informs leadership on exactly what the team is working on. Therefore, it should be done in the early stages of a project.

SIXSIGMA

Level of process performance equivalent to producing only 3.4 defects for every one million-defect opportunity.
Term used to describe process improvement initiatives using sigma-based process measures and/or striving for SIXSIGMA-level performance, it is also:
A measure to define the capability of a process
A goal for improvement that reaches near-perfection
A system of management to achieve top performance to benefit the business and its customers, associates, owners and shareholders.

SIXSIGMA Council Training

A course designed to enable property Executive Committees and senior leaders to make value-driven decisions by identifying, prioritizing, and sizing projects for their Black Belts. The participant audience is composed of General Managers, Hotel Executive Committee Members, Select Department Heads, and Black Belts.

SIXSIGMA Councils

Leadership group that guides the implementation of quality or SIXSIGMA within an organization; establishes, reviews, and supports the progress of quality improvement teams. These councils are conducted at the Property, Area, Division and Global levels and projects are passed between them for approval and capture of possible best practices.

SPC

Statistical Process Control; use of data gathering and analysis to monitor processes, identify performance issues, and determine variability/capability.

Sampling

Collecting and using a portion of all of the data to draw conclusions (for example, timing the check-in process for every tenth guest). Sound conclusions can often be drawn from a relatively small amount of data. We sample because collecting and looking at all the data may be too expensive or too time consuming.

Sampling bias

Collecting an unrepresentative "slice" of data that will lead to inaccurate conclusions. For instance, measuring check-out time only at 12 noon may lead to inaccurate conclusions about average check-out time.

Scatter plot or diagram

Graph used to show the relationship . or correlation . between two factors or variables.

Scope

Defines the boundaries of the process; clarifies specifically where the start and end points for improvement reside (for instance, room service delivery time from the time of the guest call to knocking on the guest door); defines where and what to measure and analyze; needs to be within the sphere of control of the team working on the project . the broader the scope, the more complex and time-consuming the improvement efforts will be.

Simple Linear Regression

The statistical study of the relationship between a single variable X to a single output Y. Fitting a line though a set of data in such a way as come as close as possible to going through each data point. See also Regression; Multiple Regression.

Solution Statement

A clear description of the proposed solution(s); used to evaluate and select the best solution to implement.

Special cause variation

Event that impacts processes only under "special" circumstances . i.e., not part of the normal, daily operation of the process. An example of a special Cause for variation in a process, could be "Snow in Phoenix", resulting in a greater number of Call outs from employees. It differs from Common Cause in the sense that it is not usual and does not occur on a regular basis.

Stakeholder Analysis

Identifies all stakeholders impacted by a project and their anticipated and required levels of support for the project. Typical stakeholders include managers, people who work in the process under study, other departments, customers, suppliers and finance. A DMAIC or iDMAIC project will require a fundamental change in the process. In an effort to reduce the resistance to change, it is crucial to identify the stakeholders early on, and to develop a communication plan for each of them. Regular communication can create more buy-in, identify better solutions, and avoid pitfalls.

Standard Deviation

The lower case letter "sigma" in the Greek alphabet . s . is a symbol used to represent the "Standard Deviation" of a population. Standard Deviation is an indicator of the amount of "variation" or inconsistency in any group of items or process. For example when you buy fast food that's nice and hot one day, lukewarm the next . that's variation. Or if you buy three shirts of the same size and one is too small, that's also variation. Looking at variation helps Management to much more fully understand the real performance of a business and its processes.

Standard Operating Procedure (SOP)

A document that compiles all procedures, job tasks, scripts of interactions with customers or others, data collection instructions and forms, and an updated list of resources to be consulted for clarification of procedures. SOP's allow the property/company to maintain reproducibility of all aspects of a process improvement across shifts, time periods, and leadership changes.

Storyboard

A visual display outlining the highlights of a project (DMAIC, iDMAIC or Quick Hit) and its components leading the team to a solution. It is used in presentations to Sponsor, Senior Management, and others.

Stratification

Stratification means dividing data into groups based on key characteristics. The purpose of dividing data into groups is to detect a pattern that localizes a problem and explains why the frequency of impact varies between times, locations or conditions. For instance, when studying check-in problems, it may be necessary to look at afternoon, evening, and late night time periods separately.

Sub-process

A sub-component of a larger process. Example: guest greeting, key encoding and guest registration are sub-processes within the check-in process.

Supplier

Any person or organization that feeds inputs (products, services, or information) into the process.

Systematic sampling

Sampling method in which elements are selected from the population at a uniform level (e.g., every half-hour, everything twentieth item). This is recommended for many SIXSIGMA measurement activities. In DMAIC we are usually sampling from a process. We want to ensure that we can see the behavior of the process. So we sample systematically or with subgroups across time. Systematic or subgroup sampling ensures the sample will be representative of the process because each time period is represented.

Team leader

For DMAIC projects, the team leader is usually the Black Belt. For Quick Hit and iDMAIC projects, it is typically the Sponsor or Process Owner. For large DMAIC projects with more than one BB or MBB, the Team leader is the main point of contact for the project.

Team member

An active member of a Six Sigma Project team (DMAIC or iDMAIC),heavily involved in the measurement, analysis and improvement of a process. To be effective, team memberships require a minimum of 10% time commitment to a phase of the project. He/she also helps fosters the Six Sigma culture within the organization by informing /educating fellow Associates about Six Sigma tools and processes.

Tollgate

A review session that determines whether activities up to that point in a project have been satisfactorily completed. Tollgates are commonly conducted to review critical decisions during a project.

Transfer Team

Team formed at a property, with responsibility for importing a Best Practice (Optional or required), led by a Team leader appointed by the property Six Sigma Council, and coached by the Black Belt at the property when needed. Transfer teams will use the iDMAIC methodology to import innovation into their properties.

Transfer Team Leader (Process Owner/Department Head)

A person selected by the GM and property SIXSIGMA Council to lead an iDMAIC project based primarily on proximity and decision-making authority relative to the process involved. This person has primary responsibility for implementing the project, leading the team, and interacting with others to gather information and understanding necessary to

succeed. Often, the transfer team leader will be the department head or process owner of the process being improved with the best practice. The ability to lead the team and to anticipate clear barriers are important characteristics for a person in this role.

Transfer Team Member

Associates selected by the Transfer Team Leader and Six Sigma Council to serve on the iDMAIC project based on their knowledge of key aspects of the process, experience with the current process, enthusiasm for improvement, and ability to champion change. Other key factors in selecting transfer team members include time availability and representation from relevant functions. All members will be provided training on the skills and tools used in the transfer process.

Transfer project

A project that a property imports from another property.

Tree diagram

A "branching" diagram that is used to break any broad goal into increasingly detailed levels of actions. Often used along with brainstorming or during project management/planning.

Trend Chart

See Run chart.

Value adding activities

Steps/tasks in a process that meet all three criteria defining value as perceived by the external customer:

Transforms the item/service toward completion
Customer cares (willing to pay for it)
Done right the first time

A project team may suggest improvement ideas to bring their current process closer to the ideal process comprised only of value-adding activities.

Value-enabling activities

Steps/tasks in a process allowing work to move forward; can also be viewed as necessary steps that are not themselves adding value but that contribute to the delivery of the product or service. Examples include selecting new employees, purchasing supplies, and balancing the books.

Variation

Changes or fluctuations that determines how stable or predictable a process may be; affected by environment, people, equipment, methods, measurements, and materials; any improvement should reduce or eliminate variation.

Voice of the Customer (VOC)

A systematic approach to gather and analyze customer requirements, expectations, level of satisfaction and dissatisfaction. Methods of gathering Voice of the Customer include complaints, surveys, comments, market research, focus groups and interviews. Voice of the Customer should drive the process improvement or re-design efforts, and is a key data source in the project selection process.

WACC

Weighted Average Cost of Capital used to compare the value of 2 or more potential projects. Discount rate used in financial analysis. Represents the average cost for a company to finance itself from equity and debt. In 2002, this rate will be 12%, and will be used for all SIXSIGMA projects and locations.

Web-based Event (Required & Optional Best Practices)

Kick-off communication from the Export team (Black Belt, Project Team Leader, Sponsor and members), to the transfer Team(s) featuring a well documented presentation of their Best Practice project. The event takes place on the Web, in a Synchronous format (participation to a live event) or Asynchronous format (review of a recorded event).

Yield

Total number of units handled correctly through the process step(s), typically expressed as a percentage. Yield simply indicates how many items were delivered at the end of the process with no defect.

iDMAIC

iDMAIC stands for "Innovation DMAIC". iDMAIC is a methodology designed to ensure consistent and rapid transfer of innovation throughout Starwood. Innovations can be DMAIC projects, Quick Hits, or other Starwood Innovations. An iDMAIC project starts with a solution. This solution addresses a problem or opportunity that a property has in common with an exporting property. Most tools and documents in iDMAIC are the same but they're used in a different sequence than in DMAIC; the reason for this is that the process improvements in iDMAIC are not created but rather translated and transferred to another property quickly. Some tools will apply to all transfer projects while others will depend on the tools used in the export project.