

CASE STUDY

Industry: Manufacturing

Client: Trane, Inc.

Event: Six Sigma

50 Words or Less

An enterprise-wide event to address the management of Six Sigma projects. The goal was to prioritize and maximize effects of Six Sigma projects to fit within available resources.

Results: Maintaining desired results while not increasing resources and or investment.

Managing the Critical X's of Six Sigma

John Hagen, Vice President of Quality and Six Sigma / CIO / MBB
Trane, Inc.

Company Background

Trane Inc. provides heating, ventilation and air conditioning (HVAC) systems and services that enhance the quality and comfort of the air in homes and buildings around the world. The company offers customers a broad range of energy-efficient HVAC systems; dehumidifying and air cleaning products; service and parts support; advanced building controls; and financing solutions. The company's HVAC systems and services have leading positions in premium commercial, residential, institutional and industrial markets; a reputation for reliability, high quality and product innovation; and a powerful distribution network. Trane's 2007 annual revenues were approximately \$7.45 billion and the company has about 29,600 employees worldwide.

Situation Analysis

In late 2000, CEO Fred Poses introduced Six Sigma to Trane with the goal to 1) deliver premier customer service, 2) drive operational excellence and 3) meet company's financial objectives. Operational Excellence included a variety of functions including safety, materials management, data flow technologies and quality. The significance and impact of Six Sigma throughout the company produced numerous projects of various values. Projects were becoming backlogged due to available resources. With multiple projects and critical goals identified, a specific Six Sigma project was defined to prioritize the benefits of Six Sigma deployment through maximizing the available resources, value, utilization, capacity and duration.

$Y(\text{Six Sigma Benefits}) = f(\text{Duration, Capacity, Value, Utilization})$



Sigma Breakthrough Technologies, Inc.®

CASE STUDY

A Control Plan was developed to outline priorities and processes.

Control Plan Six Sigma Project Reviews, Control Plan Transfer & Project Closeout										
Process: Project Reviews, Control Plan Transfer and Project Closeout						Core Team: March, 2003 Six Sigma Symposium Participants		Date (Orig):	3/20/2003	
Key Contact: Mike O'Neill / John Hagen / Bill Kaelin								Date (Rev):	4/22/2003	
Phone: 608-787-4729 / 651-407-4310 / 651-407-3900									5/7/2003	
Process	Process Step	Input	Output	Process Specification (LSL, USL, Target)	Measurement Technique	Current Control Method	Sample Size	Sample Frequency	Reaction Plan	
Project Champion Review with Belt	Belt Updates project summary sheet		Updated Project Summary Sheet	Weekly update of Financials, Milestones, Roadblocks, Items completed since last review	Current Project Summary Sheet attached to Charter under weekly documents in mysixsigma	Weekly Project Champion Review With Belt	All Projects	Each Project Champion Review	Project Champion shows Belt how to attach weekly documents on the web	
Project Champion Review with Belt	Belt Review Progress with Project Champion	Project execution barriers or concerns		zero barriers or concerns	Belt project summary sheet	Process Champion Audit of Weekly Updates	One (1) Project Champion list of projects	1 per month	If execution barriers exist the Project Champion would establish a plan to remove or contact Process Champion / GM for help. If barrier cannot be removed kill the project.	
Project Champion Review with Belt	Belt Review Progress with Project Champion		Charter on the Web is updated	To reflect any changes in scope dollars or duration	Compare web savings forecast to Current Project Summary Sheet that is attached to Charter under weekly documents in mysixsigma	Process Champion Audit of Weekly Updates	One (1) Project Champion list of projects	Once per month consistent with Six Sigma Financial Reporting Regmts	Process Champion memo or meeting with Project Champion & GM. Re-emphasize importance to all Project Champions for keeping web updated	

SBTI Trained Black Belts

- Terri Brennan
- Jeff Rich
- John Roth
- Corey Zarecki
- Alexander Barclay
- Barry Kulback
- Bob Sines
- Michelle Tucker
- Mike Paschal
- Pete Kotlarek
- Robin Whitt
- Jim Ward
- John Wedeking
- Ken Pinski
- Larry Smith
- Peter Kuczkowski
- Richard Kilgo
- Alan Rein
- Smohan
- Michael Dale
- Todd Coleman
- Luca_Di_Costanzo
- Gregory Sutton
- Paul Van Tienen
- Bob Courtney
- Bill Bania
- Rick Bishop
- Don Fair
- Robert Moore
- Steve Tomberg
- Vincent Yu
- Kevin Zhou

Process Champions throughout the company would be involved in the determinations of which projects would be pursued using DMAIC methodology.

Without question, Six Sigma had a significant impact on the strength and growth of American Standard. Over a four-year period, the company public stock offering performance was 300% better than the market's index. Direct savings resulting from projects went from \$15MM in 2001 to over \$85MM in 2004. Indirect savings went from \$1.6M to \$15.8 in the same period. Fundamentally, by 2004, everyone and everywhere within the company were involved in some level of training and project involvement.

From the beginning stages of Six Sigma activities at American Standard, Sigma Breakthrough echnologies, Inc. was involved. Initial deployment and upper management buy-in to the process was established. SBTI's master black belts began the first of many waves in training both green and black belts. Because of SBTI standards of expectation, a key to the belt's success was in becoming certified by SBTI. As the amount of projects grew, so did the number of highly trained SBTI belts.

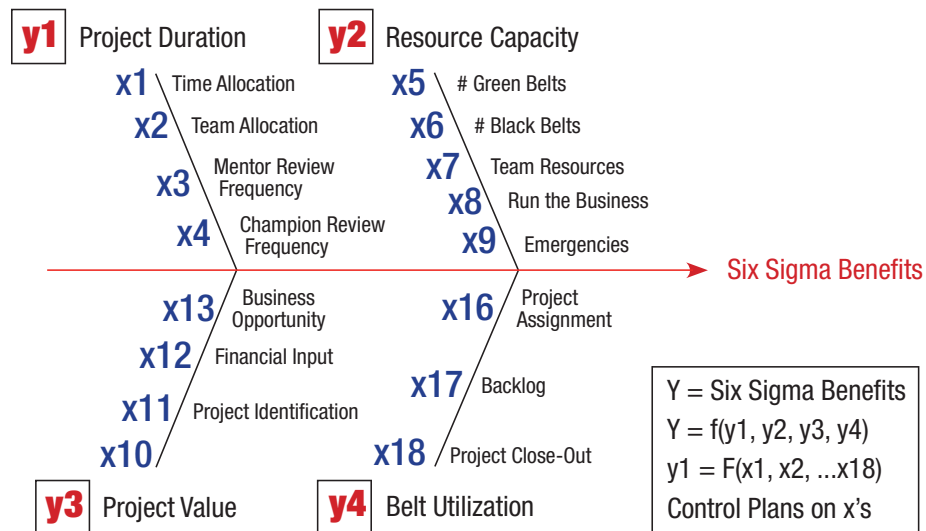
The list to the left is a glimpse into the actual people that were trained by SBTI and are still productive within the company. SBTI had been called on repeatedly to develop additional waves of belts, insuring the quality of belts who would be available to excel at returning value.

It was essential to have all project Champions involved in this project. Their perspective and knowledge of the projects in progress or awaiting actions was important to review.

Controlling the many variables was a must. The chart above shows how the project leaders were able to determine controlling factors over the projects through review, transfer and closeout.



A Fishbond Diagram is used to picture the organization's alignment with Six Sigma Benefits.



Data Accumulation and Management

Data collection from the variety of projects was collected to gain an overview of the situation. The Fishbone chart above shows the variables involved in the distillation of the projects within the company. Factors like project duration, resource capacity, project value and the best utilization of the belts was outlined. Each factor was populated with in-depth information allowing the Champions to construct a matrix to prioritize all of the x's. The critical x's were then reviewed to assess their manageability within the process.

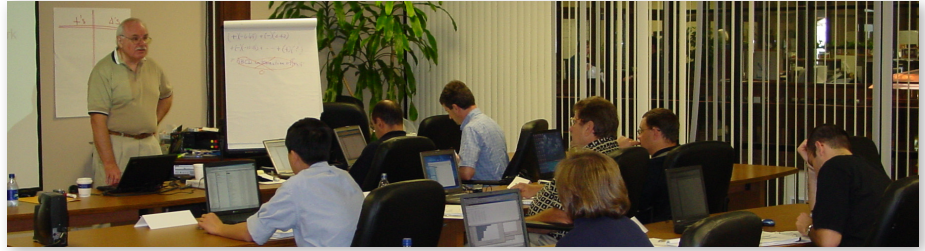
Results

The real Big Y of Six Sigma is in how we make it a "Way of Life." When it becomes a functioning part of the business process, you end up doing it without thinking. All decisions become an integral part of the process and improvement.

$Y=f(\text{Way of Life})$

During the years of progress with Six Sigma methodologies, SBTI has played two very important parts: 1) consulting – designing the programs and building the road maps for success, and 2) training the "Traned" – the key to managing the programs on the path to success. In four year of development, blackbelts went from 241 to approach 2100.

$\text{Right Projects} + \text{Right People} + \text{Right Roadmaps/Tools} + \text{Right Support} = \text{Right Results.}$



Value Proposition

Recognized as thought leaders and innovators in business process improvements, Sigma Breakthrough Technologies Inc. (SBTI) is a global management consulting firm specializing in deployment of Six Sigma and Lean methodologies. SBTI delivers innovative and sustainable business process excellence solutions by developing future leaders with core competencies to drive superior top and bottom line results. We advance our clients with best-in-class results in revenue growth, cost reduction, new product development and process improvement.

What We Provide

SBTI offers a full range of programs and services. These offers include leadership workshops, asset maximization, strategic planning and assessments, multilevel managerial workshops and specialized “belt” training at the tactical level.

Results. Guaranteed.

SBTI delivers the fastest and highest return on investment in the industry. Always incorporating a measurement benchmark, most of our clients experience an average of 30X return on investment within the first 24 months of engagement.

Global Resources

Throughout our history, SBTI has demonstrated a track record of quickly responding to clients’ global needs. Our international offerings are handled through regional offices in Latin America, Europe and Asia. Materials are available in English, Spanish, Italian, French, German, Mandarin, Korean and Japanese.

Our History

Dr. Stephan Zinkgraf, one of the original Six Sigma developers, founded SBTI in 1997. Beginning with two corporate clients, SBTI has grown to more than 50 global corporate deployments and an additional 50 clients using SBTI methodology.

SBTI Executive Directors and Master Consultants have a minimum of 10 years industry experience – some 25 or more. Our international offices provide the same unmatched experience and capabilities as in the states, while offering local language and bilingual instructors. All of SBTI’s consultants have lead multiple waves of training, completed numerous projects and continually mentor Black Belts.

