Six Sigma Project Charter

Name of project: SATS Cross Program Communication Project
Green belt: Yes
Submitted by: Antwione Haywood and Ethel Swartzendruber
e-mail: Haywood@purdue.edu and swartzen@purdue.edu
Date submitted: 5/21/12

I. Project Selection Process

<table>
<thead>
<tr>
<th>Item</th>
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<th>No</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Affinity diagram</td>
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<td></td>
<td>See attachment</td>
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<tr>
<td>Key business issue</td>
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<td>Shared Mission and Purpose</td>
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<td>Linked to a define process</td>
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<td>Communication Flow</td>
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<td>Customers identified</td>
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<td>Students and Parents</td>
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<td>Defects clearly defined</td>
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<td>Lack of Succession System</td>
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II. Project Description

<table>
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<th>Project Title</th>
<th>Date Charted</th>
<th>Target Completion Date</th>
<th>Actual Completion Date</th>
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<tr>
<td></td>
<td>10/04/12</td>
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<td>TBA</td>
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<thead>
<tr>
<th>Project Leader</th>
<th>Team Facilitator</th>
<th>Team Champion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antwione Haywood</td>
<td>Ethel Swartzendruber</td>
<td>Jared Tippets</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Estimated Cost Savings</th>
<th>Actual Cost Savings</th>
<th>Costs of implementing project</th>
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<tbody>
<tr>
<td>$37,000 or one Assistant Dir. Annual Salary based on $17 an hour pay</td>
<td>TBA</td>
<td>Less than $500 worth of time based on $17 an hour pay</td>
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</table>

Team members

Antwione Haywood, Ethel Swartzendruber, Karen Huston, Jared Tippets

Problem Statement

SATS A/P staff members are trained to work specifically in one area/initiative (e.g. Purdue Promise, Boiler Gold Rush, and Supplemental Instruction). Those staff members become the "go to" staff member for concerns or issues from customers.

During Fall 2011, SATS programs removed voicemail from A/P staff members’ phones and downsized clerical staff from two people to one. As a result, the number of calls fielded by the clerical staff member has doubled (proportionately) over the past semester.
When a particular A/P staff member is unavailable, a message is taken from the by the clerical staff member, thus reducing our ability to supply immediate satisfaction to the customer. Studies suggest customers are generally happier when their questions are immediately addressed.

Based on survey results from Assistant Directors, staff members spend one hour on average returning e-mails and message while out of the office or in a meeting.

### Project Goal and Metrics

**Goal:** Reduce the percent of unaddressed phone calls by 50%.

**Metrics:**
- Call log data: number of calls received and number of calls where a message was taken.
- Self-reported data: Estimated time spent returning messages after out of the office or in a meeting.

### Describe the challenges and support required

Challenges: Tracking time spent returning messages and establishing a baseline. Support: Collaboration from the clerical staff (Karen) and Assistant Directors

### Project Schedule

<table>
<thead>
<tr>
<th>D1. Select the output characteristic.</th>
<th>Date: 7/15/12</th>
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</table>
On average 15% of all phone calls are not immediately addressed on a weekly basis.

Therefore, this project will attempt to reduce the percentage/proportion of customer inquiries not addressed during the initial phone call. Unaddressed phone calls represent opportunities for customer dissatisfaction, which could result in reduced use of services.

Source of Data: Phone Logs (see attached)

<table>
<thead>
<tr>
<th>D2. Define the output performance standard.</th>
<th>Date: 7/24/12</th>
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</table>
A phone call sent to voicemail, a message taken from the customer, or customers being asked to call back at a later time, are all considered “unaddressed phone calls”. Performance is expressed as the percentage/proportion of unaddressed phone calls documented by the clerical staff. |
### D3. Describe the process.  
**Date: 7/24/12**  
**Required tools:** SIPOC, Detailed process map

Generally, phone calls are received by our clerical staff member. She addresses or filters calls to all appropriate parties. Although she has a multi-line phone, she is the only one who answers the calls. On occasion, student work study students answer the phone on her behalf when she is on break.

SIPOC (See attached)  
Detailed Process Map (see attached)

### M1. Validate the measuring system.  
**Date: 8/12/12**  
**Required tools:** Gage R&R/Attribute Agreement Analysis

An Attribute Agreement analysis revealed a 90% rating within Appraisers and 85% between Appraisers. Thus, making the measuring system valid.

The process consisted of:

- interviewing professional staff members who receive transferred calls (attached)  
- creating an affinity diagram to reflect the reasons they receive calls (attached)  
- created a “mock calling experience” and had the previously interviewed professional staff call and document their phone interaction as an expert and compared that to the responses documented by the clerical staff member (attached)

Attribute Agreement Analysis (see attached)

### M2. Establish current process capability for the output.  
**Date: 8/13/12**  
**Required tools:** Process capability, Control chart

The P-chart revealed that 15 data points were out of control. The P-chart is reflective of number of defects by week. For the purpose of this project, we concentrated on weeks that had at least 60 calls received in a week. These data reflect a year’s (52+ weeks) of phone call logs

P-Chart (see attached)

### M3. Determine project objectives.  
**Date: 8/19/12**

Reduce the number of voicemails or messages taken by clerical staff member by 50%. This number is based on the 50-90 rule. Since the process is “okay” we strive to reduce error by 50%

50-90 Rule (see attached)
**A1. Identify and list all potential causes (inputs).**  
*Date: 9/3/12*

*Required tools: Process map, Brainstorming, Fishbone diagram, Cause and effect matrix, Potential “X” matrix*

Interviews were conducted with a representative from each of the five programs. The purpose of the interviews was to identify possible reasons as to why missed or transferred calls during the weeks that had 60 or more calls received were outside the control limits. Interviewees reviewed their calendars starting with a year ago, and continued to brainstorm about possible causes for the miscues.

Afterwards, a value stream map was created to reflect the “inputs” identified by staff members and incorporate the process described in D3.

Brainstormed list (see attached)  
Value Stream Map (see attached)

**A2. Screen potential causes.**  
*Date: 9/14/12*

*Required tools: See A1*

The exhaustive “brainstormed” list was categorized into twelve potential inputs areas. Those twelve inputs were grouped into four overarching categories. An Ishikawa Diagram was constructed to reflect this process.

Ishikawa Diagram (see attached)

**A3. Determine the f(x) – key input variable(s)**  
*Date: 9/21/12*

*Required tools: One factor at a time experiment*

After reviewing the potential causes for the weeks that were out of control, a rating was applied to each cause in the Cause and Effect Matrix. The ratings were based on feedback from the staff and discussion between the project team members.

Cause and Effect Matrix (see attached)

**I-1. Establish operating tolerances for key inputs and output.**  
*Date: 9/28/12*

The root of each cause was described and the potential causes were ranked by the project team based on potential impact and effort of implementation strategies. An Impact/Effort Matrix was created to visually depict the time and effort of each area.

The solutions were brainstormed by the project team and shared with selected staff members. Their concerns were used to assign “level of impact” and “level of effort” scores. These items are represented in the Solution Matrix.
Impact/Effort Matrix (see attached)
Solution Matrix (see attached)

<table>
<thead>
<tr>
<th>I-2. Re-evaluate the measuring system.</th>
<th>Date: (TBA- Spring)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required tools: Gage R&amp;R/Attribute Agreement Analysis</td>
<td></td>
</tr>
</tbody>
</table>

In order to effectively assess the impact of the proposed solutions, we will pilot one or two of our suggestions (with director approval) over the course of a semester. We will track missed and messaged phone calls in the same manner that was validated in “M1”.

<table>
<thead>
<tr>
<th>I-3. Establish final capability for key input(s) and the output.</th>
<th>Date: (TBA- Spring)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required tools: Process capability, Control chart</td>
<td></td>
</tr>
</tbody>
</table>

The project team will use Minitab to run a P-chart. The project team will use the P-chart to determine the weeks the missed/message phone calls were outside the control limits. If the controls have reduced error by 50%, than the project team will move on to the control phase. Conversely, if the solutions fail to reduce error by 50%, the contingency solutions will be piloted over the course of the summer semester.

<table>
<thead>
<tr>
<th>C1. Implement process controls for the key inputs.</th>
<th>Date: (TBA- Summer)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required tool: Four levels of control, error proofing</td>
<td></td>
</tr>
</tbody>
</table>

Control Level 0- Employees impacted by any potential solutions will meet and discuss the details of the implementation plan. Any changes to their work processes will be documented and sent out in a word document via e-mail.

<table>
<thead>
<tr>
<th>Follow-up to ensure effectiveness.</th>
<th>Date: (TBA- a year later)</th>
</tr>
</thead>
</table>

A Kaizen event will be held a year after project completion. During the event, two whole work days will be devoted to revisiting the project.

Black Belts must utilize the following additional tools: FMEA, hypothesis testing, regression, design of experiments, and one lean tool of their choice.
Cross-Program Communication . . .

A Six-Sigma Project
By Antwione Haywood and Ethel Swartzendruber
October 24, 2012

Student Success at Purdue
ENAD 212
Project Description:

- Student Success staff members trained to work specifically for their particular area
- Department removed voicemail from AP staff phones and reduced clerical staff from 2 – 1
- Number of calls fielded by clerical staff member has doubled
- Unavailability of staff member results in message taken which delays response to customer
Project Goal:

- **Reduce percent of unaddressed calls by 50%**
- **Metrics:**
  - Log call data: number of calls received and number of calls messaged
- **Self-reported data:** Estimated time spent returning messages (staff member out of office)
- **15% of weekly calls are not immediately addressed**
### SIPOC Diagram D-3

#### SIPOC (D3)

<table>
<thead>
<tr>
<th>SUPPLIERS</th>
<th>INPUTS</th>
<th>PROCESS</th>
<th>OUTPUTS</th>
<th>CUSTOMERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>List Suppliers, internal and external.</td>
<td>List Inputs to Process: Data, information, materials, manpower, environment, equipment, resources.</td>
<td>Map Process Below. Do not get led by the form! List as many steps as necessary to describe the MACRO process. The purpose of this exercise is to examine scope, to list primary inputs and outputs, and to list high-level customer expectations.</td>
<td>List Outputs to Process: Data, information, materials, manpower, environment, equipment, resources.</td>
<td>List customers, internal and external.</td>
</tr>
</tbody>
</table>

**Assistant Directors:**
- **Purdue Promise:** Daily log of calls
- **Corey Thoss:** Participation Requirements
- **Sabrina Brown:** Financial Aid and Policies
- **Ryne Kerschner:** Acceptance/Rejection Reasons
- **Jaclyn Palm:** Counselor/Advisor Inquiry
- **Katie Bowen:** Requirements for SL roles
- **Michelle Ashcraft:** Rescheduling for SL's
- **Lisa Richardson:** Program Location Logistics
- **Stephanie Hawkes:** BGR
- **Esteban Hernandez:** SL Requirements TL, TS, SOC

**Program Location Logistics:**
- Rescheduling of interviews
- Post-BGR Inquiries
- Residential Inquiries
- Move-In Logistics
- Program Information
- Fee Waiver Questions
- STAR

**Delivery of Materials:**
- Ambassador Eligibility
- Ambassador Interview Info.
- Late STAR bag items
- STAR Exceptions

**Advising Inquiries:**

**Customer Calls Front Desk:**
- Customer Inquires About a Particular Program
- Call Is Returned at a Later Time
Detailed Process Map (D3)

Inputs
- Availability of A/P staff
- Availability of clerical staff member
- Knowledge about topic
- Availability of information
- Type of customer inquiry
- Time of Return
- Availability of Information
- Schedule of A/P Staff
- Method of Return (e-mail or phone)
- Availability of initial caller

Outputs
- Transfer to A/P staff
- Message or voicemail
- Direct answer from clerical staff
- Game of Telephone (not relayed properly)
- Unresolved inquiry
- Direct answer from A/P staff

SATS Receives Phone Call
Customer is transferred
End of Inquiry
Affinity Diagram - M 1

Affinity Diagram-Why do you get phone calls or e-mails? (M1)
(Phase I)- By Program Inquires

**Purdue Promise**
Participation Requirements such as G.P.A, Incoming Requirements
How to Get Financial Aid
Why someone didn’t get into Purdue Promise
How does Purdue Promise cover and how does it work financially
H.S. Counselors calling for information or campus advisors about program requirements
Student Leader requirements for SST, Mentors, Tutors
Student Leader logistics for reschedule a meeting
Logistics of where is a program being held

**Boiler Gold Rush**
Student Leader requirements- TL, TS, SOC
Where is a program being held
Reschedule an interview
Information about a program or events such as post-BGR activities
University Residence/BGR move in location
Logistics of Move in
BGR Program information
Fee Waiver questions

**STAR**
Delivery of STAR items
STAR ambassador eligibility
STAR ambassador interview sign up
Patrons calling to inquire how to include items in STAR bags
How to get a STAR exceptions
STAR advising questions about availability of sections

**SI**
Eligibility criteria for becoming an SI leader
Logistics of SI sessions
Timecards and other logistical concerns of SI leaders
Connecting students with a SI course

**Learning Communities**
General information about LCs
Information about specific LCs
Eligibility criteria to participate in an LC
Eligibility to become LCA
Wanting to cancel/change/update an LC application
Funding and credit card questions for LC events
M1 (Questions for Callers)
5 sets of 4 questions each:
Purdue Promise
I’ve heard about Purdue Promise from a friend of mine. She said everything – my tuition and everything – was paid for. How can I qualify for Purdue Promise? Student
I have some background in tutoring and like helping my friends with their homework. What are the requirements for being a Purdue Promise Mentor? Student leader
Our family has a very limited income. Can you tell me why my daughter didn’t get into Purdue Promise? Parent
Can a student take another GS course other than the one we were told Purdue Promise students have to take? Does it have to be that exact one? Advisor
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<td>Question 3</td>
<td>Question 4</td>
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<tr>
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<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
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</tbody>
</table>
**Agreement Analysis M-1**

**Assessment Agreement**

**Within Appraisers**

- 95.0% CI
- Percent

**Appraiser vs Standard**

- 95.0% CI
- Percent

Date of study:
Reported by:
Name of product:
Misc:
P Chart M-2

P Chart of Missed or messaged

- Sample Proportion
- \( P = 0.002441 \)
- UCL = 0.004353
- \( \bar{P} = 0.002441 \)
- LCL = 0.000530
Ishikawa Diagram (Potential Root Causes)

- Program Planning:
  - Student Leader Trainings
  - Campus Partner Meetings
  - Leader Interviews

- Information:
  - Not enough staffing during peak times
  - Only key people have key information
  - Questions while staff is occupied

- Website Maintenance

- Pre-event Planning

- Too many missed or transferred calls

- Employee Vacations

- Conferences

- Holidays or Time Off

- Personal Issues

- Position Searches
  - SATS Office Move/Open House
  - FOE/Campus Committees
  - Program Events
  - Office Events/Changes/Growth

- Not enough staffing during events
## A-3 Cause & Effect Matrix

### Inputs
- **Event Planning**
  - Trainings: 0
  - Campus Partner Meetings: 0
  - Leader Interviews: 0
  - Score: 43

- **Office Events/Changes/Growth**
  - Program Events: 49
  - Campus Committees: 0
  - Departmental Environmental Changes: 0
  - Position Searches: 0

- **Information**
  - Website maintenance: 0
  - Programatic questions: 0
  - Score: 37

- **Personal Issues**
  - Employee Vacations: 0
  - Professional Development Conferences: 0
  - Holidays or Time Off: 0
  - Score: 31

### Outputs
- **Correct Answer**
- **Immediate Response**
- **No Transfers**
### Cross-Program Communication

<table>
<thead>
<tr>
<th>Problem</th>
<th>Main Causes</th>
<th>P</th>
<th>E</th>
<th>Recommended Action</th>
<th>I</th>
<th>Contingency Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too many missed calls - customer has too long of a wait time or have to call back</td>
<td>Staff Events result in key people being away from desk - out of office</td>
<td>M</td>
<td>H</td>
<td>Ask program coordinators to create a monthly quick fact sheets with items people should be aware of (e.g. trainings, callouts)</td>
<td></td>
<td>Have Karen learn all the key answers about each program</td>
</tr>
<tr>
<td></td>
<td>Department-wide events create a work stoppage or weaken communication (e.g. STAR, BGR, moving offices, expanding services)</td>
<td>L</td>
<td>L</td>
<td>Create automated call system to respond to FAQs and/or inform customers of high-volume call traffic during peak call seasons.</td>
<td></td>
<td>Factor department-wide communication plan into overall program plan for each functional area. Also include Karen in planning and logistics meetings.</td>
</tr>
<tr>
<td>Too many transferred calls - Wasted time from customer inquiry to receiving an answer</td>
<td>Key people unable to take the transferred call or to check e-mail and respond</td>
<td>H</td>
<td>H</td>
<td>Create a responsibility “backup/contingency” system, so people from different areas can a) cover each other’s responsibilities and b) reduce likelihood that individual staff members are lynchpins of certain information</td>
<td></td>
<td>Cross-program Training Workshops. Implement a day-long workshop to acquaint staff with the necessary information for each program</td>
</tr>
<tr>
<td></td>
<td>Staff members calls out sick or goes to a conference</td>
<td>M</td>
<td>M</td>
<td>List all operational tasks in the SATS “task manager”. Keep updated notes, FAQs and related material in the comment log</td>
<td></td>
<td>Increase material on the website to address questions that may be asked by customers in that staff member’s absence.</td>
</tr>
</tbody>
</table>
Follow-up to ensure effectiveness:

• **I-2** Pilot one or two suggestions over the course of a semester
  • Track missed and messaged phone calls in the same manner as it was validated
• **I-3** Run a P-chart using Minitab
  • Use the P-chart to determine the weeds missed/messaged calls were outside the control limits
  • If controls have reduced error by 50%, we will move to next phase
  • If controls have not reduced error by 50%, contingency solutions will be piloted
• Impacted employees will meet and discuss details of implementation plan
  • Any changes in work processes will be shared by e-mail
• A Kaizen even will be held a year after project completion
  • With director approval, two work days will be devoted to revisiting the project