Six Sigma Yellow Belt Project Charter

Project Name	Paper Organizing
Today's Date	July 17, 2020
Project Start Date	July 10, 2020
Target Completion Date	July 17, 2020

Project Element	**Response**		
Problem Statement • Includes time, measurable item, gap and business impact	The Purchasing Department has noticed an increase in complaints from employees in the Paper-Shuffling Department (PSD) about MSDs (metallic securing devices) breaking and failing to keep papers together. This creates opportunities for client papers to be mixed together. The Purchasing Department would like to improve the process for purchasing MSDs to eliminate complaints from employees in the Paper Shuffling Department.		
Business Case • Why is this project important to do now? • What is the project's financial impact? • What is the impact on DPMO/ Sigma level? • What is the impact on customer service	According to a judgment sample of three employees and two managers from the PSD, team members determined that MSDs that cannot withstand four or more bends are unacceptable because they are unlikely to remain intact throughout the paper shuffling processes and will not hold papers tightly. This is called durability. Defective MSDs create costs for POI; for example: (a) papers from different clients may get mixed together if not properly bound, requiring additional processing time, (b) employees may have to use multiple MSDs for one project, creating additional material costs, and (c) employees get frustrated and do not perform their jobs efficiently and productively, consequently increasing labor costs. Additionally, team members discovered that a large proportion of the boxes containing MSDs arrive to the PSD with five or more broken MSDs. This is called functionality. This creates additional processing costs for POI; for example, (a) increased unit costs and (b) frustrated and nonproductive employees and managers. Team members used the same judgment sample as above and determined that approximately 60% of individual MSDs do not meet durability criteria, and 60% of MSD boxes do not meet functionality criteria		
Goal Statement • Specific • Measurable • Achievable • Realistic • Time-bound	a 100-fold improvement in MSD quality (durability and functionality) should be the goal in 4 years		
List of Improvement Goals	**Measure (units)**	**Baseline**	**Goal**

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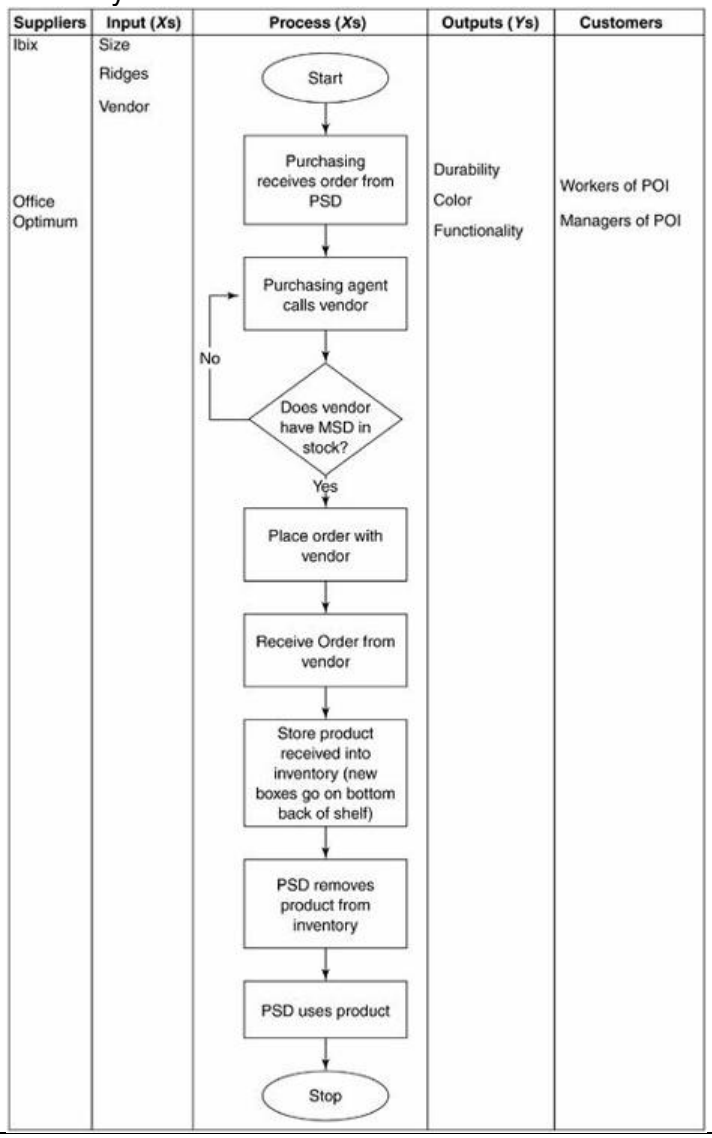
Six Sigma Yellow Belt Project Charter

1. 2. 3. 4. 5.	durability	100	200
	functionality	100	200
Process • Describe the process in which the problem exists	Paper shuffling department		
Project Scope • What part of the process will be addressed? • What are the boundaries of the project or process? • What areas are inside or outside the team's focus or authority? • Attach a SIPOC diagram if necessary	The starting point for the project is when the Purchasing Department receives purchase orders from the PSD. The stopping point for the project is when the PSD places MSDs into inventory		



Six Sigma Yellow Belt Project Charter

Team	Member Name	
Project Sponsor	A	
Key Stakeholders	B	
Team Lead	C	
Team Members	D	
Process Owner	E	
Other		
Timeline by Project Stage	**Milestone**	**Target Completion Date**
Define	Project Charter and kickoff	July 7, 2020
Measure	Define and collect data	July 7, 2020
Analysis	Find causes	July 7, 2020
Improve	Fix causes	July 7, 2020
Control	Standardize the fix	July 7, 2020

Team Charter

Project Title	Paper Organizing

Expectation	Example	Team Rule
Attendance	**Attendance is required at all team meetings. Changes in meeting times must be made at least 24 hours ahead of time.**	**Attendance is required at all team meetings. Changes in meeting times must be made at least 24 hours ahead of time.**
Participation	**Team members may not be substituted unless approved by team leader.**	**Team members may not be substituted unless approved by team leader.**
Focus	**We will stay on task and on topic, using the Project Charter as our guide. A meeting agenda will be publishedat least one day in advance.**	**We will stay on task and on topic, using the Project Charter as our guide. A meeting agenda will be publishedat least one day in advance.**
Interruptions	**Interruptions for emergencies only. Phones turned to silent.**	**Interruptions for emergencies only. Phones turned to silent.**
Preparation	**All deliverables are expected to be completed in a timely manner. Each meeting will have a published agenda.**	**All deliverables are expected to be completed in a timely manner. Each meeting will have a published agenda.**
Timeliness	**Meetings will begin promptly as scheduled.**	**Meetings will begin promptly as scheduled.**
Decisions	**We will choose the best decision-making method for each situation. We will support decisions made by the team.**	**We will choose the best decision-making method for each situation. We will support decisions made by the team.**
Data	**We will rely on data to make decisions.**	**We will rely on data to make decisions.**

Team Charter

Project Title	Paper Organizing

Expectation	Example	Team Rule
Conflict	**We welcome honest disagreements, as long as everyone is treated with respect. A facilitator will be used if conflict cannot be resolved.**	**We welcome honest disagreements, as long as everyone is treated with respect. A facilitator will be used if conflict cannot be resolved.**
Other		

Team Member	Role	Signature
Project Sponsor	A	**OK**
Key Stakeholders	B	**OK**
Team Lead	C	**OK**
Team Members	D	**OK**
Process Owner	E	**OK**

Data collection plan

Definition of each CTQ

CTQ1: durability

1. If the number of bends is ≥ 4, then MSD is conforming.

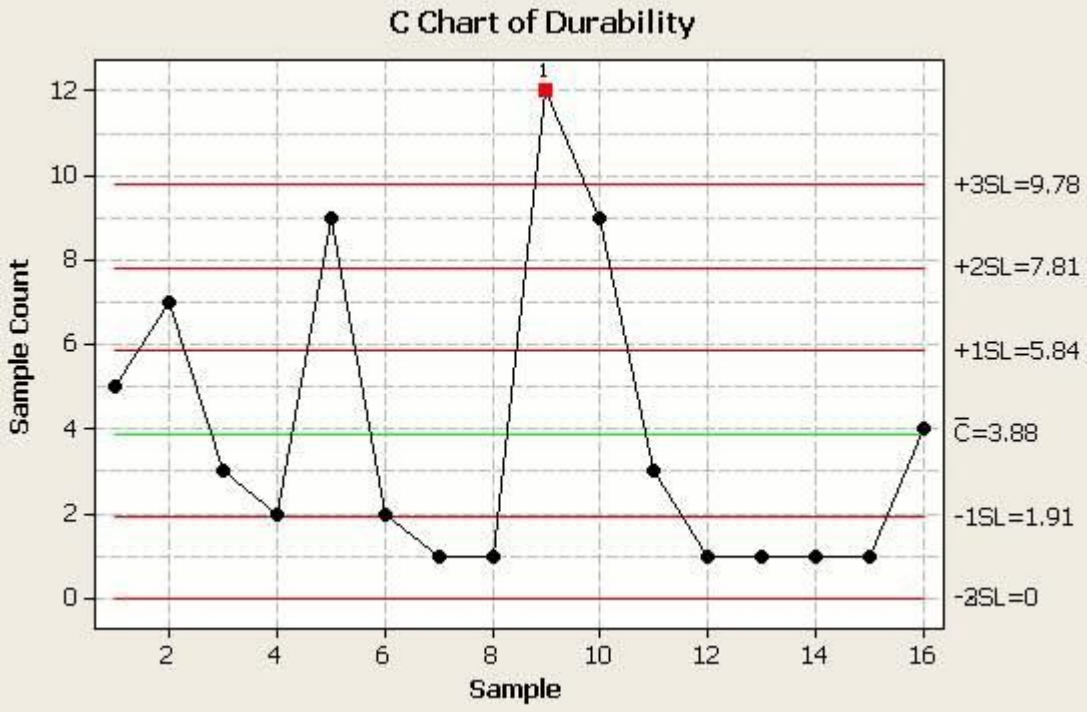
2. If the number of bends is < 4, then MSD is defective.

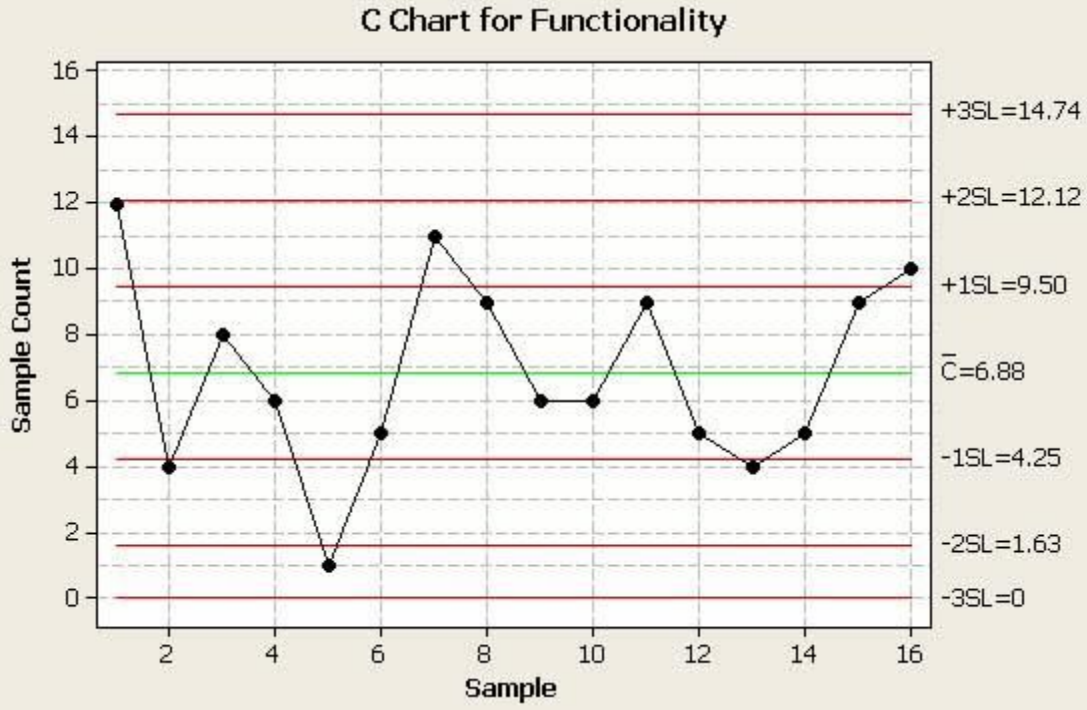
CTQ2: functionality:

1. If the number of MSDs that are broken ≤ 5, then the box of MSDs is conforming.

2. If the number of MSDs that are broken > 5, then the box of MSDs is defective.

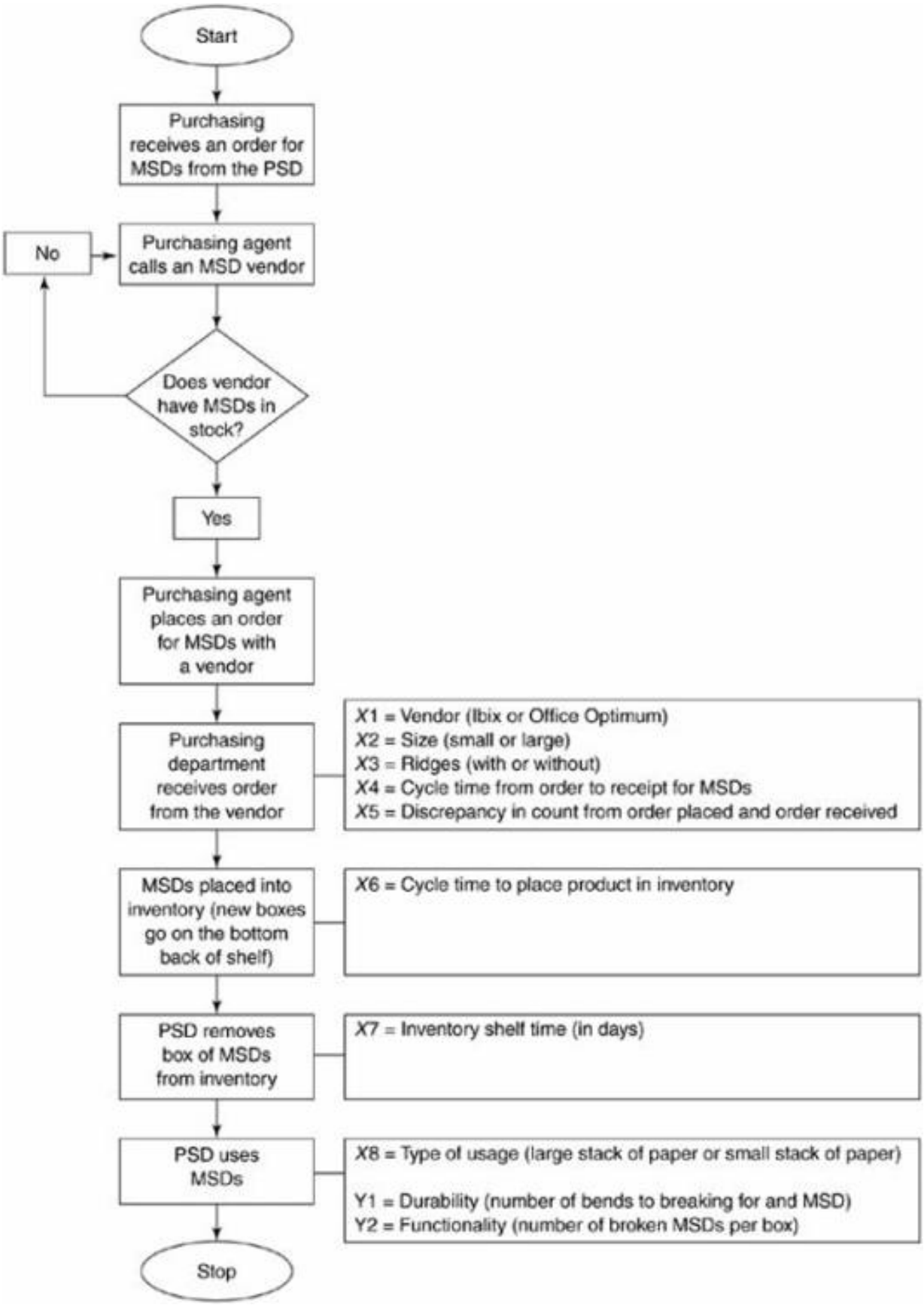
Gage R&R study on each CTQ





CTQs	Yield		DPMO	
	Current	Desired	Current	Desired
Durability	37.50%	99.38%	625,000	6,210
Functionality	37.50%	99.38%	625,000	6,210

Process map


Start
Purchasing receives an order for MSDs from the PSD
No
Purchasing agent calls an MSD vendor
Does vendor have MSDs in stock?
Yes
Purchasing agent places an order for MSDs with a vendor
Purchasing department receives order from the vendor
X1 = Vendor (Ibix or Office Optimum)
X2 = Size (small or large)
X3 = Ridges (with or without)
X4 = Cycle time from order to receipt for MSDs
X5 = Discrepancy in count from order placed and order received
MSDs placed into inventory (new boxes go on the bottom back of shelf)
X6 = Cycle time to place product in inventory
PSD removes box of MSDs from inventory
X7 = Inventory shelf time (in days)
PSD uses MSDs
X8 = Type of usage (large stack of paper or small stack of paper)
Y1 = Durability (number of bends to breaking for and MSD)
Y2 = Functionality (number of broken MSDs per box)
Stop

Hypotheses

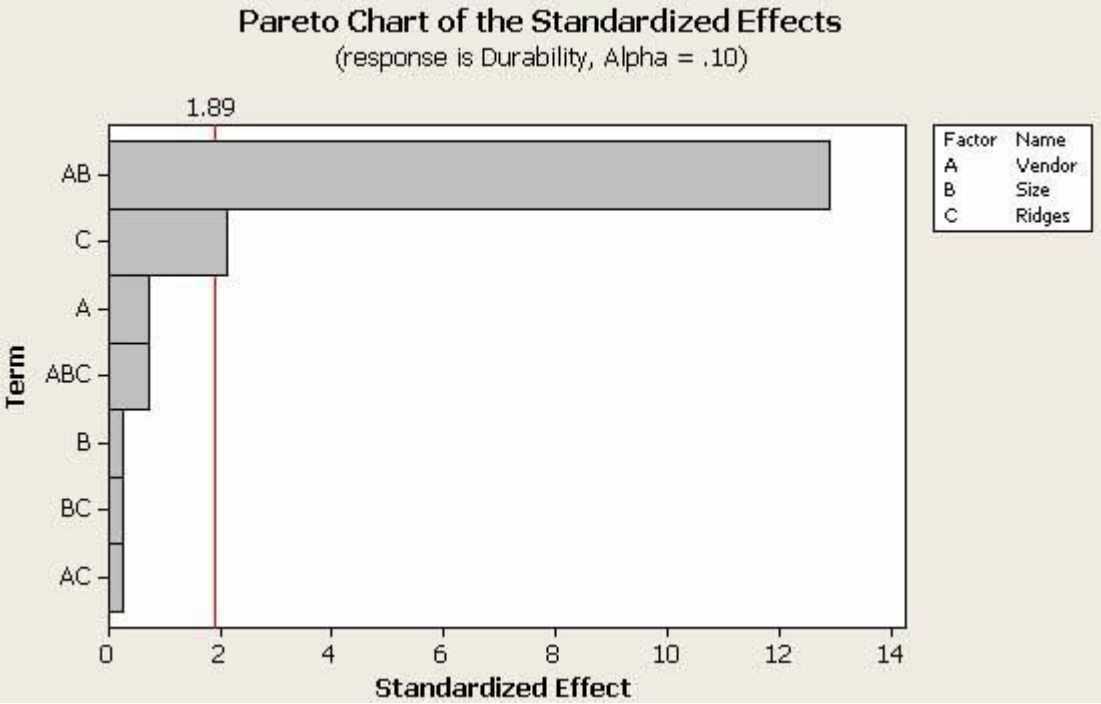
The Analyze phase resulted in the following hypotheses:

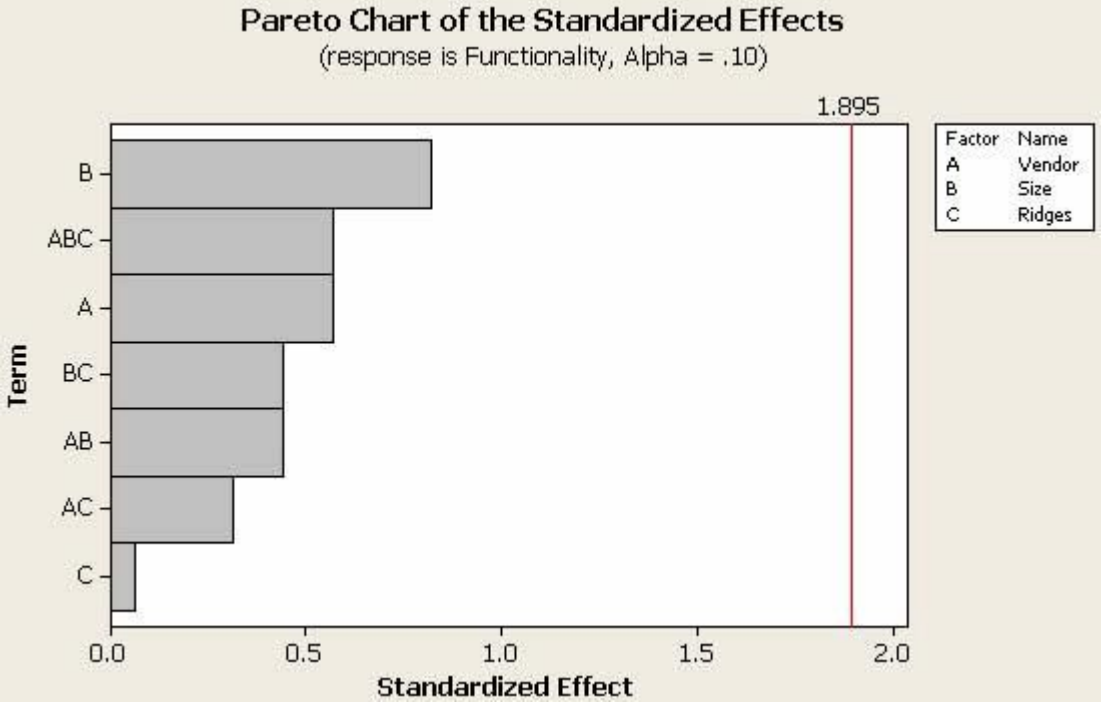
Hypothesis 1: Durability = f(X1 = Vendor, X2 = Size, X3 = Ridges) with a strong interaction effect between X1 and X2.

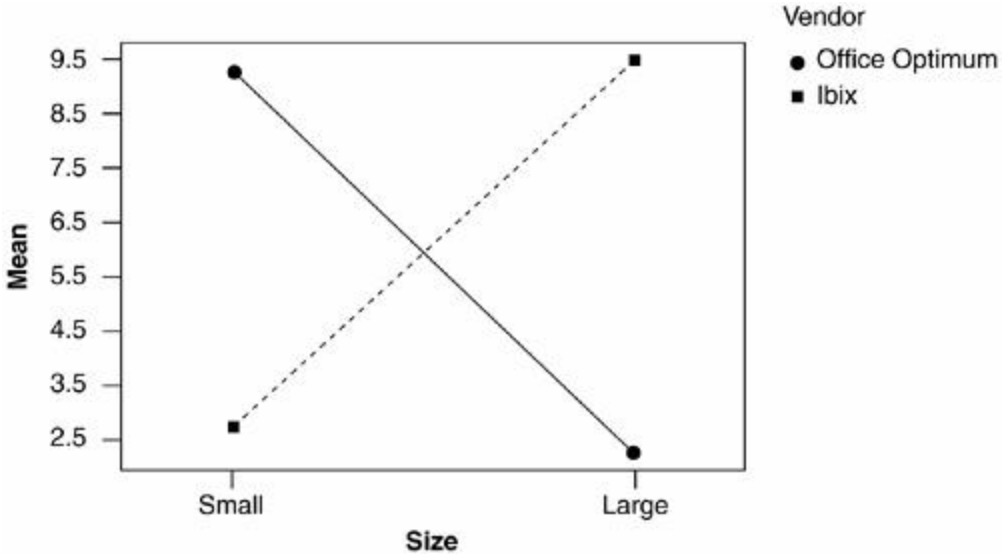
Hypothesis 2: Functionality = f(X1 = vendor, X2 = size, X3 = ridges, X7 = shelf-life), the primary driver being X7 with some main effect due to X1 and an interaction effect between X2 and X3.

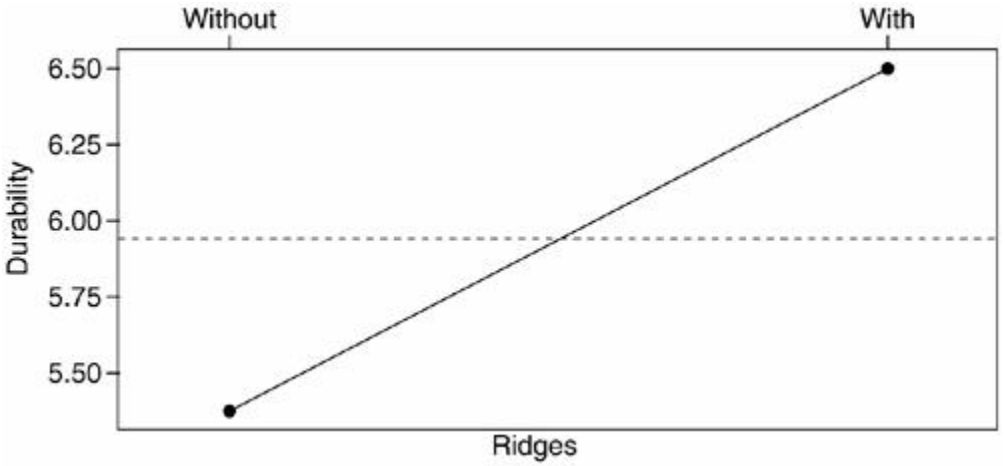
X7 is the main driver of the distribution of functionality (Y2) and is under the control of the employees of POI. Hence, team members restructured Hypothesis 2 as follows: Functionality = f(X1 = vendor, X2 = size, X3 = ridges) for each fixed level of X7 (shelf-life).

Documentation of statistical analysis



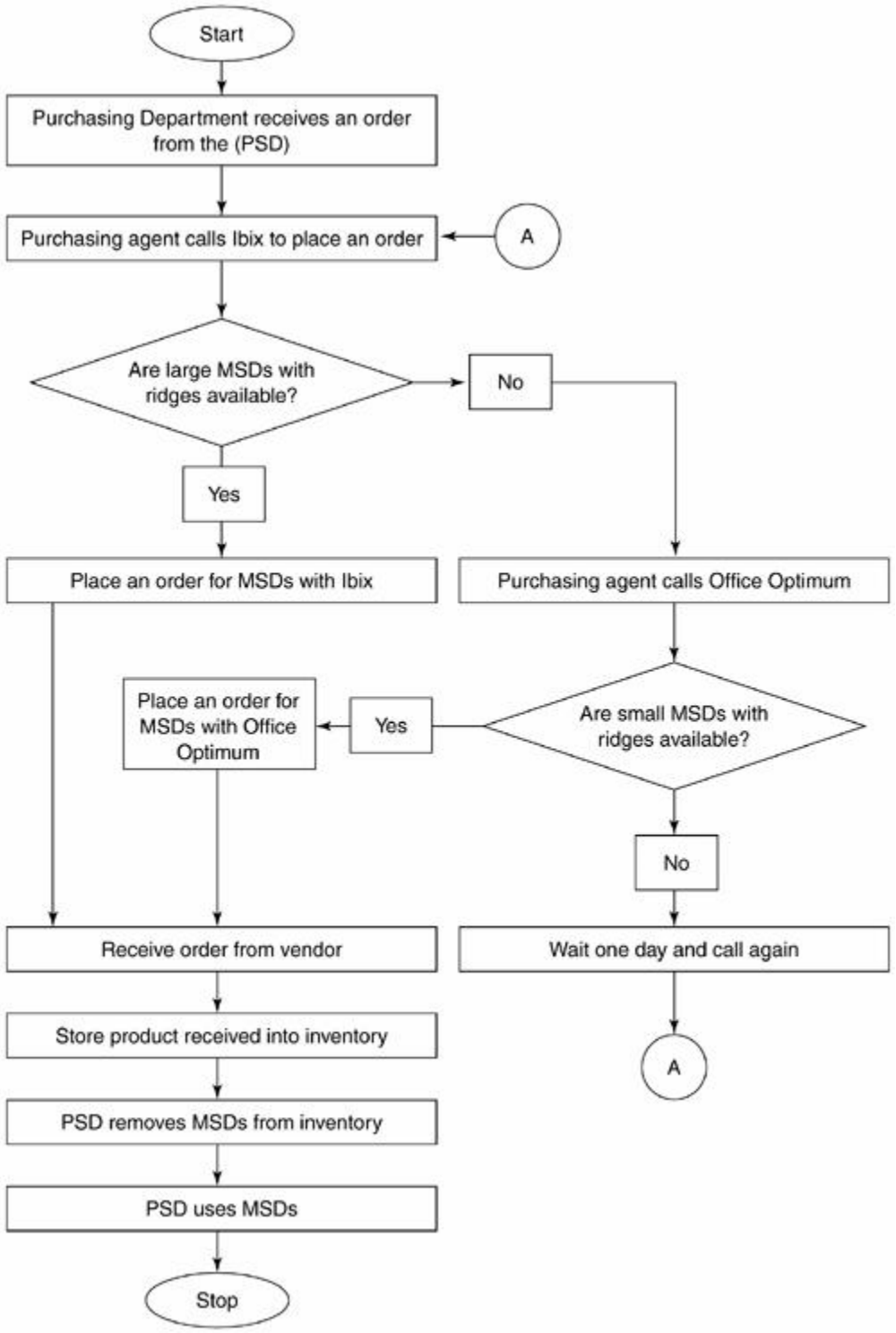



Vendor
Office Optimum
Ibix
9.5
8.5
7.5
6.5
5.5
4.5
3.5
2.5
Mean
Small
Large
Size


Without
With
6.50
6.25
6.00
5.75
5.50
Durability
Ridges

Documentation of process analysis

New process:



Documentation on how improvement was selected

The major effects (i.e., those that have significance level less than 0.10—in other words, over 90% confidence level) for durability are the interaction of vendor and size and the main effect due to ridges. There are no significant effects due to vendor, size, or ridges present for functionality. This indicates that because the effect of shelf-life was held constant in this designed experiment, although it was shown to affect functionality in the data mining analysis, the team can restrict its attention to improving functionality by addressing shelf-life first. Because durability is the only outcome influenced by vendor, size, or ridges in this designed experiment, further consideration in this study will be restricted to durability. Another project can address shelf-life and its effect on functionality.

Control plan

Team members identified and prioritized two problems while mistake proofing the process improvements discovered in the improve phase. They are: (1) Purchasing agents do not specify "with ridges" on a purchase order and (2) purchasing agents do not consider that the choice of vendor depends on the size of the MSDs being requested on the purchase order. Team members created solutions that make both errors impossible. They are: (1) The purchase-order entry system does not process an order unless "with ridges" is specified on the purchase order and (2) the purchase-order entry system does not process an order unless Office Optimum is the selected vendor for small MSDs and Ibix is the selected vendor for large MSDs.

Team members develop a control plan for the PSD that requires a monthly sampling of the boxes of MSDs in inventory. The purpose of the sampling plan is to check whether the boxes of MSDs being purchased are either small Office Optimum MSDs with ridges or large Ibix MSDs with ridges. The percentage of nonconforming boxes of MSDs will be plotted on a p-chart. PSD management will use the p-chart to highlight violations of the new and improved purchasing process

Reflection on lessons learned for the project

Too much gap between the lessons and the project. It is difficult to build the project at the end since there are not many practical cases during the lesson. It would be better to have a small practice project for each module.