

Lean Six Sigma Project Report Out
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DAS
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MARCS Billing Process Redesign





Multidivisional representation from MARCS (Multi- Agency Radio Communication System) , OIT Business Office, and Finance

Background- Scope

- The MARC billing process is convoluted resulting in a 10%+ error rate* producing frequent customer complaints. The process involves **17 different IT mechanisms to track data** and **three DAS offices** who do not always have access to the same information.
- Scope:
 - First Step: Customer **submits a request** to be activated or for a change in MARCS Services
 - Last Step: Customer is provided an **accurate Invoice** which matches services requested

* 10% verifiable error rate based on Service Now Tickets from customer- Actual error rate is much higher but unable to calculate due to lack of process for capturing defects

Why are we doing this event?

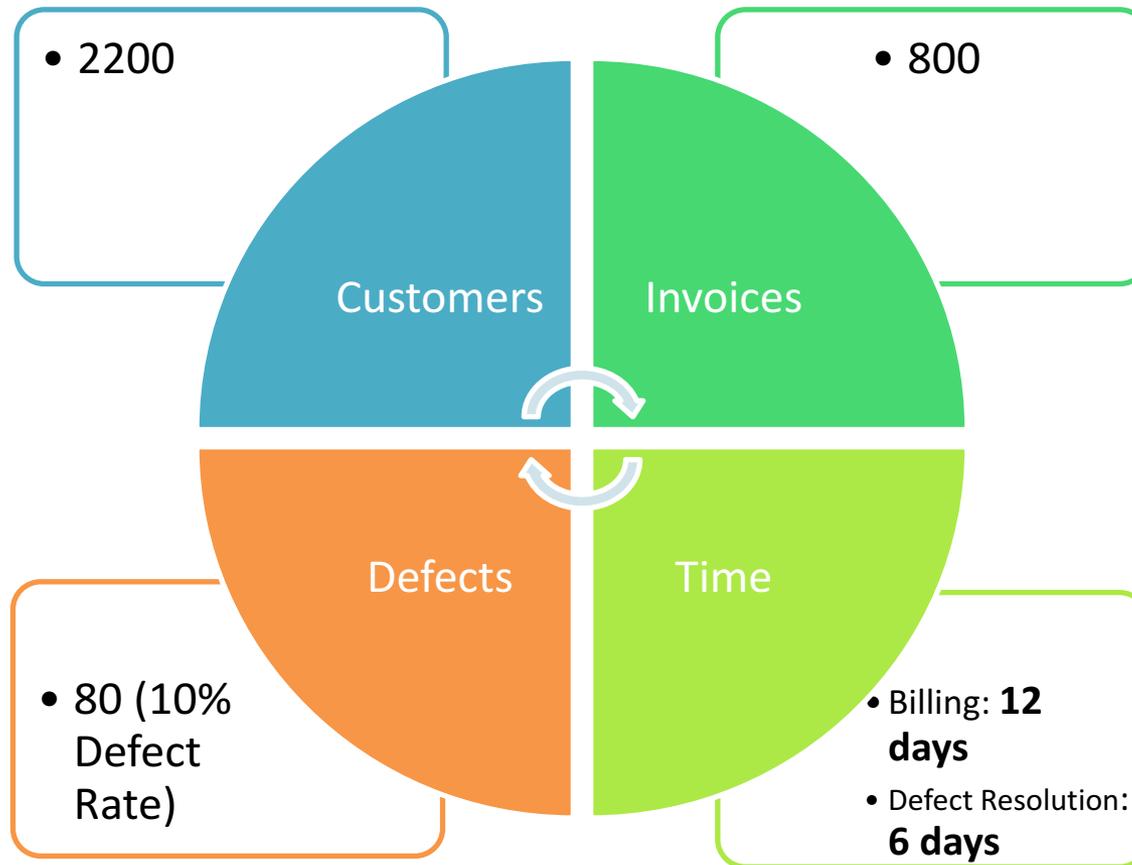
- To **scope** billing processes
- To **improve accuracy** in the maintenance of customer information
- To **reduce customer discrepancies** with invoices that are not accurate
- To **accommodate the rapidly expanding MARCS customer base**, while **redeploying resources to other high volume activities**
- **Customer Asset Management reporting is not consistently accurate**

Project Goals

- **Standardized** activation and billing
- **Reduce time** to produce billing by 50%
- **Reduce** invoicing **errors** to 1%
- **Consistent and real time reporting**
- **Accurate Asset Management**

Baseline Data Collected

Time Frame (Aug 2014 – Feb 2015)



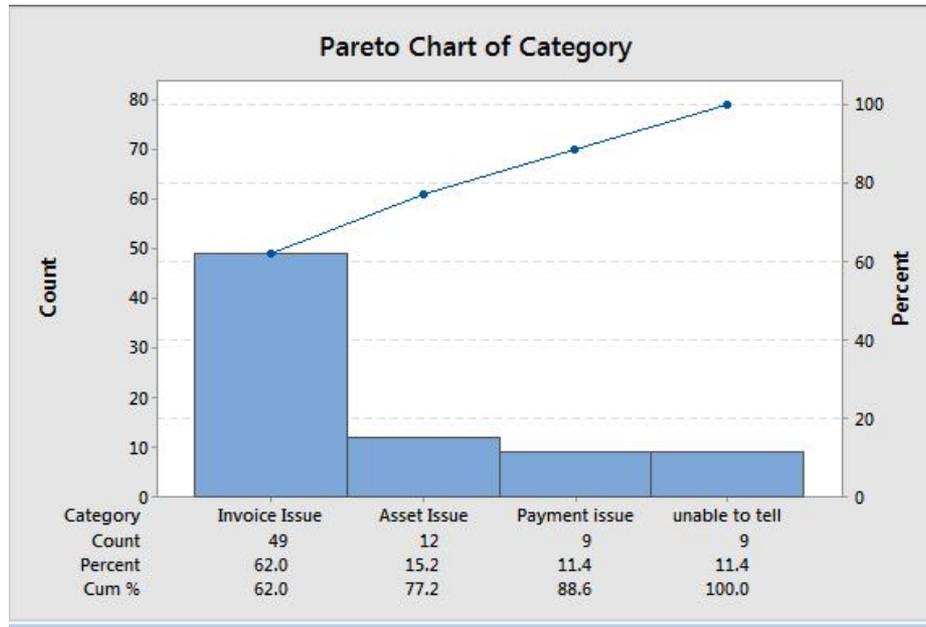
Data Collection Plan Device Requests (MARCS)

Item #	Customer ID Numb	Radio ID (s)	Date of Request (When MARCS recieves it)	Date Set to Bill (Billing Databas	Request Type	Total Number of Devices on Reque	Date actually billed (Calculated by Business Office)
1	MR21	7790005	6/30/2014	12/3/2014	Activate	1	
2	MP53	5490215	4/10/2015	4/1/2016	Activate	3	
3	MM01	7690165	3/10/2015	1/1/2016	Activate	2	
4	MU95	790158	3/4/2015	7/1/2015	Activate	3	
5	MQ57	4490159	4/16/2015	7/1/2015	Activate	8	
6	M554	3190086	5/4/2015	7/1/2015	Activate	81	
7	M697	2590437	5/16/2015	7/1/2015	Upgrade	286	
8	M231	2390169	6/10/2015	7/1/2016	Upgrade	2	
9	M342	390107	5/27/2015	10/1/2015	Activate	35	
10	MU95	790081	2/11/2015	7/1/2015	Activate	1	
11	MQ91	4790006	7/30/2013	4/1/2016	Activate	5	
12	MS87	490108	6/13/2014	4/1/2016	Activate	4	
13	MT28	6090354	6/30/2014	4/1/2016	Activate	2	
14	MT43	6990638	8/13/2014	4/1/2015	Activate	3	
15	M660	7090084	8/20/2014	1/1/2016	Activate	148	
16	MT66	7390028	9/16/2014	4/1/2015	Activate	1	
17	MP28	6490144	9/29/2014	4/1/2016	Activate	1	
18	MS13	6790189	9/30/2014	4/1/2016	Activate	1	
19	MQ48	6790188	9/30/2014	4/1/2016	Activate	1	
20	MT75	6790194	10/2/2014	4/1/2015	Activate	22	

Data Collection Plan

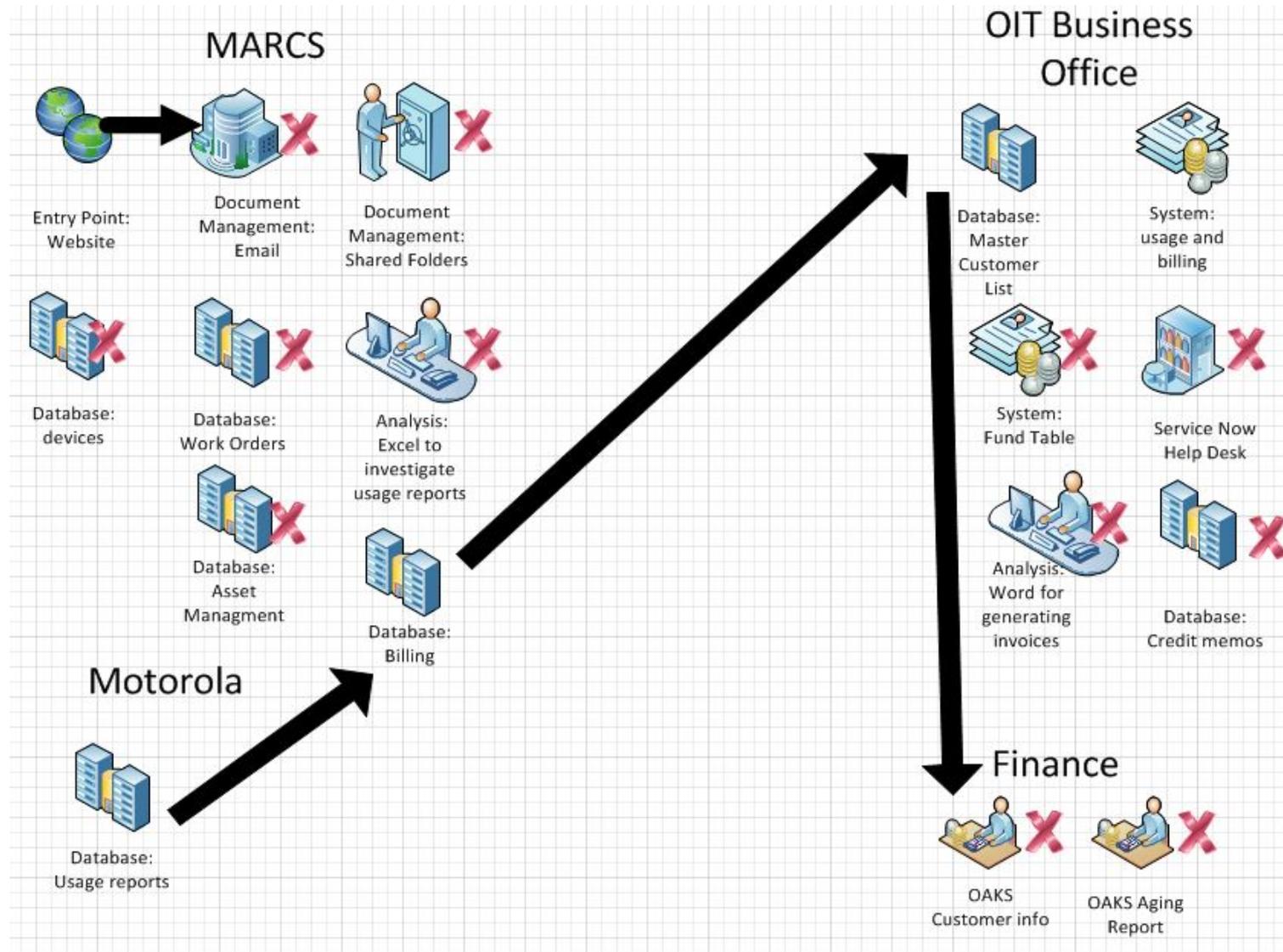
Defective Invoices

- 80 Help Desk tickets were submitted
- Tickets were analyzed



- Invoices with errors took an average of 6 additional days to investigate and correct

Spaghetti Diagram

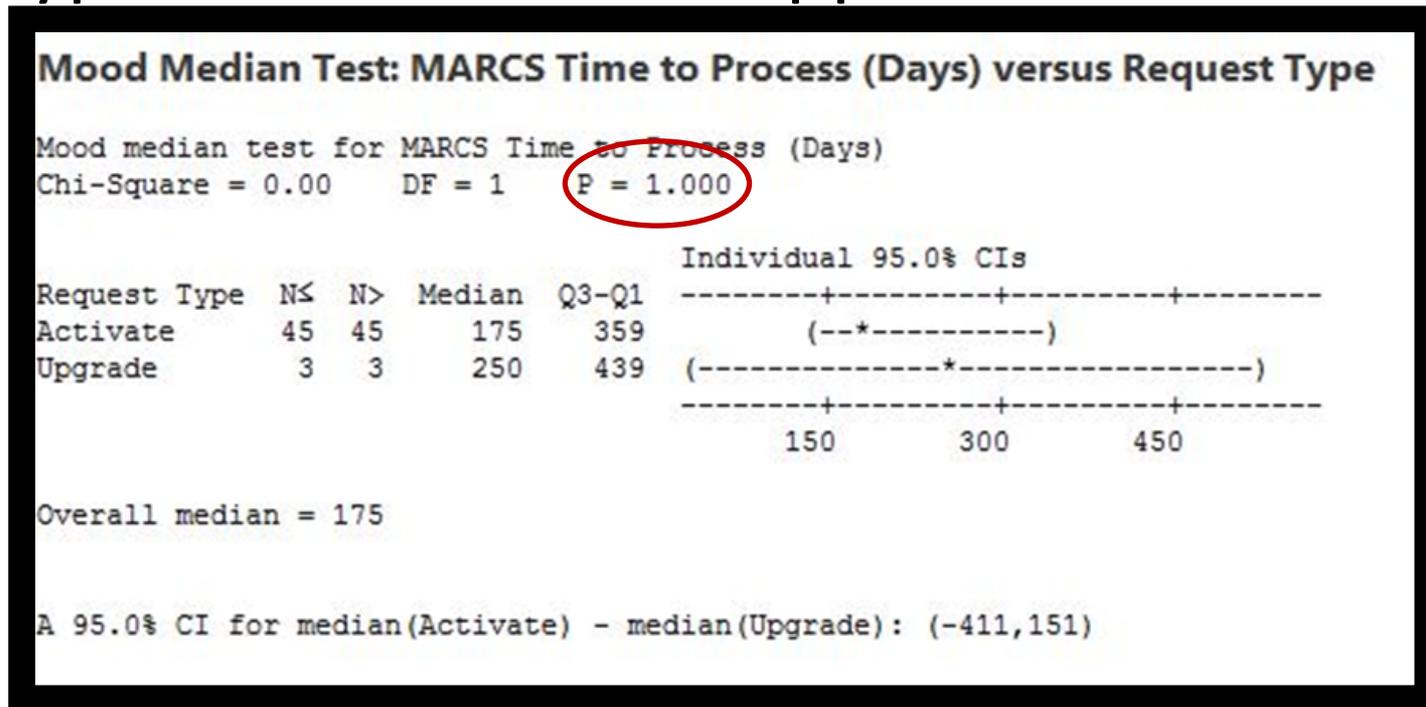


Drilling Deeper

- From the Fishbone and discussions we formed two hypotheses:
 - Billing time differs between Activations and Upgrades
 - Ho: Billing time = for activations and upgrades
 - Ha: billing time is not = for activations and upgrades
 - Billing time is related to Number of radios on the request
 - Ho: Billing time = across all number of requests
 - Ha: Billing time is not = across all number of requests

Activations vs. Upgrades

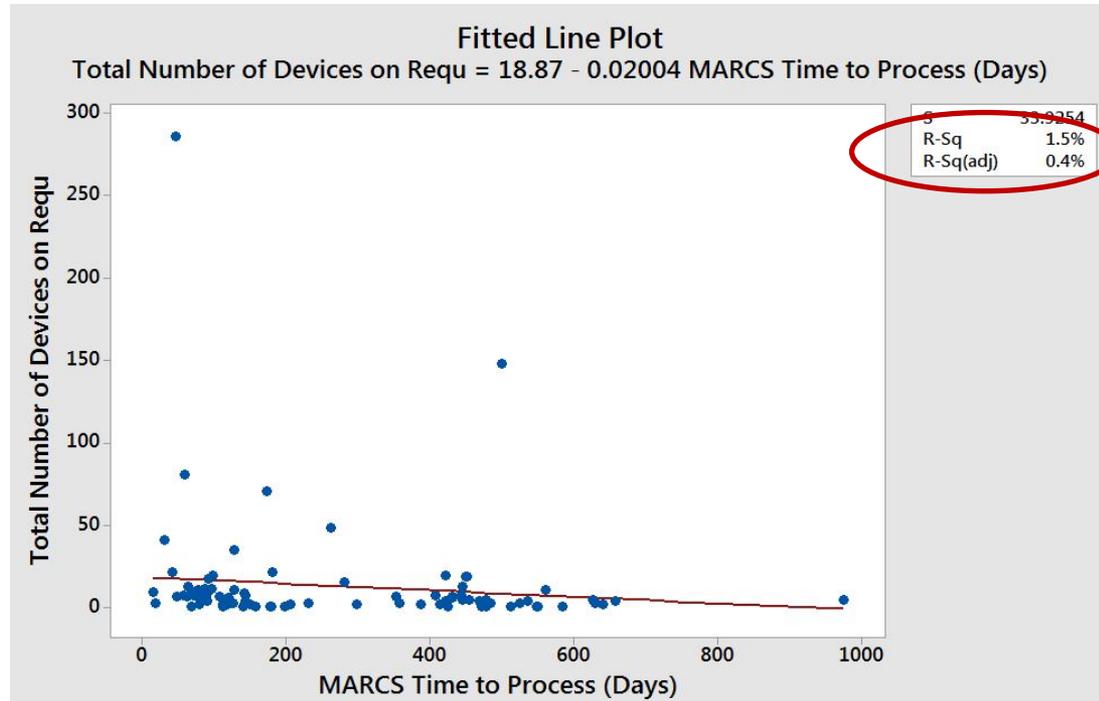
- Hypothesis was NOT supported:



- Time to bill is not related to type of request

Devices in Request

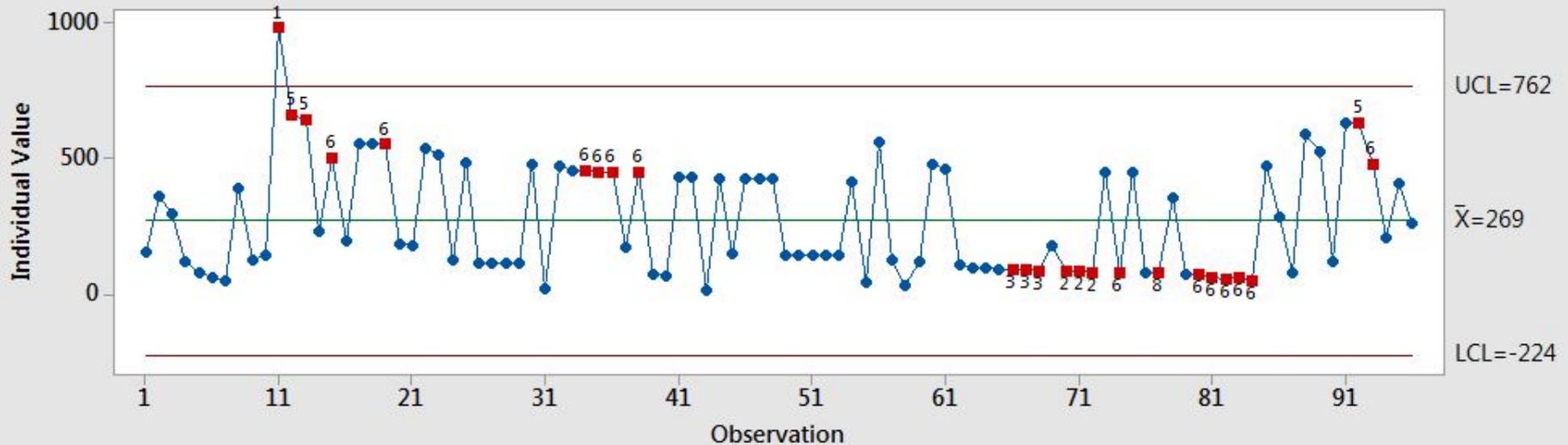
- Hypothesis was NOT supported:



- Time to bill is not related to number of devices in request

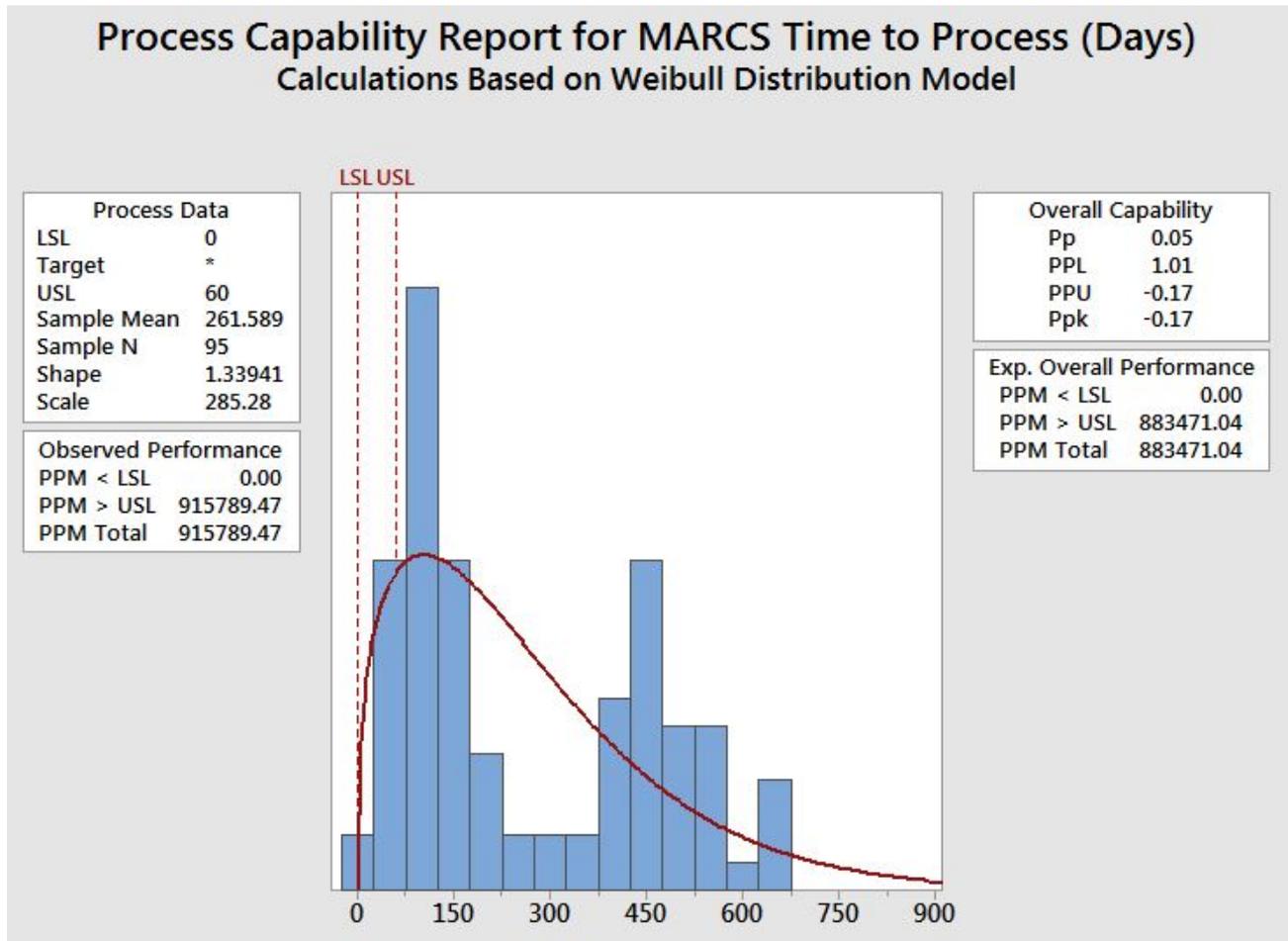
Control Chart

I-MR Chart of MARCS Time to Process (Days)



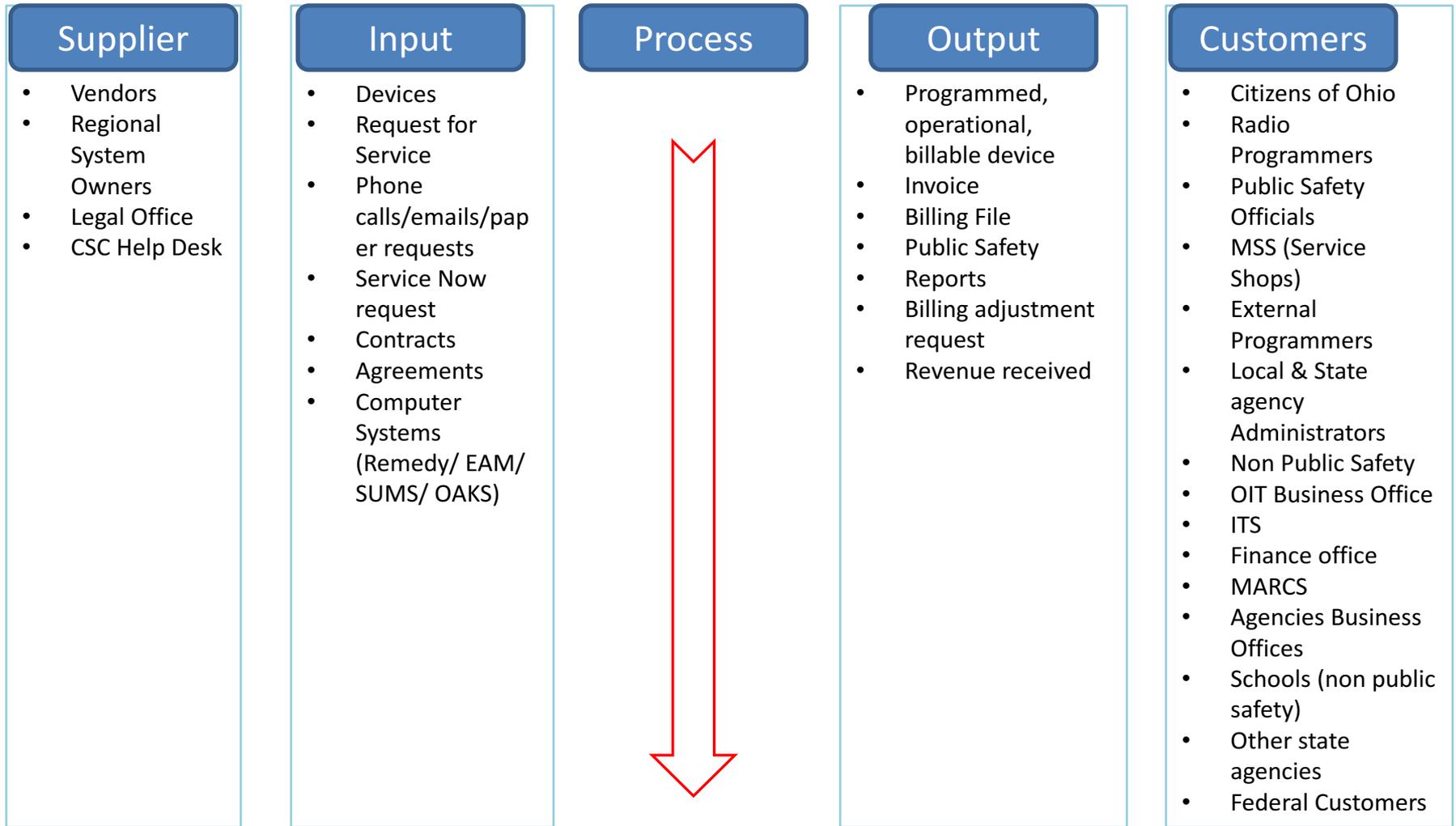
- Data is not stable and is out of control
- Through our analysis we were able to identify that the problem was widespread and multi-faceted and not easily deduced to a few issues

Capability Analysis



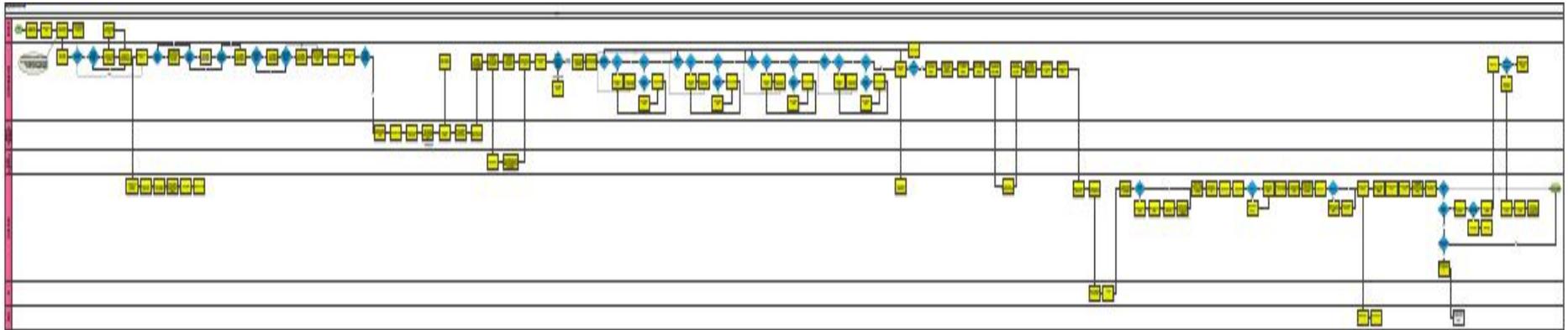
- Process is not capable of consistently meeting customer specification of <60 days

MARCS Billing Process - SIPOC



- | | | | | | |
|--------------------------------|---|--------------------------------|-------------------------------------|-------------------------------------|------------------------------------|
| 1. Request Submitted | 2. Determine new or current customer | 3. Determine type of request | 4. Inventory entered & ID Generated | 5. ID Activated & device programmed | 6. Determine device billing status |
| 7. Activate device for billing | 8. Billing data pull (quarterly & annual) | 9. Load billing data into SUMS | 10. Data validation | 11. Print Invoice from SUMS | 12. Accurate Billing |

Current State Process Map

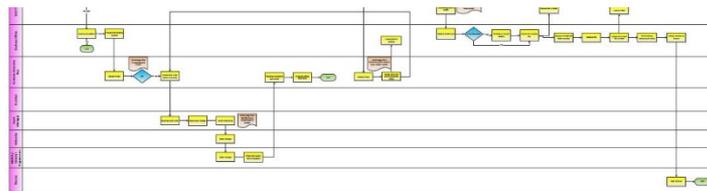
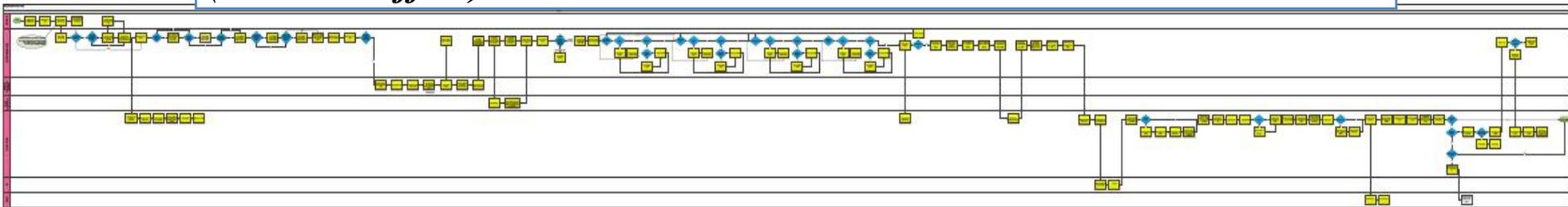


Other Tools Used

- Operational Definitions
- Brainstorming
- Root Cause Analysis
- Project Management
 - Managing Subgroups
- Waste Identification
- Affinity Diagrams
- Graphical Displays
 - Normality tests
 - Histograms
 - Boxplots

Process Maps & Project Metrics

Measure	Result		
Measure	Before	After	Difference
<i>Steps</i>	108	29	72%
<i>Tracking Systems</i>	17	5	70%
<i>Errors</i>	80	Calculated in Phase 2	
<i>Invoice Processing Time (Business Office)</i>	12-18 days	Calculated in Phase 2	
<i>Asset Processing Time (MARCS Office)</i>	14-976 days	Calculated in Phase 2	



Project Benefits - Intangible

- Accurate, reliable, timely and accessible customer asset and billing information
- Real Time reporting
 - Better management insight derived from accurate data
- Customer Satisfaction
- Employee morale
- Increased employee productivity
- Better collaboration among DAS offices

Improvement summary

Current Key Issues

Multiple points of entry for customer requests

Multiple systems storing customer demographics & asset information

Inconsistent application of agreement, policies & contracts

How We Improved

Standardized point of entry for requests

One system storing both customer & asset data

Operations definitions & standardization of customer agreements, policies & contracts

Implementation Plan

MARCS Billing Process Action Plans

Action plans are used to help the team plan and track the implementation of changes. They are living documents that can be changed and updated as often as necessary to meet the goal of implementation. They focus developed over 6 action plans to help them implement their new improvements. Meetings will coordinate 30, 60, 90-day follow-up meetings with the team to create, if adjustments need to be made and to track milestones as necessary.

MARCS Billing Process			
Category	Responsible	Start/End	Status
WEEK 1	WEEK 2	WEEK 3	WEEK 4
ALL SUBJECTS/PERFORMERS GIVEN TO MARCS DEFINITION OF DATA - Determine where data will reside - Define all data elements - Terms and conditions - Customer demographic information - Require payment from holder of agreement (Sub-tenant) - Process for matching existing customer information - Common customer identifier - Ensure all needed customer data is collected upon device activation - ID data request from administration	Billing team & user Group - Stacy	Completed	Completed
INVOICE REPORTING - Finish Credit Balance Report report	Brian Kemp	February 2017	Completed
INTEGRATION WITH OTHER SYSTEMS - Process for using - Finalize - Cost - Priority	Technology Group	Completed	Completed

Category	Responsible	Start/End	Status
PROVIDER IDENTIFICATION - Complete - Assign categories and subcategories - Creation and assign users for each category - Review current roles/permissions	Wally Hood	December 2016	Completed
DATA - Build import forms in service Now	Service Now Team	February 2017	In Progress
INVOICE WORKFLOW AND CONTACTS - Determine website content - Add links to Service Now - Decide where users will start (website) - Determine how to transition process from email and individual phone calls to website and service now Training - Make customer aware during January associate meeting - User acceptance testing - Train customers on changes in entry point - Announcements via invoice - Training sessions	Hourly Support	April 2017	In Progress
INVOICE WORKFLOW - Determine where customer data will be stored and who owns it - Identify location for customer data - Data reporting - Match current data location	Technology Group	Completed	Completed

Policy Action Plans			
Category	Responsible	Start/End	Status
WEEK 1	WEEK 2	WEEK 3	WEEK 4
DATA INTEGRATION - Cleaning customer data - Supplying user IDs and email addresses for existing subscribers - Validate against SUIIS and OUIS before loading into service Now	Jill Jennifer	January 2017	In Progress
INTEGRATE WORKFLOW TO GIVE CUSTOMERS ACCESS TO THEIR INVOICES - SUIIS is online statements - If SUIIS is chosen: - Determine how to give access to customers - Prior non-state SUIIS access - Using Conditional: - Determine capability - Determine process - Determine if PDF copies are still supplied after SUIIS upgrade	Mary, Dawn, Sara, Kylene, Mike, Kenneth	April 2017	In Progress
INVOICE PROCESSING - Process to track change in device location	Policy group	Completed	Completed
INTEGRATION - Establish rules for standard data definitional change limitations - Review policy/use of terms and conditions - Standardized process for initial radio billing - Update contract terms and conditions - Invoice only aligns - Invoicing begins on ice - Specific data given on contract - Responsibilities of MRCOA and customers for contract information	Leslie, Kevin, Kelly, Dave	Completed	Completed

Category	Responsible	Start/End	Status
INVOICE CONTRACTS - Update Terms and Conditions - Notification to the customer about the enforcement of the 45 day activation - 20 days activation agreement as customer will not be billed	Policy group	February 2017	In Progress

As A Result

- **We have made great strides in this process and Phase 1 is complete!!**
 - Yea!! Go team!!!

HOWEVER, we know there is much to come

- The new tracking system and portal for MARCS Asset Management (Phase 2) goes live in **February 2017!!**
 - Thanks Service Now team!!

But we are not done yet!

- We will be collecting data for 2 billing cycles after the go live
- Then we will report out again at the end of the year to share the results of our final Implementation and Control Phases
- **In phase 2, we hope to demonstrate that this process is now in control, capable, standardized, faster, and defect free!!!!**

Special *thanks* to...

Senior Leadership

- Director Bob Blair
- Stu Davis

Sponsor:

- Steve Boudinot
- Rich Schmahl

Team Leaders:

- Doug Forbes
- Evan Hood
- Becky Vanest (former Team Leader)

Our Black Belt friends and mentors:

- Julie Trackler
- Michael Buerger

Our Bosses for allowing us the time to complete this 2 year project:

- Carolyn Chavanne
- Tim Krall
- Tom Terez
- Bill Demidovich

Subject Matter Experts

- Tom Bretthauer
- Jack Haueisen
- Stacey Green
- Deanna Moore
- Mary Sen
- Jason Kirby
- Dick Miller
- Loretta Herron
- Jennifer Allwine
- John McMahon
- Mensur Sejfovic (former team member)
- Gary Swat (former team member)
- Bonnie Gerardi (former team member)
- Barry May (former team member)
- Chris Wells (former team member)
- Jody Pizzuto (former team member)

IT System Experts

- Service Now Team (Renee Evans)
- Enterprise Assets Team