InterConnect Lean Six Sigma Project
Final Report

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Date: xx/xx/2008

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Executive Summary

Phoenix Technology Services (ETS) invest platform, InterConnect (IC), has been on the market for about 4 years. IC has a robust list of base features/functionality designed to decrease the amount of time it takes to deliver a customer solution because most of the customers' wants/needs are already incorporated into the core product. IC allows ETS customers to access data sources and to make automated decisions based off that data and the customers' credit policy, which has been coded into the customers IC application. As the product has matured, several problems have been identified. They are:

1) Misalignment of features/functionality in the core product with on average only 33% of the core features being consumed by any customer
2) Time to consume a new release is in excess of 6 weeks for the last software release
3) Quality of the initial release having a high number of defects found within the first 6 months
4) Time to develop a new release is extremely long because the product/core team is not leveraging what the CFT's have already developed to meet customers' wants/needs

These problems can be summed up into one major problem: The amount of time it takes to deliver a customer solution when based off a new IC release. To address this problem, four projects have been identified:

1) Feature/Functionality Effectiveness- Determine the utilization rate of the core features/functionality and identify underlying causes to why certain items are not implemented.
2) Custom Feature/Functionality Feedback- Define what customizations exist already and develop a process to feed customizations back into the IC core product
3) Release Management- Develop a process to expedite the acceptance of consumption of a new release
4) Defect Management- Conduct a root cause analysis on the defects from the 3.0 release to unearth any commonalities to prevent them in the future. Also, develop a process for ongoing defect management.

The goal is to reduce the amount of time it takes to deploy a new customer solution by 5-10%. This aligns with ETS overall goal of decreasing the amount of time it takes to deliver a customer solution by 25% a year.

Project Background

Software Industry

The goal of an "Out-Of-The-Box" software shop is to develop features/functions that can be used by a large amount of customers by configuring a list of preset choices that a customer can choose from in the product to meet the customers' wants/needs as opposed to customizing by developing unique code just for that customer in the product. Customizations, also known as "One-Offs", are the opponent of this market because they require dedicated resources to make changes to the code and they must be completely recoded to work with newer IC versions of the making upgrading a solution much more expensive. When a software package is consumed by a customer with no customizations, this is called an Out-Of-The-Box solution.

All software organizations follow a similar development cycle called the System Delivery Life Cycle (SDLC). This process in is divided into six phases:

1) *Discovery or Development Of A Requirements Document-* point at which the requirements team meets with a customer to determine what business problem the customer is trying to solve and what they need their solution to entail. A product manager can complete this if it is a requirement for the core product.
2) *Requirements-* taking the customers' or product managers' wants/needs and putting them into a document that can be used to design and develop the overall solution.
3) *Design-* determining how the solution needs to operate, what table structure is involved and how the solution will be developed
4) *Development-* coding of the solution based off the requirements and design
5) *QA-* testing of the developed solution to ensure that it operates properly and that it meets the customers specifications detailed in the requirements document
6) *UAT-* testing of the solution by the customer to ensure the solution meets the customers' requirements
7) *Production Instillation-* placing the customers solution into a production environment

When a feature/functionality is removed from a software package, the code is not deleted. The code is simply removed from the core product code and stored in a code repository. This process is called "Sun Setting" of a feature/functionality. The code is kept in case it has to be "Brought Forward" (coding a feature to work with a newer version).

One of the leading software models in the market place is the ASP model. This model refers to software that runs on vendors servers and only requires an internet connection and PC to consume the software. Because it requires no hardware (application or database servers) on the customers' side, the vendor has to house all the web, application and database servers.

Phoenix Technology Services Division

Phoenix Technology Services (ETS) is a division of Phoenix Inc., which produces software that enables customers to access data sources, such as Phoenix credit files and others, and makes automated decision based on that data and the customers' credit policy, which has been coded into the application. The division is broken up into two separate groups:

1) **Core**- develops an ASP base software package known as IC. New versions of IC are released every 6-12 months, which contain new or enhanced features/functionality based off the product roadmap developed by the product manager. These new versions are often presold to a customer because it contains the new features/functionality the market is looking for.
2) **Professional Service AKA CFTs**- work with Phoenix customers to gather requirements and develop solutions, which may include developing custom features that are deployed into a production environment for the customers use and support postproduction. These projects last anywhere from 350 hours for an "Out-Of-The-Box" solution with only minor configurations to 5,000 hours for a completely custom solution which customers pay a premium for. There are nine CFTs, which are divided up by industry to offer their customers the industry (financial, telecommunication, retail, utility, small business) specific knowledge.

When developing a customer solution, the latest version of IC is always used so as to not board a customer onto an outdated version of the solution.

To help ensure accuracy, consistency, knowledge transfer of best practices, standardized documentation and storage of documents, ETS developed a mythology called “Project Delivery Methodology” (PDM). All processes involved in an IC project are documented and flowed out so they can be repeated. In addition, any documents used in a project were made into templates for consistency and ease of use.

Define Phase

During the define phase of this project, five items need to be completed:

1) Project Scope Definition
2) Operational Definitions
3) Breakdown of the overall project into four manageable projects
4) Complete a SIPOC for each project
5) Outline of the expected benefits

Project Scope Definition

The scope of this project is the IC platform dealing with two areas:

1) Points at which Core and CFTs interact around new IC core product release
2) Features that go into or are already in the IC platform

Operational Definitions

- Core Feature/Functionality- The ability for a program to perform a predefined action and result. These predefined actions and results are part of the core program.
- *Custom Feature/Functionality-* The ability for a program to perform a predefined action and result. These predefined actions and results are made to address customer requirements and are not part of the core program.
- *Consumption-* The use of an item in a customer solution
- *Work Breakdown Structure (WBS)-* Details what tasks need to happen in what order, how long they take and by who.
- *Platform-* An IC system that contains all the features/functionality from core serves as the bases of the customer solution.
- *Customer-* Any business that wishes to use the IC platform to solve their business problems
- *Feature/Functionality Consumption*- When a feature/functionality is used in a customer solution. It does not matter if the item was used for its intended purpose, just that it was used to address a customer requirement.
- *Defect-* An error or failure that prevents the application from behaving as intended (producing an incorrect result). The error can be in the coding or requirements the coding is based off of.
- *New Release-* A new IC build that is based off an MRD and has been made available for CFT general consumption. It contains new or enhanced features/functionality. When patches are released, these just amend a release, but do not make it a new release.
- *CFT Project-* A Project to develop a customer solution based off the IC core platform and the customers' business and credit policy requirements. This includes taking the project from the identify phase to post production support.

Project Breakdown

Because the overall scope of the project deals with one large problem made up of different and unique problems, this project has been broken down into four separate projects. These projects are:

1) *Feature/Functionality Effectiveness*: Documents what features/functionality customers are consuming. Those that are below the consumption threshold will be evaluated to determine why it has not been consumed and if it should be "Sun Set". (The threshold will be set in the Analyze Phase of the project.) Develop a process to capture this information on future solutions.
2) *Custom Feature/Functionality Feedback:* Determine what information needs to be captured to construct a viable list. Determine what solutions are on IC 3.0 or after and document their custom features/functionality. Develop a process to communicate customizations to the IC product manager. Develop a process to capture this information on future solutions.
3) *Release Management:* Develop a process that lists out when, what, how and who are involved in the process of the CFT consuming a new release from the Core group (*Consuming a release is defined as the CFTs ability to build the base application on their laptops or development servers*)
4) *Defect Management:* Develop a process to track defects for the first 6 months after a new release and conduct a root cause analysis on them to determine the underlying causes

SIPOC

See Exhibit A-E.

Benefits

1) *Feature/Functionality Effectiveness:*
    a. If it is determined that a feature/function is not being consumed because of training, training will be conduct on those items to help fulfill more of an "Out-Of-The-Box" solution.
    b. If it is determined that a feature/function is not being consumed because it does not meet the marketplaces' needs and should be removed:
        i. Reduce the complexity of the code
        ii. Reduce the amount of time it takes to document, develop and QA new/enhanced features/functionality around the unconsumed features/functionality, thus freeing up resources to focus on more important activities
        iii. Free up server resources used to store/process unused code
    c. Enable knowledge transfer by allowing other CFTs to see what other features/functionality other CFTs have employed and learn from them
2) *Custom Feature/Functionality Feedback:* By identifying customers "One-Offs", it will:
    a. Ensure faster releases because features/functionality that have already been developed can be fed back into the core product with limited tweaks and human resources
    b. Ensure better alignment between customers needs/wants and core product feature/functionality
    c. Deliver customer solutions faster because more of the needed features/functionality are built into the core product
    d. Lower delivery cost because fewer custom features/functionality are needed
    e. Make it easier to upgrade customers to newer releases because customer "One-Offs" are now part of the core product
    f. Enable knowledge transfer by allowing other CFTs to see what other features/functionality other CFTs have employed and learn from them
3) *Release Management:* By developing a documented Release Management Process, it will:
    a. Ensure that the correct server resources are in place for the CFTs to consume a new release
    b. Ensure proper training of the CFTs on new technology incorporated into the core product
    c. Eliminate unused documents intended for the CFT use, which are developed by the IC Core group and increase the quality of the documents that are acutely consumed by the CFTs
    d. Decrease the number of hours it takes the CFTs to consume a new release
    e. *Soft Cost*- part of carrying a feature/functionality forward involves a lot of mental anguish in having to account for more incalculable variables
4) *Defect Management:* By developing a process to conduct a root cause analysis on defects, it will:
    a. Help eliminate future defects
    b. Identify weaknesses in the project build plan
    c. Improve product reliability
    d. Decrease the amount of time it takes to deliver a customer solution due to delay of patches to fix defects

Measure Phase

What Will Be Measured

1) *Feature/Functionality Effectiveness:*
    a. What features/functionality is being consumed by IC customers
    b. Cost to produce a baseline feature/function (because of the way this data has been captured in the past, a rough estimate is all that can be calculated)
    c. What carrying costs are associated with previously developed features/functionality in the QA phase (because coding around existing code can't be quantified as it is a soft cost)
2) *Custom Feature/Functionality Feedback:*
    a. What needs to be documented to make a concise custom feature/functionality list
    b. Determine what solutions need to be documented
    c. Document the custom requirements
3) *Release Management:*
    a. What should and did happen during the 3.0 release, including problems
    b. How long it takes to consume IC 3.0
4) *Defect Management:*
    a. Documents core defects from IC 3.0

Measurement Plan

1) *Feature/Functionality Effectiveness:*
    a. *Charting Features/Functionality:*
        i. Use the features list developed by the IC Core QA group and develop a survey
        ii. Work with the product manager for IC to determine when a feature/function was introduced into the IC Core product
        iii. Send the survey to all the CFTs that conduct IC customer projects and have them complete:
            1. What customer solutions are currently in production or in the process of developing
            2. For all the solutions listed, mark what features/functionality are being consumed
    b. *Baseline Feature/Functionality Cost (Current Data):*
        i. Use the MRD from IC releases 2.5 and 3.0 to develop features/functionality list
        ii. List all the team leads involved with a IC core release
        iii. Have them rate each feature/function for the past 2 releases from 1-10 with 1 being low, 5 being a medium in difficulty (baseline) and 10 being extremely hard
    c. *Baseline Feature/Functionality Cost (Future Data):*
        i. Each feature/function would be tracked under its own INAV number. If this is not feasible, a WBS that accounts for all features/functionality and its total time match is that of the projects
    d. *Carrying Cost:*
        i. Take the test plan for 3.0 and determine what features/functionality did not change
        ii. Determine how much time was spent QAing those features/functionality that did not change
2) *Custom Feature/Functionality Feedback:*
    a. Meet with IC product manager & CFT directors to define what needs to be captured to make a accurate/useful list
    b. Document what customers are on IC 3.0 or after
    c. Using those customers BRS's, extract the needed information
    d. Record how long it takes to document the custom features/functionality on the log
3) *Release Management:*
    a. *Problems With Last Release:*
        i. Meet with IC product manager, CM team, CFT directors and Core BA team to document what activities happened or needed to happen during the 3.0 release

b. *Consumption Of 3.0 Release:*
   i. Pull ITG Time ticket use to track time on the CFTs side for 3.0 release to calculate how long it took to consume
   ii. Document how long it took to get new hardware installed for the 3.0 CFT platform
   iii. Work with CFTs to determine if any time was added to their WBS to accommodate for the new release (Fin 1, Comm 2, Midmarket)

4) *Defect Management:*
   a. Pull core's MQC defect log for defects logged for IC 3.0 after it was made available for general consumption

Measuring The Benefits

1) *Feature/Functionality Effectiveness*
   a. *Feature/Function Waste/Code Complexity:* Number of features/functions in the base product not being consumed or with limited consumption
   b. *Carrying Cost Of Previously Developed Features/Functionality:* What is the total cost of carrying items forward to the next release that are not consumed or have limited consumption by customers
   c. *Server Resource Waste:* How many lines of code are removed from the product
2) *Custom Feature/Functionality Feedback:*
   a. *Release Speed:* How many hours it takes to develop a new release
   b. *Feature/Functionality Alignment:* Difference between 3.0 feature/functionality effectiveness rating and 4.0
   c. *Project Time/Cost:* Number of hours, on average, to deliver a 3.0 solution compared to a 4.0 solution
   d. *Migrations:* Hours consumed in migrating a customer from a previous solution to a 4.0 solution. Count the number of custom feature/function that exist in the prior version that do not need to be migrated
3) *Release Management:*
   a. *Server Resources:* Are the correct server resources in place when IC 3.0 was released (Pass / Fail). If Fail, document why?
   b. *Unused Documents:* How much time was saved by not documenting unused documents
   c. *Project Time:* How many hours did it take, on average, to deliver a 3.0 solution compared to a 4.0 solution
4) *Defect Management:*
   a. *Future Defects:* Number of defects between baseline and future release

Results

1) *Feature/Functionality Effectiveness:*
   a. *Charting Features/Functionality:* Exhibit F
   b. *Baseline Feature/Functionality Cost (Current Data):* Exhibit G & H
   c. *Carrying Cost:* Carrying cost was determined to be $5,000 (83 hours) per feature/functionality being carried to the new platform.
2) *Custom Feature/Functionality Feedback:*
   a. *Custom Feature/Functionality List:* (See Exhibit J)
      i. CFT Team:
         1. Comm. 1-4
         2. Fin 1-4
         3. Retail & Internet
         4. Packaged Solution
         5. Retail 2
      ii. Customer Name
      iii. IC Version
      iv. Solution Type
      v. Custom Category
         1. Business Transaction

2. Data Submission
3. Regulatory
4. Data Source Exception
5. Customer Decisioning Processing
6. Commercial Decisioning Processing
7. Reporting
8. Other

vi. Hours Spent Developing Customization
vii. Details Of Customization

b. Solutions On IC 3.0 Or After:

i. Customer 11
ii. Customer 12
iii. Customer 21
iv. Customer 25
v. Customer 26
vi. Customer 27
vii. Customer 32
viii. Customer 33
ix. Customer 35

3) Release Management:

a. *Consumption Of 3.0 Release:* (See Exhibit I)
b. Problems With Last Release:

i. At least 180 days out:
1. IC Product Manager Release Schedule
2. Coordinates with Competency Groups
3. Documents Demo Requirements (This is not part of the project, but was identified as a gap)
4. Coordinate With CFT CM On New Hardware Requirements

ii. At least 90 days out:
1. CFT CM Order New Hardware

iii. At least 30 days out:
1. CFT CM New Hardware Is Installed and Configured

4) Defect Management:

a. Defect Log: (See Exhibit K)

i. Release version
ii. Release Date
iii. CFT Reporting Defect
iv. Impact To Customer
1. No
2. Low
3. Medium
4. High

v. Date Defect Reported
vi. Date Patch Released
vii. Defect Category
1. Requirements
2. UI
3. Business Transaction
4. Data Submission
5. Regulatory
6. Data Source Exception
7. Customer Decisioning Processing
8. Commercial Decisioning Processing
9. Reporting
10. Other

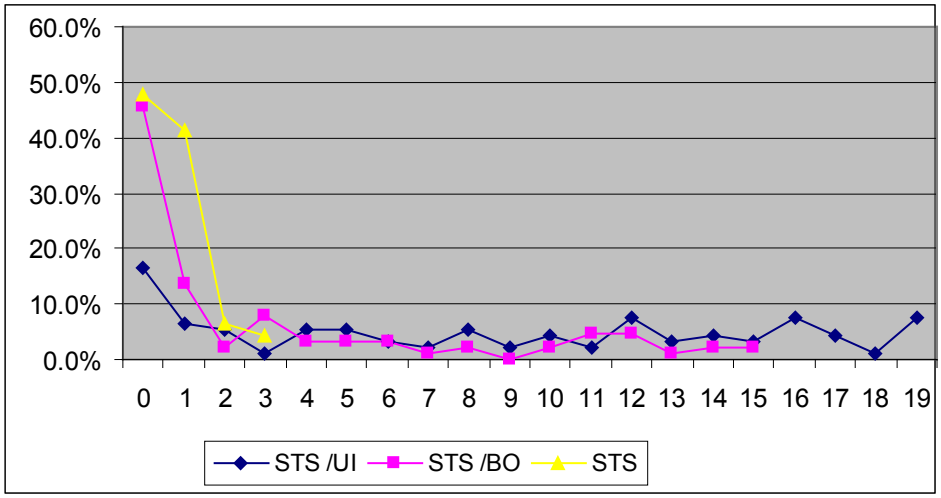
Analyze Phase

Feature/Functionality Effectiveness

1) *Charting Features/Functionality:*
   - *a.* Calculate how many customers are using a feature/function. Exclude any features/functionality developed in the 3.0 release as these items are too new
   - b. Group by what interfaces they used: STS w/ BO, STS w/ Full UI, STS and Total
   - c. Within groups, removed features that can't be consumed by that group
   - *d.* Determine threshold

See Exhibit F for Feature/Functionality Results Chart.

Figure 1. % Of Features/Functionality Consumed By Solution Profile Type



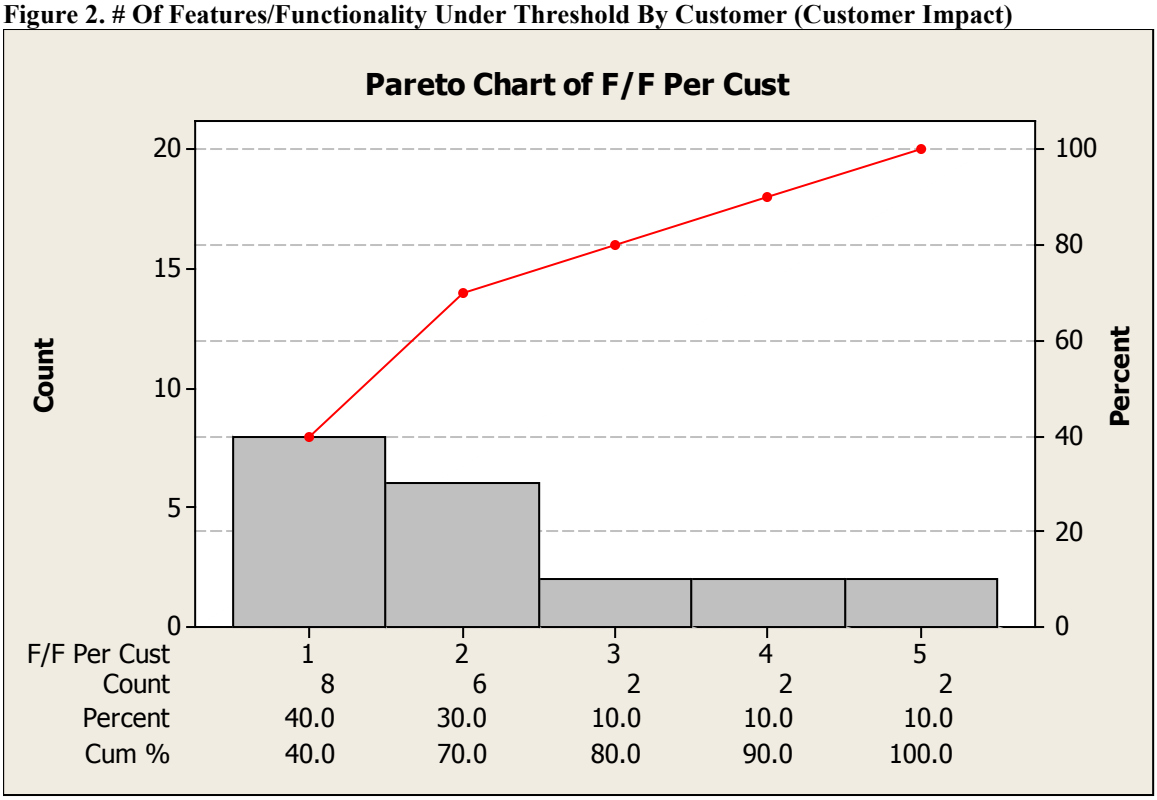
By looking at the groupings, it is evident that customers with STS w/ Full UI solutions use more core product features/functionality than other solutions. See Exhibit J for data breakdown.

Table 1. Features/Functionality Used By Less Than 11% Of Customers (4 Out Of 37) Broken Out By Solution Profile Type

	0 Customers		1 Customers		2 Customers		3 Customers		4 Customers	
Grouping	# Of F/F	% Of Total	# Of F/F	% Of Total	# Of F/F	% Of Total	# Of F/F	% Of Total	# Of F/F	% Of Total
STS	22	48%								
STS With Back Office	40	46%	52	59%						
STS With Full UI	15	17%	21	23%	26	29%				
Everything	7	8%	15	16%	20	22%	23	25%	26	29%

On average, 29% of the total products features/functionality are consumed by less than 11% of customers. 8% of the total items are consumed by one or no customers.

Figure 2. # Of Features/Functionality Under Threshold By Customer (Customer Impact)

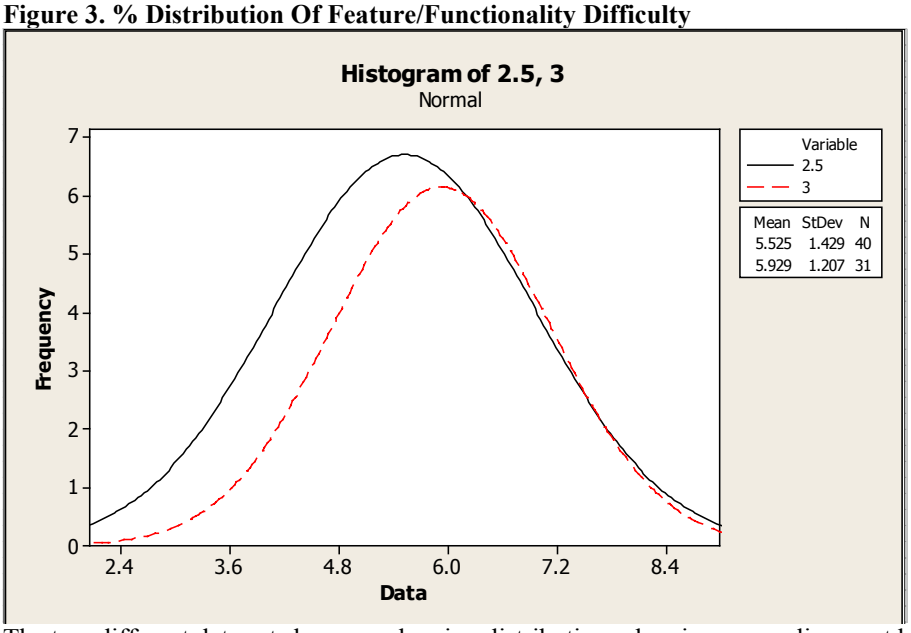


This chart shows that 52.5% of customers on IC would be impacted if they were to migrate their solution to a newer version. Only 4 (10.5%) customers would potentially be greatly affected if the features/functionality under the threshold are removed from the IC core platform and those items were needed to migrate a customer's solution to a newer version.

2) *Baseline Feature/Functionality Cost (Current Data):*

a. Analyze correlation between 2.5 & 3.0 difficulty
b. Determine baseline feature/functionality cost
c. Determine margin of error

Figure 3. % Distribution Of Feature/Functionality Difficulty



The two different data sets have overlapping distributions showing some alignment between the two data sets.

Figure 4. Hypothesis Test On Distribution Of Feature/Functionally Difficulty

One-way ANOVA: 2.5, 3

```
Source  DF      SS    MS     F      P
Factor   1    1.81  1.81  1.00  0.320
Error   60  108.28  1.80
Total   61  110.09

S = 1.343   R-Sq = 1.65%   R-Sq(adj) = 0.01%

                          Individual 95% CIs For Mean Based on
                          Pooled StDev
Level   N   Mean  StDev   ----+---------+---------+---------+-----
2.5    31  5.587  1.467   (-------------*------------)
3      31  5.929  1.207             (------------*-------------)
                          ----+---------+---------+---------+-----
                            5.25      5.60      5.95      6.30

Pooled StDev = 1.343
```

This indicates there is little to no statistical difference between the two data sets.

Table 2. Standard Error Of Baseline Feature/Functionality Cost (95% Confidence)

Version	Mean	High	Low	STD Error	STD Error %
Average	$60,989	$66,075	$56,633	+/- $5,086	+/- 8.3%

When calculating how much multiple features/functionality cost, the high and low should also be calculated. This calculation is using a 95% (2 standard deviations) confidence level.

Table 3. Sunk Cost Of Feature/Functionality

		F/F Cost			Total Cost		
# Of Customers Using F/F	# Of F/F Under Threshold	Mean	High	Low	Mean	High	Low
0	9				$ 548,901	$ 594,675	$ 509,697
1	9				$ 548,901	$ 594,675	$ 509,697
2	6	$ 60,989	$ 66,075	$ 56,633	$ 365,934	$ 396,450	$ 339,798
3	4				$ 243,956	$ 264,300	$ 226,532
4	4				$ 243,956	$ 264,300	$ 226,532
Total	32				$ 1,951,648	$ 2,114,400	$ 1,812,256

Sunk cost associated with the features/functionality that can't be recouped.

3) *Baseline Feature/Functionality Cost (Plan For Analyzing Future Data):*
   a. Determine the average cost of a feature/functionality (Use the same calculations as table 2)
   b. Determine the standard division of the feature/functionality (Use a control chart to identify anomalies when recording the information)
   c. Determine the standard error of the feature/functionality
   d. Compare new cost number to that of old estimate and document why there is a difference
4) *Carrying Cost:*
   a. Take the QA carrying cost and multiply it times the number of features/functionality that are under the threshold

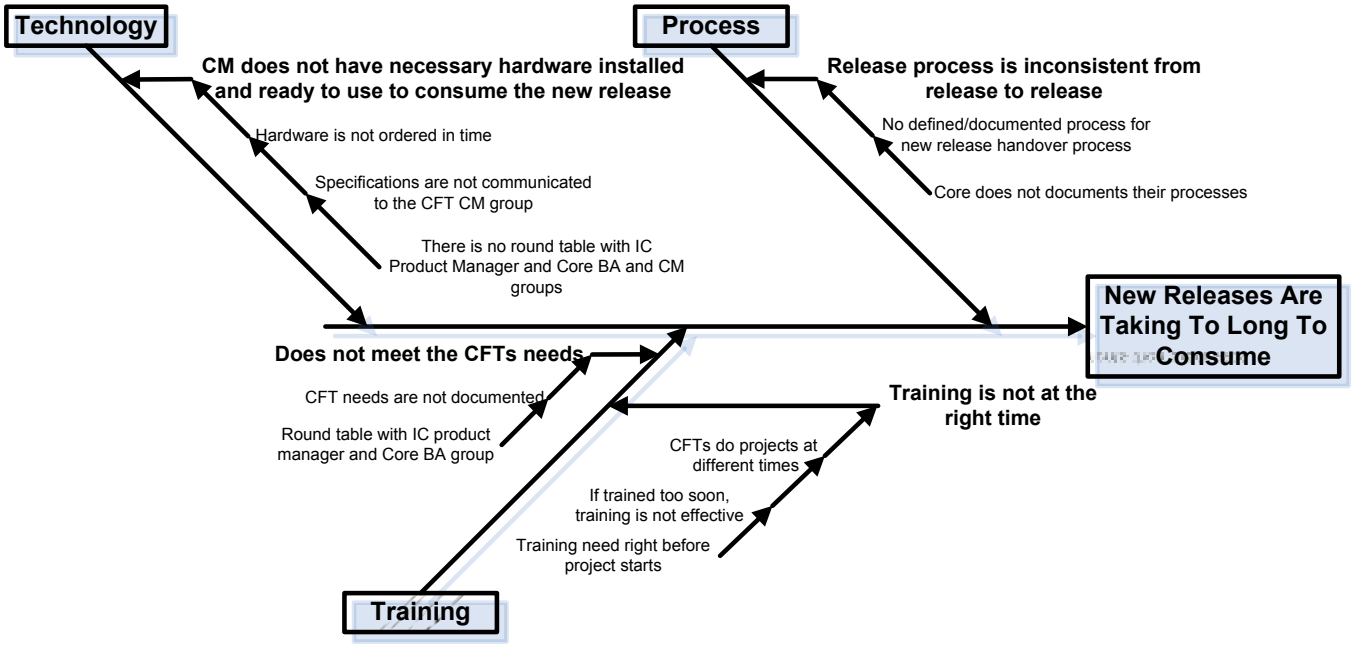
Table 4. Feature/Functionality Carrying Cost

# Of Customers Using F/F	# Of F/F Under Threshold	Carrying Cost	Total Carrying Cost	QA Hours
0	9		$45,000	225
1	9		$45,000	225
2	6	$5,000	$30,000	150
3	4		$20,000	100
4	4		$20,000	100
Total	32		$160,000	800

Cost of carrying a features/functionality forward to next release that are below the thresholds. This relates to 14.8% of the total QA budget of IC 3.0 release.

Release Management

Figure 5. Fishbone Diagram Of Release Management Problems



Results From The Fishbone Diagram:

1) Conduct a round table with CFT CM group early in release schedule. This needs to be completed early enough in the schedule to design, order, install and configure new hardware if necessary.
2) Document a release management process for repeatability and improvement
3) Conduct a round table with the competencies groups, both functional and technical, to determine training needs. Training needs must be documented.
4) Develop a training process that is flexible enough to be conducted for small groups right before a CFT conducts a customer project.

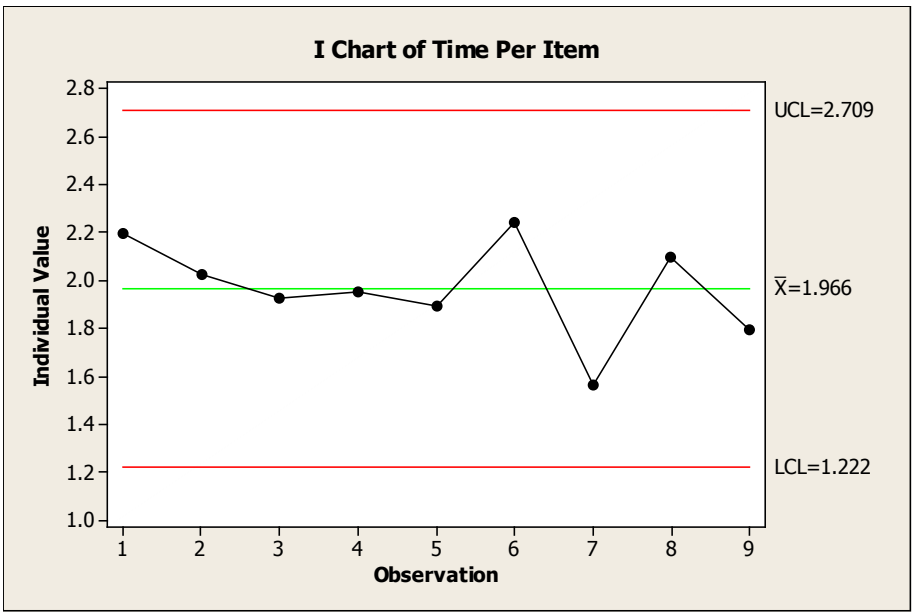
Custom Features/Functionality Feedback

Table 5. Time To Complete Custom Features/Functionality Log

Customer Name	Customer 11	Customer 12	Customer 21	Customer 25	Customer 26	Customer 27	Customer 32	Customer 33	Customer 35
IC Version	3	3	3.1.4	3.0	3.0	3.0	3	3	3
Time To Capture Info	90	75	102	176	70	121	50	21	113
Number Of Custom Items	41	37	53	90	37	54	32	10	63
Time Per Item	2.2	2	1.92	2	1.9	2.2	1.6	2.1	1.8

This shows that there is large variance in the number of custom features/functionality developed for customer's solutions.

Figure 6. Time To Complete Custom Features/Functionality Log Control Chart



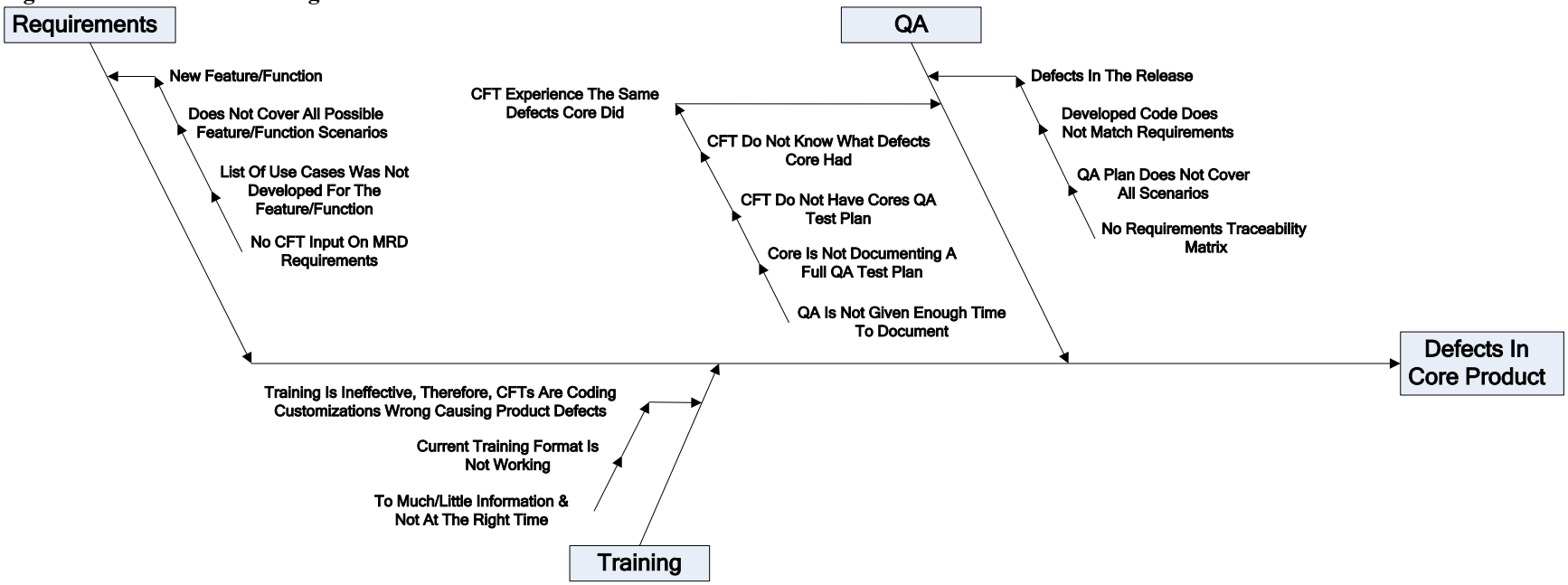
All times are within the UCL and LCL meaning the process/data is in control.

Table 6. 95% Confidence Interval (Time In Minutes)

	Mean	Deviations	Number Of Deviations	95% Confidence Interval
High	1.9657	0.209	2	2.11
Low				1.83

Defect Management

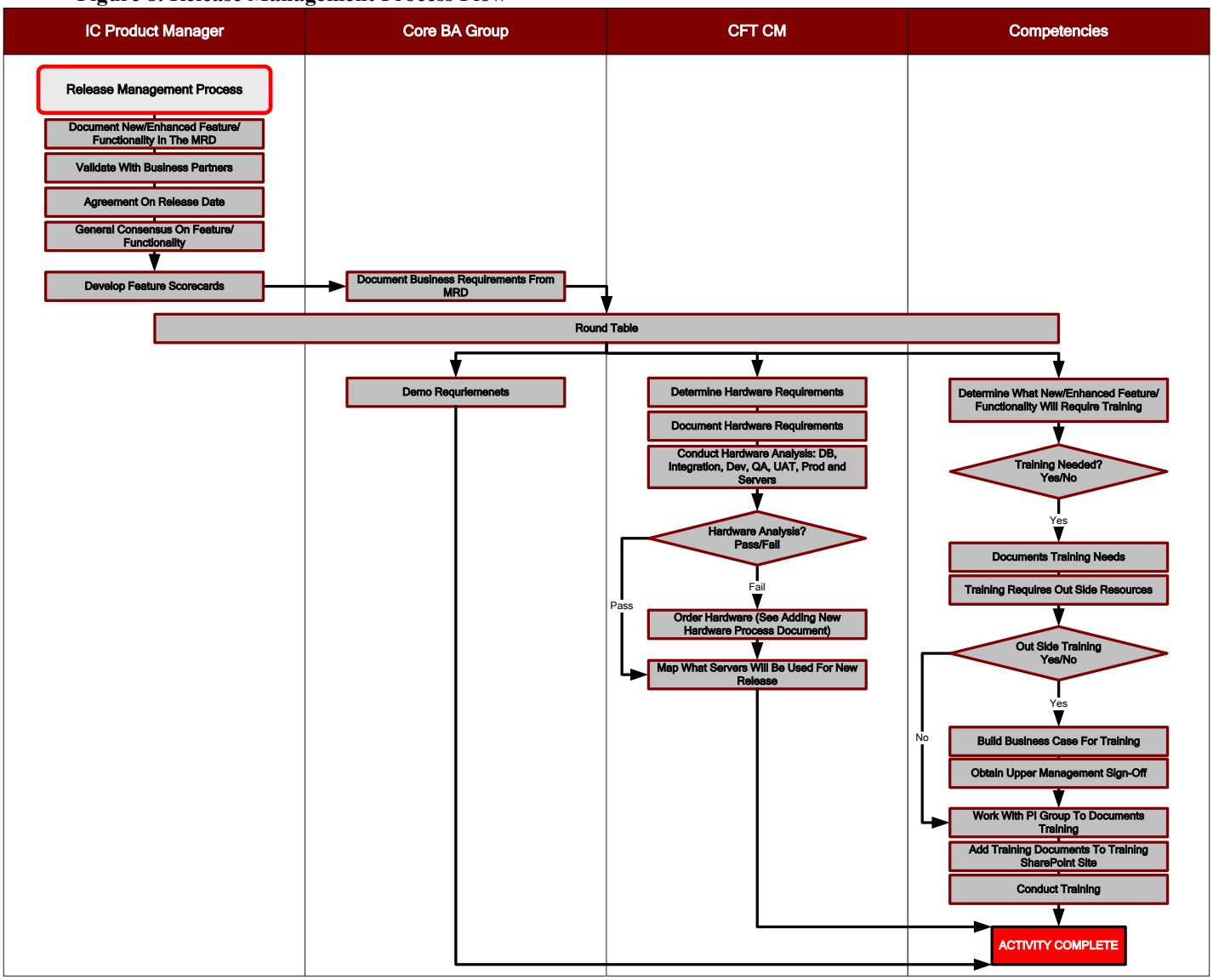
Figure 7. Defect Fishbone Diagram



Develop Phase

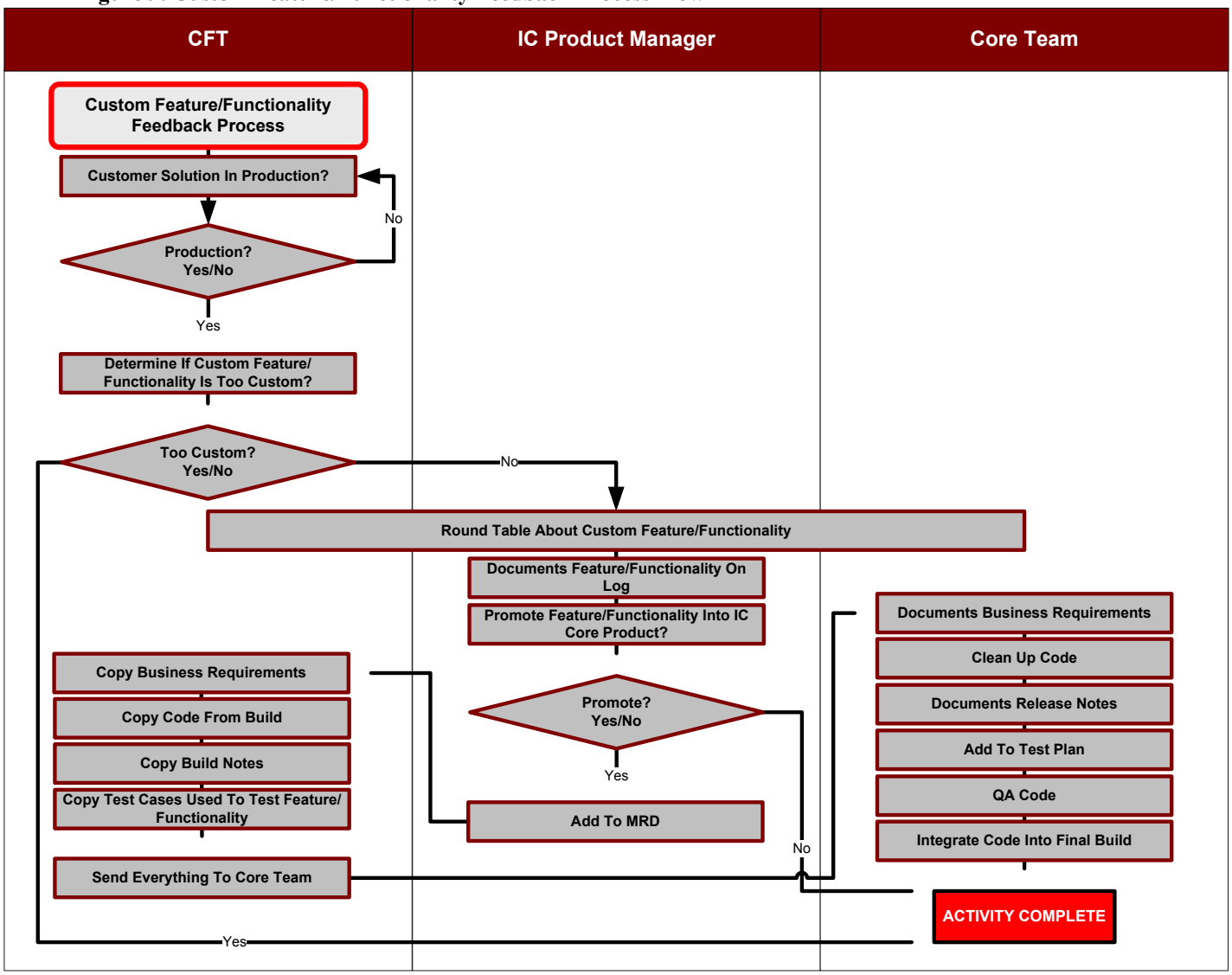
Release Management

Figure 8. Release Management Process Flow



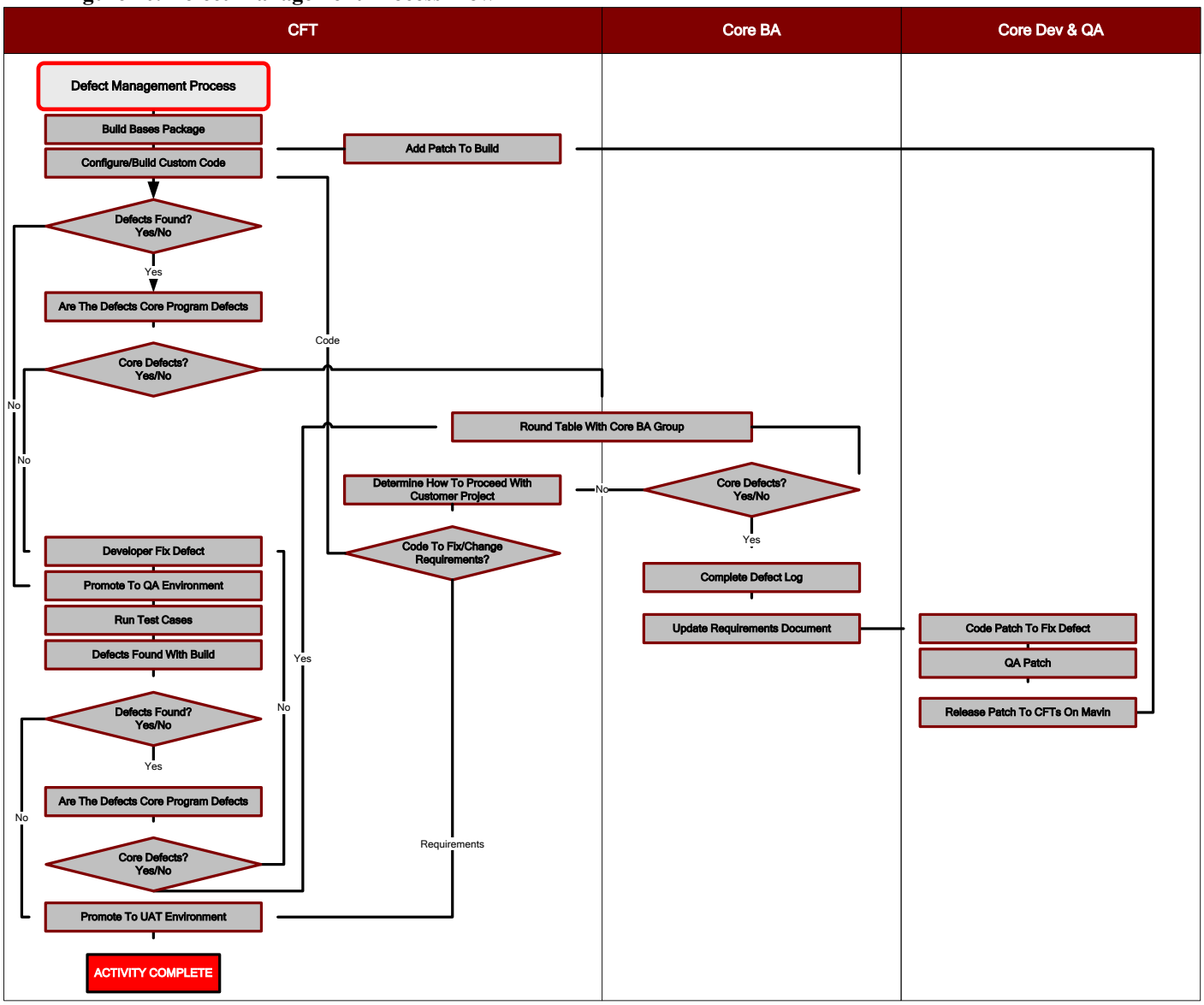
Custom Feature/Functionality Feedback

Figure 9. Custom Feature/Functionality Feedback Process Flow



Defect Management

Figure 10. Defect Management Process Flow



Verify Phase

Custom Feature/Functionality Feedback

1) Going forward with new customer solutions, continue to track how long it takes to document the custom features/functionality on the tracking log. If the time varies from the UCL, conduct a root cause analysis to determine why. (Over time, time to complete the tracking log should go down as teams get more familiar with the log meaning the time should drop below the UCL and may need to be readjusted.)
2) Determine how many of the custom features/functionality should be feed back into IC core product. If some custom features/functionality are to be fed back into the IC core product, document how much time is saved on IC cores' side from not having to start the code and requirements from scratch. Add the feature/functionality to thecore list, but denote that the customers using the custom versions of the feature/function is not exactly the same.
3) If after two IC version leases no features/functionality from the custom list are added to the core product, reevaluate the usefulness of the process.

Release Management

1) Pilot with 4.0 release
2) Track dates to calculate overages and determine if items are adhering to the defined timelines. If time varies by more than 10%, conduct a root causes analysis (Fishbone).
3) Update process and checklist based off findings for pilot. If no or minor changes are made, conduct a post release review after every release to ensure adherence.

Defect Management

1) Pilot with 4.0 release
2) Goal of 25% decease in reported defects has been set for the 4.0 release. If the reported defects come within 10% of the mark, reopen project.
3) Determine if any of the IC 4.0 defects are similar to IC 3.0 defects. If there are similarities, conduct a root causes analysis on each defect.

Improve Phase

Feature/Functionality Effectiveness

1) *Action:* Sunset the bottom 11% of the features/functionality from the IC product. All code is saved in its modules and can be brought forward if needed later. Documentation that needs to be updated:
    a. Sales literature (will have to communicate this to the marketing group)
    b. Requirement Documentation Templates (this is handled by the PI team and lives on SharePoint PDM Site)
    c. Feature/Functionality List (this is handled by the Core QA group and lives on SharePoint PDM Site). See Exhibit F for list.
2) *Impact:* This will impact a total of 15 customers. To mitigate any problems with migrating the customers solutions to newer versions in the future, see contingency plan section. See Figure 4 (# Of Features/Functionality Under Threshold By Customer (Customer Impact)) for breakdown.
3) *Contingency Plan:*
    a. *Migrations:* With some of the features/functionality being removed from the core that customers are currently using, if a customer using that item wants to migrate their solution to a newer release without that item, they have three options:
        i. Work with CFTs to determine if the feature/functionality is actually used. If it is used, determine how and see if another feature/functionality can be substituted for it
        ii. Have the customer pay for the feature/functionality as part of their migration. This is the most desirable from the CFTs point of view. It would involve bringing the old feature/functionality forward from the version it was sunsetted in to the current version. This does not mean it would be put back into the Core product though. Doing this requires the IC Core group and would be more cost effective than recoding the item from start.
        iii. Same solutions as option ii, but at zero cost
    b. *Presales, Customer Requirement:*
        i. If a customer wants a feature that has been sunsetted, have the customer pay for the feature/functionality as part of their solution. It would involve bring the old feature/functionality forward from the version it was sunset in to the current version. This does not mean it would be put back into the Core product though. Doing this require the Core group and would be more cost effective than recording the item from start.

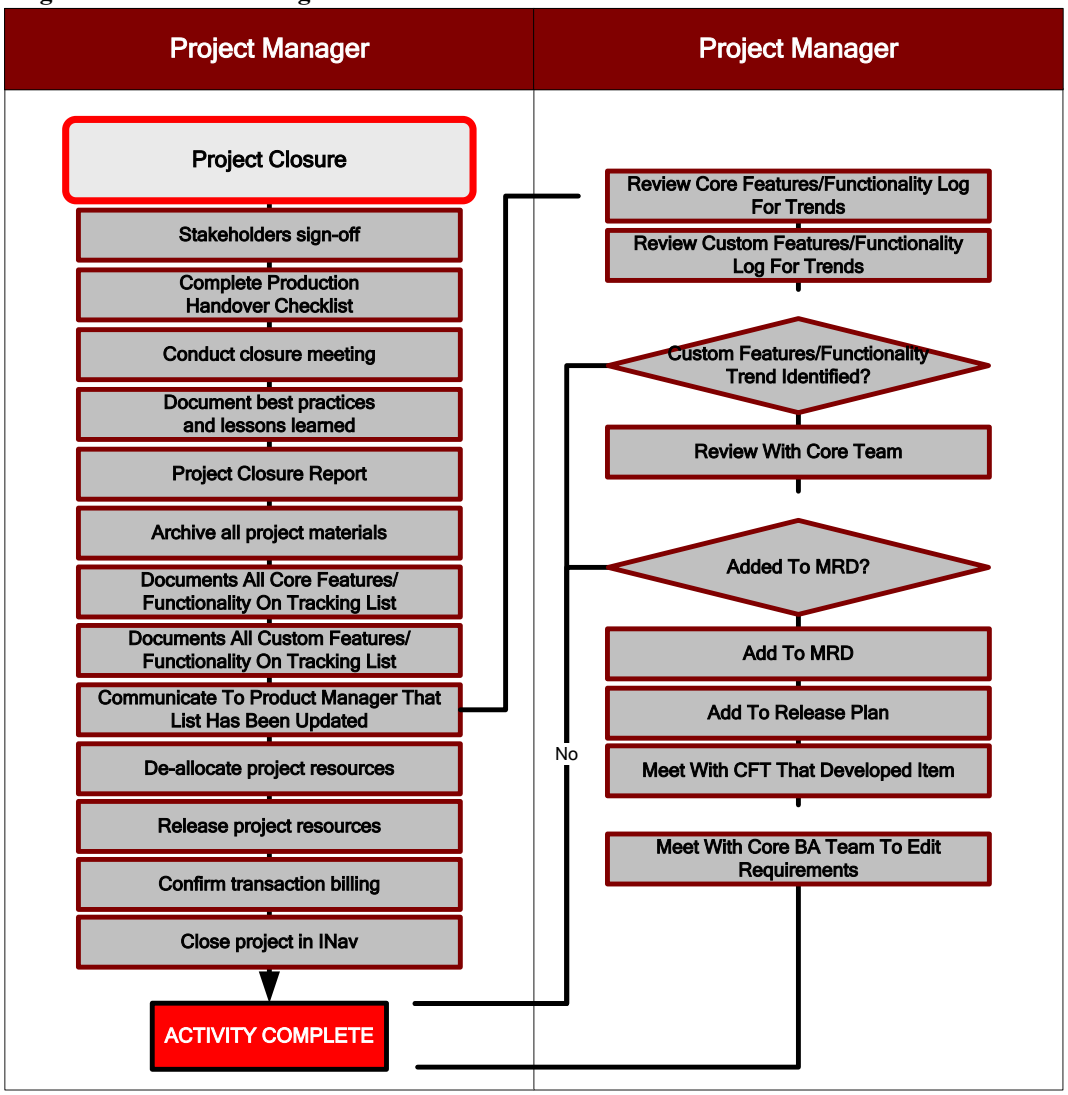
Control Phase

Feature/Functionality Effectiveness

To manage IC core product feature/functionality effectiveness on an ongoing basis, three items have been completed:

1) Added feature/functionality effectiveness documents update process to the PDM methodology

Figure 11. Release Management Process Flow



2) Centralized the feature/functionality effectiveness on SharePoint PDM site. Access rights have been added to allow all the CFTs to have the ability to update the document.
3) Dashboard on the feature/functionality effectiveness document. See Exhibit N

Exhibit A: Entire Process Overview (SIPOC)

Figure 12. Entire Process Overview (SIPOC)

Current

Suppliers	Inputs	Processes	Outputs	Customes
Product Manager	MRD, Features/Functionality		MRD	IC Core
IC Core	BA, Dev, CM, QA Rescoursces, Prior Release		Core Product, Release Notes, Training On Build, Templates, Demo, Product Patches	CFTs, CFT CM
Credit Data Customers	Features/Functionality Wants/Needs, Business Requirements (RFP, MRD), Contracts			
CFTs	Features/Functionality, BRS, SRS, UIS, CS, BP,Process Flows, Dev, BA and QA Resources, Defect Request		Customer IC Solution, Metrics	Credit Data Customers, Upper Management
Competitors	Features/Functionality			
Core CM	Build Hardware (Dev, Interrogation, QA Servers)		Software Build, Installation Instructions	CFTs
CFT CM	Servers (Integrations, Dev, QA, UAT, Prod)		New Enviorments, New Hardware	CFTs
Process Improvmenet	CFT Project Methodology		Updated Docuementation	CFTs
IBM	Hardware Support (Core and CFT)			
EI&O	New Hardware (Order Requisition)			

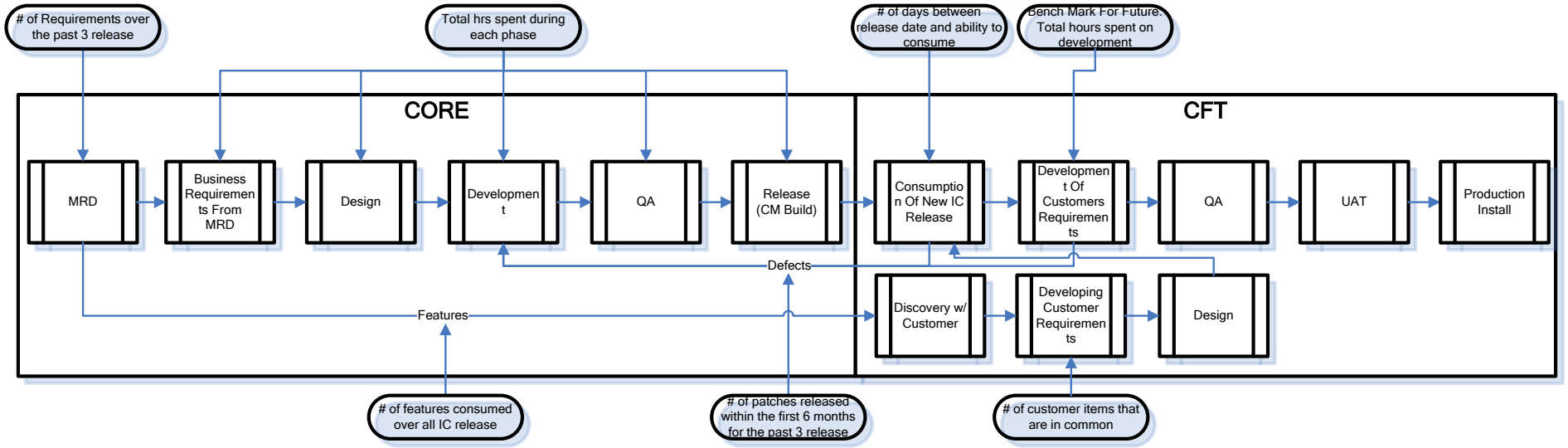


Exhibit B: Feature/Functionality Effectiveness (SIPOC)

Figure 13. Feature/Functionality Effectiveness (SIPOC)

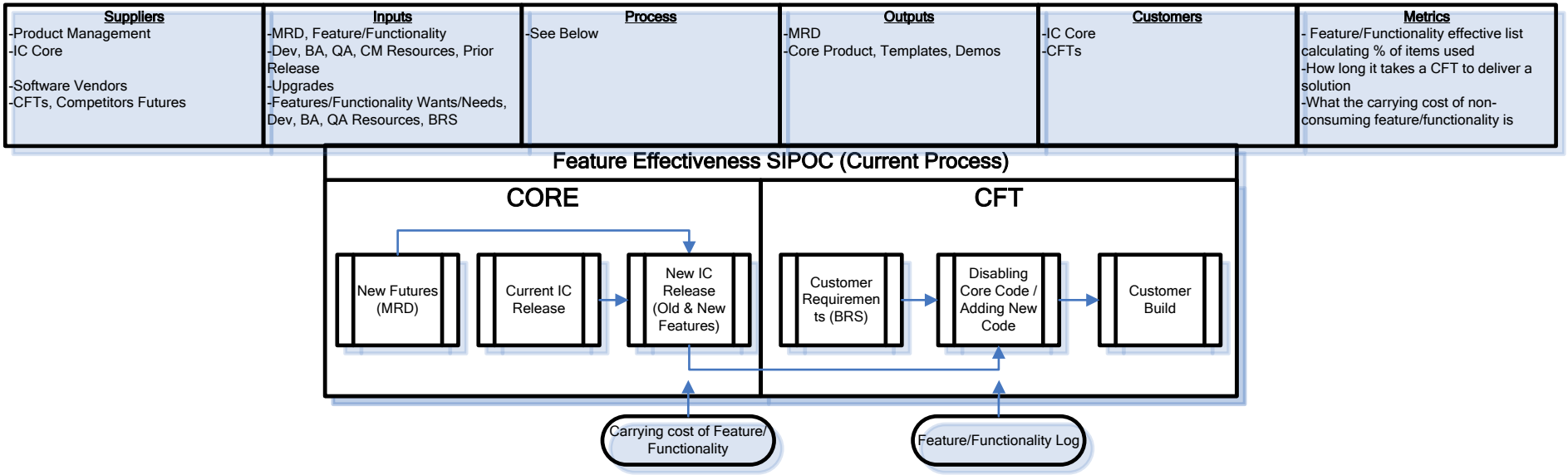


Exhibit C: Release Management Handover (SIPOC)

Figure 14. Release Management Handover (SIPOC)

Suppliers	Inputs	Process	Outputs	Customers	Metrics
-Product Management -IC Core -Software Vendors -CFT CM	-MRD, Feature/Functionality -Dev, BA, QA and CM Resources -Upgrades -Servers (Dev, QA, UAT, Production Hardware)	-See Below	-Core Product, Templates, Demos, Training	-CFTs, CFT CM	-How long it takes a the CFTs to consume a new release -If hardware available when a new version is released. If not, how long after the release till hardware is available

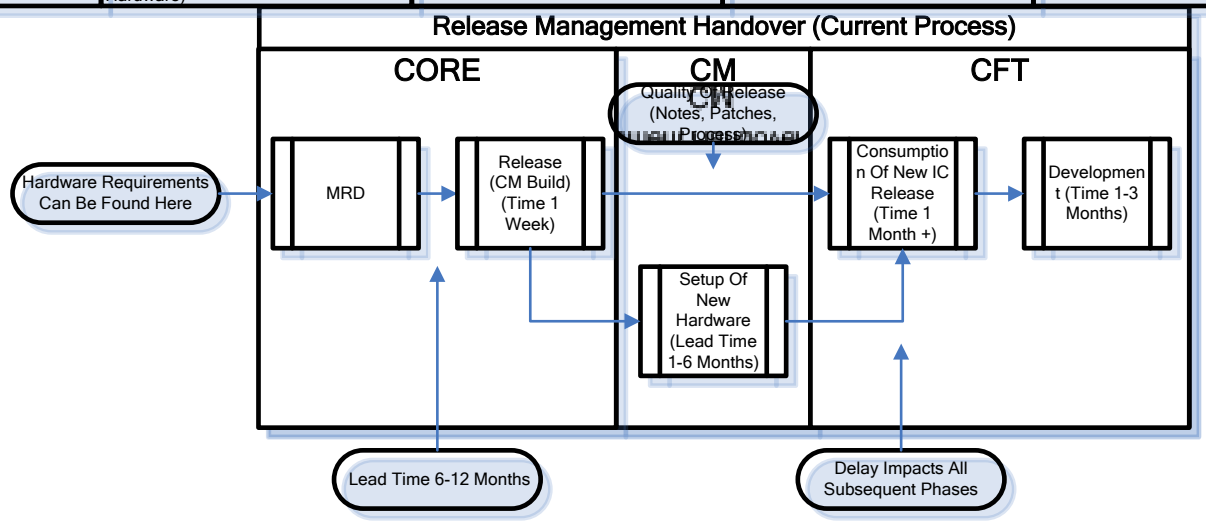


Exhibit D: Custom Feature/Functionality Feedback Loop (SIPOC)

Figure 15. Custom Feature/Functionality Feedback Loop (SIPOC)

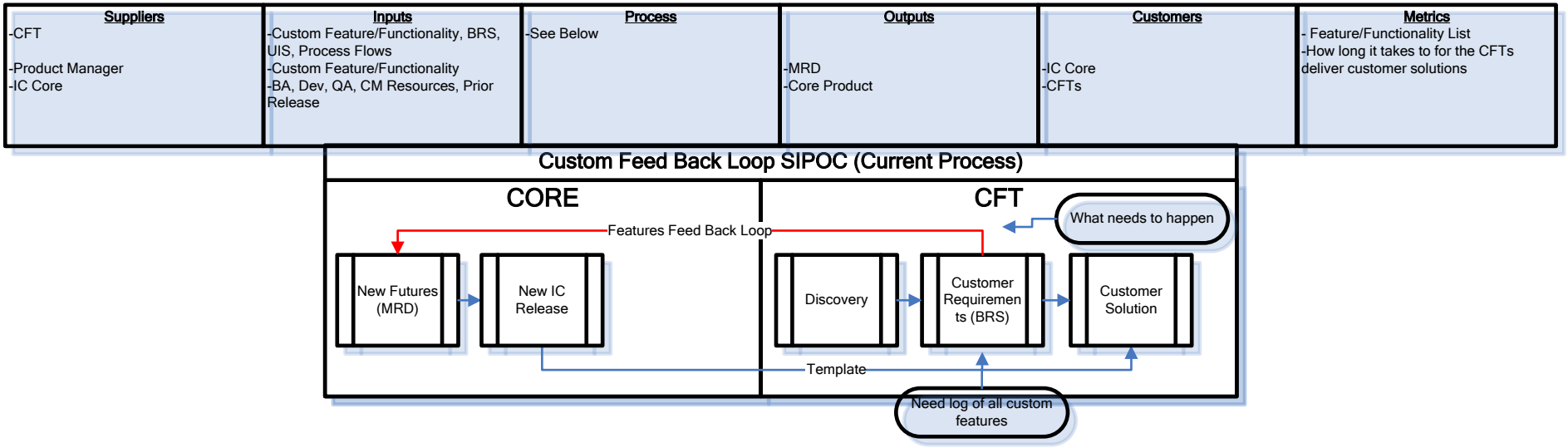


Exhibit E: Defect Management (SIPOC)

Figure 16. Defect Management (SIPOC)

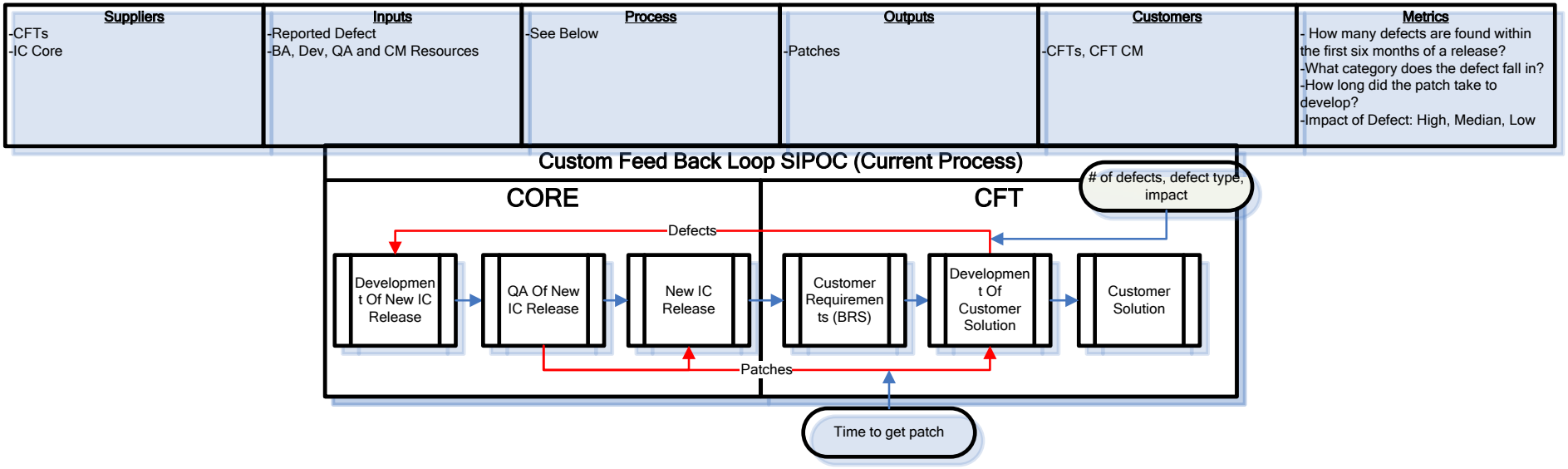


Exhibit F: Feature/Functionality Effectiveness Survey

Table 7. Feature/Functionality Effectiveness Survey

	Version Introduced	Feature/Functions (These are at a high level)	Customer 1	Customer 2	Customer 3	Customer 4	Customer 5	Customer 6	Customer 7	Customer 8	Customer 9	Customer 10	Customer 11	Customer 12	Customer 13	Customer 14	Customer 15	Customer 16	Customer 17	Customer 18	Customer 19	Customer 20	Customer 21	Customer 22	Customer 23	Customer 24	Customer 25	Customer 26	Customer 27	Customer 28
		Platform Version			2.5	2.5	2.5	1.6	1.6	1.7	1.7	2.5	3	3	2	2.5.1	1.6	2	2	2	2.0.4	1.7.13	1.4	2.0	2.0	2.0	3.0	3.0	3.0	2.5
		Solution Type	STS /BO	STS /BO	STS /UI	STS /BO	STS /UI	STS /UI	STS /UI	STS /UI	STS /BO	STS /BO	STS /UI	STS /UI	STS /UI	STS /BO	STS /BO	STS /BO	STS /BO	STS /UI	STS /UI	STS	STS	STS /UI	STS /BO	STS /BO	STS /BO	STS	STS /UI
User Interface	1.3.2	Transaction Search	x		x		x	x	x	x	x			X	X	X				X	X			X					X
	1.5.1	Create List	x		x			x	x	x	x			X	X	X	X	X	X	X	X			X					X
	1.3.1	Log in	x		x	x	x	x	x	x	x			X	X	X	X	X	X	X	X			X	X	X	X		X
	1.3.1	Log out	x		x	x	x	x	x	x	x			X	X	X	X	X	X	X	X			X	X	X	X		X
	1.3.1	Submit UI			x		x	x	x	x	x				X	X				X	X								X
	1.3.2	Resubmit UI			x		x	x	x	x	x			X	X	X				X	X								
	1.3.2	Zip Code Preference										x																		
		Default Preferences												X	X	X								X						
	1.3.2	Override							x	x	x				X	X				X	X									X
	1.3.2	Standard Reports	x	x	x	x	x	x	x	x	x	x	x	X	X	X				X	X			X		X	X			X
	1.3.2	Message Center Administration			x				x	x	x			X	X	X				X	X			X						X
		Messages			x	x	x	x	x	x	x			X	X	X				X	X			X						X
	1.3.1	Security (User Administration)	x	x					x	x	x	x	x	X	X	X	X	X	X	X	X			X	X	X	X			X
		Product Setup																							X					
	1.3.2	Champion Challenger								x				X			X	X	X		X						X			X
	1.3.2	Work Items (Create, Acquire, Complete)							x	x	x			X	X	X				X	X			X						X
	1.4	Manage Work Items	x					x	x	x	x			X	X	X				X	X			X						X
		My Work	x					x	x	x	x			X	X	X				X	X			X						X
		Search Work Items							x	x	x			X	X	X				X	X			X						X
		Work Item History							x	x	x			X	X	X				X	X			X						X
	1.3.1	Decisioning	x	x	x	x	x	x	x	x	x			X	X	X				X	X									X
		System Calendar			x									X	X	X				X	X			X						
		Profile	x		x			x	x	x	x	x	x	X	X	X	X	X	X	X	X			X	X	X	X			X
	1.6.1	Help	x	x	x	x	x	x	x	x	x	x	x	X	X	X	X	X	X	X	X			X	X	X	X			X
		Legal notice												X	X	X				X	X			X	X	X	X			X
	1.3.1	Password Help	x		x		x	x	x	x	x	x	x	X	X	X	X	X	X	X	X			X	X	X	X			X
	1.4	Letters			x															X	X									
	1.3.2	Add notes			x				x	x	x			X	X	X	X		X	X	X			X						X
	1.3.2	Application History							x	x	x			X	X	X				X	X			X						X
		Data Isolation													X									X						
	2.5	Signature Pad																												
	3	Decision Audit												X		X														X
	2.5	MaX Resubmit		x	x	x	x	x	x	x	x	x	x	X	X	X					X	X								
	2.5	Bureau Iterator												X							X	X								X
	1.3.2	Application Locking													X						X	X			X					
	1.3.2	Regulatory Alerts	x	x	x	x	x	x	x	x	x			X	X	X					X	X								X
		Duplicate Check	x	x	x	x	x	x	x	x	x			X	X	X					X	X								X
		Transaction Logging												X	X	X					X	X								X
		IC Print Image			x		x		x	x	x			X	X	X					X	X								X
	1.3.2	Product Catalog										x																		
		Transaction Audit Event																												X
		UI Configuration Tool												X																
	2	Single Sign On																												
	2.5	EXperian Password Management													X															X
	2.5	Nested Systems													X															

Exhibit G: Feature/Functionality Cost Survey

Table 8. Feature/Functionality Cost Survey

Rate the complexity of the project item on a scale from 1-10. 1 = easy, 5 = normal, 10 = complex

InterConnect 2.5	TD	JR	CH	S	A	InterConnect 3.0	TD	JR	CH	S	A	2.5	3
Tri-Bureau Prescreen	9	3	4	6	1	Scorecard Manager	5	9	8	4	8	4.6	6.8
Standard Reports - Refactor	3	10	1	3	1	Re-Decision	2	1	7	3	7	3.6	4.0
IC Standard Interface	6	5	10	8	9	Score Simulator	4	2	2	5	6	7.6	3.8
Nested Systems	10	4	6	5	3	Decision – Audit	1	4	5	10	6	5.6	5.2
Criteria Manager as a Service	5	3	10	2	10	Test Data Generator	8	6	5	4	10	6.0	6.6
Transaction Audit Events	6	9	2	8	8	Single Sign-on	6	8	5	1	9	6.6	5.8
Equifax Canadian Commercial	3	2	8	4	10	ILOG 6.5	7	8	10	7	8	5.4	8.0
MultiVision on InterConnect	9	2	2	3	3	Dynamic Configuration Loading	2	4	7	7	9	3.8	5.8
SBE update	9	3	5	8	3	UI Configuration Tool	5	9	8	8	9	5.6	7.8
Seed Data Scripts	4	4	4	7	2	Release Centralization Tools	3	6	1	5	5	4.2	4.0
Criteria Manager Updates	6	8	9	8	1	Advanced Reporter Updates	9	2	10	6	2	6.4	5.8
Decision Domain Changes	8	1	5	1	1	RiskWise 2.0	4	7	9	6	6	3.2	6.4
Handle Max Resubmit	2	5	1	3	9	ACRO – Updates	2	8	9	8	6	4.0	6.6
Bureau Iterator on Transaction	6	10	6	9	9	Austin Tetra	6	8	2	7	2	8.0	5.0
Standard Data Extract	8	6	4	9	10	Environment Certification	8	10	5	8	7	7.4	7.6
File Processor Framework in Rules Editor	5	3	3	6	10	Canadian eID	4	6	8	5	3	5.4	5.2
Lightweight Batch Framework	1	3	3	2	7	UK eID	8	4	3	2	7	3.2	4.8
Duplicate Logic Enhancements	3	8	3	2	6	SBE Update	8	7	10	10	2	4.4	7.4
Conversational Communication	7	4	7	2	7	Experian Small Business Update	10	6	4	3	9	5.4	6.4
Dual Support for Hypothesis	6	3	4	5	3	XML Output	5	1	6	10	10	4.2	6.4
Direct Access to Data Sources	3	6	7	7	10	Dun and Bradstreet – Patriot Act Packet	2	3	6	9	1	6.6	4.2
Release Centralization Tools	8	10	5	7	8	Versata 6.0	10	5	7	4	4	7.6	6.0
Configuration UI	4	8	5	9	9	UI Prototyping Tool	7	8	4	6	10	7.0	7.0
SOA for Data Sources	6	3	10	4	10	ITEM X	2	2	8	3	1	6.6	3.2
Evaluate ILOG 6.5	1	1	9	3	8	eID Connect	10	9	6	2	6	4.4	6.6
Evaluate Versata 6.1	6	3	2	4	10	Brokerage Template	6	10	5	3	5	5.0	5.8
IC for Commercial	8	10	8	10	4	eHub Solution	10	6	2	3	8	8.0	5.8
IC for Consumer	4	3	8	7	10	Data Hub	5	10	3	9	6	6.4	6.6
IC Direct Phase 2	2	3	6	9	8	CR209: CoCo resubmit functionality to be consistent with core	5	6	6	4	10	5.6	6.2
Decision Power Compatible Interface	10	3	8	7	9	CR212: Update Experian Test Subcode	2	7	7	10	8	7.4	6.8
Attribution for Equifax Mortgage Systems	3	9	1	2	5	CR213: Updated IDA Reason Codes	6	5	10	7	3	4.0	6.2
CR91: Remove link to View data source results when Error exists	10	3	2	1	3							3.8	
CR128: Migrate Billing upload to CIS off ePORT	7	8	7	10	7							7.8	
CR137: UI Update Notes Changes	8	5	7	4	3							5.4	
CR139: Expand email address field	2	4	5	4	2							3.4	
CR141: Incorporate Fall eID (V5) Changes into release 2.5	5	4	6	6	3							4.8	
CR145: Utilities Template - 2.5 version	4	6	6	1	8							5.0	
CR146: TU Prescreen Report	5	3	10	3	10							6.2	
CR149: User Role Modification - Utilities Template	6	9	3	6	1							5.0	
CR151: Move Credential Group Selection to New App Page	7	6	9	8	2							6.4	
											Total	44.2	36.76

Exhibit H: Feature/Functionality Cost Calculation

Table 9. Feature/Functionality Cost Calculation

IC 3.0				Weighted # Of Features		36.8
Sum of Hr						
Role	Total	% Of Total Time	Cost	Hr	%	Cost
BA	4,250	10.17%	$ 255,000	116	10%	$ 6,937
CM	8,033	19.22%	$ 481,950	219	19%	$ 13,111
DB	533	1.28%	$ 31,980	14	1%	$ 870
Designer	2,649	6.34%	$ 158,940	72	6%	$ 4,324
Dev	19,632	46.98%	$ 1,177,896	534	47%	$ 32,043
Documentation	432	1.03%	$ 25,920	12	1%	$ 705
Manager	937	2.24%	$ 56,220	25	2%	$ 1,529
PM	603	1.44%	$ 36,150	16	1%	$ 983
QA	4,720	11.30%	$ 283,200	128	11%	$ 7,704
Grand Total	41,788		$ 2,507,256			

IC 2.5				Weighted # Of Features		44.2
Sum of Hr						
Role	Total	% Of Total Time	Cost	Hr	%	Cost
BA	4,682	11.82%	$ 280,893	106	12%	$ 6,355
CM	4,854	12.25%	$ 291,240	110	12%	$ 6,589
DB	832	2.10%	$ 49,890	19	2%	$ 1,129
Designer	2,392	6.04%	$ 143,511	54	6%	$ 3,247
Dev	19,408	48.99%	$ 1,164,480	439	49%	$ 26,346
Documentation	1,128	2.85%	$ 67,680	26	3%	$ 1,531
Manager	1,152	2.91%	$ 69,120	26	3%	$ 1,564
PM	686	1.73%	$ 41,160	16	2%	$ 931
QA	4,480	11.31%	$ 268,770	101	11%	$ 6,081
Grand Total	39,612		$ 2,376,744			

Average Of IC 2.5 & 3.0			
Resources	**Hr**	**% Of Total Time**	**Cost**
BA	111	10.9%	$ 6,646
CM	164	16.2%	$ 9,850
DB	17	1.6%	$ 999
Designer	63	6.2%	$ 3,785
Dev	487	47.9%	$ 29,194
Documentation	19	1.8%	$ 1,118
Manager	26	2.5%	$ 1,547
PM	16	1.6%	$ 957
QA	115	11.3%	$ 6,892
Total	1016	100%	$ 60,989

Exhibit I: Release Management Tracking Log

Table 10. Release Management Tracking Log

Release Date	Wednesday, October 01, 2008

Date Rang To Be Completed By		# Of Days Out		Items To Be Completed	Completed On	Overage
Start	Finish					
10/2/07	10/2/07	365	365	Placement On Roadmap		0
				Validation With Business		0
10/2/07	1/5/08	365	270	Agreement On Release Date		0
				General Consensus On Content (Sales, Fulfillment, Marketing, Software)		0
				Business Requirements In Development		0
				Feature Scorecard		0
1/5/08	4/4/08	270	180	MRD Complete		0
				Product Marketing Plan Complete		0
				Coordinate With Compantacy Groups On Items In New Release		0
				Documents Demo Requrirments		0
				Cordinate With CFT CM On New Hardware		0
4/4/08	7/3/08	180	90	Change Control Period		0
				CFT CM Order New Hardware		0
7/3/08	9/1/08	90	30	Feature Lock-down		0
				Requirements Agreed To		0
				Release Feature Review With SFs, Archs, Consultants		0
				Product Marketing Materials And Sales Training		0
9/1/08	10/1/08	30	0	Development Complete		0
				Detailed Review With SFs, Archs, Consultants		0
				Services Training		0
				Release UAT		0
				CFT CM New Hardware Installed		0
10/1/2008	10/1/2008	0	0	Software Delivered		0
				Deliver Documentation For CoCo: BRS, SRS, Process Flows (Consumer, Commercal, Joint), UI BluePrints(Consumer, Commercal, Joint)		0
				Solution Development Begin Date		0
10/1/2008	10/31/2008	0	30	Demos		0

Exhibit J: Custom Feature/Functionality Log

Table 11. Custom Feature/Functionality Log

Customer Name	CFT	Industry	Solution Template	Solution Description	IC Version	BRS Requirement Fields

Exhibit K: Defect Tracking Log

Table 12. Custom Feature/Functionality Log

Release Ver					
Release Date					
#	Date Reported	Date Patch	Impact To Customer Project	Defect Category	Defect Discription
1	12/30/08	12/30/08	Mediam	Requirments	
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
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38					
39					
40					

Exhibit L: Feature/Functionality Results Chart

Table 13. Feature/Functionality Results Chart

STS With Back Office Total # Of Features: 83			
# Of Times Used	# Of Features	% Of Customers	% Of Features
0	38	0%	46%
1	11	8%	13%
2	4	17%	5%
3	6	25%	7%
4	1	33%	1%
5	7	42%	8%
6	1	50%	1%
7	1	58%	1%
8	3	67%	4%
9	4	75%	5%
10	3	83%	4%
11	2	92%	2%
12	2	100%	2%

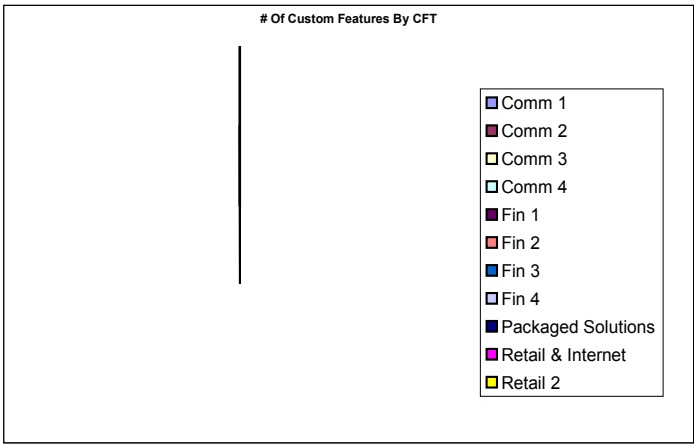
STS With Full UI Total # Of Features: 86			
Number Of Times Used	Number Of Features	% Of Customers	% Of Features
0	14	0%	16%
1	9	8%	10%
2	6	15%	7%
3	4	23%	5%
4	6	31%	7%
5	2	38%	2%
6	3	46%	3%
7	3	54%	3%
8	7	62%	8%
9	4	69%	5%
10	7	77%	8%
11	9	85%	10%
12	5	92%	6%
13	7	100%	8%

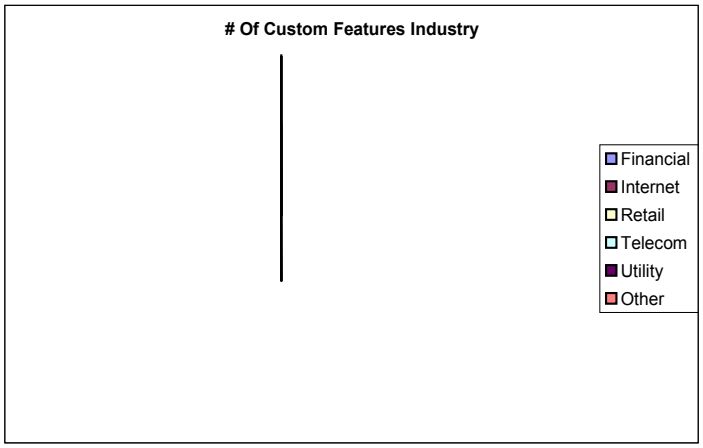
STS Total # Of Features: 42			
Number Of Times Used	Number Of Features	% Of Customers	% Of Features
0	19	0%	45%
1	18	33%	43%
2	3	67%	7%
3	2	100%	5%

Everything Total # Of Features: 92			
# Of Times Used	# Of Features	% Of Customers	% Of Features
0	9	0%	10%
1	9	3%	10%
2	6	5%	7%
3	4	8%	4%
4	4	11%	4%
5	2	14%	2%
6	0	16%	0%
7	6	19%	7%
8	3	22%	3%
9	2	24%	2%
10	2	27%	2%
11	2	30%	2%
12	3	32%	3%
13	3	35%	3%
14	1	38%	1%
15	3	41%	3%
16	3	43%	3%
17	1	46%	1%
18	1	49%	1%
19	5	51%	5%
20	3	54%	3%
21	3	57%	3%
22	3	59%	3%
23	0	62%	0%
24	3	65%	3%
25	0	68%	0%
26	0	70%	0%
27	0	73%	0%
28	2	76%	2%
29	2	78%	2%
30	3	81%	3%
31	3	84%	3%
32	0	86%	0%
33	0	89%	0%
34	1	92%	1%

Exhibit M: Feature/Functionality Effectiveness Dashboard

Figure 17. Custom Feature/Functionality Log Dashboard





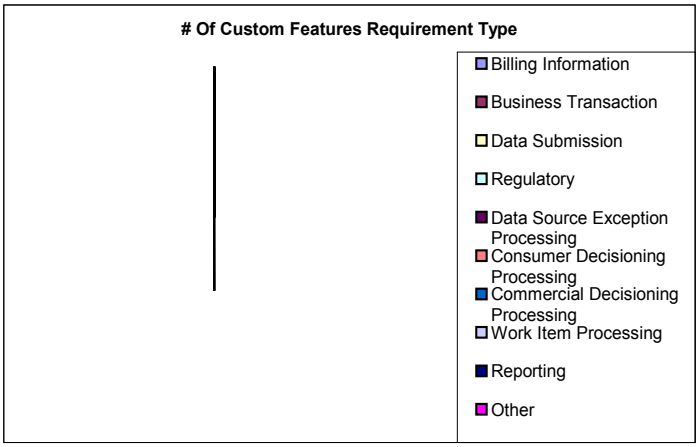
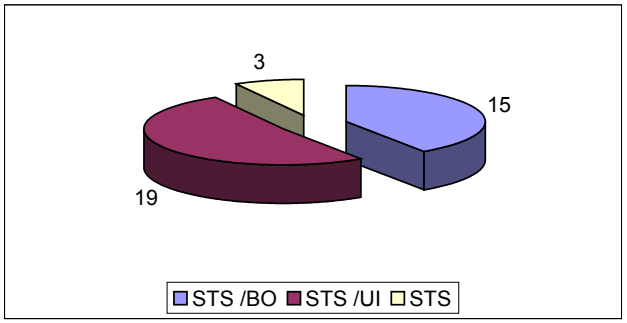


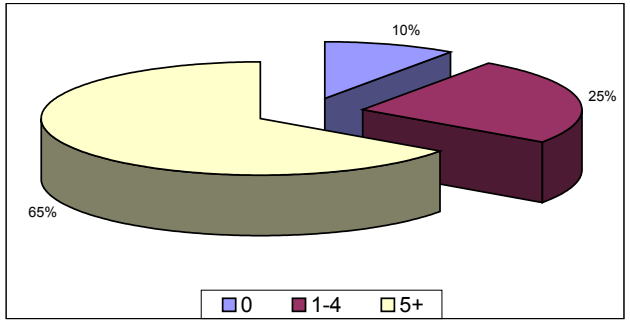
Exhibit N: Feature/Functionality Effectiveness Dashboard

Figure 18. Feature/Functionality Effectiveness Dashboard

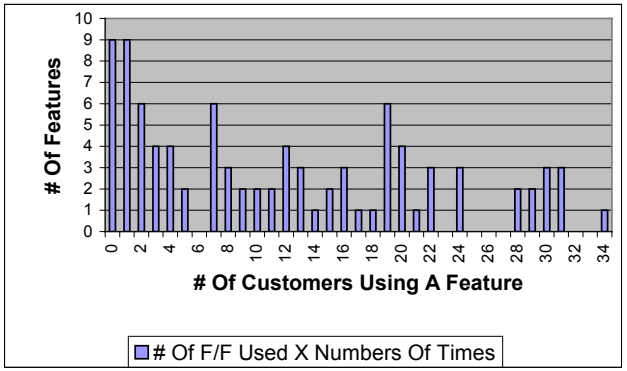
Customers On Different IC Profiles Types



Consumption Groups

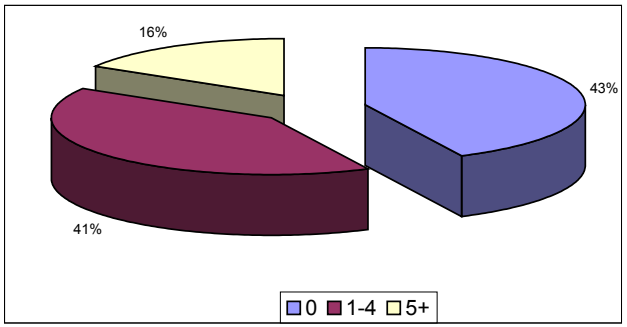


 # Of Features Consumed X # Of Times



Data Source Groups
0
Accurint
Austin Tetra
Canada Consumer
DL Advantage
eFunds
eID Canada
eID Fact Act
eID UK
Equifax Dual/Join
Equifax FACT Act
Equifax OFAC
Experian FACT Act
Experian Prescreen
Moody's
NTDE
Riskwise Telecheck OFAC
S&P
Telecheck
TransUnion FACT Act
TransUnion OFAC
TransUnion Prescreen

 # Of Customers Using A Data Source



Features Within Groups		
0	1-4	
Asynchronous STS	Advanced Reporter	Webservices
Criteria Manager	BRES Certification	Zip Code Preference
Data Integration	Brokerage	
DP Fixed Format	Data Isolation	
Hypothesis	Decision Audit	
IDCD	FFF Request/Response	
Lightweight Batch	Metrics Monitoring	
SBE Triggers	Multilingual Support	
Utility	Nested Systems	
	Prescreen	
	Product Catalog	
	Product Setup	
	Quickserver	
	Redecision	
	Signature Pad	
	Single Sign On	
	SOAP	
	Synthetic Monitoring	
	Transaction Audit Event	
	UI Configuration Tool	

# Of Customers	% Of Total Customers	# Of Times Features Used	% Of Total Features	Running Total	Running Total
0	0%	9	10%	9	10%
1	3%	9	10%	18	20%
2	5%	6	7%	24	26%
3	8%	4	4%	28	30%
4	11%	4	4%	32	35%
5	14%	2	2%	34	37%
6	16%	0	0%	34	37%
7	19%	6	7%	40	43%