

Lean Concepts in Customer Care: Adding Value and Reducing Waste with Proactive Order Status Messaging

By

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B.S. Industrial and Systems Engineering, Rochester Institute of Technology, 2000

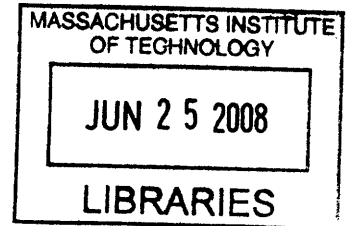
M.S. Industrial and Systems Engineering, Rochester Institute of Technology, 2001

Submitted to the Sloan School of Management and the Engineering Systems Division in Partial Fulfillment of the Requirements for the Degrees of

Master of Business Administration

AND

Master of Science in Engineering Systems



In conjunction with the Leaders for Manufacturing Program at the

Massachusetts Institute of Technology

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June 2008

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Abstract

Information technology (IT), operational efficiency, and a strong relationship with customers are three critical components to Dell's success over the last twenty four years. Information technology throughout Dell's history has enabled strategic advantages such as the direct sales model. Operationally, Dell has continuously striven to be best in breed in terms of having an efficient supply chain and manufacturing facilities. Dell's customers were delighted because Dell dealt directly with them without a middle man, quickly translating their needs into products and solutions. These three factors are interdependent and have driven Dell to a sixty billion dollar Fortune 50 company in less than a quarter century.

Over the last few years Dell has begun to embrace a lean culture within its manufacturing and supply chain operations. These initiatives are above and beyond other continuous improvement initiatives such as Business Process Improvement (BPI) which traditionally has focused on cost avoidance. To date the lean concepts have not progressed far beyond traditional operational boundaries or the proverbial four walls of manufacturing. This thesis looks to apply lean philosophical concepts and tools in customer service and IT environments.

The analysis included consumer call center call drivers identification and value stream mapping of online self help environments. The analysis pointed to the order management process and proactive order status messaging in particular as a thesis focus area. The author convinced high level leaders across Dell's support, IT, and logistics organizations to sponsor a kaizen event to bring all of the key stakeholders together to design an ideal state, end-to-end proactive order status messaging process. Stakeholders analyzed communication channels (phone, internet, email channels, etc.) and messages delivered (order processed, order confirmed, order shipped messages, etc.). The team developed a coherent ideal state vision of what the processes and data systems should look like. Some short and long term successes were realized by the time this thesis was published.

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Acknowledgments

I would like to thank many people at Dell and MIT, my friends and family, and my sponsors at Intel for their support throughout my time at MIT and during the internship and thesis writing process.

At Dell I would like to especially thank Tom Wala for providing me a challenging topic and pushing my comfort zones throughout the internship. Tom, thank you for all of the great advice and time spent brainstorming ideas and hashing through an ever changing business environment to keep our project momentum going. I would also like to especially thank Marcia Strickler and Kimberly Sterling for being my sounding boards and co-leaders for the kaizen events and for ultimately taking many action items related to proactive status messaging. I could not have accomplished even a fraction of what I did without their help. I would like to thank the rest of the Channel Integration team for their support along the way. Finally I would like to thank John Spangenberg, Lisa Hornsby, and Dick Hunter for sponsoring and escalating the need for this project.

I would like to thank Stephen Graves and Deborah Nightingale for their steadfast support and feedback before during and after the internship. They have been a tremendous resource throughout the internship and the writing of this thesis.

Last but certainly not least, I would like to thank my family and friends for their continuing support. Thanks Jennifer for enduring six months of a long distance engagement during an extremely challenging time of your life. Without your continued support and encouragement I would not be here at MIT & LFM. I love you very much and am so very proud of all of your accomplishments. To my parents, brother, sister, sister in law, my nephew and niece, thank you for all of your amazing support and encouragement. Thank you to Ray Shan, Nadya Dhalla, and Hannah McClellan, my MIT-LFM compatriots at Dell for your feedback, advice, and friendship along the ride.

Finally, I would like to especially thank the Intel LFM Steering Committee for their generous sponsorship.

NOTE ON PROPRIETARY INFORMATION

In order to protect proprietary Dell information, the data presented throughout this thesis has been altered and does not represent the actual values used by Dell, Inc. Any dollar values and/or contact center data has been disguised, altered, or converted to percentages in order to protect competitive information.

Biographical Note

Kaine Gill was born in Watertown, New York. He attended Rochester Institute of Technology where he majored in Industrial and Systems Engineering (ISE) and received a Bachelor of Science and a Master of Science in ISE in 2001. After graduating he worked for Intel Corporation in Hudson Massachusetts. At Intel Kaine held multiple industrial engineering positions. He also helped form a lean implementation team and spent two years promoting and training Intel employees and managers in lean methodology and practice. Kaine also managed a team responsible for maintaining all non-capital purchased factory equipment. Intel sponsored Kaine to the LFM program for the class of 2008.

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1. Introduction and Background

1.1. Dell Overview

Dell Inc. is a long time partner and sponsor of Massachusetts Institute of Technology's (MIT) Leaders for Manufacturing (LFM) program. Dell is a Fortune 50 company with revenues of approximately \$60 Billion. Dell is organizationally divided primarily along two major lines of business, consumer and business. Dell categorizes consumer customers into home and small office users and business customers into small, medium, and large businesses, as well as government, education, healthcare and life sciences customers.

1.2. Consumer Customers

Consumer customers are generally individuals that buy from Dell online, over the phone, or in one of the Dell's newly established retail venues such as Wal-Mart, Staples, and Best Buy. These consumers purchase for personal use and are in most cases not connected with a business customer. That is to say an employee of Boeing, one of Dell's business customers, could independently buy a consumer pc for personal use from Best Buy. Although comprising a relatively small percent of Dell's overall revenue, the consumer segment is seen as one of the highest potential growth areas for Dell.

1.3. Business Customers

Business customers are larger volume accounts which deal with Dell on a frequent basis. The business segment includes sub segments such as but not limited to: educational institutions, global corporations, as well as large, medium, and small sized businesses. Business customers account for a lion's share of Dell's revenue.

1.4. Dell Customer Service

Dell's Customer Service organizations support the broader divisions described above. There are unique customer service organizations that support business customers and consumer customers. In both customer service organizations, the support provided is divided between customer care support and technical support.

1.4.1. Care versus Technical Support

Care support issues primarily address order related issues such as order status and returns.

Technical support issues primarily address hardware issues with computers, printers, or other devices.

Support for both care and technical issues can come in many forms. E-support, also referred to as self support and web support, is the classification for users trying to get answers to their questions online without assistance. There are also several assisted channels that customers can use to get care or technical help. They include email, chat, and phone in ascending order of cost of service (Table 1).

	Care Support	Technical Support
Unassisted Channels	e-support/ support.dell.com (least expensive)	e-support/ support.dell.com (least expensive)
Assisted Channels	Email (less expensive) Chat (moderate) Phone (most expensive)	Email (less expensive) Chat (moderate) Phone (most expensive)

Table 1 – Dell Care versus Technical Support

The terms customer service, customer support, customer care, care, and support will generally be used interchangeably throughout the remainder of this thesis. Unless specifically identified as technical support, support and service references will refer to care support.

1.4.2. Dell Consumer Customer Experience and Services Group

In the past many LFM students have interned with Dell. Most of the interns were focused, funded, and supported through the Dell Americas Operations (DAO), Dell's manufacturing arm, and or one of DAO's the procurement or supply chain groups. Dick Hunter, former Vice President of DAO is one of Dell's most steadfast LFM supporters. He directly sponsored many DAO and supply chain interns while in his role in DAO.

Two years ago Dick Hunter changed roles to become the VP of Global Consumer Customer Experience and Services (CCES). In his new role he looked to transform and improve the way Dell interacts with its customer base from point of sale to end of life of the product or service. This internship was the second in a consecutive string of three LFM internships in CCES. The internship was supervised by Tom Wala, a LFM '99 in the Channel Integration support team (Figure 1).

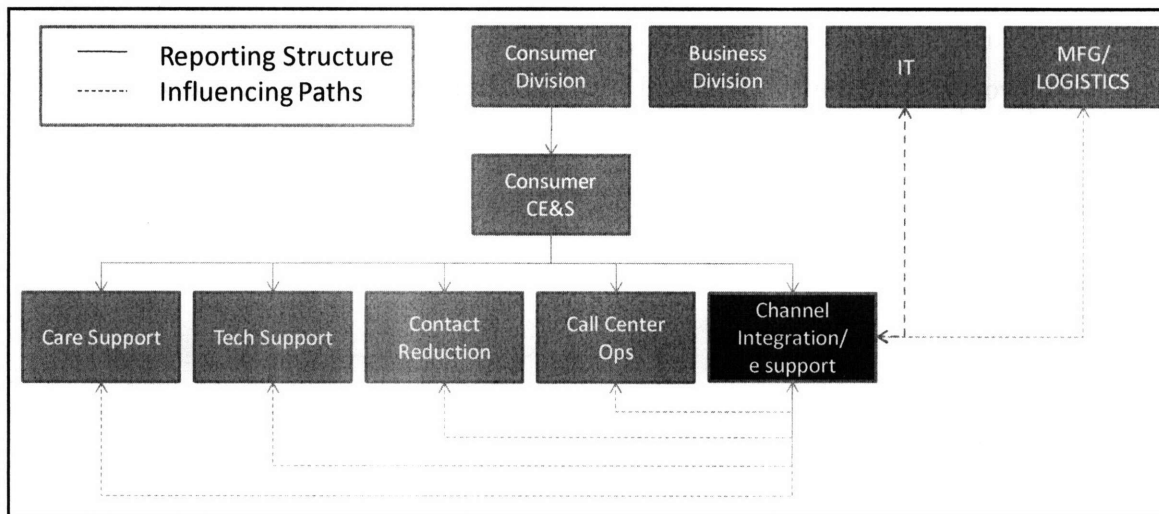


Figure 1 Consumer Customer Experience and Services Group

1.4.3. Consumer Customer Experience and Services Group Mission

The overarching goal of Dell's CCES group is to continuously improve the way Dell interacts with its customers at each point of contact. Dell Customer Service strives to:

- Resolve customer issues in one contact (or less)
- Provide customized and personalized service

- Deliver high customer satisfaction
- Deliver in a cost effective manner

1.4.4. Future Vision of Customer Support

Upon the author's arrival to Dell, Tom Wala shared his vision of customer support as an end-to-end process that begins with problem identification and ends with problem resolution, all under a single process owner. This vision aligns with Michael Hammer's tenets of Operational Innovation (Hammer, 2004). Some of the conceptual work to achieve Tom's vision is already underway inside CCES. In Hammer's process centric framework, problem identification-to-problem resolution process just described could be one of five or six major processes that identify what Dell does. See 2 below for a process view of a well known communications company in Hammer's high level process view (Hammer, 2008). Dell could likewise formulate a vision of customer support as processes much like this communications company. If Dell modeled its high level processes like the company in 2, the tech support process would be captured by the Issue-to-Resolution major process, while the care support processes would fall under Quote-to-Cash and Forecast-to-Delivery major processes. CCES would support all three major processes Issues-to-Resolution, Forecast-to-delivery and Quote-to-Cash. Hammer would say these processes can and likely will work across many functions and organizations, but there should be one overarching process owner for each major process and sub-process within a company.

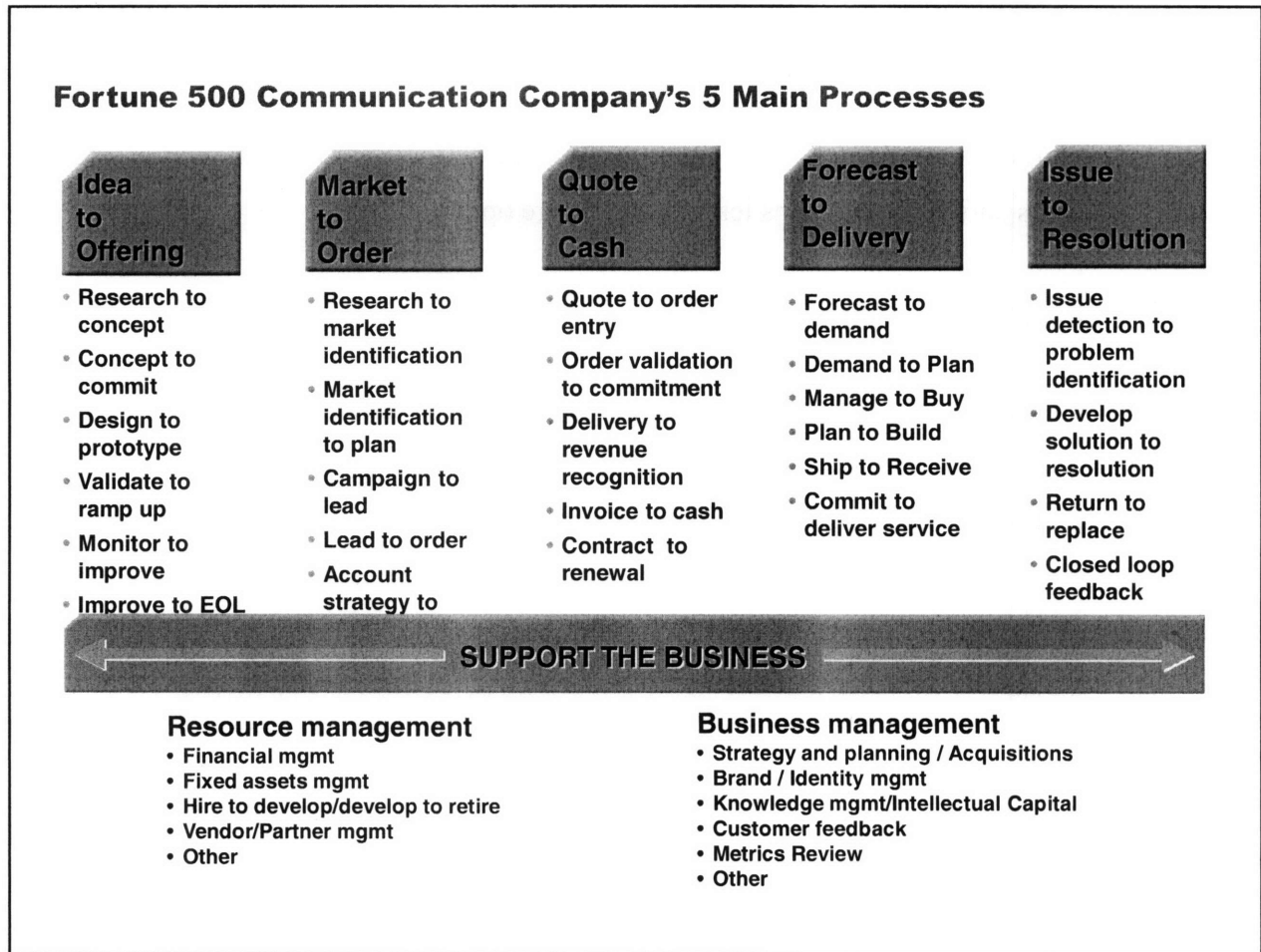


Figure 2 A process view of an organization (Hammer, 2008)

1.4.5. Purpose of Internship

The purpose of this internship is to further the use of lean methodologies and tools in consumer customer support with the goal of Customer Satisfaction (CSAT) improvement, and contact center call reduction. The effort piggybacks on some initial forays of lean in customer support that include high level Hoshen planning and value stream mapping activities. Hannah McClellan a LFM class of 2008 peer who preceded the author at Dell, also worked on Lean methodologies in retail service. (McClellan, 2008).

1.5. Thesis Layout

This thesis will be structured in four additional sections, Problem Statement and Analysis, Methodology, Implementation and Results, and Conclusions and Recommendations. The first

section will document the existing situation and need for enhancements. The second section will describe the methodology used to drive consensus and to document future actions, and the third section will detail the activities taken and the fruits of those activities. The final section will analyze the results and discuss lessons learned and future opportunities.

1.6. A General Note on Terminology

In the following chapters the author frequently uses the terms current and ideal state. Current state refers to conditions at or near the time of the author's internship at Dell. Ideal state refers to a future vision of improvement conceived, but not necessarily attained at or near the time of the author's internship. Some ideal states may have come to fruition or may have changed by the time of the publication of this thesis.

2. Problem Statement and Analysis

This section of the thesis will review the current state of customer satisfaction (CSAT), call volumes, and the mandate to improve both of these measures. It will also propose a current state causal loop diagram that contains the dynamic variables that affect these metrics as well as supporting material for the causal diagram. This section then compares a typical process improvement causal loop framework with a new proposed framework. This proposed causal loop framework describes the author's hypothesis for call reduction and CSAT improvement.

2.1. Declining Customer Satisfaction, and High Call Volumes

Dell experienced a fall in perceived customer satisfaction over the past few years. Dell garnered the top customer satisfaction rating from 1999 to 2003 according to The American Customer Satisfaction Index (ACSI), an annual economic indicator created at the Stephen M. Ross Business School at the University of Michigan (Table 2). Since 2004 Dell has seen a drop in ranking relative to the rest of the industry.

Company	Baseline	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Apple Inc.	77	N/A	75	76	70	69	72	75	73	73	77	81	81	83	79
Hewlett-Packard Company - HP	78	N/A	80	77	75	72	74	74	73	71	70	71	73	75	76
Personal Computers	78	N/A	75	73	70	71	72	74	71	71	72	74	74	77	75
All Others	NM	N/A	70	73	72	69	69	68	67	70	69	71	74	77	75
Gateway, Inc.	NM	N/A	NM	NM	NM	76	76	78	73	72	69	74	72	73	75
Dell Inc.	NM	N/A	NM	NM	72	74	76	80	78	76	78	79	74	78	74
Hewlett-Packard Company - Compaq	78	N/A	77	74	67	72	71	71	69	68	68	69	67	72	73
International Business Machines Corporation	78	N/A	78	74	71	74	73	75	71	NM	NM	NM	NM	NM	NM
Packard Bell NEC, Inc.	NM	N/A	NM	71	66	67	66	NM	NM	NM	NM	NM	NM	NM	NM

Table 2 American Customer Satisfaction Index (ACSI) scores for personal computer industry

Whether Dell has slipped in performance or the competition has improved at a faster rate is not entirely clear. Some critics suggest that in an effort to grow top line revenue as well as bottom line profit, Dell may have focused too heavily on cost controls at the detriment to continuous improvements to its customer care systems and processes. Others may perceive the North

American retail and service presence of Apple and HP, with live agents to service the customer, as a competitive advantage. This trending has not gone un-noticed at Dell. Many efforts including proactive order status messaging to the customer are underway within Dell to improve these metrics.

2.2. Challenge to Improve

In part due to external reports like Table 2, Dick Hunter and all of CCES were challenged to improve Customer Satisfaction (CSAT) while reducing care calls to Dell. CSAT and the number of order status related queries to Dell call centers are indicators or proxies for customer value. High CSAT scores mean customers feel they are receiving relatively greater value-added service compared to wasted time. Similarly, calls into Dell's call centers for order status related issues often have little value-added content relative to long non-value-added wait times. Dick Hunter wanted solutions that both improved CSAT and eliminated calls in consumer care.

Hunter believed that customer care calls into consumer call centers could be reduced by up to three orders of magnitude. Communication mediums enabled by the internet are seen as tools with potential leverage to help achieve these reductions. Table 1 refers to some of these possible communications paths such as e-support and proactive email communications that may help reduce calls.

2.3. Current Dynamics of Order Status, CSAT, and Phone Calls

The author has identified proactive order status messaging as an area for improvement to reduce number of calls and improve the CSAT for Dell. Notice in the causal arrow diagram below (Figure 3) that Dell has some existing proactive messaging capability today. Today's proactive messages for order status come in the form of email, but the customer may also call Dell today, or go online to track the status of their order.

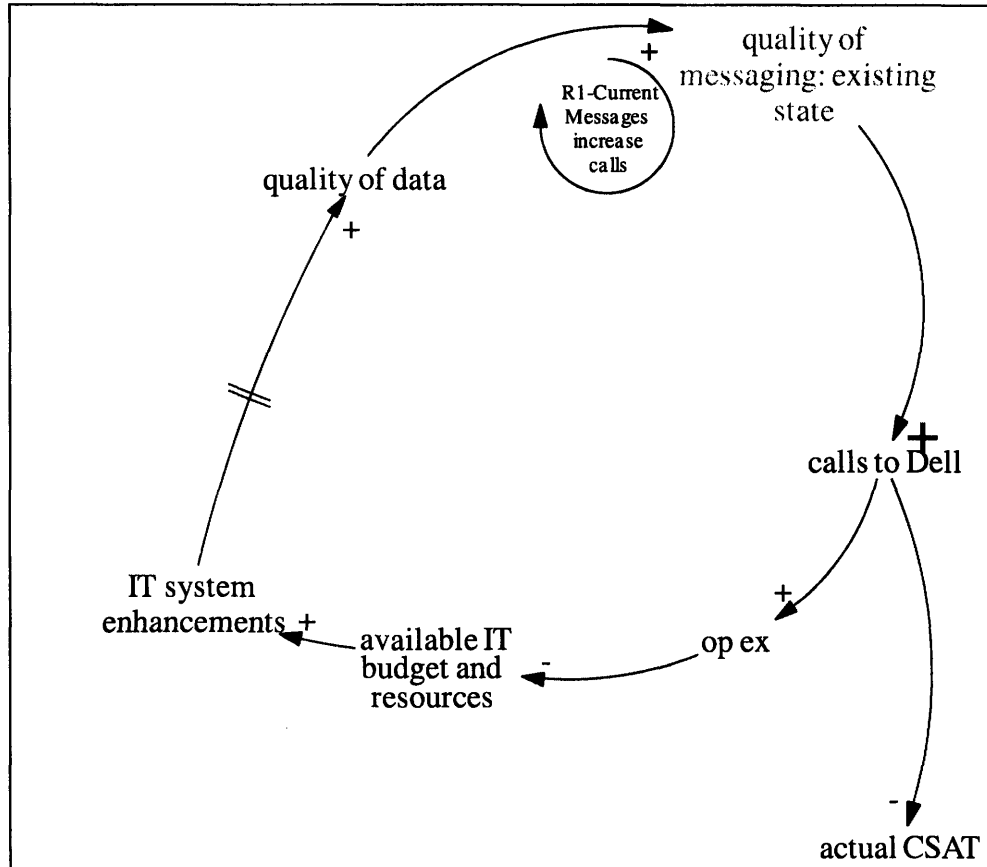


Figure 3 Current Order Status Messaging Causal Diagram

2.3.1. Current Messages Increase Calls, Reinforcing Loop – R1

It is the assertion of the author that the current email messages, phone system, and e-support order status processes, lumped together into the variable labeled “quality of messaging: existing state”, are less than optimal and trigger additional calls to Dell call centers. These order status messaging channels drive calls because the:

- Presentation and information is confusing
- Messages are sent too late or early to avoid a call
- Customer expectations were set poorly
- Critical data required by the customer is missing

These increased calls decrease CSAT levels, while they also increase the operations expense of the call centers. Increased operations expense decreases the available IT budget and resources (available human capital), which decreases information systems enhancements. Decreases in

systems enhancements slowly erode quality of data that reside in systems, which worsens the already poor message quality. This causes even more calls to Dell, lower CSAT... and on and on in what is referred to as a vicious reinforcing loop.

2.4. Supporting Material

The development of the causal diagram above was based on research conducted within Dell. This research included various analyses of e-support, phone support, and proactive email messaging. Below are some examples to support the proposed causal loop in Figure 3.

2.4.1. Order Status by e-Support – Current State

At the beginning of the internship the author was posed with the task of evaluating how effective the online-self help content on support.dell.com was to the general public. As an “Outsider on the Inside” (Klein, 2004) the author navigated through several trouble-shooting scenarios involving tech support and care support issues. Being new to Dell and not even a full time or paid employee helped add credence to the objectivity of the analyses conducted.

The Order Status on e-support process was one of several care support processes evaluated with a Value Stream Map (VSM). Value Stream Maps are essentially process maps that qualify each process step as value-added (green), non-value-added (red), or non-value-added, but necessary to complete a task (yellow). Value is defined as what a customer is willing to pay for, either with her time or money, either today or at some point in the future.

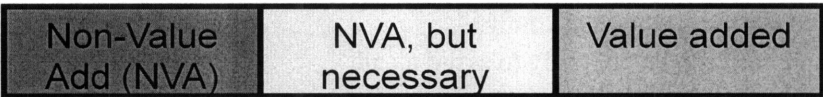


Figure 4 Value Stream Mapping Legend

The e-support order status VSM is shown below. This e-support order status VSM ultimately drove a majority of the remaining analysis and project work for this thesis. See Appendix A for the remaining VSM’s for care support (return for a PC and an accessory product return).

Checking order status on line is one of the most frequently executed tasks on Dell’s e-support site. It is one of the more developed on line self service tools. Despite the relative ease of use compared to other e-support solutions, the process is still dominated by non-value-added activities. Today the customer must go to Dell’s website, navigate to the proper place, know and enter identification information before they can see their order status. All of these non-value-added steps could be avoided with better proactive order status messaging.

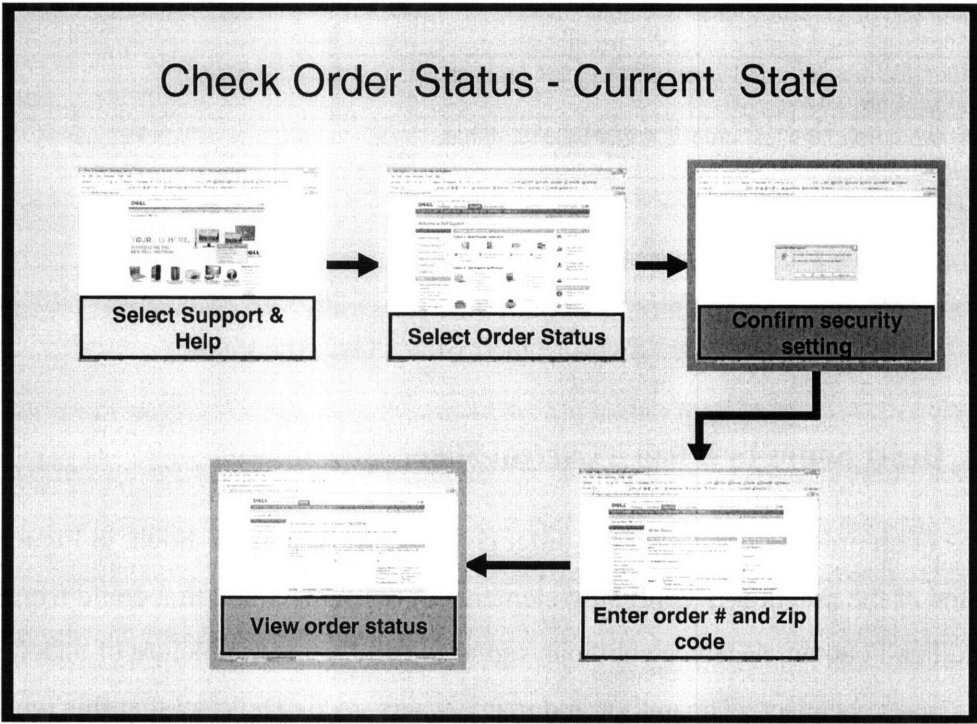


Figure 5 VSM for E-support Order Status

2.4.2. Order Status by Phone – Current State

As the author demonstrates in Figure 6, contacting a contact center for even a simple request can take a fair amount of time. In this example, getting order status over the phone took the author three and a quarter minutes with over 50% of that time being non-value-added. This generously assumes the user knows the right phone number to call and has his or her order number readily available.

VSM for IVR based return			
Description	VA (R, Y, G)	time of day	seconds
dialed into 1800buydell	NVN		
Do you want to buy something, check orders status, ... "check order status"	NVN		
I'm sorry I couldn't understand that "check order status"	NVA		
Just to confirm you want to check order status "yes"	NVN		
Please say your order #, if you don't have say I don't have it. "I don't have it"	NVN		
Just to confirm you don't have your order number right? . "right"	NVN		
Please say the phone # you used when ordering this product starting w/ area code "617 --- ----"	NVN		
I have found two orders the first order # is 769400618. It has shipped and is in transit.	VA		
Would you like to get the carrier and tracking information for this product? "Yes"	VA		
System provided carrier & tracking # then asked if I wanted to track the other order, "No"	VA		

Order Status


NV/N = 1.5 min


NVA = 0.25 min

Figure 6 VSM for Order Status Over the Phone

2.4.3. Order Status by Email – Current State

An example of an order status email, the order confirmation email, is shown in Figure 7. Figure 8 shows some of the potentially confusing elements of the same email that could trigger phone calls to a Dell call center. One very obvious signal to call Dell is the picture of a Dell support agent with a phone headset. The author and many others inside Dell feel that this type of non-verbal cue may trigger additional phone calls. Other confusing items include the use of multiple order tracking numbers. Enhancements like these and many more were discussed in detail in the proactive order status kaizen event and subsequent focus group (section 4.1.1.1).



USA 
 Home & Home Office

Customer Service
Rebates
Warranty
Technical Support
My Account
Contact Us


Order Confirmed

Your recent purchase with Dell is being reviewed and will be processed once payment is authorized. Click on the **Order Status** bar below to view the current status of your order.

What's Next? When your order ships, you will receive an Order Shipped email from which you can track the package(s).

Order Status

Received
Acknowledged
Confirmed
Shipped
Delivered



Order Information

Order Date: 07/13/2006

Customer Number: 60216745

PO Number: [PO123456](#)

Dell Purchase ID: [1472583698745](#)
[What is Dell Purchase ID?](#)

Order(s):	Order Number	Product Description	Est. Ship Date
<small>Click on the Order Number to view its status</small>	504695034	1st SKU's Description	07/18/2006
	504695042	1st SKU's Description	07/17/2006

Payment Information

Billing Contact: Test Customer

Billing Phone Number: (555) 555555 (work)

Billing Address: Test Ln

Figure 7 Current State Proactive Email for Order Confirmation

DELL™ USA Home & Home Office

Customer Service | Rebates | Warranty | Technical Support | My Account | Contact Us

Order Confirmed

Your receipt will be processed once payment is authorized. Click on the **Order Status** bar below to view the current status of your order.

What's Next? When your order ships, you will receive an Order Shipped email from which you can track the package(s).

Order Status

Received | Acknowledged | Confirmed | Shipped | Delivered

Order Information

Order Date: 07/13/2006
 Customer Number: 60216745
 PO Number: PO123456
 Dell Purchase ID: 1472583698745
What is Dell Purchase ID?

Order #, customer #, PO#, and Dell Purchas ID# may be too confusing for customers

Order(s):	Order Number	Product Description	Est. Ship Date
<small>Click on the Order Number to view its status</small>	504695034	1st SKU's Description	07/18/2006
	504695042	1st SKU's Description	07/17/2006

Payment Information

Billing Contact: Test Customer
 Billing Phone Number: (555) 555555 (work)
 Billing Address: Test Ln

Figure 8 Potential Call Drivers in Order Confirmed Message

2.5. 100 Calls – Care Call Analyses

Dell frequently conducts analyses on the most common call drivers to its call centers. These efforts are intended to identify and Pareto call types to help Dell identify ways to improve the customer experience and eliminate the need for customers to call. Below is one such analysis conducted by Dell. This categorization of calls into the consumer care call centers shows the top ten call drivers in percentage terms. Notice that two order-related care categories (order status and order returns) were identified as high call drivers (Figure 9). The “100 call breakdown” below confirmed that order status care issues are one of Dell’s highest call drivers.

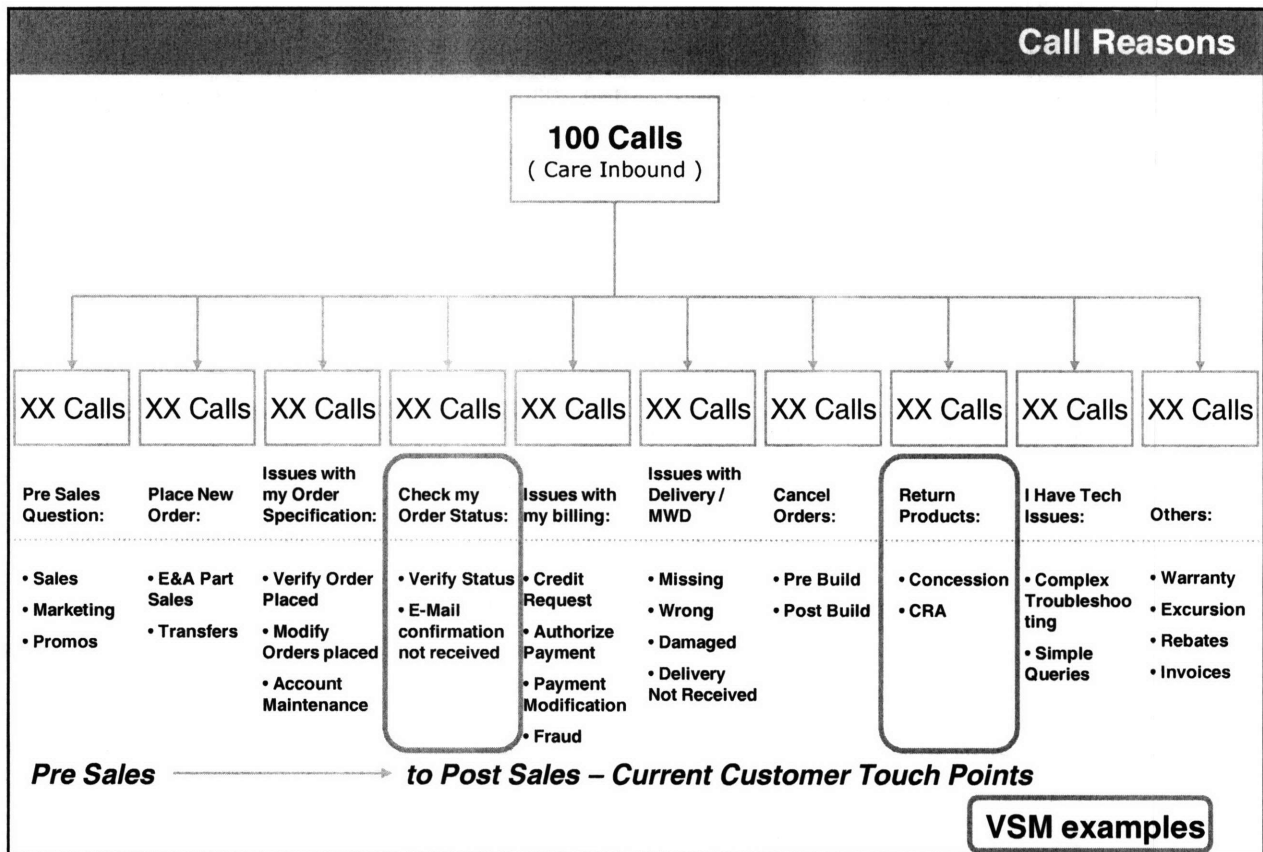


Figure 9 Dell Care – 100 Call Breakdown (Actual percentages Dell are Confidential)

2.6. Twenty Questions – The Voice of the Customer

The order status VSM and the 100 call breakdown above were important in highlighting proactive order status messaging as a potential area of improvement. To get a deeper understanding of order status call center drivers and to understand the voice of the customer better, another call center analysis was conducted by the author.

At the time, Dell tracked a statistically significant random sample of incoming calls into its contact centers. This sampling could then later be analyzed for issue identification and trending. The data was filterable by geography, language, and support type (ie. tech versus care). These types of analyses are valuable for managers to monitor and resolve issues. The author thought it necessary to drill even deeper and understand what specific issues the customers were having in these categories.

The subsequent analysis reviewed the top twenty call drivers into Dell care call centers. The author then shared this list of call drivers with several call center agents in India to see what customers were actually asking for when they called. The agents gave additional verbatim, voice of the customer feedback for each of the 20 categories. There were a surprising number of order status related call drivers that could be avoided by improved proactive order status messaging. Examples included verify the order was placed, eager customer prior to Dell shipping the order, and eager customers after Dell has shipped the order.

When the order status related buckets were evaluated over time, they seemed to hover at a significant level of total incoming calls. Based on the verbatim responses by the agents for the specific buckets, the author and various stakeholders became convinced that roughly half of these order status calls could be avoided by providing the customer with enhanced proactive order status related messages (Figure 10).

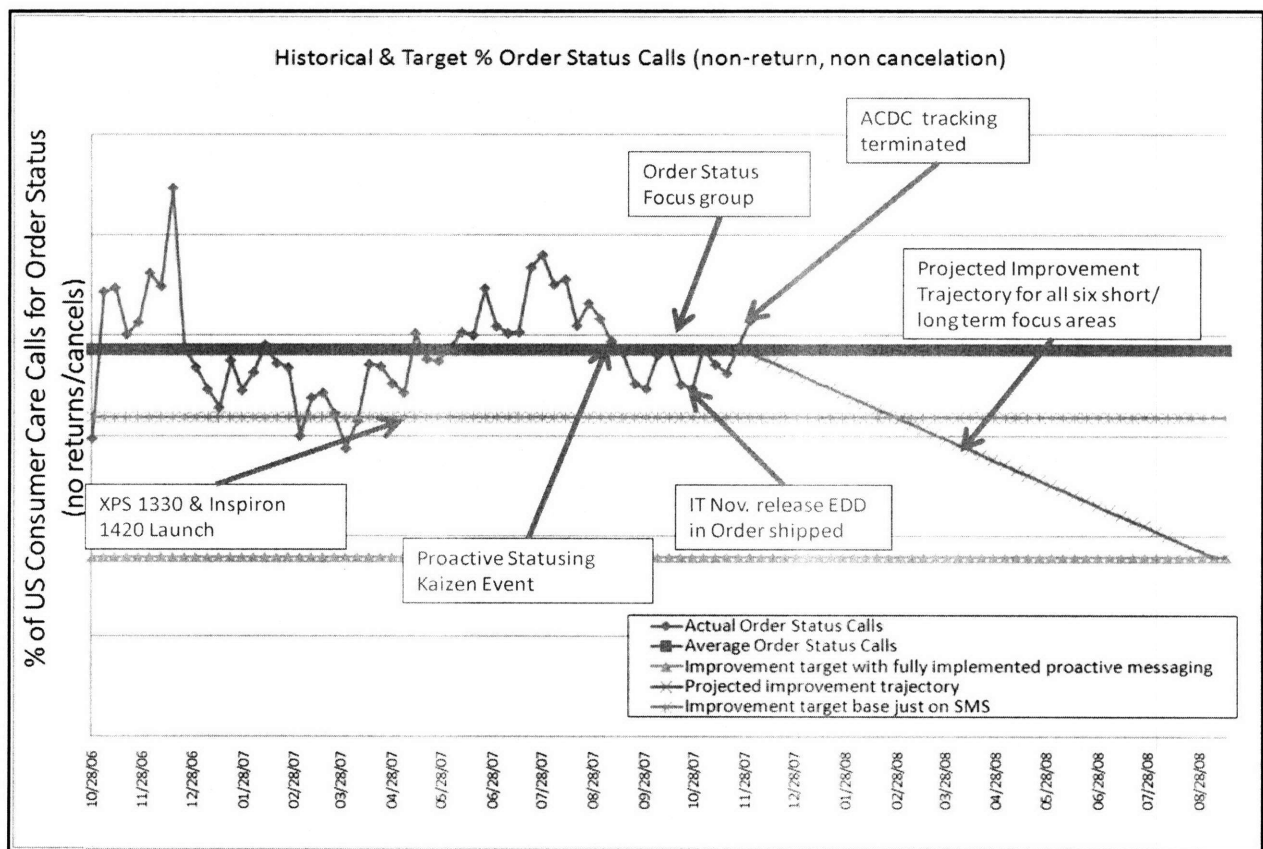


Figure 10 Percentage of Calls for Order Status

2.7. Typical Response – Current Dynamics of Improvement

As stated above, Dell actively monitors call drivers to identify issues and improve its systems over time. Figure 11 below describes the causal dynamics of a typical process improvement effort at Dell. This causal loop diagram is built on the same foundation as Figure 3 above.

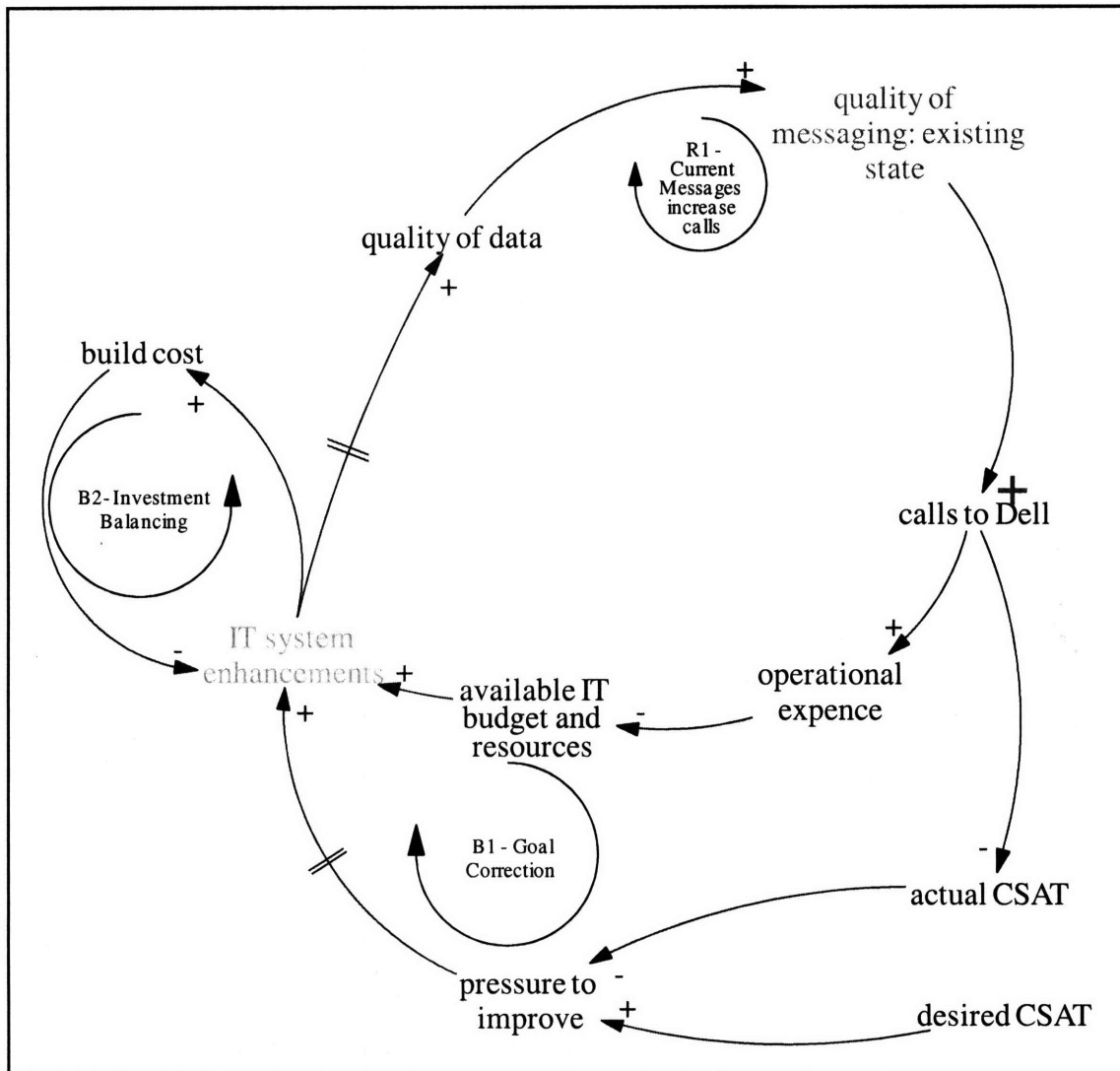


Figure 11 Typical Process and System Improvement Loop

2.7.1. Goal Correction, Balancing Loop - B1

As before, the current email messages, phone system, and e-support order status processes lumped together into the variable “quality of messaging: existing state” are less than optimal and initiate additional calls to Dell call centers, decreasing CSAT. Two new variables to the model

are desired CSAT and pressure to improve. If the desired CSAT is higher than the actual CSAT, then pressure to improve increases. Once the pressure to improve gets high enough, IT system enhancements are identified and implemented, albeit with a significant time delay. System enhancements improve data quality over time. Improved data quality improves the quality of the messages. Improved message quality will marginally decrease calls to Dell call centers, helping balance the system. This marginal improvement is often too slow to react to the originally trigger for improvement and is outweighed by the reinforcing loop (R1) described in section 2.3.1.

2.7.2. Investment, Balancing Loop – B2

Another interesting balancing loop exists in this diagram. As pressure to improve drives IT system enhancements, the development and deployment build costs also increase. As these build costs increase, they can reduce the number of total enhancements palatable. This type of loop is a natural check and balance to ensure companies do not fund too many improvement projects at one time.

2.8. Hypothesis

It is the author's hypothesis that order status calls into Dell call centers will be reduced in magnitude by fifty percent and CSAT will improve if Dell enables better proactive order status messaging to its customers. This change will require some of the IT system enhancements as described in section 2.7.1, as well as enhancements to existing messaging and the addition of new proactive and reactive messaging (Figure 12). It is the further contention of the author that end to end process evaluation and improvement using lean methodologies will enable stakeholder buy in and identify key areas of opportunity to enable these call reductions and CSAT improvements.

2.9. Hypothesized Dynamics of Order Status with New and Improved Messaging

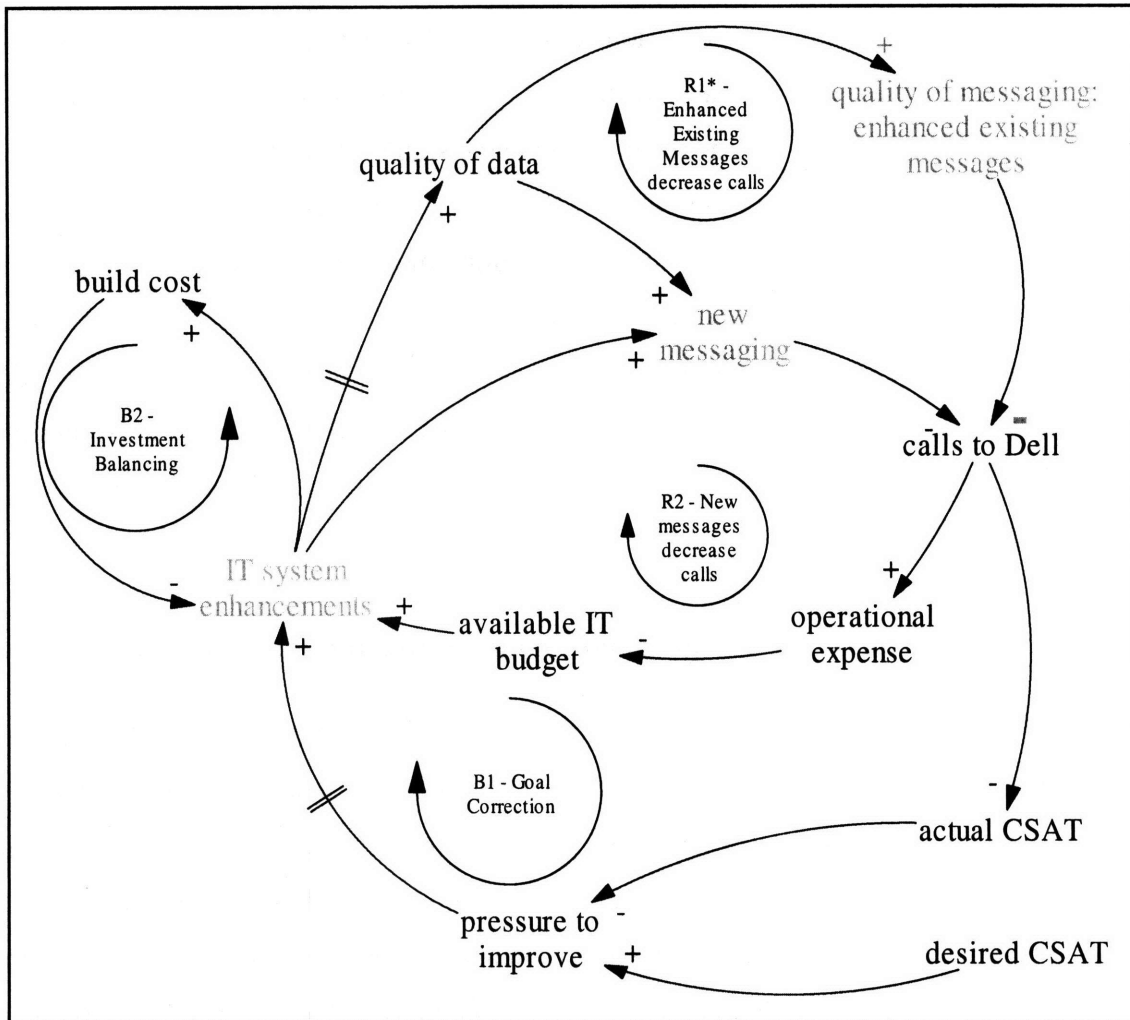


Figure 12 Hypothesized Improvements for New and Improved Messages

The causal loop diagram above includes the balancing loop B1 for goal correction which today helps drive important IT systems improvements (section 2.7.1). Enhancements are also suggested for existing order status messaging available today by email, phone, or e-support. Finally to achieve the full anticipated improvements, new proactive messaging must be introduced.

2.9.1. Enhanced Existing Order Status Messaging, Reinforcing Loop - R1*

Improving the simplicity, timing, expectation setting, and data quality of existing messages will switch the existing order status messages (proactive email, phone IVR, and e-support) from call drivers to call avoiders. These enhancements reverse the sign of the arrow leading to “calls to Dell” from positive to negative. Fewer calls to Dell decrease operational expenditures, increasing the available IT budget and resources, enabling more IT system enhancements. Improved systems enable improved data, which further improves the quality of the messages. Better messages further reduce the number of call to Dell. If customers can get the data they desire without calling into Dell and wasting their time, their CSAT improves as well. In this case R1 from Figure 3 changes from a vicious reinforcing cycle to the R1* in Figure 12, a virtuous reinforcing loop.

2.9.2. Introducing New Messaging and Channels, Reinforcing Loop – R2

To enable a fifty percent reduction in order status calls to call centers, Dell must introduce new proactive messaging channels and messages. These new messages and channels will give customers more relevant order status information when and how they desire to receive it. Each new message introduced will eliminate the need for customers to call Dell, which decreases operational expenses. Lower operational expenses helps free up IT budgets and resources to work on more IT system enhancements which will enable more proactive message introductions. These new messages reduce calls and improve CSAT, thus creating another virtuous reinforcing loop, R2 (Figure 12).

3. Methodology

The methodology to test the hypothesis just described stems from three sources, Michael Hammer's process re-engineering perspective (Hammer, 2004), Nelson Repenning and John Stermans's view of the dynamics of process improvement, and from the lean concepts and tools espoused in many industries today (Repenning & Sterman, 2001). Hammer's process re-engineering perspective is very complimentary and focuses on end-to-end processes. Repenning and Sterman's focus is on the dynamics of process improvement, and finding virtuous reinforcing loops to make improvements to organizational capabilities. Finally, the lean tools and concepts used include waste elimination, value stream mapping and kaizen events.

3.1. Hammer's End-to-End Process View

In a recent lecture at MIT, process improvement guru Michael Hammer insightfully observed:

"Customer Service is adding value to the consumer. If the engine is broken, I don't care how friendly the cab driver is". (Hammer, 2008)

"Friendly" customer service is only a veneer without functioning processes, people, and tools to provide real value. Adding more people and telling them to work harder in a broken process will end in failure. Training call center agents in ways to speak to an irate customer also provide little value. A bad process beats a good person every time. Hammer advocates having a single high level process owner responsible for redesigning important business processes from end-to-end.

This thesis attempts to use an end to end approach for implementing improved proactive order status messaging at Dell. The business process being mapped is the proactive order status messaging process, which is actually a subset of the highest level order-to-delivery business process.

3.2. *Repenning and Sterman's Work Smarter Not Harder*

This thesis also advocates the work harder versus work smarter and build capabilities argument offered by Repenning and Sterman (Repenning & Sterman, 2001) shown below (Figure 13). Their argument is that performance = effort x capability. Working harder with less time spent on improvements in the short term generally provides some productivity benefits followed by a long term decline in performance as capability of resources are worn out by the prolonged extra effort. Alternatively, spending more time on process improvements relative to working typically results in a dip in performance in the short term followed by an increase in performance as the capability of resources improves.

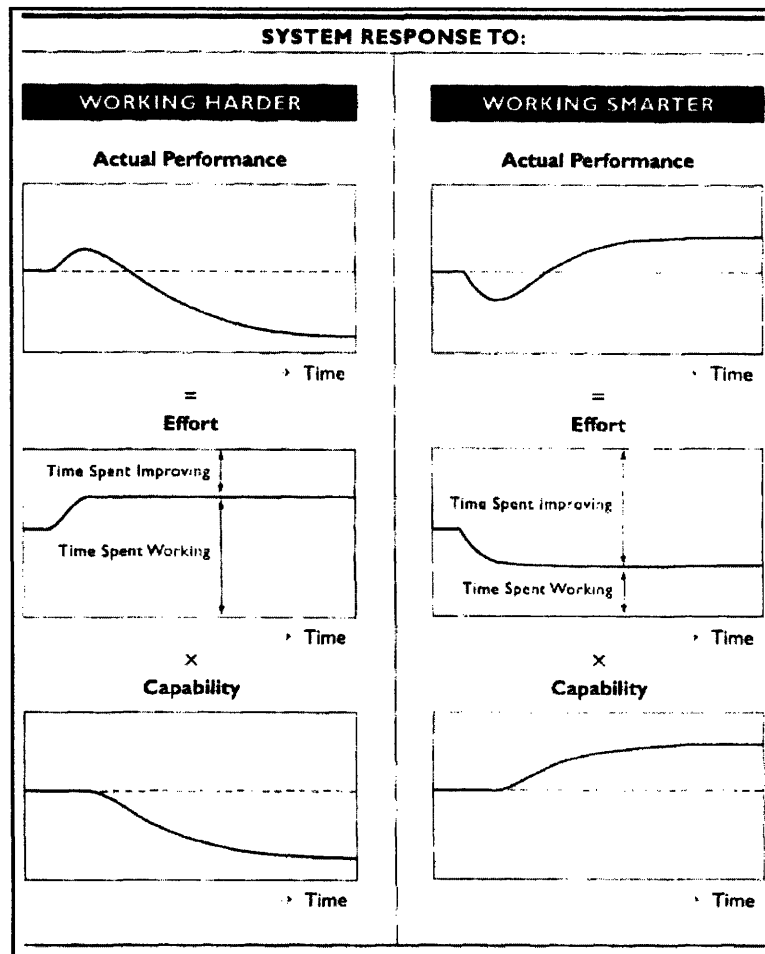


Figure 13 Work Harder versus Work Smarter

This project attempts to build capabilities in proactive order status messaging. It attempts to increase the time spent on enhancing existing messaging and build the capabilities (channels) to deliver new messaging. The added time spent on improvements and capabilities may cause a temporary lull in productivity, but should be rewarded with a long term productivity improvement far beyond what could be expected by doing more of the status quo.

3.3. Lean Concepts and Tools to Deliver Improvements

Both the Hammer view of process improvement and Repenning and Sterman's model of sustained process improvement dovetail with the concepts of lean. Lean focuses on continuous process improvement, while relentlessly driving out waste and adding value to the customer. Lean tools such as value stream maps (VSMs) and kaizen events help illustrate wastes in current systems and processes while also developing a path to ideal states with less waste and more value for the customer. Dell defines a kaizen event as a focused effort used to make a transformational improvement where a multi-functional team is formed and for a 3-5 day period they focus on resolving a problem. The two outputs of a kaizen event should be a problem resolution and reduced waste.

In this project, VSMs, and a kaizen events were used to drive consensus around the current and ideal states. VSM's were used to illustrate potential enhancements both online and in other proactive order status messaging channels. A modified version of VSM was also used to map data sources and check for inconsistencies in messages across channels. A kaizen event was also held to align a group of stakeholders on actions to achieve the ideal state of proactive order status messaging.

3.4. Proactive Order Status Messaging Kaizen Event

The author felt the most effective way to enable reduced calls and improve CSAT relative to proactive order status messaging was to elicit participation from all relevant stakeholders to identify and drive innovations and enhancements to messages and messaging systems. A kaizen event was the most economical way to get all of the input needed to improve Dell's current order status messages, its backend systems, and implement new messages. Kaizen in Japanese

translates to continuous improvement. Kaizen events are a generic methodology used by many companies worldwide to analyze and improve processes.

Kaizen events identify the current state of a process (in Dell's case the proactive order status messaging process), the ideal state of a process, and the transition plans to go from the current to ideal state.

3.4.1. Convincing Stakeholders

Leveraging the e-support and phone IVR value stream maps (Figure 5 and Figure 6), and the voice of the customer analysis (Twenty Questions – The Voice of the Customer, and 100 Calls – Care Call Analyses) helped to convince stakeholders from across Dell to participate in the proactive order status messaging kaizen event. These analyses showed that Dell was making their customers work too hard to get answers to their order status questions. However, these analyses alone were not enough to convince all stakeholders to participate.

Fortunately, in the second month of the internship two events helped ensure solid participation in the kaizen event. Two new high profile products were launched in late June and early July. One new product became highly backordered due to a production process issue. Another product was on backorder due to a sourcing issue(Keizer, 2007). These two products had highly publicized launches that generated a sizeable demand. When the production and sourcing issues surfaced, extended backlogs resulted. These backlogs generated many order related requests on Dell's customer support systems. The request ranged from where is my order, to why is my order late, to I want you to cancel my order. Some customers were said to have “permanently soured” to Dell. One customer described his experience on Dell's Direct2Dell blog as follows:

““The whole M1330 debacle, delays, supply chain failures, communication confusion, badly educated [customer service representatives] with no authority to help, more delays, even more delays, blogs that Dell doesn't seem to read or respond to ... all of it ... it's like watching a train wreck in slow motion.”(Keizer, 2007)

During this time call volumes spiked, wait times on the phone lengthened, and customers became increasingly more frustrated.

These calls began to receive high visibility in the press in late June through August of 2007 (Keizer, 2007). The order backlogs, call volume, and the call analyses described above were enough to convince Dick Hunter and multiple stakeholders across Dell to participate in a kaizen event to develop a plan to reduce calls via proactive messaging.

3.4.2. Kaizen Event Stakeholders

The stakeholders for the kaizen event represented many functions from across Dell. Over twenty stakeholders representing eleven organizations participated in the kaizen event. This event was initiated by Consumer support, but business division stakeholders, as well as IT, Logistics, and Centers of Competence (Dell's forecasting and supply chain organization), actively participated. Kim Sterling of the Dell Order Management Initiative (OMI) co-led the event. The OMI is a global forum for order management related improvements projects. Global in Dell's terminology means not only geographically global but also covering all business units including consumer and business.

3.4.3. Kaizen Event Overview

To fully understand the impacts and benefits of proactive order status messaging it was necessary to evaluate the order to delivery process from end to end from the customer's perspective. The author along with two Dell Colleagues, Kim Sterling and Marcia Strickler, led a five day kaizen event during which the team of stakeholders mapped all possible Dell/Customer touch points for each of the channels (online, phone, web, email) from order to delivery. The team looked at each customer contact point and how Dell's people, processes, and systems interacted to deliver the information or service required.

3.4.3.1. Kaizen Event Kickoff and the Dell Rollercoaster

The Dell Rollercoaster analogy was instrumental in gaining buy-in at the beginning of the kaizen event. See Figure 14 for a representation of the customer experience in the Dell order life cycle. This visualization of the customer experience was developed by an IT consulting company contracted to Dell based on a sampling of Dell customer feedback in blogs and forums during the product backlog period. The figure's X axis denotes the stages along the lifecycle of an order

from purchase to delivery. The Y axis represents the customer's emotions as they go through the purchase experience.

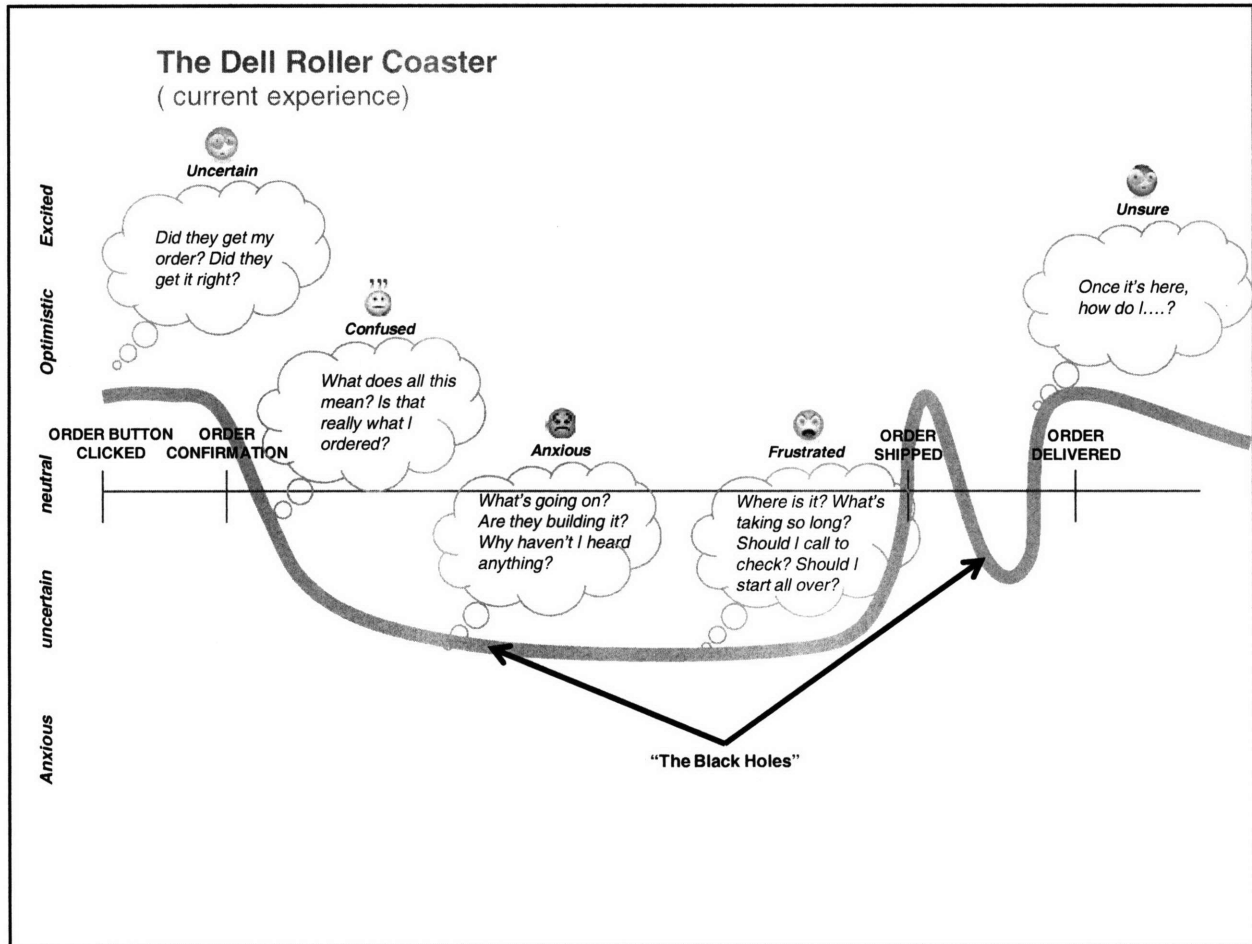


Figure 14 The Dell Roller Coaster of Customer Emotions – Current State

Above the neutral line the customer is optimistic or satisfied with their order, below the line they are anxious about the order and more likely to call Dell and rate Dell poorly on CSAT. This data was collected in meta-analysis of multiple sources including internal Dell reporting, websites, blogs, and other publications. The emoticons (facial icons) and quotes used in Figure 14 were taken directly from Dell blogs.

The below neutral portions of the experience became known inside Dell as "black holes". The black holes aligned to gaps in communication between Dell and the consumer. During these periods customers became more and more frustrated with the lack of information regarding their

order. The first black hole appears between the order confirmation message and order shipped message. As this time period extends, customers become increasingly anxious and are more likely to call Dell. The second black hole comes between the order shipped message and delivery confirmation. Again, the longer the customer goes without contact, the worse their perceived experience and more likely they are to call. This rollercoaster analogy supports the hypothesis that Dell is currently fielding calls that could be avoided if better proactive order status messages existed.

3.4.4. Current States Analysis for Messages, Channels, and Data

The team systematically identified all of Dell's current proactive messages to customers, the channels or means of message delivery, and the data sources for critical pieces of information in each. The team agreed that Dell begins proactive order status messaging by setting customer expectations in the purchasing process by delivering a preliminary estimated ship date. The team further agreed that the proactive messaging for order status ends at order delivery confirmation.

3.4.4.1. Messages and Channels – Current State

Today there are four primary channels customers use to access information regarding their order, emails from Dell, online in Dell's shopping or ecommerce environment, online in Dell's customer support environment, and the phone. The phone was not mapped in this analysis. The remaining channels are colored yellow in the Figure 15 below. Customers are also able to dial into a Dell call center to get order status. Since one of the major purposes of this exercise was to reduce call volume, this channel was not mapped. There are also many messages that a customer may receive on each channel. The blue boxes in Figure 15 represent all of the messages that exist today.

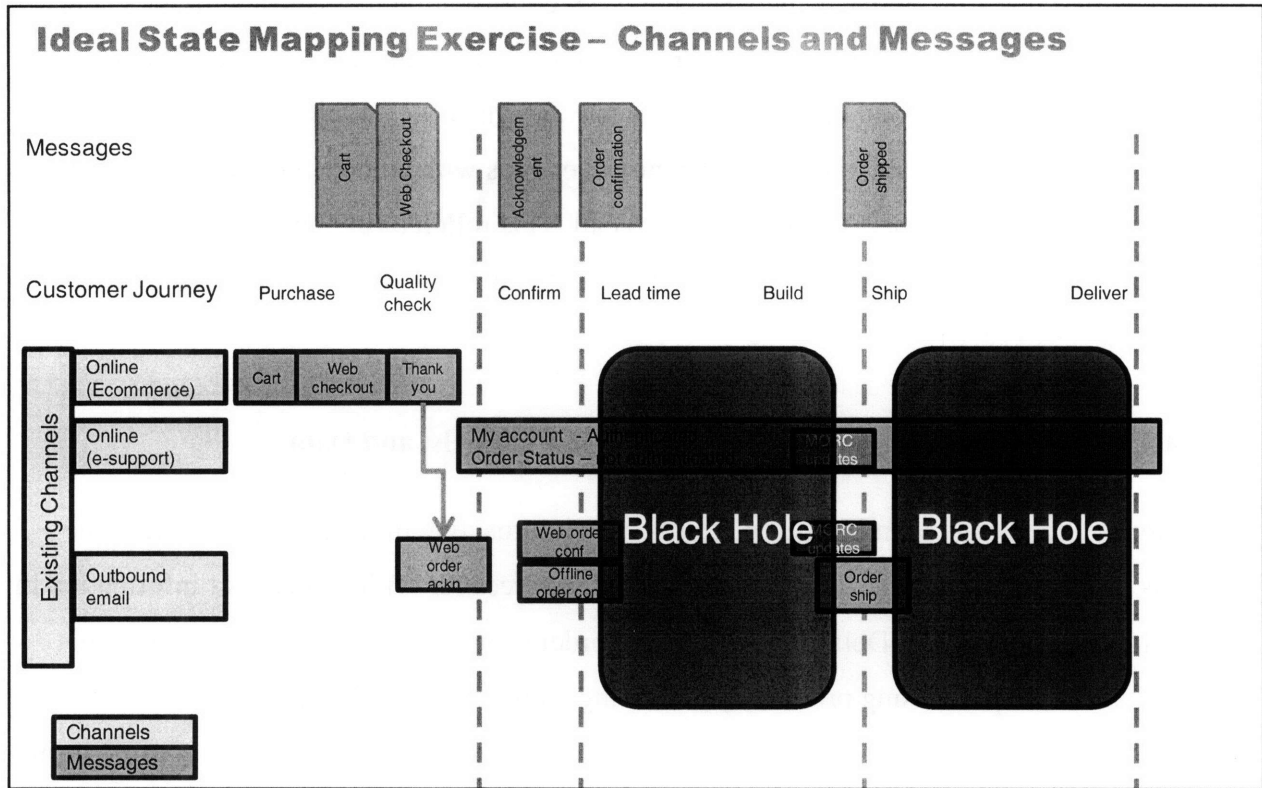


Figure 15 Dell's Order Status Channels and Messages – Current State

Once all the channels were documented, each message in that channel was reviewed to identify value-added pieces of data transmitted to customers. For example a customer might receive an email from Dell stating that their order was confirmed. The value-added information in that message included order identification numbers, billing address, shipping address, order date, and order configuration information.

3.4.4.2. Data Sources - Current State

The individual data elements were then traced back to their systems of record to see if the same data sources were being used for similar messages on different channels. For example, a customer could get order shipped information by email or online. The team wanted to make sure the data sources were consistent from message to message so that the email did not have different information than the online content. This process was documented in modified value stream maps and an information system architecture map that cannot be shared publicly. Below is an intentionally distorted picture of the current data system and data store architectures (Figure 16). In the diagram cylinders represent unique data stores or databases. Rectangles generally

represent applications built on top of databases used to pull information in a valuable way. The intent for showing this map is to illustrate the complexity of processes, tools, and information systems necessary to proactively message to customers today.

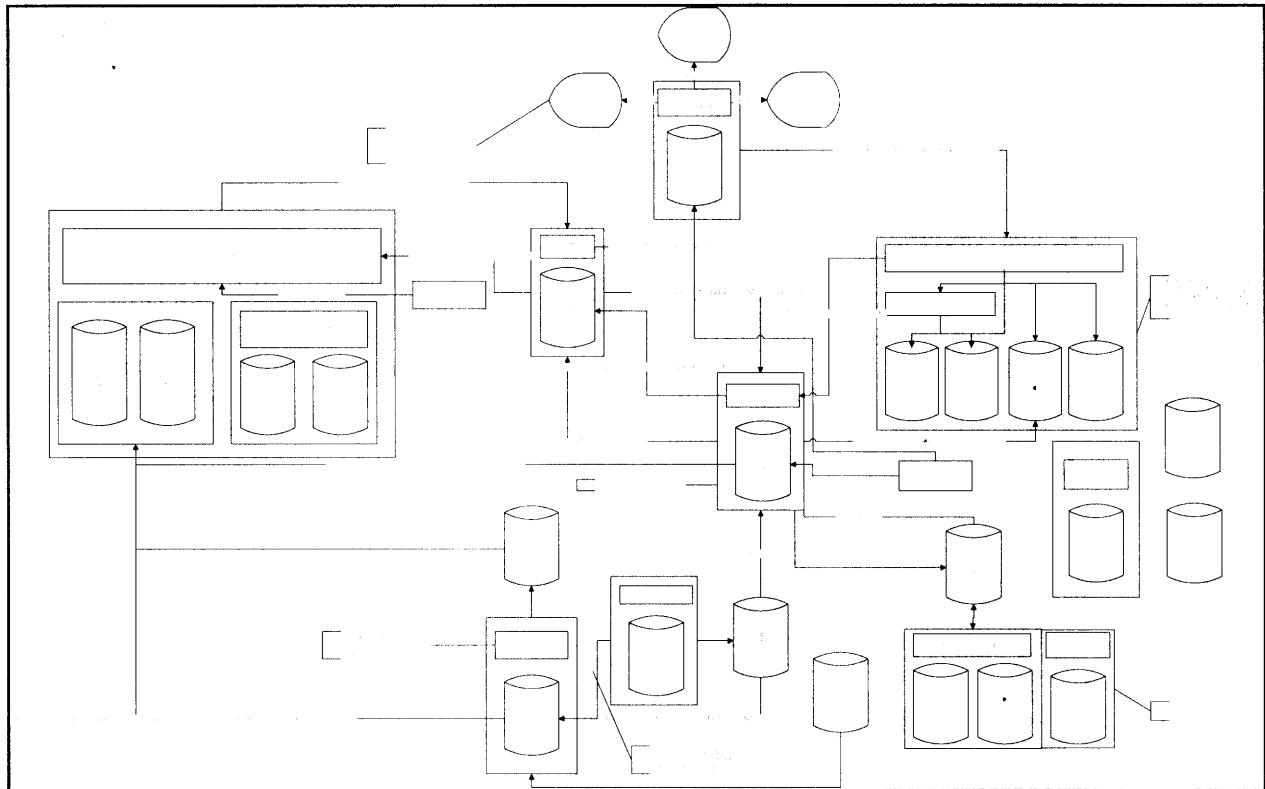


Figure 16 Data Systems Map for Order Status Proactive Messaging (Intentionally Obscured)

3.4.4.3. *Data Latency Between Dell and Carrier – Current State*

In the kaizen event, the author speculated based on previous call analyses that there is some tangible time gap between when Dell sends its order shipped email and when data is available online to track the order. The author's mini-hypothesis was that Dell customers would often receive an order shipped email with links included to track their shipment, but would often not be able to actually track the shipment because Dell and or the Carrier's systems had not reconciled. The author further postulated that this lack of information could tip the eager customer to call Dell.

To verify this hypothesis, the author conducted an analysis to test how quickly valuable data is available on line after the order shipped email. Valuable data is defined as any information on

Dell or the carrier's websites that showed tracking information such as packages scanned with en-route details (see Figure 17). The author randomly reviewed fifty recently sent order shipped messages. The messages analyzed were sent to the customer stating that their order had shipped and included links to track their packages. Within two hours of the messages being sent to customers, the author attempted to track each order. The same analysis was conducted eighteen to twenty four hours later for the same orders to see if success rates improved over time.

The results were categorized into two success modes S1 and S2 and three failure modes F1, F2, and F3. S1 and S2 success modes resulted in value-added information on the carrier's site; packages scanned with an en route location listed (Figure 17). Failure modes 1, 2, and 3 resulted in no value-added data available on either Dell or carrier order tracking websites. These failures resulted in web messages stating that tracking information was not available. Figure 18 shows an example of failure mode F3 on Dell's order status tracking website.

Tracking history...				▶ Help
Date and time	Status	DHL Facility Location		
11/19/2007 12:25 pm	Shipment delivered.	Nashville, TN	Why is this?	
8:00 am	With delivery courier.	Nashville, TN		
7:45 am	Arrived at DHL facility.	Nashville, TN		
11/18/2007 11:49 pm	In transit.	Atlanta Hub, GA		
5:37 pm	Shipment picked up	Norcross, GA		

Shipment details...			▶ Help
From	To	Shipment information	

Figure 17 Successful Tracking with Value-added Data

Order Information	Billing Information	Shipping Information
Customer Number: 29185171 Dell Purchase ID: 2000122905068 Order Number: 925007299 Order Date: 11/15/2007 Order Status: Shipped ▶ Order shipped email signup ▶ Invoices ▶ Request a Return	To view billing information for the order: ▶ Sign in to My Account	To view shipping information for the order: ▶ Sign in to My Account Shipping Method: 3-5 Business Days Shipped Date: 11/18/2007 Est. Delivery Date: 11/21/2007 Carrier: Data Temporarily Unavailable Tracking Number: Data Temporarily Unavailable

Figure 18 Failed Tracking - Failure Mode 3 on Dell's website

In summary, within one to two hours of receiving an order shipped email with a tracking link included, a significant portion displayed no value-added information on Dell's or the carrier's website. Alternatively, within two days nearly all messages had valuable information available.

3.4.5. Conclusions of Current State

Based on the message, channel, and data source analysis of current state, it became clear that many enhancements were possible. The black holes were opportunities to insert new messaging to the customer. New channels on which to deliver messages were identified to fill the black holes too. The complex backend data systems had opportunities to be streamlined and integrated into a more holistic Customer Relationship Management (CRM) system. Finally, opportunities may be available with external carrier partners to improve data latency. The following section will describe the ideal state envisioned by the kaizen event stakeholders.

3.4.6. Ideal State Analysis for Channels and Messages

The current state mapping activities were enlightening to the group. Many system experts uniquely understood their systems and areas of specialty, but no one kaizen event stakeholder completely understood the full dynamic interaction of all the data systems and messages. Seeing the complex data infrastructure backend and the black holes in communication, the team began to identify potential new channels and messages that would both fill in the black holes and provide the customer with more value-added information. Figure 19 below illustrates the kaizen team's potential options for new messages and channels. The intent of these new messages and channels is to smooth the customer's experience on the Dell Rollercoaster (see Figure 20).

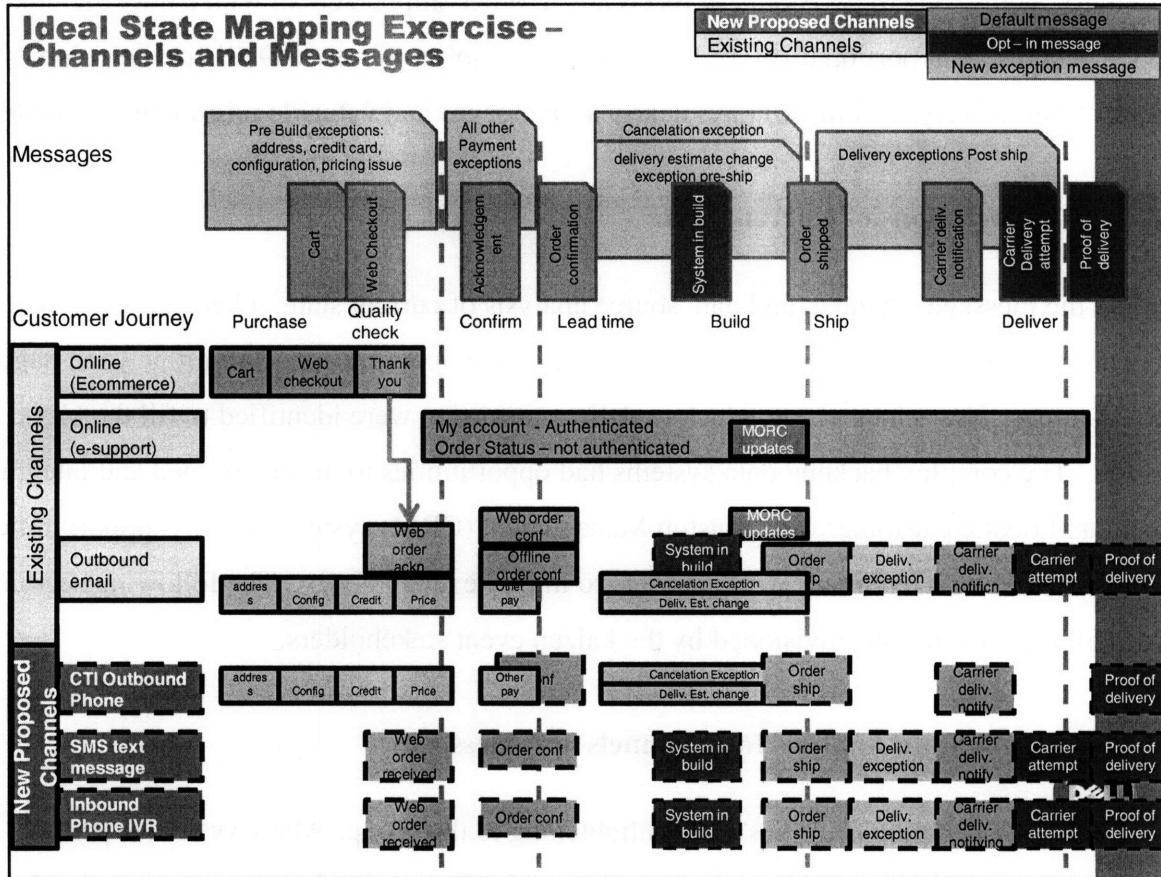


Figure 19 Potential Ideal State of New Channels and New & Improved Proactive Messages

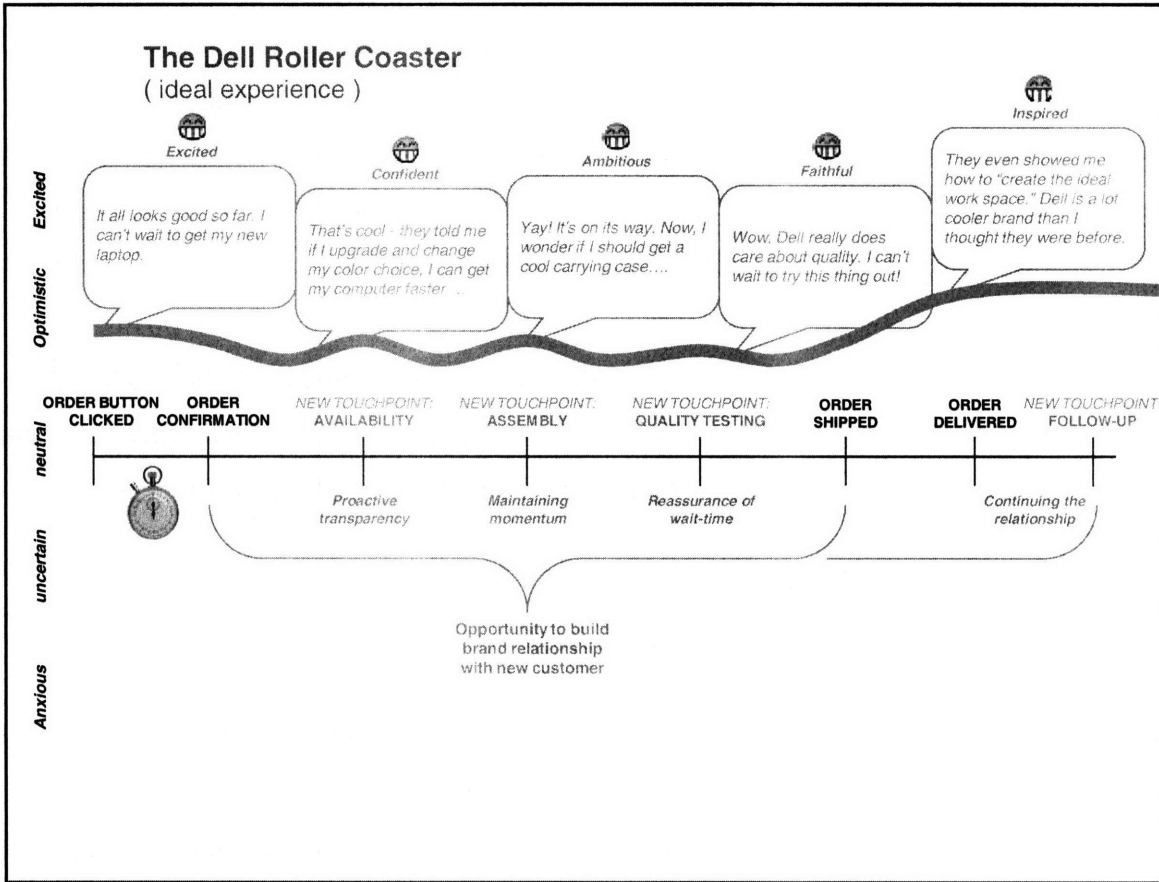


Figure 20 The Dell Roller Coaster of Customer Emotions – Ideal State

3.4.7. New Channels – Ideal State

Some of the new channels may included short message service (SMS) text messages, automated outbound phone calls, and automated inbound interception of calls likely to be inquiring about order status. These channels are shown in magenta in Figure 19. Below is some of the functionality expected of the new channels and how they may help avoid calls and improve CSAT.

The SMS message channel may be ideal for sending customer their order status updates at or near delivery. These messages would be sent to the customer's mobile device detailing shipping info such as estimated delivery date and may also be used to let the customer know if the carrier has an update on their order (Carrier Delivery Notification – CDN). This is an important functionality for Dell because customers often have to be home to sign for their deliveries. The automated outbound phone channel was thought to enable the same potential messages only as

voice rather than text messages. This channel was thought to be particularly useful for customers who failed to give Dell a valid email address for tracking. Finally, automated inbound interception channel would identify a caller from their phone number as someone who recently placed a new order. The system would then automatically give the status of that customer's order while they were on hold before they spoke to a live agent.

Each of these new channels had potential for reducing calls and would likely be leveraged for future enhancements and other applications. For example, tech support at Dell sends replacement parts to customers. There is no reason why Dell could not leverage these new proactive messaging channels for tech support shipment tracking.

3.4.8. New Proactive Messages – Ideal State

In addition to the new channels, new messages and message classifications may be implemented. New proactive messages identified may fill in the black holes in the customer rollercoaster. These messages are shown in green in Figure 19. Some new messages included an order being built and carrier delivery notification (CDN) message. The first could be sent to customers as their order began production, thus mitigating some of the absence of communication between the order confirmed and the order shipped messages. The CDN message between order ship and order delivery could leverage carrier partner's data systems to give status updates to Dell customers when for example their purchase was out for delivery.

3.4.9. New Exception Messages – Ideal State

In addition to new purely proactive messages like those described above to avoid eager customer calls, the team also identified various potential exception or reactive/proactive messages that could be communicated to customers when problems arise or Dell cannot meet a previously set expectation. These potential messages are shown in orange in Figure 19 and included but were not limited to messages such as payment method exceptions, address error corrections, Dell changes in delivery expectations, Dell cancellation of order(s), and carrier delivery exceptions after orders have left Dell facilities (an unexpected carrier delay for example). It was the consensus of the stakeholders that timely communication to customers, even if the message was

not a happy one, would in the end set clearer expectations and form a better bond with customers.

3.5. *Opt-in to Proactive Messaging*

A commonly refrained concern during the kaizen event was the risk of over communication to the customer. Indeed Dell had an earlier experience in a test market where order status SMS text messages were proactively sent to customers without their a priori consent. Customers not expecting to be contacted by Dell assumed there were problems with their order and called at a higher rate than those who did not receive text messages. The concern with potentially adding additional messages both proactive and exception based was that customers would be confused or overwhelmed with the communications.

To alleviate this issue the kaizen team suggested an opt-in process for any strictly proactive messages. See Figure 21 below for an example of how customers might opt-in to proactive messages during the purchase process. Red items could denote default messages (those Dell sends today), blue items potential proactive messages, and gray options are those on which the channel may not support the message. For example, the order received (order confirmation) message may not translate well in SMS text fashion due to restrictions on character length.

	Order received	Start Manufacturing	Your product shipped	Carrier updated EDD	Product Delivered	SELECT ALL
Frequency						
Channel						
Email	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Automated Phone message	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
SMS	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
RSS	Click this link to get RSS Feed					
	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 21 Potential opt-in scenarios in the purchase environment

4. Implementation and Results

The kaizen event team compiled a long list of action items to pursue as a result of the kaizen event. The list was parsed by various factors including owner, potential impact, ease of implementation, time to implement, addressable contact driver, and the level of information technology changes would be required. Based on these categories the kaizen event leaders organized an action item list into three short term and three long term implementation categories. The implementation and results of these action items are documented in the following section.

4.1. Short term Action Items

The Short Term action items from the kaizen event are categorized into three categories. The three categories are:

- Improve order status communication and content
- Enable channel preference
- Eliminate latency between Dell and carrier partners

4.1.1. Improve Order Status Communication and Content

Immediately following the kaizen event, a team of Dell employees and the author completed several activities to improve content, appearance and standardization of messaging for proactive order status messages. These low hanging opportunities included de-emphasis of the legal disclaimers at the end of messages, and included adding a “what’s next” section in all email communications to help set continuing customer expectations. Other changes included altering message verbiage in emails, phone systems, and online to align across all channels.

Additionally, estimated delivery date was scheduled to be implemented in all order shipped emails to set clearer deliver expectations with customers. The team immediately addressed all issues within its purview and arranged a focus group and usability tests to further explore and test other short term improvement ideas.

4.1.1.1. *Order Status Messaging Focus Group*

Feedback regarding message content from the kaizen event was fed forward into a focus group held in November. The focus group consisted of online shoppers who had purchased some item recently on the web. The purpose of the focus group was to identify customer expectations regarding message content and their preferred channels of communication. The message content and communication items addressed in the focus group included how to set clear and obvious delivery expectations in the shopping cart, what terminology should be used for ESD (estimated ship date versus expected ship date...), and just how many tracking numbers should Dell share with customers. Today Dell sends the customer order numbers, Dell Purchase IDs (DPID) and customer numbers which may be confusing to some customers.

Focus group attendees were clear that expectation setting was important. They preferred an Estimated Delivery Date to an Estimated Ship Date, if they felt Dell had the capability of accurately predicting the EDD. Simplicity was favored over fancy design and graphics. The focus group confirmed that customers just want the critical data, and many do not even read or look at the fine print or legal disclaimers at the bottom of the message.

4.1.1.2. *User Acceptance Testing (UAT)*

Some of the elements from the kaizen event and the focus group were fed forward and mocked up for actual user acceptance testing with customers. Results of any tests are not available for publically disclosure. Usability tests may help further fine tune content and communication improvements.

4.1.2. *Enable Channel Preference*

One of the main underlying tenants of this research is that Dell should communicate with its customers at the frequency they desire and on the channel they prefer. In the kaizen event three additional communication channels were identified as available for adoption at Dell's discretion. They were: automated inbound interactive voice response (IVR), short message service (SMS) text messaging, and automated outbound phone calls (see magenta items in Figure 19 above). Fifty percent of the focus group participants confirmed that having SMS test messages regarding

carrier Delivery Notification would be valuable, especially when signature is required for most products or when payment is required on delivery. Similarly, half of the focus group participants would value Carrier Delivery Notification by phone to know when the package was close to delivery.

Enabling the ability for customers to opt-in to the additional channels and messages is critical. The focus group confirmed that people have reservations about unsolicited text message charges. This is a strong confirmation of the author and the team's early concern detailed in section 3.5 above.

The focus group participants were clear that setting expectations and meeting those expectations were very important. They also valued the ability to redirect packages. The forms automation work in the long term action items section below may address some of these customer desires.

4.1.3. Eliminate Latency Between Dell and Carrier Partners

As described in section 3.4.4.3, some customers receive order shipped messages before the carrier or Dell's web sites have updated order information. Dell's logistics group has an emphasis on improving the customer experience and may use such data to make future improvements.

4.2. Results of Short Term Efforts

Many short term wins have already been realized in the three short term focus areas. The following sections will detail some of these short term wins.

4.2.1. Order Status Content and Communication - Results

Dell has implemented several recommendations from the kaizen event and focus group into its standard operations, enabling less confusing content and setting better expectation setting with the customer. Content across all channels (phone, email and web) of customer care has been scrubbed for language, look, and feel. There is now less likelihood of confusion if a customer uses multiple channels to check on order status. Dell began promoting Estimated Delivery Date

(EDD) in order shipped email messages beginning in November; another great short-term win. EDD was shown from the focus group to be better than Estimated Ship Date (ESD) at setting clear customer expectations.

4.2.2. Channel Preference - Results

Valuable work has been completed in Dell's interactive voice response (IVR) systems. The IVR can identify incoming phone calls by Automatic Number Identification (ANI) and proactively feed relevant order related data to customers while they are waiting in queue. For example, if the IVR system recognizes a phone number matching one from a recent order, they system will automatically feed the most up to date order status for that order while the customer is on hold waiting to speak to an agent. The system has already shown to be effective at eliminating the wait times and decreasing the number of order status calls actually speaking to live agents (the most expensive part of the call).

Efforts to pilot SMS text messaging are moving forward at Dell. The SMS pilot is expected to kick off in the first half of this fiscal year and will give Dell the opportunity to evaluate whether to send SMS messages on a larger scale.

4.2.3. Latency Between Dell and Carriers - Results

Dell's logistics organizations continuously look for opportunities to improve the customer experience and provide better delivery services. The logistics group may use the analysis from section 3.4.4.3 above to further improve their relationship with the logistics carriers. Dell's logistics operations have a long term relationship with Dell's carrier providers and the author is confident that such an ongoing relationship will be valuable in improving the service provided to the end customer.

4.3. Long Term Implementation Action Items

If Dell decides to engage in proactive messaging similar to what has been described thus far in this thesis, a potential long term implementation roadmap to achieve those goals is described below. Dell may choose to may divide the implementation into three categories:

- Automate forms
- Turn on new proactive and exception messages
- Integrate systems and customer relationship management (CRM)

4.3.1. Automate Forms

Forms automation could provide the customer with a frictionless path to complete common customer care activities. A frictionless path is defined as one that does not require customer interaction via the phone with a Dell care agent. Dell experienced amazing internal successes when they completely automated the order taking process in the late 1990's. Previously, customers would order products on line, which would create an order record which would then be manually reviewed and then processed in another IT system. The human inspection in the process was non-value-added and slow, thus the term friction. The seamless transition from the order capturing tool (dell.com) and the backend order management infrastructure and IT systems enabled faster order processing with dramatically fewer defects.

The same idea of frictionless processing could be used in CCES and by the kaizen event stakeholders to address other common customer care issues related to the rest of the order life cycle. Some processes that could be candidates for forms automation include:

- Product returns
- Order cancellations
- Change shipping address
- Change billing information

Automated forms at Dell could enable simple web based work flows that allow the users to self select resolution paths without the need to call and speak to an agent. This could provide great value to the customer.

4.3.2. Turn on New Proactive and Exception Messages

New proactive and exception based messages may be the vehicles to deliver the functionality of forms automation. If Dell develops frictionless processes that enable customers to solve their own issues, new messages may be constructed to link the customer to these new functionalities.

Many of these potential messages are colored green and orange in Figure 19, the ideal state map of proactive messages from the kaizen event. For instance, if the forms automation work for “change of shipping address” is completed, a new message or web link in existing messages could be created to allow customers to make a shipping address change without calling Dell.

4.3.3. Order Status Systems and Customer Relationship Management (CRM)

Integrating order status systems into a new CRM system is another potentially high impact area of work identified by the kaizen event. A subset of work in this area related to proactive order status messaging includes enabling Estimated Delivery Date (EDD) in all order related customer interactions with Dell and requiring soft login to dell to purchase a product. Other potential CRM work areas include information architecture and data system migration efforts, business rules authoring, and agent/customer system tools development.

4.3.3.1. Estimated Delivery Date at all Touch Points in the Order Lifecycle

In theory, using EDD further and further upstream in order life cycle touch points allows companies to set better and better expectations with its customers. Today at Dell EDD is communicated only after an order is shipped. Dell is considering propagating the use of EDD in upstream customer contact points such as order confirmation and even as early as in the shopping cart.

Obviously the further upstream a company communicates an EDD, the more difficult it will be to accurately predict the true delivery date. Mitigation methods are available in very upstream uses of EDD such as using a Preliminary Estimated Delivery Date (PEDD). As the order progresses to a confirmed stage, better information is known and an EDD may then be communicated. If the product’s delivery expectations push out for a backlog for example, then a company may communicate a Revised EDD (REDD). Finally a Deliver Date (DD) could be communicated at the point of shipment. The author believes that integrating all of these types of delivery date fields into Dell’s CRM and existing order management systems may improve customer expectation setting, thus improving CSAT and reducing calls to Dell.

4.3.3.2. *Soft Required Log-In*

Another suggestion stemming from the kaizen event is to not allow anonymous sales from dell.com. Currently the customer is given the opportunity to choose a guest login or to create an account at Dell.com when they purchase online. The customer still has to provide almost all of the same data whether they create an account or choose a guest status. Today this option is given to the customer at the beginning of the sales process. The kaizen event stakeholders and the author suggest Dell consider a soft log-in at the end of the online purchase process. This way the customer may be more able to track a history of purchases and Dell may be able to have even stronger statistical shopping data to model future products and promotions. Requiring login at the end of the purchase process also feels less imposing than at the beginning. Many companies do a great job of this by asking for a password at the end of a purchasing process to complete the order and to allow the customer to track their shipment.

4.3.3.3. *CRM Architectures, rules development, and tools development*

Dell continuously evaluates and updates the way it services its customers with CRM systems. Several insiders at Dell have independently validated the value from the data system mapping activity completed during the proactive messaging kaizen event. The activity helped paint the picture of the backend IT infrastructure and why an end to end architecture review is important. It will be important to keep the needs of proactive order status messaging in the purview of CRM implementers as Dell progress toward its final CRM solution.

4.4. *Results of Long Term Efforts*

This section will describe any publishable results from the three long term focus areas from the proactive order status messaging kaizen event.

4.4.1. *Automate Forms - Results*

At the time of the author's departure from Dell ground work for forms automation had begun. The project champion for forms automation calculated the estimated contact savings and cost avoidance opportunities. Despite new organizational and work priorities in CCES, approval for

the forms automation project was obtained because of the benefit to both consumer and business organizations.

4.4.2. Turn on New Proactive and Exception Messages

New potential proactive and exception messages were identified. Many of these new messages are entirely dependent on the automated forms and as such the author does not expect Dell to have made any significant progress to date. The new messages will follow close on the coattails of the automated forms work described above.

4.4.3. Integrate Systems and Customer Relationship Management (CRM) – Results

Dell has recently embarked on a large scale customer relationship management system overhaul. This ambitious project may deliver much of the proposed improvements described above. To ensure that CCES's requirements are met by the new CRM, one of the co-facilitators of the kaizen event, Marcia Strickler, is now dedicated full time to helping drive the CRM implementation for the consumer business group.

4.5. Governance

Five out of the six focus areas described above were assigned to be program managed through the Order Management Initiative (OMI) at Dell. Kimberly Sterling, the co-facilitator of the proactive messaging kaizen event is now the OMI program manager. The OMI is responsible for evaluating (and implementing if and when deemed appropriate) all short and long term action items from the kaizen event, except for the CRM related content. The remaining action item group related to CRM integration is being covered by Marcia Strickler the other co-facilitator of the kaizen event.

5. Conclusions/Recommendations

Dell is committed to improving its relationships with its customers. Proactive order status messaging may be one way to make improvements. Proactive order status messaging has seen some setbacks and successes. This chapter will highlight some of those successes, some lessons learned, and some recommendation for future opportunities.

5.1. Successes

Dell has experienced some short term successes and is positioned relatively well for some long term wins should it decide to proceed with proactive order status messaging. This section is divided into methodological, organizational, and operational successes.

5.1.1. Methodology Successes

The lean approach to problem solving and continuous improvement has proven to be successful in various dimensions at Dell. The proactive messaging kaizen event including value stream mapping and collaborative future state envisioning was quite successful. The author heard several first hand accounts from kaizen stakeholders that due to the mapping efforts, they now better understand the holistic view of the IT, organizational, and management systems that enable, and limit proactive messaging today.

Using Hammer's end-to-end process focus helped identify order status messaging as an important high level process at Dell. The attempt to map messaging from end-to-end was successful in the kaizen event, but single ownership of the process did not emerge.

Repenning and Sterman's focus on increasing time spent on improvement and building capabilities and focusing on creating virtuous reinforcing loops in the Dell's dynamic messaging systems was insightful. This type of causal loop diagramming may be put to more use in future CCES projects.

5.1.2. Organizational Successes

Using the various value stream maps and the kaizen event the author and his other kaizen event facilitators influenced high level buy in and agreement on the current state and ideal vision of proactive order status messaging. Dick Hunter and his peers in IT, business group care support, Logistics and Sales Support all rallied around and provided resources for the five day kaizen event. The unification of stakeholders on a future state vision was very powerful.

5.1.3. Operational Successes

Much of the content in the six action item areas from the proactive order messaging kaizen event is moving forward, although not all can be documented here. Progress has been made around the content quality in existing messages. As mentioned above Dell has taken great strides to align the verbiage and data sources for messages. This standardization is powerful because it ensures customers receive the same message regardless of which channel they choose. When customers get different information on different channels, they call more and have a less favorable impression of Dell. Also, Dell has internalized the information on latency between Dell and its carriers and has made some steps forward in piloting alternative channels and messages through efforts such as SMS and forms automation.

5.1.3.1. *Calls Reduced*

One of the main objectives of this thesis was to use value-added proactive messages to prevent calls to Dell call centers. To measure the impacts of proactive status messaging, the author identified a call tracking tool inside Dell (see section 2.6 above). Using this tool the percentage of calls related to order status could be identified and tracked to see if reductions actually occurred. Figure 22 below shows some of the history of the proactive messaging project. Notice the increase in order status calls after July and August relative to laptop backorders.

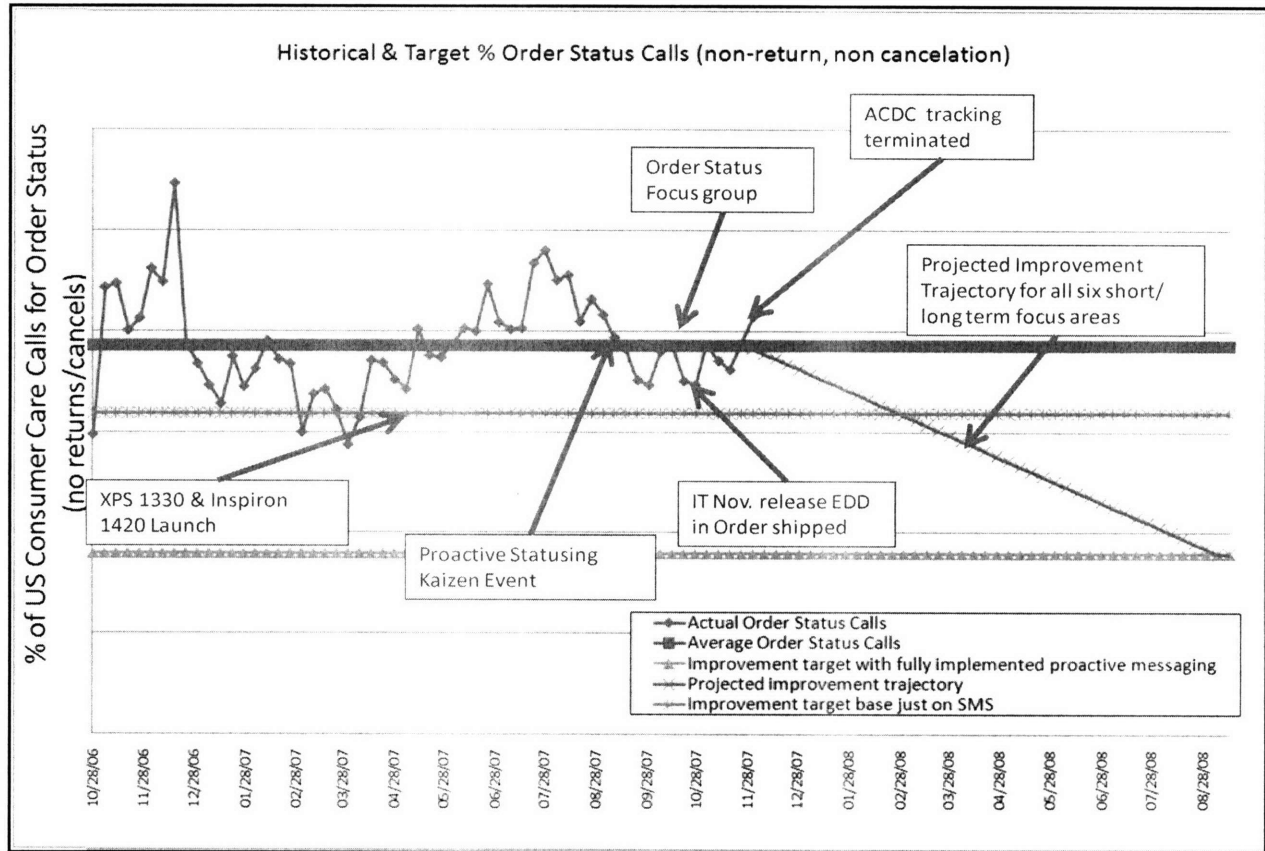


Figure 22 Consumer Order Status Call History

The kaizen event team believed that enabling all six action item areas would enable a significant reduction in overall call volumes to consumer call centers, or roughly equivalent to a 50% percent reduction of existing order status related calls. Communications since December with Dell employees confirms that call reduction related to order status has improved, likely on the magnitude planned.

5.2. Reflections and Lessons Learned

This section will attempt to put some context around the progress of proactive order status messaging at Dell using a three lens analysis. The following statements are the author’s opinion based on his time at Dell. Like any large organization Dell accomplishes work in various ways. Sometimes work is accomplished extremely effectively other times less so. The three lens analysis may help illuminate what is going well and some possible opportunities for

improvement in Dell's delivery of customer support. The three lenses focus on the culture, politics, and structure of organizations.

5.2.1. Cultural Lens

The cultural lens looks at norms, artifacts and how things really get done inside an organization. Dell has one of the most vibrant corporate cultures the author has ever seen. Dell strongly values entrepreneurship and meritocracy. People are rewarded based on performance and are emboldened and challenged with opportunities to excel. The company grew in twenty four years from nothing to a roughly \$60B, globally dispersed organization. That type of rapid growth cannot happen without the amazing entrepreneurial spirit that oozes out of Dell employees.

The entrepreneurial mentality combined with the knowledge that employees are measured on results drives a culture of rapid change that at times can emphasize realizing near term results over long term improvement projects. Imagine there are two ways to accomplish an objective, one is quick and easy but only satisfies one business group or region's need, the other takes longer is more complicated, but creates common functionality "globally". The author recommends that Dell continue to evaluate all options and focus on balancing rewards and risks commensurate with the long term success of the company.

5.2.2. Political Lens

The political lens looks at how power is used inside an organization to get work accomplished. Leadership at Dell is fostered in the culture of entrepreneurship. As such, successful leaders get the opportunity to take on more and more challenging new assignments. As success breeds leaders, the leaders grow in responsibility and power. The leaders acquire resources including budgets and the human capital necessary to accomplish their objectives. As new leaders take the mantle of an organization, they tend to reframe the focus of work into their vision of improvement. Often people will gravitate toward working for a specific leader more so than the function of the organization.

5.2.3. Structural Lens

The structural lens looks at organizations as mechanical systems with teams, processes, and incentives that interact to complete required tasks. This is the domain of the organizational chart and incentive systems. It is the author's opinion that many companies change the structure of their organizations much more frequently than they do their cultures or politics. The CCES organization changed several times during the author's tenure at Dell to react to changing business needs.

5.2.4. Combining the Lenses

Shortly after the author left Dell, Dick Hunter the Vice President of the CCES organization announced his retirement. The priorities of the new leadership did not rank proactive order status messaging projects as relatively high as they were under Dick Hunter. Thus some of proactive order status messaging action items did not proceed in the exact manner envisioned by the author and the kaizen event leaders. The author believes that once the new priorities are completed, proactive order status messaging may again rise to the top of the priority list.

5.2.5. Reflections on Proactive Order Status Messaging

Some of the changes described above were not wholly advantageous for the proactive order status messaging project. The effort ultimately did not achieve implementation consistent with Michael Hammer's advocacy for major process re-engineering with a single process owner driving all work for proactive order status messaging (Hammer, 2008).

However, even without official ratification and funding as a unique program, many of the action items to enable proactive order status messaging are still moving forward. This is not surprising considering many of the recommended action items to enable proactive messaging are considered "the right thing to do" by many Dell stakeholders. SMS is marching on, as is the forms automation work. Proactive order status messaging requirements are being built into Dell's CRM systems. Messages on phone systems, e-support, and email have been standardized to have common look and feel. In the end many of the functionalities and benefits of proactive order status messaging may be realized at Dell.

In Repenning and Sterman's view of process improvement, the author feels that many people within Dell are trying to increase Dell's capabilities and spend more time on improvement activities (Repenning & Sterman, 2001). The tug of war between quick results and long term results will continue at Dell as it does in almost every company. It is the author's hope that leaders within Dell continue to spend time improving existing processes and systems to ultimately improve capability and performance.

5.2.6. Recommendations for Future Work

There are many great potential avenues for future work in consumer customer care at Dell. Areas may include improved customer facing tools and communications such as forms automation messages. Agent and customer based tools are another area for potential improvement. Avijit Sen of LFM's class of 2009 is currently at Dell working on CRM systems improvements for consumer care as well as helping customers self service to resolve their technical support inquiries using an automated "Guided Path". Avijit plans on using Repenning and Sterman's model of performance = effort x capability in a system dynamics model as part of his work at Dell. Continuation of the lean implementation of customer support in retail efforts, a continuation of Hannah McClellan's work is also another potential area of future work for LFM's or others at Dell. Continuing to implement proactive order status messaging is in the author's opinion a potentially high value added area of work for future LFMs.

Appendix A: E-Support Value Stream Maps

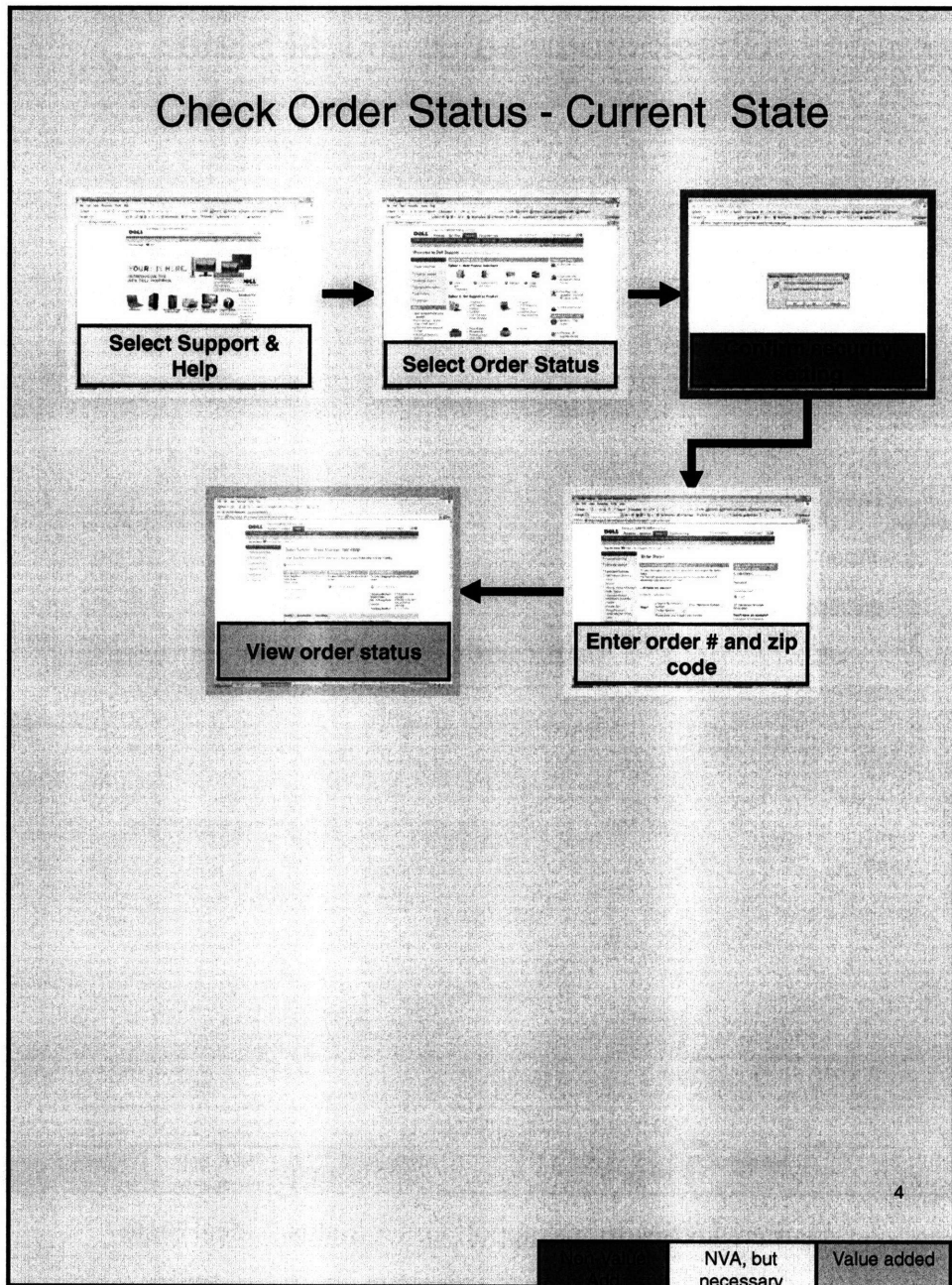


Figure 23 VSM for e-Support Order Status – Current State

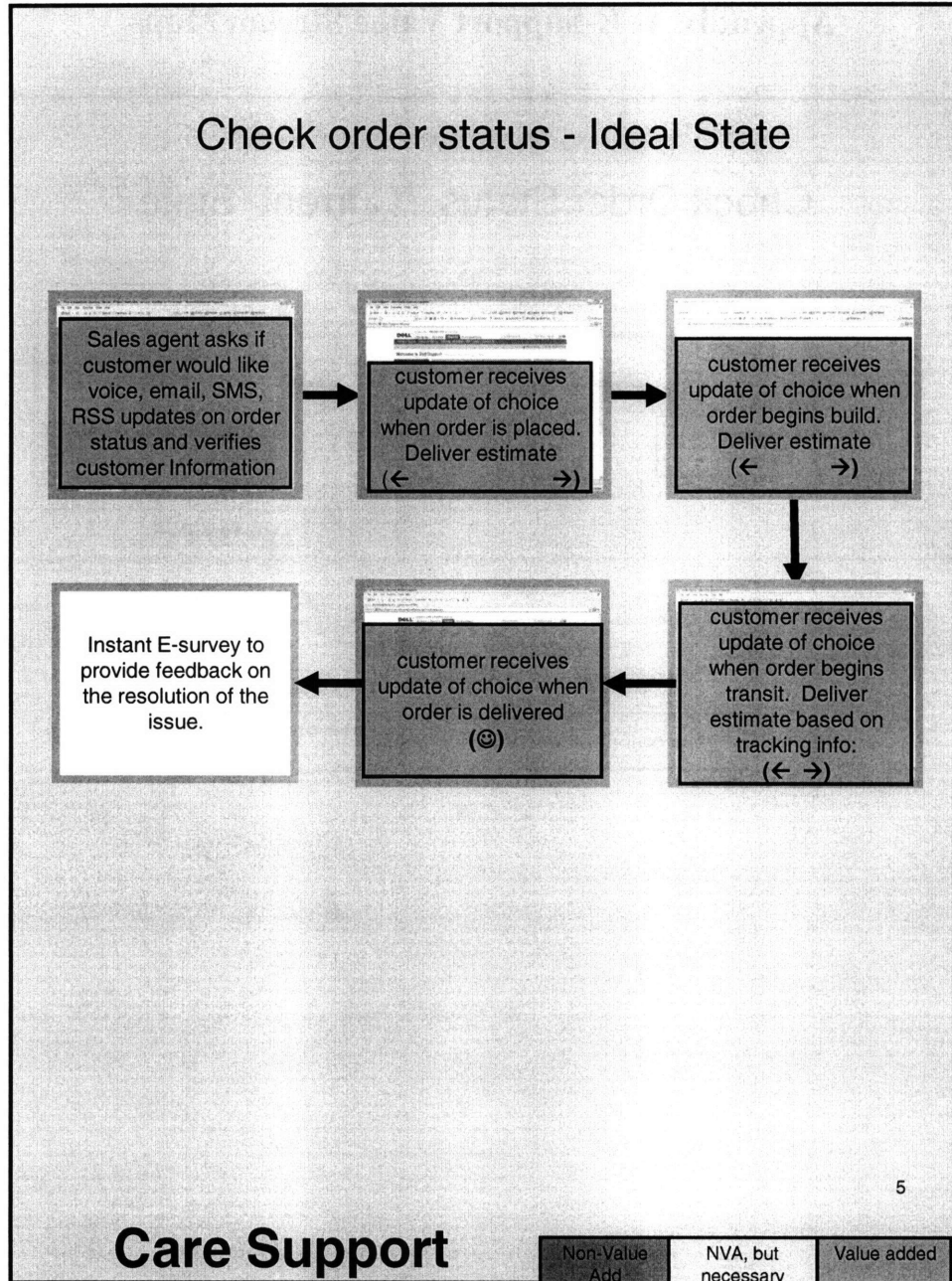


Figure 24 VSM for e-Support Order Status – Ideal State

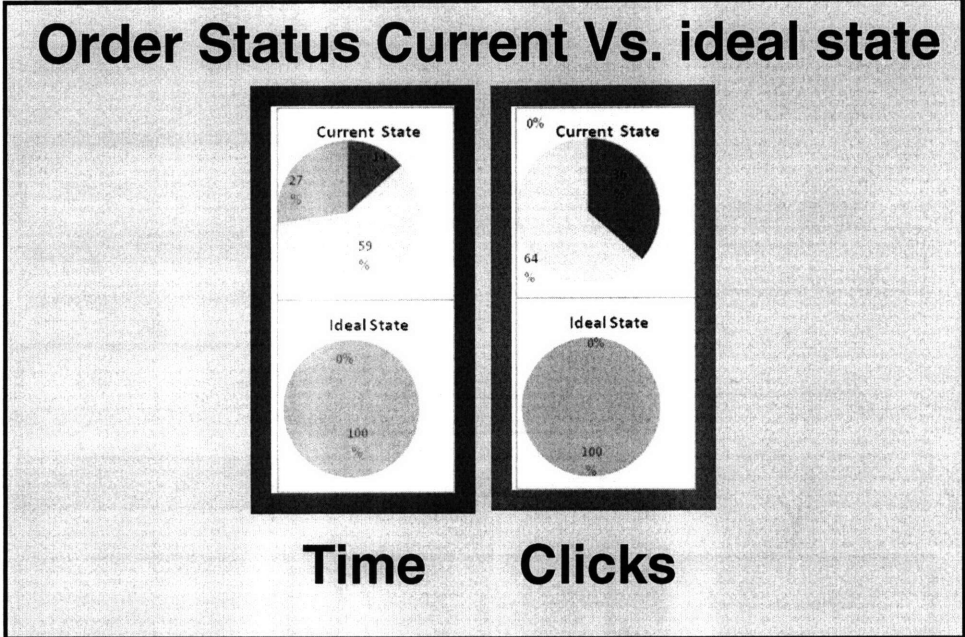


Figure 25 VSM for e-Support Order Status Current versus Ideal State

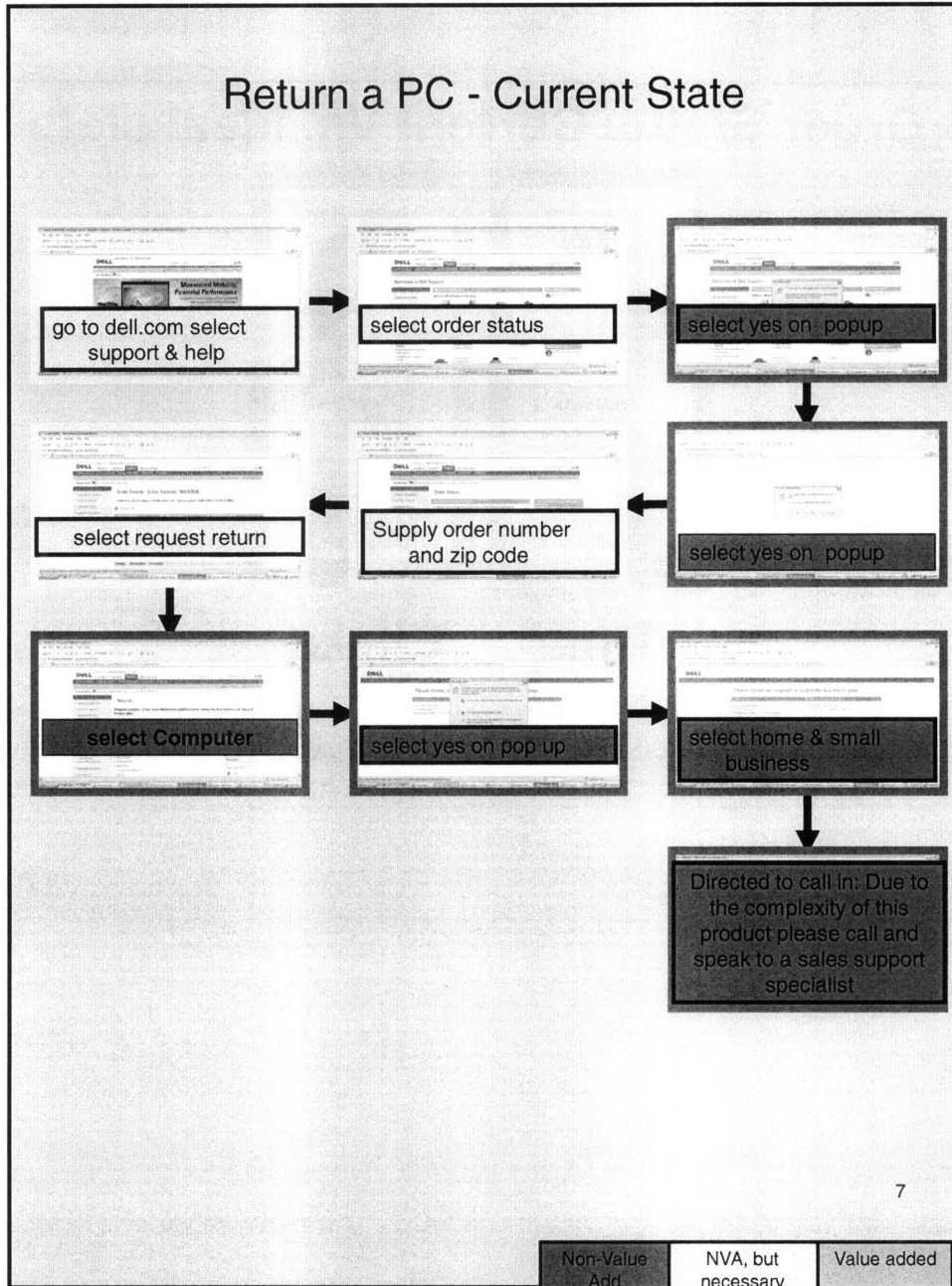


Figure 26 VSM for e-Support PC Return – Current State

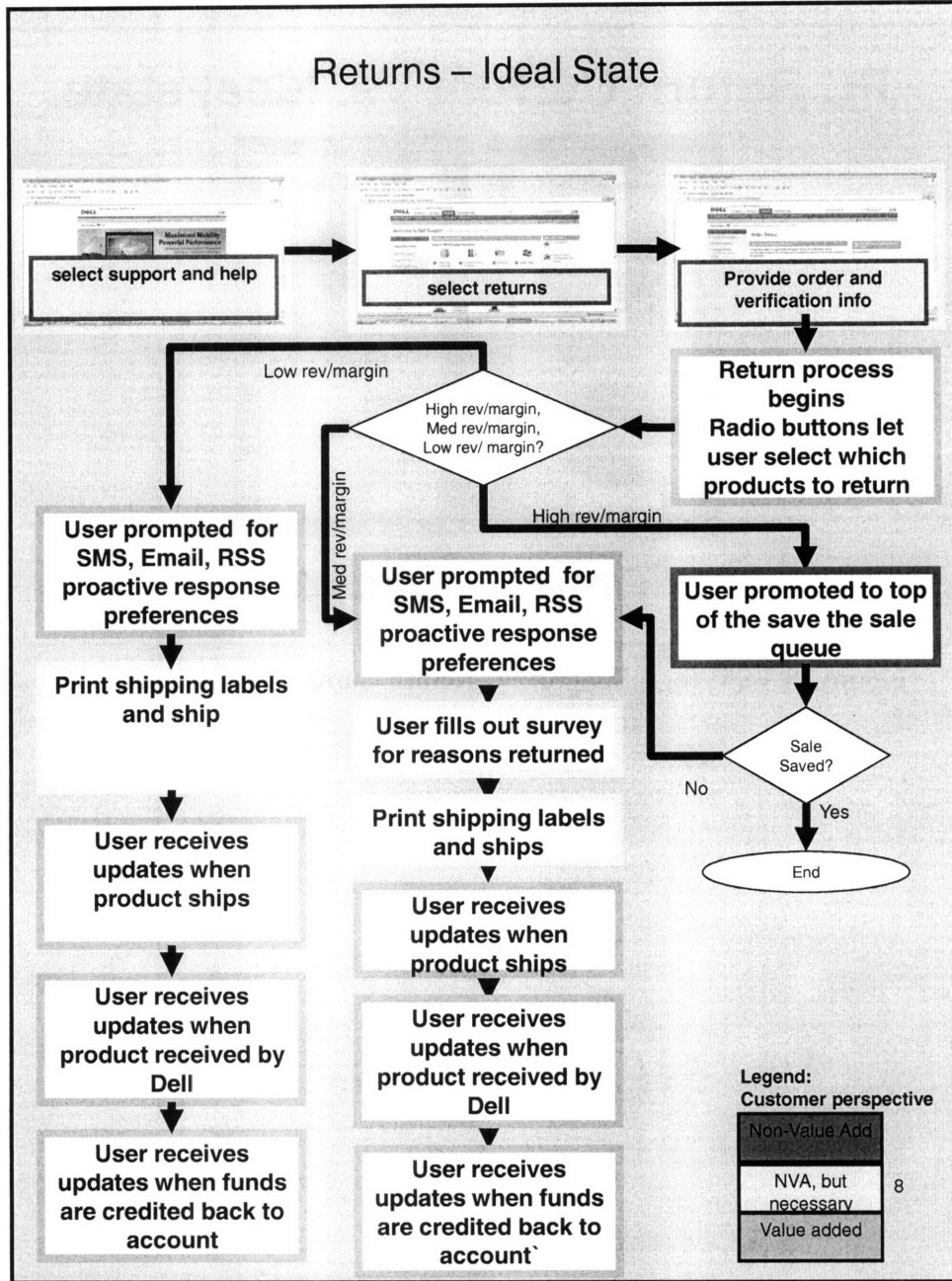
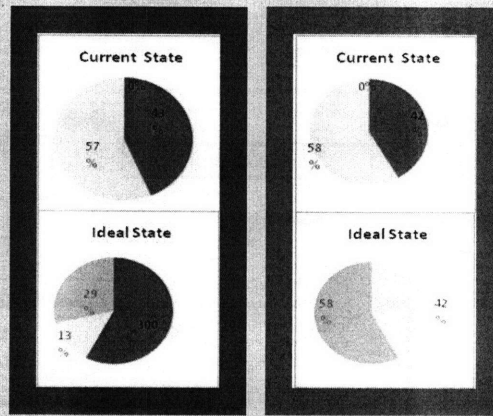


Figure 27 VSM for e-Support PC Return – Ideal State

PC Return Current Vs. Ideal state



Time

Clicks

Figure 28 VSM for e-Support PC Return Current versus Ideal State

Current State E&A Return Order

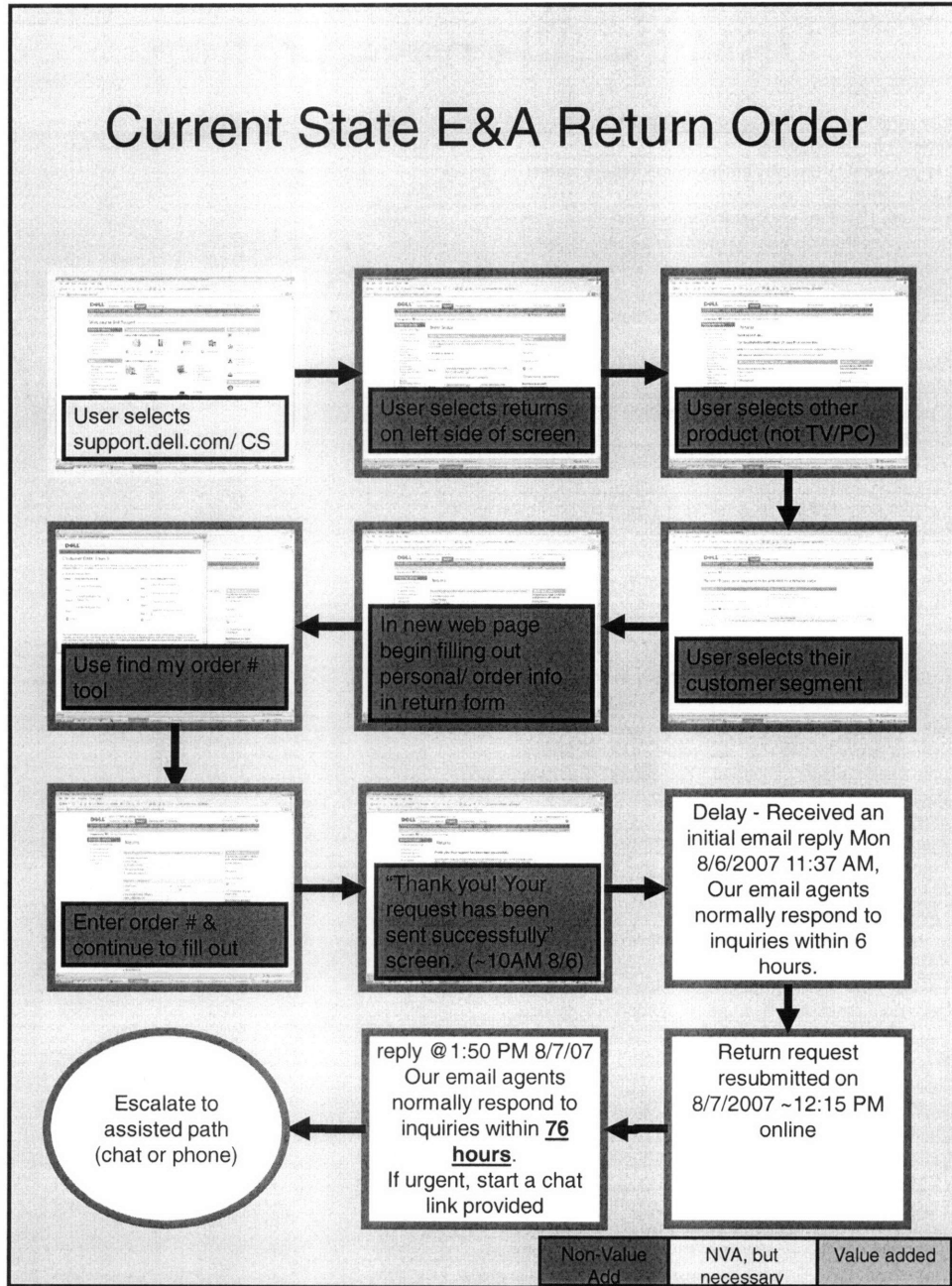


Figure 29 VSM for e-Support Accessories Return – Current State

VSM for IVR based return			
Description	VA (R, Y, G)	time of day	seconds
dialed into 1800buydell	NVN		
Do you want to buy something, check orders status, ... "check order status"	NVN		
I'm sorry I couldn't understand that "check order status"	NVA		
Just to confirm you want to check order status "yes"	NVN		
Please say your order #, if you don't have say I don't have it. "I don't have it"	NVN		
Just to confirm you don't have your order number right? . "right"	NVN		
Please say the phone # you used when ordering this product starting w/ area code "617 --- ----"	NVN		
I have found two orders the first order # is 769400618. It has shipped and is in transit.	VA		
Would you like to get the carrier and tracking information for this product? "Yes"	VA		
System provided carrier & tracking # then asked if I wanted to track the other order, "No"	VA		
System asked if I wanted to change or cancel the order "yes"	NVN		
We are experiencing heavy call volume, your wait may exceed 10 minutes	NVA		
We are experiencing heavy call volume, your wait may exceed 10 minutes	NVA		
Spoke to an agent who informed me that I'm in the order modification queue, not returns and I need to be transferred	NVA		
Please wait message	NVA		
We are experiencing high call volumes because of an unforeseen supply constraint. You can get order status and updates on your order at www.dell.com or go to directtodell.com to learn more about the issue	NVA		
Agent picks up, "I want a return authorization form"	VA		
I confirm info (order #, and zip?)	NVN		
I provided an email address to receive RAF.	NVN		
Can I put you on hold while I process this? "yes"	NVA		
Is there a phone # I can call you at if we get disconnected, "617- - "	NVA		
I asked how the return process worked and replied that he'd be sending a return address and I'm responsible to ship.	NVN		
Agent gives me return address: Parts returns Dell C/O Genco 4555 Creekside Parkway Suite A Lockbourne OH, 43137	VA		
Said I have 5 days to return and then the credit process begins	NVN		
Put on hold again	NVA		
Agent came back and said I need not return the item, and my account will be credited. He supplied the confirmation # for out	VA		
I asked to receive an email w/ all of the confirmation info.	VA		
Agent said he'd call back the next day to confirm everything went smoothly	VA		

Order Status VA = 1.5 min NV/N = 1.5 min NVA = 0.25 min
Return VA = 4.75 min NV/N = 12.75 min NVA = 41.75 min
VA = VALUE ADDED NVN – NON VALUE ADDED BUT NECESSARY NVA – NON VALUE ADDED

Figure 30 VSM for e-Support Accessories Return – Current State (continued)

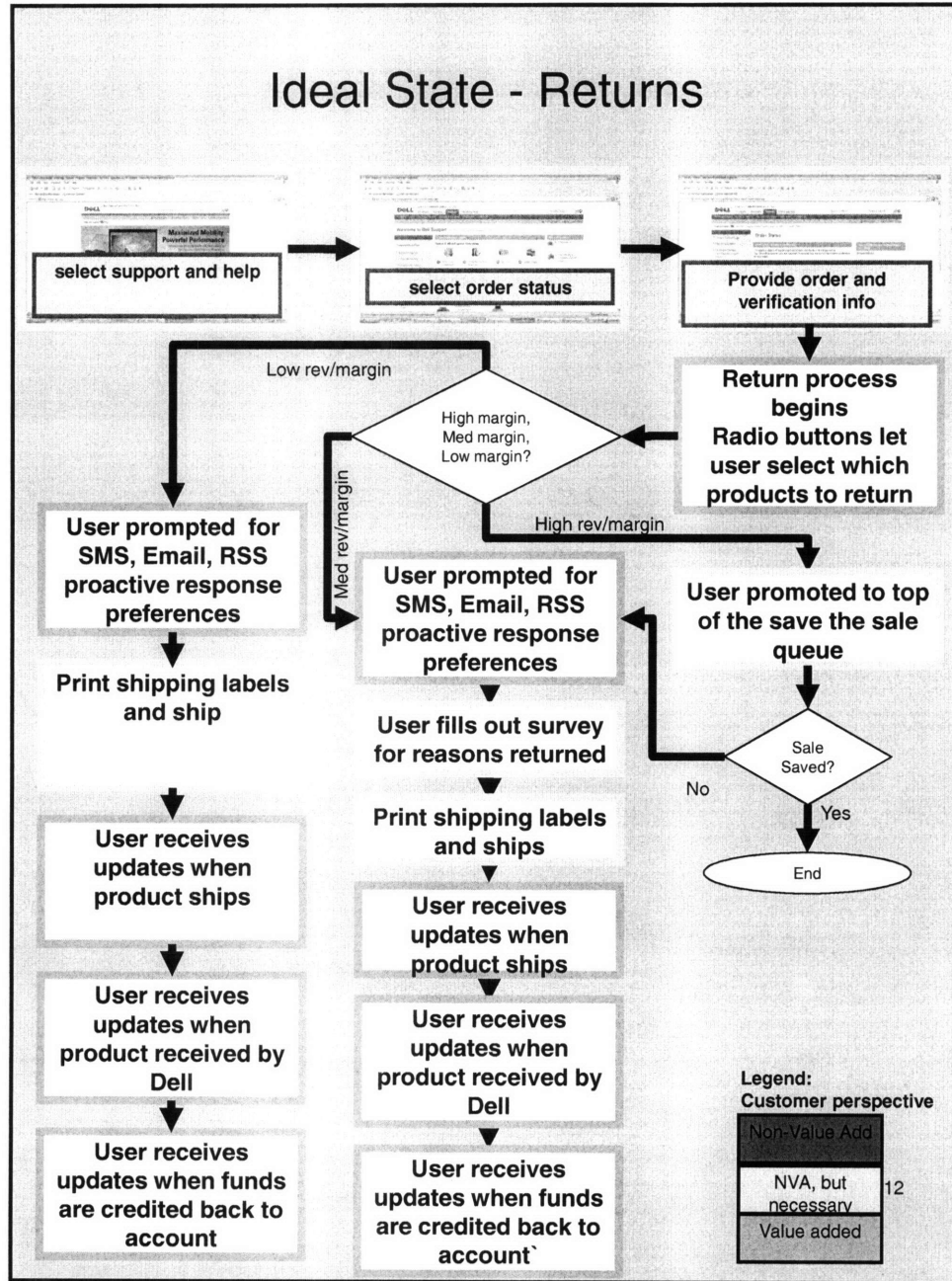


Figure 31 VSM for e-Support Accessories Return – Ideal State

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