

TAKING THE CUSTOMERS VIEW OF TROUBLE RESOLUTION “PEERING OVER THE WALLS”

Jeff Brooks, Deborah Horan, Gary Cunha, Mike Gordish
ARRIS Assurance Solutions

Charles H. Patti, Ph.D., Ronald Rizzuto, Ph.D.
Daniels College of Business, University of Denver

Abstract

The continued encroachment of competitive service offerings has driven subscriber satisfaction into the arena of complete differentiation. The necessity of service differentiation as a competitive advantage drives the necessity to apply Total Quality Management practices such as customer focus and process analysis and redesign, advanced statistical methods and measurement to the subscriber trouble resolution process. These tools have been widely used to generate local optimums at each stage of escalation of customer trouble reports. However, the practice of ishikawa's root cause analysis and solution analysis and industrial engineering practices of end-to-end process design has not been widely applied.

This paper will look at the theoretical improvements that could be achieved with a system that begins with system process documentation and process redesign to achieve outage preventive management, leading to customer experience improvements.

INTRODUCTION AND PURPOSE

Each year, there are over 10,000 new business books published in the United States alone. That's hundreds of millions of words giving advice on a range of business topics—from leadership, to survival tactics, to marketing. Every now and then, one of these business ideas rings so true that we change the way we think about—and conduct—business. Customer Experience Management (CEM) is

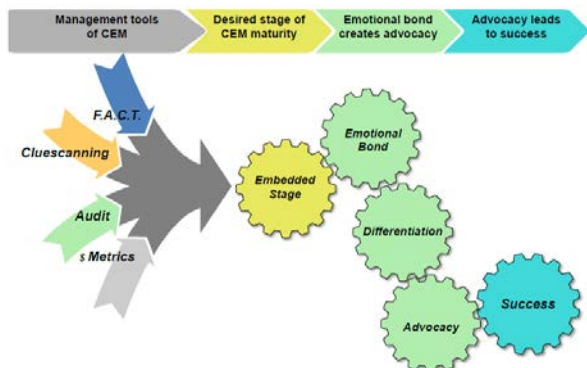
one of those rare business ideas that is so compelling that it has pushed itself through the maze of business rhetoric and risen to the forefront of business thinking. When *The Experience Economy* was published in 1999 (Pine & Gilmore, 1999), it became a best seller, but managers didn't immediately embrace the ideas and change their ways of doing business. Powerful ideas often take time to penetrate the way we think and how we lead our companies. Today, fifteen years after the publication of *The Experience Economy*, CEM is still maturing into a mainstream business framework. But, much has been accomplished during this period. CEM constructs are emerging, ideas about the obstacles to full-scale CEM implementations are being discussed, and methods for gaining greater insight into how customers feel about themselves and the brands they experience are gaining acceptance. We now know that CEM is penetrating business leadership and practice. Companies from every sector of the economy now have CEM positions. Ideas about 'maturity levels' of CEM within organizations are being discussed. There is a lively debate about the components of CEM. And, CEM is being applied to all business sectors (B2B, not-for-profit, etc.) and across all stakeholder groups (See *Firms of Endearment*, Sosodia et al, 2007). This paper uses the CEM ideas and business tools we have developed over the past several years as the context for describing the implementation and measurement of a CE initiative in the cable industry. The ability of a business idea such as CEM to gain full acceptance is largely dependent on the ability of management to demonstrate the financial payoff of investments in the idea. The cooperation

between Doctors Patti, Rizzuto and ARRIS Assurance Solutions has resulted in the isolation of the financial benefits of a CE investment.

Creating Value through CEM

As shown in Exhibit 1, our view of how CEM leads to profitability is a four-step process that starts with understanding how to use the CEM tools that we and others have developed over the past several years. Those tools include F.A.C.T. (the four components of CEM); Cluescanning™ (a method for understanding how well a company is delivering the customer’s desired experience; the CEM Audit (a method for discovering the ‘experience gap’—the difference between the desired experience and the delivered experience); and CEM Metrics (the tools used to measure the impact of CEM investments).

Exhibit 1: Framework for Understanding the Link between CEM and Success



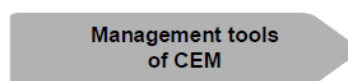
Source: Original material developed by the authors.

The second step in the process is to reach the most desired stage of CEM Maturity (Embedded Stage). We developed the concept of CEM Maturity by first acknowledging that full-scale adoption of CEM within an organization is a journey. Below we explain more about the CEM Maturity concept and how it affects the

emotional bond between customer and company.

The third step embraces the idea that emotional bond between customer and company is the strongest point of brand differentiation. Further, meaningful differentiation is what leads to advocacy—the state in which customers willingly help recommend your brand.

The results of advocacy, increased sales, market share, profitability, and other financial measures, are the ideal measure of success (step 4). While most companies struggle to identify the financial payoff of CEM investments, we are strong proponents of such measures, and indeed the case history described in this paper illustrates how this connection can be made. In summary, we recommend the adoption of the framework in Exhibit 1 because: (1) it shows how to discuss CEM in terms of a process that leads to success, and (2) it embraces all of the main developments of CEM thinking.



MANAGEMENT TOOLS OF CEM

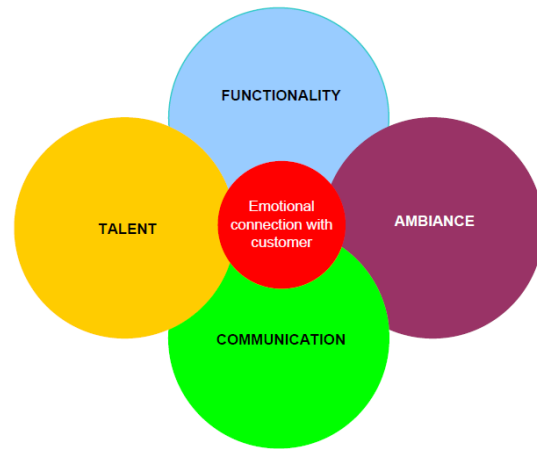
1. F.A.C.T.—the components of CEM

Functionality. Long considered the single, most important reason that buyers work with specific sellers, Functionality has to do with a company’s core product/service offering. This includes how effective the product/service is; how well it performs its functions; how much value it provides to the

customer; the R&D capability of the seller; the financial terms offered; the quality and availability of service; and any number of other tangible attributes the seller provides. In the hotel industry, for example, hotels are typically evaluated on the basis of the comfort and cleanliness of their rooms, their reservation system, price, and other on-property amenities that surround the core product.

Ambiance. Although we most often associate the relevance of ambiance (look and feel) with consumer goods and services (e.g., restaurants, hotels, department stores, airlines, etc.), ambiance is also important in the B2B sector where it includes appearance of company representatives, appearance and convenience of office space, product packaging (where applicable), and any other aspect that conveys an appealing sensory feeling. For example, some manufacturing companies take great pride in their factories, including the Bang & Olufsen factory in Denmark, the Serta factory in Illinois, the BMW and Audi factories in Germany, and many others that understand the relevance of look and feel to the experience of customers, employees, and other stakeholders.

Exhibit 2: The F.A.C.T components of Customer Experience



Source: Original material developed by the authors.

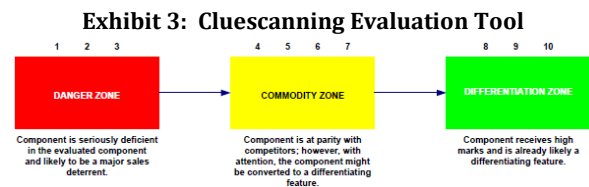
Communication. We live in world of message overload. Over 90 percent of U.S. adults own cell phones and 61 percent of U.S. adults own smartphones (Marketing Land). We talk, we text, we use social media, we are exposed to thousands of advertising messages each day, and we increasingly do business in non-face-to-face media, e.g., online, call centers, etc. A popular statistic about communication is that the majority of it (estimated between 70-90%) is non-verbal (Mehrabian). Further, it is estimated that within the next five years, 85% of a customer's relationship with a business will be done without face-to-face interaction (Gartner). At the same time, nearly 90% of customers quit doing business with a company because of a bad customer experience (Tierney), and increasingly that bad experience is through one or more forms of communication. Examples include, not answering phone calls, long wait times, incomplete or unsatisfactory responses, and inappropriate language. The Communication component of the F.A.C.T. definition of CEM is about the what, when, where, and how of messages between buyer and seller.

Talent. The rise of communication technology has fueled even more interest in the effects of people and culture on customer experience. Increasingly, business is in the hands of employees who interact with customers. Being knowledgeable, having the ability to listen to customers, anticipating customer problems and desires, and focusing on problem solving (first-contact resolution) are all characteristics of the Talent (people and culture) component of CEM. For example, employees at retailers such as Nordstrom’s, REI, Container Store, and Whole Foods Market possess all of these characteristics. The other dimension of Talent is the organization’s culture. Customer experiences—and then ultimately, the development of a positive emotional bond with customers—are enhanced when the organization is founded on the idea that sustainable profits are rooted in a ‘customer-first’ culture. If you listen to Gary Kelly, CEO of Southwest Airlines, he speaks of building an airline that is first devoted to giving customers what they want and to build trust and authenticity.

2. Cluescanning™

In his book, *Clued In*, Lou Carbone talks about the development of a way to measure how well a company is performing in the delivery of F.A.C.T. Carbone calls this process Cluescanning™, a method of self-evaluating the quality of delivering on the four F.A.C.T. components of customer experience. This method involves company representatives or others external to the company developing a keen sense of observation of the four dimensions. Then, the evaluators apply their observational skills to evaluate and score each dimension on its

delivery of the dimensions. This diagnostic tool is particularly helpful when trying to assess current performance and then formulate action plans for improvement. Exhibit 3 is an adaption of Carbone’s Cluescanning™ scale. This scale can be used by having the evaluator conduct a comprehensive, objective analysis of all four CEM components. Once that is completed for each component, the company can identify where improvements need to be made and which of the four components offers the best possibility to create a differential advantage in the marketplace. The idea is to try to move the evaluations of all four components to the right, toward the differentiation zone. However, it is rare for any company to achieve scores of 8-10 in all four components. Still knowing strengths and weakness and becoming committed to ongoing improvements puts an organization on the path to delivering the best possible customer experience.



Source: Adapted from Clued in, by L. Carbone

3. The CEM Audit

The idea of an audit is not new, and it is applied in many fields. An audit—the practice of verifying information—is as old as the idea of counting and record keeping. Investor Words (www.investorwords.com) defines the concept of audit as, “An examination and verification of a company’s financial and accounting records and supporting documents by a professional, such as a certified public accountant.” In the U.K., the Medical Act of

1858 launched the auditing of medical practices (www.bristol-inquiry.org.uk). Business Publication Audits (BPA) has been verifying the circulation of business magazines and trade show exhibits for decades, thus providing its customers with assurances of the accuracy of data (www.bpaww.com). And, the idea of a marketing audit has been around for over fifty years (Kotler et al). The idea of an audit is simple enough—an objective process of verifying information. The value of an audit lies in its characteristics of thoroughness, standard procedures, objectivity, and reporting. When conducted well, an audit provides a report card for its sponsor, helping the organization understand its strength and weaknesses, thus indicating how to improve performance.

The CEM Audit is relatively new. It is a natural extension of the audit idea to an emerging concept, CEM. While we see no shortage of customer satisfaction surveys as well as more formal reports on brand performance, e.g., J.D. Power and Associates (www.jdpower.com), Consumer Reports (www.consumerreports.org), the idea of extending the audit idea to CEM is recent. This means that the formal procedures for conducting a CEM Audit are not firmly established. Instead, those who work in the CEM area are beginning to put forth their ideas of CEM audit components and the process for conducting the CEM audit. In *Clued In*, Lou Carbone identifies three components of a CEM Audit (identifying customer needs, deconstructing the experience from the customer's point of view, and determining the 'quality gap'). Smith and Wheeler developed a 20-item 'Branded Customer Experience Assessment' tool

(Smith and Wheeler). In their 1999 book, *The Experience Economy*, Pine and Gilmore suggest a less formal auditing procedure that they call, "Shifting Up the Progression of Economic Value"(Pine & Gilmore) And, Bernd Schmitt provides a five-step framework for producing a winning CEM program (Schmitt).

The idea behind all of these approaches is the same: (1) identify the gap between what customers see as the most relevant experience and what brands are delivering, and (2) develop and deliver a plan to exceed customer expectations for an experience that truly separates the brand from competition. By doing this, a brand creates value that is manifested in customer advocacy. Originally articulated in a classic business strategy book by Ansoff in 1965 (Ansoff), gap analysis widely used today to identify differences between a current state and a desired state. For example, in one of our studies of nearly forty companies across a wide spectrum of industry sectors, we found that nearly 80% of the companies surveyed believe they are delivering good service while only 28% of their customers believe they received good service. In recent years, this gap has been repeatedly demonstrated to be extremely important to the financial well being of the companies. Here are just a few of the findings from various attempts to document the importance of customer experience and one of its key aspects, customer service:

Companies that prioritize the customer experience generate 60% higher profits than their competitors (Murphy) 81% of consumers are more likely to give a company repeated business after good service (Murphy) 60% of Americans businesses haven't increased their

focus on providing good customer service, up from 55% in 2010 (American Express).

Concepts and Processes for Conducting the CEM Audit

There are many ways to get a close feel for the desired and delivered customer experience. Traditionally, surveys are conducted, asking customers a variety of questions about their levels of satisfaction on a variety of brand/service attributes. In recent years, this technique has been criticized for a number of reasons, including low response rates, inability to capture what customers truly want as an experience, the reliability of the data, and the inability to provide a deep understanding of the relationship between the customer experience and brand value. A number of new techniques have emerged, including the ZMET technique (Coulter & Zaltman; Zaltman & Coulter).

Outline for CEM Audit

Exhibit 4 illustrates the flow of the customer experience audit process, starting with an understanding of the desired customer experience (using focus groups, surveys, and ZMET); measuring the delivered experience (using Cluescanning™ as described above). From the information collected in steps 1 and 2, the organization can make decisions about what new or revised experiences should be created or revised. In step 4, the organization uses all normal channels of interacting with customers and prospects to deliver the new and/or revised experiences. Finally, in step 5, the organization measures the impact of the new and/or revised experiences through surveys, Net Promoter Score (Reichheld), and

various financial measures. Creating a CEM program out of this sequence often leads to misallocation of human and financial resources. For example, starting at step 2 without first knowing what experiences customers and prospect desire is likely to be inefficient and ineffective.

Exhibit 4: The CEM Audit Process



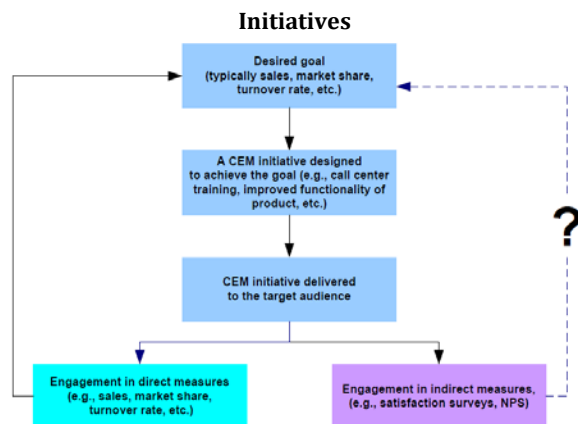
Source: Original material developed by the authors.

4. Measuring CEM's Impact

One of the objectives of this paper is to bring clarity to the measurement of CEM initiatives. Because CEM was first conceived as another name for customer service, early measurements were focused on various types of customer satisfaction surveys. This was followed by widespread adoption in several of industries of the Net Promoter Score (Reichheld), a measure of customer advocacy. Other measurements include customer effort (Dixon et al) and proprietary measures that combine satisfaction, effort, and advocacy. While all of these approaches can add value to understanding CEM's value to the organization, we advocate the use of measures that are directly tied to financial outcomes, e.g., sales, market share, customer turnover rate, customer lifetime value, etc. The reliance on indirect measures is the traditional approach because the challenges to measure

financial results are significant. When there are many, and often uncontrollable, variables that affect the relationship between investment and desired outcome, there is a tendency to use indirect measure and assume that the indirect measure will affect the desired outcome. See Exhibit 5 below.

Exhibit 5: Indirect vs Direct Measures of CEM



Source: Original material developed by the authors.

The above Exhibit illustrates the case for the use of direct measures. While it's often challenging to control all of the variables intervening between the desired goal and the measurement of impact, we believe that this challenge is no more difficult than trying to establish the relationship between indirect measures and the desired goal. In this paper, we illustrate how CEM initiatives can be directly related to financial outcomes.



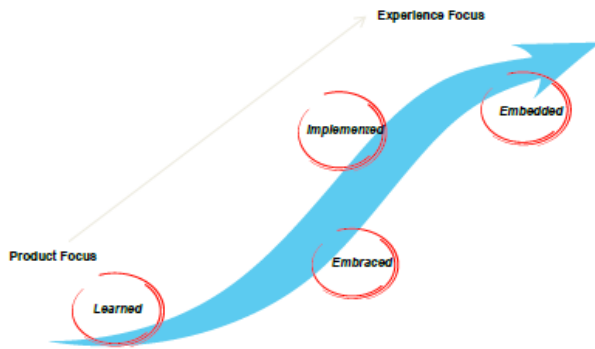
THE CEM MATURITY CURVE

In his 2011 article in Forbes, Steven Denning observed,

Changing an organization's culture is one of the most difficult leadership challenges. That's because an organization's culture comprises an interlocking set of goals, roles, processes, values, communications practices, attitudes and assumptions.

Clearly, the full-scale adoption of a 'customer first'/customer experience corporate culture takes time, commitment, and energy by everyone in the organization. During the past several years, we've worked with over thirty companies on CE initiatives—observing their business models and organizational structure, evaluating their CE efforts, and helping them understand the obstacles to full-scale adoption of a CE culture. A major outcome of working with these companies is the development of the Customer Experience Maturity Curve (shown in Exhibit 6 below). The Curve is based on the idea that adoption of any culture change is a journey that has an identifiable pattern. In the case of CEM, this pattern consists of four distinct phases—Learned, Embraced, Implemented, and Embedded. Basic characteristics of each phase are summarized in Exhibit 7. As the organization moves toward the Embedded state increasing levels of knowledge about CEM are required, e.g., complete understanding of how to use Cluescanning™, the CEM Audit, and financial measures of impact. Also, the 'silo mentality' is replaced by a completely integrated approach to serving customers. The CEM Maturity Curve is useful in terms of understanding the current location of where the organization is on the curve and what steps are required to move up the curve.

Exhibit 6: CEM Maturity Curve



Source: Original material developed by authors.

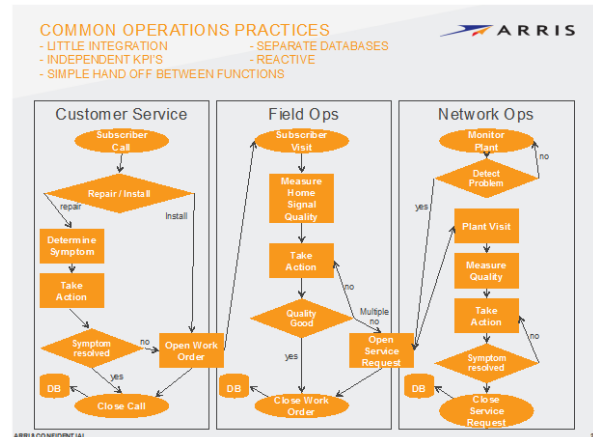
Exhibit 7: Stage, characteristics, and orientation of CEM adoption

Stage	Characteristics	Orientation
Learned	organization has acquired a minimum level of information about CEM and is familiar with the concept and some of the management processes associated with CEM. However, little has been done to implement CEM as an operating framework.	Product
Embraced	Organization has accepted the CEM idea as an operating framework; however, CEM is not yet implemented in the organization.	Product
Implemented	Organization is engaged in practicing selective aspects of CEM practices, but CEM is not fully integrated throughout the organization.	Customer
Embedded	Every member of the organization is committed to building emotional bonds with customers. Concepts and processes such as F.A.C.T, Cluescanning™ CEM Audit, and Metrics are part of the core fiber of the organization.	Customer

Source: Original material developed by the authors.

In a manual operational center, the silo affect among all departments is in full affect. The departments work within their specific silo and do not understand the actions within other departments that occur throughout a day and negatively impact the customer experience. Work orders incorrectly coded, forced scheduled times, missing timeframes, lack of customer facing time and manual field processes can all degrade overall operational efficiencies and produce a negative impact on subscriber experience. A comprehensive

Field Service Management (FSM) tool integrated with Network and Service Management (NMS) tools helps build a cross-functional organization by providing valuable department-specific information in an automated fashion and helps mainstream the data flow within the FSM tool. By linking cross-functional departments and automating the delivery of the right information to each, organizations can drive efficiencies, improve customer experiences and reduce costs.



BEFORE

This integration between the FSM and NMS solutions impacts more than just technicians and dispatchers. It helps build a seamless cross-functional organization by incorporating an automated process enablement feature set that keys on actionable events that occur in the field. This process generates notifications across the organizations that are important to that specific group based on near real-time

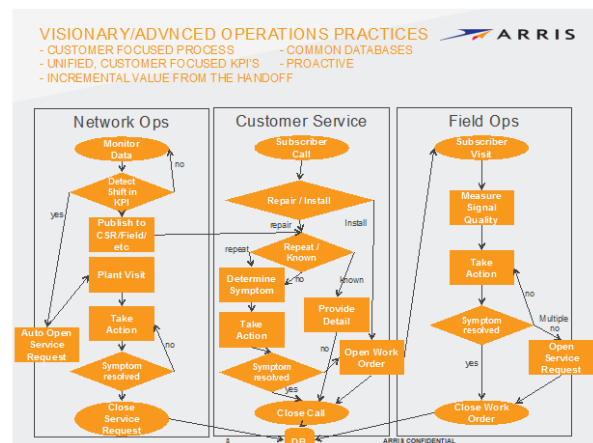
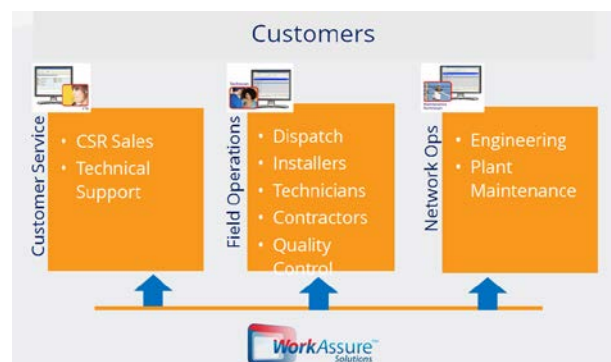
events. Often this integration does not exist and all steps involving other departments are completed in a manual process that invoked human error prone situations, which could impact the end subscriber or entire network of subscribers if work is not completed correctly.

For example – During the day, subscribers have been trained from previous experience to always call the customer service center asking the infamous question – “Where is my Tech?” A comprehensive modern FSM tool can provide the proper details to that end subscriber based on real actionable events through an IVR solution - without impacting the customer service department. This allows the customer service department to focus on generating new customer opportunities and retaining the current customer base, while reducing the wait times for subscribers who need to reach a representative.

These advanced FSM tools when integrated with the NMS and other Business and Operational Support Systems BSS/OSS do much more than deploy technicians in the field based on a scheduled work order pool. They also empower the technicians to complete the majority of their tasks without communication with the back office personnel, providing more face time with customers, and placing less strain on the back office resources. Additionally, during the completion of work orders, technicians are required to collect specific details related to the subscriber home network and access network telemetry. This information is valuable in proactively identifying possible network related problems that may require engineering or plant maintenance resources. Using the home and network telemetry information, the integrated FSM system

invokes an automated process that creates a maintenance related order and automatically routes it to the next available plant technician to research and resolve the problem - before additional subscribers make a problem related phone call. This process improves subscriber satisfaction by preventing additional service issues, while allowing the Service Provider to identify network issues using their normal workforce during day-to-day activities, which helps keep operational costs low.

Building a well-organized cross-functional operational center is vital to providing a quality product and service to the end subscriber.



AFTER

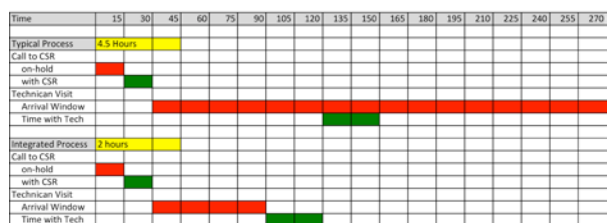
Emotional bond
creates advocacy

CUSTOMER EMOTIONS LEAD TO ADVOCACY

The customer emotion—differentiation—advocacy sequence shown in Exhibit 1 is a powerful, but often neglected, approach to developing brand advocacy. Most organizations believe that customers become brand advocates because of superior product characteristics or outstanding service. These functional aspects of a brand are indeed important. But, the strongest driver of advocacy is the collection of positive emotions that customers feel about themselves when they purchase or use certain brands. We all want to feel proud, happy, content, smart, admired, pampered, important, and any number of other positive emotions. We want this in all aspects of our lives, including through the purchases we make. When we feel this way—and we can associate it with a brand—we become brand advocates. It's more important and relevant for customer to feel good about themselves than it is for them to feel good about the brand. Organizations increase the opportunities for brand advocacy—and all of its benefits (e.g., lower turnover rate, lower cost to acquire new customers, increased customer lifetime value, etc.) when they deliver a total and positive experience. This importance of emotions is underscored by the results of a recent study on customer experiences that concluded, "...Instead, people's feelings about a company often depend on the company's ability to gauge customer emotions, which account for more than half the typical customer experience." (The Huffington Post)

Considering technicians are often the face of the cable operation, it is very important for them to be empowered with a solution that allows them to be efficient and focus more attention on the end subscriber for all type of work being done in the field. Modern FSM systems must incorporate a dynamic routing algorithm that efficiently routes work orders throughout the day using the changes to the work that occur through out the day. The Service Providers are now able to provide more user friendly timeframes, reducing the four or two-hour windows down to one hour timeframes and even providing exact timeframe selections. The dynamic routing logic often has the added benefit of reducing drive times. The dynamic routing logic and reduction in none work related activities, allows the technician to spend more time with the customer to ensure that their issues are resolved successfully.

Customer Effort for a Single Trouble Call



Further the integration of FSM systems to the NMS tools will assure that the technician will install new services or resolve problems correctly the first time, immediately reducing subscriber frustrations associated with repeat trouble calls.. Field technicians are empowered with tools that help quickly identify any concerns related to the services the customer has purchased. For example, before a technician even arrives at a residence, a house check feature pulls key statistics about the installed components to proactively

identify possible home or network related problems that may impact the installation or repair to be performed upon arrival. In addition, during the installation process of a complex service offering, a task checklist feature to ensure that the technician does not overlook a key installation step and conducts the steps in the proper sequence should be implemented. A history of all work orders should be kept and presented to the technician, allowing the technician to conduct a trend analysis resolution path based on both historical and real time polls, speeding the troubleshooting process and providing more time to answer customer questions.

Enabling the call center: hearts, minds, and resolution

The ultimate goal of the NMS platform is to proactively detect service impairments and drive resolution before a subscriber ever experiences an issue. That said, there will always be the need to carefully manage customer calls to the call center since, as mentioned above, industry trends indicate that within the next five years, 85% of a customer's relationship with a business will be via remote interaction. (Gartner) The NMS system should be designed to help manage the subscriber call experience. If the a subscriber calls, there are several dynamics already in motion:

- Subscriber is already frustrated by the need to call
- Subscriber home network is increasingly complex and subscriber may feel ignorant or isolated in their lack of understanding

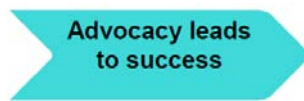
- Subscriber may have had a poor call experience with a different product/service
- The call agent is remote, making it difficult to project empathy and understanding to subscriber

Legacy support methods typically required the subscriber to try verbally representing the situation to the call agent, right down to which lights were blinking on the home device. The Today's NMS tools use a variety of telemetry protocols to provided full visibility into the subscriber home network and enable the customer/technical service agent (CSR/TSR) to service the entire subscriber account, not simply react to issues the subscriber identifies. Even before the subscriber calls, the NMS has been monitoring systems and measuring subscriber quality of experience across multiple services. While the call agent is first connected with the subscriber, the system can automatically inventory and check the home network without asking the subscriber to do anything. To support this, the NMS provides a normalized view of the home, despite what make, model, or technology is involved, whether subscriber devices are managed through SNMP, TR-069, or supporting Internet, voice, Wi-Fi, or video parameters. The CSR sees a similar view, colorized to reflect issues. Since all home devices are visible and initial status quickly checked, the CSR can begin by reviewing the installed devices with the subscriber. For example, the CSR may say "I see you have a cable modem with Wi-Fi, an MTA, and a Digital set top box, and all main devices are online and responding, including the game system and tablet you have connected to Wi-Fi. I see you've been experiencing Internet degradation

since 7am today. Let me look more closely at your Internet service since I see something out of tolerance that may be causing the issue you're experiencing." Through this interaction, there is a level of credibility, knowledge, control, and assurance that this business can help.

Legacy support methods typically focused on a specific device and its telemetry in isolation. Historically, call agents were not empowered to resolve issues themselves, only lead the subscriber through a series of troubleshooting steps followed by escalation to a more technical group. For in-house issues, the NMS provides tools to enable the call agent to resolve many of the most common call drivers. For example, for "no dial tone" voice issues, the call agent may reset a line on the MTA. For Wi-Fi challenges, the call agent may reset a password, setup security, or set the Wi-Fi gateway to use a channel with less interference. Outside the home: The NMS platform provides a broader view of the entire network giving service to this subscriber, with the intelligence to quickly determine the next step. There will be scenarios where something bigger is going on and the final resolution will not take place on the initial subscriber call. When this occurs, it's important that the call agent be empowered to recognize this quickly, in a repeatable and systematic way, so they can focus on managing the customer's expectations. Therefore, service degradations caused by a neighborhood network outage or bandwidth capacity challenge are flagged to the call agent. In these cases, neither rolling a truck to the house nor using the in-house tools will help resolve the problem, so this visibility enables the agent to avoid deploying the wrong resource, and provides a platform for accurate communication with subscribers.

When a subscriber calls, whether the underlying cause is related to the malfunction or misconfiguration of in-house devices or a larger plant or capacity issue, the NMS must be designed to provide visibility across the network and services without segmentation by the current organizational structure within the Service Provider in order to deliver a high-quality experience for subscribers and increase their satisfaction and loyalty.



ADVOCACY LEADS TO SUCCESS

As suggested above, there are significant financial benefits to investing in customer experience programs that lead to advocacy. These benefits include lowering the cost to acquire customers. When current companies advocate your brand, the investment in customer acquisition is lower. And, while the costs to acquire customers vary widely by industry, this cost can be over \$300 (Safko). Advocates tend to stay with the brands they buy longer, thus extending their lifetime value. And, they tend to spend more because they are brand loyal and they enjoy the positive emotions they receive through engaging with their advocate brands. The strongest argument for the relevance of advocacy is the writing of F. Reichheld, the force behind the Net Promoter Score (NPS)—an advocacy measurement tool. In Reichheld's article, "The One Number You Need to Grow," Reichheld puts forth the case that measuring advocacy is the key to

understanding a brand's financial growth potential.



CEM Case Study

Given the CEM context described above, we present a case study that provides: 1) an illustration of the application of some of the CEM concepts and tools discussed above to the cable telecommunications industry, 2) a discussion of some the difficulties encountered in measuring the impact of CEM investments, and 3) lessons learned for future case studies applications.

1. Background for Case Study

As a backdrop to discussing the case study, it is important to point out a key difference between the services provided by the cable telecommunications business and the products/services of other businesses. Specifically, cable services like video/high speed data/telephone are 'always on' or continuous use services. Hence, a key element of the 'functionality' of cable telecommunications is the ongoing delivery of the service in addition to the fulfillment at the time of purchase. This is in contrast to the 'functionality' of a discrete service like buying a cup of coffee. When consumers purchase coffee, they have no expectation as to the 'functionality' of the product beyond the consumption of the coffee and the associated 'buzz'/wake up effect afterwards.

As a consequence of the continuous use nature of cable services, cable telecommunications companies need to provide technical repair and service operations.

2. The Problem for Cable Operators

Before a cable operator can solve the customer's problem, they need to determine the root cause of the problem. The challenge, however, is that cable operators are faced with a voluminous amount of data generated from disparate sources that must be evaluated in the process of diagnosing and solving a subscriber's technical problem. These data sources include, but are not limited to, the following: tech support customer calls, premises truck rolls, maintenance actions, weighted telemetry, network operations center (NOC) alarms, poor/failed calls, voluntary disconnects and customer credits. The key challenge for operators with this vast amount of data is that there is no way to systematically consider and correlate all of this data into actionable information. The result of this challenge is that technical problem solutions are more trial and error in character to subscribers and less customer friendly.

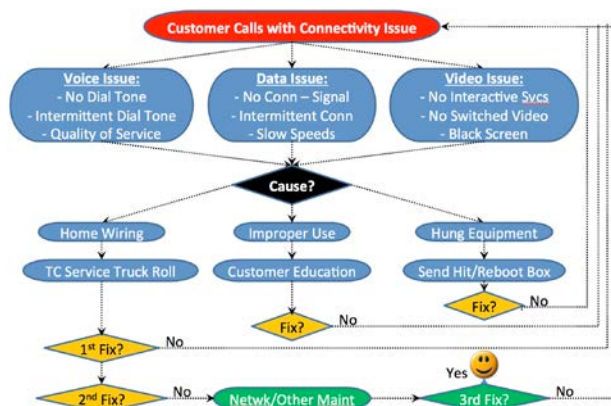
The 'experience gap' for the customer

The 'trial and error' nature of problem diagnosis and solutions is illustrated in Exhibit 8. The Exhibit depicts the sequence of events that occurs when a cable subscriber calls with a valid hybrid fiber coaxial (HFC) connectivity or back-office (e.g., provisioning) issue that has yet to be detected by the Service Provider. In this case, there is a problem in the plant affecting the subscriber

experience. When there is a problem in the service delivery infrastructure, it manifests with subscribers calling about a number of different connectivity issues encompassing voice, data and video examples.

These issues can be manifestations of connectivity problems that may actually reside in the plant somewhere. So, if there is bad ingress, bad power levels, or high error rates in the HFC infrastructure, the subscriber could experience any of these issues.

Exhibit 8: Call Center, Service and Maintenance Life Cycle of Subs with valid 'Plant Connectivity' or 'Back Office' Issues



Source: Developed by the authors with contributions from Rev2. (see www.rev2.com)

Let’s look at the flow of the subscriber call in Exhibit 8 in sequence. Across the second row the call center service representative (CSR) is faced with the challenge of categorizing each call based solely on the customer’s report. It is straightforward for the CSR to categorize a call in the area of voice, data or video. But there is no way for the CSR to recognize that the issues might be related. To illustrate, in the diamond-shaped box called “Cause,” the CSR has to determine what he/she thinks is the cause of the problem. This must be done quickly and based only on the information by the subscriber/caller. On the right hand side

of Exhibit 8, the CSR has decided that the equipment needs to be reset because it is hung (not responding) or needs to have services re-authorized/refreshed. To remedy this, the CSR can send a hit to the box or reboot the modem. Sometimes the remedy will make the box come back online. However, if the problem is actually in the plant and not in the modem, it will rear its ugly head again. As a result, the customer calls back again.

Another possible resolution is the middle path. The CSR could determine that the modem has been improperly used and, after another reboot, could recommend a resolution around customer education—teaching the customer how to reboot the modem, how to clean out the cache on the browser, or even how to troubleshoot some of the wiring.

But if we go back to the assumption that the problem is really in the plant, no kind of customer education is going to fix the problem. The customer will eventually call back. At some point, we need to follow the left-hand path where the CSR decides that the problem is in the home and a truck is sent to the home. When the service technician visits the home, he/she will probably perform one or more of the following five resolutions: replace the modem or set-top box, run a new drop, run new inside wiring, change a splitter configuration, or troubleshoot the ground block. If this first visit to the home fails to resolve the problem, then a second truck roll to the home may be required. If this next home visit fails to resolve the problem, then the problem will likely be referred to network maintenance.

This trial and error process is a double negative for Service Providers. First, it

increases the cost of technical operations as a result of the unnecessary telephone calls and truck rolls. By identifying and resolving issues in a timely manner, Service Providers can lower customer care costs and, thereby, increase the customer lifetime value (CLV) of customers. Second, it degrades the quality of the customer experience since it requires greater effort from the customer and the customer is not receiving the desired experience. Ultimately, customers may become frustrated with their Service Provider and will disconnect and find another provider. All of these outcomes are contrary to the CE framework presented earlier—that is, the Functionality of the product has been compromised and the customer is receiving far less of the desired experience. The ‘experience gap’ is widened and if Cluescanning™ were conducted, the Functionality component would score quite low.

3. The Proposed Solution

The proposed solution for this a voluminous amount of data generated from disparate sources and the resultant trial and error problem diagnosis is the utilization of an operational tool that included the following elements:

- Data warehouse with risk analytics software and visualization capabilities
- Introduction of three additional inputs: connectivity calls, failed telemetry, and trouble calls/plant maintenance
- Correlation of all of the data helps prioritize problem areas and identify the appropriate remedy, i.e., reboot,

customer education, residential truck roll, maintenance truck roll, etc.

The NMS platform must be designed specifically to tackle these large impactful challenges. Through constant automated surveillance of the network, a data warehouse acts to establish a historical record. Modern technologies and techniques designed for Big Data are leveraged for storing and processing large amounts of information, even from 3rd party business systems. Through these mechanisms, the entire BSS/OSS system can be monitored for current outages, predicted network issues, service anomalies, and cross-system impact - and prioritized for business and financial risk. The goal is to automate system surveillance and analytics in a repeatable and predictable way, modeling what a network engineer or business analyst would do manually, to provide shortest path to resolution for the largest number of subscribers.

Active outages require special attention. The pressure to detect current service issues may push network analysts to roll trucks before knowing the true cause and location of the issue. This approach reduces resources available for other, potentially more impactful, anomalies. A NMS system designed with the ability to correlate root cause will transforming the way operators are managing outages, resulting in fewer and more focused plant truck rolls, the prevention of residential trouble call truck rolls when related to an outage, and opportunity for IVR call intercept in the call center for known outages. As operators become more proactive in their plant maintenance, the value of extinguishing issues before they turn into an active outage becomes apparent. Advanced analytics techniques are used to predict issues, target the fix location, and thus prevent subscribers from ever experiencing an outage. Global operators are still following a simple scheduled “inspect and tighten” campaign where, despite the state of the

health of that network segment, plant elements are inspected. While some level of scheduled inspection may always be useful, the proactive NMS platform leverages advanced technology to show operators where their plant maintenance resources will be most impactful.

Determining business risk is much more than simply counting the number of affected subscribers during an outage. By looking beyond network telemetry and including other OSS/BSS indicators, a clear picture of business risk is available. For example, business risk may be highest or subscribers may be more at risk of “churning out” if service in an area is newly launched, has a high concentration of business-class customers, has a history of chronic (subtle repeated) networked issues, has a pattern of high call center call volume, or is in an area with heavy competition (cable vs. telco vs. satellite). Operators may also look to consider the cost of components/maintenance involved, where proactively maintaining plant elements is far cheaper than waiting until they require replacement, or the service location is in a challenging area requiring special equipment or teams to service. The NMS platform must supports this risk analysis, which provides the critical input for business executives to use when making important investment decisions. This risk analysis also helps managing the top priority maintenance activities with limited resources.

Forward thinking Service Providers are examining new ways to not only leverage information, but to make it actionable for maximum customer satisfaction, loyalty and business advantage. To this end, an integrated FSM and NMS ecosystem provides full end-to-end automation of plant maintenance management. The NMS system must automatically discovers and monitor the network, detect current and future network issues, and measure and prioritize the business risk. Verified plant issues can then be

published to the FSM for automatic work order routing to plant technicians, who are electronically notified of a critical work order while they are already in the field. This workflow is further enhanced by an FSM tool that with the intelligence to assign task using multiple variables including the locations, skillsets, schedules and equipment of all available technicians.

Economic Proposition

The annual cost of the operational tool and the additional process involved in integrating the tool plus more maintenance trucks being deployed should be offset by savings garnered from less residential trouble calls (TCs), fewer connectivity calls to the call center, and reduced CPE (consumer premise equipment) cost (i.e., unnecessary discard of CPE equipment).

Measure	Typical Process				Proactive Process				ESTIMATED IMPROVEMENT
	Qty	Cost Mo. per	Rev per	Annual Net Value	% Improvement	Qty	Annual Net Value		
Total Subscribers	1,000,000		\$100	\$1,200,000,000	0%	1,000,000	\$1,200,000,000	\$0	
Total Calls/Month	100%	1,000,000			1%	990,100			
New/Upgrade Service	5%	50,000	-\$100	-\$500,000,000	5%	52,475	-\$125,940,000	\$5,940,000	
Billing Related	30%	300,000	-\$25	-\$90,000,000	0%	300,000	-\$90,000,000	\$0	
Other	30%	300,000	-\$25	-\$90,000,000	0%	300,000	-\$90,000,000	\$0	
Where's my Tech	5%	50,000	-\$25	-\$15,000,000	0%	50,000	-\$15,000,000	\$0	
Technical Support	30%	300,000	-\$25	-\$90,000,000	4%	287,625	-\$86,287,500	\$3,712,500	
remote resolution	75%	225,000	-\$25	-\$567,500,000	0%	225,000	-\$567,500,000	\$0	
Require Truck Roll	25%	75,000	-\$100	-\$90,000,000	17%*	62,625	-\$75,150,000	\$14,850,000	
Repeat Truck Roll	10%	75,000	-\$100	-\$90,000,000	50%	3,750	-\$4,500,000	\$4,500,000	
Available	15%	112,500	-\$100	-\$113,500,000	50%	5,625	-\$6,750,000	\$6,750,000	
Referred to Plant	5%	37,500	-\$100	-\$4,500,000	80%	7,500	-\$900,000	\$3,600,000	
Other	20%	225,000	-\$100	-\$63,000,000	0%	225,000	-\$63,000,000	\$0	
Trouble Calls Converted to new/upgrade service					20%				
TOTAL ANNUAL VALUE				\$945,000,000		\$969,502,500		\$24,502,500	

CEM Impact

The improvements in the diagnosis and repair of customer problems will improve key indicators of customer satisfaction:

- Connectivity calls | Repeat calls | NTF (no trouble found) calls | Repeat TCs | Churn | Network availability | Customer satisfaction scores |

Over time, these improvements will increase the emotional bond between the customer and the cable operator which would lead to customer advocacy, customer loyalty and an increase in the Lifetime Value of the Customer Lifetime (CLV).

4. Case Study Results

As noted above, the ideal metrics for measuring the financial payoff for investments in CEM are the typical ROI (return on investment) metrics as Payback period, Net Present Value, and Internal Rate of Return. Unfortunately, these tools could not be utilized since there was not sufficient data to do a before-and-after cost/benefit comparison. In this case study situation, the decision was made to begin using this operational tool without documenting the before situation. Ideally, this before case would have included such benchmarks as the following:

- Phone Calls (annual numbers)
- Truck Rolls (annual numbers)
- Repeat Truck Rolls (annual numbers)
- Voluntary Disconnects (annual numbers)
- Technical Phone Calls per Customer per year
- Customer Effort (minutes) per year
- Total Operating Costs per Customer per year
- Net Promoter Score
- CLV (customer lifetime value)

By collecting this data on the front end, the change in both operational costs as well as CEM metrics can be documented so that the cable operator can gauge the financial and CEM benefits of the investment in the operational tool.

In this case study, we found that sometimes it is difficult to accurately measure before-and-after costs because the operational environment is dynamic. That is, the volume of phone calls and maintenance truck rolls are dependent on numerous factors such as weather, marketing promotions, plant repairs, etc. As a result, before-and-after cost comparisons may not provide absolute documentation as to the financial payoff for

the CEM investment. Given this reality, cable operators may need to focus on indirect measures of financial payoff. Examples of indirect metrics of performance include repeat truck calls, number of voluntary disconnects, customer effort, and churn. Although documented changes in these operational and CEM metrics do not guarantee that there is a financial payoff, they do provide strong anecdotal evidence of a positive ROI.

5. Lessons Learned

There are three key lessons learned from this case study with respect to determining the financial payoff from a CEM investment. These lessons are:

- Determine how you are going to measure results on the front end.
- Include CEM metrics in the data set along with operational metrics.
- Remember CEM is an integrated effort. Hence, consider costs/benefits beyond field service management.

Every organization has the opportunity to close the experience gap, and in this case example, the experience gap could be closed through an investment in technology that directly affects the Functionality component of CEM. In other situations, the gap is closed by improvements in Ambiance, Communication, or Talent. The overall point is that to achieve any of the more advanced stages on the Customer Experience Maturity Curve; an organization must become committed to understanding the gap and then making a sound financial decision about CEM investments. This case illustrates how such an investment can be measured to show its benefit to subscribers and to the organization.

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