"What we've done for too long is webify our institutions. What we need to do is ask how we can and should reach our citizens through services rather than through bureaucracy."

--Vivek Kundra, United States Federal CIO[i]

Improving the Customer Experience within the Federal Government

Following the Private Sector's Lead from Customer Relationship Management to Business Intelligence

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If you ask an engineer to describe a shoe, he might explain it in terms of materials, tensile strength and elasticity. If you ask a production manager, he might explain the same shoe in terms of man-hours, material costs and suppliers. The job of the marketer is to understand and explain the shoe the way the customer sees it – in terms of useful features, relative value and brand image.[ii] Or as Anne Mulcahy, Chairman and CEO of Xerox, put it, "if you forget the customer, nothing much else matters. The brand deteriorates, employees lose jobs, and shareholders lose value."[iii]

As alluded to by the opening quote from Vivek Chundra, thinking about customer experience is just as relevant for Federal agencies as it is for the private sector if they too intend to remain relevant, and even more so due to how far the government has fallen behind the private sector. This is no longer a world where, as Henry Ford once said, "The customer can have any color he wants so long as it's black," but the goal of customer experience research is not necessarily to allow a customer to choose his or her own preferred color either. Instead, the organization needs to understand the collection of features that is most important to its targeted customers and how to provide those features, and the associated value, through the most effective distribution channels.

Understanding Your Customers

The tools that enable a marketer to see the world through the eyes of a customer have been developed and refined in response to competitive pressures and the expectations of increasingly sophisticated consumers.

Exploratory research tools include interviews or focus groups to better understand a customer or purchase scenario to help form detailed hypotheses. Analysis of the results may, for example, help determine the sources of dissatisfaction among customers who defect to a competitor or decline to use available government services. **Descriptive research tools** seek quantitative data to analyze product usage, brand positioning, and customer satisfaction or to validate specific hypotheses. Surveys are used to determine specific answers like how much a customer would be willing to pay for a service or what hours of operation are most useful.

Customer data can also be obtained through observation: how many users log in per hour? How many more transactions occurred when prices change? Ethnographic research, or first-hand field research in the users' typical environment, is a valuable way to gather insights about customers. Through passive observation as well as semi-intrusive interviewing, time-and-motion studies, eye movement analysis and post-activity interviews, you can learn how your customers *really* use a product or service and the sources of frustration. This can help explain sources of what's called **cognitive dissonance**, or the mental strain that comes from a contradiction between the mental model a user holds of how the task is perceived compared with the way the service has been implemented—think what results when agencies *webify the bureaucracy*, and expose it to their customers, as Mr. Kundra alluded to.

Often government organizations realize they are providing a service that fails to meet the needs of their customers (internal to the organization as well as citizens in general). Even more often, however, the government does not know how well they are serving their customers, and that is assuming the customers have been identified at all.

The first step to improving customer experience is to define your target customers and develop a profile of them.

Marketers look at customer segments that are defined by a similar behavioral, demographic or other trait. That particular trait is chosen because it allows the group of customers to be treated in a single way for the purpose of reaching them or satisfying their needs.

A slightly broader and more useful concept that hails from the field of software design is the concept of a persona. Personas can be thought of as user archetypes. In other words, they represent conglomerations of typical users who share goals, abilities and usage contexts. The idea is that a system should be designed to meet the needs of each one of these personas, but not necessarily to meet the needs of ALL of these persons.[iv]

To demonstrate this point, imagine two people with computing needs. Jack wants a powerful supercomputer and Jill wants a computer she can transport to and from work. If one computer is designed to satisfy both Jack and Jill, the result would be a large supercomputer on wheels. Neither one will be happy.

This same phenomenon occurs in software design. You see this every time you asked what a feature was for, and someone told you to ignore it. You see this every time you opened a drop down menu and you only use a small portion of the selections. You see this whenever you leave fields blank on a form because they do not apply. And worst of all, you see this when you avoid using an application or a government service altogether because you don't have the time to get trained on it. These are all examples of software that was not designed for someone with your background performing your tasks within your contexts.

You can avoid building bulky or misguided government services with persona analysis:

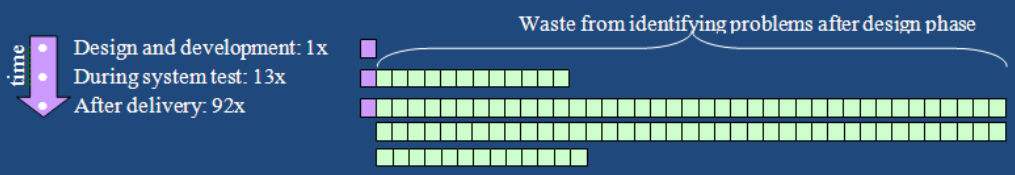
- **Have your designer use the persona approach**. Personas should be the result of research, typically questionnaires and interviews. They should be used throughout the design and development conversations and meetings.
- **Use personas correctly.** Use actual names to represent each persona (Jack Analyst and Jill Teleworker, for example). They should

describe each user group in terms of their goals, background and context and be used to personify their needs and confirm you are meeting them without excess complexity.

- **Ensure personas are accurate.** Are there enough personas within your functional group to represent the main user archetypes? If you represent an Acquisition Management Office, perhaps you are representing a causal and expert user personas, or able and disabled personas, or role-based personas such as Contracting Officer Representative, Contract Officer, Project Officer, Head of Contracts, etc. Or a combination of all of those mentioned may be relevant.
- **Segregate functionality by persona.** There is limited benefit from having personas drive design if the result is a conglomerate of functionality. Many mature off-the-shelf software packages now provide the ability to define views and screens by roles and responsibilities to create a matrix of functionality by user group.

The return on investment from analyzing customer profiles before the product or service design stage is far greater than testing during or after development has completed (See the bar below for details[v]).

A study of the NASA space shuttle onboard software found the relative cost to fix a problem detected in an inspection during the design and implementation phases cost much less than one found during later phases:



However, customer experience testing benefits from having at least a prototype service to simulate a real-world production environment. Customer Experience Testing involves integrating traditional application and technology tests with operational tests that evaluate people, processes, technology and the interrelationships among all three.[vi] This testing involves considerable coordination, but the results can be invaluable. The cost and effort increase as the service approaches completion and as the simulated environment approaches a mirror of production (See top bar, next page for an example).

Targeting Customers

While the paradigm of a marketing-driven organization has remained a guiding principle of business since the 1950s, it has been improved upon incrementally ever since. As department store magnate John Wanamaker once said, "50 percent of my advertising is wasted, the trouble is I don't know which half." The Internet allows marketers to waste much less of their advertising dollars. It allows them to reach customers not only by understanding their behaviors and interests in a general way, but also in very specific way. Instead of paying for an military recruiting ad in a traditional newspaper that reaches all people in a particular city on a particular day, now the US Army, for example, can advertise on the Facebook pages of only those users who write about the Armed Forces on their profile or within their blogs and are between the ages of 16 and 22. Segmenting allows for a tailored message, a targeted spending and ultimately superior response rates.

Customer Experience Testing and Certification: Real World Example

While understanding your customers is critical during service design, it is also a key component of ensuring customer satisfaction remains positive throughout service implementation. The Customer Experience Testing & Certification Team (CETC) at Verizon performed extensive work for the rollout of new fiber optic-based telephony, internet and video technology. The team first coordinated provisioning a semi trailer full of simulated customer homes with various configurations in each region of the country to be migrated to the new service in hundreds of scenarios. After that initial phase worked out most technical issues, dozens of *friendly customers* (mostly employees) went through the migration process of at their actual homes, while dozens of technical team members walked the orders through end-to-end on a conference call and virtual meeting tools to examine every step to resolve technical and customer-impacting issues and identify improvements. The effort took close to two years and the work of several dozen staff members and consultants. Today about two million customers have switched to the new service.

Customer Relationship Management

Market research helps an organization make intelligent decisions about product offerings by understanding the implications those decisions have for consumer behavior; but market intelligence does not equal business intelligence. Businesses that are not responsive to their customers have long ago changed their ways (Ford now offers more than one color car) or gone out of business (the horse-drawn carriage makers that failed to understand they were in at the ground floor of the automobile industry and perished), but many organizations within the Federal government are protected market forces and may continuously fail to meet their customers' needs. So how does a governmental organization *think* based on evidence and sound reasoning? The story of business reasoning begins with a concept called Customer Relationship Management (CRM). Jeff Gentry defined CRM as a business philosophy that aligns strategy, business culture, customer information, and technology in order to manage customer interactions to the mutual benefit of the customer and the enterprise.

CRM has meant different things at different times, which has left a lot of people confused. The best way to understand CRM is to break it into two different types: operational and analytical.

Operational CRM refers to automation of customer touch points and the systematic handling of customer data. Often this refers to a system, or more likely a series of integrated systems, that capture data about a customer during the prospecting, sales and ordering activities. The systems then move that data throughout the organization to the departments that need it, such as the department that delivers the product or service, the one that performs billing activities and the one that handles customer care or post-sales support. The guiding principle behind operational CRM systems is that data should be captured once, at the earliest possible time to avoid manual entry mistakes and discrepancies between the views of a customer held by different departments. This approach may seem obvious, but previously it was very common to have separate, independent customer records created and managed in every department leading to duplicate entry, mismatched data, frustrated customers and missed opportunities.

The second type of CRM, **analytical CRM**, refers to any application that facilitates turning the data that an organization has about its customers into useful knowledge. Some organizations only go as far as producing a collection of reports, such as the pipeline of prospective customers, sales data, and the profiles of customers who defected to a competitor. Many organizations go so far as the next layer of sophistication by allowing managers

to run ad hoc reporting, whereby they decide what data they want to see and can retrieve such a report in near real-time.

Using Data to Manage Customer Relationships

The use of both operational CRM and analytical CRM described so far are just the dancing bears of business reasoning (they aren't very good dancers, but still impressive that they can dance at all). They are useful enough when they work properly that many managers don't know they should demand more from their IT and marketing resources.

To appreciate the next step it is helpful to be familiar with the work of Frederick Reichheld who determined that even a 5% increase in the retention of customers could result in a 95% increase in the value returned by the customer base to the organization. Other studies have confirmed that repeat customers are much, much more profitable than acquiring new customers. This principle applies to government services as well when you think about how much effort is required to support a new user of an IT service in terms of strategic communication, user setup, training and helpdesk support compared to a returning user. When managers demand better strategies for increasing customer retention, they begin to realize that the information they need already exists within the organization, often locked away inside different departments, non-integrated databases, or even in the personal notebooks, rolodexes, spreadsheets or brains of the workforce.

The integrated data that an organization has, or can collect, about its customers can be used to boost revenue, usage, customer satisfaction scores or even cut costs with the concept of lifetime customer value. Lifetime customer value is simply a measure of current and future expected profitability of each customer to the organization. This is the next generation of segmentation strategy. It allows employees at all levels of organizations to interact with their most valuable customers in a way that increases the retention rate and minimizes the resources dedicated to customers that contribute little profit or are served at a loss. Even though most public institutions have obligations to serve the customers they do, there are still strategies available to focus efforts and resources more rationally, whether it is to reduce efforts to satisfy the insatiable customer, prevent defections among at-risk customer base or convert satisfied customers into cheerleaders.

On a project working with a sales and ordering system for one of the largest telecommunication organizations, the customer service representatives were shown an indicator on every customer's profile to denote the high-value customers. These customers are automatically transferred to the most experienced and highly-rated customer service representatives and can be given larger credits to their account without managerial approval.

In a recent public example, AT&T imposed a monthly fee on all of its long-distance customers who did not have monthly bills over a certain threshold. The strategy behind this was two-fold: it attempts to increase the profit on currently unprofitable customers, and it gently pushes the least profitably customers toward the door without harming the customers that do contribute to profits.

In order to figure out the value of a customer, organizations must think creatively. While it is relatively easy to figure out which customer of a phone organization is placing an order based on

their phone number and address, it is more difficult for an organization that serves the public directly. Hotel guests, for example, give certain personal information when they arrive or make a reservation. At a Ritz Carleton Hotel, this information immediately triggers what is known as fuzzy logic, a form of artificial intelligence based on calculations of who the guest most likely is, based on the information provided and data about previous guest stays. Ritz Carleton's systems look at names, addresses, phone numbers or any other information provided to make an educated guess. This is an extremely important task for Ritz Carlton, a company that has developed a competitive advantage by recording and acting on subtle information about its guests (Don't be surprised if they provide your favorite birthday cake when you stay with your daughter a year after you last requested a cake on her birthday, or finding a printed out and framed picture of your family on your desk during your stay.)[vii]

Business Intelligence

The exemplary practices at AT&T and Ritz Carleton represent the next step in evolution of business toward adaptability to new situations. Aptly named, this Business Intelligence (BI) was popularized in the late 1990s primarily by the Gartner research organization and is a synthesis of several proceeding concepts. Let us take a quick look at what needs to happen behind the scenes to make BI possible and see if BI, as its name implies, carries us any closer to the elusive goal of Business Reasoning.

BI includes the processes, technologies, and tools that turn data into the information needed to facilitate planning profitable business activities. A customer data hub is the technology that brings data from various sources, certifies it as valid based on available information, and then makes that data available for use by other systems such as analytical data warehouse tools (e.g., analysis and predictive modeling of acquisition behavior by various operating divisions based on the annual federal budget cycle) and other operational systems (e.g., to send a tax refund to the home of a taxpayer based on their most accurate address record).

BI enables decision making based on accurate and relevant data. Thus the first key ingredient is a data warehousing environment. This includes the tools and processes to extract data from systems across an enterprise, clean up the data if needed, transform it to a standardized form and load it into a centralized database called a data warehouse. A common saying in this field is, "garbage in, garbage out." It means that without quality data feeding the data warehouse, the information coming out of it is meaningless, or worse, misleading. In fact, it has been estimated that getting quality data into a warehouse consumes 80 percent of the time and 50 percent of the unexpected costs of a data warehouse project due to factors like inconsistent meanings of data in different departments, poor quality data, old or poorly designed systems and too much time spent on analysis.

The next key ingredient is an analytical environment. This includes the applications that allow users to query, report on, analyze, mine or visualize data. These are the tools that turn data into information that can be acted on. Consider an example of the type of action that an organization can take based on business intelligence infrastructure and tools. A telecommunication organization I consulted for needed to determine what neighborhoods across the U.S. were ideal to launch their new fiber optic internet/voice/data service for residential

customers. They were able to generate a colored map to visually represent external census data (like age and ethnicity), internal data from other systems (like the map coordinates of existing DSL internet customers), calculated data (like lifetime customer value), and market research data (like competitor market penetration). By pulling all those data together into one visual interface, marketers were able to plot out their rollout plan in the most profitable and effective sequence.

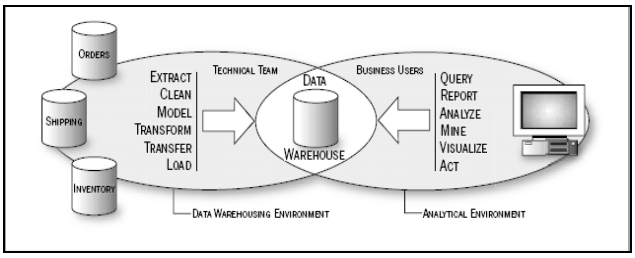


Figure 5: Business Intelligence Component Framework
Source: TDWI Smart Organizations Report 2003

Another powerful example comes from the residential long distance division of MCI. Analysts there used data mining tools and techniques, a knowledge-discovery approach for finding unknown patterns in very large databases. In their billions of call detail records, they found that a large segment of their residential customers made most of their long distance calls to very few people, many of whom were not MCI customers. The marketers were able to use that behavior to turn their loyal customers into an extension of the marketing force by creating the "Friends and Family" program, in which customers would pay lower rates to call the friends and family members who also join MCI. This strategy, a form of revenue management, locked in customers and leveraged the affinity of social groups for persuasion.

Enabling Business Intelligence – The Hard Work

BI, and for that matter CRM, are not just applications that you can simply purchase, install and use. Just as the human brain is useless without the experiences and memories to give context to the firing synapses, BI is a capability provided by an enterprise data management organization, developed over time at great cost and with significant risk. Jill Dyché, author or The CRM Handbook, e-Data and Customer Data Integration, describes data management as "hard, rigorous and structured" because it requires jobs to be changed, new workers hired, and changing entrenched methodologies and conventions. She goes on to say, "It mandates handoff points and a teamwork culture that might be new to the organization. It is, eventually anyway, a set of practices and methods employed at the corporate level. It reports to the CIO or a line-of-business executive willing to stick her neck out for the greater good. It's hard, but it's worth it. Data management, when done right, not only pays for itself over time, but drives new revenues through improved data quality, tighter integration, greater reuse and innovative, fact-based discoveries."[viii] It is these new discoveries that are often the hardest to predict, yet become the largest benefits of such a project.

At Continental Airlines, a completely unanticipated ability to detect fraud and improper purchasing behavior by travel agents was made possible by their data warehouse and brought benefits that more or less offset of the costs of the entire data warehouse project.[ix]

According to Gary Hamel, consultant and author, "As the pace of change accelerates, the value of precedent will continue to wane. Today the most important thing is to regard everything you

believe as nothing more than a set of hypotheses, forever open to being disproved."[x] Toward greater effectiveness in choosing optimal actions based on complex or disparate data, business intelligence is that next step in the evolution of business adaptability and *reasoning*.

BI also requires integrating a firm's data about the outside world with its data about its own resources, processes and capabilities. This sense of self-awareness requires organizations to look both inward and outward to align its actions with reality to achieve its strategy.

In the quest for BI, do not overlook the benefits of letting the data guide you to a strategy. MCI did not know what it would find in its call record data, just like an evolving life form does not consciously know how it would develop the structures and instincts that help it adapt to the environment. Both let the data lead to a solution. MCI used data mining and modeling tools iteratively, experimentally and creatively to carve out a successful competitive strategy.

Takeaways

- To manage customer relationships, you must first identify your customers, which ones you intend to target and what collections of features they value that you can provide.
- Analyze your customer touch points by studying real-world or simulated interactions. Perform testing that integrates traditional application tests with operational tests that evaluate people, processes, technology and the interrelationships among all three.
- Ensure operational CRM processes support collecting information only once, the first time you need it, and that all data within your organization is centralized or synchronized and available to every department that needs it.
- Enable information technology and marketing resources converge to allow you to understand your customer behavior patterns. These resources are much too powerful to be wasted on cost-cutting measures alone.
- Don't underestimate the effort required for data management to support business intelligence. This is not a support activity—it is the heart of CRM and BI.
- Go beyond simple reporting to achieve business intelligence that supports creative and strategic decisions—information you do not have necessarily need to run day-to-day business. Think about how MCI used data mining techniques to identify customer behavior patterns that led to innovative outreach programs that were not previously used in its industry. What similar opportunities lay dormant in your data?

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